

# **ARKANSAS TEACHER RETIREMENT SYSTEM**

**December 5, 2022**

1400 West Third Street

**BOARD ROOM**

Little Rock, AR 72201

## **Board of Trustees Meeting**

**10:30 a.m.**

### **Trustees**

Danny Knight, Chair

Kelly Davis, Vice Chair

Anita Bell

Kathy Clayton

Susan Ford

Dr. Mike Hernandez

Shawn Higginbotham

Michael Johnson

Bobby G. Lester

Chip Martin

Jeff Stubblefield

### **Ex Officio Trustees**

Susannah Marshall, State Bank Commissioner

Johnny Key, Education Secretary

Honorable Andrea Lea, State Auditor

Honorable Dennis Milligan, State Treasurer

**AGENDA**  
**ARKANSAS TEACHER RETIREMENT SYSTEM**  
**BOARD OF TRUSTEES**

**December 5, 2022**  
**10:30 a.m.**  
**1400 West Third Street**  
**Little Rock, AR 72201**

- I. **\*Call to Order/Roll Call.** page 1.
- II. **\*Adoption of Agenda.** page 2.
- III. Executive Summary. (Attachment No. 1) page 8.
- IV. **\*Approval of September 26, 2022, Minutes.** (Attachment No. 2) page 25.
- V. Preliminary Active Actuarial Valuation. *Judy Kermans, Brian Murphy and Heidi Berry of Gabriel, Roeder, Smith and Company* (Attachment No. 3) page 33.
- VI. Statement of Financial Interest. *Clint Rhoden, Executive Director* (Attachment No. 4) page 80.
- VII. **\*Proposed 2023 Board of Trustees Schedule.** *Clint Rhoden, Executive Director* (Attachment No. 5) page 98.
- VIII. Report of Member Interest Waived Under A.C.A. Sec. 24-7-411. *Clint Rhoden, Executive Director* (Attachment No. 6) page 99.
- IX. Report of Employer Penalties and Interest Waived Under A.C.A. Sec. 24-7-411. (Attachment No. 7) page 100.
- X. Manifest Injustice Report. *Clint Rhoden, Executive Director* (Attachment No. 8) page 101.
- XI. **\*Arkansas Retired Teacher Association (ARTA) blind mailing project presentation.** *Donna Morey, ARTA Executive Director*

\* Action Item

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- XII. Review of ATRS Premissible Employer. *Jennifer Liwo, Attorney Specialist*
- A. **\*Arkansas School Boards Association.** (Attachment No. 9) page 102.
1. Resolution 2022-49. (Attachment No. 10) page 111.
- XIII. **\*Waiver of Interest and Penalties on Contributions.**
- A. **\*Resolution No. 2022-59.** (Attachment No. 11) page 114.
- XIV. Investment Committee Report. *Chip Martin, Investment Committee Chair*
- A. Arkansas Related and Investment Update.
1. List of Fund Closings.
- a. JFL Equity Investors VI, LP, a fund focused on defense, aerospace, and maritime industries, the Board authorized commitment of up to \$30 million dollars on September 26, 2022 was accepted and closed on October 27, 2022.
- b. Greenbriar Equity Fund VI, LP, a fund focused on transportation, logistics, and distribution businesses, the Board authorized commitment of up to \$30 million dollars on September 26, 2022 was accepted and closed on October 17, 2022.
2. Board Policies Report. (Attachment No. 12) page 116.
- B. General Investment Consultant Report.
1. Performance Report for the Quarter Ending September 30, 2022. (Attachment No. 13) page 119.
2. Preliminary Performance Report for the Month Ended October 31, 2022. (Attachment No. 14) page 265.
3. Public Equity and Fixed Income Structure Review. (Attachment No. 15) page 289.
- a. **\*Recommendation to approve for Board adoption Resolution 2022-50 authorizing the full redemption of the ATRS interest in Grantham, Mayo, Van Otterloo & Co. L.L.C. (GMO) Global All Country Equity Allocation.**
1. **\*Resolution 2022-50.** (Attachment No. 16) page 340.
- b. **\*Recommendation to approve for Board adoption Resolution 2022-51 authorizing the full redemption of the ATRS interest in D.E. Shaw World Alpha Extension Fund, L.L.C.**
1. **\*Resolution 2022-51.** (Attachment No. 17) page 341.

\* Action Item

- c. **\*Recommendation to approve for Board adoption Resolution 2022-52 authorizing an investment of up to \$800 million dollars in Arrowstreet Global Equity ACWI Alpha Extension 130/30/20 LP.**
    - 1. **\*Resolution 2022-52.** (Attachment No. 18) page 342.
  - d. **\*Recommendation to approve for Board adoption Resolution 2022-53 authorizing the full redemption of the ATRS interest in Putnam Absolute Return Fixed Income Fund.**
    - 1. **\*Resolution 2022-53.** (Attachment No. 19) page 343.
- C. Real Assets Consultant Report.
- 1. Performance Report for the Quarter Ending June 30, 2022. (Attachment No. 20) page 344.
  - 2. **\*Recommendation to approve for Board adoption Resolution 2022-54 authorizing an investment of up to €50 million euros (approximately the equivalent of \$50 million dollars based on recent exchange rates) in DIF Infrastructure VII Cooperatief U.A. and DIF Infrastructure VII SCSp (collectively DIF VII).** (Attachment No. 21) page 397.
    - a. **\*Resolution No. 2022-54.** (Attachment No. 22) page 451.
  - 3. **\*2023 Real Assets Commitment Pacing (Total Pacing \$475 Million Dollars).** (Attachment No. 23) page 453.
    - a. Core real estate \$200 million dollars.
    - b. Value added and opportunistic real estate \$200 million dollars.
    - c. Infrastructure \$75 million dollars.
- D. Private Equity Consultant Report.
- 1. Preliminary Private Equity Portfolio Review for the Quarter Ended June 30, 2022. (Attachment No. 24) page 457.
  - 2. **\*Recommendation to approve for Board adoption a motion to authorize the use of \$30 million dollars of recallable distributions for the ATRS/FP Private Equity Fund L.P.** (Attachment No. 25) page 512.
  - 3. **\*Recommendation to approve for Board adoption Resolution 2022-55 authorizing an investment of up to \$30 million dollars in Alpine Investors IX, L.P.** (Attachment No. 26) page 516.
    - a. **\*Resolution No. 2022-55.** (Attachment No. 27) page 520.

\* Action Item

4. **\*2023 Private Equity Pacing Schedule (Total Pacing \$350 Million Dollars).** (Attachment No. 28) page 521.
  - a. Six small or mid buyout/growth/turnaround \$25-30 million dollars each in the U.S. (total \$170 million dollars).
  - b. One debt/distressed assets \$25 million dollars.
  - c. Franklin Park Venture Fund XIV no new commitment.
  - d. Franklin Park Venture Capital Opportunity Fund \$30 million dollars.
  - e. Franklin Park International Fund XI \$30 million dollars.
  - f. Franklin Park Corporate Finance Access Fund II \$30 million dollars.
  - g. ATRS/FP Private Equity Fund (Co-Investment Fund VI) \$65 million dollars.
5. **\*Recommendation to approve for Board adoption Resolution 2022-56 authorizing an additional investment of up to \$30 million dollars in Franklin Park Venture Capital Opportunity Fund, L.P.** (Attachment No. 29) page 528.
  - a. **\*Resolution No. 2022-56.** (Attachment No. 30) page 538.
6. **\*Recommendation to approve for Board adoption Resolution 2022-57 authorizing an additional investment of up to \$30 million dollars in Franklin Park International Fund XI, L.P.** (Attachment No. 31) page 539.
  - a. **\*Resolution No. 2022-57.** (Attachment No. 32) page 548.
7. **\*Recommendation to approve for Board adoption Resolution 2022-58 authorizing an additional investment of up to \$30 million dollars in Franklin Park Corporate Finance Access Fund II, L.P. with Imminent Need.** (Attachment No. 33) page 549.
  - a. **\*Resolution 2022-58.** (Attachment No. 34) page 558.

- XV. Operations Committee Report. *Bobby Lester, Operations Committee Chair*
- A. Open Forum for Potential Rule or Law Changes by Committee Members and Board Members in Attendance.
    1. Open Forum.
  - B. **\*Revision to Current Board Policy.**
    1. **\*Board Policy No. 3 Executive Director.** (Attachment No. 35) page 560.

\* Action Item

- C. Discussion concerning Ark. Code Ann. 24-7-506 (Outsourcing Surcharge). (Attachment No. 36) page 570.
- D. ATRS 2023 Legislative Package.
  - 1. Outsourcing - Election to Become Participating Employer. (Attachment No. 37) page 580.
  - 2. Outsourcing Repeal. (Attachment No. 38) page 584.
  - 3. Active Member - Survivor Annuity Benefits. (Attachment No. 39) page 589.
  - 4. Inactive Member Eligibility for Free Military Service Credit and Ability to Purchase Military, Contributory, and Federal Service Credit. (Attachment No. 40) page 593.
  - 5. Life Annuity - Multiplier. (Attachment No. 41) page 595.
  - 6. General Omnibus Clean-Up of Minor Issues. (Attachment No. 42) page 597.
  - 7. Unused Purchased Service Credit - Refunds. (Attachment No. 43) page 612.
  - 8. Retirees - Annuity Options. (Attachment No. 44) page 615.
  - 9. Membership Status. (Attachment No. 45) page 617.
  - 10. Lump-Sum Death Benefit. (Attachment No. 46) page 618.
  - 11. Final Average Salary. (Attachment No. 47) page 621.
  - 12. Permissive Service Credit Gap-Year Service. (Attachment No. 48) page 623.
  - 13. Termination Separation Period. (Attachment No. 49) page 625.

XVI. **\*Staff Reports.**

- A. **\*Medical Committee Report. A total of 22 Disability Retirement Applications were Approved.** *Willie Kincade, Director of Operations* (Attachment No. 50) page 626.
- B. Financial Reports. *Curtis Carter, Chief Fiscal Officer*
  - 1. Financial Statement Report. (Attachment No. 51) page 628.
  - 2. Travel Reports. (Attachment No. 52) page 629.
- C. **\*Contracts.** *Rod Graves, Deputy Director* (Attachment No. 53) page 630.
- D. Personnel Report. *Vicky Fowler, Human Resources Director* (Attachment No. 54) page 631.

XVII. Other Business.

XVIII. **\*Adjourn.**

\* Action Item

\* Action Item

## EXECUTIVE SUMMARY

TO: Board of Trustees  
FROM: ATRS Staff  
RE: Executive Summary  
DATE: December 5, 2022

**V. Preliminary Active Actuarial Valuation.** *Judy Kermans, Brian Murphy and Heidi Berry of Gabriel, Roeder, Smith and Company page 33.*

This is a standard part of the ATRS Board agenda toward the end of each calendar year. The actuarial valuation for the 2021-2022 fiscal year and the figures cited are still preliminary, but near completion.

**VI. Statement of Financial Interest.** *Clint Rhoden, Executive Director page 80.*

This is the reminder that ATRS Trustees must file a Statement of Financial Interest (SFI) by the end of January 2023, for their financial information for calendar year 2022. Included with the portal information are the instructions for completing the SFI, and a blank SFI for your use. Since the SFI may be completed on-line at the Secretary of State's website after creating a user name at the login screen: <https://www.ark.org/sos>, many Trustees prefer to complete the on-line version of the SFI. ATRS staff will assist in any way possible to help you file this information. ATRS staff will also followup from time to time with any Trustee who has not filed their Statement of Financial Interest in the latter half of January 2023.

**VII. \*Proposed 2023 Board of Trustees Schedule.** *Clint Rhoden, Executive Director page 98.*

ATRS staff has attached a proposed meeting schedule for 2023. It is subject to changes requested by the Board, and will be posted on the ATRS and State of Arkansas websites when finalized. It follows much the same pattern as in prior years, with Monday meetings to accommodate Trustees who have to travel a long distance to Little Rock.

**VIII. Report of Member Interest Waived Under A.C.A. Sec. 24-7-411.** *Clint Rhoden, Executive Director page 99.*

No member interest was waived for this reporting period. This is a standard report for information and is not an action item.

**IX. Report of Employer Penalties and Interest Waived Under A.C.A. Sec. 24-7-411.** *page 100.*

ATRS may also waive employer interest and penalties when reports or payments are late or have issues due to a new bookkeeper, inclement weather, sickness and other situations that justify a waiver. Four (4) employer penalties and interest amounts were waived for this reporting period in the amount of \$1,090.70. This is a standard report for information and is not an action item.

**X. Manifest Injustice Report.** *Clint Rhoden, Executive Director* page 101.

The rule on Manifest Injustice requires reports to the Board at least two times per year. This is the second report of 2022. This report is for information purposes only and is not an action item.

**XI. \*Arkansas Retired Teacher Association (ARTA) blind mailing project presentation.** *Donna Morey, ARTA Executive Director*

Donna Morey, executive director of the Arkansas Retired Teacher Association (ARTA), will make a presentation seeking help from ATRS to reach retired educators through a blind mailing project.

**XII. Review of ATRS Premissible Employer.** *Jennifer Liwo, Attorney Specialist*

**A. \*Arkansas School Boards Association.** page 102.

The Arkansas School Boards Association (ASBA) has been reviewed for continued approval as a covered employer under ATRS in order to enable its employees to become members of ATRS. The Executive staff recommends ASBA's approval as:

- 1) ASBA's employees qualify for membership under Ark. Code Ann. 24-7-202(19)(D);
- 2) ATRS' status as a governmental plan is unlikely to be impaired;
- 3) It is unlikely that there will be a substantial adverse impact on ATRS' actuarial soundness; and
- 4) It is unlikely that to raise constitutional questions or concerns.

Executive staff recommends the Board adopt Resolution 2022-49, which details the continued approval of the Arkansas School Boards Association as a covered employer.

**1. Resolution 2022-49.** page 111.

**XIII. \*Waiver of Interest and Penalties on Contributions.**

Until July 1, 2022, employers were required to file reports and remit contributions to ATRS by the 15th of the month in which the report was due to avoid late-filing penalties and interest. Due to changes in the Code and ATRS Rule 7 near the end of FY22, the date by which reports and remittances were due was changed to the

10th day of the month in which the report is due. However, the ATRS portal program has not been updated to reflect the deadline change nor were employers given sufficient notice.

Executive staff recommends the Board adopt Resolution 2022-59, to waive the enforcement of the new deadline retroactively from July 1, 2022, through June 30, 2023, in order to allow for a more orderly transition. Enforcement of the deadline of the 10th will resume beginning July 1, 2023.

**A. \*Resolution No. 2022-59.** page 114.

**XIV. Investment Committee Report.** *Chip Martin, Investment Committee Chair*

**A. Arkansas Related and Investment Update.**

**1. List of Fund Closings.**

- a. JFL Equity Investors VI, LP, a fund focused on defense, aerospace, and maritime industries, the Board authorized commitment of up to \$30 million dollars on September 26, 2022 was accepted and closed on October 27, 2022.**

The ATRS full commitment of \$30 million dollars was negotiated, accepted, and closed on October 27, 2022.

- b. Greenbriar Equity Fund VI, LP, a fund focused on transportation, logistics, and distribution businesses, the Board authorized commitment of up to \$30 million dollars on September 26, 2022 was accepted and closed on October 17, 2022.**

The ATRS full commitment of \$30 million dollars was negotiated, accepted, and closed on October 17, 2022.

**2. Board Policies Report.** page 116.

**B. General Investment Consultant Report.**

- 1. Performance Report for the Quarter Ending September 30, 2022.** page 119.

PJ Kelly and Katie Comstock of Aon Hewitt Investment Consulting will provide the Board with a portfolio update for the quarter ending September 30, 2022.

- 2. Preliminary Performance Report for the Month Ended October 31, 2022.** page 265.

P. J. Kelly and Katie Comstock of Aon Hewitt Investment Consulting will provide the Board with a preliminary portfolio update for the month ending October 31, 2022.

- 3. Public Equity and Fixed Income Structure Review.** page 289.



PJ Kelly and Katie Comstock will provide the Board with an update on the public equity and fixed income asset classes of the ATRS investment portfolio.

- a. **\*Recommendation to approve for Board adoption Resolution 2022-50 authorizing the full redemption of the ATRS interest in Grantham, Mayo, Van Otterloo & Co. L.L.C. (GMO) Global All Country Equity Allocation.**

- 1. **\*Resolution 2022-50. page 340.**

- b. **\*Recommendation to approve for Board adoption Resolution 2022-51 authorizing the full redemption of the ATRS interest in D.E. Shaw World Alpha Extension Fund, L.L.C.**

- 1. **\*Resolution 2022-51. page 341.**

- c. **\*Recommendation to approve for Board adoption Resolution 2022-52 authorizing an investment of up to \$800 million dollars in Arrowstreet Global Equity ACWI Alpha Extension 130/30/20 LP.**

Based in Boston, Arrowstreet was founded in 1999 and is wholly owned by the firm's senior management team. Currently the firm is led by five key professionals with combined experience over 100 years. Arrowstreet has approximately \$170 billion in assets under management. The firm is a quantitative long/short equity manager similar to Jacobs Levy and manages a number of strategies for institutional investors globally.

The recommended strategy uses advanced computer models to select global stocks appropriate for the firm's performance objectives. The recommended strategy invests on both a long and short basis with the goal of outperforming the MSCI All County World Index. Aon Hewitt Investment Consulting recommends a commitment of up to \$800 million dollars in Arrowstreet Global Equity ACWI Alpha Extension 130/30/20 LP and ATRS staff concurs with the recommendation.

- 1. **\*Resolution 2022-52. page 342.**

- d. **\*Recommendation to approve for Board adoption Resolution 2022-53 authorizing the full redemption of the ATRS interest in Putnam Absolute Return Fixed Income Fund.**

- 1. **\*Resolution 2022-53. page 343.**

**C. Real Assets Consultant Report.**

- 1. **Performance Report for the Quarter Ending June 30, 2022.**

page 344.

Jack Dowd and Chae Hong of Aon Hewitt Investment Consulting will provide the Board with a portfolio update for the quarter ending June 30, 2022.

2. **\*Recommendation to approve for Board adoption Resolution 2022-54 authorizing an investment of up to €50 million euros (approximately the equivalent of \$50 million dollars based on recent exchange rates) in DIF Ifrastructure VII Cooperatief U.A. and DIF Ifrastructure VII SCSp (collectively DIF VII).** page 397.

DIF VII are core infrastructure funds that invest primarily in public-private partnership projects including toll roads, regulated utilities, and renewable energy projects. DIF VII is divided into two entities to separate the equity and debt investments. DIF Management is a globally operating infrastructure investor headquartered in the Netherlands. DIF was established in 2005 by Maarten Koopman and Menno Witteveen and is currently fully owned by Mr. Koopman and Mr. Witteveen along with Wim Blaasse. The fund is led by Mr. Blaasse, who has been with DIF since 2005. He is supported by 10 partners who have well-defined responsibilities across a wide range of roles. The overall team is comprised of 78 individuals that are located across eight offices in Europe, North America and Australia.

DIF VII is a closed-end infrastructure fund targeting high quality, low-risk investments across Europe, North America and Australia. The strategy is designed to deliver stable, long-term cash flows and high quality returns to investors. The fund (called and valued in euros) will target significant equity positions and typically invest in 40 to 50 infrastructure projects for the fund. DIF VII is targeting a 13% net IRR which is in line with the previous four funds.

The fund is split into two entities to divide the equity and debt investments of the fund for the managing partner's tax purposes; DIF Ifrastructure VII Cooperatief U.A. (equity) & DIF Ifrastructure VII SCSp (debt). Both funds will require separate subscription agreements and this recommendation includes requesting authority to execute both agreements to allow up to &euro;50 million Euros (approximately the equivalent of \$50 Million Dollars) to each fund to allow the manager flexibility in the allocation between equity and debt investments. The subscription agreements have a bridge agreement that no more than &euro;50 million euros (approximately the equivalent of \$50 million dollars) can be called in total between the two funds. This fund should be viewed as one infrastructure fund with a total commitment of up to &euro;50 million euros. The closing documents will reference euros (not

dollars) in the commitment amount. Since the fund is called and valued in euros the foreign exchange rate between the dollar and the euro may vary over the life of the fund and the recommended euro amount will be the control amount of the ATRS commitment. The recommended euro amount is approximately \$50 million dollars using the current conversion rate but the dollar amount may vary over time.

Aon Hewitt Investment Consulting recommends an investment of up to &euro;50 Million Euros (approximately the current equivalent of \$50 Million Dollars ) in DIF Infrastructure VII and ATRS staff concurs.

a. **\*Resolution No. 2022-54.** page 451.

3. **\*2023 Real Assets Commitment Pacing (Total Pacing \$475 Million Dollars).** page 453.

Jack Dowd and Chae Hong of Aon Hewitt Investment Consulting will present the 2021 Real Assets Commitment Pacing. For calendar year 2023, Aon Hewitt Investment Consulting and ATRS staff are recommending approximately \$475 million dollars for 2023 real assets pacing. These targets are subject to availability of quality investments and prevailing market conditions. Actual amounts may vary as pacing is subject to change over the year according to available investment opportunities.

a. **Core real estate \$200 million dollars.**

Core real estate funds employ low leverage, low-risk investment strategies that have predictable cash flows. The funds will generally invest in stable, fully leased, modern, multi-tenant properties within strong, diversified metropolitan areas. The ATRS real asset portfolio is within the upper range of the fund's target allocation to this type of real estate investment so no new allocation for core real estate is needed at this time.

b. **Value added and opportunistic real estate \$200 million dollars.**

These are funds that invest in properties and make improvements to fairly stable properties but are one step below the core funds in quality. Opportunistic have more risk than value added funds but have potential for better returns.

c. **Infrastructure \$75 million dollars.**

Infrastructure funds invest in the fundamental facilities and systems serving a country, city, or area including the services and facilities necessary for its economy to

function. Infrastructure funds typically invest in structures such as roads, bridges, tunnels, water systems, sewers systems, electric grids, ports and so forth.

**D. Private Equity Consultant Report.**

- 1. Preliminary Private Equity Portfolio Review for the Quarter Ended June 30, 2022.** page 457.

- 2. \*Recommendation to approve for Board adoption a motion to authorize the use of \$30 million dollars of recallable distributions for the ATRS/FP Private Equity Fund L.P.** page 512.

Since 2012, this vehicle has made investments primarily in individual co-investments, small next-generation manager funds and more recently, in Franklin Park Co-Investment Fund V. Going forward, new commitments to this fund will be made primarily to invest in Franklin Park's future Co-Investment vehicles.

At this time, the fund has accumulated over \$100 million in recallable distributions that may be used with the Board's permission to fund follow-on investments within the vehicle. The existing direct funds within the vehicle require follow-on investments now and will also for some years going forward. Franklin Park recommends that the Board authorize the use of \$30 million of recallable distributions to fund these investments and ATRS staff concurs.

- 3. \*Recommendation to approve for Board adoption Resolution 2022-55 authorizing an investment of up to \$30 million dollars in Alpine Investors IX, L.P.** page 516.

Based in San Francisco, Alpine Investors was founded in 2001 by Graham Weaver. Today, the firm consists of twenty-four professionals led by five senior professionals who each average more than seventeen years of private equity experience and have complimentary investing experience. The investment team has an attractive track record, having produced a gross IRR of 26.4% in its previous funds.

The firm primarily makes control investments in software and services companies in the small and lower middle market. The fund will target companies in need of new management due to poor management performance, founders retiring, or companies that are being carved out of larger companies. In general, investments will be made in companies for which the fund can install new management teams and scale the business through a buy-and build approach. The general partner will target predictable businesses with strong recurring revenue. The fund is targeting commitments of \$3.8 billion and is well-positioned in its target

market. Franklin Park recommends a commitment of up to \$30 million dollars in Alpine Investors IX, L.P. and ATRS staff concurs with the recommendation.

a. **\*Resolution No. 2022-55.** page 520.

4. **\*2023 Private Equity Pacing Schedule (Total Pacing \$350 Million Dollars).** page 521.

Michael Bacine of Franklin Park will provide the 2023 pacing schedule for private equity. Typically, ATRS has been pacing up to 2% of its underlying value for private equity for the next calendar year. Based upon assumptions of the projected market value of total assets for the next ten years, Franklin Park recommends private equity pacing of \$350 million dollars for 2023 in order to maintain a 12% allocation to private equity over a long term time horizon, and ATRS staff agrees.

In years past, an allocation of the total pacing amount was made for early stage venture capital and more recently for later stage venture private equity funds through Franklin Park dedicated vehicles. The Board has already approved commitments totalling \$60 million dollars in the past two years in Franklin Park Venture Fund XIV (a multi-year, early stage venture fund), and no additional commitment is expected for 2023. In the current year, ATRS also committed \$30 million to Franklin Park Venture Capital Opportunity Fund (a multi-year, late stage venture fund). The funds are similarly structured; however, later stage venture provides attractive returns with lower risk than early stage. An additional commitment of \$30 million that is planned for 2023 will be presented by Michael Bacine today.

ATRS has also invested in Franklin Park Corporate Finance Access Fund II (a multi-year fund that invests in smaller buyout, growth and turnaround funds). \$30 million was committed in 2022 and an additional commitment of the same size is anticipated for 2023. Michael Bacine will make a presentation and recommendation for this additional commitment today.

Since 2011, ATRS has invested in Franklin Park's International Funds primarily to obtain exposure to funds outside the U.S. while reducing the risk of making large investments in these funds individually. In 2022, ATRS committed \$30 million to Franklin Park International Fund XI (also a multi-year fund) and a recommendation is being made today to commit up to \$30 million dollars in Fund XI for 2023.

As mentioned in Item B. above, the ATRS/FP Private Equity Fund houses investments of various strategies, but going forward it will be primarily used for co-investments. The board approved a \$125

million commitment in Franklin Park Co-Investment Fund V in December 2020. That fund is now substantially invested, and Franklin Park will be raising Co-Investment Fund VI later this year. A commitment of \$65 million is planned for Fund VI and will be presented and recommended later in 2023.

Franklin Park also expects to commit \$170 million dollars to approximately six funds with buyout, growth, or turnaround strategies within the U.S. during 2023. Additionally, a commitment of \$25 million dollars is planned for a fund that is focused on debt or distressed assets. The amounts of each type of investment mentioned here are targets. Actual amounts may vary as pacing is subject to change over the year according to available investment opportunities and prevailing market conditions.

**a. Six small or mid buyout/growth/turnaround \$25-30 million dollars each in the U.S. (total \$170 million dollars).**

Buyout refers to funds that seek to acquire controlling interests in companies. Growth funds seek a minority interest in successful companies that need additional capital to expand. Turnaround funds invest in troubled or bankrupt companies that require special expertise to become profitable. This is an allocation for six of these funds at a \$25-30 million level each for a total of \$170 million dollars.

**b. One debt/distressed assets \$25 million dollars.**

These funds lend money at higher interest rates to companies with liquidity needs. These managers also purchase the debt obligations of a company at or below actual value using specialized skills. The purpose of the purchase of debt can be to make interest, get the value from the discount price of the debt, or to obtain the company's equity after a default on the debt. This is an allocation for one of these funds at a \$25 million level.

**c. Franklin Park Venture Fund XIV no new commitment.**

ATRS has currently committed \$60 million dollars in this two year fund, and no new additional commitment is anticipated for 2023.

**d. Franklin Park Venture Capital Opportunity Fund \$30 million dollars.**

This investment is explained below in item E.

**e. Franklin Park International Fund XI \$30 million dollars.**

This investment is explained below in item F.

**f. Franklin Park Corporate Finance Access Fund II \$30 million dollars.**

This investment is explained below in item G.

**g. ATRS/FP Private Equity Fund (Co-Investment Fund VI) \$65 million dollars.**

An additional investment in this fund is anticipated for 2023. A presentation and recommendation will be made at a later date.

**5. \*Recommendation to approve for Board adoption Resolution 2022-56 authorizing an additional investment of up to \$30 million dollars in Franklin Park Venture Capital Opportunity Fund, L.P. [page 528.](#)**

This fund is a Franklin Park vehicle that invests in later stage venture capital funds. Some of these funds are managed by early stage venture firms that have insight into the most promising companies in their existing portfolios and may have greater access to deals at the later stages. Investments may also be made with firms that are successful with investing primarily in later stage venture and growth companies. The risk/return profile with later stage venture is lower than that of early stage; however, target returns for these investments are still high (30-35% IRR).

Franklin Park has extensive experience in the area of venture capital and has long-standing relationships with top-tier managers. The aggregate net return generated by Franklin Park's early stage venture funds since 2008 is 23.9%. The venture capital opportunity fund provides exposure to late stage venture that ATRS did not previously have. The fund is structured like Franklin Park Venture Fund XIV in which non-client investors will be required to pay a management fee of .9% with carried interest of 5% after an 8% preferred return is achieved. Existing clients that invest \$60 million or more in the two to three year fund will not pay a management fee, and their carried interest is reduced to 4%. ATRS approved an initial \$30 million in this fund in December 2021 under the new fee structure. Franklin Park recommends an additional \$30 million dollar commitment in Franklin Park Venture Capital Opportunity Fund, L.P. and ATRS staff concurs with the recommendation.

**a. \*Resolution No. 2022-56. [page 538.](#)**

**6. \*Recommendation to approve for Board adoption Resolution 2022-57 authorizing an additional investment of up to \$30 million dollars in Franklin Park International Fund XI, L.P. [page 539.](#)**

This is a vehicle in which ATRS can obtain exposure to international private equity, and as the name reflects, this is the firm's eleventh international fund. Franklin Park created a fund of funds vehicle to invest in several private equity funds that invest outside of the U.S. This multi-year fund of funds is used to diversify and reduce risk for ATRS and the other clients of Franklin Park. At this time, Franklin Park charges no fee to ATRS and only recovers the cost for legal and accounting fees required to properly operate the fund. This provides ATRS with diverse international private equity opportunities that otherwise would be difficult to obtain. ATRS made an initial commitment to the fund earlier this year, and Franklin Park recommends an additional \$30 million dollars in Franklin Park International Fund XI, L.P. for 2023. ATRS staff agrees with the recommendation.

a. **\*Resolution No. 2022-57.** [page 548.](#)

7. **\*Recommendation to approve for Board adoption Resolution 2022-58 authorizing an additional investment of up to \$30 million dollars in Franklin Park Corporate Finance Access Fund II, L.P. with Imminent Need.** [page 549.](#)

Franklin Park Corporate Finance Access Fund II (FPCFAC) is a multi-year fund of funds that was formed to allow other investors to invest in smaller buyout, growth equity and turnaround funds with ATRS as the anchor. Though the fund sizes are smaller, the managers chosen are experienced investors, often having spun-out from larger successful firms. The managers are usually sector-focused with competitively advantaged domain knowledge. They typically have an operationally intensive, value-add approach. Previously, ATRS had invested in these smaller or "next generation" funds through the ATRS/FP Fund. ATRS has committed \$90 million in the first Franklin Park Corporate Finance Fund and \$60 million in Fund II since 2019. Though the investments are young, they are all on track to perform well.

Beginning with FPCFAC II, non-clients pay a .9% management fee and 5% carried interest while existing Franklin Park clients pay no management fee and 5% carried interest. Carried interest will be reduced to 4% for existing clients, such as ATRS that invest a total of at least \$60 million in the fund over the 2-3 year investment period. The fees and carried interest provide a source of incentive compensation for Franklin Park's investment staff and better align ATRS's interest with that of Franklin Park and its other investors. Franklin Park is committed to remaining a small boutique firm and is not seeking to add large clients to grow their fee base. Again, the small size and high level of expertise of the firm are of significant benefit to ATRS because they allow Franklin Park to access top-tier funds. Due to the fact that the fund may need to close before the



next scheduled meeting of the Arkansas Legislative Council, Imminent Need is requested. ATRS staff concurs with Franklin Park's recommendation to commit up to \$30 million dollars in Franklin Park Corporate Finance Access Fund II, L.P.

- a. **\*Resolution 2022-58.** page 558.

**XV. Operations Committee Report.** *Bobby Lester, Operations Committee Chair*

**A. Open Forum for Potential Rule or Law Changes by Committee Members and Board Members in Attendance.**

**1. Open Forum.**

This is a standard part of the Committee agenda to allow Committee Members and Board Members in attendance to address topics and issues for consideration.

**B. \*Revision to Current Board Policy.**

**1. \*Board Policy No. 3 Executive Director.** page 560.

A change to Board Policy 3 clarifying the Executive Director's authority to extend a deadline before the deadline has passed and when an extension by the system is permitted under the Arkansas Code.

**C. Discussion concerning Ark. Code Ann. 24-7-506 (Outsourcing Surcharge).** page 570.

The ATRS Outsourcing Surcharge program has been in place for five (5) years. ATRS Chief Fiscal Officer, Curtis Carter, will give the Board an update to present the program's advantages and disadvantages to ATRS and ATRS employers.

**D. ATRS 2023 Legislative Package.**

**1. Outsourcing - Election to Become Participating Employer.** page 580.

This bill repeals the provisions of the outsourcing statute, Ark. Code Ann. 24-7-506, that permit a covered employer to elect to become a participating employer for embedded employees.

**2. Outsourcing Repeal.** page 584.

This bill repeals the outsourcing statute, Ark. Code Ann. 24-7-506, in its entirety. Additionally, the bill amends Ark. Code Ann. 24-7-202 to add the Division of Youth Services Education System as a covered employer of the Arkansas Teacher Retirement System. Finally, the bill permits an embedded employee of the Division of Youth Services Education System to elect to become a member of ATRS if the embedded employee is designated by the Division of Youth Services Education System as eligible for membership in

ATRS.

**3. Active Member - Survivor Annuity Benefits.** page 589.

This bill changes the deadline for filing an application for survivor benefits with ATRS from three (3) months to six (6) full calendar months. The bill clarifies that when a member does not have a residue balance, the member's designated beneficiary is not required to waive his or her right to the residue in order for the member's surviving spouse to be eligible for spousal survivor benefits. Additionally, the bill clarifies the age requirement concerning dependent child eligibility. The bill adds vocational-technical school to the list of institutions in which a dependent child must stay continuously enrolled as a full-time student in order to receive a dependent child annuity. The bill also permits dependent child annuity payments to be temporarily suspended and later reinstated in order to accommodate a dependent child who is called to active military duty or active military training. The bill allows an eligible child of a retiree who returns to work to receive a dependent child annuity after the death of the retiree. Finally, the bill clarifies that the law in effect at the time of a member's death is used to determine the member's effective date of retirement and when survivor benefits are payable.

**4. Inactive Member Eligibility for Free Military Service Credit and Ability to Purchase Military, Contributory, and Federal Service Credit.** page 593.

This bill permits inactive members to receive free military service credit. The bill also permits inactive members to purchase military, contributory, and federal service credit.

**5. Life Annuity - Multiplier.** page 595.

This bill repeals the general provision providing that the multiplier rate for contributory service shall be between 1.75% and 2.15%. The bill amends the law to provide that the multiplier rate for contributory service used for the first ten (10) years of service shall be between 1.75% and 2.15%. Finally, the bill amends the law to provide that the multiplier rate for noncontributory service used for the first ten (10) years of service shall be between 1.75% and 2.15%.

**6. General Omnibus Clean-Up of Minor Issues.** page 597.

There are several minor issues in the Arkansas Teacher Retirement System Act, 24-7-201 et seq., that need to be clarified or corrected to reflect the current policies, resolutions, and procedures of the system. A brief description of each item is as follows:

a. Correct references to "alternate retirement plan" as appropriate.

- b. Correct typo in definition of "T-DROP".
- c. Clarify when a permissible employer becomes a covered employer for a member of ATRS.
- d. Clarify the definition of "normal retirement age".
- e. Clarify the definition of "credited service".
- f. Define "benefit enhancement" and "employment with a covered employer".
- g. Remove references to a specific dollar amount as it pertains to the de minimis amount.
- h. Clarify that calendar month as it relates to deadlines means the full calendar month.
- i. Appropriately place provisions concerning prohibited types of employment during the termination separation period under the termination of active membership statute, Ark. Code Ann. 24-7-502.
- j. For clarity, revise the language of Ark. Code Ann. 24-7-601 concerning the proportion of the benefit amount paid by ATRS when a member has service credited by a reciprocal system.
- k. Clarify that a member's part-time employment with a PSHE employer or an employer covered by APERS does not prevent the member from earning service credit under ATRS if the member does not earn service credit in an alternate retirement plan or APERS.
- l. Clarify that a member who leaves employment with a covered employer to serve in the uniformed services of the United States and returns to employment with a school shall be treated as not having incurred a break in service with the employer.
- m. As appropriate, clarify that "extension granted by the system" means extension granted by the Executive Director.
- n. Clarify that a member may request a second review one (1) time for each application for disability retirement filed by the member.
- o. Clarify that a member cannot request a second review for the member's application for disability review.
- p. For clarity, revise structure and language of Ark. Code Ann. 24-7-709 concerning the residue of retirees.
- q. Clarify that service credit purchased under a settlement agreement or court order shall off-set service credit that is earned by the member as an employee of another covered employer

during the same period of time covered by the service credit purchased under the settlement agreement or court order.

r. Clarify that ATRS shall not apply service credit purchased under a settlement agreement or court order in a manner that allows a member to earn more than one (1) year of service credit in a fiscal year.

s. Change "retirant" to "retiree":

**7. Unused Purchased Service Credit - Refunds. page 612.**

This bill permits members to receive a refund of unused service credit purchased from ATRS.

**8. Retirees - Annuity Options. page 615.**

This bill permits a retiree to designate both his or her qualifying surviving spouse and qualifying dependent child as his or her beneficiary. The bill also allows a retiree's child to qualify as a dependent child if the child has a Social Security Administration determination letter finding the child disabled. The bill clarifies when a retiree's surviving spouse may elect to receive a lump-sum distribution of the retiree's residue in lieu of a spousal annuity. Additionally, the bill clarifies when a disability retiree's surviving spouse who elects an Option A 100% Survivor Annuity is entitled to begin receiving spousal annuity payments. Finally, the bill clarifies that the law in effect at the time of a retiree's death shall be used to determine the retiree's effective retirement date and when survivor benefits are payable.

**9. Membership Status. page 617.**

This bill permits ATRS to prorate the number of a member's contracted days if the member contracted with a covered employer after the start of the fiscal year. The proration will be performed for the purpose of determining whether the member should be classified as a contributory or noncontributory member who may make an irrevocable election to become a contributory member of ATRS.

**10. Lump-Sum Death Benefit. page 618.**

This bill clarifies that an active member, a T-DROP participant, and a retiree with five (5) years of actual service are eligible for the lump-sum death benefit. The bill also repeals certain provisions that the Board of Trustees of the Arkansas Teacher Retirement System may address by rules or resolutions pursuant to the authority given to them under the statute.

**11. Final Average Salary. page 621.**

This bill clarifies that a partial service year shall not be used to calculate the final average salary if the partial service year is higher than a full service year or the member has less than the number of years required to calculate the final average salary. The bill also clarifies that anti-spiking provisions do not apply to a partial service year or a fiscal year immediately following a partial service year. Finally, the bill revises terminology for clarity.

**12. Permissive Service Credit Gap-Year Service. page 623.**

This bill permits ATRS members to purchase permissive service credit from ATRS.

**13. Termination Separation Period. page 625.**

This bill reduces the termination separation period from six (6) calendar months to three (3) full calendar months.

**XVI. \*Staff Reports.**

**A. \*Medical Committee Report. A total of 22 Disability Retirement Applications were Approved. Willie Kincade, Director of Operations page 626.**

The Medical Committee Report is a standard report made by staff on behalf of the Medical Committee approving disability cases. A total of 30 disability applications were received, 22 were approved, 1 was denied, and 7 needed more information. This is not an action item.

**B. Financial Reports. Curtis Carter, Chief Fiscal Officer**

**1. Financial Statement Report. page 628.**

The ATRS Chief Financial Officer will give the Board summary information for the financial reports for the year ending June 30, 2022. No action is needed for this information item.

**2. Travel Reports. page 629.**

The ATRS Chief Financial Officer will present a standard travel report showing the expenses for staff and Trustees for fiscal year ending June 30, 2022. Board travel expenses were a total of \$7,962 compared to \$4,738 in fiscal 2021. Other staff travel expenses were a total of \$22,303 compared to \$212 in fiscal year 2021. No action is needed for this information item.

**C. \*Contracts. Rod Graves, Deputy Director page 630.**

Rod Graves, Deputy Director, handles coordinating the ATRS' contracts with the Office of State Procurement (OSP). The ATRS Board reviews the agency's contracts up for renewal annually or as needed as a part of the ATRS contract process. This process provides an opportunity for the Trustees to ask questions about any of the contracts on the list, approve or

reject any contract being reviewed as a whole, approve or reject them individually, or ask for more information as needed. Once reviewed by the Board, staff prepares annual contracts and sends the contracts to the vendors for completion. Once the contracts are returned, the contracts are sent to the Arkansas Legislative Council for a legislative review. ATRS contracts are typically approved for a two year term.

**D. Personnel Report.** *Vicky Fowler, Human Resources Director* page 631.

The personnel report is provided annually for information. ATRS currently has 87 appropriated positions. Currently, there are 69 positions filed and 18 are vacant. Ms. Vicky Fowler, the ATRS Human Resources Manager, will be available to answer any questions about this report.

**XVII. Other Business.**

**MINUTES  
ARKANSAS TEACHER RETIREMENT SYSTEM  
BOARD OF TRUSTEES**

**Monday, September 26, 2022  
11:00 a.m.  
1400 West Third Street  
Little Rock, AR 72201**

**ATTENDEES**

**Board Members Present**

Danny Knight, Chair  
Anita Bell  
Kathy Clayton  
Kelly Davis  
Susan Ford  
Dr. Mike Hernandez  
Shawn Higginbotham  
Michael Johnson  
Bobby Lester  
Chip Martin  
Jeff Stubblefield  
Susannah Marshall, Bank Commissioner  
Hon. Andrea Lea, State Auditor  
Jason Brady, designee for Hon. Dennis Milligan, State Treasurer

**Board Members Absent**

Johnny Key, Education Secretary

**Reporters Present**

Mike Wickline, AR Dem Gaz.

**ATRS Staff Present**

Clint Rhoden, Executive Director  
Rod Graves, Deputy Director  
Tammy Porter, Board Secretary  
Curtis Carter, Chief Financial Officer  
Dena Dixson, Internal Audit/Risk Management  
Braeden Duke, Software Specialist Analyst  
Vicky Fowler, Manager, Human Resources  
Mike Lauro, Information Technology\*  
Jennifer Liwo, Staff Attorney\*  
Martha Miller, General Counsel\*  
Joe Sithong, Information Technology Coordinator  
Whitney Sommers, Administrative Analysis  
Leslie Ward, Manager, Private Equity  
Brenda West, Internal Audit/Risk Mgmt.  
Misty Yant, Manager, Accounting/Reporting\*

**Guest Present**

Katie Comstock, Aon Hewitt (AHIC)\*  
PJ Kelly, Aon Hewitt (AHIC)  
Michael Bacine, Franklin Park\*  
Donna Morey, ARTA  
Gar Chung, FIN-News\*  
ID: Bkirpalani\*  
Amy Fecher\*  
Joe Ebisa – WithIntellegence\*

*\*via ZOOM*

- I. **Call to Order/Roll Call.** Mr. Danny Knight, Chair, called the Board of Trustees meeting to order at 11:00 a.m. Roll call was taken. Mr. Key was absent.
- II. **Motion to Excuse Absent Board Members.**

**Mr. Stubblefield *moved to excuse Mr. Key from the September 26, 2022, Board Meeting. Mr. Lester seconded the motion, and the Board unanimously approved the motion.***

**III. Adoption of Agenda.**

**Mr. Higginbotham *moved for adoption of the Agenda. Mr. Lester seconded the motion, and the Board unanimously approved the motion.***

**IV. Executive Summary.** The Executive Summary was provided for reference with no questions or expansions on the written summary.

**V. Approval of Prior Meeting Minutes.**

**A. June 6, 2022, Minutes**

**Ms. Clayton *moved for approval of the Minutes of the Board of Trustees meeting of June 6, 2022. Mr. Martin seconded the motion, and the Board unanimously approved the motion.***

**B. August 16, 2022, Minutes.**

**Auditor Lea *moved for approval of the Minutes of the Board of Trustees meeting of August 16, 2022. Ms. Ford seconded the motion, and the Board unanimously approved the motion.***

**VI. Election of Vice Chair of Board of Trustees.**

**Mr. Lester *moved for appointment of Kelly Davis as Vice Chair of the Board of Trustees. Mr. Stubblefield seconded the motion, and the Board unanimously approved the motion.***

**VII. Recognition of Trustees Mr. Lloyd Black and Ms. Amanda Webb.**

**A. Resolution 2022-39.**

**Mr. Higginbotham *moved to approve adoption of Resolution 2022-39, Commending Mr. Lloyd Black on his service to the ATRS Board of Trustees. Ms. Bell seconded the motion, and the Board unanimously adopted the Resolution.***



**B. Resolution 2022-40**

**Mr. Stubblefield *moved to approve* adoption of Resolution 2022-40, Commending Ms. Amanda Webb on her service to the ATRS Board of Trustees. Mr. Johnson *seconded the motion*, and the Board *unanimously adopted the Resolution*.**

**VIII. Report of Member Interest Waived Under A. C. A. Section 24-7-205.** Mr. Rhoden presented the member interest amount waived report. ATRS waives interest for members when there is a dispute between ATRS and the member as to whether ATRS made a mistake or otherwise did not do all that was required on the member's account. No member interest was waived for this reporting period.

**IX. Report of Employer Interest and Penalties Waived Under A. C. A. Sec. 24-7-411.** Mr. Rhoden presented the employer interest and penalties waived report. ATRS may also waive employer interest and penalties when reports or payments are late or have issues due to a new bookkeeper, inclement weather, sickness and other situations that justify a waiver. Seven (7) employer penalties and interest amounts were waived for this reporting period in the amount of \$1,976.69.

**X. Unreported Service: Contributions Due.** Director Rhoden presented the Board with a report of unreported service for Member ID# 389863.

**A. In Re: ATRS ID: 389863**

**1. Resolution No. 2022-47.**

**Ms. Davis *moved to approve* adoption of Resolution 2022-47, approving the waiver of interest due on contributions for unreported service. Mr. Johnson *seconded the motion*, and the Board *unanimously adopted the Resolution***

**XI. Authorization to Pay Regular T-DROP Interest for Fiscal Year 2023.** The ATRS Board annually sets the interest rates on T-DROP accounts. In September 2021, the Board set the T-DROP rate at a fixed 3% unless investment returns in the prior calendar year exceeded the current assumed rate of return by more than 2%. The September 2021 resolution allows the Board to award an incentive rate of up to 3% if the ATRS rate of return is 2% or greater than the ATRS actuarial assumed rate of return.

The executive staff recommends the combined rate to be set at 3% for the fiscal year 2022-2023.

**A. Resolution No. 2022-41.**

**Ms. Davis *moved to approve* adoption of Resolution 2022-41, Authorization to Pay Regular T-DROP Interest for Fiscal Year 2023. Mr. Higginbotham *seconded the motion*, and the Board *unanimously adopted the Resolution***

**XII. Authorization to Pay Post 10 year T-DROP Interest for Fiscal Year 2023.**

The ATRS Board annually sets the interest rates on Post 10 Year TDROP accounts. In September 2021, the Board set the Post 10 Year T-DROP rate at a rate between 4% and 6% with an incentive rate available when the returns exceed the assumed rate of return by more than 2%. The September 2021 resolution allows the Board to award an incentive rate of up to 1.25% which when combined with the 6% maximum rate provides a maximum Post 10 Year TDROP rate of 7.25%.

The executive staff recommends the combined rate to be set at 4% for fiscal year 2022-2023.

**A. Resolution No. 2022-42.**

**Mr. Stubblefield *moved to approve* adoption of Resolution 2022-42, Authorization to Pay Post 10 year T-DROP Interest for Fiscal Year 2023. Mr. Higginbotham *seconded the motion*, and the Board *unanimously adopted the Resolution***

**XIII. CBA Incentive Interest Rate on T-DROP Cash Balance Account.**

The ATRS Board provides the CBA program for members who have retired out of TDROP and wish to leave a cash balance at ATRS for ultimate distribution to the member after retirement based upon the members withdrawal request. The Board can award an incentive rate with an incentive rate when the returns exceed the assumed rate of return by more than 2%.

The executive staff recommends the CBA incentive rate to be set at 0% for fiscal year 2022-2023.

**A. Resolution No. 2022-43**

**Dr. Hernandez *moved to approve* adoption of Resolution 2022-43, CBA Incentive Interest Rate on T-DROP Cash Balance Account. Ms. Davis *seconded the motion*, and the Board *unanimously adopted the Resolution*.**

- XIV. Extension of ATRS CASH Program for Fiscal Year 2023.** The CASH Program expired on June 30, 2022. ATRS staff recommends that the CASH program for fiscal year 2023 be the same as the expiring program except that the age for calculation of the accrued liability be set to the age attained as of June 30, 2022.

**A. Resolution No. 2022-44**

**Mr. Lester moved to approve adoption of Resolution 2022-44, Extension of ATRS CASH Program for Fiscal Year 2023. Ms. Clayton seconded the motion, and the Board unanimously adopted the Resolution.**

- XV. Audit Committee Report.** Kelly Davis, Vice Chair, gave a report on the Audit Committee Meeting.

**A. Internal Audit Follow-up Report: T-DROP Follow-up Report.** Ms. Dena Dixson presented the report to the Committee.

- XIV. Investment Committee Report.** Mr. Chip Martin, Chair, gave a report on the Investment Committee meeting.

**A. Arkansas Related and Investment Update.**

- 1. List of Fund Closings.** Rod Graves, Deputy Director, gave an update on recent investment activity and Board Policies Report.
- 2. Board Policies Report.** Rod Graves, Deputy Director, gave a report on Board Policies.

**B. Private Equity Consultant Report. *Franklin Park***

- 1. Preliminary Private Equity Portfolio Review for the Quarter Ending March 31, 2022.** Mr. Michael Bacine of Franklin Park provided the Committee with the Preliminary Private Equity Portfolio Review for the Quarter Ending March 31, 2022..
- 2. Emerging Managers Report for Fiscal Year Ended June 30, 2022.** Michael Bacine provided the Committee with the Emerging Manager Report for Fiscal Year June 30, 2022.

3. **Recommendation to approve for Board adoption Resolution 2022-45, authorizing an investment of up to \$30 million dollars in JFL Equity Investors VI, L.P.** Michael Bacine presented the Committee with the Recommendation to adopt Resolution 2022-45, authorizing an investment of up to \$30 million dollars in JFL Equity Investors VI, L.P.

Staff concurs with the recommendation.

**Mr. Martin *moved to approve* adoption of Resolution 2022-45, authorizing an investment of up to \$30 million dollars in JFL Equity Investors VI, L.P. The Board *unanimously approved the motion.***

4. **Recommendation to approve for Board adoption Resolution 2022-46, authorizing an investment of up to \$30 million dollars in Greenbriar Equity Fund VI, L.P.** Michael Bacine presented the Committee with the Recommendation to adopt Resolution 2022-46, authorizing an investment of up to \$30 million dollars in Greenbriar Equity Fund VI, L.P.

Staff concurs with the recommendation.

**Mr. Martin *moved to approve* adoption of Resolution 2022-46 authorizing an investment of up to \$30 million dollars in Greenbriar Equity Fund VI, L.P. JFL Equity Investors VI, L.P. The Board *unanimously approved the motion.***

**C. General Investment Consultant Report. *Aon Hewitt Investment Consulting.***

1. **Performance Report for the Quarter Ending June 30, 2022.** Katie Comstock of Aon Hewitt Investment Consulting provided the Committee with a preliminary portfolio update for the quarter ending June 30, 2022.
2. **Preliminary Performance Report for the Month Ended August 31, 2022.** PJ Kelly and Katie Comstock of Aon Hewitt Investment Consulting provided the Committee with the Preliminary Performance Report for the Month Ended August 31, 2022.

3. **Emerging Managers Report for Fiscal Year Ended June 30, 2022.** Michael Bacine provided the Committee with the Emerging Manager Report for Fiscal Year June 30, 2022.

**D. Real Assets Consultant Report.**

1. **Performance Report for the Quarter Ended March 31, 2022.** Chae Hong Aon Hewitt Investment Consulting provided the Committee with a performance report for the quarter ended March 31, 2022.

**XVII. Operations Committee Report.** Mr. Bobby Lester, Chair, gave a report on the Operations Committee meeting.

**A. Open Forum for Potential Rule and Law Changes by Committee Members and Board Members Presents.**

1. **Open Forum.** None.

**B. ATRS 2023 Legislative Package.** Director Rhoden presented the Committee with the ATRS 2023 Legislative Package. This was not an action item.

**XVI. Staff Reports**

**A. Medical Committee Report.** Mr. Kincade reported that a total of Fifteen (15) Disability Retirement Applications were approved.

***Ms. Bell moved to approve the Medical Committee Report. Mr. Lester seconded the motion and the Board unanimously approved the Motion.***

**XVII. Other Business:** None.

**XVIII. Adjourn.** With no other business, Mr. Danny Knight, Chair adjourned the meeting.

**Meeting adjourned at 11:40 p.m.**

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Clint Rhoden,  
Executive Director

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Mr. Danny Knight, Chair  
Board of Trustees

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Tammy Porter,  
Recorder

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Date Approved



# Arkansas Teacher Retirement System

## Valuation Results as of June 30, 2022

December 5, 2022

Brian B. Murphy, FSA, EA, FCA, MAAA, PhD , Judith A. Kermans, EA, FCA, MAAA

Heidi G. Barry, ASA, FCA, MAAA



# Agenda



**June 30, 2022 Valuation Results**

**1**



**Going Forward**

**2**



**Current Events**

**3**



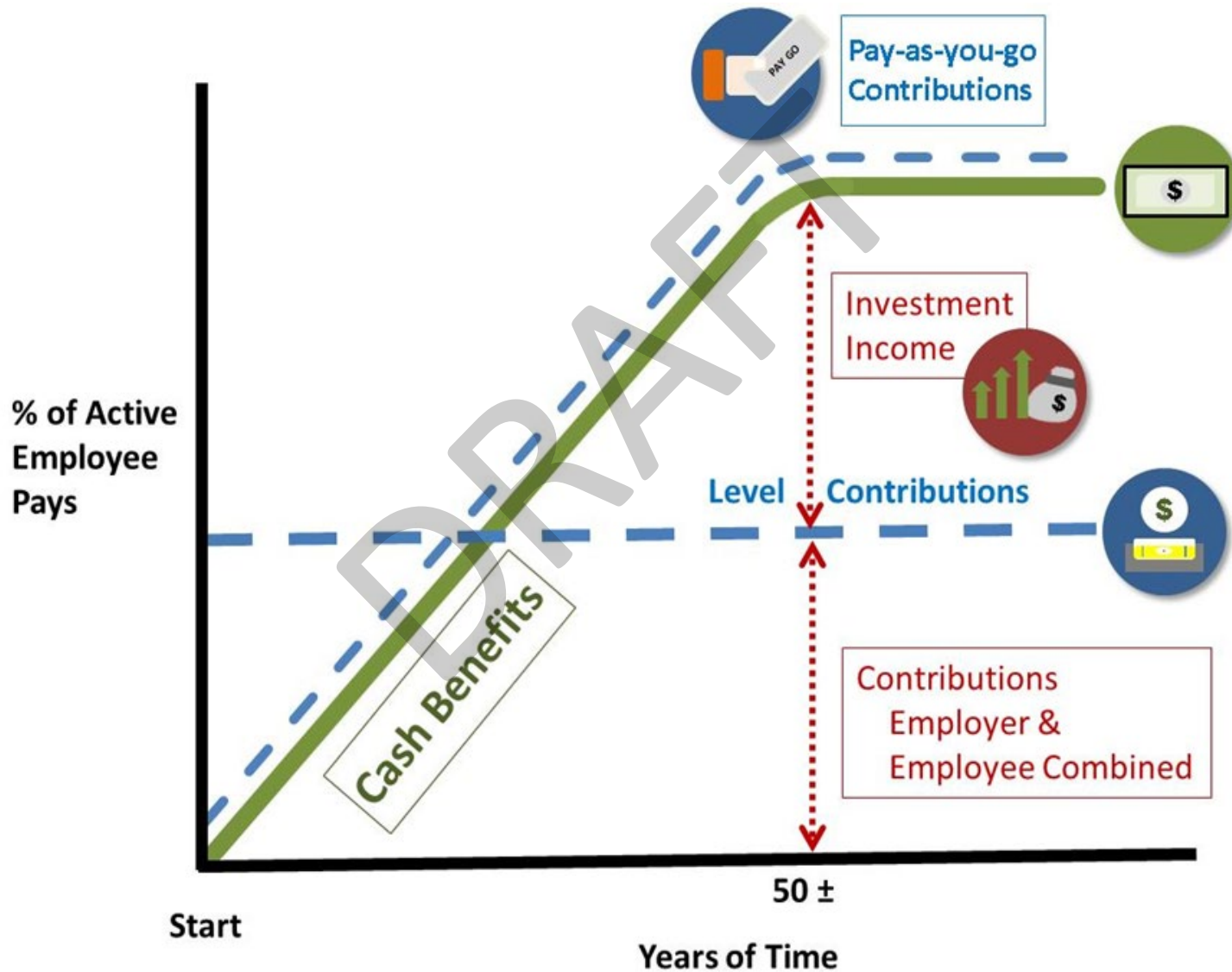
# Funding Objectives

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24-7-401 (a). Fund contributions -- Fund rates.

- (1) The financial objective of the Arkansas Teacher Retirement System is to establish and receive contributions that expressed as percentages of active member payroll will remain approximately level from generation to generation of Arkansas citizens.
- (2) Contributions received each year shall be sufficient:
  - (A) To fully cover the costs of benefit commitments being made to members for their service being rendered in that year; and
  - (B) To make a level payment that if paid annually over a reasonable period of future years will fully cover the unfunded costs of benefit commitments for service previously rendered.

# Financing Increasing Benefit Obligations



# What Is Needed to Meet Objectives?

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Reasonable forecasts of resources and obligations  
(i.e., good assumptions)


Smoothing devices

- Level % of payroll funding method (EANC)
- Market-related asset valuation method

Funding discipline

A sound investment program

# Covered Population Overview



	Number at June 30		% Change
	2022	2021	
Active	68,127	66,633	2.2%
T-DROP	3,251	3,465	-6.2%
Inactive Vested	13,986	13,574	3.0%
Retired	52,748	51,405	2.6%
<b>Total</b>	<b>138,112</b>	<b>135,077</b>	<b>2.2%</b>

ATRS receives full employer contributions for Active and T-DROP members and for 3,643 retirees who have returned to work.

# Active, T-DROP and RTW Members

June 30	Number				Total Payroll	% Change
	Active	T-DROP	RTW	Total	\$Millions	
2016	68,368	3,864	3,829	76,061	\$ 2,888	0.5%
2017	68,337	3,811	3,881	76,029	2,922	1.2%
2018	68,645	3,696	4,029	76,370	2,986	2.2%
2019	68,457	3,707	4,077	76,241	3,027	1.4%
2020	66,900	3,639	4,019	74,558	3,078	1.7%
2021	66,633	3,465	3,575	73,673	3,205	4.1%
2022	68,127	3,251	3,643	75,021	3,320	3.6%

The actuarial valuation assumes the number of working members will remain constant at the current level and that the payroll will increase at 2.75% per year. In recent years the total number of working members has decreased and the payroll has not increased at the assumed rate in most years. A decreasing population means less contribution income for the Retirement System than expected and can lead to funding difficulties in extreme cases.

# Active Members not in T-DROP

		Group Averages			
June 30	Number	Age	Service	Average Earnings	% Change
2016	68,368	44.4	10.3	\$37,235	1.41%
2017	68,337	44.3	10.2	37,707	1.27%
2018	68,645	44.2	10.2	38,477	2.04%
2019	68,457	44.1	10.1	39,065	1.53%
2020	66,900	44.3	10.3	40,709	4.21%
2021	66,633	44.2	10.5	42,901	5.38%
2022	68,127	44.1	10.2	43,758	2.00%

# Active Members in T-DROP

June 30	Number	Payroll		
		Average	\$ Millions	% Change
2016	3,864	\$61,943	\$239.3	-2.7%
2017	3,811	62,127	236.8	-1.0%
2018	3,696	62,456	230.8	-2.5%
2019	3,707	62,812	232.8	0.9%
2020	3,639	63,477	231.0	-0.8%
2021	3,465	65,732	227.8	-1.4%
2022	3,251	66,877	217.5	-4.5%

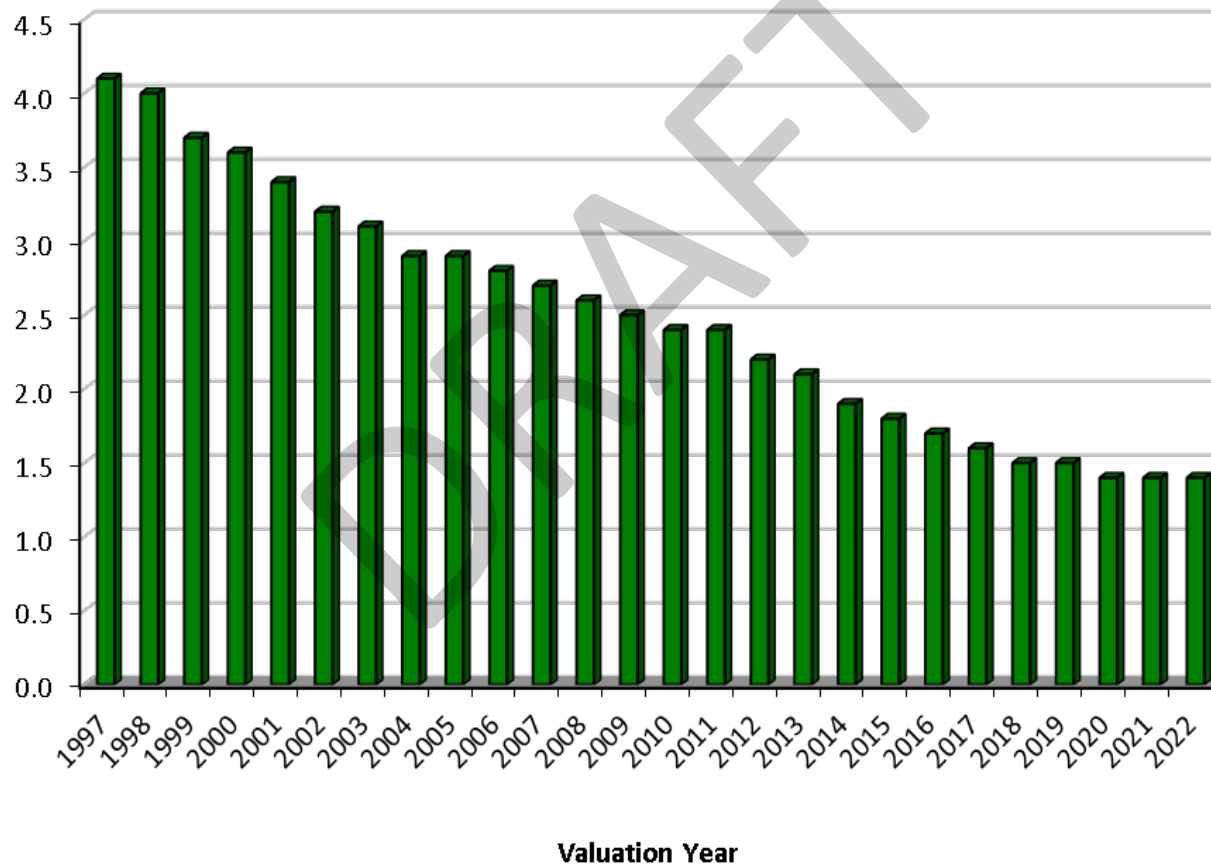
# Deferred Vested and Retired Members

June 30	Deferred Members			Retired Members		
	Number	Benefit		Number	Benefit	
		\$ Millions	Average		\$ Millions	Average
2016	12,937	\$72.2	\$5,577	43,095	\$ 983.9	\$22,830
2017	12,401	72.9	5,877	45,092	1,044.7	23,169
2018	12,544	66.2	5,279	46,824	1,099.3	23,478
2019	13,033	69.5	5,336	48,677	1,146.7	23,558
2020	13,338	72.9	5,464	50,133	1,194.8	23,833
2021	13,574	76.2	5,614	51,405	1,242.7	24,175
2022	13,986	80.5	5,758	52,748	1,293.8	24,527



# Ratio of Actives to Retirees

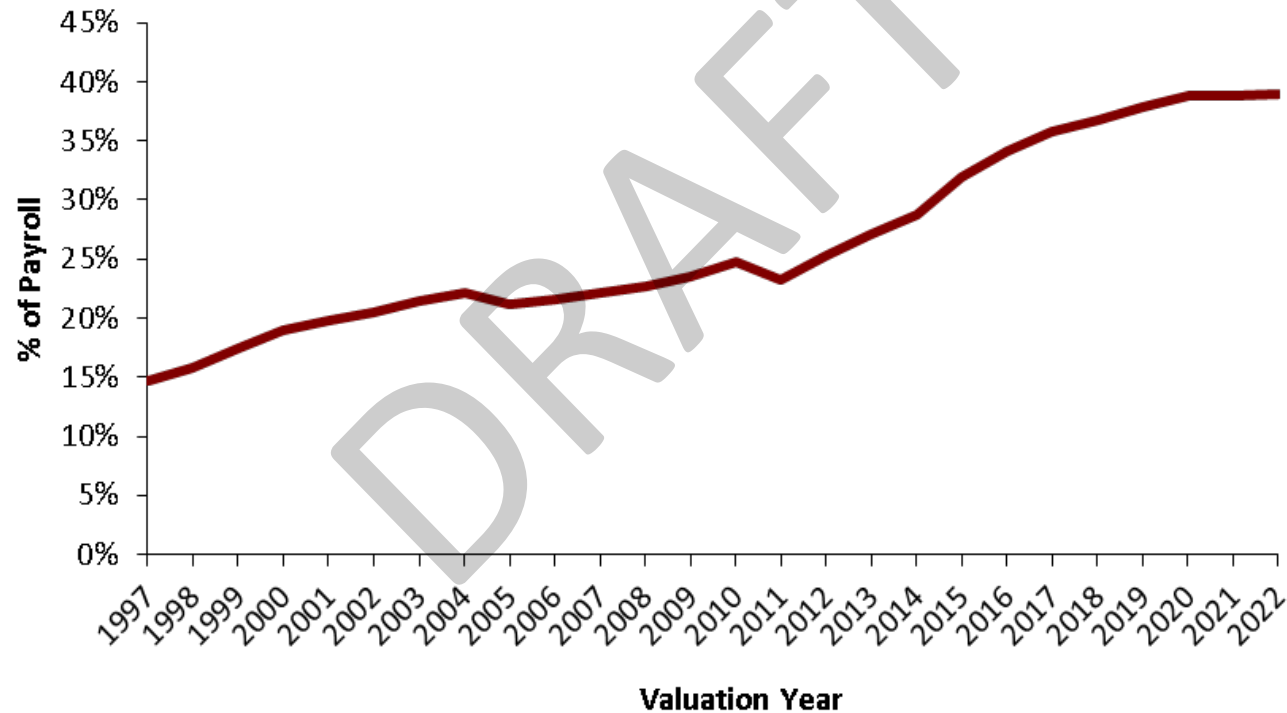
Active Members Per Retired Life \*



\* Members in T-DROP are included with Active members.

# Retirement Benefits as a Percent of Payroll

**Retirement Benefits Being Paid  
as a Percent of Member Payroll \***



\* Payroll includes active members in T-DROP, active members not in T-DROP and the pays of Return to Work Retirees.

# EXPERIENCE

in FY 2022

The amortization period is 26 years, a decrease from the 32-year period last year.

There was an investment loss this year, partially offsetting the large investment gain experienced last year.

The System netted \$507.4 million from the settlement of a lawsuit. This was fully recognized in the valuation. It helped improve the funded status and lower the amortization period.

Details of other experience will be presented in the Gain/Loss analysis this spring.

# Investment Experience

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Under the asset valuation method, investment gains and losses are spread over a 4-year period

This year there was a \$3.0 billion investment loss relative to the 7.25% investment return assumption

25% of the loss was recognized this year and the remaining 75% will be recognized over 3 future years

This year's 25% recognized loss was added to portions of gains and losses from prior years producing a net \$218 million loss (Funding Value)

# Development of Funding Value of Assets

Year Ended June 30:	2021	2022	2023	2024	2025
A. Funding Value Beginning of Year	\$ 18,007,255,143	\$ 19,342,870,512			
B. Market Value End of Year	21,468,772,872	19,679,467,252			
C. Market Value Beginning of Year	16,902,076,224	21,468,772,872			
D. Non-Investment Net Cash Flow	(676,930,006)	(192,363,759)			
E. Investment Return					
E1. Market Total: B - C - D	5,243,626,654	(1,596,941,861)			
E2. Assumed Rate	7.50%	7.25%	7.25%		
E3. Amount for Immediate Recognition	1,325,159,261	1,395,384,926			
E4. Amount for Phased-In Recognition: E1-E3	3,918,467,393	(2,992,326,787)			
F. Phased-In Recognition of Investment Return					
F1. Current Year: 0.25 x E4	979,616,848	(748,081,697)	Unknown	Unknown	Unknown
F2. First Prior Year	(363,802,838)	979,616,848	\$ (748,081,697)	Unknown	Unknown
F3. Second Prior Year	(85,342,509)	(363,802,838)	979,616,848	\$ (748,081,697)	Unknown
F4. Third Prior Year	156,914,613	(85,342,508)	(363,802,839)	979,616,849	\$ (748,081,696)
<b>F5. Total Recognized Investment Gain</b>	<b>687,386,114</b>	<b>(217,610,195)</b>	<b>(132,267,688)</b>	<b>231,535,152</b>	<b>(748,081,696)</b>
G. Funding Value End of Year:					
G1. Preliminary Funding Value End of Year: A+D+E3+F5	<b>19,342,870,512</b>	<b>20,328,281,484</b>			
G2. Upper Corridor Limit: 120% x B	<b>25,762,527,446</b>	<b>23,615,360,702</b>			
G3. Lower Corridor Limit: 80% x B	<b>17,175,018,297</b>	<b>15,743,573,802</b>			
<b>G4. Funding Value End of Year</b>	<b>19,342,870,512</b>	<b>20,328,281,484</b>			
H. Actual/Projected Difference between Market and Funding Value	2,125,902,360	(648,814,232)	(516,546,544)	(748,081,696)	-
I. Market Rate of Return	31.66 %	(7.47)%			
J. Funding Rate of Return	11.39 %	6.12 %			
K. Ratio of Funding Value to Market Value	90.10 %	103.30 %			

# Results of the June 30, 2022 Valuation

Actuarial Accrued Liabilities for:	\$ Millions	
	2022	2021
Age and service retirement allowances based on total service likely to be rendered by <i>present active and T-DROP members</i>	\$ 9,586	\$ 9,362
Benefits payable to present retirees and beneficiaries	14,044	13,596
Benefits payable for all other reasons	1,067	1,029
Total	24,697	23,987
Funding Value of Assets	20,328	19,343
Unfunded Actuarial Accrued Liability	\$ 4,369	\$ 4,645
% Funded Based on		
Funding Value of Assets	82%	81%
Market Value of Assets	80%	90%

If the UAAL were measured based on the market value of assets, it would be \$5,018 Million.

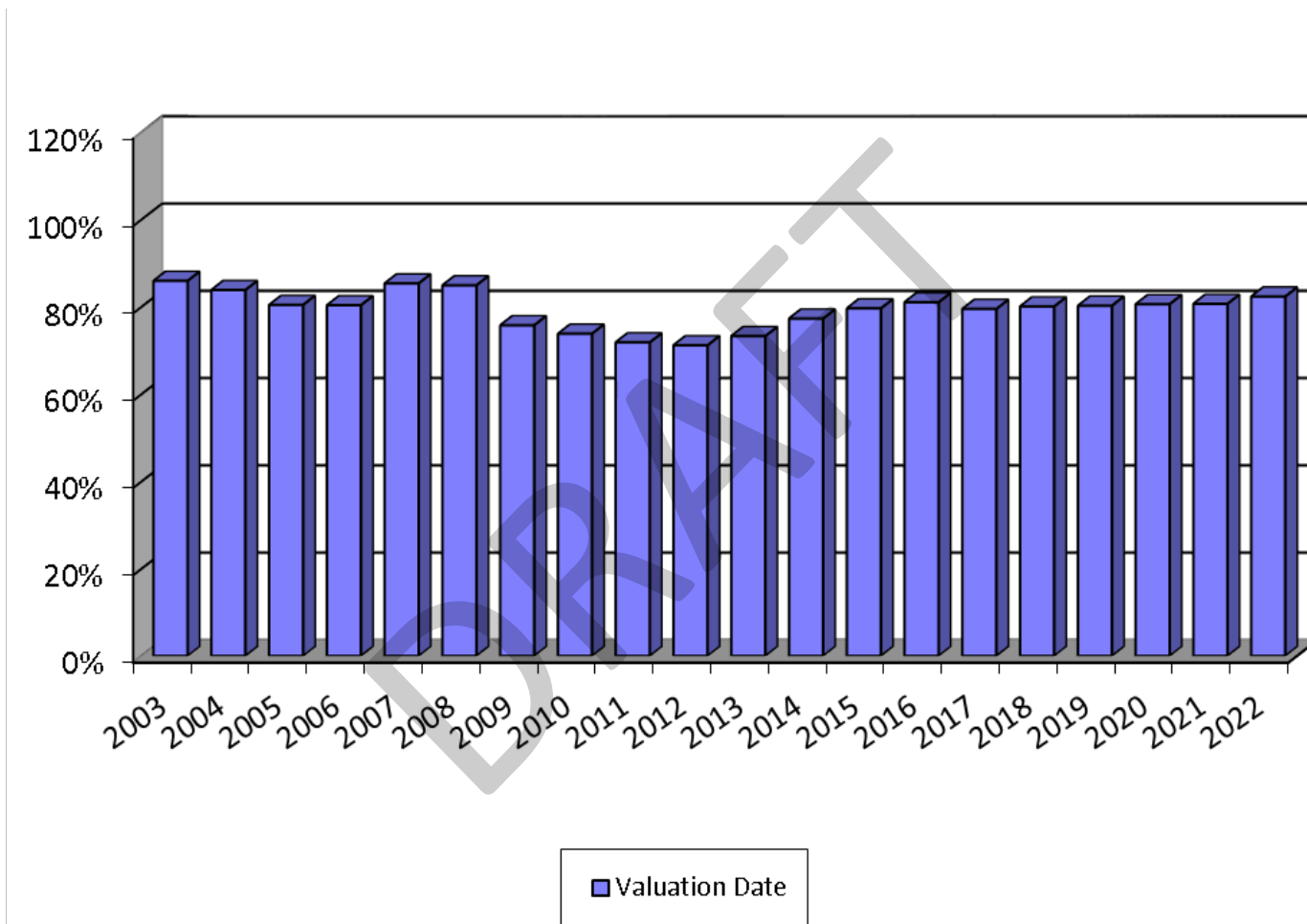
# Results of the June 30, 2022 Valuation

	% Payroll	
	2022	2021
1) Employer Normal Cost	7.05%	7.07%
2) UAAL	7.95%	7.93%
3) Employer Contribution Rate	15.00%	15.00%
Amortization Years	26	32

The employer and employee contribution rates each increase by 0.25% per year from FY 2020 through FY 2023 to ultimate levels of 15% and 7% respectively. The increases were taken into account in determining the amortization period. If the Market Value of Assets were used in the calculations instead of the Funding Value of Assets, the resulting amortization period would be 35 years instead of the 26 years that is shown.

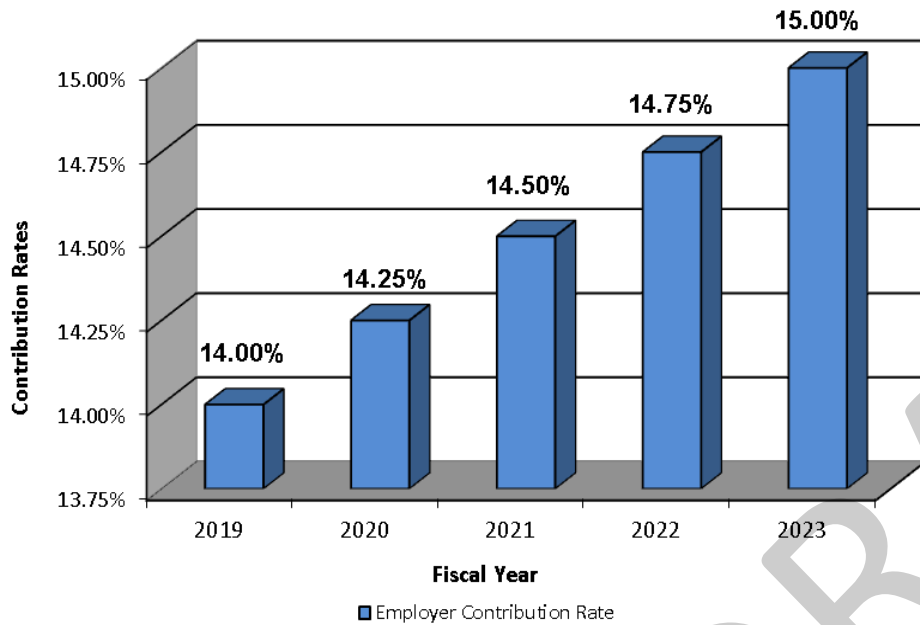
# Funded Ratio: Actuarial Value of Assets as Percents of Accrued Liabilities

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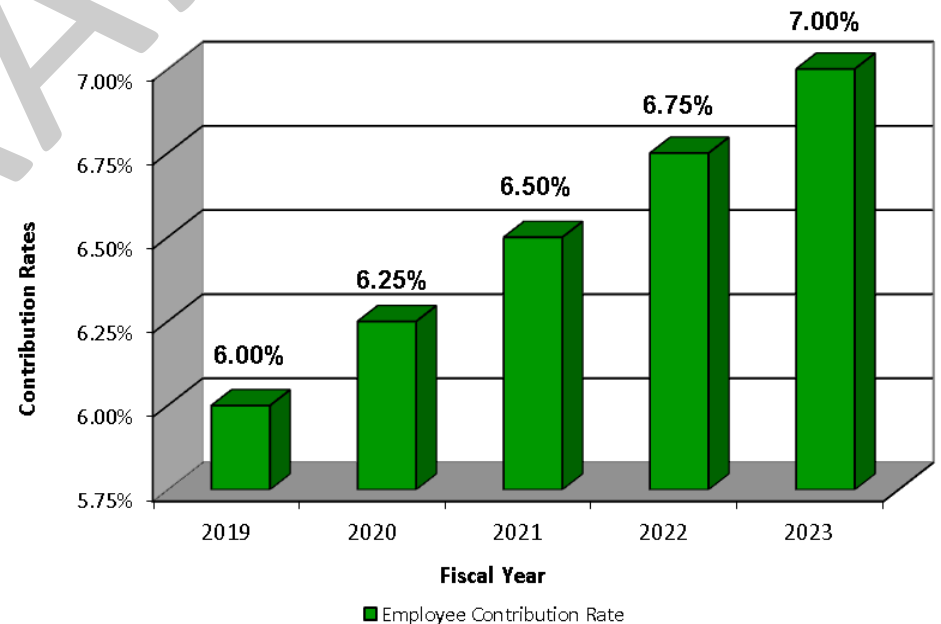


# Future Increases in Contribution Rates



The Employer Contribution Rate is scheduled to increase by 0.25% each year and reach an ultimate rate of 15.0% by FY 2023

The Employee Contribution Rate is scheduled to increase by 0.25% each year and reach an ultimate rate of 7.0% by FY 2023



# Disclosures of Risk

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## Maturity Measures

- Ratio of actives to retired, etc.

## Scenario Testing

- Specify potential future events that differ from assumptions and estimate the effect on future results.

## Stress Testing

- Specify adverse changes in one or a few factors affecting the plan's financial condition and assess the impact.

## Stochastic Modeling

- Simulations showing envelope of outcomes that could occur.

## Other

- Sensitivity testing, liability measures under minimal risk investment policy, etc.

# Maturity Measures



	2022	2021	2020	2019	2018
Number of Active and TDROP Participants	71,378	70,098	70,539	72,164	72,341
Number of Terminated Vested Participants	13,986	13,574	13,338	13,033	12,544
Number of Retirees	52,748	51,405	50,133	48,677	46,824
Retiree % of Total Liabilities	56.9%	56.7%	57.7%	57.4%	56.6%
Commentary	Retired participants account for approximately 57% of plan liabilities, a proportion which has been steadily increasing over the past 5 years. This is indicative of a maturing plan. As a plan matures, it becomes more sensitive to investment volatility.				

# Maturity Measures (\$Millions)



	2022	2021	2020	2019	2018
Actuarial Accrued Liability	24,697	23,987	22,352	21,709	20,935
Payroll	3,320	3,205	3,078	3,027	2,986
Ratio of Actuarial Accrued Liability to Payroll	743.8%	748.4%	756.7%	746.8%	728.9%
Duration of the Present Value of Future Benefits	14.03	14.02	13.83	13.82	13.86

## Commentary

As the ratio of actuarial accrued liability to payroll increases, the amortization period becomes increasingly sensitive to the effects of demographic gains and losses, and assumption changes. For example, a 1% demographic gain or loss would correspond to 7.438% of payroll and would affect the amortization period by 3 years based on the 2022 results.

The duration of the present value of future benefits may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, the current duration of 14.0 indicates that the present value of future benefits would increase approximately 14.0% if the assumed rate of return were lowered 1%. Such a change could affect the amortization period by 20 years or more.

# Maturity Measures (\$Millions)



	2022	2021	2020	2019	2018
Market Value of Assets	19,679	21,469	16,902	17,742	17,493
Payroll	3,320	3,205	3,078	3,027	2,986
Ratio of Market Value of Assets to Payroll	592.7%	669.9%	572.2%	610.3%	609.1%

## Commentary

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. The market value of assets is currently 5.9 times the payroll indicating that a return on assets 2% different from assumed would equal approximately 11.9% of payroll. Such a change could affect the amortization period by approximately 5 years based on 2022 results. While asset smoothing would reduce the effect, asset gains and losses much larger than 2% are common. An increasing level of this maturity measure generally indicates an increasing volatility in the amortization period.



# Additional Maturity Measures (\$Millions)

Valuation Date June 30	(1) Accrued Liabilities (AAL)	(2) Market Value of Assets	(3) Unfunded AAL (1)-(2)	(4) Valuation Payroll	(5) % Change in Payroll	(6) Funded Ratio (2)/(1)	(7) Annuitant Liabilities (AnnLiab)	(8) AnnLiab/AAL (7)/(1)
2012	\$ 16,139	\$ 11,484	\$ 4,655	\$ 2,803		71.2%	\$ 7,649	47.4%
2013#	16,718	12,830	3,888	2,819	0.6%	76.7%	8,181	48.9%
2014	17,310	14,856	2,454	2,851	1.1%	85.8%	8,777	50.7%
2015	18,136	15,036	3,100	2,874	0.8%	82.9%	9,778	53.9%
2016	18,812	14,559	4,253	2,888	0.5%	77.4%	10,430	55.4%
2017#*	20,298	16,285	4,013	2,922	1.2%	80.2%	11,337	55.9%
2018	20,935	17,493	3,442	2,986	2.2%	83.6%	11,851	56.6%
2019	21,709	17,742	3,967	3,027	1.4%	81.7%	12,460	57.4%
2020	22,352	16,902	5,450	3,078	1.7%	75.6%	12,890	57.7%
2021*	23,987	21,469	2,518	3,205	4.1%	89.5%	13,596	56.7%
2022	24,697	19,679	5,018	3,320	3.6%	79.7%	14,044	56.9%

# Benefit change

\* Assumption change

Valuation Payroll includes T-DROP payroll

# Additional Maturity Measures (\$Millions)

Valuation Date June 30	(9) Liability/ Payroll (1)/(4)	(10) Assets/ Payroll (2)/(4)	(11) Est. Porfolio Std. Dev.	(12) Std. Dev. % of Pay (10)x(11)	(13) Unfunded/ Payroll (3)/(4)	(14) Net External Cash Flow (NECF)	(15) NECF/ Assets (14)/(2)	(16) Portfolio Rate of Return	(17) 10-year Trailing Average
2012	575.8%	409.7%			166.1%	\$ (285)	-2.5%	-1.1%	6.6%
2013#	593.0%	455.1%			137.9%	(337)	-2.6%	14.9%	8.0%
2014	607.2%	521.1%			86.1%	(395)	-2.7%	19.2%	8.2%
2015	631.0%	523.1%			107.9%	(445)	-3.0%	4.3%	7.7%
2016	651.3%	504.0%			147.3%	(505)	-3.5%	0.2%	6.3%
2017#*	694.7%	557.4%			137.3%	(556)	-3.4%	16.0%	6.0%
2018	701.1%	585.8%	12.7%	77.3%	115.3%	(607)	-3.5%	11.4%	7.6%
2019	717.2%	586.1%	12.5%	76.3%	131.1%	(642)	-3.6%	5.2%	10.4%
2020	726.2%	549.1%	12.5%	71.5%	177.1%	(665)	-3.9%	-1.0%	8.8%
2021*	748.4%	669.8%	13.8%	92.1%	78.6%	(677)	-3.2%	31.7%	9.6%
2022	743.8%	592.7%	13.7%	81.1%	151.1%	(192)	-1.0%	-7.5%	8.9%

# Benefit change

\* Assumption change

Valuation Payroll includes T-DROP payroll

# Footnotes

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(\*) ATRS had experience studies in these years leading to a change or "true up" in actuarial assumptions. A pattern of periodic studies is a sign of a well-run system and suggests the extent to which the liability measures the actuary provides are likely to be realistic.

(#) ATRS had benefit changes in these years. Benefit increases cause liabilities to rise; benefit decreases cause liabilities to fall. In either case, benefit changes affect the year by year comparability of the measures on this page.

(6) The Funded ratio is the most widely known measure of a plan's financial strength, but the trend in the funded ratio is much more important than the absolute ratio. The funded ratio should trend to 100%. As it approaches 100%, it is important to re-evaluate the level of investment risk in the portfolio and potentially to re-evaluate the assumed rate of return.

(9) and (10) The ratios of liabilities and assets to payroll gives an indication of both maturity and volatility. Many systems have values between 500% and 700%. Values significantly above that range may indicate difficulty in supporting the benefit level as a level % of payroll.



# Footnotes

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(13) The ratio of unfunded liability to payroll gives an indication of the plan sponsor's ability to actually pay off the unfunded liability. A value above approximately 300% or 400% may indicate difficulty in discharging the unfunded liability within a reasonable time frame.

(14) and (15) The ratio of Net External Cash Flow to assets is an important measure of sustainability. Negative ratios are common and expected for a maturing system. In the longer term, this ratio should be on the order of approximately -4%. A ratio that is significantly more negative than that for an extended period could be a leading indicator of potential exhaustion of assets.

(16) and (17) Investment return is probably the largest single risk that most systems face. The year by year return and the 10 year geometric average give an indicator of past performance of the portfolio. The past is not a predictor of the future.

# GOING FORWARD - SCENARIO TESTING



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# About Projections

The projections that follow are based upon many assumptions about the future.

Actual future valuation results will take all known future information into account and will differ from the projections -- perhaps materially.

Projected results are very sensitive to the rates of payroll growth and liability growth that are assumed. In the long run, according to theory, both of those figures should approach 2.75%.



# The Future

Let's have a look at projected valuation results and the amortization period for the next few years based on alternate future rates of investment return for 2023.

All scenarios assume a 7.25% return for years after 2023.

All scenarios assume a 15% of pay contribution rate.

Of course, actual experience will determine what really happens.

# Projected Amortization Years

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Valuation Year	2023	2024	2025
<b>Projection A</b>			
Investment Return	7.25%	7.25%	7.25%
Amortization Years	28	24	31
<b>Projection B</b>			
Investment Return	10%	7.25%	7.25%
Amortization Years	27	21	26
<b>Projection C</b>			
Investment Return	0%	7.25%	7.25%
Amortization Years	33	32	54



# Going Forward

The projections suggest an increase in the amortization period in FY 2023 followed by a decrease in FY 2024. The amortization period increases again in FY 2025 as the last of the Fiscal Year 2022 investment loss is recognized.

If this trend actually materializes, the amortization period could exceed the maximum 30 year amortization period unless the FY 2023 market return is above 7.25%.

If the 2023 market return is very unfavorable, any remaining gains from 2021 could be fully offset causing the amortization period to increase substantially.





# Going Forward

Projections shown indicate that the amortization period will likely be close to 30 years in the next valuation if experience is as assumed.

With a 30 year period, the UAAL grows in \$ amount each year, although it declines as a % of payroll. This situation is referred to as “negative amortization” and is falling out of favor, particularly in situations where the **active contributing population is declining**.

“Negative Amortization” in the context of a mortgage is said to occur during any period during which the loan payment is less than the interest due so that the outstanding balance of the loan actually increases, rather than decreases, as one would normally expect.



# Going Forward

Based upon ATRS' assumptions, it takes about an 18-year period to avoid “negative amortization.”

If experience emerges as expected, ATRS could be at 24 years in FY 2024. A contribution increase to the 17.3% of pay area would get us to 18 years in the June 20, 2022 valuation.



# GOING FORWARD - Declining Educator Population

What happens if the ATRS educator population declines as follows?

- 10% next year (FY 2023) and remains stable thereafter
- 5% per year for five years and remains stable thereafter

Year	Baseline Scenario Level Population				Scenario 1 10% Reduction in Educators for 1-year				Scenario 2 5% Reduction in Educators for 5-years			
				Amortization				Amortization				Amortization
	Educators	Support	Total	Years	Educators	Support	Total	Years	Educators	Support	Total	Years
2022	39,789	31,589	71,378	26	39,789	31,589	71,378	26	39,789	31,589	71,378	26
2023	39,789	31,589	71,378	28	35,810	31,589	67,399	30	37,799	31,589	69,388	28
2024	39,789	31,589	71,378	24	35,810	31,589	67,399	26	35,909	31,589	67,498	25
2025	39,789	31,589	71,378	31	35,810	31,589	67,399	36	34,113	31,589	65,702	35
2026	39,789	31,589	71,378	31	35,810	31,589	67,399	35	32,407	31,589	63,996	37
2027	39,789	31,589	71,378	30	35,810	31,589	67,399	35	30,786	31,589	62,375	41

ATRS has both an unfunded liability and a statutory fixed contribution rate. Population decreases can have a detrimental effect by reducing the covered payroll and, since the contribution rate is fixed, reducing the contributions that are available to fund the unfunded accrued liabilities of the system.

# GOING FORWARD - Risk Management

May involve:

- Reduction in assumed rate of investment return
- Reviewing asset allocation with a goal of reducing the standard deviation of the portfolio return
- Reducing asset-liability mismatch
- Other



# CURRENT EVENTS – LDROM PRIMER



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# Actuarial Standards of Practice “ASOP’s”

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- Actuaries are required to follow ASOP’s in performing their work
- ASOP’s are revised from time to time to reflect emerging actuarial practice
- ASOP 4 is entitled “Measuring Pension Obligations and Determining Pension Plan Costs or Contributions”
- Recent revisions to ASOP 4 will require some new material in our reports

# Low-Default-Risk Obligation Measure (LDRROM)

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- ASOP 4 now includes a new required disclosure called the “LDRROM” when an actuary performs a funding valuation
  - Effective for measurement dates and reports issued on or after February 15, 2023
  - Disclosure not required more than once a year

# LDRROM – First Things First

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- What is the Low-Default-Risk Obligation Measure (LDRROM) meant to represent?
  - It is meant to approximately represent the lump sum cost to a plan to purchase low-default-risk fixed income securities whose resulting cash flows essentially replicate in timing and amount the benefits earned (or the costs accrued) as of the measurement date
  - Or the cost as of the measurement date of reducing or eliminating risk

# Guidance

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- Key guidance from ASOP No. 4 related to the LDRROM (emphasis added)
  - Calculate and disclose when performing a funding valuation
    - Not required more than once per year
  - Select a discount rate or discount rates derived from low-default-risk fixed income securities whose cash flows are **reasonably consistent with the pattern of benefits expected to be paid in the future**
    - Examples are included, but they are examples only and may not be appropriate depending upon the pattern of benefits and the shape of various yield curves



# Risk of Misinterpretation

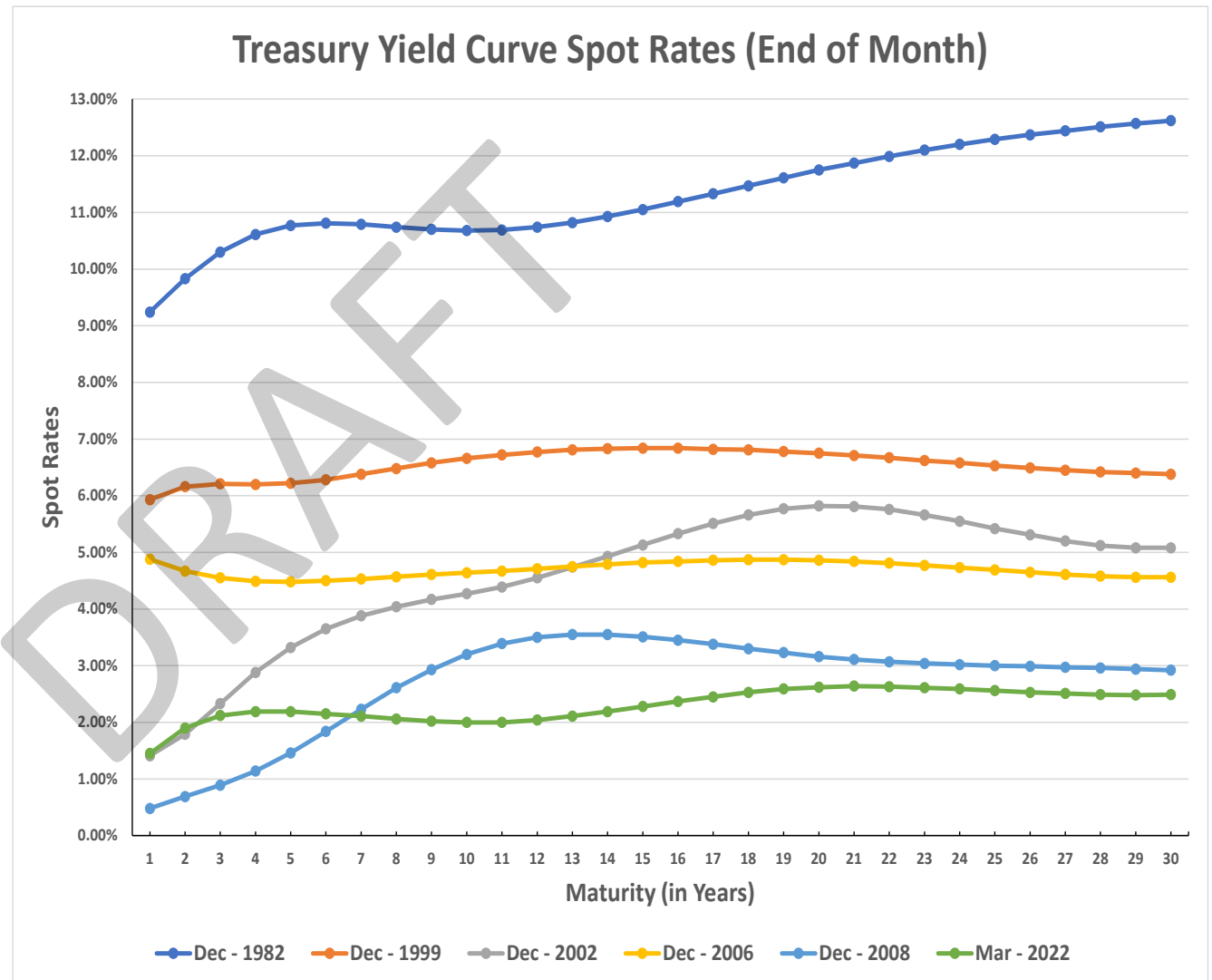
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- ASB anticipated this risk in the ASOP 4 Transmittal Memo:
  - “The calculation and disclosure of this additional measure [the LDRM] is not intended to suggest that this is the “right” liability measure for a pension plan.”



# LDRROM – Market Interest Rates

- The LDRROM is very dependent upon market interest rates at the time of the LDRROM measurement
- The lower the market interest rates, the higher the LDRROM, and vice versa
  - Market interest rates are currently still pretty low, even though they have been rising recently due to recent Federal Reserve action
  - However, they have not always been this low
- Graph shows the Treasury Yield Curve Spot Rates at various dates



# LDRROM – Sample PERS

- Table below shows the Actuarial Accrued Liability (AAL) and the LDRROM as of June 30, 2022 for a sample PERS
  - Valuation discount rate is 6.50%; actuarial cost method is entry age normal; payroll is \$357M
  - LDRROM is presented based upon interest rates as of two different dates: March 31, 2022 and December 31, 1999
    - LDRROM results using December 31, 1999 Treasury rates are for illustration purposes only to show the sensitivity of the LDRROM to various interest rates

**as of June 30, 2022**

<b>Type of Member</b>	<b>Valuation AAL</b>	<b>LDRROM</b>	
		<b>March 2022 Treasury Rates</b>	<b>December 1999 Treasury Rates</b>
Retirees	\$ 2,952,150,155	\$ 4,507,460,547	\$ 2,931,348,653
Deferreds	123,770,692	289,978,278	123,086,543
Actives	1,334,764,200	2,621,004,099	1,304,891,493
<b>Totals</b>	<b>\$ 4,410,685,047</b>	<b>\$ 7,418,442,924</b>	<b>\$ 4,359,326,689</b>

# LDRROM – How Can It Help

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- Multiple ways the LDRROM can assist in the decision making process
  - Provides information to potentially allow for better risk management for the System
  - Puts the appropriateness of potential employer contribution rate reductions or benefit enhancements in a better context
  - Provides more complete information regarding the benefit security of the membership's benefits earned as of the measurement date
  - Brings into consideration a potential value for a “withdrawal liability” for employers that wish to leave an agent-multiple (e.g., CalPERS) or cost-sharing public plan

# LDRROM – Benefit Security

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- Too often a high funded ratio (e.g., 100% funded) on an AAL basis is interpreted as benefit security for the participants
  - The fact that this funded ratio is based upon an expected measure is many times overlooked
- There were many PERS that had high funded ratios in the early to mid 2000's that experienced benefit reductions for past service in later years when experience became less favorable
- If the AAL and LDRROM measures are relatively close, then the System at least has the opportunity to make benefits payable in the future more secure

# Disclaimers

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- This presentation is intended to be used in conjunction with the June 30, 2022 actuarial valuation report.
- This presentation should not be relied on for any purpose other than the purpose described in the presentation.
- Heidi G. Barry, Judith A. Kermans, and Brian B. Murphy are members of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.
- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- Readers are cautioned to examine original source materials and to consult with subject matter experts before making decisions related to the subject matter of this presentation.
- This presentation expresses the views of the authors and does not necessarily express the views of Gabriel, Roeder, Smith & Company.

# STATEMENT OF FINANCIAL INTEREST

**State/District officials file with:**

John Thurston, Secretary of State  
500 Woodlane Street  
Little Rock, AR 72201  
Phone (501) 682-5070  
Fax (501) 682-3548

**Calendar year covered** \_\_\_\_\_

(Note: Filing covers the previous calendar year)

For assistance in completing  
this form contact:

Arkansas Ethics Commission  
Phone (501) 324-9600  
Toll Free (800) 422-7773

**Is this an amendment?**    Yes    No

Please provide complete information. If the information requested in a particular section does not apply to you, indicate such by noting “**Not Applicable**” in that section. Do not leave any part of this form blank. If additional space is needed, you may attach the information to this document. Do not file this form with the Arkansas Ethics Commission.

## SECTION 1- NAME AND ADDRESS

Name \_\_\_\_\_  
(Last) (First) (Middle)

Address \_\_\_\_\_  
(Street or P.O. Box Number) (City) (State) (Zip Code)

Phone \_\_\_\_\_

Spouse's name \_\_\_\_\_  
(Last) (First) (Middle)

All names under which you and/or your spouse do business: \_\_\_\_\_

## SECTION 2- REASON FOR FILING

- Public Official \_\_\_\_\_  
(office held)
- Candidate \_\_\_\_\_  
(office sought)
- District Judge \_\_\_\_\_  
(name of district)
- City Attorney \_\_\_\_\_  
(name of city)
- State Government: Agency Head/Department Director/Division Director \_\_\_\_\_  
(name of agency/department/division)
- Chief of Staff or Chief Deputy \_\_\_\_\_  
(name of Constitutional Officer, Senate, or House of Representatives)
- Public appointee to State Board or Commission \_\_\_\_\_  
(name of board/commission)
- School Board member \_\_\_\_\_  
(name of school district)
- Candidate for school board \_\_\_\_\_  
(name of school district)
- Public or Charter School Superintendent \_\_\_\_\_  
(name of school district/school)
- Executive Director of Education Service Cooperative \_\_\_\_\_  
(name of cooperative)
- Advertising and Promotion Commission member \_\_\_\_\_  
(name of advertising and promotion commission)
- Research Park Authority Board member under A.C.A. § 14-144-201 et seq. \_\_\_\_\_  
(name of research park authority board)

**SECTION 2- REASON FOR FILING (continued)**

- Appointee to one of the following municipal, county or regional boards or commissions (list name of board or commission):
- Planning board or commission \_\_\_\_\_
  - Airport board or commission \_\_\_\_\_
  - Water or Sewer board or commission \_\_\_\_\_
  - Utility board or commission \_\_\_\_\_
  - Civil Service commission \_\_\_\_\_

**SECTION 3- SOURCE OF INCOME**

List each employer and/or each other source of income from which you, your spouse, or any other person for the use or benefit of you or your spouse receives gross income amounting to more than \$1,000. (You are not required to disclose the individual items of income that constitute a portion of the gross income of the business or profession from which you or you spouse derives income. For example: accountants, attorneys, farmers, contractors, etc. do not have to list their individual clients.) If you receive gross income exceeding \$1,000 from at least one source, the answer N/A is not correct.

- a) Check appropriate box:       More than \$1,000                                       More than \$12,500

\_\_\_\_\_

(name of employer or source of income)

\_\_\_\_\_

(address)

\_\_\_\_\_

(name under which income received)

Provide a brief description of the nature of the services for which the compensation was received \_\_\_\_\_

\_\_\_\_\_

- b) Check appropriate box:       More than \$1,000                                       More than \$12,500

\_\_\_\_\_

(name of employer or source of income)

\_\_\_\_\_

(address)

\_\_\_\_\_

(name under which income received)

Provide a brief description of the nature of the services for which the compensation was received \_\_\_\_\_

\_\_\_\_\_

- c) Check appropriate box:       More than \$1,000                                       More than \$12,500

\_\_\_\_\_

(name of employer or source of income)

\_\_\_\_\_

(address)

\_\_\_\_\_

(name under which income received)

Provide a brief description of the nature of the services for which the compensation was received \_\_\_\_\_

\_\_\_\_\_

**SECTION 4- BUSINESS OR HOLDINGS**

List the name of every business in which you, your spouse or any other person for the use or benefit of you or your spouse have an investment or holding. Individual stock holdings should be disclosed. Figures should be based on fair market value at the end of the reporting period.

a) Check appropriate box:  More than \$1,000  More than \$12,500

(name of corporation, firm or enterprise)

(address)

(name under which investment held)

b) Check appropriate box:  More than \$1,000  More than \$12,500

(name of corporation, firm or enterprise)

(address)

(name under which investment held)

c) Check appropriate box:  More than \$1,000  More than \$12,500

(name of corporation, firm or enterprise)

(address)

(name under which investment held)

d) Check appropriate box:  More than \$1,000  More than \$12,500

(name of corporation, firm or enterprise)

(address)

(name under which investment held)

e) Check appropriate box:  More than \$1,000  More than \$12,500

(name of corporation, firm or enterprise)

(address)

(name under which investment held)

f) Check appropriate box:  More than \$1,000  More than \$12,500

(name of corporation, firm or enterprise)

(address)

(name under which investment held)



**SECTION 5- OFFICE OR DIRECTORSHIP**

List every office or directorship held by you or your spouse in any business, corporation, firm, or enterprise subject to jurisdiction of a regulatory agency of this State, or of any of its political subdivisions.

a) \_\_\_\_\_  
(name of business, corporation, firm, or enterprise)  
\_\_\_\_\_  
(address)  
\_\_\_\_\_  
(office or directorship held)  
\_\_\_\_\_  
(name of office holder)

b) \_\_\_\_\_  
(name of business, corporation, firm, or enterprise)  
\_\_\_\_\_  
(address)  
\_\_\_\_\_  
(office or directorship held)  
\_\_\_\_\_  
(name of office holder)

**SECTION 6- CREDITORS**

List each creditor to whom the value of five thousand dollars (\$5,000) or more was personally owed or personally obligated and is still outstanding. (This does not include debts owed to members of your family or loans made in the ordinary course of business by either a financial institution or a person who regularly and customarily extends credit.)

a) \_\_\_\_\_  
(name of creditor)  
\_\_\_\_\_  
(address of creditor)

b) \_\_\_\_\_  
(name of creditor)  
\_\_\_\_\_  
(address of creditor)

c) \_\_\_\_\_  
(name of creditor)  
\_\_\_\_\_  
(address of creditor)

**SECTION 7- PAST-DUE AMOUNTS OWED TO GOVERNMENT**

List the name and address of each governmental body to which you are legally obligated to pay a past-due amount and a description of the nature of the amount of the obligation.

a) \_\_\_\_\_  
(name of governmental body) (address of governmental body)  
\_\_\_\_\_  
(amount owed) (nature of the obligation)

b) \_\_\_\_\_  
(name of governmental body) (address of governmental body)  
\_\_\_\_\_  
(amount owed) (nature of the obligation)



**SECTION 10- AWARDS**

If you are an employee of a public school district, the Arkansas School for the Blind, the Arkansas School for the Deaf, the Arkansas School for Mathematics, Sciences, and the Arts, a university, a college, a technical college, a technical institute, a comprehensive life-long learning center, or a community college, the law requires you to disclose each monetary or other award over one hundred dollars (\$100) which you have received in recognition of your contributions to education. The information disclosed with respect to each such award should include the source, date, description, and a reasonable estimate of the fair market value.

a) \_\_\_\_\_  
(description of award)

\_\_\_\_\_ (date) \_\_\_\_\_ (fair market value)

\_\_\_\_\_ (source of award)

b) \_\_\_\_\_  
(description of award)

\_\_\_\_\_ (date) \_\_\_\_\_ (fair market value)

\_\_\_\_\_ (source of award)

c) \_\_\_\_\_  
(description of award)

\_\_\_\_\_ (date) \_\_\_\_\_ (fair market value)

\_\_\_\_\_ (source of award)

d) \_\_\_\_\_  
(description of award)

\_\_\_\_\_ (date) \_\_\_\_\_ (fair market value)

\_\_\_\_\_ (source of award)

**SECTION 11- NONGOVERNMENTAL SOURCES OF PAYMENT**

List each nongovernmental source of payment of your expenses for food, lodging, or travel which bears a relationship to your office when you appear in your official capacity when the expenses incurred exceed \$150.

a) \_\_\_\_\_  
(name of person or organization paying expense)

\_\_\_\_\_ (business address)

\_\_\_\_\_ \$ \_\_\_\_\_  
(date of expense) (amount of expense)

\_\_\_\_\_ (nature of expenditure)

b) \_\_\_\_\_  
(name of person or organization paying expense)

\_\_\_\_\_ (business address)

\_\_\_\_\_ \$ \_\_\_\_\_  
(date of expense) (amount of expense)

\_\_\_\_\_ (nature of expenditure)

**SECTION 12- DIRECT REGULATION OF BUSINESS**

List any business which employs you and is under direct regulation or subject to direct control by the governmental body which you serve.

a) \_\_\_\_\_  
(name of business)  
\_\_\_\_\_  
(governmental body which regulates or controls)

b) \_\_\_\_\_  
(name of business)  
\_\_\_\_\_  
(governmental body which regulates or controls)

c) \_\_\_\_\_  
(name of business)  
\_\_\_\_\_  
(governmental body which regulates or controls)

d) \_\_\_\_\_  
(name of business)  
\_\_\_\_\_  
(governmental body which regulates or controls)

**SECTION 13- SALES TO GOVERNMENTAL BODY**

List the goods or services sold to the governmental body for which you serve which have a total annual value in excess of \$1,000. List the compensation paid for each category of goods or services sold by you or any business in which you or your spouse is an officer, director, or stockholder owning more than 10% of the stock of the company.

a) \_\_\_\_\_  
(goods or services)  
\_\_\_\_\_  
(governmental body to whom sold)  
\_\_\_\_\_  
(compensation paid)

b) \_\_\_\_\_  
(goods or services)  
\_\_\_\_\_  
(governmental body to whom sold)  
\_\_\_\_\_  
(compensation paid)

c) \_\_\_\_\_  
(goods or services)  
\_\_\_\_\_  
(governmental body to whom sold)  
\_\_\_\_\_  
(compensation paid)

d) \_\_\_\_\_  
(goods or services)  
\_\_\_\_\_  
(governmental body to whom sold)  
\_\_\_\_\_  
(compensation paid)

**SECTION 14- SIGNATURE**

I certify under penalty of false swearing that the above information is true and correct.

\_\_\_\_\_  
Signature

STATE OF ARKANSAS

} ss

COUNTY OF \_\_\_\_\_

Subscribed and sworn before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_ .

(Legible Notary Seal)

\_\_\_\_\_  
Notary Public

My commission expires: \_\_\_\_\_

Note: If faxed, notary seal must be legible (i.e., either stamped or raised and inked) and the original must follow within ten (10) days pursuant to Ark. Code Ann. § 21-8-703(b)(3).

**IMPORTANT**

**Where to file:**

- State or district candidates/public servants file with the Secretary of State.
- Appointees to state boards/commissions file with the Secretary of State.
- County, township, and school district candidates/public servants file with the county clerk.
- Municipal candidates/public servants file with the city clerk or recorder, as the case may be.
- City attorneys file with the city clerk of the municipality in which they serve.
- District judges file with the Secretary of State.
- Members of regional boards or commissions file with the county clerk of the county in which they reside.

**General Information:**

- \* The Statement of Financial Interest should be filed by January 31 of each year.
- \* The filing covers the previous calendar year.
- \* Candidates for elective office shall file the Statement of Financial Interest for the previous calendar year on the first Monday following the close of the period to file as a candidate for elective office unless already filed by January 31. In addition, if the party filing period ends before January 1 of the year of the general election, candidates for elective office shall file a Statement of Financial Interest for the previous calendar year by no later than January 31 of the year of the general election.
- \* Agency heads, department directors, and division directors of state government shall file the Statement of Financial Interest within thirty (30) days of appointment or employment unless already filed by January 31.
- \* Appointees to state boards or commissions shall file the Statement of Financial Interest within thirty (30) days after appointment unless already filed by January 31.
- \* If a person is included in any category listed above for any part of a calendar year, that person shall file a Statement of Financial Interest covering that period of time regardless of whether they have left their office or position as of the date the statement is due.

## INSTRUCTIONS FOR STATEMENT OF FINANCIAL INTEREST

### INTRODUCTION/WHO MUST FILE

Ark. Code Ann. § 21-8-701(a) requires that the following persons file a written Statement of Financial Interest on an annual basis:

- A public official, as defined by Ark. Code Ann. § 21-8-402(17);
- A candidate for elective office;
- A district judge; or city attorney, whether elected or appointed;
- Any agency head, department director, or division director of state government;
- Any chief of staff or chief deputy of a constitutional officer, the Senate, or the House of Representatives;
- Any public appointee to any state board or commission (who possesses regulatory authority or is authorized to receive or disburse state or federal funds);<sup>1</sup>
- All persons who are elected members of a school board or who are candidates for a position on a school board;
- All public and charter school superintendents;
- All executive directors of education service cooperatives;
- Any person appointed to a municipal, county or regional (i) planning board or commission, (ii) airport board or commission, (iii) water or sewer board or commission, (iv) utility board or commission, or (v) civil service commission;
- Any member of an advertising and promotion commission; and
- Any member of a research park authority board under Ark. Code Ann. § 14-144-201 et seq.

The Arkansas Ethics Commission, which enforces this statute, has prepared these instructions, along with the office of the Secretary of State, whose office maintains the records, to assist persons required to file these statements. If you have any questions concerning the reporting requirements or how to fill out your Statement of Financial Interest, call or write either the **Arkansas Ethics Commission**, Post Office Box 1917, Little Rock, Arkansas 72203-1917, tel. (501) 324-9600 or the **Secretary of State, Elections Division**, State Capitol, Room 026, Little Rock, Arkansas 72201, tel. (501) 682-5070.

When preparing the Statement of Financial Interest, please **print or type the information**. You must also sign the Statement in Section 13 and your signature must be attested to before a Notary Public.

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<sup>1</sup> Pursuant to Ark. Code Ann. § 21-8-701(a)(5)(B), a public appointee to a state board or commission which is not charged by law with the exercise of regulatory authority and which receives or disburses state or federal funds only in the form of mileage reimbursement for members attending meetings of the board or commission is not required file a written Statement of Financial Interest.

## **TIME FOR FILING/PERIOD COVERED**

Pursuant to Ark. Code Ann. § 21-8-701(c)(1)(A), a Statement of Financial Interest for the previous calendar year "shall be filed by January 31, of each year, except that a candidate for elective office shall file the Statement of Financial Interest for the previous calendar year on the first Monday following the close of the period to file as a candidate for elective office." Pursuant to Ark. Code Ann. § 21-8-705, if the party filing period under Ark. Code Ann. § 7-7-203 ends before January 1 of the year of the general election, a candidate for elective office shall file a Statement of Financial Interest for the previous calendar year no later than January 31 of the year of the general election in addition to the Statement of Financial Interest required under Ark. Code Ann. § 12-8-701.

Moreover, an agency head, department director, or division director of state government and any public appointee to a state board or commission authorized or charged by law with the exercise of regulatory authority or authorized to receive or disburse state or federal funds shall file a Statement of Financial Interest for the previous calendar year within thirty (30) days after appointment or employment. Incumbent officeholders who filed a Statement of Financial Interest for the previous calendar year by January 31 of the year in which an election is held are not required to file an additional Statement of Financial Interest upon becoming a candidate for reelection or election to another office during the year. Ark. Code Ann. § 21-8-701(c)(2). If a person required to file a Statement of Financial Interest leaves his or her office or position during a particular calendar year, he or she shall still be required to file a Statement of Financial Interest covering that part of the year which he or she held the office or position. Ark. Code Ann. § 21-8-701(c)(1)(B).

## **WHERE TO FILE**

Pursuant to Ark. Code Ann. § 21-8-703, the Statement of Financial Interest shall be filed as follows:

- (1) State or district public servants (including appointees to state boards/commissions) and candidates for state or district public office are required to file the statement with the Secretary of State;
- (2) County, township, or school district public servants and candidates for county, township, or school district public office are required to file the statement with the county clerks;
- (3) Municipal public servants and candidates for municipal office are required to file the statement with the city clerk or recorder;
- (4) City attorneys, whether elected or appointed, are required to file the statement with the city clerk of the municipality within which they serve;
- (5) Members of regional boards or commissions are required to file the statement with the county clerk of the county in which they reside; and
- (6) District judges are required to file the statement with the Secretary of State.

## **SPECIFIC REPORTING INSTRUCTIONS**

### **SECTION 1 (Name and Address)**

Answer each of these questions or indicate "Not Applicable". List all names under which you and/or your spouse do business.

### **SECTION 2 (Reason for Filing)**

Check the box applicable to you and provide the office/position held or name of the board, commission or school district in the appropriate space.

### **SECTION 3 (Sources of Income)**

The term "gross income" is intended to be comprehensive. It refers to all income from whatever source derived, including but not limited to compensation for services, fees, commissions, and income derived from business interests. Report each employer and/or each other source of income from which you, your spouse, or any other person for the use or benefit of you or your spouse receives gross income exceeding \$1,000 on an annual basis. Include your governmental income from the office or position which requires your filing of this form. You are required to use the gross amount received as income. Thus, you must compute your total income from any particular source without first deducting expenses.

You are not required to list the individual items of gross income that constitute a portion of the income of the business or profession from which you or your spouse derives income. (For example: Accountants, attorneys, farmers, contractors, etc. do not have to list their individual clients.) If more than one source/employer/entity compensated you during the past year, you are required to list each source of income greater than \$1,000. If you or your spouse received speaking honoraria, you must report, under the request for "source", the sponsor of each event for which a payment was made for your speech or appearance, as well as the date and dollar category ("more than \$1,000.00" or "more than \$12,500.00"). The term "honoraria", as used herein, means a payment of money or any thing of value for an appearance, speech, or article. NOTE: Food, lodging, and travel provided to a public servant in connection with an appearance would not constitute honoraria if the public servant is appearing in his or her official capacity and the appearance bears a relationship to the public servant's office or position. Section 10 of the Statement of Financial Interest addresses the reporting of payment for such food, lodging, and travel.



You must also provide a brief description of the nature of the services for which the income was received, as well as the name under which the income was received. For example:

<b>Source</b>	<b>Description</b>	<b>Amount</b>
State of Arkansas (address) John Doe	Executive Dir.	More than \$12,500.00
University of Arkansas (address) John M. Doe	Teaching	More than \$12,500.00
450 Main Street, Little Rock, Arkansas John M. Doe	Rent Income	More than \$12,500.00
Ark. Med. Society Annual Meeting (address) John Doe	Speaking fee Oct. 2, Little Rock	More than \$1,000.00
Star National Bank Star, Arkansas John or Jane Doe	Interest Income	More than \$1,000.00
City of Mayberry (address) Jane Doe	Spouse income	More than \$12,500.00
Ark. Bar Association Annual Meeting (address) Jane Doe	Speaking Fee  Spouse, June 12 Hot Springs	More than \$1,000.00

#### **Section 4 (Business or Holdings)**

In this section, list the name of every business in which you, your spouse or any other person for the use or benefit of you or your spouse have an investment or holding. Stocks, bonds, stock options and other securities held by you or your spouse must be reported. Figures for these items, as well as all other holdings or accounts, should be based on fair market value at the end of the reporting period.

For **securities, stocks, or bonds**, you must disclose each security held in your portfolio which exceeds the \$1,000.00 threshold. If securities are held through an investment firm, the firm will normally provide periodic statements from which you may obtain the information required to be disclosed. If you own different types of securities issued by the same authority, such as U. S. Treasury obligations or bonds, it is not necessary to provide an itemized list of each security worth over \$1,000.00. Rather, you may simply report the aggregate value of the securities issued by the same authority and identify the type of securities.

In the case of **mutual funds or similar investments**, you need not disclose specific stocks held in a widely diversified investment trust or mutual fund as long as the holdings of the trust or fund are a matter of public record and you have no ability to exercise control over the specific holdings. If you have such control, you must disclose each holding exceeding the threshold level of \$1,000.00, whether or not you exercise the control. Otherwise, you may simply disclose the name, address, etc. of the authority through which your mutual fund is invested (e.g., IDS), the category of the fund and the category of the appropriate amount (e.g., "more than \$1,000.00").

In the case of **bank accounts**, if the total of accounts (including certificates of deposit) deposited in a particular bank exceeds \$1,000.00, list each institution holding more than \$1,000.00. If no particular bank holds more than \$1,000.00, you need not report any bank accounts. All accounts at one institution, including those for your spouse, may be combined as one entry. Thus, for example, you may report a checking account, savings account, certificate of deposit, and IRA in Smith First National Bank of Arkansas by checking the gross total of the accounts (e.g., "more than \$1,000.00") and stating "Smith First National Bank of Arkansas" with its address. You need not list each account. If you are listed on an account purely for custodial reasons, and you do not assert any ownership rights to the assets in the account (for example, if you are a joint tenant with an elderly relative), you need not list the account.

For any business interest, if you or your spouse has an interest in a proprietorship, partnership, or corporation that is actively engaged in a trade or business, you must disclose the name and address of each interest. It is not necessary to provide an itemized list of the assets of the business. For example, you need only categorize the total value of your interest (e.g., "more than \$12,500.00") and not items such as "office equipment." This includes each asset held in trust for you or your spouse which has a value greater than \$1,000.00. Holdings of a trust for which you or your spouse are merely an administrator and for which you have no beneficial interest need not be reported.

## **Section 5 (Office or Directorship)**

You must report your nongovernmental offices and directorships held by you or your spouse in any business, corporation, firm, or enterprise subject to the jurisdiction of a regulatory agency of this State, or any of its political subdivisions. For each such business, provide the name of the business, its address, the office or directorship held and the name of the person (either you or your spouse) who holds the office or directorship. A "regulatory agency", as

defined by Ark. Code Ann. § 21-8-301(1), means any "state board, commission, department, or officer authorized by law to make rules or to adjudicate contested cases except those in the legislative or judicial branches."

### **Section 6 (Creditors)**

You must report the name and address of each creditor to whom the value of \$5,000.00 or more is personally owed and outstanding at the end of the reporting period. All information regarding a single creditor may be reported in a single entry. If you have more than one liability owed to the same creditor, add up the items of credit to determine if the \$5,000.00 threshold has been met. The identity of the creditor is the name of the person or organization to which the liability is owed (e.g., "Bob Smith, 1000 Elm Street, Little Rock, Arkansas").

You do not need to include debts owed to members of your family. You may also exclude loans made in the ordinary course of business by either a financial institution or a person who regularly and customarily extends credit. This exclusion applies to such items as a mortgage secured by real property which is your personal residence, credit extended to purchase personal items such as furniture or appliances, credit card debts, and car loans, provided the credit does not exceed the value of the item purchased.

Debts not incurred in the ordinary course of business include, but are not limited to, such items as legal judgments, judgment liens, money borrowed from individuals, other than family members, who are not normally in the business of lending money, and tax liens owed to any governmental agency.

### **Section 7 (Past-Due Amounts Owed to Government)**

You must report the name and address of each governmental body to which you are legally obligated to pay a past-due amount and a description of the nature and amount of the obligation. Such debts include, but are not limited to tax liens owed to any governmental agency or other legally obligated debts in which you may be in default to a governmental body.

### **Section 8 (Guarantor, Co-Maker)**

The law requires you to provide the name and address of each guarantor or co-maker, other than a member of your family, who has guaranteed a debt which is still outstanding. The \$5,000.00 threshold of Section 6 does not apply here. To the extent that you have a guarantor or co-maker of any of your outstanding debts, the guarantor or co-maker must be disclosed. There is no exception for debts incurred in the ordinary course of business. This requirement also includes debts arising, extended or refinanced after January 1, 1989.

This requirement extends to situations where you have co-signed a loan to assist another person in obtaining credit, unless the person is a member of your family.

## Section 9 (Gifts)

The law requires you to identify the source, date, description, and a reasonable estimate of the fair market value of each gift of more than one hundred dollars (\$100.00) received by you or your spouse during the reporting period or more than two hundred and fifty dollars (\$250.00) received by your dependent children during the reporting period. A gift is any "payment, entertainment, advance, services, or anything of value" unless consideration of equal or greater value has been given therefor. The value of an item shall be considered to be less than one hundred dollars (\$100) if the public servant reimburses the person from whom the item was received any amount over one hundred dollars (\$100) and the reimbursement occurs within ten (10) days from the date the item was received. All types of gifts must be reported. Items such as food, lodging, and travel are considered gifts unless they are received when you are appearing in your official capacity and the appearance bears a relationship to your office or position. [Note: The reporting of food, lodging, and travel received by a public servant who is appearing in his or her official capacity at an event which bears a relationship to his or her office or position is addressed in Section 10 below.]

A gift can be a tangible item, such as a watch, or an intangible item, such as a hunting or fishing trip. A gift does not include (1) informational material; (2) receiving food, lodging, or travel which bears a relationship to the public servant's office and when appearing in an official capacity; (3) gifts which are not used and returned to the donor within 30 days; (4) gifts from a family member listed in Ark. Code Ann. § 21-8-402(5)(B)(iv), unless the family member is acting as an agent for a person not covered by the exception; (5) campaign contributions; (6) devises or inheritances; (7) anything with a value of \$100 or less; (8) wedding presents and engagement gifts; (9) a monetary or other award presented to an employee of a public school district, the Arkansas School for the Blind, the Arkansas School for the Deaf, the Arkansas School for Mathematics, Sciences, and the Arts, a university, a college, a technical college, a technical institute, a comprehensive life-long learning center, or a community college in recognition of the employee's contribution to education; (10) tickets to charitable fundraising events held within this state by a non-profit organization which is exempt from taxation under Section 501(c)(3) of the Internal Revenue Code; (11) a personalized award, plaque, or trophy with a value of one hundred fifty dollars (\$150) or less; (12) an item which appointed or elected members of a specific governmental body purchase with their own personal funds and present to a fellow member of that governmental body in recognition of public service; (13) food or beverages provided at a conference scheduled event that is part of the program of the conference; (14) food or beverages provided in return for participation in a bona fide panel, seminar, speaking engagement at which the audience is a civic, social, or cultural organization or group; (15) a monetary or other award publicly presented to an employee of state government in recognition of his or her contributions to the community and State of Arkansas when the presentation is made by the employee's supervisor or peers, individually or through a non-profit organization which is exempt from taxation under Section 501(c) of the Internal Revenue Code, and the employee's receipt of the award would not result in or create the appearance of the employee using his or her position for private gain, giving preferential treatment to any person, or losing independence or impartiality (This exception shall not apply to an award presented to an employee of state government by a person having economic interests which may be affected by the performance or nonperformance of the employee's duties or responsibilities.); and (16)

anything of value provided by a political party under Ark. Code Ann. § 7-1-101 or § 7-7-205 when serving as the host of the following events to all attendees as part of attendance at the event: (A) the official swearing-in, inaugural, and recognition events of constitutional officers and members of the general assembly; and (B) an official event of a recognized political party so long as all members of either house of the General Assembly affiliated with the recognized political party are invited to the official event.

In reporting a gift, you must report the source, the date it was received, a reasonable estimate of its fair market value, and a brief description. In that regard, the Ethics Commission has issued opinions concerning the "fair market value" of such items as transportation on a private aircraft. A group of items received from the same source at the same time would be considered one gift and the separate values should be added together. As an example, if you receive a tie and tie clip (valued \$50.00) along with a pair of golf shoes (valued at \$75) from one donor, this should be reported and described in Section 9, as the receipt of a gift, "tie, tie clip and shoes." The value would be \$125.00. Similarly, food and beverages provided you in connection with lodging should be aggregated to ascertain if the threshold reporting level has been reached. If you are unsure if the value should be aggregated for purposes of reporting, you may wish to contact the Arkansas Ethics Commission for an opinion.

In accordance with Ark. Code Ann. § 21-8-804, certain designated officials are authorized to accept gifts, grants, and donations of money or property on behalf of the State of Arkansas, the Arkansas Senate, the Arkansas House of Representatives, and the Arkansas Supreme Court. In addition, the designated officials are authorized to accept donations of money for the purpose of hosting official swearing-in and inaugural events of the constitutional officers, Senate, House of Representatives, and Supreme Court justices, the official recognition event for the President Pro Tempore, and the official recognition event for the Speaker of the House. The public official accepting the gift, grant, or donation of money or property on behalf of an appropriate entity is not required to disclose same on his or her Statement of Financial Interest. Instead, public servants are required to report such gifts, grants, or donations of money or property to the Ethics Commission on a quarterly basis on a separate disclosure form prepared for such purposes.

### **Section 10 (Awards)**

If you are an employee of a public school district, the Arkansas School for the Blind, the Arkansas School for the Deaf, the Arkansas School for Mathematics, Sciences, and the Arts, a university, a college, a technical college, a technical institute, a comprehensive life-long learning center, or a community college, the law requires you to disclose each monetary or other award over one hundred dollars (\$100) which you have received in recognition of your contributions to education. The information disclosed with respect to each such award should include the source, date, description, and a reasonable estimate of the fair market value.

### **Section 11 (Nongovernmental Sources of Payment)**

Payments for food, lodging, or travel are not considered a gift in situations where a public servant is appearing in his or her official capacity and the appearance bears a relationship to the

public servant's office or position. However, Section 11 requires that each nongovernmental source of payment of expenses for such food, lodging, or travel be listed when the expenses paid by that source exceed \$150.00. [Note: The reporting of money or things of value received when you are not appearing in an official capacity or the appearance does not bear a relationship to your office or position is addressed in Section 3 ("Sources of Income") or Section 9 ("Gifts).] In this regard, you must list the name and business address of the person or organization which has paid your expenses, the date, nature, and amount of the expenses unless such person or organization was compensated by the governmental body for which the public servant serves. Thus, you must disclose in this section, lodging or travel received in connection with such activities as speaking engagements, conferences, or fact finding events related to your official duties.

Section 11 requires the disclosure of each nongovernmental source of payment when the expenses paid in connection with a particular appearance exceed \$150.00. Thus, if one source provides lodging and food and the total amount paid exceeds \$150.00, that source must be reported in this section.

The **organization** is the source of payment. It should be the name of the sponsor actually paying or providing the expenses. The **date of expenses** should be the inclusive dates of all travel provided. If the travel all occurred on one day, report that day. Otherwise, list the starting and ending dates of each trip provided (i.e., "May 1 - 5, 1997").

It is permissible to extend the duration of a trip at your own expense, accepting return travel from the sponsor. However, to avoid suggesting that travel was accepted for a longer period of time than was actually the case, you should indicate any time not spent at the sponsor's expense on either the line requesting the "date" or "nature" of expenses. For example, using the dates listed above, you could report "May 1 - 5, 1997. May 3 - 4 on personal business, expenses paid by me."

## **Section 12 (Direct Regulation of Business)**

The law requires you to list any business by whom you are employed if the business is under direct regulation or subject to direct control by the governmental body which you serve. You must report the employment by listing the name of this business/employer and provide the governmental body which regulates or controls aspects of the business. Such a business relationship typically exists if your private employer is subject to any rules or regulations of a governmental body or if a governmental body adjudicates contested cases of fact involving your private employer. For example, if you work as a licensed dentist, the appropriate regulatory governing body may be the State Board of Dental Examiners.

Whether your business is under direct regulation or subject to direct control by a governing body is often a question of fact. If you are unsure, you should contact the Arkansas Ethics Commission or, if you know, the agency you suspect may regulate part or all of your activities.

### **Section 13 (Sales to Governmental Body)**

The law requires you to report certain business relationships with the government if a significant sale of goods or services occurs. Specifically, you must set out in detail the goods or services sold having a total annual value in excess of \$1,000.00 sold to the governmental body for which you serve or are employed and the compensation paid for each category of goods or services by you or any business in which you or your spouse is an officer, director, stockholder owning more than ten percent (10%) of the stock, owner, trustee, or partner.

### **Section 14 (Signature)**

Under the law, each person, required to file a Statement of Financial Interest must prepare the statement under penalty of false swearing and sign such form attesting to the truth and accuracy of the information set forth on the form. Ark. Code Ann. § 21-8-702. If a person who is required to file a Statement of Financial Interest is called to active duty in the armed forces of the United States, the statement may be completed by the spouse of the person. If the Statement of Financial Interest is completed by the spouse, under this exception, the spouse's signature shall be sufficient for the requirement of Ark. Code Ann. § 21-8-702.

**REVISED 12/2017**

# 2023 Board of Trustees Meeting Schedule

**Arkansas Teacher Retirement System  
1400 West Third Street  
Little Rock, AR 72201**

Meeting Date*	Audit Committee	Investment Committee	Operations Committee	Board of Trustees
February 6, 2023	8:30 a.m.*	9:00 a.m.*	10:30 a.m.*	11:00 a.m.*
April 3, 2023	8:30 a.m.*	9:00 a.m.*	10:30 a.m.*	11:00 a.m.*
June 5, 2023	8:30 a.m.*	9:00 a.m.*	10:30 a.m.*	11:00 a.m.*
July 17 2023 – Educational Training	9:00 a.m.			
September 25, 2023	8:30 a.m.*	9:00 a.m.*	10:30 a.m.*	11:00 a.m.*
December 4, 2023	8:30 a.m.*	9:00 a.m.*	10:30 a.m.*	11:00 a.m.*

**NCTR Trustee Workshop: *To be announced at later date.***

**NCTR 99<sup>th</sup> Annual Conference: *To be announced at later date.***

**\*Dates and times are subject to change. Meeting times may be adjusted earlier or later than scheduled, depending upon time needed for the previous meeting.**

**All meetings will be held on the Third Floor, Room 300, of the Arkansas Teacher Retirement System Building unless noted otherwise.**



**Waiver of Member Interest**  
**December 5, 2022 Board Meeting**  
**A.C.A. Sec. 24-7-205**

**Amount**

**Reason to Waive Interest**

**NONE**



**Manifest Injustice Report to the Board of Trustees of the Arkansas Teacher Retirement System**  
**December 5, 2022**

Claim #: 2022-007

Claim Type: Reported Salary

Facts and Circumstances: Member earned a salary for summer school services provided in June of 2021. Member entered T-DROP effective July 1, 2021. The summer school salary was paid to the member in July instead of June. As a result, the summer school salary was not included in member's salary report through June 30, 2021, and not included in the member's T-DROP benefit calculation.

Findings and Recommendations of Committee: The member's T-DROP benefit calculation should include the salary earned by the member for the summer school services provided. The member's T-DROP deposits should include the amounts that would have been calculated at the beginning of the member's participation in T-DROP had the member's salary for the summer school services provided been included in the calculation of the final average salary. The MI Committee recommends that the Executive Director find that a manifest injustice exists here.

Executive Director Remedy: Concurs with MI Committee Recommendation

Claim #: 2022-008

Claim Type: Act 595 – 160 Days of Service

Facts and Circumstances: Member worked and received a full year of service credit during FY22. Acts 2019, No. 595 provides that benefits cannot become effective any earlier than July 1 of the following fiscal year without subsequent Board action where retirement will not result in vacating a classroom.

Findings and Recommendations of Committee: Member's retirement will not result in vacating a classroom. The MI Committee recommends that the Executive Director find that a manifest injustice exists here and allow the member to retire effective March 1, 2022.

Executive Director Remedy: Concurs with MI Committee Recommendation



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**MEMO TO: BOARD OF TRUSTEES OF THE ARKANSAS TEACHER RETIREMENT SYSTEM**

**FROM: EXECUTIVE DIRECTOR, CLINT RHODEN**

**SUBJECT: ARKANSAS SCHOOL BOARDS ASSOCIATION — APPLICATION FOR CONTINUED PARTICIPATION AS A COVERED EMPLOYER UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM**

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**I. Questions Presented**

1. Is the Arkansas School Boards Association (ASBA) eligible to continue its covered employer status under the Arkansas Teacher Retirement System (ATRS)?
2. Will the continued participation of ASBA's employees in ATRS impair ATRS' legal status as a governmental plan under the Internal Revenue Code (IRC), 26 U.S.C. § 1 et seq., or the Employee Retirement Income Security Act of 1974 (ERISA), 29 U.S.C. § 1001 et seq., or subject ATRS to additional federal requirements?
3. Will the continued participation of ASBA's employees in ATRS have a substantial adverse impact on ATRS' actuarial soundness?
4. Should the Board of Trustees of the Arkansas Teacher Retirement System (Board of Trustees) vote to approve the continued participation of ASBA as a covered employer under ATRS?

**II. Staff Recommended Answers to Questions Presented**

1. Yes, ASBA is eligible to continue its covered employer status under ATRS as its employees will likely meet the requirements of Ark. Code Ann. § 24-7-202(19)(D).
2. No, the continued participation of ASBA's employees in ATRS will not or is unlikely to impair ATRS' legal status as a governmental plan or subject ATRS to additional federal requirements.
3. No, there is no evidence to support a contention that the continued participation of ASBA's employees in ATRS is likely to have a substantial adverse impact on ATRS' actuarial soundness.
4. Yes, the Board of Trustees should vote to approve the continued participation of ASBA as a covered employer under ATRS for the reasons provided in this Section II (1) – (3).



### **III. Relevant Facts**

ASBA is currently approved as an ATRS covered employer under Ark. Code Ann. § 24-7-202(19)(D). ASBA began participating as a covered employer under ATRS on January 1, 1994. ASBA was not created by legislation.

A non-profit corporation incorporated on November 29, 1972, ASBA's mission is to promote student focused leadership in public education through training, advocacy and service for local board members. ASBA's primary purpose is to serve as an advocate for public education. ASBA does not appear to provide services to private schools or private school boards.

According to ASBA's Articles of Incorporation and Bylaws, ASBA's objectives are to:

1. Promote high quality and better educational opportunities for all children in Arkansas in order to meet high standards of academic achievement;
2. Promote and insure the welfare of all school employees;
3. Gather, assemble, disseminate, and distribute pertinent information to all members of ASBA pertaining to problems affecting public schools;
4. Provide training for school boards in school governance and finance, boardmanship skills, and educational issues;
5. Provide legal, policy, and financial services and programs that are cost effective for school boards and school districts
6. Provide a plan for counseling with legislators and others in regard to educational policies and school legislation;
7. Promote greater activity, higher efficiency, and a better understanding of **their** problems on the part of local school boards in order to bring about the best possible management of our schools;
8. Inform the public of school conditions and needs through a planned and well-executed public relations program;
9. Secure a concerted effort from local school boards in the solution of statewide public school problems;
10. Affiliate with and pay dues to other professional organizations with purposes that are compatible to those of ASBA;
11. Provide information and assistance on matters of mutual concern, including insurance, grants, budgets, and group purchasing; and
12. Neither endorse nor oppose candidates for political office, either partisan or non-partisan
13. Refrain from supporting an official position on political issues unless the position affects the operation or support the public schools in Arkansas.

ASBA supports school board members by providing board training, policy and advocacy services, legal assistance, risk management services, access to the Interlocal Purchasing System, accidental death policies, group insurance, and scholarship programs.

General board training is conducted through workshops, seminars, conferences, online courses, and webinars that focus on leadership development, school law, finance, audits, personnel matters, student hearings etc. ASBA also provides specialized training to meet a school board's specific needs.



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As part of its policy and advocacy services, ASBA offers the Model Policy Service to subscribers. The Model Policy Service provides subscribers with access to policy updates that are extensively researched and include legal citations. The Model Policy Service is also a resource that school districts can use to keep their policies current and in compliance with state and federal law.

In its advocacy for school boards and public education, ASBA publicly addresses issues that are important to school board members and the students served by school board members. ASBA's legislative team actively works with legislators to improve bills and pass important legislation. ASBA's staff attorney provides legal assistance to board members and administrators who encounter issues regarding personnel, students, or policies.

ASBA offers property, vehicle, workers' compensation, and board legal liability insurance to members of ASBA as part of its risk management services. Each ASVA school board member receives an accidental death policy that provides insurance coverage for school-related travel. Additionally, school employees may participate in group insurance programs that are endorsed by ASBA and provide life, long-term disability, and business trip AD&D insurance coverage.

ASBA's Interlocal Purchasing System is a multi-state purchasing program that meets the bidding requirements of school boards and includes discounts from national vendors for equipment, furniture, and other supplies. Finally, as part of its ASBA Educational Foundation scholarship program, ASBA annually awards five (5) scholarships to the children of school board members.

If ASBA did not provide the services and training it offers to the school boards of Arkansas, the school boards would have to seek the services and training from other lawyers, insurance providers, or the Arkansas Insurance Department.

ASBA offers regular memberships, associate memberships, honorary life memberships, and corporate memberships. Regular memberships are available to the school boards of a public school district, charter school, or education service cooperative in Arkansas. The membership is in the name of the school district and not in the names of individual board members. A regular member must be a political subdivision or integral political subdivision of Arkansas, an entity or educational organization that fulfills essential governmental functions of providing education, or an entity whose income is excluded from gross income under § 115(1) of the Internal Revenue Code.

Regular members and corporate members have voting rights. Associate members do not have voting rights. It is unclear whether honorary life members have voting rights.

ASBA currently has approximately seven (7) committees which include the Executive Committee, Nominating and Credentials Committee, Finance Committee, Resolutions Committee, Legislative Committee, ASBA Scholarship Selection Committee, and Selection Committee for the Dr. Daniel L. Pilkinton Award for Outstanding Service to Public Education. Additional committees may be established if deemed necessary by the Executive Director.

The Legislative Committee monitors committee discussions and decisions of the Arkansas General Assembly. The Legislative Committee also communicates the progress of legislation and concerns to



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ASBA members. If called upon, ASBA may provide testimony concerning education issues and develop information to share concerning proposed legislation. The ASBA Legislative Team will also develop proposed legislation that is designed to benefit students in Arkansas' public schools.

The ASBA Scholarship Selection Committee and the Selection Committee for the Dr. Daniel L. Pilkinton Award for Outstanding Service to Public Education are responsible for administering the scholarship program and awarding scholarships.

The Nominating and Credentials Committee receives and considers declarations of intent from persons who are interested in serving as an officer on the ASBA Board of Directors. This committee verifies the credentials of each person who submits a declaration of intent and verifies that each nominee has been properly nominated by a local board.

The Nominating Committee presents a list of the qualifying candidates to the Delegate Assembly. The Delegate Assembly is composed of the officers and directors of ASBA and one (1) certified delegate from each member school board. Only delegates who are present at the time of voting may vote. Candidates who receive a majority of the vote are elected.

ASBA is governed by the Arkansas School Boards Association Board of Directors ("ASBA Board of Directors"). The ASBA Board of Directors is composed of the president, president-elect, vice president, secretary-treasurer, the immediate past president and one (1) director from each of the fourteen (14) ASBA regions. The Delegate Assembly authorizes the ASBA Board of Directors to govern ASBA's affairs. No governmental agency has input in the selection of the members of the ASBA Board of Directors.

ASBA has four (4) related organizations which include the Arkansas School Boards Association Educational Foundation, the Arkansas School Boards Association - Group Disability Benefit Trust, the Arkansas School Boards Association - Risk Management Program, and the Arkansas School Boards Association - Workers' Compensation Trust. Combined financial reports are not prepared for ASBA and its related organizations.

The Arkansas School Boards Association Educational Foundation's unaudited net asset balance was \$187,145 on June 30, 2019, \$182,460 on December 31, 2019, and \$338,484 on December 31, 2021. The Arkansas School Boards Association - Group Disability Benefit Trust's net asset balance was \$0 on June 30, 2019, and \$0 on June 30, 2020. The ASBA Board of Directors voted to terminate this trust on December 9, 2020.

The Arkansas School Boards Association - Risk Management Program's audited net asset balance was \$16,727,108 on June 30, 2018 and \$22,658,217 on June 30, 2020. The Arkansas School Boards Association - Workers' Compensation Trust's audited net asset balance was \$8,177,301 on December 31, 2018, \$8,948,309 on December 19, 2019, and \$8,597,203 on December 31, 2020.

ASBA's main source of funding comes from membership dues, administrative fees, investments, and other revenue acquired from the various services provided by ASBA. Membership dues are paid annually



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and are non-refundable. It is unclear whether corporate members of ASBA pay dues. Honorary life members do not pay dues. Annual dues for regular members and associate members are set by the ASBA Board of Directors. Each school district's annual membership dues are based on the school district's actual annual revenues as published by the Arkansas Division of Elementary and Secondary Education.

ASBA did not receive any federal or state funding during the past fiscal year. During the beginning stages of COVID-19, ASBA received a Paycheck Protection Program (PPP) loan and a grant from the Arkansas Economic Development Commission for PPE equipment.

ASBA has twenty-six (26) employees. From 2018 to 2020, ASBA's highest paid employees were the ASBA Executive Director, Risk Management Director, and Board Development Director. The salaries, other compensation, and employee benefits paid by ASBA were \$1,984,978 for 2018, \$2,066,688 for 2019, and \$2,291,507 for 2020.

According to ASBA's audit reports, the assets available to ASBA to meet its general expenditures for the following year was \$3,048,213 on June 30, 2018, \$3,323,302 on June 30, 2019, \$3,900,411 on June 30, 2020, \$4,069,743 on June 30, 2021. ASBA's end of year net assets or fund balances were \$4,051,843 for 2018, \$4,352,601 for 2019, and \$4,803,896 for 2020.

Should ASBA dissolve, after paying any outstanding liabilities, ASBA's assets must be distributed, transferred, conveyed, delivered, and paid over to the State of Arkansas for the Permanent School Revolving Loan Fund for the use and benefit of students in Arkansas.

#### **IV. Applicable Law**

With regard to an organization's eligibility to apply for covered employer status under ATRS, the organization's employees must be engaged in "employment with a school" as defined in Ark. Code Ann. § 24-7-202.

The applicable definition of "employment with a school" for the employees of Arkansas School Boards Association is Ark. Code Ann. § 24-7-202(19)(D). Ark. Code Ann. § 24-7-202(19)(D) defines "employment with a school" as "[e]mployment in a position with an education-related agency or organization if the employee is or has been a member of the Arkansas Teacher Retirement System for a minimum of five (5) years and elects to become or remain a member of the Arkansas Teacher Retirement System." The employment with the education-related agency or organization must be related to: "(a) Training public school employees or school board members; (b) Teaching public school students; or (c) Adult education programs." *Id.* Additionally, the employment cannot "be related in any manner to private schools." *Id.*

When ATRS receives an application for covered employer status, ATRS is required to determine if an Internal Revenue Service (IRS) ruling should be requested concerning whether or not the participation of the applicant's employees in ATRS will jeopardize ATRS' status as a governmental plan. *See Section (II)(f)(2)(C) of ATRS Rule 6 - Membership Rules (Rule 6)*<sup>1</sup>.

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<sup>1</sup> The IRS is no longer issuing private letter rulings or determination letters with regard to whether a plan is a governmental plan. *Rev. Proc. 2021-3*, § 3.





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Both the Internal Revenue Code and ERISA define “governmental plan”, in relevant part, as “*a plan established and maintained for its employees by the Government of the United States, by the government of any State or political subdivision thereof, or by any agency or instrumentality of any of the foregoing.*” 26 U.S.C. § 414(d) and 29 U.S.C. § 1002(32).

In determining whether a retirement plan is a governmental plan within the meaning of the IRC, the Internal Revenue Services (IRS) noted the following non-determinative factors:

1. Whether there is specific legislation creating the organization;
2. The source of funds for the organization;
3. The manner in which the organization’s trustees or operating board are selected; and
4. Whether the applicable governmental unit considers the employees of the organization to be employees of the applicable governmental unit.

*Rev. Rul. 89-49.*

Additionally, the IRS has advised, “*A plan will not be considered a governmental plan merely because the sponsoring organization has a relationship with a governmental unit or some quasi-governmental power.*” *Id.* The IRS has further stated, “*One of the most important factors to be considered in determining whether an organization is an agency or instrumentality of the United States or any state or political subdivision is the degree of control that the federal or state government has over the organization’s everyday operations.*”<sup>2</sup> *Id.*

The IRS further noted, “*Although all of the above factors are considered in determining whether an organization is an agency of a government, the mere satisfaction of one or all of the factors is not necessarily determinative.*” *Id.*

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<sup>2</sup> Here the IRS is referencing Rev. Rul. 57-128. In Rev. Rul. 57-128, the IRS was asked to determine whether an organization was an instrumentality of a state for Federal employment tax purposes. In making its determination, the IRS considered the following factors:

1. Whether the organization is used for a governmental purpose and performs a governmental function;
2. Whether performance of the organization’s function is on behalf of one or more states or political subdivisions;
3. Whether there are any private interests involved, or whether the states or political subdivisions involved have the powers and interests of an owner;
4. Whether control and supervision of the organization is vested in public authority or authorities;
5. If express or implied statutory or other authority is necessary for the creation and/or use of such an instrumentality, and whether such authority exists; and
6. The degree of financial autonomy and the source of organization’s operating expenses.

Finally, the Department of Labor (DOL), which has the authority to interpret the definition of “governmental plan” as applicable to ERISA<sup>3</sup>, has issued advisory opinions indicating that the participation of a de minimis number of private employees in an otherwise governmental plan will not adversely affect governmental plan status.<sup>4</sup>

With regard to constitutional issues, in *Chandler v. Bd. of Trustees of the Teacher Ret. Sys.*, 236 Ark. 256, 365 S.W.2d 447 (1963), the Supreme Court of Arkansas considered constitutional arguments centered around the participation of employees of the Arkansas Education Association (AEA) and the Arkansas Teacher Association (ATA) in ATRS. The issue before the court was whether the participation of AEA and ATA employees in ATRS would constitute an appropriate use of state funds for a public purpose as required under the privileges and immunities clause (Ark. Const. Art. 2, § 18), illegal exactions clause (Ark. Const. Art. 16, § 13), and the due process clause (Ark. Const. Art. 2, § 8).

The court cited *Brodhead v. City of Milwaukee*, 19 Wis. 624 (1865)<sup>5</sup> and *Texarkana-Forest Park Paving etc. Dist. No. 1 v. State*, 189 Ark. 617, 74 S.W.2d 784 (1934)<sup>6</sup>. In making its determination, the court considered whether the essential nature of the AEA and ATA was public or private in character and concluded as follows:

*We can reach no conclusion except that the use of tax moneys to provide a retirement income for AEA and ATA staff employees cannot be classified as an expenditure for a public purpose. A retirement allowance represents compensation paid*

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<sup>3</sup> The DOL has the authority to interpret Title I of ERISA, which includes 29 U.S.C. § 1002(32), the definition of governmental plan.

<sup>4</sup> See Advisory Opinion 1999-15A (“It would not be consonant with the intended scope and purpose of the “governmental plan” exception to treat the Fund as failing to fall within the exception in ERISA § 4(b)(1) because of the participation of one Fund employee, particularly inasmuch as the activities of that employee on which participation is based relate exclusively to conducting the affairs of the Fund. However, if a benefit arrangement is extended to cover more than a de minimis number of private sector employees, the Department may not consider it a governmental plan under Title I of ERISA.”). Also see Advisory Opinion 2000-08A (“It is the view of the Department of Labor that the participation by a de minimis number of private-sector employees in an otherwise governmental plan will not adversely affect the plan’s status as a governmental plan. However, if a benefit arrangement were to cover more than a de minimis number of private sector employees, the Department may not consider it a governmental plan under Title I of ERISA.”).

<sup>5</sup> *Brodhead v. City of Milwaukee*, 19 Wis. 624 (1865) (“The legislature cannot create a public debt, or levy a tax, or authorize a municipal corporation to do so, in order to raise funds for a mere private purpose. It cannot in the form of a tax take the money of the citizens and give it to an individual, the public interest or welfare being in no way connected with the transaction. The objects for which money is raised by taxation must be public, and such as subserve the common interest and well being of the community required to contribute.”)

<sup>6</sup> *Texarkana-Forest Park Paving etc. Dist. No. 1 v. State*, 189 Ark. 617, 74 S.W.2d 784 (1934) (“The power to pay gratuities to individuals is denied to the Legislature generally by constitutional mandate and usually a gift of money to an individual would be an appropriation of public funds to private use, which cannot be justified in law.”)

*to the recipient. [internal citation omitted]. The workers in question, however, are not employees of the State. There is no sound reason why their salaries should be supplemented by the taxpaying public. Although the cause of public education is undoubtedly furthered by the activities of the AEA members, there is no indication that the AEA employees devote their time to the pub[l]ic service. Even if such a showing had been made, the public services would still have been rendered by these people in the course of their work for a private employer, unsolicited by the State and affording no basis for a claim against the State.*

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*[Requiring] the AEA and the ATA to match their employees' contributions, does not remedy the situation. Tax moneys are still being devoted to a private purpose, because (a) the administrative expense of the system is in part borne by the State, and (b) the retirement allowances are life annuities, [internal citation omitted]; so if an annuitant should live long enough to receive more in benefits than had been contributed to his account, the remaining annuity installments would have to be paid with public funds.*

#### **V. Application of Law to Facts**

With ASBA's mission being to serve as an advocate for public education and promote student focused leadership in public education through training, advocacy and service for local board members, ASBA may be considered an education-related agency or organization.

As employment with ASBA appears to be solely related to providing services to public school boards, an employee of ASBA who is or has been a member of ATRS for a minimum of five (5) years may elect to become or remain a member of ATRS.

If employment with ASBA did involve providing training or other services to private schools or private school boards, the participation of ASBA's employees as members of ATRS would likely be considered de minimis and insufficient to impair ATRS' status as a governmental since ASBA only has approximately twenty-six (26) employees. Furthermore, only one (1) ASBA employee currently participates as a member of ATRS.

ASBA reports that school boards would have to seek the services and training provided by ASBA from other lawyers, insurance providers, and the Arkansas Insurance Department if ASBA did not provide the services and training. However, the training and other education-related services provided by ASBA would also more than likely need to be provided by the Arkansas Department of Education if ASBA did not provide them.

ASBA is not created by specific legislation and a majority of its funding comes from membership dues, administrative fees, and other revenue generated from the services it provides to ASBA members.



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With regard to the government's degree of control over ASBA's operations, governmental agencies are not involved in the selection of the ASBA Board of Directors.

Finally, granting ASBA's application and allowing its employees to elect membership in ATRS is unlikely to raise constitutional concerns. While ASBA is not funded by the state or federal government, a number of the other concerns expressed in *Chandler v. Bd. of Trustees of the Teacher Ret. Sys.* with regard to AEA and ATA do not appear to be present in this situation as ASBA: (1) does not appear to engage in lobbying activities; (2) has a primary objective and is devoted to a primary objective that can be described as furthering Arkansas' public education; and (3) likely employs public employees who are dedicated to providing resources and training that will improve the quality of public education in Arkansas.

## **VI. Conclusion**

The Board of Trustees should vote to approve the ASBA's application for continued participation as a covered employer under ATRS as:

1. ASBA's employees qualify for membership under Ark. Code Ann. § 24-7-202(19)(D);
2. ATRS' status as a governmental plan is unlikely to be impaired if ASBA's application is granted;
3. It is unlikely that there will be a substantial adverse impact on ATRS' actuarial soundness if ASBA's application is granted; and
4. It is unlikely that granting ASBA's application will raise constitutional questions or concerns.

**ARKANSAS TEACHER RETIREMENT SYSTEM**  
**1400 West Third Street**  
**Little Rock, Arkansas 72201**

**RESOLUTION**  
**No. 2022-49**

**Approving Application of the Arkansas School Boards  
Association To Continue Participating as a Covered Employer**

**WHEREAS**, the Board of Trustees (Board) of the Arkansas Teacher Retirement System (ATRS) is authorized to review applications by education-related agencies or organizations to become or continue their participation as covered employers; and

**WHEREAS**, employment with an education-related agency or organization may be considered “employment with a school” under certain circumstances as detailed in A.C.A. §24-7-202(19)(D); and

**WHEREAS**, ATRS members who have been members of ATRS for a minimum of five (5) years who become employed in a position with an education-related agency or organization may elect to become or remain a member of ATRS if the employment is: (a) related to either training public school employees or school board members, teaching public school students, or providing adult education programs; and (b) not related in any manner to private schools; and

**WHEREAS**, the education-related agency or organization must apply to ATRS to become eligible as a covered employer and agree to be responsible for all required employer contributions as it relates to the ATRS member with at least five (5) years who wishes to continue membership in ATRS; and

**WHEREAS**, the Board of Trustees has a fiduciary duty to ensure that the approval of an application of an education-related agency or organization will not in any way impair any legal status of ATRS, its status as a governmental plan pursuant to the Internal Revenue Code and the Employee Retirement Income Security Act of 1974, or have a substantial adverse impact on the actuarial soundness of ATRS; and

**WHEREAS**, a private letter ruling from the Internal Revenue Service is not available according to IRS Rev. Proc. 2021-3, § 3 regarding the potential impact of the approval of an application of an education-related agency or organization to become a covered employer; and

**WHEREAS**, previous IRS rulings may provide guidance to the Board of Trustees in evaluating an application to become a covered employer as discussed in the Exhibit A (attached) which include factors such as: (a) the degree of control the State has over the agency or organization's everyday operations; (b) whether the agency or organization was created by a governmental entity; (c) the nature and source of its funding; (d) the manner in which the agency or organization's governing body is selected; (e) whether the employees are employees of a governmental entity; and (f) whether the addition of the eligible employees of the agency or organization would increase the number of ATRS membership beyond a *de minimis* amount of the aggregate membership; and

**WHEREAS**, the Arkansas Supreme Court considered whether a private agency or organization may be a covered employer of ATRS in the case of *Chandler v. Board of Trustees of the Teacher Retirement System of the State of Arkansas*, 236 Ark. 256, 365 S.W.2d 447 (1963). Act 80 of 1949 permitted employees of AEA and ATA to participate in ATRS, and the question before the Court was whether the use of state funds (in the form of matching contributions to ATRS) was for a public purpose. The Court observed that none of the funding for either AEA or ATA came from the State; their members did not devote time to public service; and their activities were not solicited by the State, leading the Court to conclude that, under Act 80, public funds were being used for a private purpose in violation of the Due Process Clause of the Constitution; and

**WHEREAS**, the Board finds that the Arkansas School Boards Association and its employees are distinguishable from the facts of the *Chandler* case in that the Arkansas School Boards Association does not appear to engage in lobbying activities and has as its primary purpose the provision of services and training in support of Arkansas education; and

**WHEREAS**, the ATRS Board has reviewed and evaluated the application of the Arkansas School Boards Association according to the criteria discussed in Exhibit A and finds that it should be approved.

**NOW, THEREFORE, BE IT RESOLVED**, that the ATRS Board approves the application of the Arkansas School Boards Association to continue participating as a covered employer (as defined in A.C.A. § 24-7-202) in order for its eligible employees to become or remain members of ATRS; and

**FURTHER, BE IT RESOLVED**, that as a covered employer under the ATRS Act, the Arkansas School Boards Association shall make all member

contributions required by A.C.A. § 24-7-406 regarding any employee who has been a member of ATRS for a minimum of five (5) years and who wishes to become or remain a member of ATRS; and

***FURTHER, BE IT RESOLVED***, that the ATRS staff is hereby authorized to take all necessary and proper steps to implement.

**Adopted this 5th day of December, 2022**

---

**Mr. Danny Knight, *Chair***  
**Arkansas Teacher Retirement System**

**ARKANSAS TEACHER RETIREMENT SYSTEM**  
**1400 West Third Street**  
**Little Rock, Arkansas 72201**

**R E S O L U T I O N**  
**No. 2022-59**

**Approving the Waiver of  
Interest and Penalties on Contributions Reported and Remitted  
Between the 10<sup>th</sup> and the 15<sup>th</sup> Day of the Month**

**WHEREAS**, the Board of Trustees (Board) of the Arkansas Teacher Retirement System (ATRS) is authorized to waive a deadline; and

**WHEREAS**, recent changes to A.C.A. §24-7-411 and Rule 7 have caused confusion about the deadline for employer reporting and remitting contributions to (ATRS); and

**WHEREAS**, prior to passage of Acts of 2021, Act 220 employers were required under A.C.A. §24-7-411 to remit contributions and file reports of contributions by the fifteenth day of the month that the contributions and reports were due. Act 220 changed the language of that section of the Code regarding the deadline to the “date established by the board”; and

**WHEREAS**, on May 20, 2022, numerous amendments to the ATRS rules became effective, including Rule 7, which set the deadline for filing a timely report and remitting contributions as the tenth ((10<sup>th</sup>) day of the month in which the report is due; and

**WHEREAS**, the annual ATRS communication to employers that was provided in June did not include information about the change from the 15<sup>th</sup> to the 10<sup>th</sup>; and

**WHEREAS**, the programming of the ATRS portal where employers are required to file these reports and remit contributions electronically has not been updated to reflect the changed deadline from the 15<sup>th</sup> to the 10<sup>th</sup>; and

**WHEREAS**, given inadequate notice to employers and confusion caused by erroneous portal programming, it would be unfair to employers to hold them to the deadline of the 10<sup>th</sup>; and

**WHEREAS**, enforcing the new deadline will be difficult. According to reporting staff, “There is not an easy way to determine those reports that were received from the 11-15<sup>th</sup>. It will take quite a bit of time to go through the 340 employers.”



***NOW, THEREFORE, BE IT RESOLVED***, that the ATRS Board waives the reporting/remittance deadline of the 10<sup>th</sup> of the month in which the report is due as established by Rule 7 for the fiscal year 2022, to allow for an orderly transition to full implementation beginning July 1, 2023.. The previous deadline of the 15<sup>th</sup> of the month will be used during FY22 to determine if penalties and interest are owed; and

***FURTHER, BE IT RESOLVED***, that no penalties or interest will be charged against any employer who filed the required reports and remittances by the 15<sup>th</sup> of the month in which the report was due for any month during FY22.

**Adopted this 5th day of December, 2022.**

---

**Mr. Danny Knight, *Chair***

**ATRS Private Equity Investment Guidelines - 2Q22**

**Commitments 2022 Year-to-Date**

Investment	Strategy	Region	ATRS Board Approval	ATRS Commitment
FP Venture Opportunity	Late Stage Venture	U.S./Non-U.S.	Dec-21	\$30,000,000
FP International XI	Small/Mid Market Corporate Finance	Non-U.S.	Dec-21	30,000,000
SK VI	Mid Market Buyouts (industrial)	U.S.	Feb-22	30,000,000
TB XV	Large Buyouts (software)	U.S.	Feb-22	15,000,000
TB Discover IV	Mid Market Buyouts (software)	U.S.	Feb-22	15,000,000
TB Explore II	Small Buyouts (software)	U.S.	Feb-22	15,000,000
FP CF Access II	Small/Mid Market Corporate Finance	U.S.	Feb-22	30,000,000
Arlington VI	Mid Market Buyouts (government services)	U.S.	Apr-22	30,000,000
FP Venture XIV	Early Stage Venture	U.S./Non-U.S.	Apr-22	30,000,000
BV XI	Small/Mid Market Corporate Finance	U.S.	Jun-22	30,000,000
JF Lehman VI	Small/Mid Market Corporate Finance	U.S.	Sep-22	30,000,000
Greenbriar VI	Small/Mid Market Corporate Finance	U.S.	Sep-22	30,000,000
Alpine IX	Small/Mid Market Corporate Finance	U.S.	Dec-22 board	30,000,000
<b>Targeted 2022 Commitments (\$350m approved by the board in December 2021)</b>				<b>\$345,000,000</b>

Private Equity Allocation	Target	6/30/2022
Private Equity Value		\$3,067,958,410
Total Assets		\$19,740,562,415
<b>Private Equity Value as a % of Total Assets</b>	<b>12.0%</b>	<b>15.5%</b>

**Other Guidelines**

The following sub-allocations shall be used as an overall target for commitment levels within the portfolio.

**ATRS Strategy/Region Guidelines (% of Commitments)**

Strategy	Target %	Post-2006 Portfolio Commitments (as of 6/30/22)	% of Total
Corporate Finance (buyout, growth and debt strategies)	80-100%	3,203,323,718	88%
Venture Capital	0-20%	455,000,000	12%
<b>Total (Post-2006 Portfolio)</b>		<b>3,658,323,718</b>	<b>100%</b>

Region	Target %	Post-2006 Portfolio Commitments (as of 6/30/22)	% of Total
U.S. and Western Europe	80-100%	3,368,164,232	92%
Other <sup>1</sup>	0-20%	290,159,486	8%
<b>Total (Post-2006 Portfolio)</b>		<b>3,658,323,718</b>	<b>100%</b>

<sup>1</sup> Other represents ATRS' % of commitments made outside of the U.S. and Western Europe in FP VC and FP International vehicles

**ATRS shall, in general, make commitments of at least \$10 million.**

100% of the commitments made to primary funds since 2006

**In general, ATRS shall not make commitments to primary funds which exceed an amount equal to 15% of the total amount raised for a proposed fund, but in no event shall investments exceed 35% of the amount raised for a primary fund.**

100% of the commitments made to primary funds since 2006

**ATRS shall limit aggregate new commitments to a single investment sponsor to 35% of total Program allocation.**

Manager	Aggregate Commitment to Single Investment Sponsor	% of 2022 Commitments
SK	\$30,000,000	9%
TB	45,000,000	13%
Arlington	30,000,000	9%
FP Venture Opportunity	30,000,000	< 2.5% Expected to include 5-8 investment sponsors
FP International XI	30,000,000	< 2.5% Expected to include 4-5 investment sponsors
FP CF Access II	30,000,000	< 2.5% Expected to include 4-6 investment sponsors
FP Venture XIV	30,000,000	< 2.5% Expected to include 7-10 investment sponsors
BV	30,000,000	9%
JFL	30,000,000	9%
Greenbriar	30,000,000	9%
Alpine	30,000,000	9%
<b>Total</b>	<b>\$345,000,000</b>	

for FP vehicles represents

Real Assets

As of June 30, 2022	ATRS' Portfolio \$ in Millions
Number of Investments	80
Total Commitments	4,262.2
Unfunded Commitments	791.4
Total Paid-In Capital	3,736.8
Total Distributions	3,435.5
Net Asset Value	2,476.3
Gross Asset Value	3,424.6
DPI	0.9x
TVPI	1.6x
Since Inception IRR	7.6%

*\*Active and Liquidated*

PORTFOLIO COMPOSITION TO TARGETS (As of 6/30/2022)		
	Target	Actual Funded
<b>Target Real Asset Allocation</b>	15%	12.5%
<b>Portfolio Style Composition</b>		
<b>Real Estate</b>	10%	7.6%
<b>Core*</b>	50%-70%	65.2%
<b>Non-Core</b>	30%-50%	34.8%
<b>Value-Added**</b>	N/A	22.4%
<b>Opportunistic**</b>	N/A	12.4%
<b>Agriculture</b>	1%	1.2%
<b>Timber</b>	2%	1.7%
<b>Infrastructure</b>	2%	1.9%
<b>Leverage</b>	50%	27.7%

RISK MANAGEMENT						
<b>Property Type - Real Estate</b>	<b>NFI-ODCE</b>	<b>Target/Constraint</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Actual</b>	<b>Compliant?</b>
Office	23.50	NFI-ODCE +/- 50%	11.75	35.25	24.95	Yes
Retail	10.00	NFI-ODCE +/- 50%	5.00	15.00	8.05	Yes
Industrial	30.70	NFI-ODCE +/- 50%	15.35	46.05	24.52	Yes
Multifamily	29.00	NFI-ODCE +/- 50%	14.50	43.50	29.58	Yes
Other1	6.70	n/a	0.00	20.00	12.90	Yes
<b>Geography - Real Estate</b>	<b>NFI-ODCE</b>	<b>Target/Constraint</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Actual</b>	<b>Compliant?</b>
West	44.60	NFI-ODCE +/- 50%	22.30	66.90	48.73	Yes
East	29.20	NFI-ODCE +/- 50%	14.60	43.80	25.15	Yes
Midwest	6.30	NFI-ODCE +/- 50%	3.15	9.45	6.47	Yes
South	19.90	NFI-ODCE +/- 50%	9.95	29.85	11.16	Yes
Other2,3	0.00	n/a	n/a	n/a	3.54	Yes
Non-U.S.	0.00	n/a	0.00	40.00	4.95	Yes
<b>Geography - Timber</b>	<b>NCREIF Timberland</b>	<b>Target/Constraint</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Actual</b>	<b>Compliant?</b>
Lake States	4.20	NCREIF Timberland +/- 15%	0.630	4.830	0.290	No
Northeast	5.26	NCREIF Timberland +/- 15%	0.790	6.050	0.970	Yes
Northwest	24.56	NCREIF Timberland +/- 15%	3.680	28.240	15.000	Yes
South	65.98	NCREIF Timberland +/- 15%	9.900	75.880	72.960	Yes
Other	0.00	NCREIF Timberland +/- 15%	0.000	0.000	10.780	No
<b>Geography - Agriculture</b>	<b>NCREIF Farmland</b>	<b>Target/Constraint</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Actual</b>	<b>Compliant?</b>
Appalachian	0.71		0.00	50.00	0.00	Yes
Corn Belt	11.96		0.00	50.00	9.41	Yes
Delta States	19.02		0.00	50.00	27.22	Yes
Lake States	4.09		0.00	50.00	15.88	Yes
Mountain	7.91		0.00	50.00	22.66	Yes
Northeast	0.24		0.00	50.00	0.00	Yes
Northern Plains	2.49		0.00	50.00	3.59	Yes
Pacific Northwest	6.65		0.00	50.00	3.50	Yes
Pacific West	39.58		0.00	50.00	6.89	Yes
Southeast	5.46		0.00	50.00	8.72	Yes
Southern Plains	1.89		0.00	50.00	2.14	Yes
Other	0.00		0.00	50.00	0.00	Yes
Non-U.S.	0.00		0.00	50.00	0.00	Yes
<b>Geography - Infrastructure</b>	<b>Target/Constraint</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Actual</b>	<b>Compliant?</b>	
U.S.		n/a	n/a	53.78	Yes	
Non-U.S.		0.00	50.00	46.22	Yes	
<b>Asset Type - Infrastructure</b>	<b>Target/Constraint</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Actual</b>	<b>Compliant?</b>	
Energy/Utilities		0.00	70.00	53.55	Yes	
Transportation		0.00	70.00	31.98	Yes	
Social		0.00	70.00	3.07	Yes	
Communications		0.00	70.00	9.34	Yes	
Other		0.00	70.00	2.06	Yes	
<b>Manager</b>	<b>Target/Constraint</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Max</b>	<b>Compliant?</b>	
Energy/Utilities		0.00	30.00	14.21	Yes	
<b>Style - Real Estate</b>	<b>Target/Constraint</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Actual</b>	<b>Compliant?</b>	
Core		50.00	70.00	65.22	Yes	
Non-Core		30.00	50.00	34.75	Yes	

As of 9/30/2022 (6/30/22 for Illiquid Asset Classes)

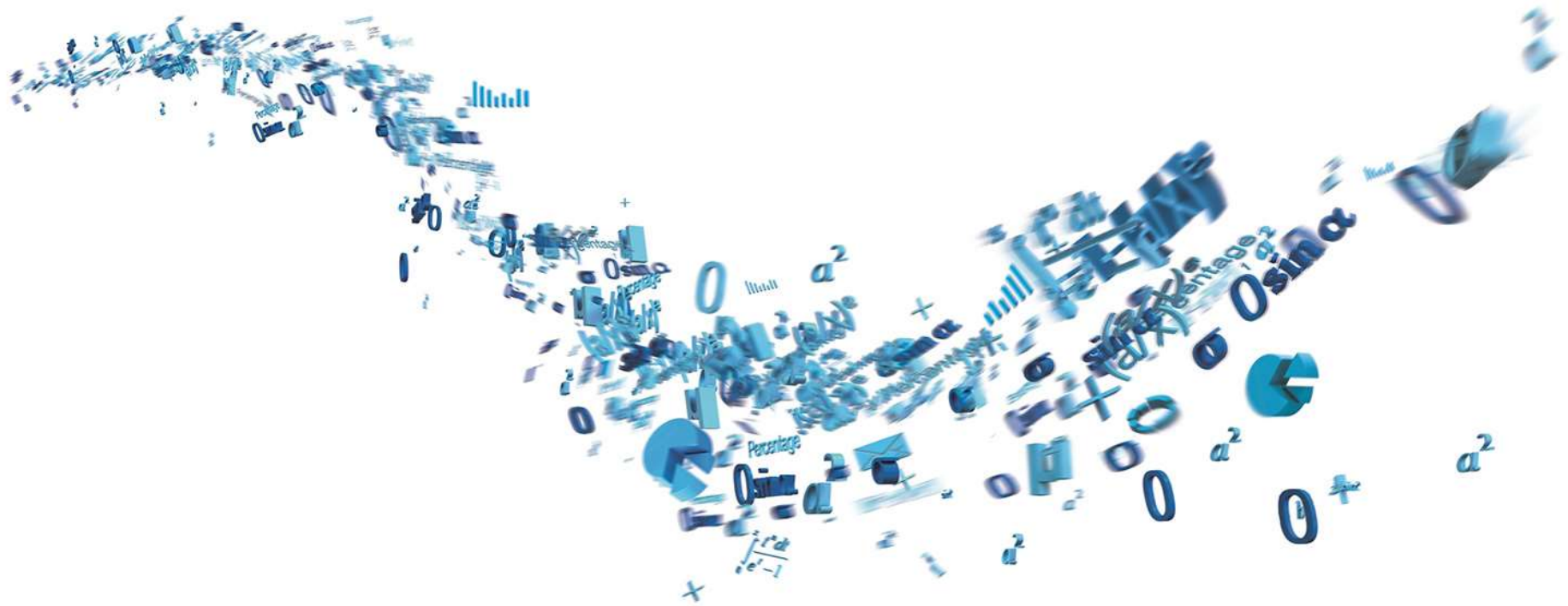
	Actual	Interim Target**	Difference (Actual vs. Interim)	Long-Term Target	Difference* (Actual vs. Long-Term)	Range***
<b>Total Equity</b>	50.7%	55.5%	-4.8%	53.0%	-2.3%	48 - 58%
<b>Fixed Income</b>	14.9%	15.0%	-0.1%	15.0%	-0.1%	13 - 17%
<b>Opportunistic/Alternatives</b>	4.8%	4.7%	0.1%	5.0%	-0.2%	NA
<b>Real Assets</b>	13.3%	12.8%	0.5%	15.0%	-1.7%	NA
<i>Real Estate</i>	8.3%	8.5%	-0.3%	10.0%	-1.7%	NA
<i>Core RE</i>	5.2%	5.1%	0.1%	6.0%	-0.8%	5 - 7%
<i>Non-Core</i>	3.1%	3.4%	-0.3%	4.0%	-0.9%	3 - 5%
<i>Agriculture</i>	1.3%	1.7%	-0.4%	1.0%	0.3%	NA
<i>Timber</i>	1.8%	0.9%	0.9%	2.0%	-0.2%	NA
<i>Infrastructure</i>	2.0%	1.7%	0.3%	2.0%	0.0%	NA
<b>Private Equity</b>	15.6%	12.0%	3.6%	12.0%	3.6%	NA
<b>Cash</b>	0.6%	0.0%	0.6%	0.0%	0.6%	0 - 5%
	100.0%	100.0%	--	100.0%	--	--

\* Uninvested assets/commitments for the Opportunistic, Real Assets and Private Equity asset classes are invested in public equities.

\*\* The interim target reflects the beginning period actual allocation to this asset class

\*\*\* The actual allocation to equity may exceed the range to account for uninvested assets/commitments for the Opportunistic, Real Assets and Private Equity Classes

<b>Real Assets Breakdown</b>	<b>Absolute</b>	<b>%</b>
Real Estate	10%	66.7%
Ag	2%	13.3%
Timber	1%	6.7%
Infrastructure	2%	13.3%
<b>Total Real Assets</b>	<b>15%</b>	<b>100.0%</b>



Arkansas Teacher Retirement System | Third Quarter 2022

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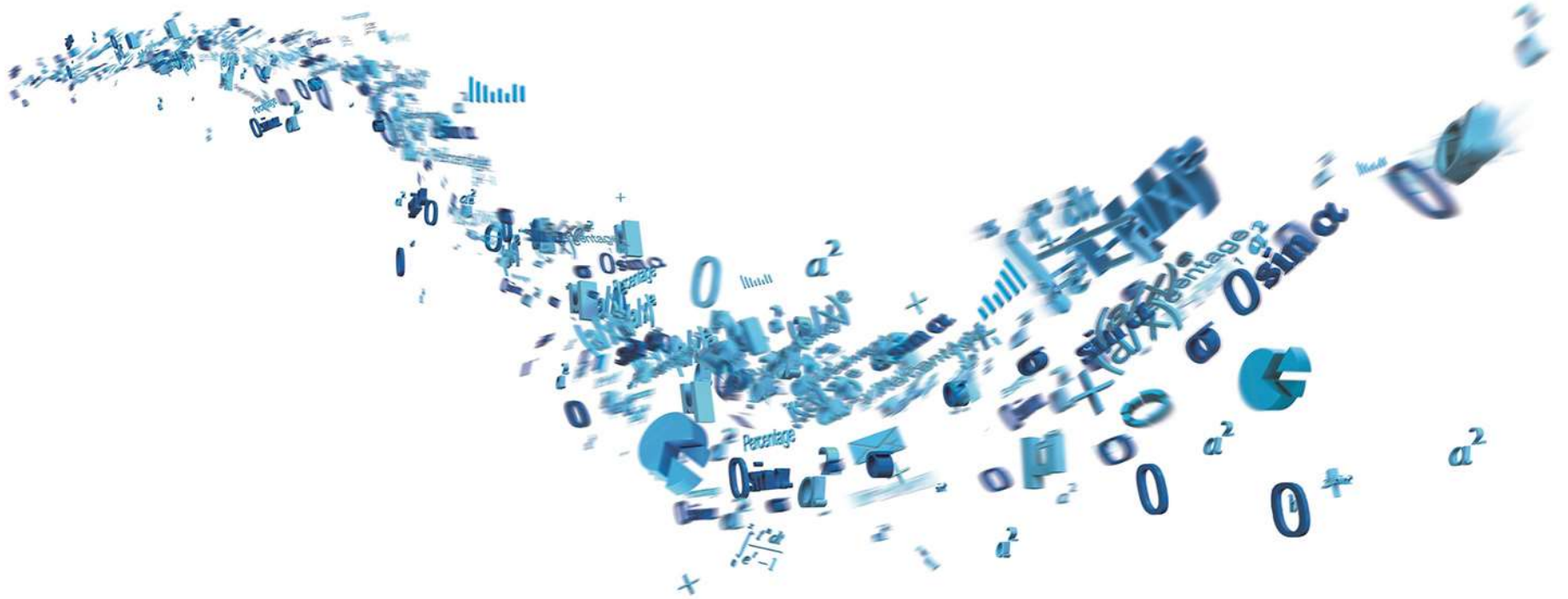
## Quarterly Investment Review

Visit the *Investments Thought Leadership Site* (<https://insights-north-america.aon.com/investment>); sharing our best thinking.

Visit our new video library with our views on key investment topics for this quarter using access code "aon!"  
(<https://site-494121.bcvp0rtal.com/category/videos/key-topics-by-investor-type>)

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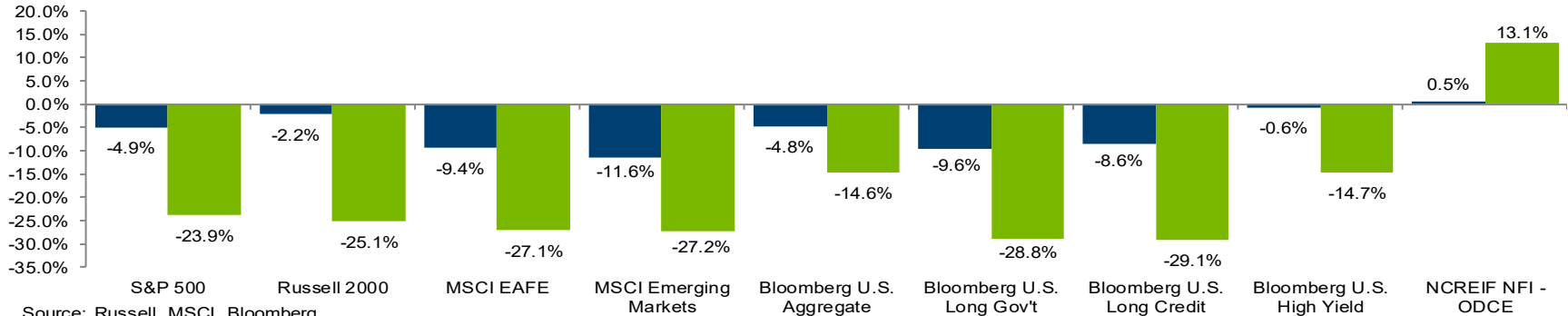
# Executive Summary

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# Market Highlights

## SHORT TERM RETURNS AS OF 09/30/2022

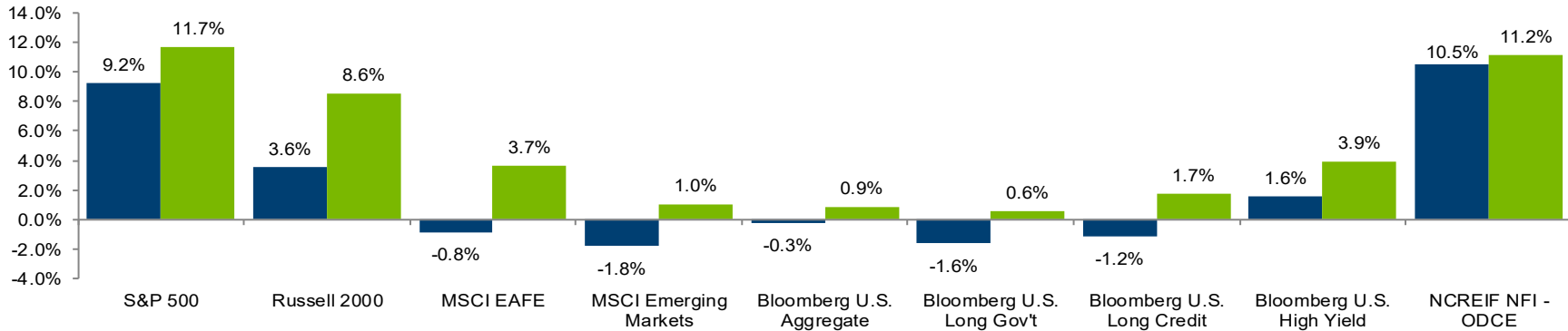
■ Third Quarter 2022 ■ YTD



Source: Russell, MSCI, Bloomberg  
MSCI Indices show net total returns throughout this report. All other indices show gross total returns.

## LONG TERM ANNUALIZED RETURNS AS OF 09/30/2022

■ Five-Year ■ Ten-Year



Source: Russell, MSCI, Bloomberg

Note: MSCI Indices show net total returns throughout this report. All other indices show gross total returns.

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# Market Highlights

## Returns of the Major Capital Markets

Period Ending 09/30/2022

	Third Quarter	YTD	1-Year	3-Year <sup>1</sup>	5-Year <sup>1</sup>	10-Year <sup>1</sup>
<b>Equity</b>						
MSCI All Country World IMI	-6.64%	-25.72%	-21.18%	3.64%	4.16%	7.25%
MSCI All Country World	-6.82%	-25.63%	-20.66%	3.75%	4.44%	7.28%
Dow Jones U.S. Total Stock Market	-4.56%	-24.92%	-18.05%	7.51%	8.48%	11.28%
Russell 3000	-4.46%	-24.62%	-17.63%	7.70%	8.62%	11.39%
S&P 500	-4.88%	-23.87%	-15.47%	8.16%	9.24%	11.70%
Russell 2000	-2.19%	-25.10%	-23.50%	4.29%	3.55%	8.55%
MSCI All Country World ex-U.S. IMI	-9.69%	-26.92%	-25.72%	-1.27%	-0.78%	3.19%
MSCI All Country World ex-U.S.	-9.91%	-26.50%	-25.17%	-1.52%	-0.81%	3.01%
MSCI EAFE	-9.36%	-27.09%	-25.13%	-1.83%	-0.84%	3.67%
MSCI EAFE (Local Currency)	-3.59%	-14.46%	-11.11%	2.51%	2.83%	7.44%
MSCI Emerging Markets	-11.57%	-27.16%	-28.11%	-2.07%	-1.81%	1.05%
<b>Equity Factors</b>						
MSCI World Minimum Volatility (USD)	-6.28%	-11.83%	17.60%	0.26%	4.54%	7.83%
MSCI World High Dividend Yield	-8.82%	-16.17%	-10.16%	1.98%	3.52%	6.67%
MSCI World Quality	-7.06%	-29.17%	-21.86%	6.92%	8.81%	10.45%
MSCI World Momentum	-5.60%	-26.94%	-22.67%	4.82%	7.67%	10.46%
MSCI World Enhanced Value	-10.39%	-21.97%	-18.70%	-0.11%	0.25%	6.19%
MSCI World Equal Weighted	-7.55%	-25.97%	-23.68%	0.61%	1.77%	6.64%
MSCI World Index Growth	-5.01%	-32.28%	-26.74%	6.60%	8.08%	10.10%
MSCI USA Minimum Volatility (USD)	-5.41%	-17.29%	-8.68%	2.94%	7.70%	10.66%
MSCI USA High Dividend Yield	-7.54%	-15.71%	-7.28%	3.23%	5.89%	9.80%
MSCI USA Quality	-7.38%	-29.23%	-21.40%	7.36%	10.36%	12.34%
MSCI USA Momentum	-3.03%	-26.34%	-23.57%	4.50%	7.97%	12.58%
MSCI USA Enhanced Value	-8.77%	-23.48%	-16.17%	2.82%	4.01%	10.01%
MSCI USA Equal Weighted	-4.74%	-24.34%	-18.75%	5.71%	6.84%	10.70%
MSCI USA Growth	-3.55%	-32.37%	-25.59%	10.62%	12.10%	13.50%
<b>Fixed Income</b>						
Bloomberg Global Aggregate	-6.94%	-19.89%	-20.43%	-5.74%	-2.32%	-0.93%
Bloomberg U.S. Aggregate	-4.75%	-14.61%	-14.60%	-3.26%	-0.27%	0.89%
Bloomberg U.S. Long Gov't	-9.60%	-28.77%	-26.60%	-8.48%	-1.62%	0.60%
Bloomberg U.S. Long Credit	-8.57%	-29.05%	-27.98%	-7.02%	-1.17%	1.73%
Bloomberg U.S. Long Gov't/Credit	-9.03%	-28.94%	-27.41%	-7.35%	-1.17%	1.35%
Bloomberg U.S. TIPS	-5.14%	-13.61%	-11.57%	0.79%	1.95%	0.98%
Bloomberg U.S. High Yield	-0.65%	-14.74%	-14.14%	-0.45%	1.57%	3.94%
Bloomberg Global Treasury ex U.S.	-9.08%	-24.71%	-25.80%	-8.85%	-4.36%	-2.78%
JP Morgan EMBI Global (Emerging Markets)	-4.20%	-22.24%	-22.23%	-6.10%	-2.31%	0.95%
<b>Commodities</b>						
Bloomberg Commodity Index	-4.11%	13.57%	11.80%	13.45%	6.96%	-2.14%
Goldman Sachs Commodity Index	-10.31%	21.80%	23.64%	12.19%	7.75%	-3.95%
<b>Hedge Funds</b>						
HFRI Fund-Weighted Composite <sup>2</sup>	-0.57%	-6.18%	-5.77%	6.18%	4.52%	4.61%
HFRI Fund of Funds <sup>2</sup>	0.72%	-5.92%	-5.51%	4.52%	3.30%	3.57%
<b>Real Estate</b>						
NAREIT U.S. Equity REITS	-9.94%	-28.13%	-16.41%	-2.05%	2.93%	6.26%
FTSE Global Core Infrastructure Index	-8.37%	-13.29%	-4.60%	1.74%	5.30%	7.86%
<b>Private Equity</b>						
Burgiss Private iQ Global Private Equity <sup>3</sup>			22.21%	23.77%	20.18%	16.03%

MSCI Indices show net total returns throughout this report. All other indices show gross total returns.

<sup>1</sup> Periods are annualized.

<sup>2</sup> Latest 5 months of HFR data are estimated by HFR and may change in the future.

<sup>3</sup> Burgiss Private iQ Global Private Equity data is as at March 31, 2022

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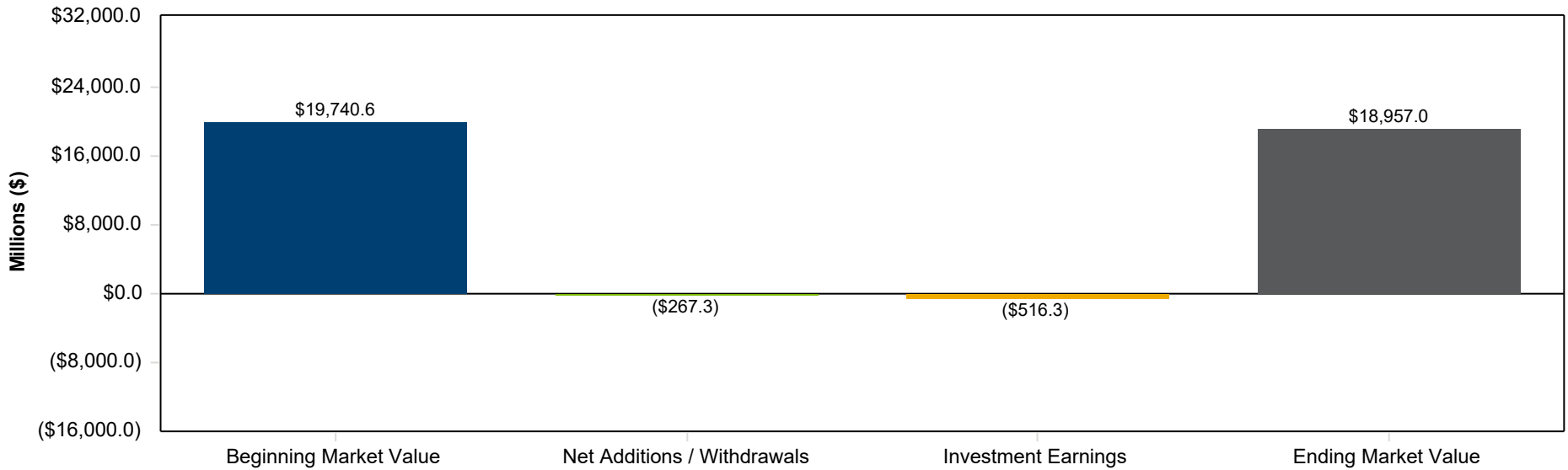


## Total Fund

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**Total Plan Asset Summary**

**Change in Market Value  
From July 1, 2022 to September 30, 2022**

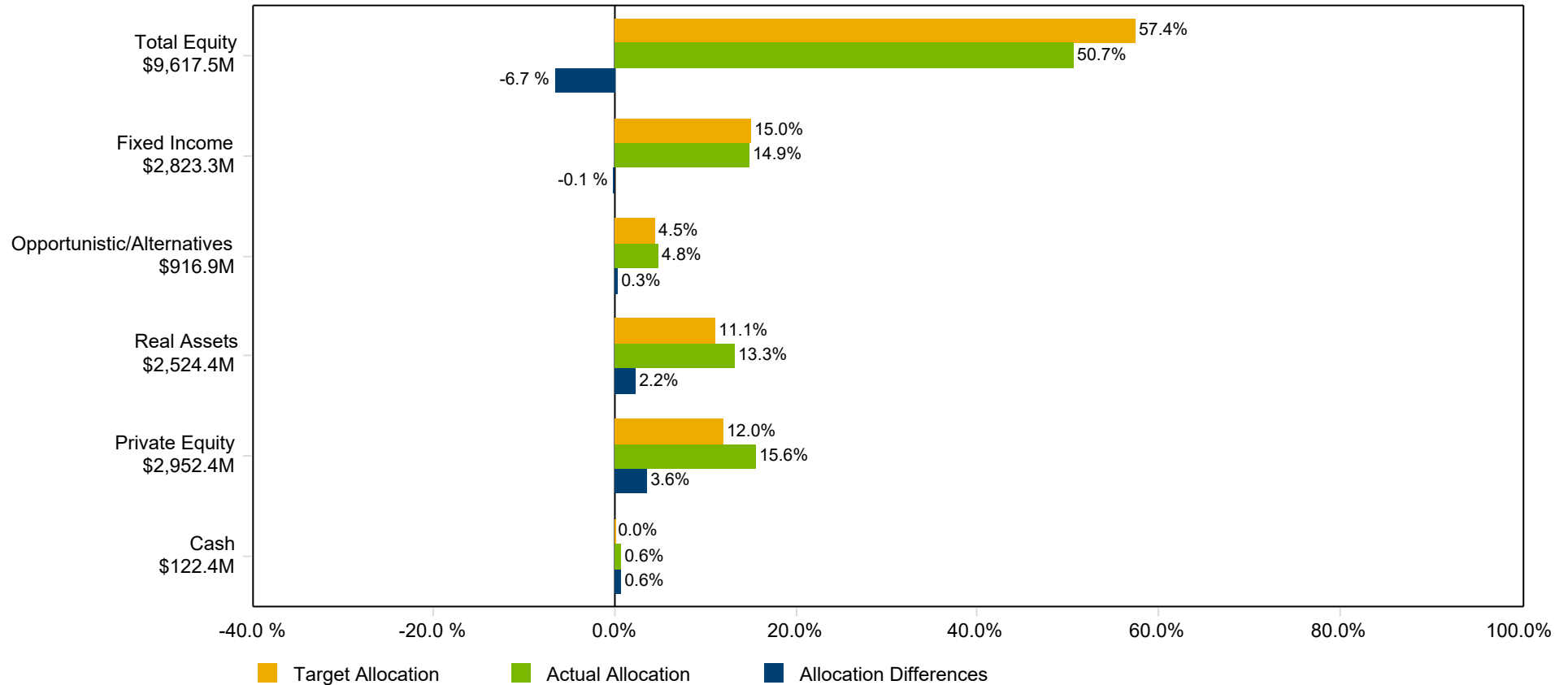


**Summary of Cash Flow**

	1 Quarter	Year To Date	1 Year
Beginning Market Value	19,740,562,415	21,766,843,724	21,015,249,044
+ Additions / Withdrawals	-267,261,776	-441,135,704	-706,236,327
+ Investment Earnings	-516,303,356	-2,368,710,738	-1,352,015,434
<b>= Ending Market Value</b>	<b>18,956,997,283</b>	<b>18,956,997,283</b>	<b>18,956,997,283</b>

Asset Allocation Compliance

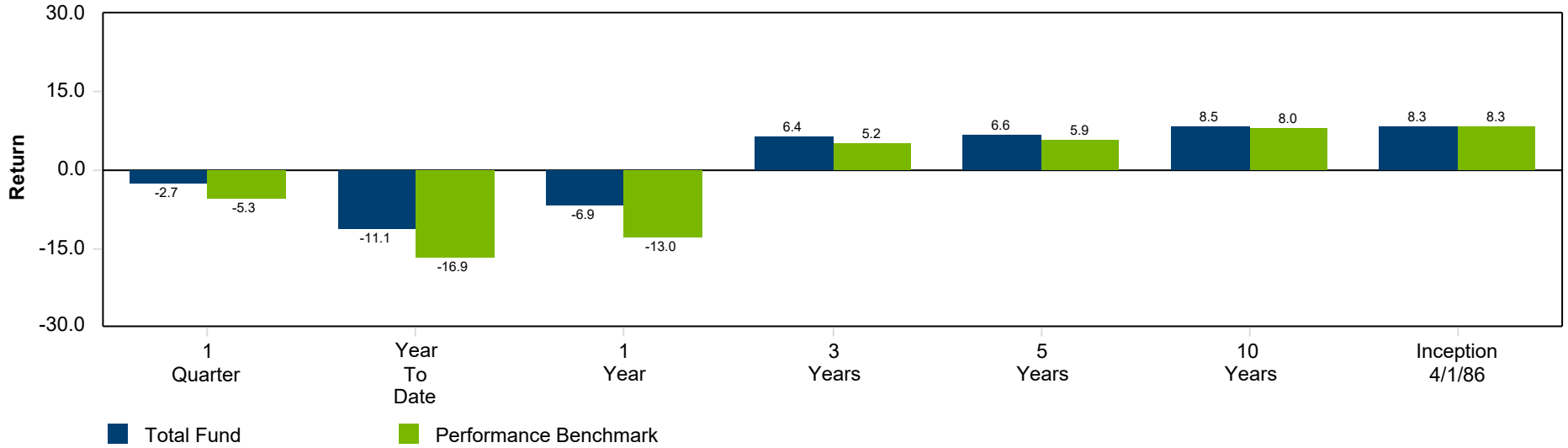
	Market Value (\$M)	Current Allocation (%)	Target Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)
Total Fund	18,957.0	100.00	100.00	N/A	N/A
Total Equity	9,617.5	50.73	57.42	48.00	58.00
Fixed Income	2,823.3	14.89	15.00	13.00	17.00
Opportunistic/Alternatives	916.9	4.84	4.51	0.00	100.00
Real Assets	2,524.4	13.32	11.07	0.00	100.00
Private Equity	2,952.4	15.57	12.00	0.00	100.00
Cash	122.4	0.65	0.00	0.00	5.00



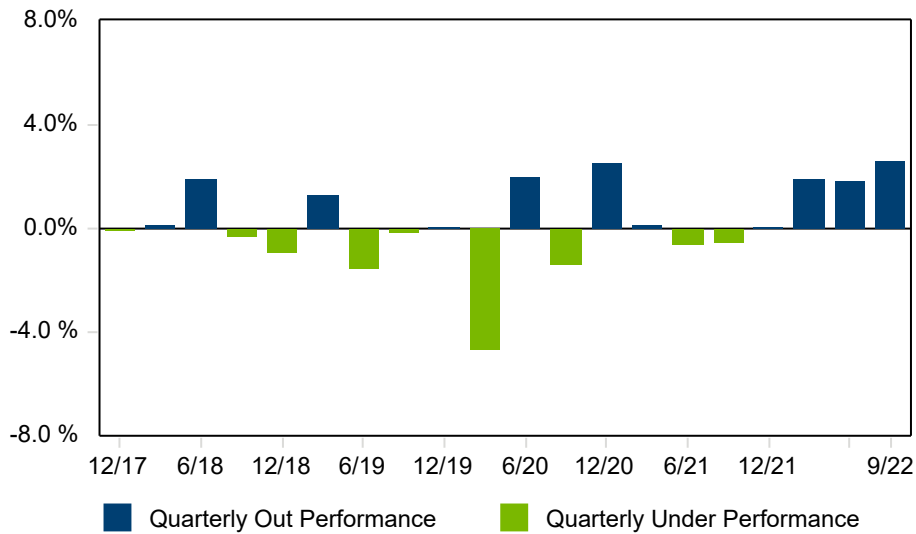
Market values and allocation percentages may not add to the sum total due to rounding.

**Total Plan Performance Summary**

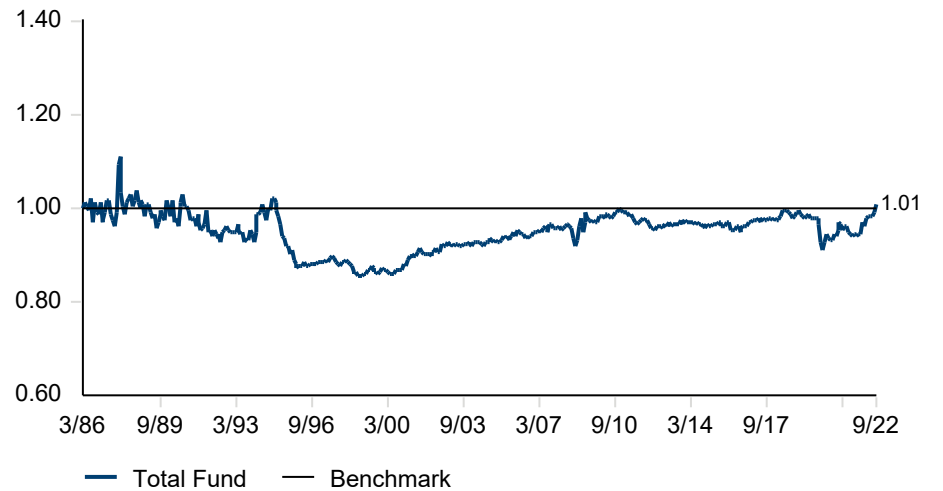
**Return Summary**



**Quarterly Excess Performance**

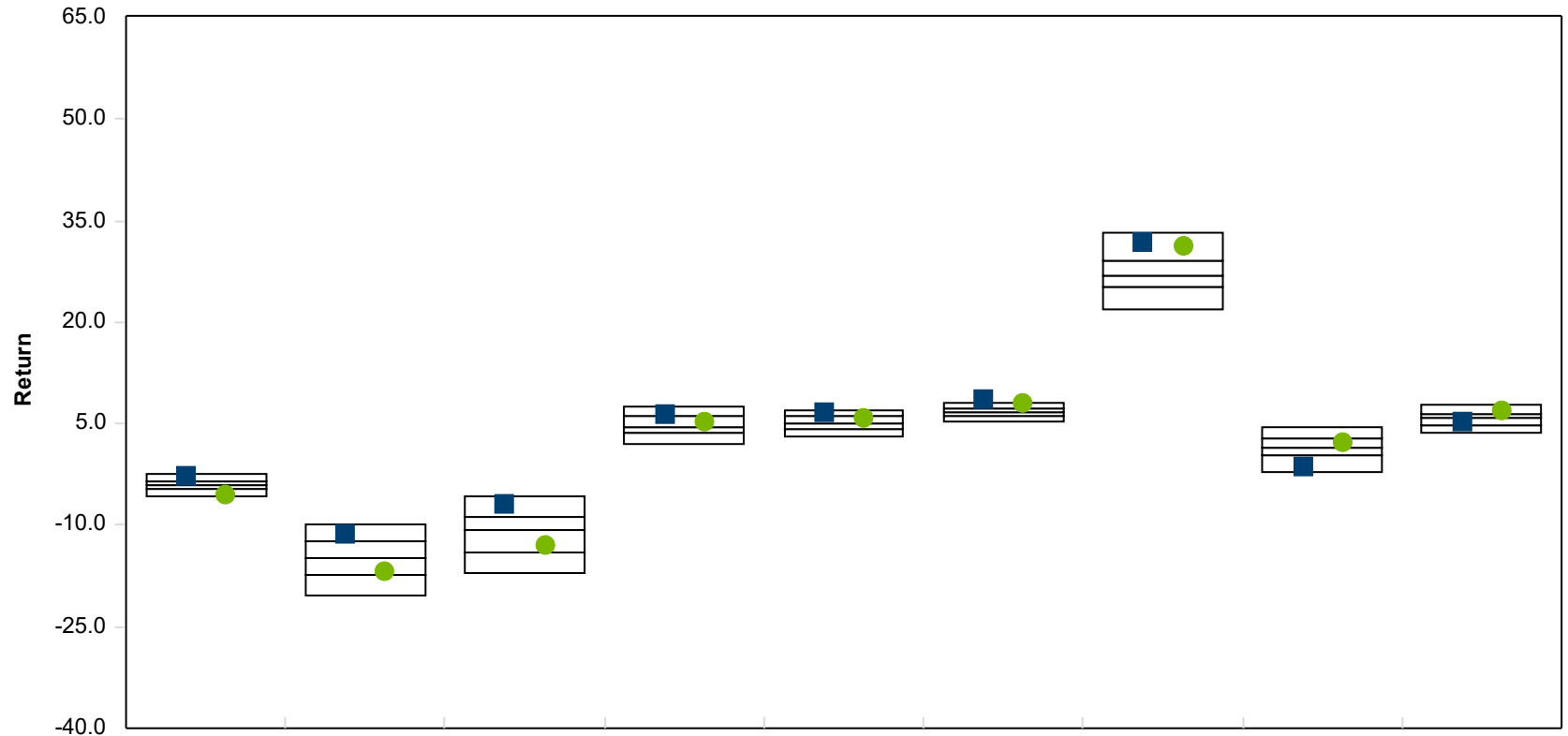


**Ratio of Cumulative Wealth - Since Inception**



Plan Sponsor Peer Group Analysis

All Public Plans > \$1B-Total Fund



	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	Fiscal Year 2021	Fiscal Year 2020	Fiscal Year 2019
■ Total Fund	-2.7 (6)	-11.1 (11)	-6.9 (8)	6.4 (18)	6.6 (8)	8.5 (4)	31.9 (11)	-1.4 (92)	5.3 (63)
● Performance Benchmark	-5.3 (93)	-16.9 (71)	-13.0 (62)	5.2 (38)	5.9 (27)	8.0 (6)	31.2 (15)	2.3 (35)	7.0 (12)
5th Percentile	-2.5	-10.0	-5.9	7.5	6.8	8.2	33.1	4.6	7.7
1st Quartile	-3.5	-12.3	-8.9	6.0	6.1	7.3	29.1	2.9	6.5
Median	-4.0	-14.7	-10.8	4.5	5.0	6.7	27.0	1.4	5.7
3rd Quartile	-4.6	-17.4	-14.0	3.7	4.2	6.2	25.1	0.3	4.9
95th Percentile	-5.7	-20.5	-17.1	2.1	3.2	5.2	22.0	-2.0	3.7
Population	63	58	56	53	52	48	151	142	114

parentheses contain percentile rankings.

As of September 30, 2022

## Asset Allocation & Performance

	Allocation			Performance(%)							
	Market Value (\$)	%	Policy(%)	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
<b>Total Fund</b>	<b>18,956,997,283</b>	<b>100.0</b>	<b>100.0</b>	<b>-2.7</b>	<b>-11.1</b>	<b>-6.9</b>	<b>6.4</b>	<b>6.6</b>	<b>8.5</b>	<b>8.3</b>	<b>04/01/1986</b>
<i>Performance Benchmark</i>				-5.3	-16.9	-13.0	5.2	5.9	8.0	8.3	
<b>Total Equity</b>	<b>9,617,546,876</b>	<b>50.7</b>	<b>55.5</b>	<b>-5.3</b>	<b>-21.7</b>	<b>-17.1</b>	<b>4.3</b>	<b>4.9</b>		<b>6.3</b>	<b>07/01/2015</b>
<i>Total Equity Performance Benchmark</i>				-5.9	-25.4	-20.1	4.9	5.5		6.8	
<b>Fixed Income</b>	<b>2,823,346,733</b>	<b>14.9</b>	<b>15.0</b>	<b>-2.7</b>	<b>-9.5</b>	<b>-9.9</b>	<b>-0.9</b>	<b>1.1</b>	<b>2.3</b>	<b>4.8</b>	<b>07/01/1992</b>
<i>Performance Benchmark</i>				-4.5	-14.9	-14.9	-3.1	-0.2	1.2	4.8	
<b>Opportunistic/Alternatives</b>	<b>916,908,669</b>	<b>4.8</b>	<b>4.7</b>	<b>1.9</b>	<b>4.6</b>	<b>6.5</b>	<b>1.8</b>	<b>1.6</b>	<b>3.6</b>	<b>3.2</b>	<b>05/01/2011</b>
<i>Custom Alternatives Benchmark</i>				0.2	-1.0	-0.2	2.7	2.6	2.6	2.0	
<b>Real Assets</b>	<b>2,524,403,697</b>	<b>13.3</b>	<b>12.8</b>	<b>2.7</b>	<b>12.7</b>	<b>15.2</b>	<b>8.4</b>	<b>7.7</b>		<b>8.6</b>	<b>07/01/2013</b>
<i>Total Real Assets Benchmark</i>				4.1	16.5	21.9	9.9	8.2		8.8	
<b>Real Estate</b>	<b>1,567,402,722</b>	<b>8.3</b>		<b>2.8</b>	<b>14.1</b>	<b>21.2</b>	<b>8.6</b>	<b>7.7</b>	<b>9.4</b>	<b>8.9</b>	<b>12/01/1998</b>
<i>NFI-ODCE (Net)</i>				4.5	20.6	28.3	11.7	9.6	10.2	9.4	
<b>Timber</b>	<b>331,953,047</b>	<b>1.8</b>		<b>2.6</b>	<b>9.6</b>	<b>11.8</b>	<b>8.3</b>	<b>6.7</b>	<b>5.7</b>	<b>7.3</b>	<b>06/01/1998</b>
<i>Timberland Property Benchmark</i>				1.9	9.9	12.0	5.7	4.0	5.1		
<b>Agriculture</b>	<b>245,951,125</b>	<b>1.3</b>		<b>3.5</b>	<b>13.0</b>	<b>14.7</b>	<b>7.7</b>	<b>6.0</b>	<b>6.9</b>	<b>6.3</b>	<b>09/01/2011</b>
<i>Agriculture Benchmark</i>				1.4	8.1	9.7	6.0	5.3	7.4		
<b>Infrastructure</b>	<b>379,096,803</b>	<b>2.0</b>		<b>2.2</b>	<b>10.0</b>	<b>13.6</b>	<b>14.5</b>			<b>14.4</b>	<b>07/01/2018</b>
<i>CPI + 5%</i>				1.4	10.4	13.6	10.2			9.1	
<b>Private Equity</b>	<b>2,952,437,887</b>	<b>15.6</b>	<b>12.0</b>	<b>0.2</b>	<b>5.8</b>	<b>10.7</b>	<b>16.1</b>	<b>17.3</b>	<b>15.5</b>	<b>12.9</b>	<b>03/01/1997</b>
<i>Private Equity Policy</i>				-16.4	-12.9	-12.5	11.8	12.7	14.7	10.7	
<b>Cash</b>	<b>122,353,420</b>	<b>0.6</b>	<b>0.0</b>								

\*The Real Assets and Private Equity market values, returns and their benchmark returns are shown on a one-quarter lag. Market values have been adjusted for current quarter cash flows.

\*The inception of the Total Equity asset class was July 1, 2015. Performance prior to July 2015 represents the weighted average of the U.S. Equity and Global Equity asset class monthly returns.

For historical performance of the U.S. Equity and Global Equity asset classes please see page 151 of this report.

\*The inception date above for infrastructure reflects the inception date for the calculation and reporting of time-weighted returns. The Infrastructure program began in July 2014 and the full history of Infrastructure returns are included in Total Real Assets and Total Fund performance.

Total Equity and Total Fund Performance includes investment earnings from Allianz Security Litigation Income received on February 28, 2022.

\*Market values and allocation percentages may not add to the sum total due to rounding.



As of September 30, 2022

## Asset Allocation & Performance

	Allocation		Performance(%)								
	Market Value (\$)	%	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	
<b>Total Fund</b>	18,956,997,283	100.0	-2.7 (6)	-11.1 (11)	-6.9 (8)	6.4 (18)	6.6 (8)	8.5 (4)	8.3	04/01/1986	
<i>Performance Benchmark</i>			-5.3 (93)	-16.9 (71)	-13.0 (62)	5.2 (38)	5.9 (27)	8.0 (6)	8.3		
<b>Total Equity</b>	9,617,546,876	50.7	-5.3 (19)	-21.7 (29)	-17.1 (28)	4.3 (40)	4.9 (40)		6.3 (34)	07/01/2015	
<i>Total Equity Performance Benchmark</i>			-5.9 (29)	-25.4 (45)	-20.1 (42)	4.9 (31)	5.5 (29)		6.8 (27)		
Jacobs Levy 130/30	1,011,987,316	5.3	-3.3 (33)	-8.6 (4)	7.2 (2)	17.1 (2)	14.5 (2)	16.7 (1)	11.4 (2)	01/01/2008	
<i>Russell 3000 Index</i>			-4.5 (52)	-24.6 (56)	-17.6 (51)	7.7 (28)	8.6 (27)	11.4 (24)	8.3 (37)		
Kennedy Capital Management	658,484,126	3.5	-4.2 (44)	-23.2 (84)	-14.7 (52)	7.2 (27)	3.5 (47)	9.5 (26)	11.4 (13)	01/01/1994	
<i>Russell 2000 Value Index</i>			-4.6 (52)	-21.1 (64)	-17.7 (79)	4.7 (60)	2.9 (64)	7.9 (68)	8.9 (90)		
Stephens	485,471,205	2.6	-1.6 (62)	-29.9 (39)	-27.9 (32)	5.3 (57)	8.1 (46)	9.3 (89)	8.8 (68)	08/01/2006	
<i>Russell 2000 Growth Index</i>			0.2 (33)	-29.3 (35)	-29.3 (45)	2.9 (88)	3.6 (92)	8.8 (94)	7.7 (90)		
Voya Absolute Return	617,279,201	3.3	-8.2 (69)	-26.2 (49)	-19.9 (41)	3.9 (43)	4.0 (53)	9.2 (18)	8.7 (22)	10/01/2008	
<i>Performance Benchmark</i>			-6.8 (45)	-25.6 (46)	-20.7 (43)	3.7 (44)	4.4 (46)	9.1 (18)	8.7 (22)		
Voya U.S. Convertibles	855,782,309	4.5	0.3 (8)	-19.8 (30)	-19.0 (58)	12.5 (4)	12.3 (4)	11.3 (26)	10.1 (19)	12/01/1998	
<i>Performance Benchmark</i>			0.3 (9)	-20.0 (31)	-20.0 (61)	10.1 (9)	9.3 (19)	10.1 (49)	7.9 (58)		
Pershing Square Holdings	214,232,911	1.1	1.6 (6)	-26.4 (65)	-16.2 (45)	17.6 (2)	19.7 (1)		6.6 (95)	01/01/2013	
<i>Dow Jones U.S. Total Stock Market Index</i>			-4.6 (54)	-24.9 (58)	-18.1 (54)	7.5 (31)	8.5 (29)		11.6 (25)		
Trian Partners	65,508,767	0.3	-7.2	-25.4	-23.3	-1.7	2.4		4.0	11/01/2015	
<i>S&amp;P 500 Index</i>			-4.9	-23.9	-15.5	8.2	9.2		10.3		
Trian Co-Investments	41,209,865	0.2	-3.1	-18.1	-14.6	1.3	3.7		3.3	01/01/2017	
<i>S&amp;P 500 Index</i>			-4.9	-23.9	-15.5	8.2	9.2		10.5		
SSgA Global Index	867,460,842	4.6	-6.6 (39)	-25.5 (45)	-20.9 (44)	4.0 (41)	4.5 (45)	7.6 (45)	5.5 (51)	04/01/2008	
<i>MSCI AC World IMI (Net)</i>			-6.6 (40)	-25.7 (46)	-21.2 (47)	3.6 (45)	4.2 (50)	7.2 (56)	5.2 (62)		

As of September 30, 2022

Asset Allocation & Performance

	Allocation		Performance(%)								Inception Date
	Market Value (\$)	%	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	Since Inception		
BlackRock MSCI ACWI IMI Fund	783,463,173	4.1	-6.6 (39)	-25.5 (45)	-20.9 (44)	4.0 (42)	4.4 (47)	7.6 (46)	6.7 (51)	07/01/2011	
<i>MSCI AC World IMI (Net)</i>			-6.6 (40)	-25.7 (46)	-21.2 (47)	3.6 (45)	4.2 (50)	7.2 (56)	6.4 (60)		
Wellington Global Perspectives	611,689,716	3.2	-4.0 (10)	-23.5 (36)	-20.4 (42)	4.4 (39)	3.0 (68)	9.3 (17)	11.2 (16)	07/01/2009	
<i>Performance Benchmark</i>			-5.3 (19)	-26.4 (51)	-24.8 (67)	3.0 (52)	2.3 (76)	7.0 (61)	8.9 (53)		
T. Rowe Price Global Equity	1,141,316,661	6.0	-5.5 (21)	-32.9 (83)	-32.3 (90)	8.3 (8)	9.6 (4)	12.8 (2)	11.5 (7)	09/01/2009	
<i>MSCI AC World Index (Net)</i>			-6.8 (45)	-25.6 (46)	-20.7 (43)	3.7 (44)	4.4 (46)	7.3 (54)	7.6 (65)		
<i>MSCI AC World Index Growth (net)</i>			-5.9 (29)	-32.2 (81)	-27.5 (80)	5.4 (24)	6.6 (18)	8.9 (21)	9.3 (29)		
Lazard	569,641,738	3.0	-10.4 (93)	-33.2 (84)	-30.7 (87)	0.5 (82)	1.0 (89)	6.1 (77)	6.8 (83)	09/01/2009	
<i>MSCI AC World Index (Net)</i>			-6.8 (45)	-25.6 (46)	-20.7 (43)	3.7 (44)	4.4 (46)	7.3 (54)	7.6 (65)		
D.E. Shaw	791,137,950	4.2	-4.4 (13)	-21.7 (29)	-15.5 (23)	4.7 (34)	4.9 (40)	9.0 (19)	9.3 (29)	09/01/2009	
<i>MSCI World Index (Net)</i>			-6.2 (34)	-25.4 (45)	-19.6 (39)	4.6 (35)	5.3 (33)	8.1 (36)	8.2 (48)		
GMO Global All Country Equity	416,491,531	2.2	-8.9 (78)	-26.9 (57)	-24.0 (65)	0.6 (80)	1.3 (87)		2.2 (89)	07/01/2014	
<i>MSCI AC World Index (Net)</i>			-6.8 (45)	-25.6 (46)	-20.7 (43)	3.7 (44)	4.4 (46)		5.1 (48)		
<i>MSCI AC World Index Value (Net)</i>			-7.7 (60)	-19.1 (19)	-14.0 (19)	1.3 (72)	1.7 (82)		2.7 (84)		
Harris Global Equity	486,325,817	2.6	-10.5 (94)	-26.4 (52)	-24.2 (65)	3.0 (52)	0.6 (91)		3.8 (75)	06/01/2014	
<i>MSCI World Index (Net)</i>			-6.2 (34)	-25.4 (45)	-19.6 (39)	4.6 (35)	5.3 (33)		5.9 (34)		
<i>MSCI World Value (Net)</i>			-7.2 (55)	-18.5 (18)	-12.7 (16)	1.8 (67)	2.2 (77)		3.4 (80)		
Fixed Income	2,823,346,733	14.9	-2.7	-9.5	-9.9	-0.9	1.1	2.3	4.8	07/01/1992	
<i>Performance Benchmark</i>			-4.5	-14.9	-14.9	-3.1	-0.2	1.2	4.8		
BlackRock	238,995,649	1.3	-4.8 (81)	-15.3 (79)	-15.4 (79)	-3.0 (78)	-0.1 (80)	1.2 (60)	3.4 (41)	10/01/2003	
<i>Performance Benchmark</i>			-4.5 (72)	-14.9 (74)	-14.9 (75)	-3.1 (81)	-0.2 (83)	1.2 (62)	3.2 (48)		
Loomis Sayles	429,184,709	2.3	-2.5 (46)	-14.8 (73)	-15.1 (77)	-0.3 (31)	1.4 (25)	3.6 (11)	6.3 (6)	09/01/2008	
<i>Performance Benchmark</i>			-3.2 (57)	-14.9 (75)	-14.6 (72)	-2.1 (65)	0.6 (52)	2.1 (30)	4.1 (29)		
Putnam	363,250,000	1.9	-1.1 (40)	-3.3 (22)	-4.9 (27)	-1.3 (78)	0.8 (66)	1.5 (76)	2.2	08/01/2008	
<i>LIBOR</i>			0.4 (15)	0.4 (12)	0.4 (17)	0.7 (57)	1.3 (57)	0.9 (88)	0.9		
SSgA Aggregate Bond Index	743,759,109	3.9	-4.8 (80)	-14.7 (71)	-14.7 (73)	-3.3 (84)	-0.3 (85)	0.9 (80)	1.9 (70)	06/01/2010	
<i>Barclays Aggregate Index</i>			-4.8 (80)	-14.6 (70)	-14.6 (71)	-3.3 (84)	-0.3 (85)	0.9 (80)	1.9 (70)		
Wellington Global Total Return	372,256,145	2.0	0.8 (9)	5.6 (7)	4.4 (8)	2.5 (37)	3.7 (24)		2.3 (34)	05/01/2014	
<i>BofA Merrill Lynch 3 Month US T-Bill</i>			0.5 (14)	0.6 (12)	0.6 (16)	0.6 (58)	1.1 (62)		0.8 (71)		
Reams Core Plus Bond Fund	340,749,747	1.8	-4.2 (67)	-14.5 (69)	-14.3 (67)	-0.5 (34)	1.6 (21)		2.0 (30)	05/01/2014	
<i>Barclays Aggregate Index</i>			-4.8 (80)	-14.6 (70)	-14.6 (71)	-3.3 (84)	-0.3 (85)		1.0 (79)		
BRS Recycling Tax Credit	176,000,000	0.9									
BRS Recycling Tax Credit Phase 2	77,031,608	0.4									
BRS Recycling Tax Credit Phase 3	82,119,766	0.4									

As of September 30, 2022

## Asset Allocation & Performance

	Allocation		Performance(%)							
	Market Value (\$)	%	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Opportunistic/Alternatives	916,908,669	4.8	1.9	4.6	6.5	1.8	1.6	3.6	3.2	05/01/2011
<i>Custom Alternatives Benchmark</i>			0.2	-1.0	-0.2	2.7	2.6	2.6	2.0	
Anchorage	43,935,167	0.2	4.7	5.4	3.8	8.6	5.5	6.6	5.9	05/01/2011
<i>Credit Suisse Event Driven</i>			-0.8	-8.4	-8.3	4.2	3.1	3.6	2.5	
York	11,057,439	0.1	16.4	42.5	39.9	-13.2	-9.2	-1.9	-1.5	05/01/2011
<i>Credit Suisse Event Driven</i>			-0.8	-8.4	-8.3	4.2	3.1	3.6	2.5	
Capula	88,773,892	0.5	3.7	9.7	9.9	7.2	6.3	6.7	6.3	05/01/2011
<i>HFRI Macro (Total) Index</i>			1.8	10.5	10.1	7.8	5.6	3.1	2.3	
Graham	95,801,918	0.5	6.6	34.8	33.5	15.9	11.2	8.2	5.7	05/01/2011
<i>HFRI Macro (Total) Index</i>			1.8	10.5	10.1	7.8	5.6	3.1	2.3	
Circumference Group Core Value	33,664,372	0.2	-3.3	-13.3	-11.8	4.6	6.3	7.1	7.1	08/01/2015
<i>Russell 2000 Index</i>			-2.2	-25.1	-23.5	4.3	3.6	5.6	5.6	
Aeolus Keystone Fund	40,241,797	0.2	4.3	10.7	15.1	-1.0	-2.4	-1.6	-1.6	12/01/2015
<i>FTSE 3 Month T-Bill</i>			0.4	0.6	0.6	0.6	1.1	0.9	0.9	
<i>Eurekahedge ILS Advisers Index</i>			-4.6	-4.3	-3.5	0.1	-0.3	-0.5	-0.5	
Nephila Rubik Holdings	9,107,652	0.0	-1.2	-7.9	-10.2	-8.9	-6.6	-5.8	-5.8	06/01/2016
<i>FTSE 3 Month T-Bill</i>			0.4	0.6	0.6	0.6	1.1	1.0	1.0	
<i>Eurekahedge ILS Advisers Index</i>			-4.6	-4.3	-3.5	0.1	-0.3	-0.8	-0.8	
Parametric Global Defensive Equity Fund	175,959,721	0.9	-4.3	-13.6	-9.8	1.8	2.5	3.0	3.0	05/01/2017
<i>Performance Benchmark</i>			-3.1	-13.1	-10.2	2.6	3.2	3.5	3.5	
<i>MSCI AC World Index</i>			-6.7	-25.3	-20.3	4.2	5.0	6.1	6.1	
Man Alternative Risk Premia	111,718,280	0.6	6.5	12.0	17.9	3.0		2.8	2.8	06/01/2018
<i>SG Multi Alternative Risk Premia Index</i>			0.9	3.3	4.7	-2.1		-1.1	-1.1	
CFM Systematic Global Macro Fund	112,374,317	0.6	9.2	26.2				26.9	26.9	12/01/2021
<i>HFRI Macro: Systematic Diversified Index</i>			3.1	18.9				19.2	19.2	
Pillar Opportunity	89,477,831	0.5	-8.1	-5.8				-5.8	-5.8	12/01/2021
<i>FTSE 3 Month T-Bill</i>			0.4	0.6				0.6	0.6	
<i>Eurekahedge ILS Advisers Index</i>			-4.6	-4.3				-4.1	-4.1	
Chatham	55,386,805	0.3	3.2	11.2				11.0	11.0	11/01/2021
<i>HFRI Event-Driven (Total) Index</i>			-0.4	-7.7				-8.0	-8.0	
Silver Point Capital Fund	49,409,478	0.3	3.8					-0.3	-0.3	04/01/2022
<i>HFRI ED: Distressed/Restructuring Index</i>			-1.4					-6.2	-6.2	

As of September 30, 2022

## Asset Allocation & Performance

	Allocation		Performance(%)							Inception Date
	Market Value (\$)	%	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	Since Inception	
Real Assets	2,524,403,697	13.3	2.7	12.7	15.2	8.4	7.7		8.6	07/01/2013
<i>Total Real Assets Benchmark</i>			4.1	16.5	21.9	9.9	8.2		8.8	
Real Estate	1,567,402,722	8.3	2.8	14.1	21.2	8.6	7.7	9.4	8.9	12/01/1998
<i>NFI-ODCE (Net)</i>			4.5	20.6	28.3	11.7	9.6	10.2	9.4	
Timber	331,953,047	1.8	2.6	9.6	11.8	8.3	6.7	5.7	7.3	06/01/1998
<i>Timberland Property Benchmark</i>			1.9	9.9	12.0	5.7	4.0	5.1		
BTG Timber Separate Account	115,280,635	0.6								
BTG U.S. Timberland Fund, L.P.	216,672,412	1.1								
Agriculture	245,951,125	1.3	3.5	13.0	14.7	7.7	6.0	6.9	6.3	09/01/2011
<i>Agriculture Benchmark</i>			1.4	8.1	9.7	6.0	5.3	7.4		
HFMS Farmland	186,062,659	1.0	4.1	14.5	16.5	8.4	6.3	7.1	6.5	09/01/2011
<i>HFMS custom NCREIF Farmland Index</i>			1.4	8.1	9.7	6.2	5.2	7.3		
UBS Agrivest Core Farmland Fund	59,888,466	0.3	1.9	9.0	9.8	5.7	5.0		5.2	07/01/2015
<i>UBS Agrivest custom NCREIF Farmland Index</i>			1.4	8.1	9.7	6.1	6.1		6.2	
Infrastructure	379,096,803	2.0	2.2	10.0	13.6	14.5			14.4	07/01/2018
<i>CPI + 5%</i>			1.4	10.4	13.6	10.2			9.1	
Private Equity	2,952,437,887	15.6	0.2	5.8	10.7	16.1	17.3	15.5	12.9	04/01/1997
<i>Private Equity Policy</i>			-16.4	-12.9	-12.5	11.8	12.7	14.7	10.8	
Cash	122,353,420	0.6								

\*The Real Assets and Private Equity market values, returns and their benchmark returns are shown on a one-quarter lag. Market values have been adjusted for current quarter cash flows.

\*The inception of the Total Equity asset class was July 1, 2015. Performance prior to July 2015 represents the weighted average of the U.S. Equity and Global Equity asset class monthly returns. For historical performance of the U.S. Equity and Global Equity asset classes please see page 151 of this report.

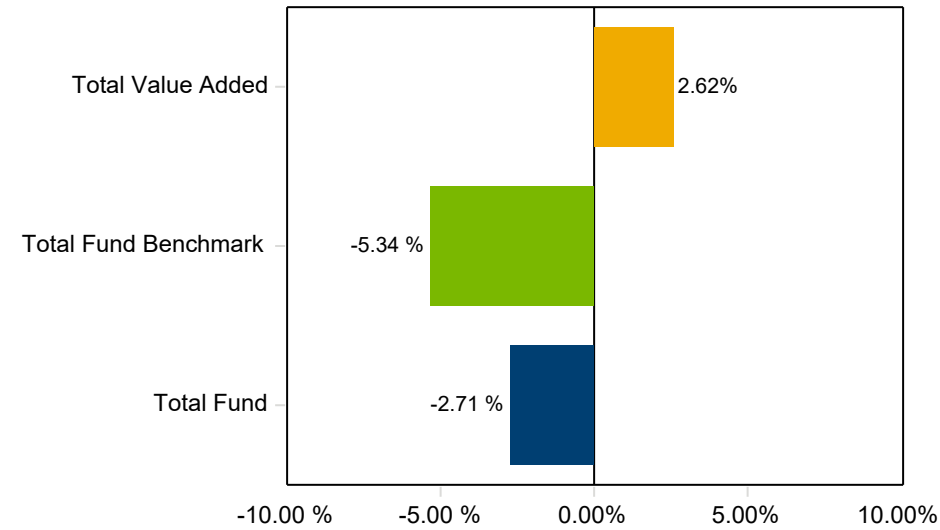
\*The inception date above for infrastructure reflects the inception date for the calculation and reporting of time-weighted returns. The Infrastructure program began in July 2014 and the full history of Infrastructure returns are included in Total Real Assets and Total Fund performance.

\*The BRS Recycling Tax Credit represents an annual income stream of \$16 million dollars over the next 14 years, which ATRS purchased for approximately \$162 million. This represents an approximate 9.9% yield for the 2017 fiscal year. The value shown above represents the year-end market value in accordance with GASB Statement 72, representing the 14 years of annual income, and has been incorporated into Total Fixed Income and Total Fund performance.

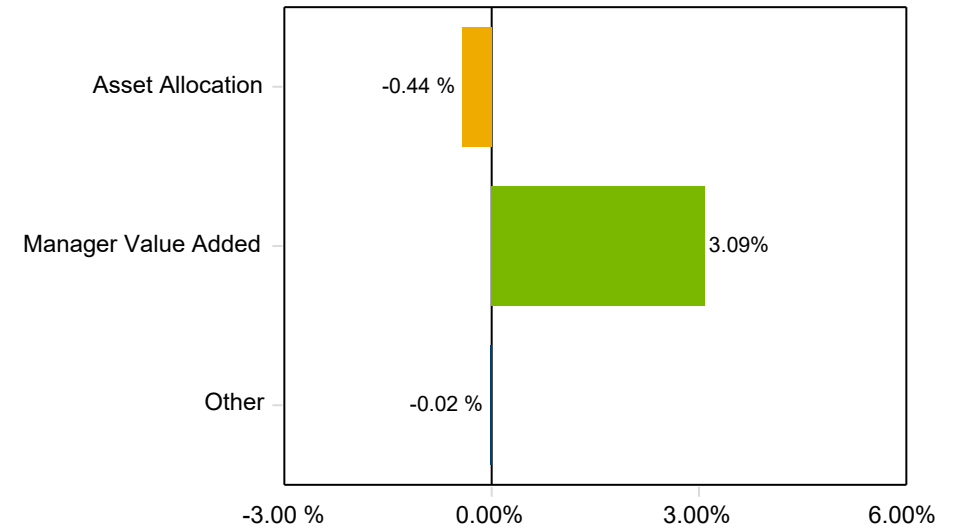
\*ATRS made a total commitment of \$100 million to the Triam Co-Investments Fund. As of 3/31/2021, there was an unfunded commitment value equal to \$18,287,776.

Total Fund Attribution

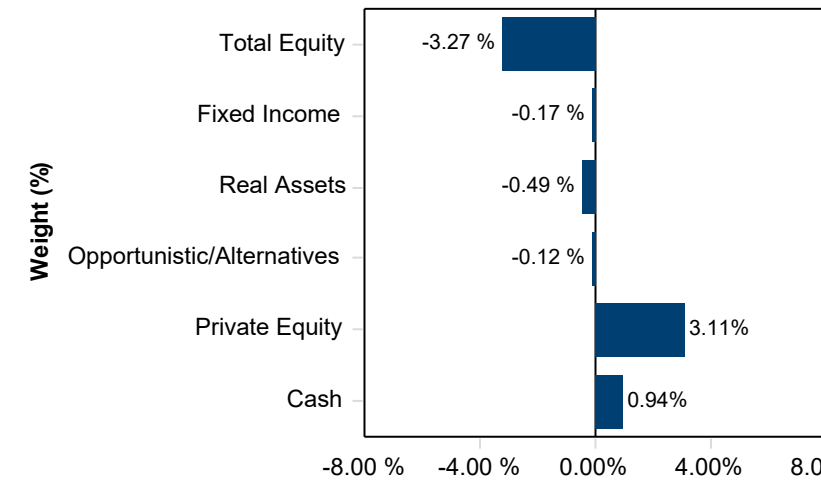
Total Fund Performance



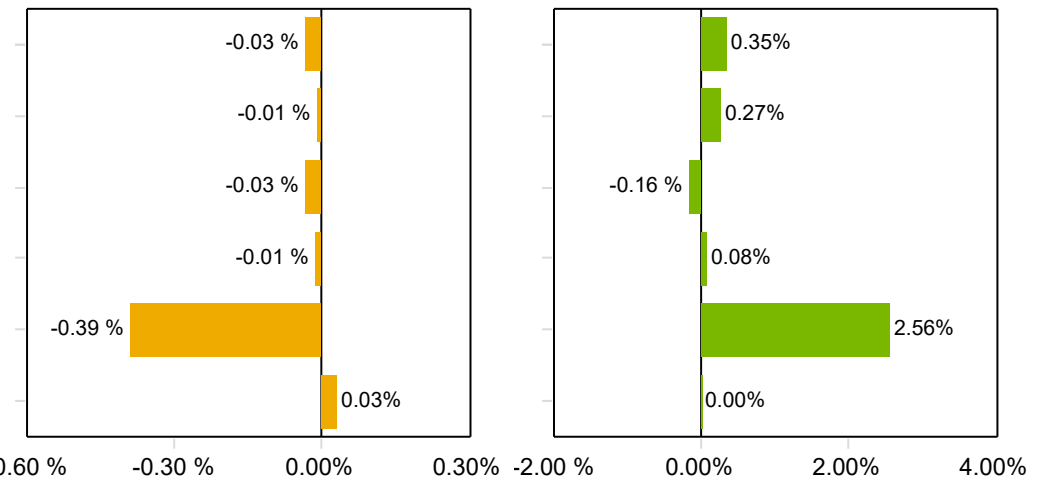
Total Value Added: 2.62%



Total Asset Allocation: -0.44%



Total Manager Value Added: 3.09%



Average Active Weight

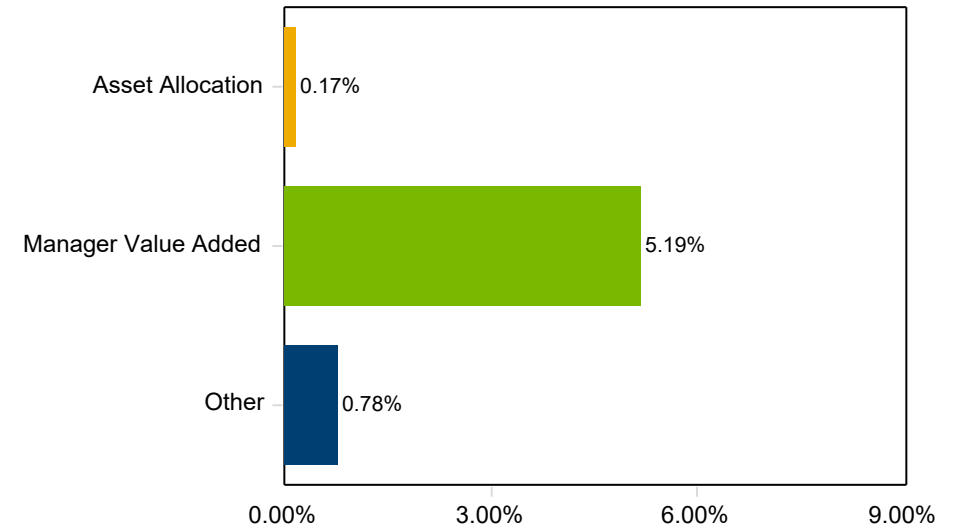
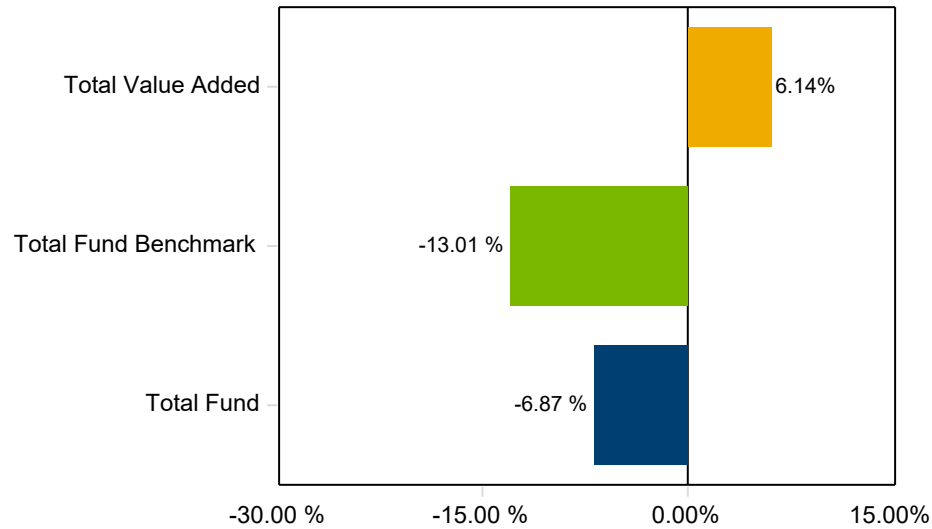
Asset Allocation Value Added

Manager Value Added

Total Fund Attribution

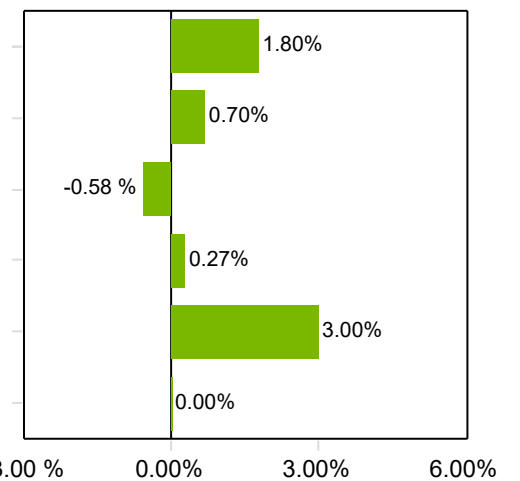
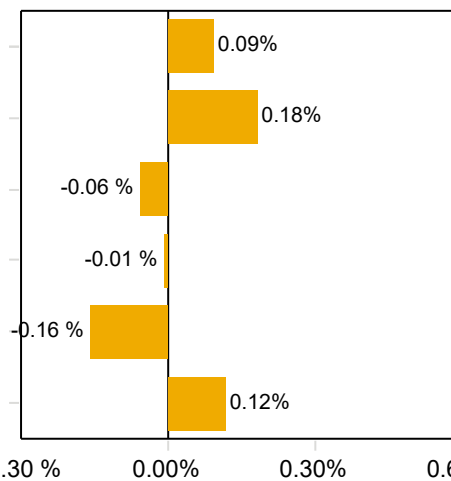
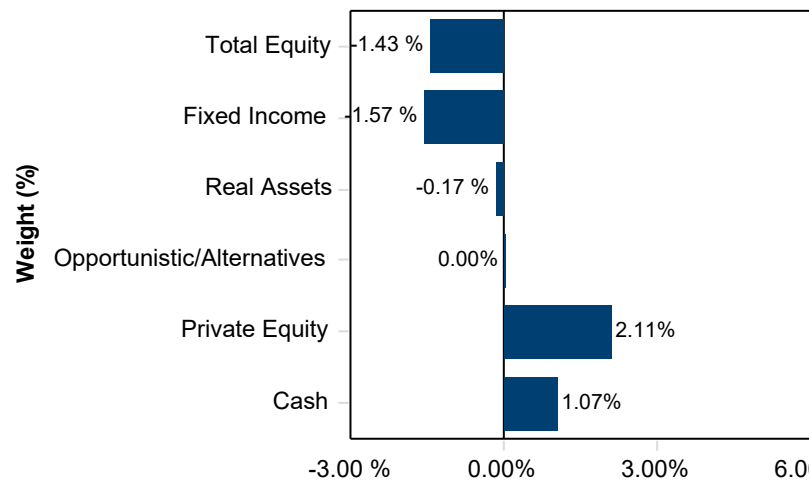
Total Fund Performance

Total Value Added: 6.14%



Total Asset Allocation: 0.17%

Total Manager Value Added: 5.19%



Average Active Weight

Asset Allocation Value Added

Manager Value Added

As of September 30, 2022

## Calendar Year Performance

	Performance(%)										
	Fiscal Year 2022	Fiscal Year 2021	Fiscal Year 2020	Fiscal Year 2019	Fiscal Year 2018	Fiscal Year 2017	Fiscal Year 2016	Fiscal Year 2015	Fiscal Year 2014	Fiscal Year 2013	Fiscal Year 2012
<b>Total Fund</b>	-3.9 (23)	31.9 (11)	-1.4 (92)	5.3 (63)	11.7 (2)	16.1 (1)	-0.5 (67)	5.2 (7)	19.0 (5)	14.3 (10)	-1.0 (94)
<i>Performance Benchmark</i>	-7.2 (51)	31.2 (15)	2.3 (35)	7.0 (12)	9.2 (24)	13.2 (32)	1.8 (8)	5.2 (7)	18.3 (17)	13.5 (24)	2.1 (16)
<b>Total Equity</b>	-13.4 (35)	47.4 (24)	-6.4 (77)	4.1 (58)	13.4 (29)	22.1 (28)	-4.8 (56)				
<i>Total Equity Performance Benchmark</i>	-15.8 (46)	42.0 (43)	2.7 (45)	5.9 (48)	12.2 (35)	19.0 (46)	-1.5 (38)				
Jacobs Levy 130/30	12.1 (2)	50.3 (42)	0.2 (47)	5.5 (51)	19.9 (23)	24.6 (18)	8.3 (4)	14.2 (7)	24.3 (54)	22.4 (50)	1.4 (41)
<i>Russell 3000 Index</i>	-13.9 (52)	44.2 (57)	6.5 (32)	9.0 (32)	14.8 (46)	18.5 (56)	2.1 (23)	7.3 (44)	25.2 (44)	21.5 (56)	3.8 (25)
Kennedy Capital Management	-11.9 (56)	72.4 (29)	-16.2 (50)	-7.8 (68)	12.2 (51)	24.2 (37)	-4.9 (65)	2.7 (53)	29.4 (10)	34.4 (7)	-4.2 (68)
<i>Russell 2000 Value Index</i>	-16.3 (84)	73.3 (28)	-17.5 (59)	-6.2 (58)	13.1 (42)	24.9 (31)	-2.6 (42)	0.8 (67)	22.5 (75)	24.8 (61)	-1.4 (35)
Stephens	-25.8 (31)	40.2 (88)	7.8 (54)	8.4 (37)	29.5 (26)	18.3 (83)	-7.8 (42)	5.1 (89)	18.4 (79)	18.7 (87)	3.0 (11)
<i>Russell 2000 Growth Index</i>	-33.4 (63)	51.4 (60)	3.5 (63)	-0.5 (80)	21.9 (65)	24.4 (43)	-10.8 (60)	12.3 (40)	24.7 (38)	23.7 (57)	-2.7 (41)
Voya Absolute Return	-14.1 (40)	41.9 (43)	0.1 (55)	4.0 (58)	9.9 (53)	20.3 (37)	1.9 (21)	7.8 (10)	26.9 (25)	19.7 (37)	6.0 (8)
<i>Performance Benchmark</i>	-15.8 (46)	39.3 (56)	2.1 (47)	5.7 (49)	10.7 (48)	18.8 (48)	1.1 (22)	7.4 (11)	24.6 (40)	20.6 (30)	5.4 (8)
Voya U.S. Convertibles	-19.8 (69)	47.3 (49)	20.1 (10)	12.5 (15)	16.4 (37)	15.9 (75)	-7.1 (79)	4.4 (68)	23.1 (65)	19.4 (71)	-2.4 (65)
<i>Performance Benchmark</i>	-20.6 (71)	45.7 (52)	15.3 (16)	7.8 (39)	12.0 (64)	16.8 (69)	-4.7 (66)	3.5 (74)	24.4 (53)	18.6 (76)	-3.2 (71)
Pershing Square Holdings	-17.9 (66)	57.0 (26)	36.5 (2)	21.7 (2)	-2.7 (100)	8.3 (96)	-49.1 (100)	15.2 (4)	30.4 (10)		
<i>Dow Jones U.S. Total Stock Market Index</i>	-14.2 (54)	44.3 (56)	6.4 (32)	8.9 (33)	14.8 (46)	18.5 (56)	2.0 (23)	7.2 (45)	25.0 (47)		
Triar Partners	-19.0	33.4	-2.3	13.1	2.8	9.5					
<i>S&amp;P 500 Index</i>	-10.6	40.8	7.5	10.4	14.4	17.9					
SSgA Global Index	-16.2 (48)	41.3 (46)	1.6 (49)	4.8 (54)	11.4 (42)	19.4 (42)	-3.4 (48)	1.2 (55)	23.8 (48)	17.5 (54)	-6.6 (59)
<i>MSCI AC World IMI (Net)</i>	-16.5 (49)	40.9 (47)	1.2 (51)	4.6 (56)	11.1 (44)	19.0 (46)	-3.9 (50)	0.8 (58)	23.4 (51)	17.1 (58)	-6.9 (60)

As of September 30, 2022

## Calendar Year Performance

	Performance(%)										
	Fiscal Year 2022	Fiscal Year 2021	Fiscal Year 2020	Fiscal Year 2019	Fiscal Year 2018	Fiscal Year 2017	Fiscal Year 2016	Fiscal Year 2015	Fiscal Year 2014	Fiscal Year 2013	Fiscal Year 2012
BlackRock MSCI ACWI IMI Fund	-16.2 (48)	41.4 (46)	1.5 (50)	4.5 (56)	11.4 (42)	19.1 (45)	-3.4 (47)	1.2 (54)	23.9 (48)	17.7 (52)	-6.6 (59)
MSCI AC World IMI (Net)	-16.5 (49)	40.9 (47)	1.2 (51)	4.6 (56)	11.1 (44)	19.0 (46)	-3.9 (50)	0.8 (58)	23.4 (51)	17.1 (58)	-6.9 (60)
Wellington Global Perspectives	-17.1 (53)	60.0 (9)	-11.7 (90)	-3.8 (89)	15.7 (19)	24.8 (16)	-4.2 (51)	-1.4 (71)	33.1 (5)	30.7 (4)	-9.1 (73)
Performance Benchmark	-21.8 (74)	54.1 (14)	-5.5 (75)	-3.0 (87)	13.8 (27)	20.5 (36)	-4.7 (55)	1.5 (53)	26.0 (30)	20.6 (30)	-9.9 (77)
T. Rowe Price Global Equity	-28.7 (90)	52.0 (15)	22.8 (5)	8.0 (34)	21.3 (7)	28.8 (8)	-0.6 (33)	7.5 (11)	32.0 (7)	18.2 (49)	-7.7 (62)
MSCI AC World Index (Net)	-15.8 (46)	39.3 (56)	2.1 (47)	5.7 (49)	10.7 (48)	18.8 (48)	-3.7 (48)	0.7 (58)	22.9 (54)	16.6 (62)	-6.5 (59)
MSCI AC World Index Growth (net)	-23.5 (78)	39.7 (53)	16.6 (10)	7.2 (40)	16.1 (19)	18.6 (49)	-2.7 (43)	4.9 (25)	23.1 (53)	15.4 (68)	-5.3 (51)
Lazard	-25.6 (83)	47.5 (24)	1.6 (49)	2.7 (67)	9.8 (54)	26.2 (13)	-10.7 (88)	7.3 (11)	23.3 (51)	15.8 (66)	-11.4 (83)
MSCI AC World Index (Net)	-15.8 (46)	39.3 (56)	2.1 (47)	5.7 (49)	10.7 (48)	18.8 (48)	-3.7 (48)	0.7 (58)	22.9 (54)	16.6 (62)	-6.5 (59)
D.E. Shaw	-13.2 (35)	38.0 (60)	0.1 (55)	2.6 (68)	15.8 (19)	19.2 (45)	0.0 (27)	3.9 (33)	25.6 (33)	19.3 (41)	-1.9 (29)
MSCI World Index (Net)	-14.3 (40)	39.0 (56)	2.8 (45)	6.3 (44)	11.1 (45)	18.2 (51)	-2.8 (43)	1.4 (53)	24.0 (47)	18.6 (46)	-5.0 (48)
GMO Global All Country Equity	-19.1	40.6	-2.3	3.5	6.8	20.0	-6.5	-4.5			
MSCI AC World Index (Net)	-15.8	39.3	2.1	5.7	10.7	18.8	-3.7	0.7			
MSCI AC World Index Value (Net)	-8.1	38.4	-11.8	4.3	5.4	19.0	-4.8	-3.4			
Harris Global Equity	-17.0	56.6	-6.6	-2.0	5.0	38.9	-12.8	0.7			
MSCI World Index (Net)	-14.3	39.0	2.8	6.3	11.1	18.2	-2.8	1.4			
MSCI World Value (Net)	-6.6	37.9	-11.3	4.2	5.6	18.7	-3.7	-2.9			
Fixed Income	-7.5	3.1	6.4	6.4	1.3	5.2	3.5	1.0	6.1	3.8	5.2
Performance Benchmark	-10.9	1.1	7.9	8.1	-0.3	0.9	5.8	1.6	5.2	0.2	7.4
BlackRock	-10.9 (70)	0.9 (73)	9.0 (18)	8.0 (26)	-0.3 (76)	0.3 (69)	6.0 (23)	2.4 (15)	5.2 (50)	0.3 (63)	8.0 (29)
Performance Benchmark	-10.9 (69)	1.1 (69)	7.9 (29)	8.1 (23)	-0.3 (74)	0.9 (55)	5.8 (25)	1.6 (37)	5.2 (50)	0.2 (66)	7.4 (38)
Loomis Sayles	-12.5 (82)	9.3 (21)	7.6 (31)	7.4 (37)	1.8 (26)	8.1 (16)	1.9 (69)	1.1 (56)	12.0 (9)	10.7 (7)	4.4 (71)
Performance Benchmark	-11.5 (75)	4.9 (33)	6.6 (39)	8.2 (21)	0.5 (49)	4.0 (26)	5.0 (35)	1.0 (61)	6.8 (35)	2.8 (31)	8.4 (24)
Putnam	-5.1 (41)	4.0 (84)	0.1 (63)	3.7 (42)	4.1 (54)	7.9 (30)	-3.6 (78)	-0.7 (60)	3.7 (85)	5.5 (54)	-1.8
LIBOR	0.0 (18)	0.2 (90)	2.1 (43)	2.6 (54)	1.5 (77)	0.8 (86)	0.4 (46)	0.2 (40)	0.3 (94)	0.4 (100)	0.4
SSgA Aggregate Bond Index	-10.4 (62)	-0.3 (93)	8.7 (21)	7.9 (27)	-0.4 (77)	-0.3 (83)	6.0 (23)	1.9 (27)	4.3 (61)	-0.6 (84)	7.4 (37)
Barclays Aggregate Index	-10.3 (61)	-0.3 (93)	8.7 (20)	7.9 (27)	-0.4 (77)	-0.3 (84)	6.0 (23)	1.9 (28)	4.4 (60)	-0.7 (86)	7.5 (36)
Wellington Global Total Return	3.8 (6)	1.7 (88)	2.1 (43)	5.3 (28)	5.1 (46)	-0.7 (88)	1.3 (41)	0.5 (32)			
BofA Merrill Lynch 3 Month US T-Bill	0.2 (15)	0.1 (90)	1.6 (47)	2.3 (58)	1.4 (78)	0.5 (86)	0.2 (46)	0.0 (42)			
Reams Core Plus Bond Fund	-10.7	2.1	15.3	8.6	0.0	0.0	6.1	1.5			
Barclays Aggregate Index	-10.3	-0.3	8.7	7.9	-0.4	-0.3	6.0	1.9			
BRS Recycling Tax Credit											
BRS Recycling Tax Credit Phase 2											
BRS Recycling Tax Credit Phase 3											



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## Calendar Year Performance

	Performance(%)										
	Fiscal Year 2022	Fiscal Year 2021	Fiscal Year 2020	Fiscal Year 2019	Fiscal Year 2018	Fiscal Year 2017	Fiscal Year 2016	Fiscal Year 2015	Fiscal Year 2014	Fiscal Year 2013	Fiscal Year 2012
Opportunistic/Alternatives	0.2	10.4	-5.3	-0.2	0.6	6.8	-1.7	5.8	10.2	12.9	-1.0
<i>Custom Alternatives Benchmark</i>	-0.2	11.7	-2.5	2.1	3.4	2.8	-3.7	1.7	6.3	7.1	-3.9
Anchorage	0.1	23.9	-5.4	1.4	6.2	5.9	-3.9	3.8	18.9	19.4	-1.0
<i>Credit Suisse Event Driven</i>	-5.4	27.5	-6.9	1.9	3.8	9.3	-10.4	-2.0	14.1	14.5	-7.2
York	-9.1	5.3	-45.2	-5.9	12.2	14.3	-12.9	-7.2	22.4	19.4	-0.8
<i>Credit Suisse Event Driven</i>	-5.4	27.5	-6.9	1.9	3.8	9.3	-10.4	-2.0	14.1	14.5	-7.2
Capula	6.6	2.5	9.8	6.3	3.8	7.8	6.1	8.9	7.9	4.0	3.4
<i>HFRI Macro (Total) Index</i>	7.9	15.0	0.8	2.4	1.1	-2.4	1.8	4.2	1.5	-0.1	-2.8
Graham	23.6	27.4	-5.6	2.1	6.5	-3.2	-1.0	23.9	2.7	5.9	-8.3
<i>HFRI Macro (Total) Index</i>	7.9	15.0	0.8	2.4	1.1	-2.4	1.8	4.2	1.5	-0.1	-2.8
Circumference Group Core Value	-10.1	27.9	5.0	2.7	15.9	14.0					
<i>Russell 2000 Index</i>	-25.2	62.0	-6.6	-3.3	17.6	24.6					
Aeolus Keystone Fund	-8.2	-0.2	5.1	-5.8	-17.9	11.2					
<i>FTSE 3 Month T-Bill</i>	0.2	0.1	1.6	2.3	1.3	0.5					
<i>Eurekahedge ILS Advisers Index</i>	0.4	3.6	2.9	-5.5	-6.6	5.0					
Nephila Rubik Holdings	-15.1	-9.6	3.1	-6.9	-7.7	2.2					
<i>FTSE 3 Month T-Bill</i>	0.2	0.1	1.6	2.3	1.3	0.5					
<i>Eurekahedge ILS Advisers Index</i>	0.4	3.6	2.9	-5.5	-6.6	5.0					
Parametric Global Defensive Equity Fund	-5.5	22.6	-4.2	3.9	5.8						
<i>Performance Benchmark</i>	-7.8	18.5	2.4	4.4	6.0						
<i>MSCI AC World Index</i>	-15.4	39.9	2.6	6.3	11.3						
Man Alternative Risk Premia	12.1	2.8	-7.9	1.8							
<i>SG Multi Alternative Risk Premia Index</i>	4.0	3.1	-11.6	0.4							
CFM Systematic Global Macro Fund											
<i>HFRI Macro: Systematic Diversified Index</i>											
Pillar Opportunity											
<i>FTSE 3 Month T-Bill</i>											
<i>Eurekahedge ILS Advisers Index</i>											
Chatham											
<i>HFRI Event-Driven (Total) Index</i>											
Silver Point Capital Fund											
<i>HFRI ED: Distressed/Restructuring Index</i>											

As of September 30, 2022

## Calendar Year Performance

	Performance(%)										
	Fiscal Year 2022	Fiscal Year 2021	Fiscal Year 2020	Fiscal Year 2019	Fiscal Year 2018	Fiscal Year 2017	Fiscal Year 2016	Fiscal Year 2015	Fiscal Year 2014	Fiscal Year 2013	Fiscal Year 2012
Real Assets	16.0	4.7	3.9	5.6	9.4	7.5	9.5	11.7	9.0		
<i>Total Real Assets Benchmark</i>	20.8	2.4	4.1	5.7	6.2	6.6	10.0	11.5	11.4		
Real Estate	21.7	0.8	2.0	5.7	11.1	6.9	12.0	13.4	12.1	7.9	9.8
<i>NFI-ODCE (Net)</i>	27.3	1.5	3.9	6.5	7.1	7.4	12.6	12.4	12.7	10.5	13.4
Timber	13.2	4.9	12.2	-0.3	1.2	8.0	0.4	9.4	-1.1	6.8	-5.3
<i>Timberland Property Benchmark</i>	11.8	1.6	3.1	0.1	2.6	3.7	2.5	10.5	7.7	6.9	-2.9
BTG Timber Separate Account											
BTG U.S. Timberland Fund, L.P.											
Agriculture	12.8	6.0	1.8	3.5	3.3	4.3	9.8	2.5	11.0	11.5	
<i>Agriculture Benchmark</i>	9.7	4.1	3.3	5.4	3.5	4.5	5.6	6.5	12.8	20.9	
HFMS Farmland	14.1	7.0	1.4	3.4	2.9	3.9	10.7	2.5	11.0	11.5	
<i>HFMS custom NCREIF Farmland Index</i>	9.7	4.4	4.6	4.9	2.0	4.0	4.8	6.5	12.8	20.9	
UBS Agrivest Core Farmland Fund	9.4	3.5	3.1	4.0	4.5	5.0	6.2				
<i>UBS Agrivest custom NCREIF Farmland Index</i>	9.7	4.2	4.7	6.2	5.0	5.5	8.4				
Infrastructure	16.3	21.2	7.2	14.6							
<i>CPI + 5%</i>	14.5	10.6	5.7	6.7							
Private Equity	16.6	33.3	4.9	12.8	22.3	16.7	7.7	11.9	20.6	12.5	12.5
<i>Private Equity Policy</i>	13.9	65.9	-7.5	10.8	16.1	20.4	1.6	14.5	25.0	16.8	9.4
Cash	2.1	0.8	3.8	6.5	1.2	5.0	3.2				

\*The Real Assets and Private Equity returns and their benchmark returns are shown on a one-quarter lag.

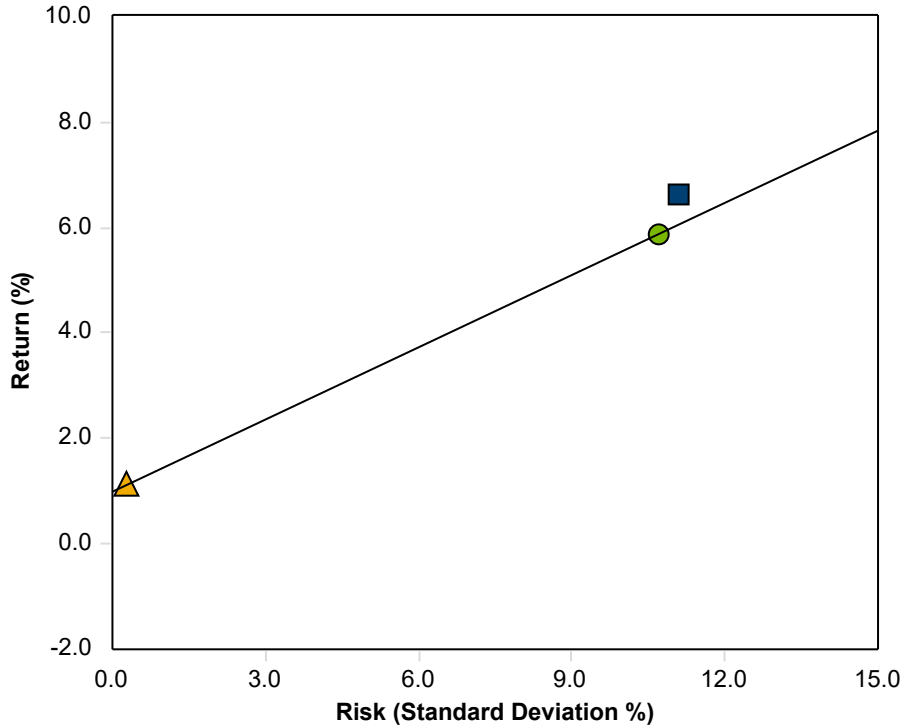
\*The inception of the Total Equity asset class was July 1, 2015. Performance prior to July 2015 represents the weighted average of the U.S. Equity and Global Equity asset class monthly returns. For historical performance of the U.S. Equity and Global Equity asset classes please see page 151 of this report.

\*The inception date above for infrastructure reflects the inception date for the calculation and reporting of time-weighted returns. The Infrastructure program began in July 2014 and the full history of Infrastructure returns are included in Total Real Assets and Total Fund performance.

\*The BRS Recycling Tax Credit represents an annual income stream of \$16 million dollars over the next 14 years, which ATRS purchased for approximately \$162 million. This represents an approximate 9.9% yield for the 2017 fiscal year. The value shown above represents the year-end market value in accordance with GASB Statement 72, representing the 14 years of annual income, and has been incorporated into Total Fixed Income and Total Fund performance.

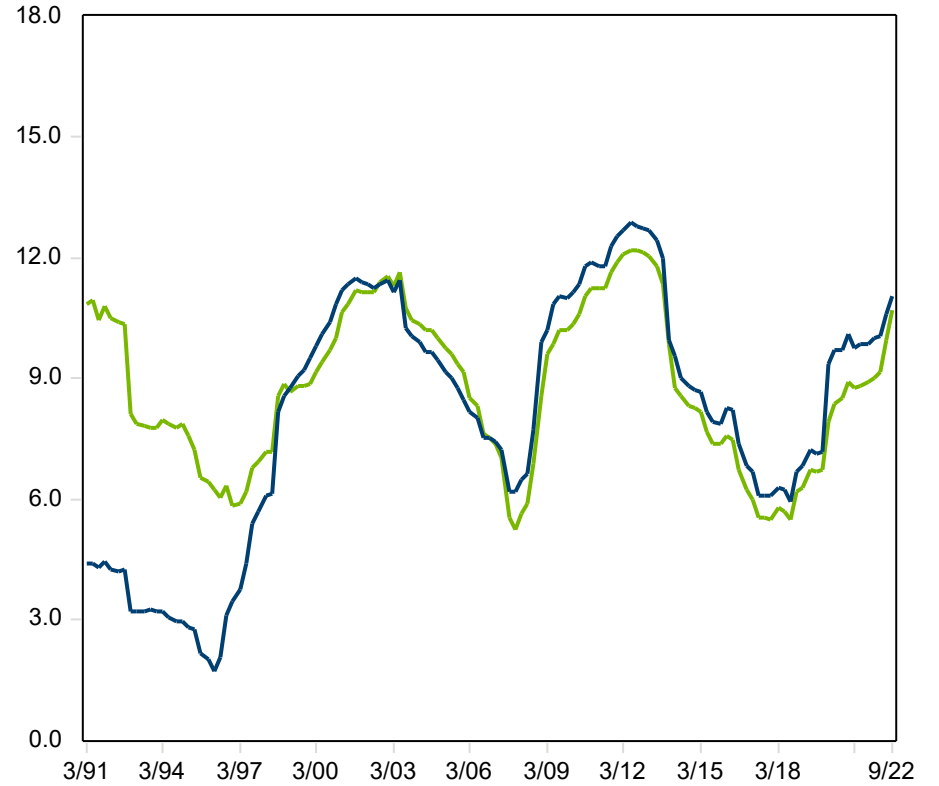
**Total Fund Risk Profile**

**Annualized Return vs. Annualized Standard Deviation  
5 Years**



■ Total Fund      ● Performance Benchmark  
▲ FTSE 3 Month T-Bill

**Rolling 5 Years Standard Deviation**



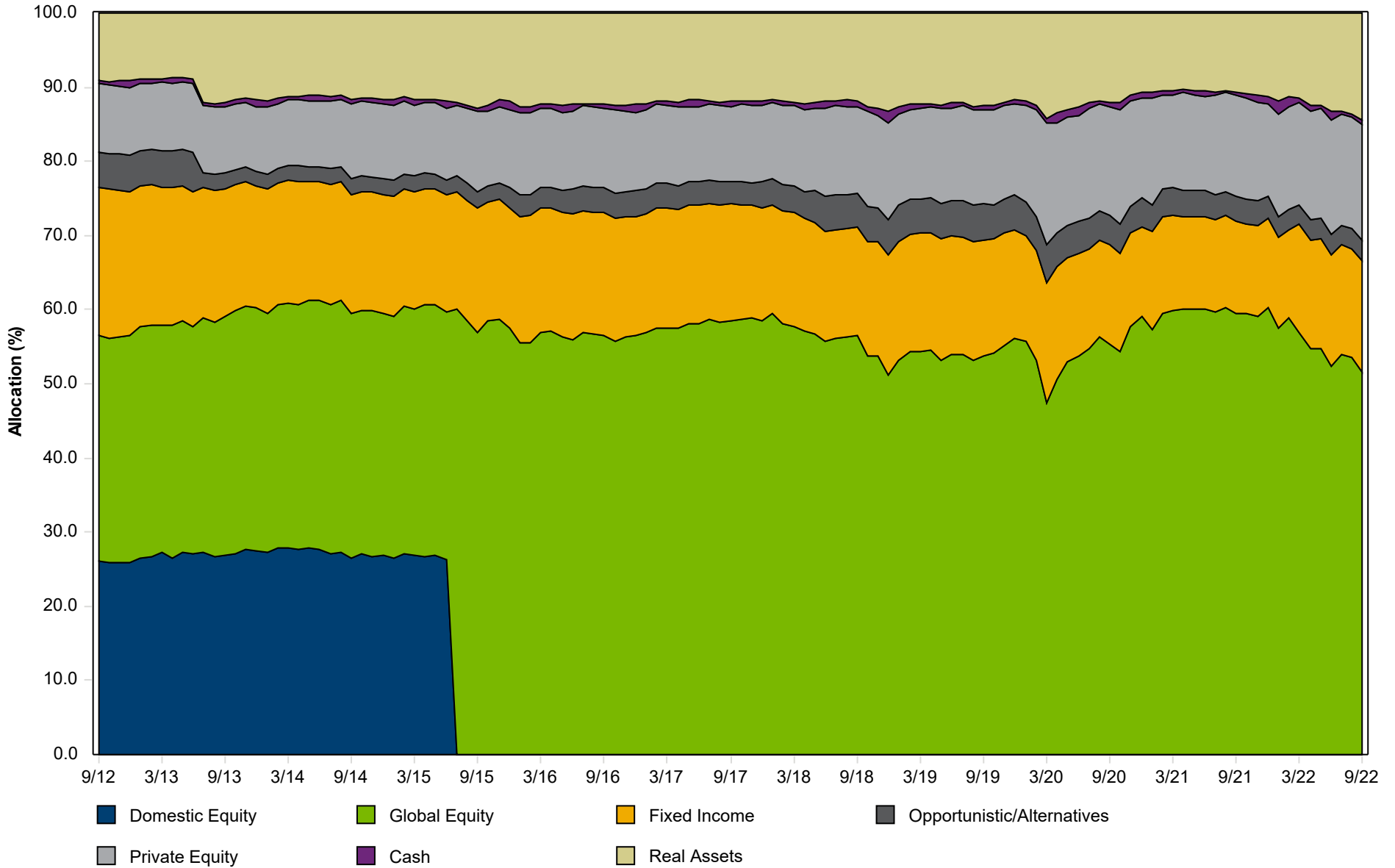
— Total Fund      — Performance Benchmark

**5 Years Historical Statistics**

	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Total Fund	0.75	3.52	0.21	0.90	0.53	0.87	0.98	6.63	11.07	0.95
Performance Benchmark	0.00	0.00	N/A	1.00	0.48	0.00	1.00	5.89	10.71	1.00
FTSE 3 Month T-Bill	-5.19	10.76	-0.48	0.03	N/A	1.15	0.00	1.13	0.27	-0.17

### Historical Asset Allocation by Segment

Total Fund



Asset Allocation as of 9/30/2022										Values in \$1,000	
	Total Equity	U.S. Bond	Real Estate	Private Equity	Cash	Total	Percent of Total	Interim Policy	Long-Term Target		
Jacobs Levy 130/30	\$1,011,987.3	--	--	--	--	\$1,011,987.3	5.34%				
Kennedy Capital Management	\$658,484.1	--	--	--	--	\$658,484.1	3.47%				
Stephens	\$485,471.2	--	--	--	--	\$485,471.2	2.56%				
Voya Absolute Return	\$617,279.2	--	--	--	--	\$617,279.2	3.26%				
Voya U.S. Convertibles	\$855,782.3	--	--	--	--	\$855,782.3	4.51%				
Pershing Square Holdings	\$214,232.9	--	--	--	--	\$214,232.9	1.13%				
SSgA Global Index	\$867,460.8	--	--	--	--	\$867,460.8	4.58%				
BlackRock MSCI ACWI IMI Fund	\$783,463.2	--	--	--	--	\$783,463.2	4.13%				
Wellington Global Perspectives	\$611,689.7	--	--	--	--	\$611,689.7	3.23%				
T. Rowe Price Global Equity	\$1,141,316.7	--	--	--	--	\$1,141,316.7	6.02%				
Lazard	\$569,641.7	--	--	--	--	\$569,641.7	3.00%				
D.E. Shaw	\$791,138.0	--	--	--	--	\$791,138.0	4.17%				
GMO Global All Country Equity	\$416,491.5	--	--	--	--	\$416,491.5	2.20%				
Harris Global Equity	\$486,325.8	--	--	--	--	\$486,325.8	2.57%				
Triam Partners	\$65,508.8	--	--	--	--	\$65,508.8	0.35%				
Triam Partners Co-Investments	\$41,209.9	--	--	--	--	\$41,209.9	0.22%				
Capital Guardian & Knight Vinke	\$63.7	--	--	--	--	\$63.7	0.00%				
<b>Total Equity</b>						<b>\$9,617,546.9</b>	<b>50.73%</b>	<b>58.08%</b>		<b>53.00%</b>	
BlackRock	--	\$238,995.6	--	--	--	\$238,995.6	1.26%				
Loomis Sayles	--	\$429,184.7	--	--	--	\$429,184.7	2.26%				
Putnam	--	\$363,250.0	--	--	--	\$363,250.0	1.92%				
SSgA Aggregate Bond Index	--	\$743,759.1	--	--	--	\$743,759.1	3.92%				
Wellington Global Total Return	--	\$372,256.1	--	--	--	\$372,256.1	1.96%				
Reams Core Plus Bond Fund	--	\$340,749.7	--	--	--	\$340,749.7	1.80%				
BRS Recycling Tax Credit	--	\$176,000.0	--	--	--	\$176,000.0	0.93%				
BRS Recycling Tax Credit Phase 2	--	\$77,031.6	--	--	--	\$77,031.6	0.41%				
BRS Recycling Tax Credit Phase 3	--	\$82,119.8	--	--	--	\$82,119.8	0.43%				
<b>Total Fixed Income</b>						<b>\$2,823,346.7</b>	<b>14.89%</b>	<b>15.00%</b>		<b>15.00%</b>	
Anchorage	--	--	--	\$43,935.2	--	\$43,935.2	0.23%				
Capula	--	--	--	\$88,773.9	--	\$88,773.9	0.47%				
Graham	--	--	--	\$95,801.9	--	\$95,801.9	0.51%				
York	--	--	--	\$11,057.4	--	\$11,057.4	0.06%				
Circumference Group Core Value	--	--	--	\$33,664.4	--	\$33,664.4	0.18%				
Aeolus Keystone Fund	--	--	--	\$40,241.8	--	\$40,241.8	0.21%				
Nephila Rubik Holdings	--	--	--	\$9,107.7	--	\$9,107.7	0.05%				
Parametric Global Defensive Equity	--	--	--	\$175,959.7	--	\$175,959.7	0.93%				
Man Alternative Risk Premia	--	--	--	\$111,718.3	--	\$111,718.3	0.59%				
CFM Systematic Global Macro	--	--	--	\$112,374.3	--	\$112,374.3	0.59%				
Juniperus	--	--	--	\$89,477.8	--	\$89,477.8	0.47%				
Chatham	--	--	--	\$55,386.8	--	\$55,386.8	0.29%				
Silver Point Capital	--	--	--	\$49,409.5	--	\$49,409.5	0.26%				
<b>Total Opportunistic/Alternatives</b>						<b>\$916,908.7</b>	<b>4.84%</b>	<b>4.46%</b>		<b>5.00%</b>	
<b>Real Estate</b>			\$1,567,402.7			\$1,567,402.7	8.27%				
<b>Timber</b>			\$331,953.0			\$331,953.0	1.75%				
<b>Agriculture</b>			\$245,951.1			\$245,951.1	1.30%				
<b>Infrastructure</b>			\$379,096.8			\$379,096.8	2.00%				
<b>Total Real Assets</b>						<b>\$2,524,403.7</b>	<b>13.32%</b>	<b>10.46%</b>		<b>15.00%</b>	
<b>Total Private Equity</b>				\$2,952,437.9		<b>\$2,952,437.9</b>	<b>15.57%</b>	<b>12.00%</b>		<b>12.00%</b>	
<b>Total Cash</b>					\$122,353.4	<b>\$122,353.4</b>	<b>0.65%</b>	<b>0.00%</b>		<b>0.00%</b>	
<b>Total Fund</b>	<b>\$9,617,546.9</b>	<b>\$2,823,346.7</b>	<b>\$2,524,403.7</b>	<b>\$3,869,346.6</b>	<b>\$122,353.4</b>	<b>\$18,956,997.3</b>	<b>100.00%</b>	<b>100.00%</b>		<b>100.00%</b>	

\*Note: The market values for the Real Assets and Private Equity investments shown above are lagged one quarter and adjusted for the current quarter's cash flows. Market values and allocation percentages may not add to the sum total due to rounding.

Asset Allocation as of 9/30/2022				Values in \$1,000			
	Real Estate	Percent of Real Estate	Percent of Total Fund		Real Estate	Percent of Real Estate	Percent of Total Fund
Almanac Realty Securities Fund V	\$81.8	0.01%	0.00%	LaSalle Income & Growth Fund VI	\$5,065.1	0.32%	0.03%
Almanac Realty Securities Fund VI	\$4,008.8	0.26%	0.02%	LaSalle Income & Growth Fund VII	\$13,736.5	0.88%	0.07%
Almanac Realty Securities Fund VII	\$18,228.1	1.16%	0.10%	LaSalle Income & Growth Fund VIII	\$24,103.1	1.54%	0.13%
Almanac Realty Securities Fund VIII	\$16,015.2	1.02%	0.08%	LBA Logistics Value Fund	\$10,952.5	0.70%	0.06%
Almanac Realty Securities Fund IX	\$5,495.7	0.35%	0.03%	Lone Star Real Estate Fund IV	\$6,843.0	0.44%	0.04%
American Center	\$28,088.9	1.79%	0.15%	Long Wharf Real Estate Partners V	\$18,495.5	1.18%	0.10%
AR Insurance	\$2,126.7	0.14%	0.01%	Long Wharf Real Estate Partners VI	\$32,031.4	2.04%	0.17%
AR Teachers Retirement Building	\$6,644.6	0.42%	0.04%	Mesa West Income Fund V	\$12,169.4	0.78%	0.06%
Blackstone Real Estate Partners VII	\$11,814.6	0.75%	0.06%	Metropolitan RE Co-Investments	\$9,730.5	0.62%	0.05%
Blackstone RE Europe VI	\$20,723.9	1.32%	0.11%	Met Life Commercial Mtg Inc Fund	\$47,896.3	3.06%	0.25%
Carlyle Realty Partners VII	\$7,377.0	0.47%	0.04%	Morgan Stanley Prime Property Fund	\$69,665.8	4.44%	0.37%
Carlyle Realty VIII	\$14,787.6	0.94%	0.08%	New Boston Fund VII	\$8,309.5	0.53%	0.04%
Carlyle Realty IX	-\$262.0	-0.02%	0.00%	O'Connor NAPP II	\$4,559.5	0.29%	0.02%
CBREI SP U.S. Opportunity V	\$573.3	0.04%	0.00%	PRISA	\$349,546.3	22.30%	1.84%
CBREI SP VIII	\$23,236.5	1.48%	0.12%	Recoveries Land	\$70.0	0.00%	0.00%
CBREI SP IX	\$21,761.2	1.39%	0.11%	Rockwood Capital RE Partners IX	\$5,212.5	0.33%	0.03%
Cerberus Institutional RE Partners III	\$10,321.6	0.66%	0.05%	Rockwood Capital RE XI	\$25,700.3	1.64%	0.14%
Calmwater	\$13,376.6	0.85%	0.07%	Rose Law Firm	\$4,575.4	0.29%	0.02%
Fletcher Properties	\$1,220.0	0.08%	0.01%	RREEF Core Plus Industrial Fund	\$35,000.0	2.23%	0.18%
FPA Core Plus IV	\$35,190.3	2.25%	0.19%	Texarkana DHS	\$0.0	0.00%	0.00%
GCP GLP IV	\$34,858.1	2.22%	0.18%	Torchlight Debt Opportunity Fund IV	\$4,466.1	0.28%	0.02%
Harbert European Real Estate	\$10,579.5	0.67%	0.06%	Torchlight Debt Opportunity Fund V	\$2,788.3	0.18%	0.01%
Heitman European Property IV	\$428.7	0.03%	0.00%	Torchlight Debt Opportunity Fund VI	\$18,471.5	1.18%	0.10%
JP Morgan Strategic Property Fund	\$203,429.5	12.98%	1.07%	Torchlight Debt Opportunity Fund VII	\$26,146.5	1.67%	0.14%
Kayne Anderson V	\$18,349.5	1.17%	0.10%	UBS Trumbull Property Fund	\$165,826.1	10.58%	0.87%
Kayne Anderson VI	\$10,293.2	0.66%	0.05%	UBS Trumbull Property Income Fund	\$60,067.6	3.83%	0.32%
Landmark Fund VI	\$904.0	0.06%	0.00%	Victory	\$33,864.2	2.16%	0.18%
Landmark Real Estate VIII	\$11,936.2	0.76%	0.06%	Walton Street Real Estate Debt II	\$11,918.2	0.76%	0.06%
LaSalle Asia Opportunity Fund IV	\$1,754.0	0.11%	0.01%	West Mphs. DHS	\$0.0	0.00%	0.00%
LaSalle Asia Opportunity Fund V	\$9,842.7	0.63%	0.05%	Westbrook IX	\$8,287.8	0.53%	0.04%
LaSalle Asia Opportunity Fund IV	-\$452.6	-0.03%	0.00%	Westbrook Real Estate Fund X	\$9,170.6	0.59%	0.05%
<b>Total Real Estate</b>					<b>\$1,567,402.7</b>	<b>100.00%</b>	<b>8.27%</b>

\*Note: The market values for the real estate investments shown above are lagged one quarter and adjusted for the current quarter's cash flows. Market values and allocation percentages may not add to the sum total due to rounding.

Asset Allocation as of 9/30/2022				Values in \$1,000			
	Private Equity	Percent of Private Equity	Percent of Total Fund		Private Equity	Percent of Private Equity	Percent of Total Fund
Alpine VIII	\$9,974.2	0.34%	0.05%	JF Lehman IV	\$8,172.3	0.28%	0.04%
Arlington Capital IV	\$37,878.7	1.28%	0.20%	JF Lehman V	\$25,068.1	0.85%	0.13%
Arlington Capital V	\$29,460.6	1.00%	0.16%	KPS III	\$26.7	0.00%	0.00%
Advent GPE VI	\$3,651.8	0.12%	0.02%	KPS IV	\$19,063.0	0.65%	0.10%
Altus Capital II	\$9,141.2	0.31%	0.05%	KPS X	\$22,537.9	0.76%	0.12%
American Industrial Partners VI	\$28,003.3	0.95%	0.15%	KPS Mid-Cap	\$12,962.5	0.44%	0.07%
American Industrial Partners VII	\$25,211.3	0.85%	0.13%	Levine Leichtman V	\$8,962.3	0.30%	0.05%
Altaris Constellation Partners	\$19,969.4	0.68%	0.11%	Lime Rock III	\$22,462.1	0.76%	0.12%
Altaris Health Partners IV	\$18,636.0	0.63%	0.10%	LLR III	\$1,966.8	0.07%	0.01%
Atlas Capital II	\$17,445.5	0.59%	0.09%	LLR VI	\$15,957.5	0.54%	0.08%
Audax Mezzanine III	\$1,247.8	0.04%	0.01%	Mason Wells III	\$28.7	0.00%	0.00%
Big River - Equity	\$1,677.9	0.06%	0.01%	NGP IX	\$182.4	0.01%	0.00%
Big River - Holdings Note 2023	\$0.0	0.00%	0.00%	NGP X	\$5,173.9	0.18%	0.03%
Big River - Holdings Note 3/16/23	\$0.0	0.00%	0.00%	NGP XI	\$23,864.5	0.81%	0.13%
Bison V	\$25,282.2	0.86%	0.13%	NGP XII	\$23,522.2	0.80%	0.12%
Boston Ventures VII	\$2,474.8	0.08%	0.01%	One Rock Capital Partners II	\$48,220.9	1.63%	0.25%
Boston Ventures IX	\$34,637.5	1.17%	0.18%	PineBridge	\$8,455.5	0.29%	0.04%
Boston Ventures X	\$15,868.4	0.54%	0.08%	Revelstoke	\$13,713.9	0.46%	0.07%
BV VIII	\$21,672.6	0.73%	0.11%	Riverside Value Fund I	\$15,885.9	0.54%	0.08%
Castlake II	\$11,913.4	0.40%	0.06%	Riverside IV	\$225.9	0.01%	0.00%
Castlake III	\$14,054.1	0.48%	0.07%	Riverside V	\$25,623.0	0.87%	0.14%
Clearlake V	\$40,296.2	1.36%	0.21%	Riverside VI	\$25,261.0	0.86%	0.13%
Clearlake VI	\$43,368.0	1.47%	0.23%	Siris III	\$20,404.5	0.69%	0.11%
Clearlake VII	\$9,937.4	0.34%	0.05%	Siris IV	\$33,783.4	1.14%	0.18%
Court Square III	\$32,534.1	1.10%	0.17%	SK Capital V	\$33,199.0	1.12%	0.18%
CSFB-ATRS 2005-1 Series	\$29,715.6	1.01%	0.16%	Sycamore Partners II	\$11,840.1	0.40%	0.06%
CSFB-ATRS 2006-1 Series	\$72,823.6	2.47%	0.38%	Sycamore Partners III	\$18,739.3	0.63%	0.10%
Diamond State Ventures II	\$2,631.9	0.09%	0.01%	TA XI	\$12,639.2	0.43%	0.07%
DW Healthcare III	\$4,674.3	0.16%	0.02%	Tennenbaum VI	\$827.5	0.03%	0.00%
DW Healthcare IV	\$26,292.4	0.89%	0.14%	Thoma Bravo Discover	\$5,631.5	0.19%	0.03%
DW Healthcare V	\$20,549.3	0.70%	0.11%	Thoma Bravo Discover II	\$22,936.2	0.78%	0.12%
EnCap IX	\$10,758.5	0.36%	0.06%	Thoma Bravo Discover III	\$19,665.5	0.67%	0.10%
EnCap VIII	\$21,047.7	0.71%	0.11%	Thoma Bravo Explore I	\$16,020.4	0.54%	0.08%
EnCap X	\$31,163.9	1.06%	0.16%	Thoma Bravo XI	\$24,636.8	0.83%	0.13%
EnCap XI	\$32,800.4	1.11%	0.17%	Thoma Bravo XII	\$36,817.4	1.25%	0.19%
Franklin Park Series	\$1,141,898.0	38.68%	6.02%	Thoma Bravo XIII	\$43,793.5	1.48%	0.23%
Greenbriar V	\$24,800.1	0.84%	0.13%	Thoma Bravo XIV	\$18,221.7	0.62%	0.10%
GCG IV	\$15,174.5	0.51%	0.08%	Thoma Bravo XV	\$4,553.1	0.15%	0.02%
GCG V	\$24,173.5	0.82%	0.13%	Vista Equity III	\$3,262.8	0.11%	0.02%
GTLA Holdings	\$70,000.0	2.37%	0.37%	Vista Foundation II	\$8,946.4	0.30%	0.05%
Highland	\$210,491.1	7.13%	1.11%	Vista Foundation III	\$33,058.5	1.12%	0.17%
Insight Equity II	\$8,769.1	0.30%	0.05%	Wellspring V	\$11,883.7	0.40%	0.06%
Insight Mezzanine I	\$1,799.8	0.06%	0.01%	Wicks IV	\$9,225.6	0.31%	0.05%
JF Lehman III	\$20,224.3	0.69%	0.11%	WNG II	\$10,890.1	0.37%	0.06%
				<b>Total Private Equity</b>	<b>\$2,952,437.9</b>	<b>100.00%</b>	<b>15.57%</b>

\*Note: The market values for the private equity investments shown above are lagged one quarter and adjusted for the current quarter's cash flows. Market values and allocation percentages may not add to the sum total due to rounding.

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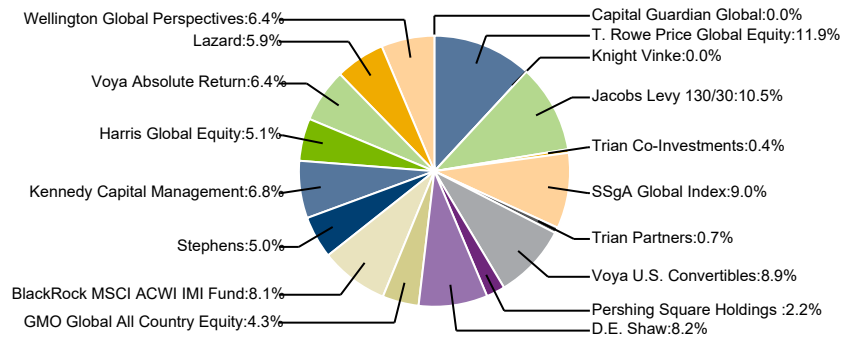
## Total Equity

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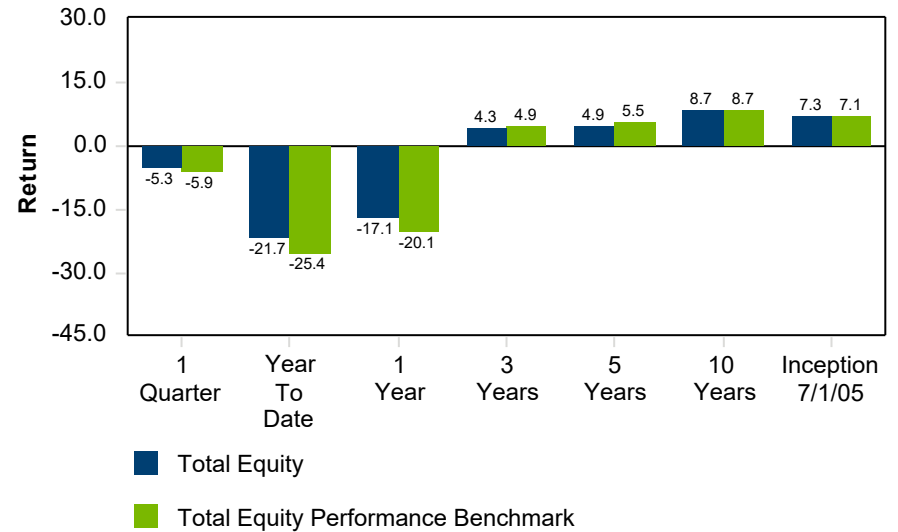
Total Equity Portfolio Overview

Current Allocation

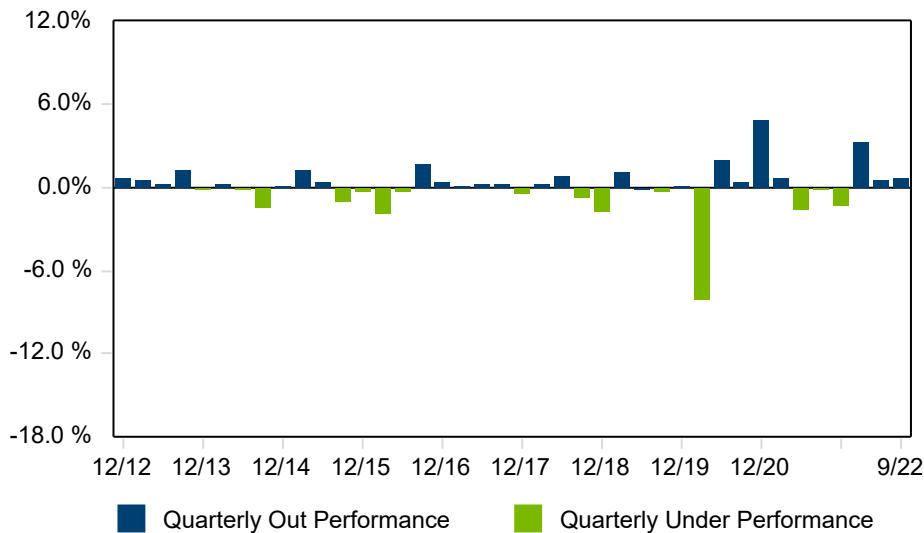
September 30, 2022 : \$9,618M



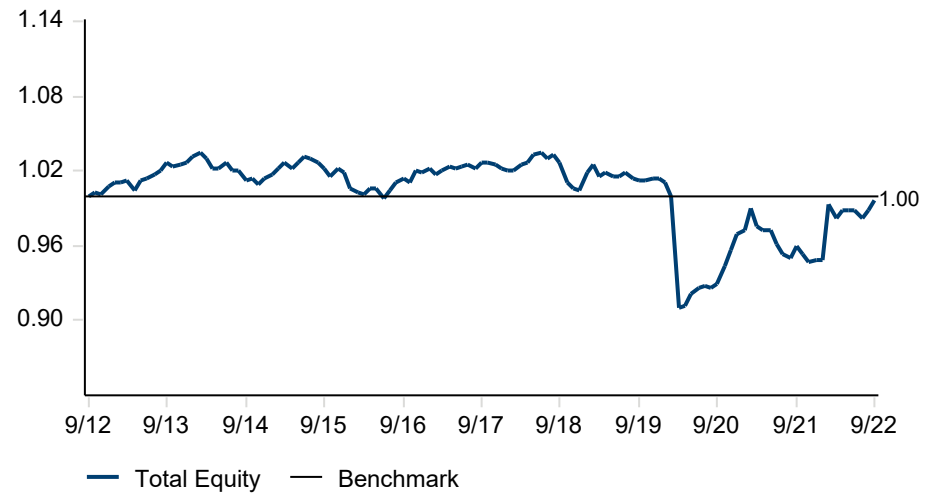
Return Summary



Quarterly Excess Performance



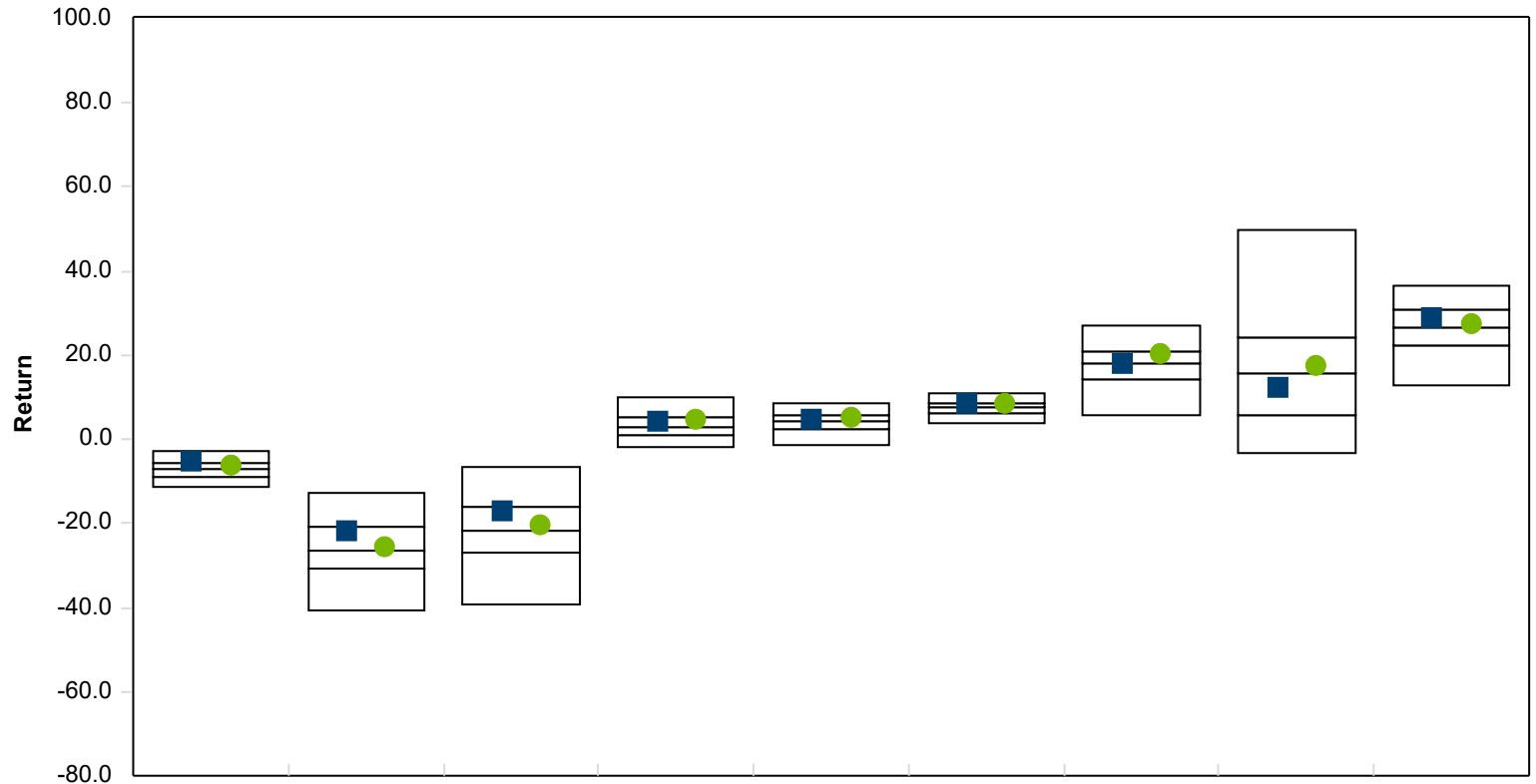
Ratio of Cumulative Wealth - 10 Years



The inception of the Total Equity asset class was July 1, 2015. Performance prior to July 2015 represents the weighted average of the U.S. Equity and Global Equity asset class monthly returns. For historical performance of the U.S. Equity and Global Equity asset classes please see page 151 of this report.

Peer Group Analysis

IM Global Equity (SA+CF)

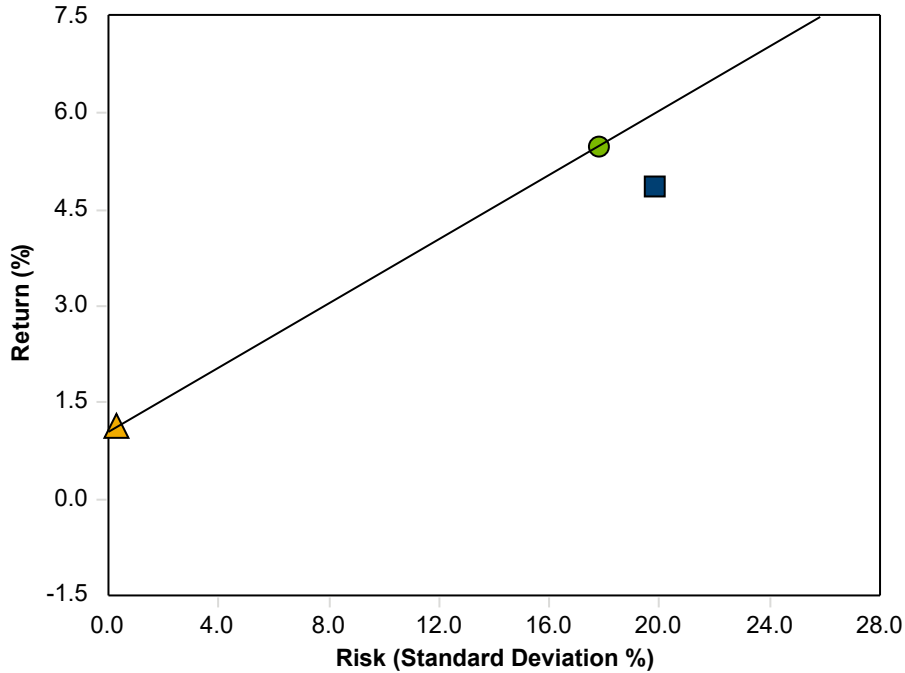


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2021	2020	2019
■ Total Equity	-5.3 (18)	-21.7 (29)	-17.1 (28)	4.3 (39)	4.9 (39)	8.7 (25)	17.9 (50)	12.4 (59)	29.0 (37)
● Total Equity Performance Benchmark	-5.9 (29)	-25.4 (44)	-20.1 (42)	4.9 (31)	5.5 (29)	8.7 (25)	20.5 (28)	17.6 (42)	27.8 (44)
5th Percentile	-2.8	-12.6	-6.5	9.8	8.7	10.9	26.9	49.7	36.7
1st Quartile	-5.7	-20.8	-16.3	5.3	5.8	8.6	21.0	24.2	30.6
Median	-7.0	-26.3	-21.7	3.1	4.1	7.4	17.9	15.5	26.6
3rd Quartile	-8.9	-30.6	-27.0	0.9	2.3	6.2	14.0	5.7	22.2
95th Percentile	-11.3	-40.8	-39.3	-2.0	-1.4	3.9	5.5	-3.4	12.9
Population	397	391	389	368	340	233	416	437	451

Parenteses contain percentile rankings.

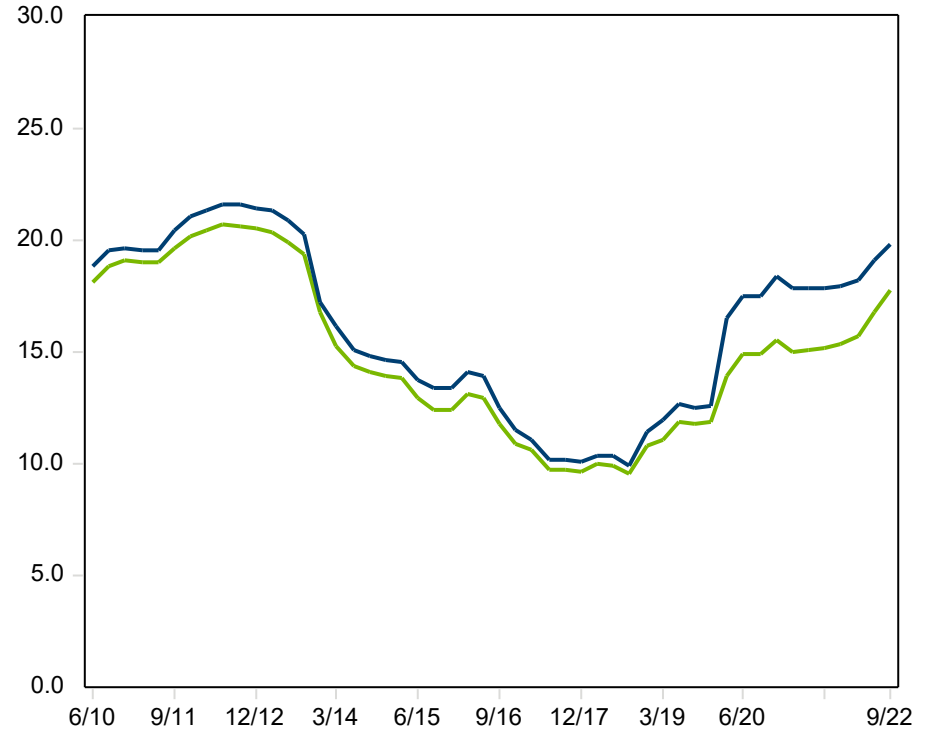
**Total Equity Risk Profile**

**Annualized Return vs. Annualized Standard Deviation  
5 Years**



- Total Equity
- Total Equity Performance Benchmark
- ▲ FTSE 3 Month T-Bill

**Rolling 5 Years Standard Deviation**



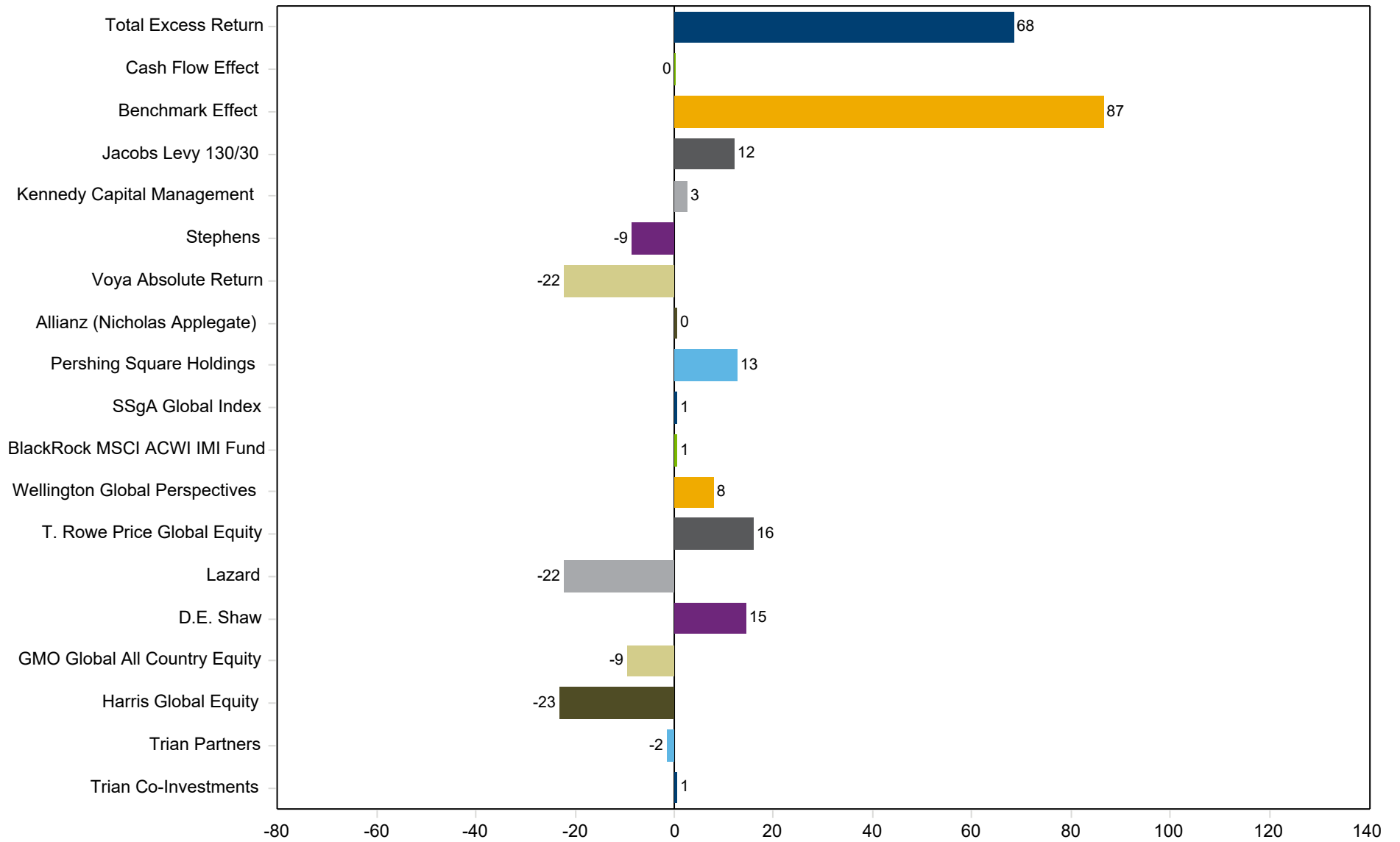
- Total Equity
- Total Equity Performance Benchmark

**5 Years Historical Statistics**

	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Total Equity	-0.18	4.72	-0.04	0.95	0.28	-0.77	1.08	4.86	19.82	0.97
Total Equity Performance Benchmark	0.00	0.00	N/A	1.00	0.33	0.00	1.00	5.50	17.80	1.00
FTSE 3 Month T-Bill	-5.82	17.84	-0.33	0.02	N/A	1.14	0.00	1.13	0.27	-0.16

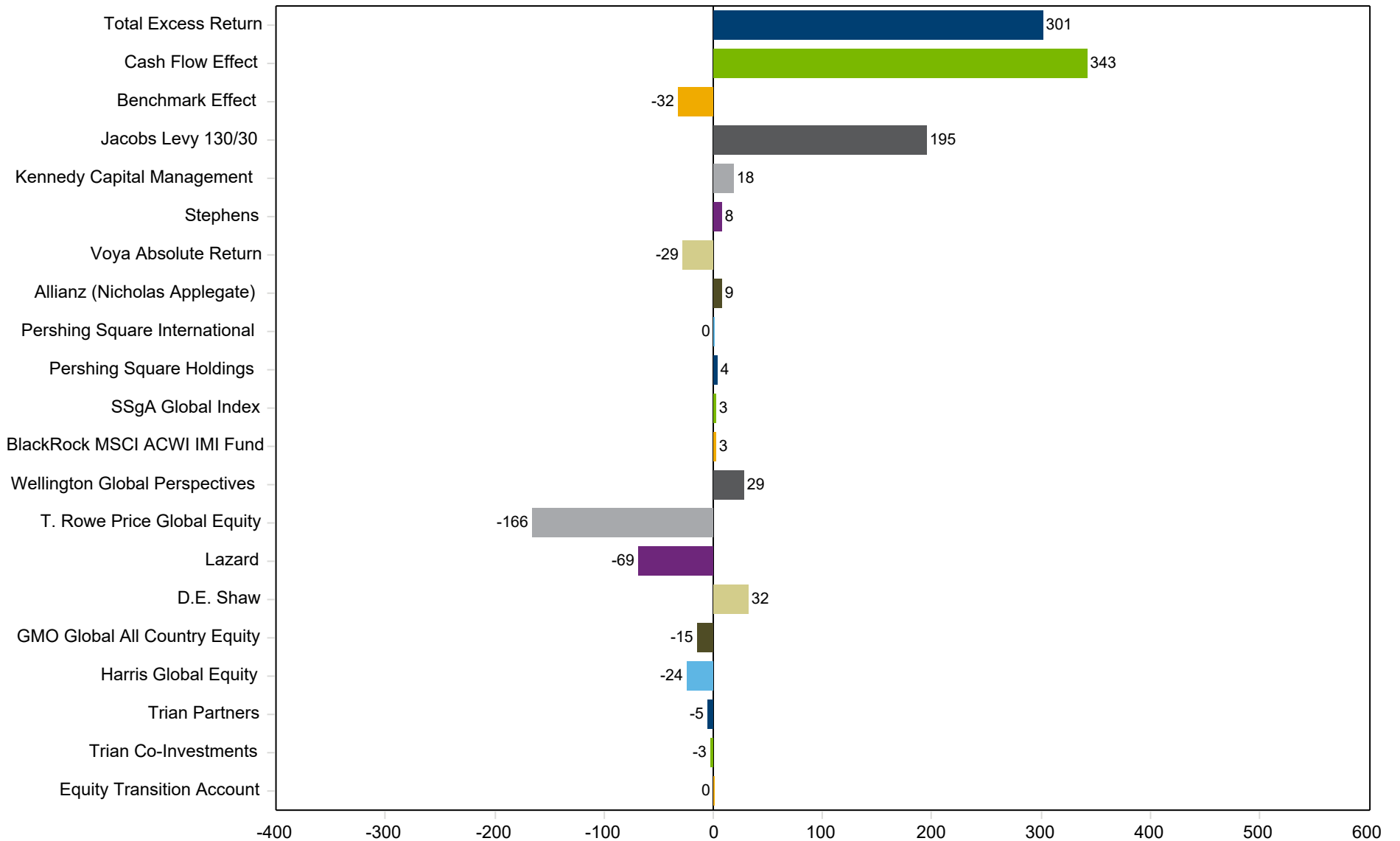
Asset Class Attribution

1 Quarter



Asset Class Attribution

1 Year



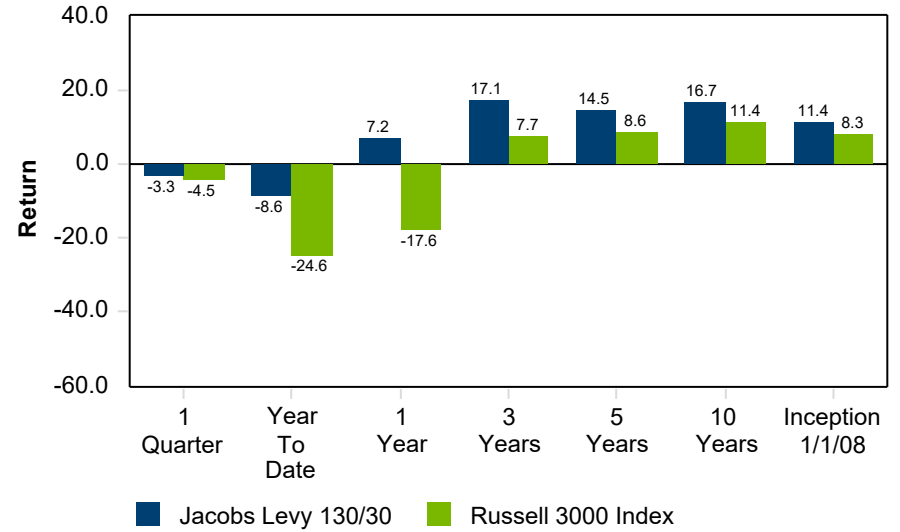
Large Cash Flow Effect due to the Allianz Secutiry Litigation Income received on 2/28/2022.

Jacobs Levy 130/30 Performance Summary

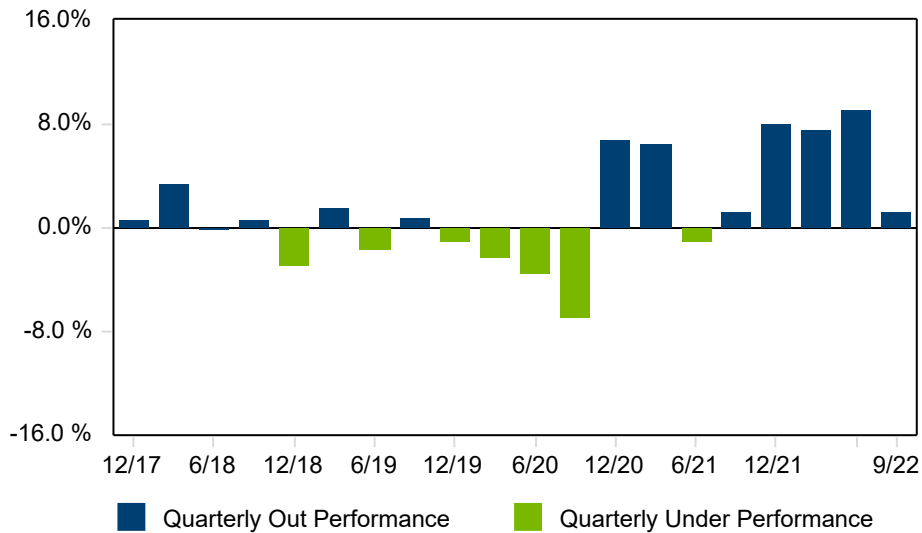
Account Information

Account Name: Jacobs Levy 130/30  
 Inception Date: 12/31/2007  
 Account Structure: Commingled Fund  
 Asset Class: US Equity  
 Benchmark: Russell 3000 Index  
 Peer Group: IM U.S. Equity (SA+CF)

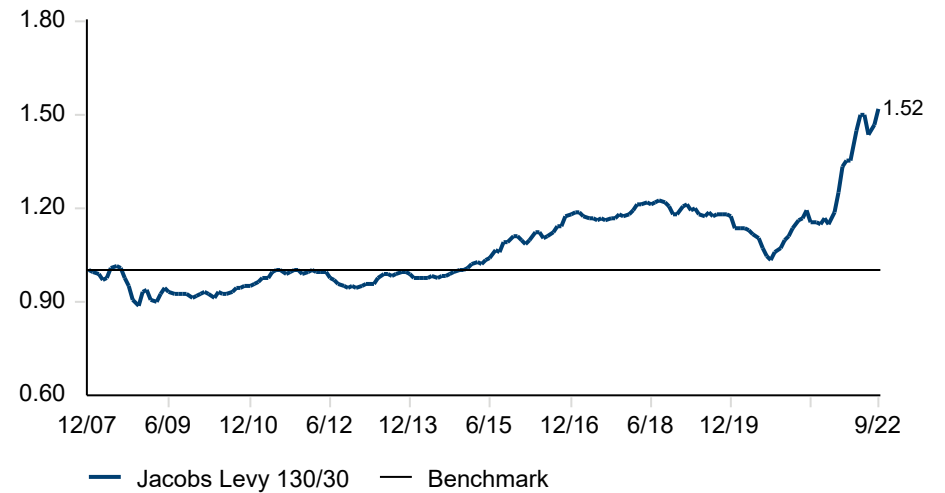
Return Summary



Quarterly Excess Performance

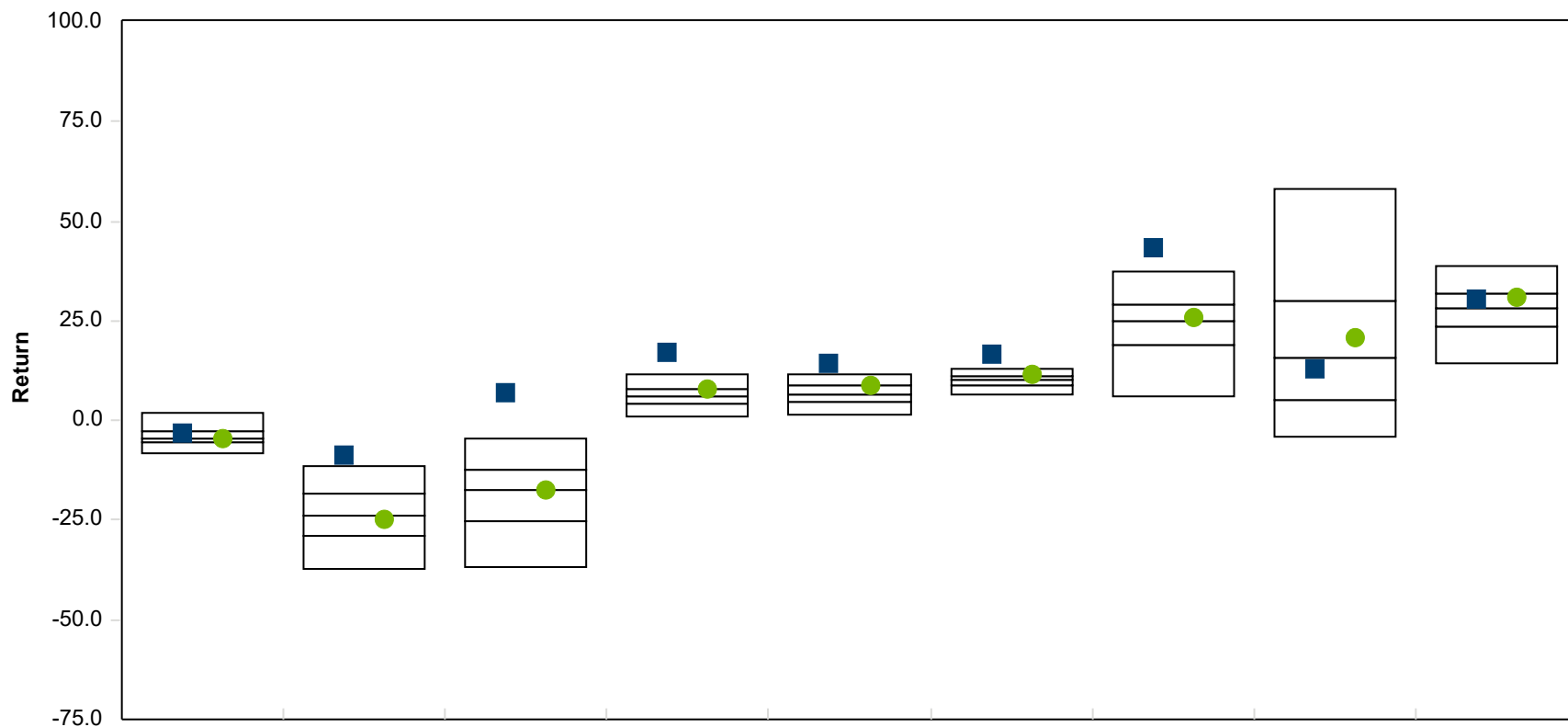


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM U.S. Equity (SA+CF)



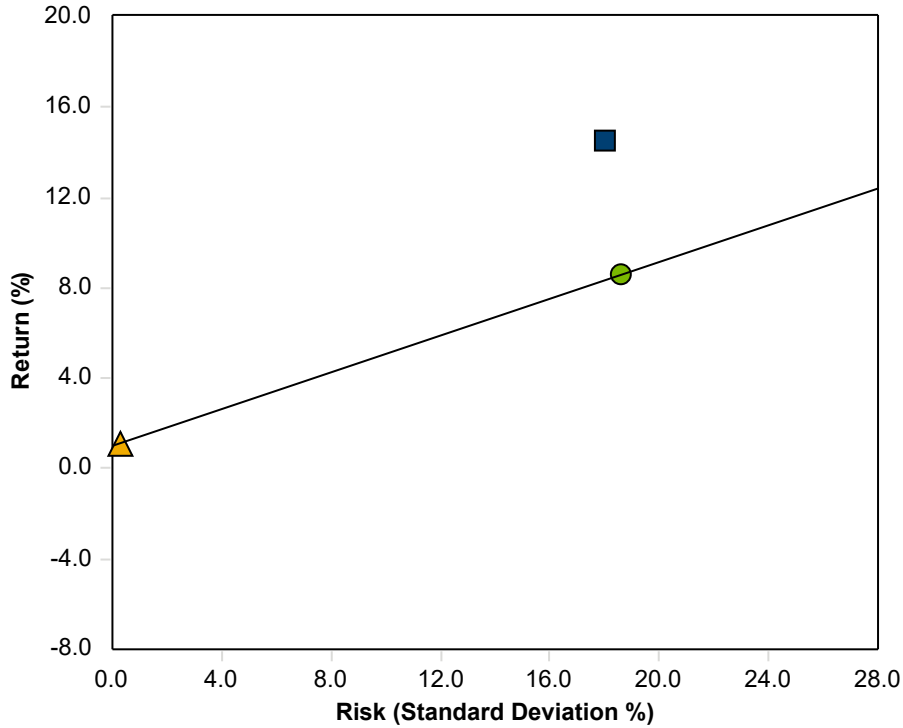
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2021	2020	2019
■ Jacobs Levy 130/30	-3.3 (33)	-8.6 (4)	7.2 (2)	17.1 (2)	14.5 (2)	16.7 (1)	43.5 (2)	13.2 (56)	30.2 (36)
● Russell 3000 Index	-4.5 (52)	-24.6 (56)	-17.6 (51)	7.7 (28)	8.6 (27)	11.4 (24)	25.7 (46)	20.9 (37)	31.0 (31)
5th Percentile	1.7	-11.5	-4.6	11.4	11.8	13.0	37.4	58.3	38.7
1st Quartile	-2.7	-18.6	-12.3	7.9	8.8	11.3	28.9	30.2	31.8
Median	-4.4	-23.9	-17.4	6.0	6.6	10.0	25.0	15.6	28.0
3rd Quartile	-5.6	-29.1	-25.2	4.1	4.5	8.7	19.2	5.1	23.6
95th Percentile	-8.1	-37.3	-36.7	0.8	1.6	6.4	6.0	-4.0	14.6
Population	1,665	1,657	1,646	1,592	1,501	1,225	1,882	2,004	2,104

parentheses contain percentile rankings.



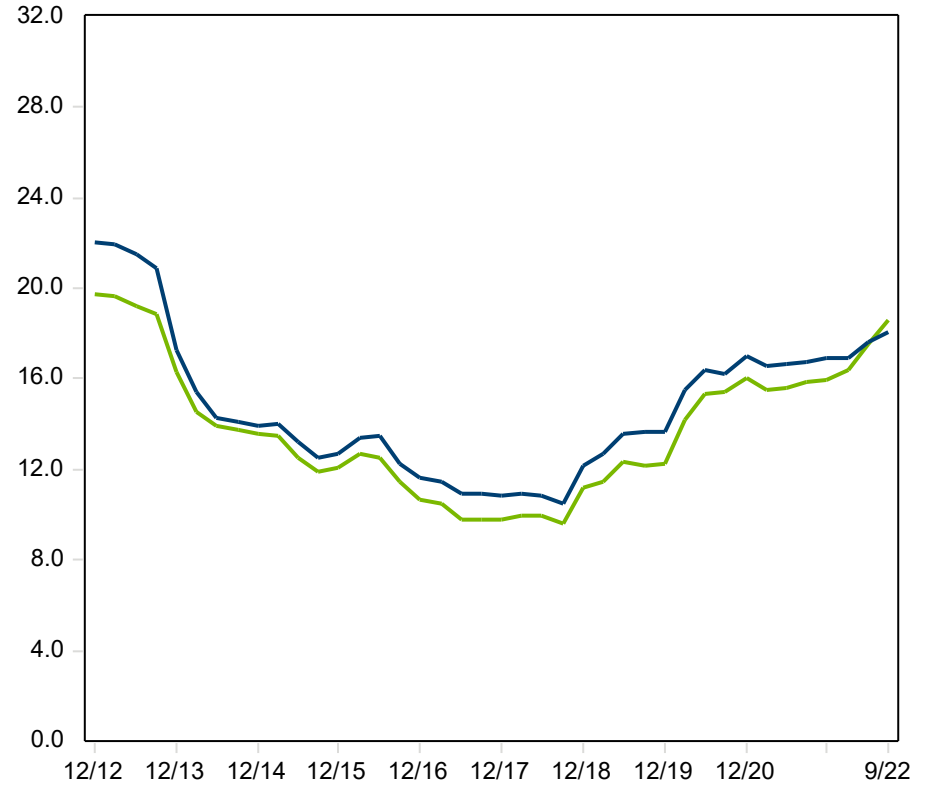
Jacobs Levy 130/30 Risk Profile

Annualized Return vs. Annualized Standard Deviation  
5 Years



■ Jacobs Levy 130/30    ● Russell 3000 Index  
▲ FTSE 3 Month T-Bill

Rolling 5 Years Standard Deviation



— Jacobs Levy 130/30    — Russell 3000 Index

5 Years Historical Statistics

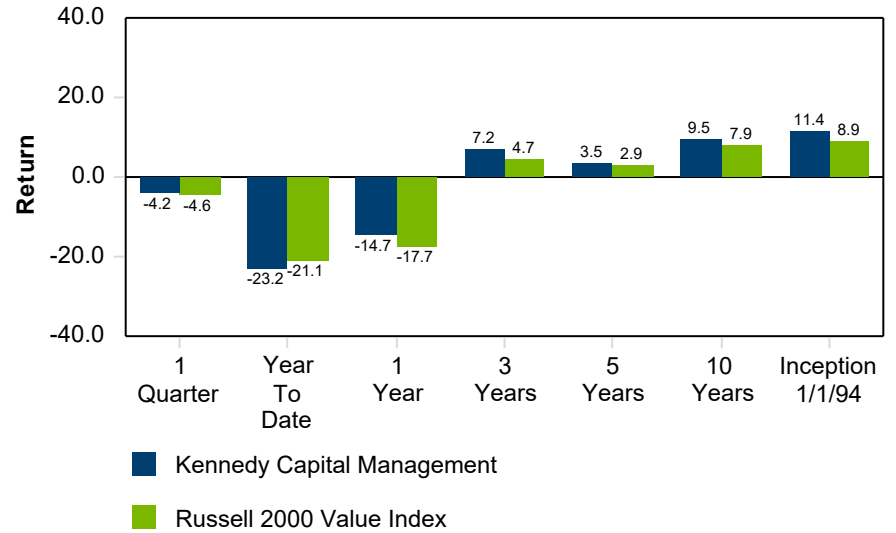
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Jacobs Levy 130/30	5.22	7.36	0.71	0.85	0.78	6.50	0.89	14.51	18.03	0.92
Russell 3000 Index	0.00	0.00	N/A	1.00	0.48	0.00	1.00	8.62	18.62	1.00
FTSE 3 Month T-Bill	-8.89	18.66	-0.48	0.02	N/A	1.15	0.00	1.13	0.27	-0.14

**Kennedy Capital Management Performance Summary**

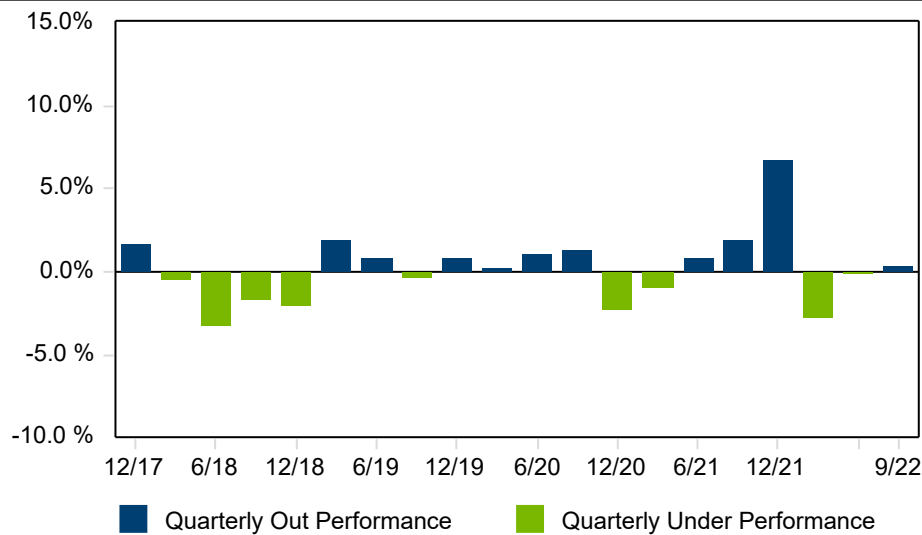
**Account Information**

Account Name: Kennedy Capital Management  
 Inception Date: 12/31/1993  
 Account Structure: Separate Account  
 Asset Class: US Equity  
 Benchmark: Russell 2000 Value Index  
 Peer Group: IM U.S. Small Cap Value Equity (SA+CF)

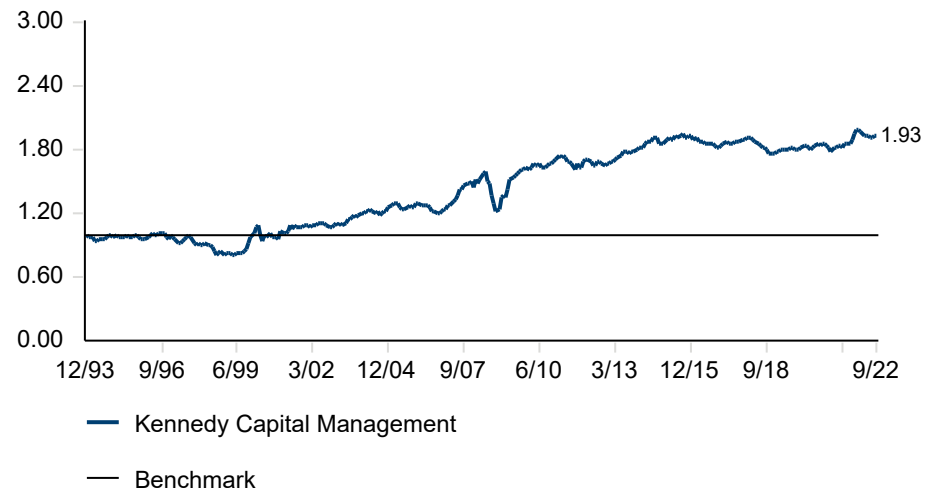
**Return Summary**



**Quarterly Excess Performance**

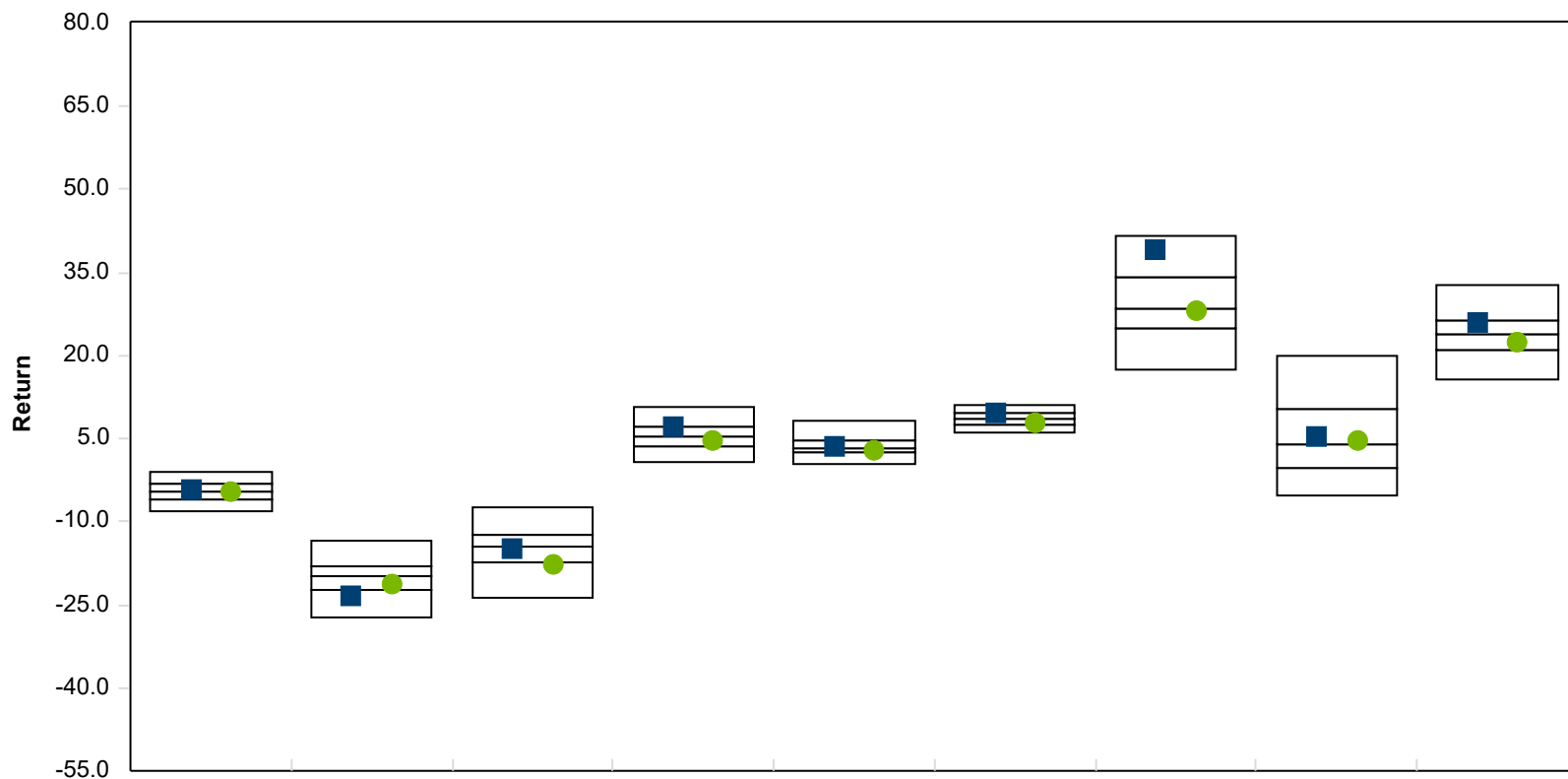


**Ratio of Cumulative Wealth - Since Inception**



Peer Group Analysis

IM U.S. Small Cap Value Equity (SA+CF)

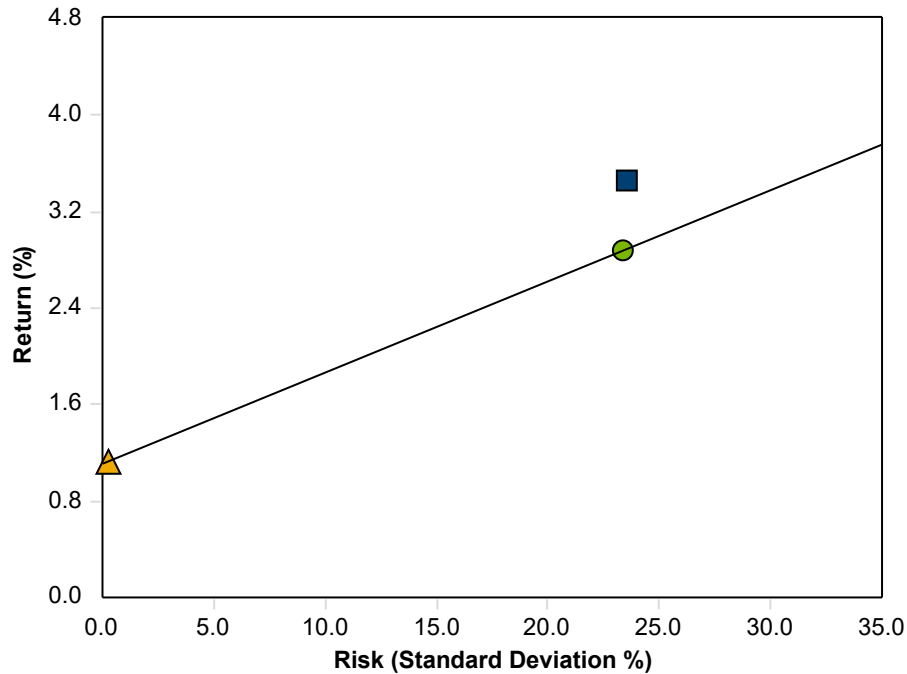


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2021	2020	2019
■ Kennedy Capital Management	-4.2 (44)	-23.2 (84)	-14.7 (52)	7.2 (27)	3.5 (47)	9.5 (26)	39.2 (11)	5.4 (44)	25.9 (30)
● Russell 2000 Value Index	-4.6 (52)	-21.1 (64)	-17.7 (79)	4.7 (60)	2.9 (64)	7.9 (68)	28.3 (53)	4.6 (48)	22.4 (64)
5th Percentile	-0.9	-13.4	-7.5	10.8	8.2	10.9	41.5	20.1	32.7
1st Quartile	-3.3	-17.9	-12.3	7.3	4.8	9.6	34.2	10.4	26.2
Median	-4.6	-19.9	-14.5	5.4	3.4	8.8	28.6	4.0	23.9
3rd Quartile	-5.9	-22.3	-17.2	3.5	2.5	7.6	24.9	-0.1	21.0
95th Percentile	-8.2	-27.4	-23.8	0.8	0.3	6.1	17.6	-5.3	15.6
Population	150	150	146	142	137	118	167	176	182

parentheses contain percentile rankings.

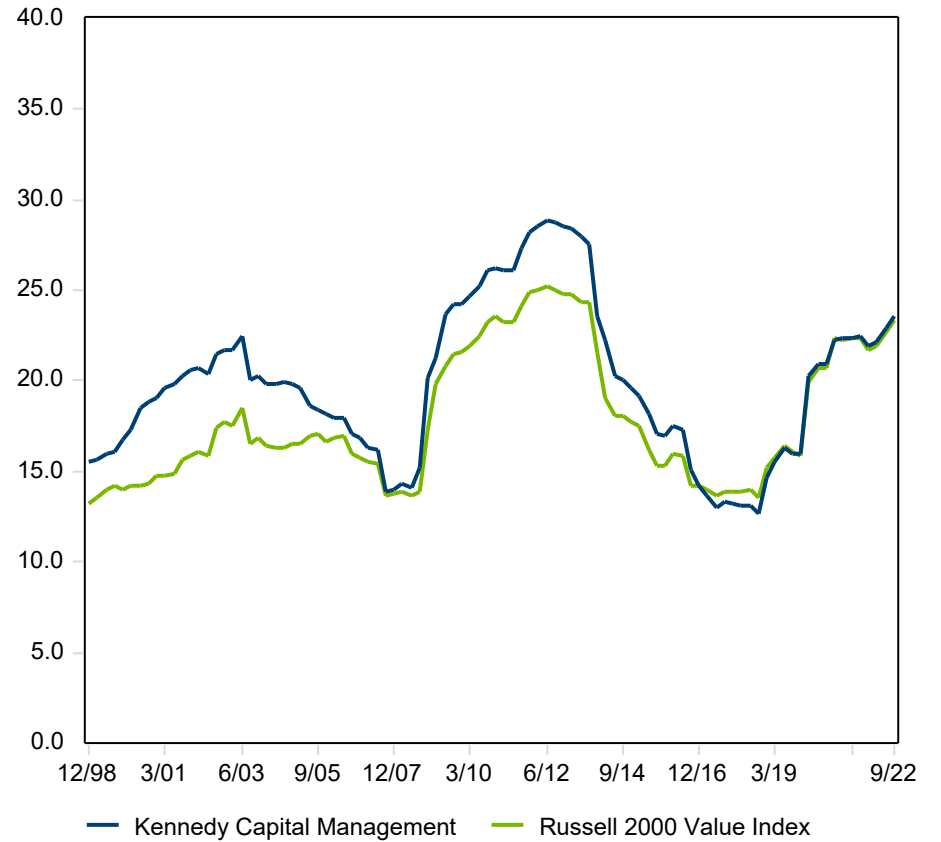
Kennedy Capital Management Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



- Kennedy Capital Management
- Russell 2000 Value Index
- ▲ FTSE 3 Month T-Bill

Rolling 5 Years Standard Deviation



5 Years Historical Statistics

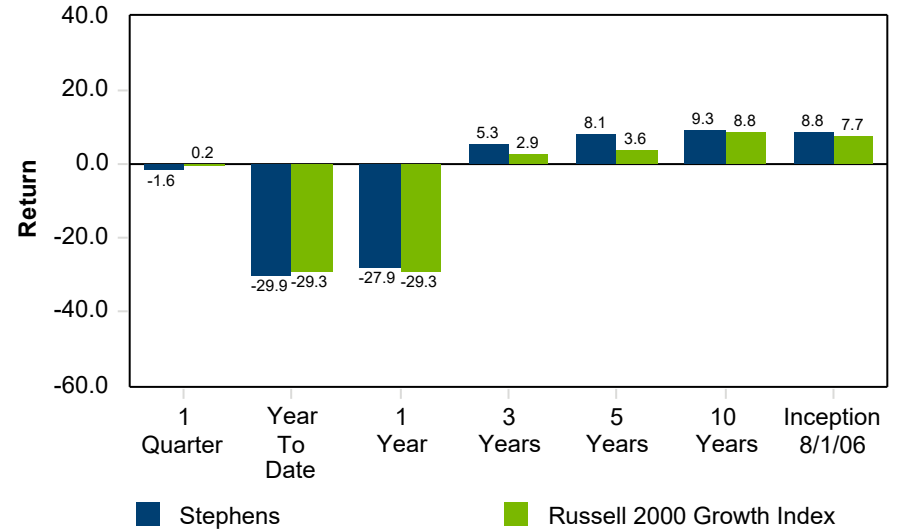
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Kennedy Capital Management	0.63	3.79	0.17	0.97	0.22	0.67	0.99	3.46	23.54	0.99
Russell 2000 Value Index	0.00	0.00	N/A	1.00	0.19	0.00	1.00	2.87	23.39	1.00
FTSE 3 Month T-Bill	-4.50	23.45	-0.19	0.05	N/A	1.14	0.00	1.13	0.27	-0.22

Stephens Performance Summary

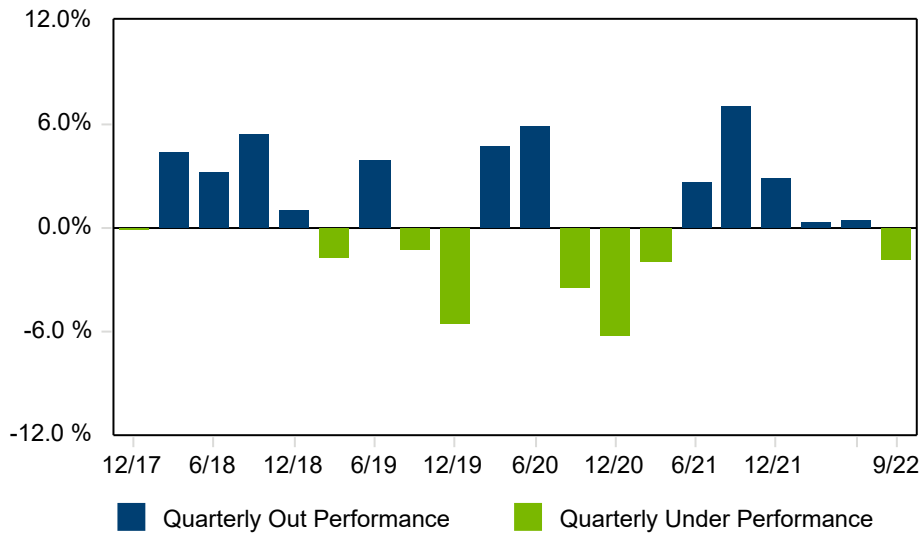
Account Information

Account Name: Stephens  
 Inception Date: 07/31/2006  
 Account Structure: Separate Account  
 Asset Class: US Equity  
 Benchmark: Russell 2000 Growth Index  
 Peer Group: IM U.S. Small Cap Growth Equity (SA+CF)

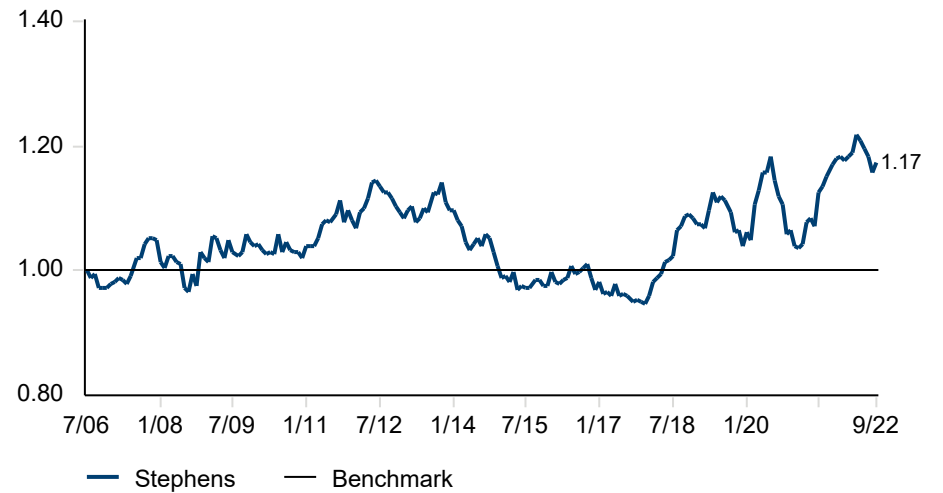
Return Summary



Quarterly Excess Performance

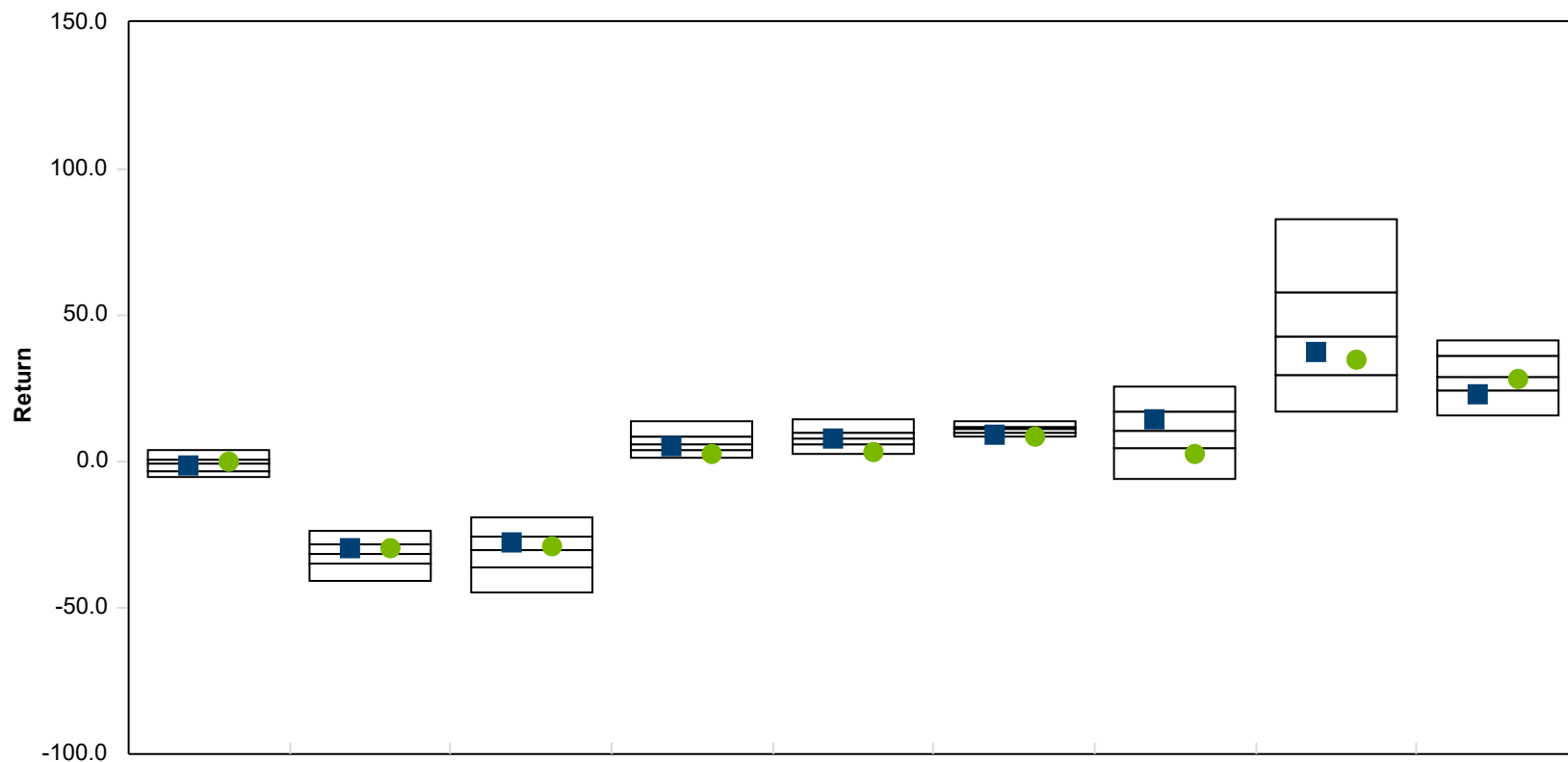


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM U.S. Small Cap Growth Equity (SA+CF)

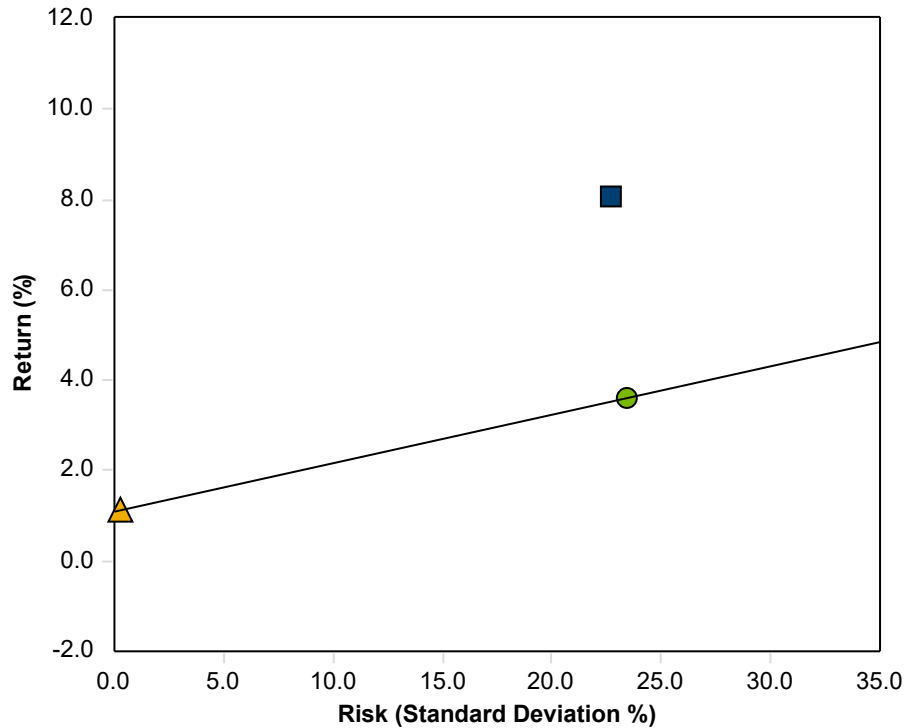


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2021	2020	2019
■ Stephens	-1.6 (62)	-29.9 (39)	-27.9 (32)	5.3 (57)	8.1 (46)	9.3 (89)	14.3 (42)	37.8 (62)	23.2 (80)
● Russell 2000 Growth Index	0.2 (33)	-29.3 (35)	-29.3 (45)	2.9 (88)	3.6 (92)	8.8 (94)	2.8 (83)	34.6 (66)	28.5 (52)
5th Percentile	3.8	-23.8	-18.9	13.8	14.3	14.0	25.5	83.1	41.6
1st Quartile	0.7	-28.2	-25.4	8.8	10.1	11.6	17.2	58.2	36.3
Median	-0.9	-31.5	-30.2	5.9	7.8	11.0	10.8	43.0	28.9
3rd Quartile	-3.0	-34.8	-36.2	4.1	6.0	10.0	4.7	29.6	24.1
95th Percentile	-5.4	-40.7	-44.4	1.2	2.6	8.3	-5.7	16.8	16.1
Population	112	112	112	108	105	89	125	131	138

Parenteses contain percentile rankings.

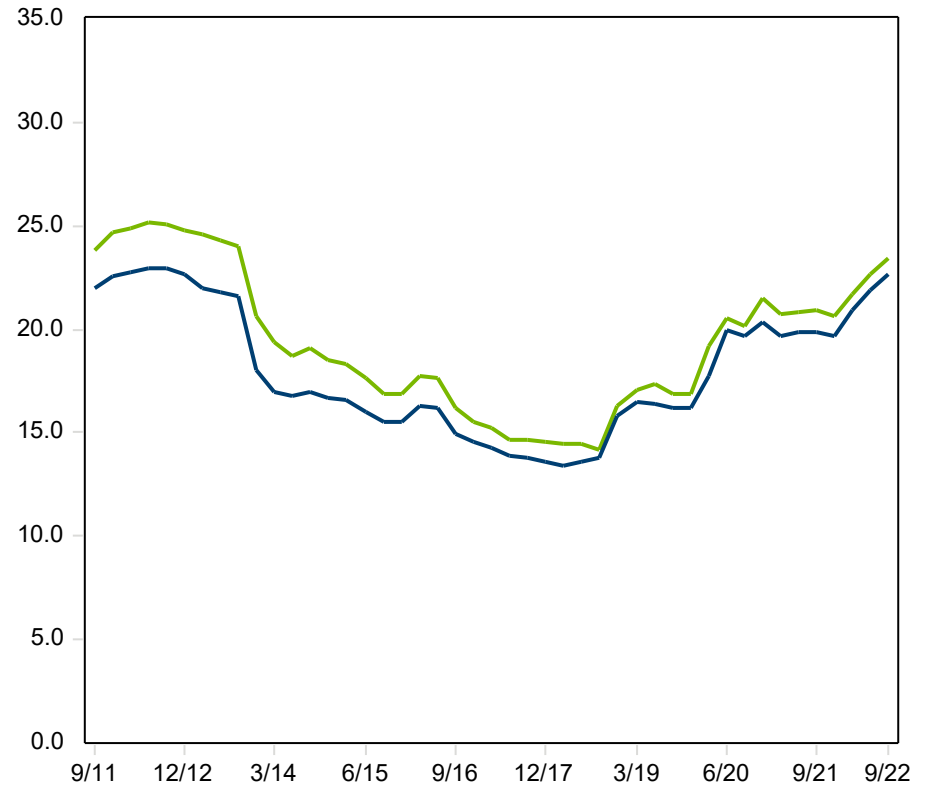
Stephens Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



■ Stephens      ● Russell 2000 Growth Index  
 ▲ FTSE 3 Month T-Bill

Rolling 5 Years Standard Deviation



— Stephens      — Russell 2000 Growth Index

5 Years Historical Statistics

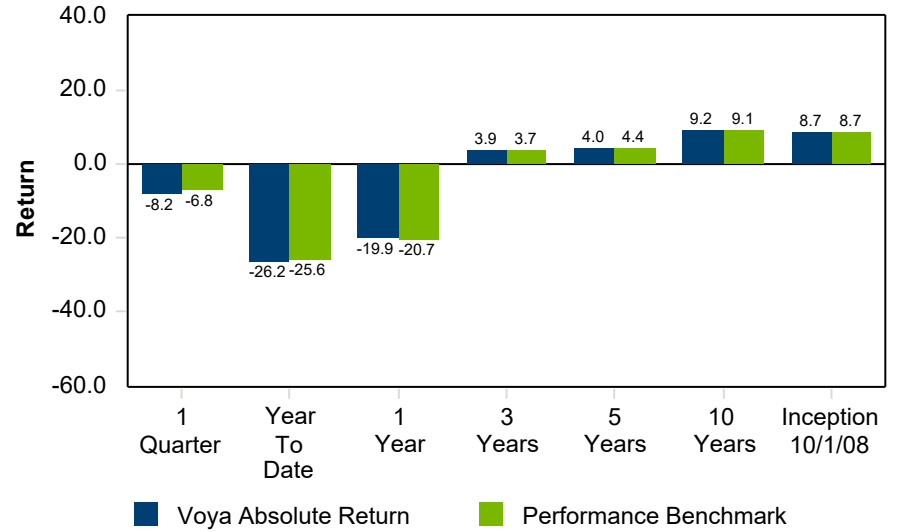
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Stephens	4.03	6.62	0.61	0.92	0.41	4.58	0.93	8.06	22.65	0.96
Russell 2000 Growth Index	0.00	0.00	N/A	1.00	0.22	0.00	1.00	3.60	23.45	1.00
FTSE 3 Month T-Bill	-5.17	23.48	-0.22	0.01	N/A	1.13	0.00	1.13	0.27	-0.09

Voya Absolute Return Performance Summary

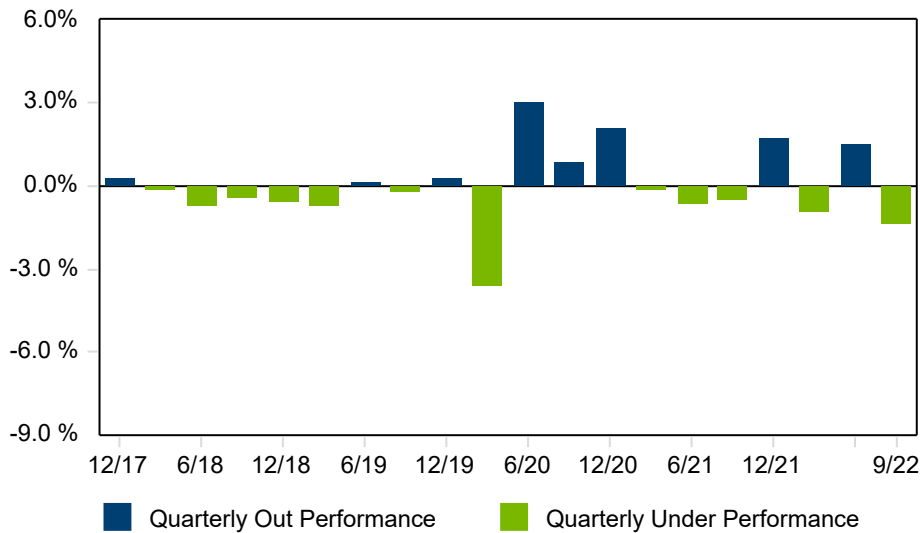
Account Information

Account Name: Voya Absolute Return  
 Inception Date: 09/30/2008  
 Account Structure: Commingled Fund  
 Asset Class: Global Equity  
 Benchmark: Performance Benchmark  
 Peer Group: IM Global Equity (MF)

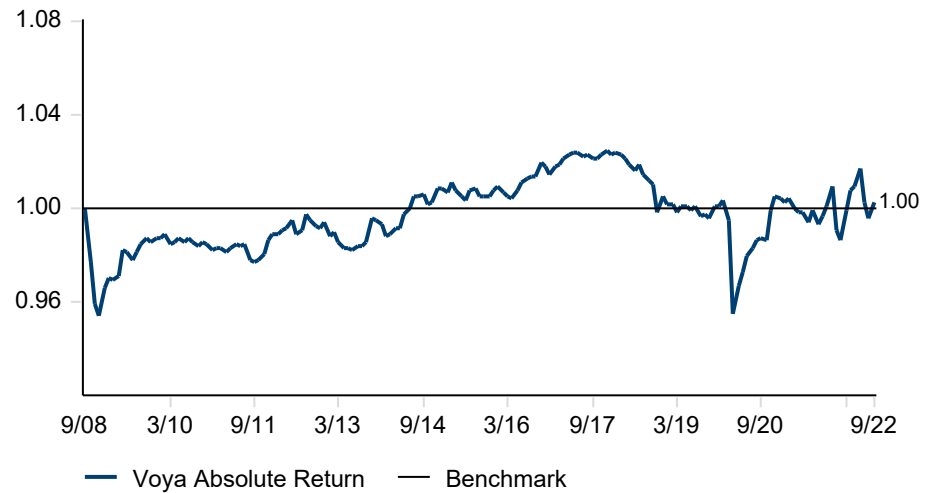
Return Summary



Quarterly Excess Performance



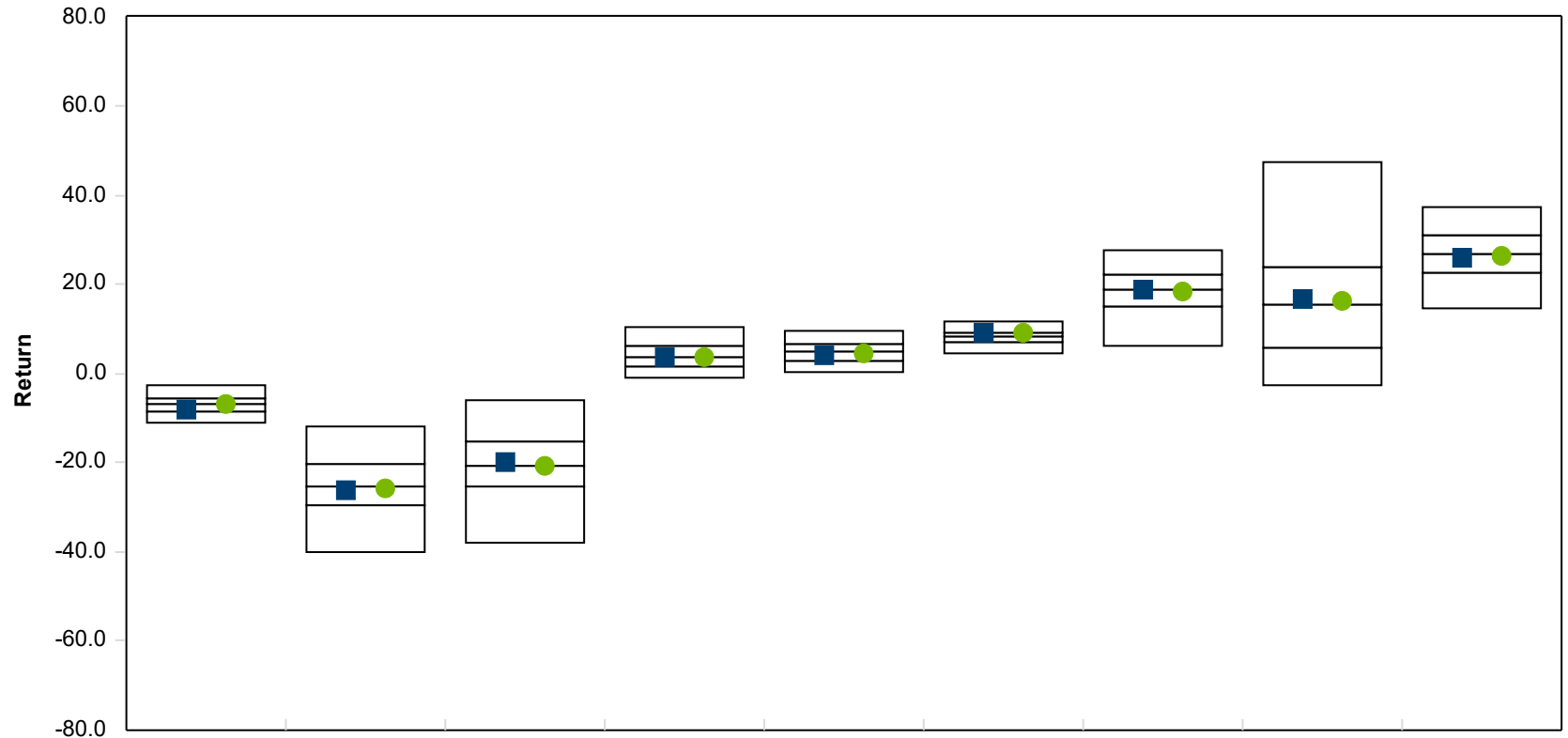
Ratio of Cumulative Wealth - Since Inception





Peer Group Analysis

IM Global Equity (SA+CF)

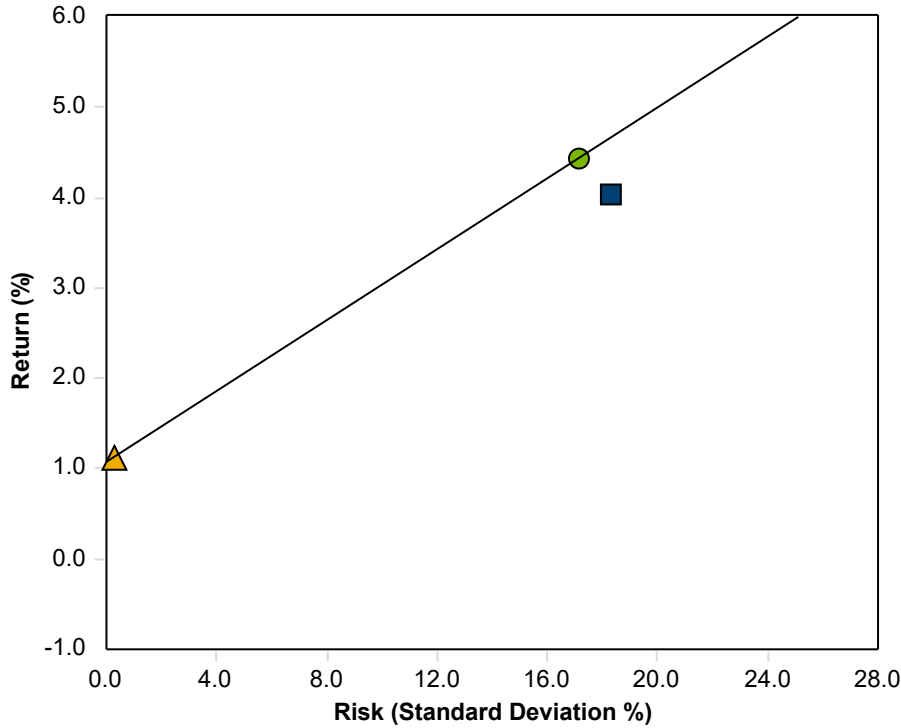


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2021	2020	2019
■ Voya Absolute Return	-8.2 (73)	-26.2 (57)	-19.9 (48)	3.9 (50)	4.0 (63)	9.2 (29)	19.0 (51)	16.8 (46)	26.0 (59)
● Performance Benchmark	-6.8 (49)	-25.6 (52)	-20.7 (51)	3.7 (51)	4.4 (57)	9.1 (31)	18.5 (55)	16.3 (48)	26.6 (54)
5th Percentile	-2.7	-11.7	-5.9	10.7	9.7	11.8	27.8	47.6	37.5
1st Quartile	-5.5	-20.3	-15.2	6.2	6.6	9.3	22.3	24.2	31.1
Median	-6.9	-25.3	-20.5	3.9	4.9	8.2	19.1	15.7	26.9
3rd Quartile	-8.5	-29.5	-25.3	1.8	3.1	7.0	15.1	6.0	22.6
95th Percentile	-10.9	-39.9	-37.7	-0.9	0.2	4.7	6.2	-2.5	14.6
Population	462	459	456	435	409	296	488	533	560

parentheses contain percentile rankings.

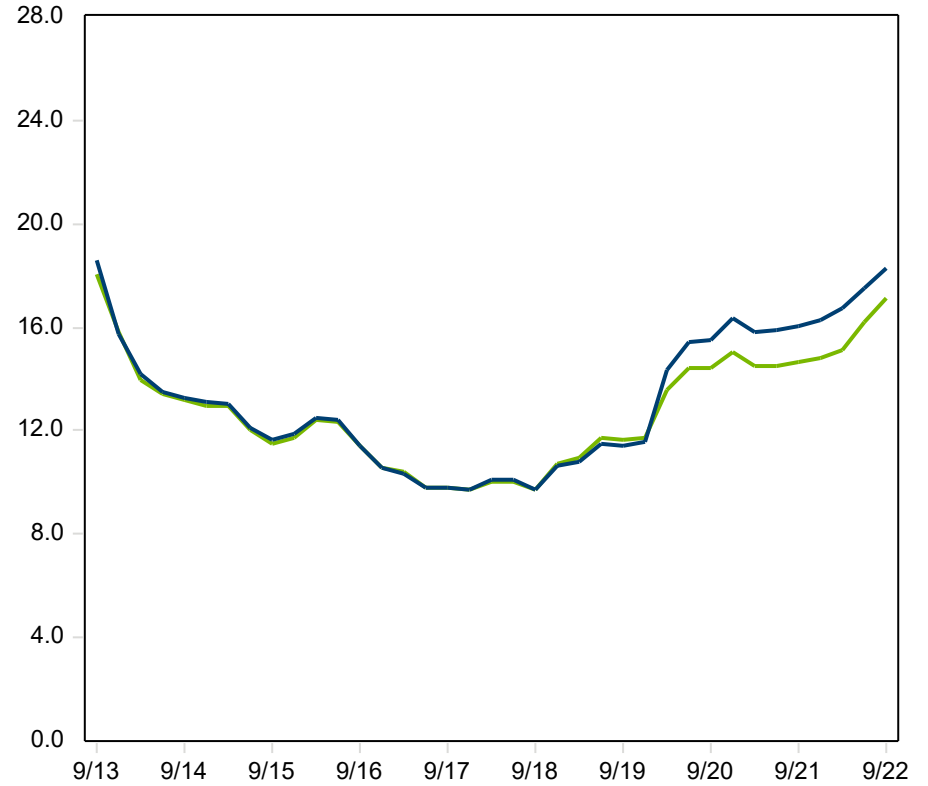
Voya Absolute Return Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



■ Voya Absolute Return     ● Performance Benchmark  
▲ FTSE 3 Month T-Bill

Rolling 5 Years Standard Deviation



— Voya Absolute Return     — Performance Benchmark

5 Years Historical Statistics

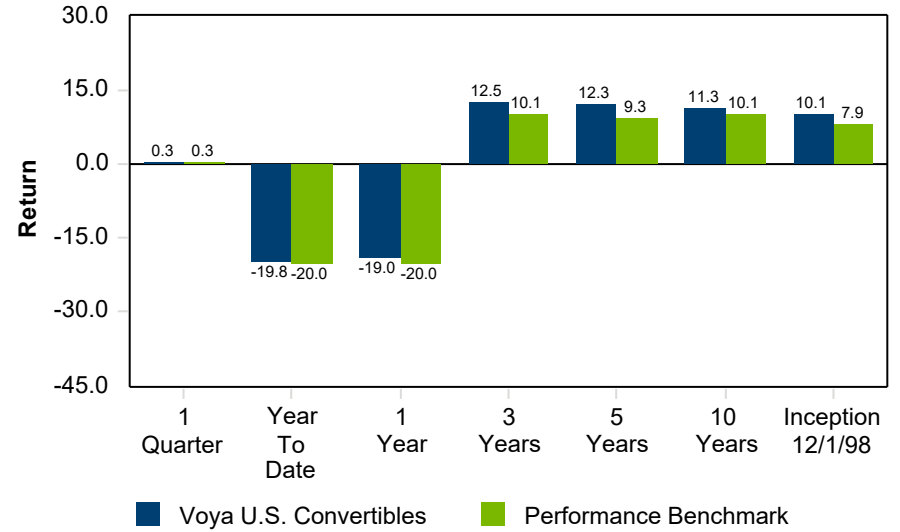
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Voya Absolute Return	-0.18	2.60	-0.07	0.98	0.25	-0.50	1.06	4.04	18.29	0.99
Performance Benchmark	0.00	0.00	N/A	1.00	0.27	0.00	1.00	4.44	17.15	1.00
FTSE 3 Month T-Bill	-4.70	17.20	-0.27	0.03	N/A	1.14	0.00	1.13	0.27	-0.16

Voya U.S. Convertibles Performance Summary

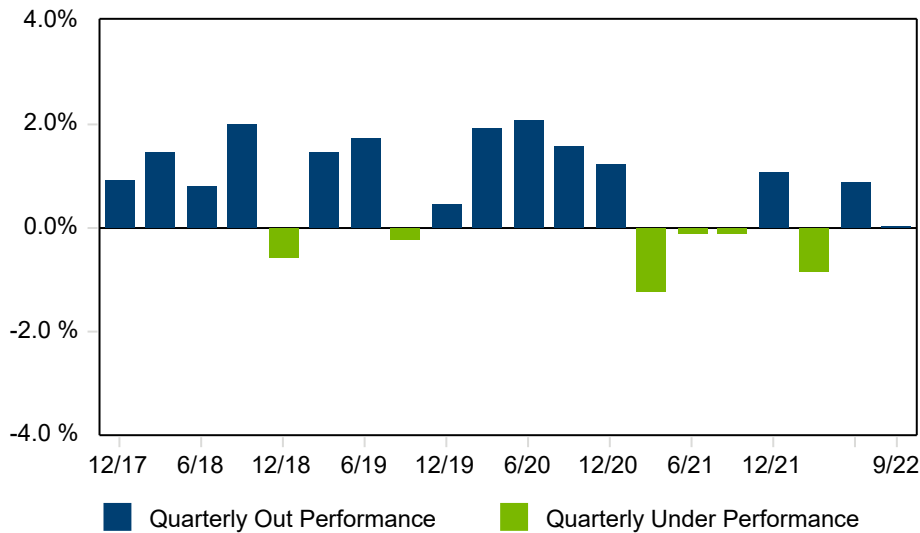
Account Information

Account Name: Voya U.S. Convertibles  
 Inception Date: 11/30/1998  
 Account Structure: Separate Account  
 Asset Class: US Equity  
 Benchmark: Performance Benchmark  
 Peer Group: IM U.S. Equity (SA+CF)

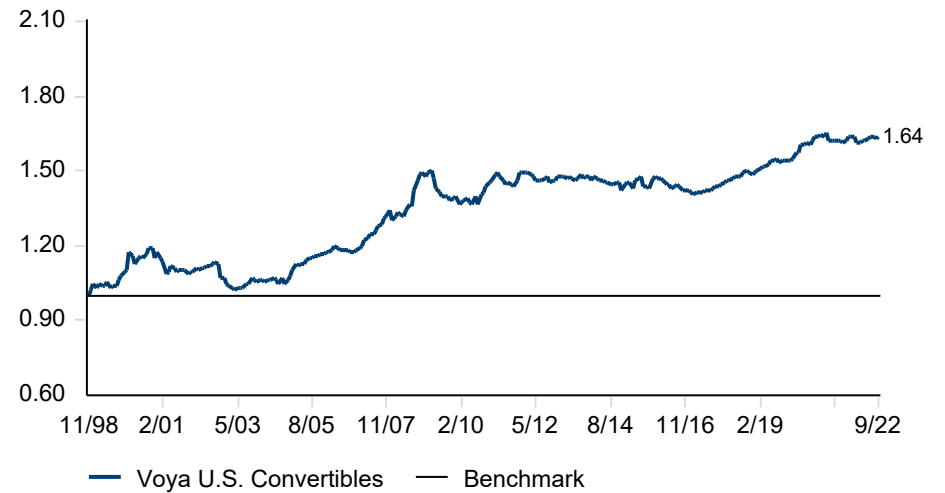
Return Summary



Quarterly Excess Performance

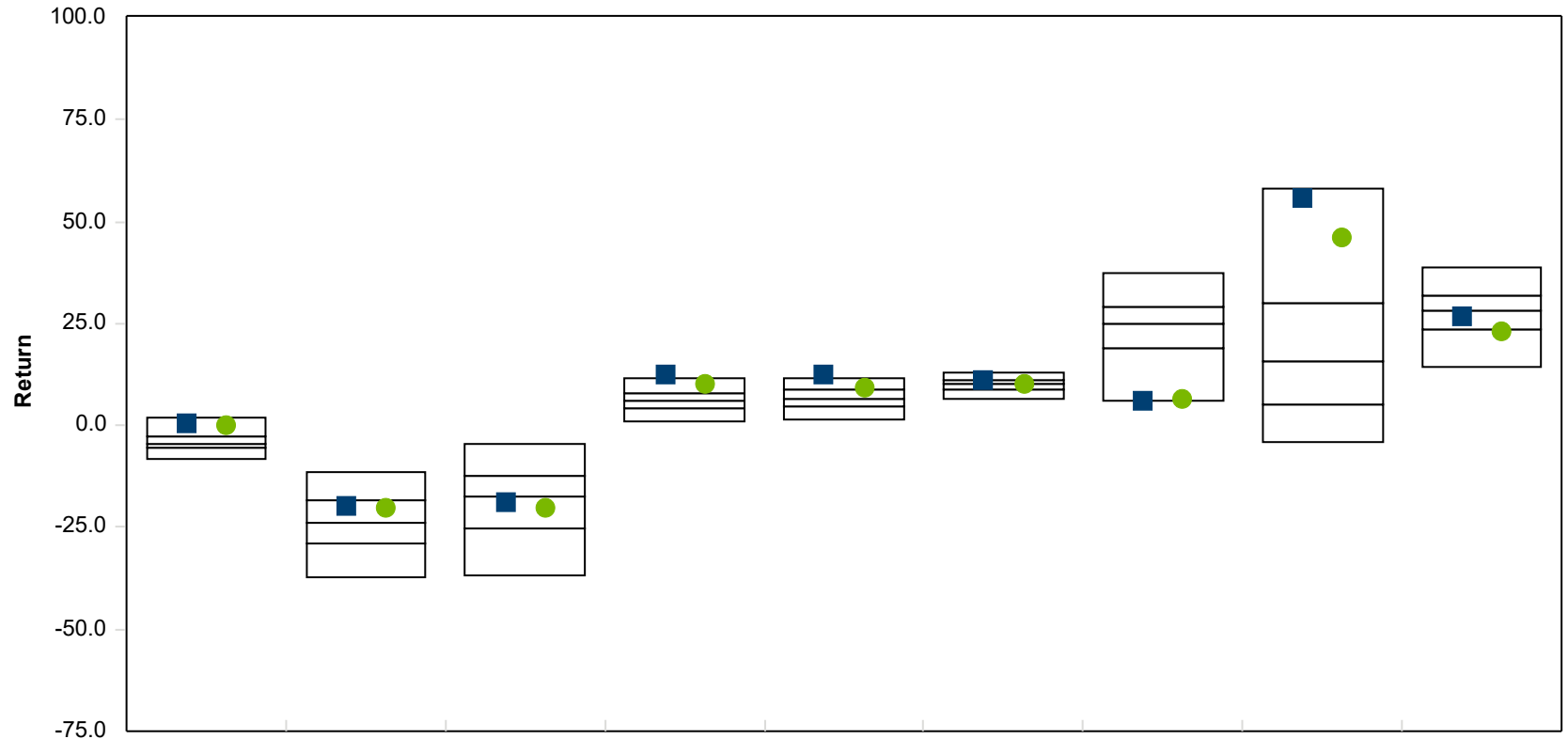


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM U.S. Equity (SA+CF)

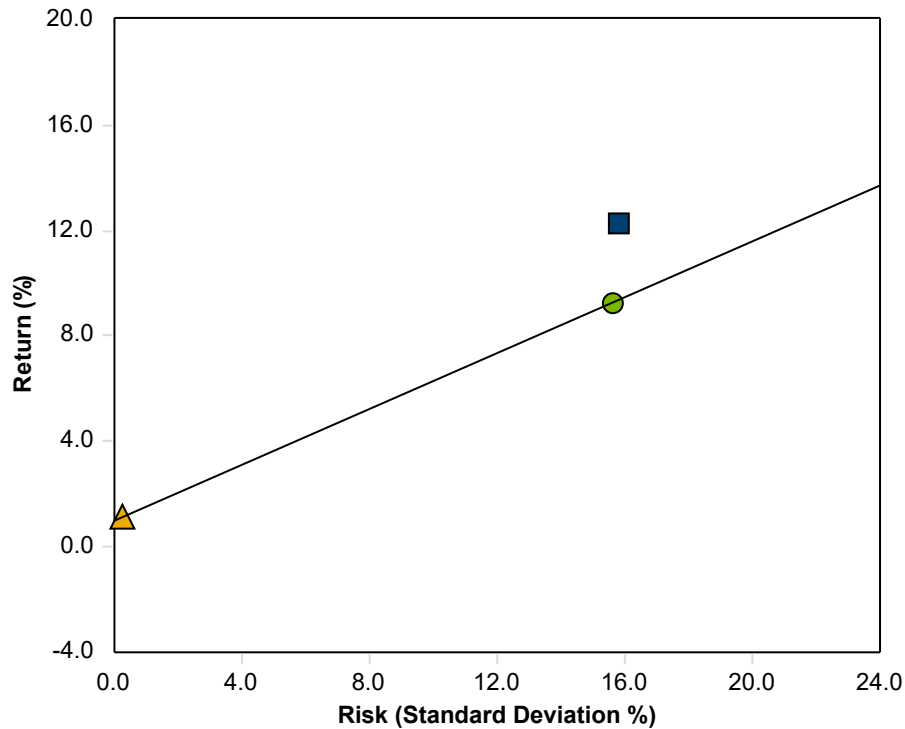


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2021	2020	2019
■ Voya U.S. Convertibles	0.3 (8)	-19.8 (30)	-19.0 (58)	12.5 (4)	12.3 (4)	11.3 (26)	5.9 (96)	55.7 (6)	27.0 (57)
● Performance Benchmark	0.3 (9)	-20.0 (31)	-20.0 (61)	10.1 (9)	9.3 (19)	10.1 (49)	6.3 (95)	46.2 (10)	23.1 (78)
5th Percentile	1.7	-11.5	-4.6	11.4	11.8	13.0	37.4	58.3	38.7
1st Quartile	-2.7	-18.6	-12.3	7.9	8.8	11.3	28.9	30.2	31.8
Median	-4.4	-23.9	-17.4	6.0	6.6	10.0	25.0	15.6	28.0
3rd Quartile	-5.6	-29.1	-25.2	4.1	4.5	8.7	19.2	5.1	23.6
95th Percentile	-8.1	-37.3	-36.7	0.8	1.6	6.4	6.0	-4.0	14.6
Population	1,665	1,657	1,646	1,592	1,501	1,225	1,882	2,004	2,104

parentheses contain percentile rankings.

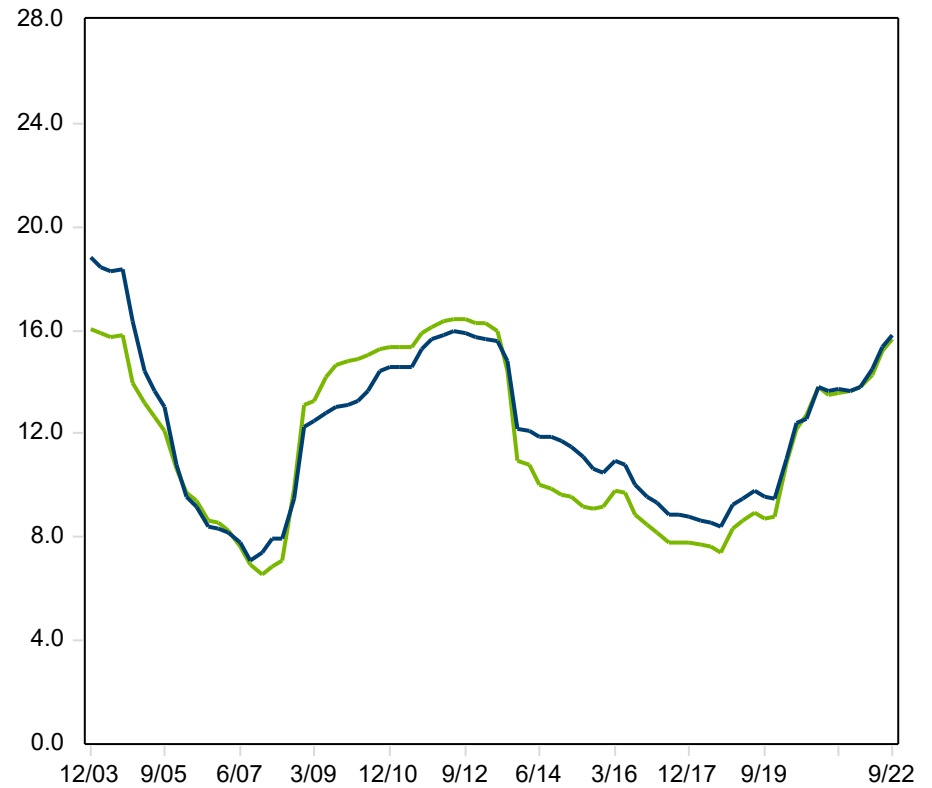
Voya U.S. Convertibles Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



■ Voya U.S. Convertibles    ● Performance Benchmark  
▲ FTSE 3 Month T-Bill

Rolling 5 Years Standard Deviation



— Voya U.S. Convertibles    — Performance Benchmark

5 Years Historical Statistics

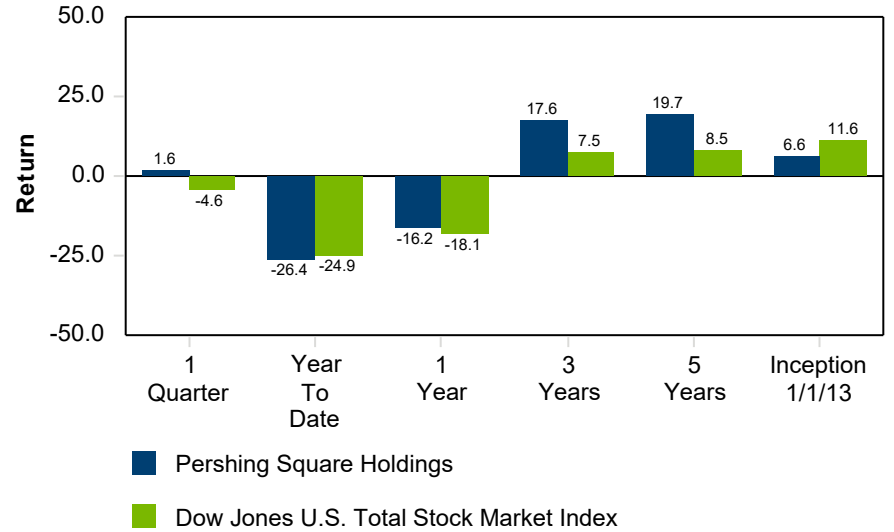
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Voya U.S. Convertibles	2.76	2.23	1.24	0.98	0.74	2.78	1.00	12.27	15.81	0.99
Performance Benchmark	0.00	0.00	N/A	1.00	0.57	0.00	1.00	9.27	15.63	1.00
FTSE 3 Month T-Bill	-8.98	15.66	-0.57	0.01	N/A	1.15	0.00	1.13	0.27	-0.11

Pershing Square Holdings Performance Summary

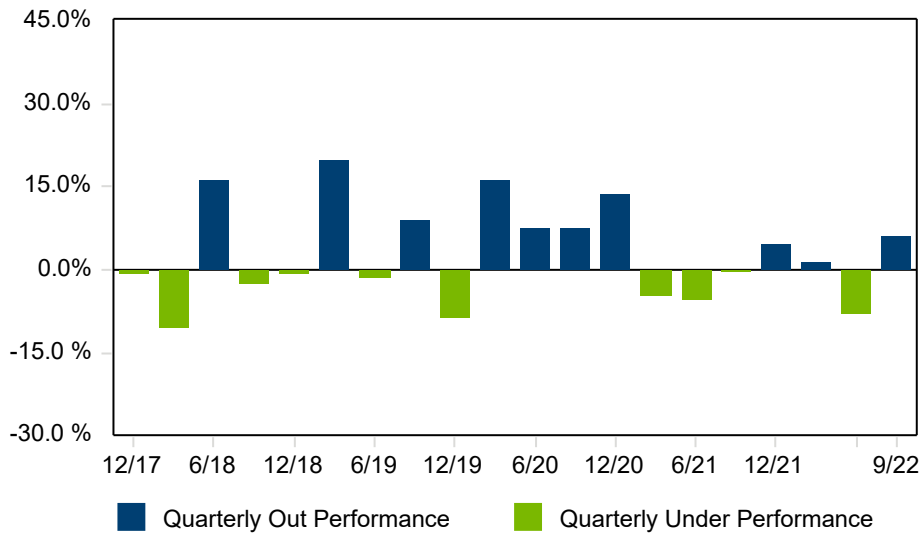
Account Information

Account Name: Pershing Square Holdings  
 Inception Date: 12/31/2012  
 Account Structure: Commingled Fund  
 Asset Class: US Equity  
 Benchmark: Dow Jones U.S. Total Stock Market Index  
 Peer Group: IM U.S. Equity (SA+CF)

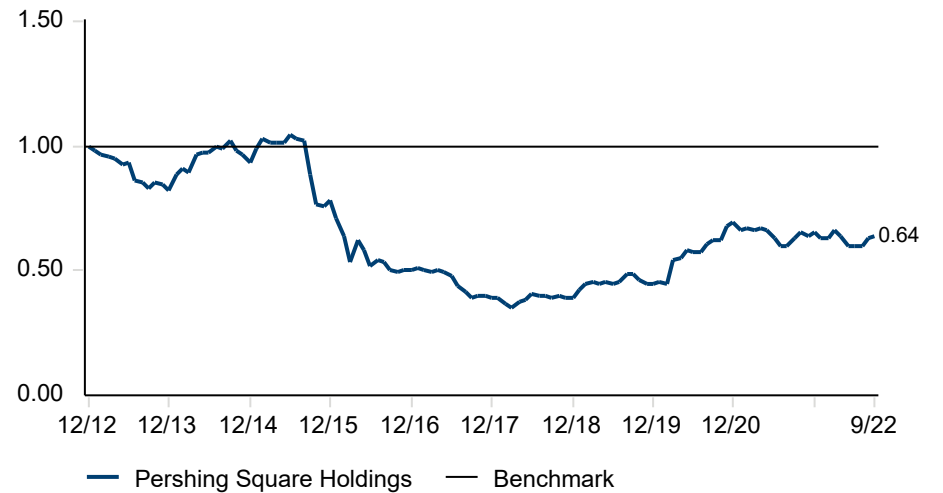
Return Summary



Quarterly Excess Performance

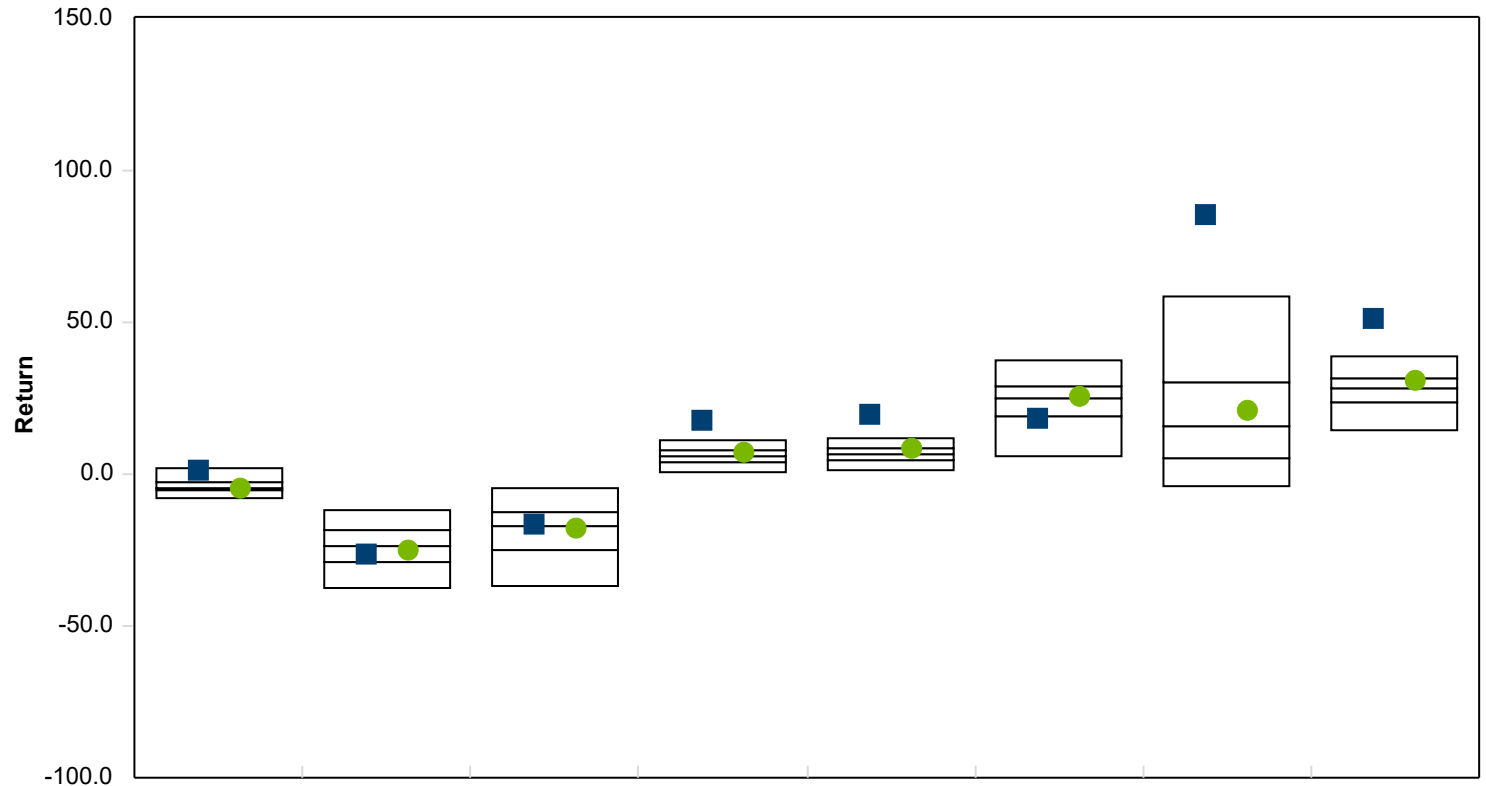


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM U.S. Equity (SA+CF)

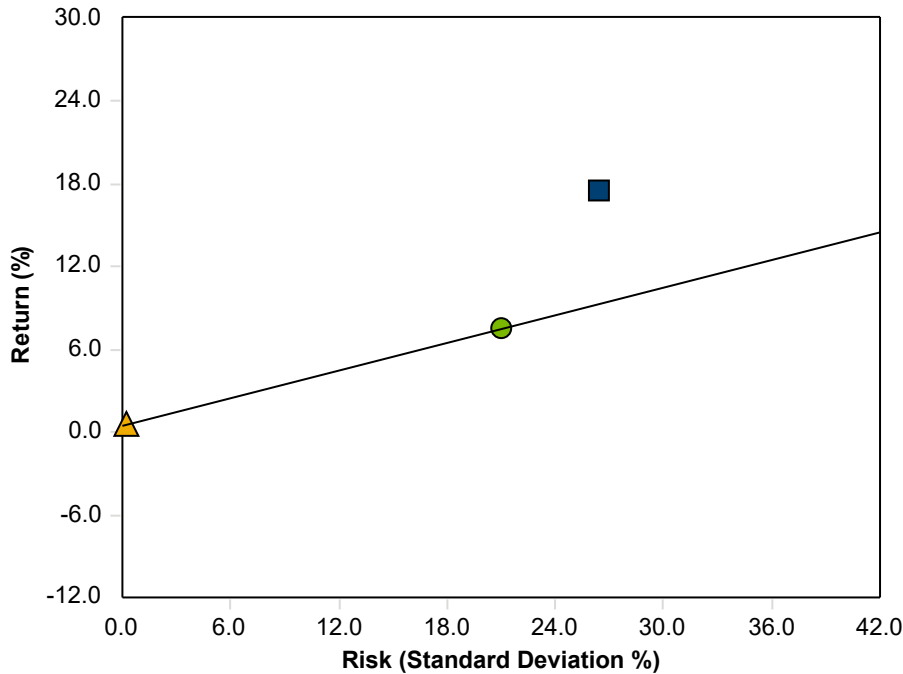


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2021	2020	2019
■ Pershing Square Holdings	1.6 (6)	-26.4 (65)	-16.2 (45)	17.6 (2)	19.7 (1)	18.7 (77)	85.7 (2)	51.3 (1)
● Dow Jones U.S. Total Stock Market Index	-4.6 (54)	-24.9 (58)	-18.1 (54)	7.5 (31)	8.5 (29)	25.7 (46)	20.8 (38)	30.9 (32)
5th Percentile	1.7	-11.5	-4.6	11.4	11.8	37.4	58.3	38.7
1st Quartile	-2.7	-18.6	-12.3	7.9	8.8	28.9	30.2	31.8
Median	-4.4	-23.9	-17.4	6.0	6.6	25.0	15.6	28.0
3rd Quartile	-5.6	-29.1	-25.2	4.1	4.5	19.2	5.1	23.6
95th Percentile	-8.1	-37.3	-36.7	0.8	1.6	6.0	-4.0	14.6
Population	1,665	1,657	1,646	1,592	1,501	1,882	2,004	2,104

parentheses contain percentile rankings.

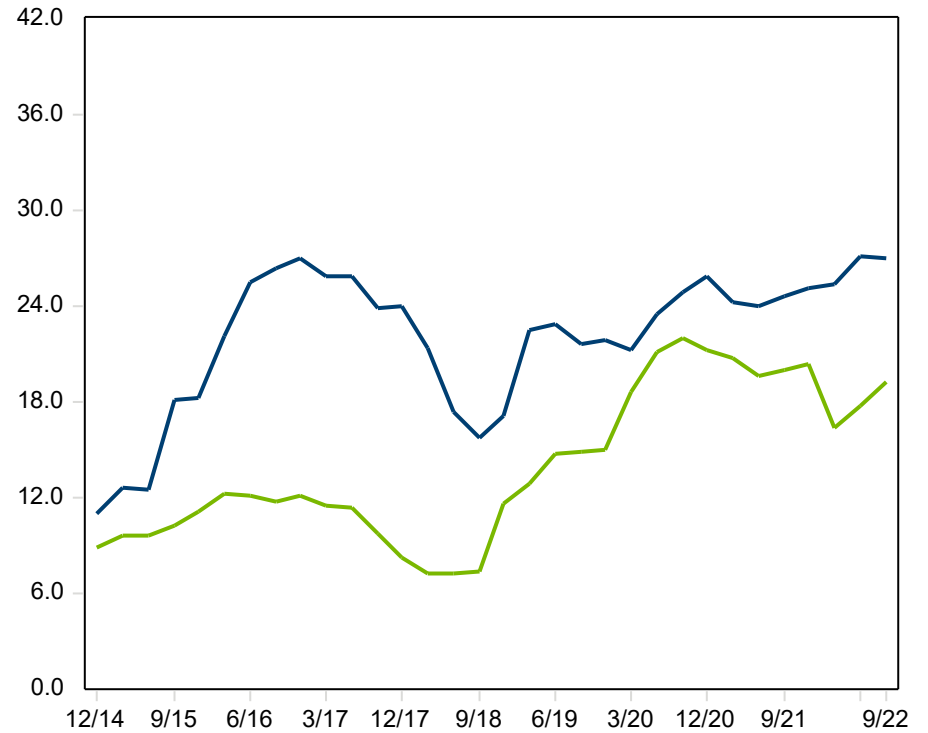
**Pershing Square Holdings Risk Profile**

**Annualized Return vs. Annualized Standard Deviation  
3 Years**



- Pershing Square Holdings
- Dow Jones U.S. Total Stock Market Index
- ▲ FTSE 3 Month T-Bill

**Rolling 2 Years Standard Deviation**



- Pershing Square Holdings
- Dow Jones U.S. Total Stock Market Index

**3 Years Historical Statistics**

	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Pershing Square Holdings	10.17	16.74	0.61	0.60	0.72	10.95	0.97	17.59	26.39	0.77
Dow Jones U.S. Total Stock Market Index	0.00	0.00	N/A	1.00	0.42	0.00	1.00	7.51	21.00	1.00
FTSE 3 Month T-Bill	-8.86	21.06	-0.42	0.07	N/A	0.60	0.00	0.57	0.21	-0.26

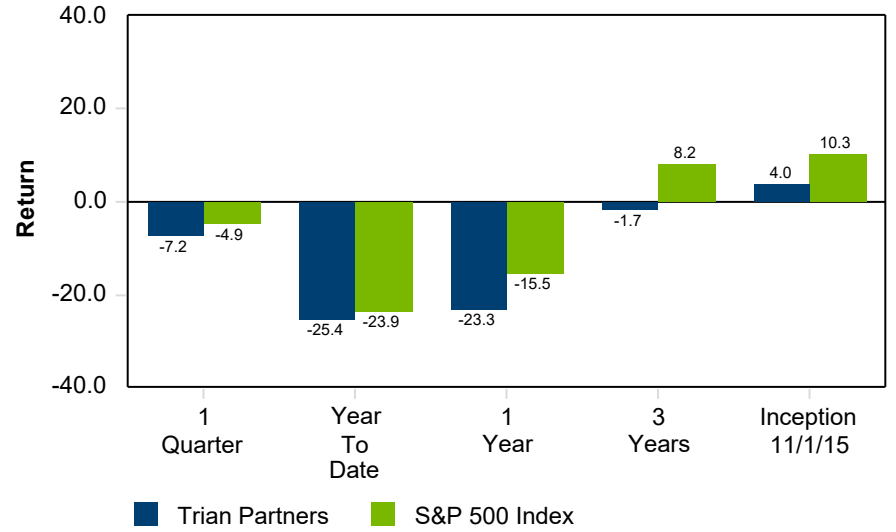


Trian Partners Performance Summary

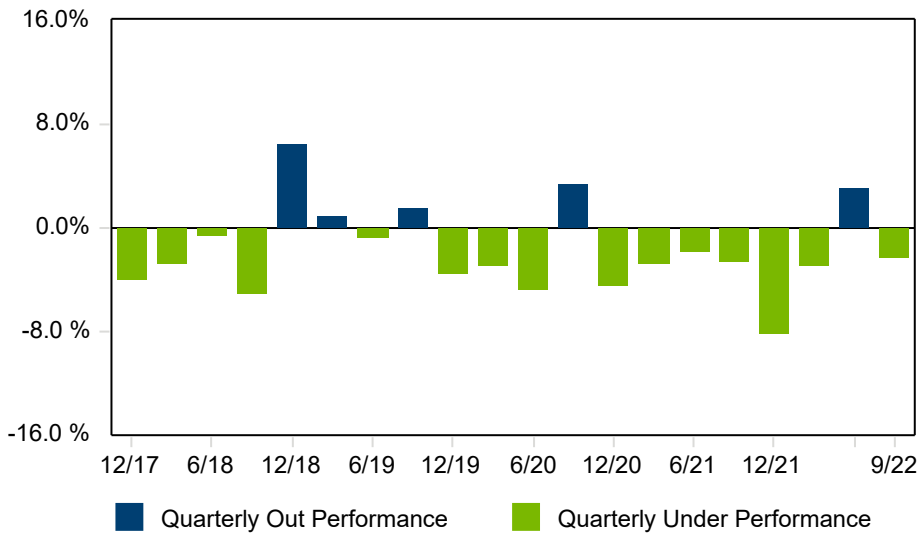
Account Information

Account Name: Trian Partners  
 Inception Date: 11/01/2015  
 Account Structure: Commingled Fund  
 Asset Class: US Equity  
 Benchmark: S&P 500 Index  
 Peer Group:

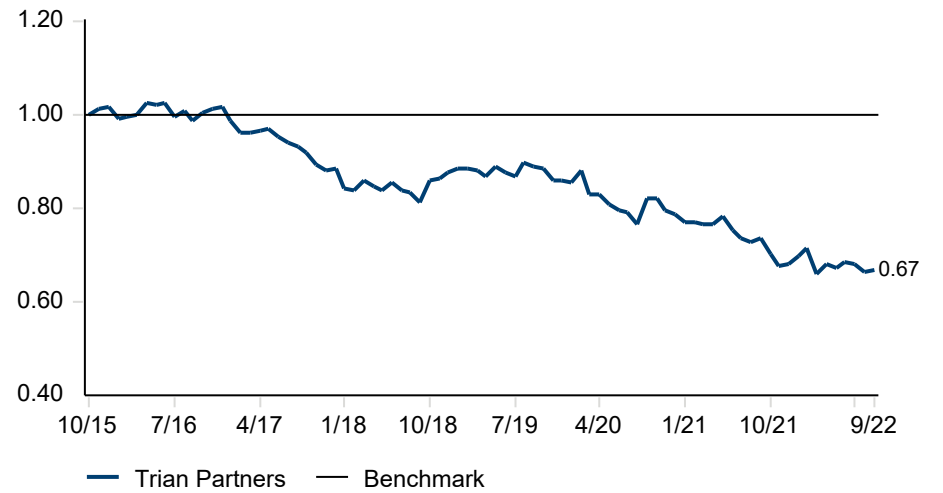
Return Summary



Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception

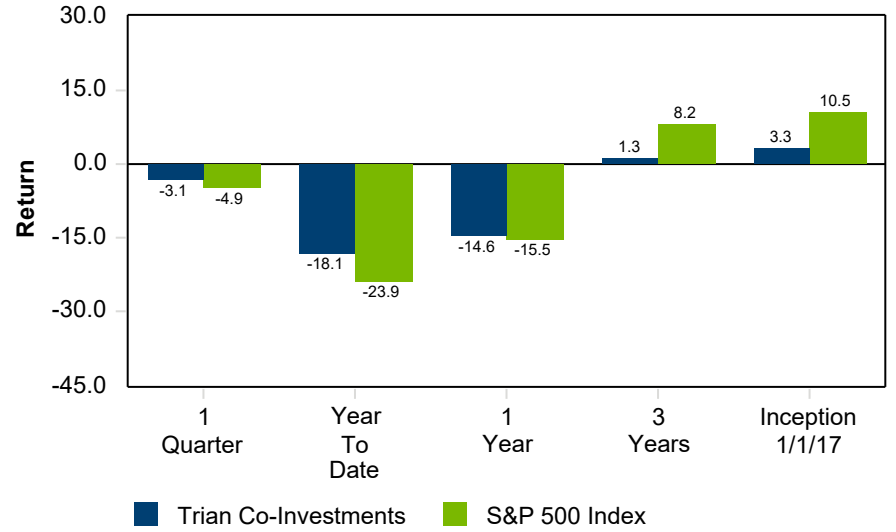


Trian Co-Investments Performance Summary

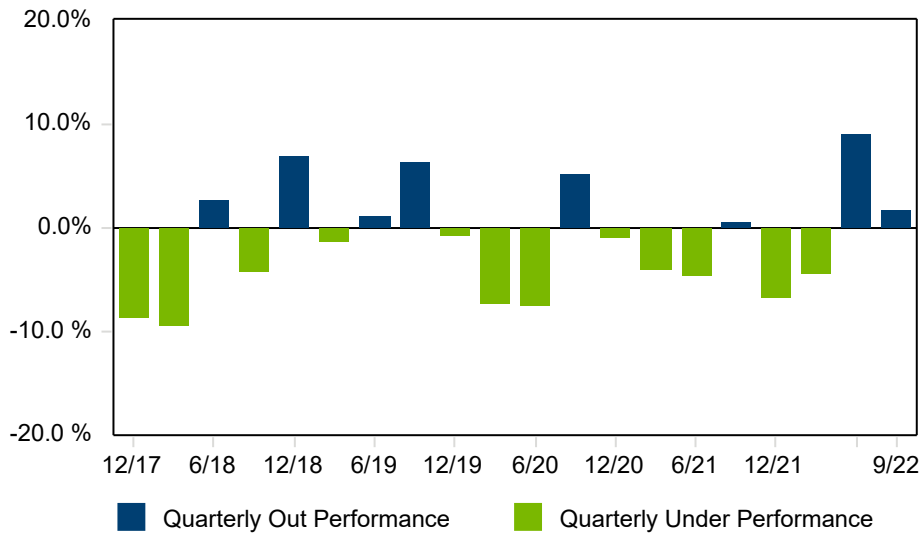
Account Information

Account Name: Trian Co-Investments  
 Inception Date: 01/01/2017  
 Account Structure: Commingled Fund  
 Asset Class: US Equity  
 Benchmark: S&P 500 Index  
 Peer Group:

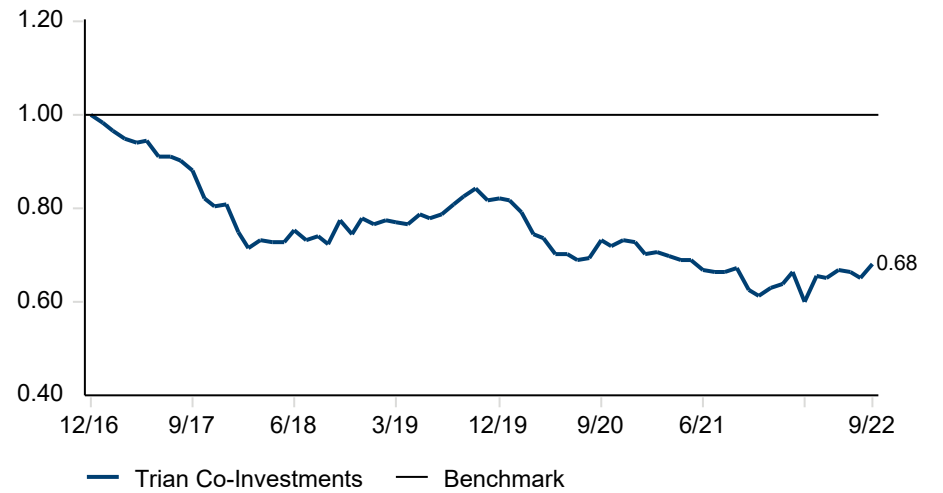
Return Summary



Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception

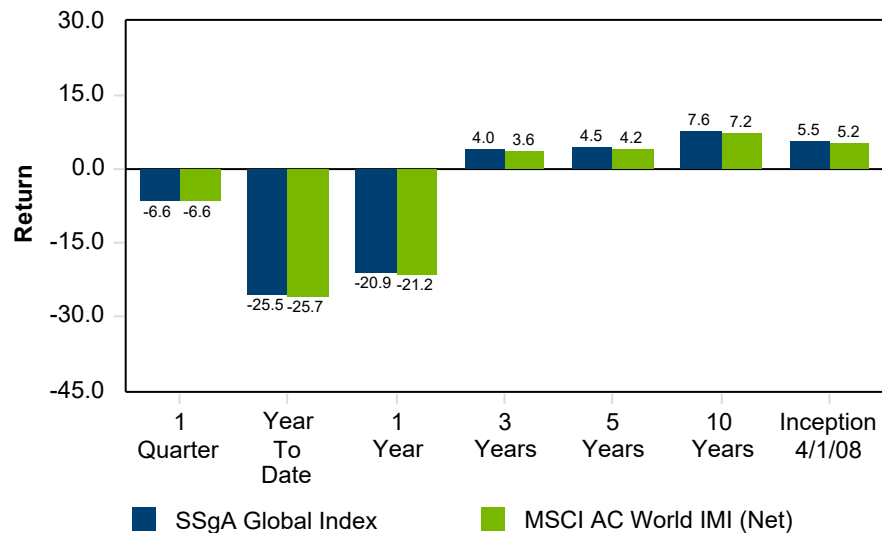


SSgA Global Index Performance Summary

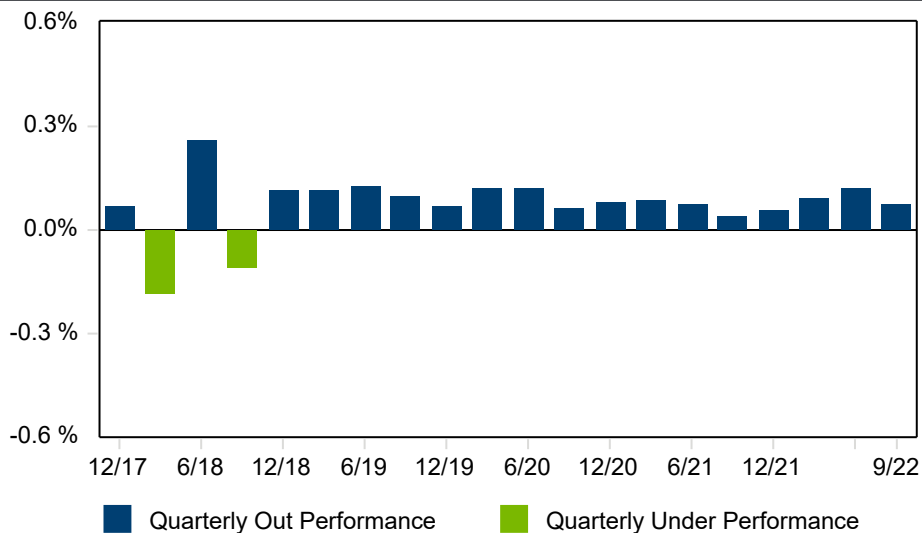
Account Information

Account Name: SSgA Global Index  
 Inception Date: 03/31/2008  
 Account Structure: Commingled Fund  
 Asset Class: Global Equity  
 Benchmark: MSCI AC World IMI (Net)  
 Peer Group: IM Global Equity (SA+CF)

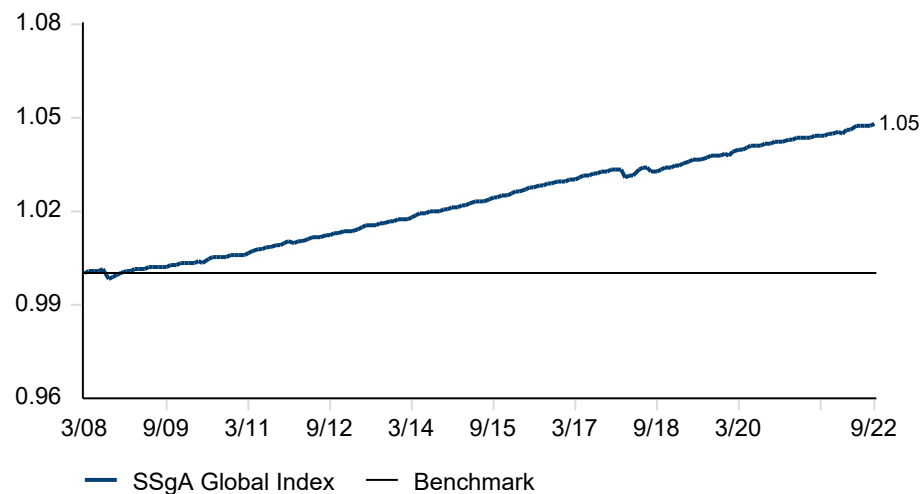
Return Summary



Quarterly Excess Performance

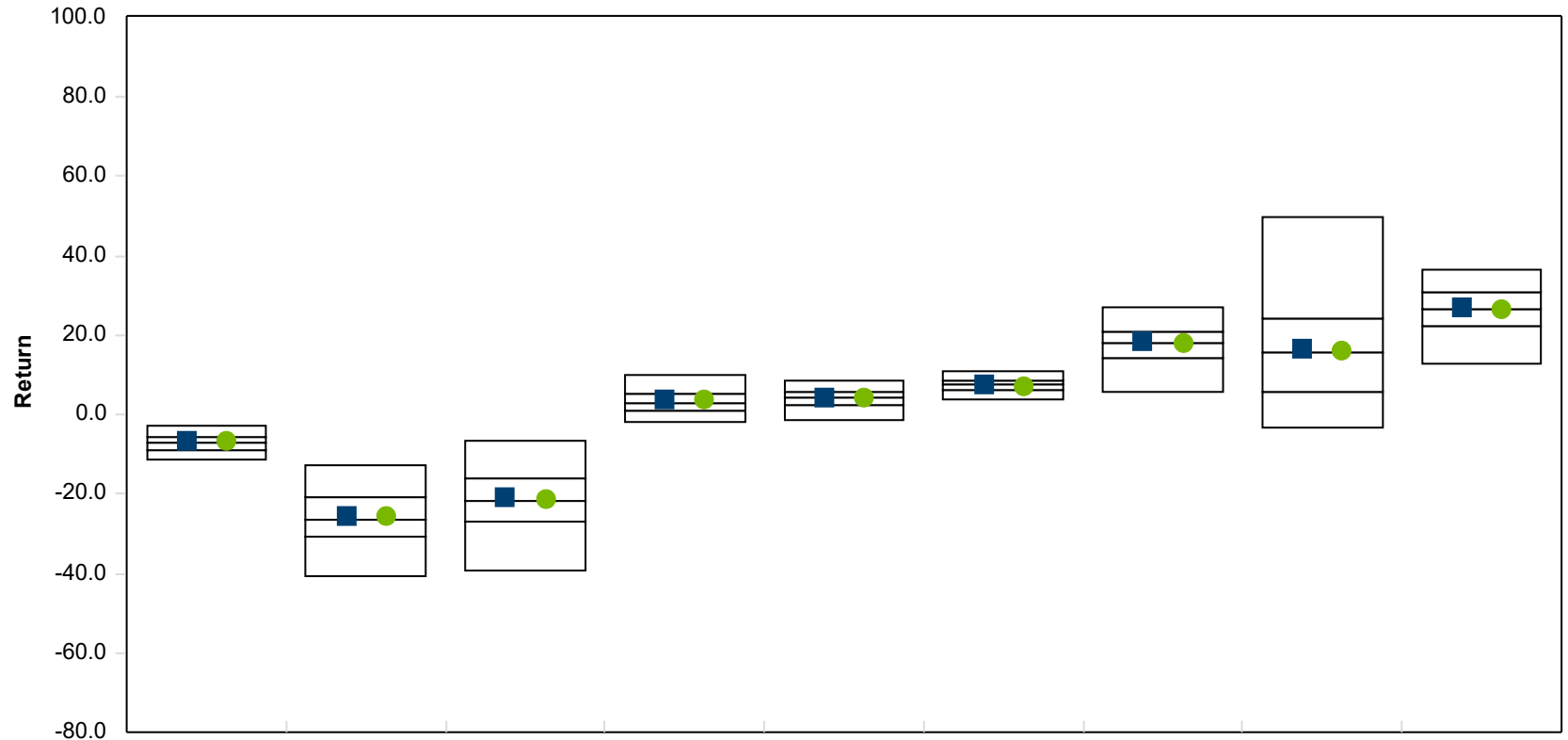


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM Global Equity (SA+CF)

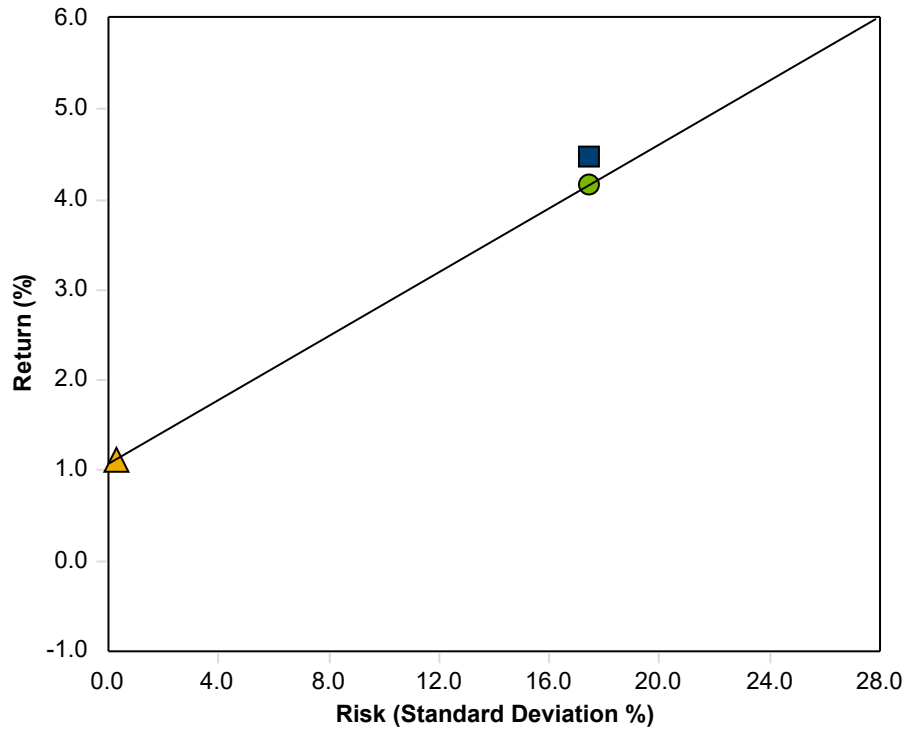


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2021	2020	2019
■ SSgA Global Index	-6.6 (38)	-25.5 (45)	-20.9 (44)	4.0 (41)	4.5 (45)	7.6 (45)	18.5 (45)	16.7 (46)	26.8 (50)
● MSCI AC World IMI (Net)	-6.6 (40)	-25.7 (46)	-21.2 (47)	3.6 (45)	4.2 (50)	7.2 (55)	18.2 (48)	16.3 (48)	26.4 (52)
5th Percentile	-2.8	-12.6	-6.5	9.8	8.7	10.9	26.9	49.7	36.7
1st Quartile	-5.7	-20.8	-16.3	5.3	5.8	8.6	21.0	24.2	30.6
Median	-7.0	-26.3	-21.7	3.1	4.1	7.4	17.9	15.5	26.6
3rd Quartile	-8.9	-30.6	-27.0	0.9	2.3	6.2	14.0	5.7	22.2
95th Percentile	-11.3	-40.8	-39.3	-2.0	-1.4	3.9	5.5	-3.4	12.9
Population	397	391	389	368	340	233	416	437	451

parentheses contain percentile rankings.

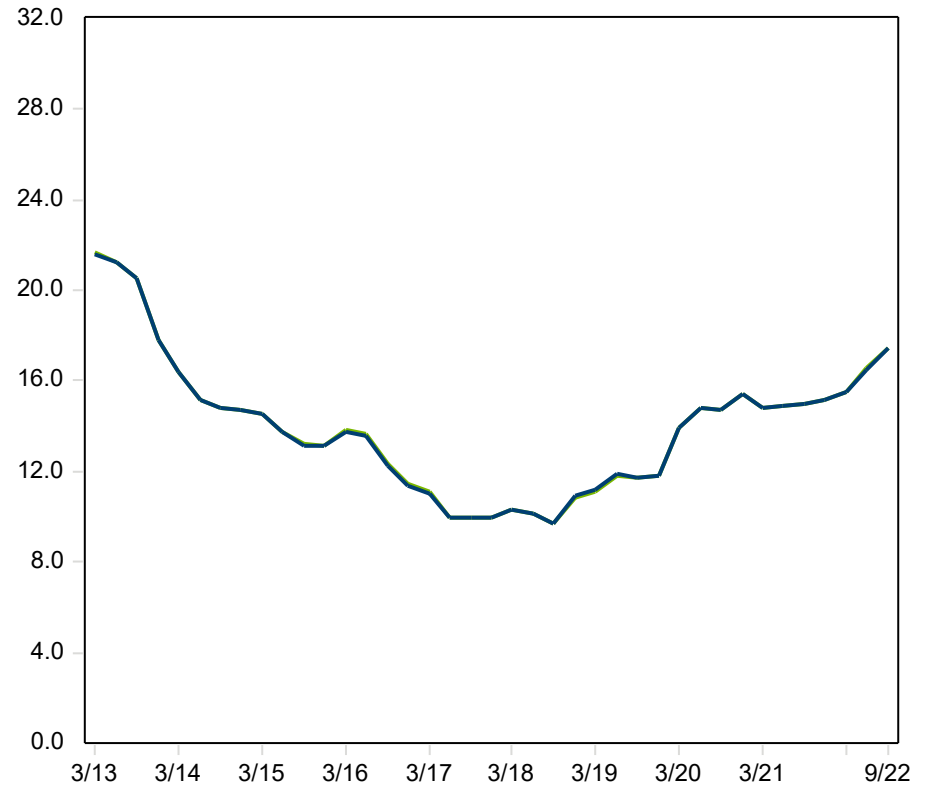
SSgA Global Index Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



■ SSgA Global Index      ● MSCI AC World IMI (Net)  
 ▲ FTSE 3 Month T-Bill

Rolling 5 Years Standard Deviation



— SSgA Global Index      — MSCI AC World IMI (Net)

5 Years Historical Statistics

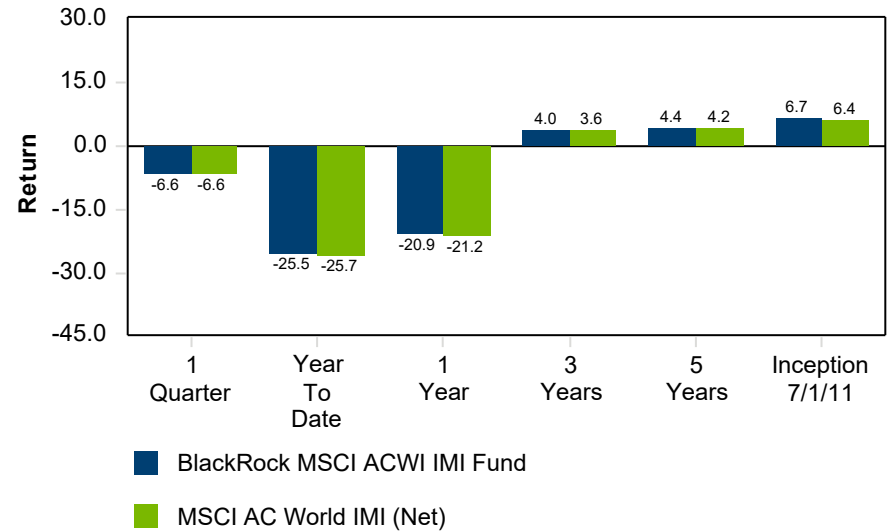
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
SSgA Global Index	0.30	0.18	1.66	1.00	0.27	0.30	1.00	4.48	17.46	1.00
MSCI AC World IMI (Net)	0.00	0.00	N/A	1.00	0.26	0.00	1.00	4.16	17.47	1.00
FTSE 3 Month T-Bill	-4.49	17.52	-0.26	0.03	N/A	1.14	0.00	1.13	0.27	-0.16

**BlackRock MSCI ACWI IMI Fund Performance Summary**

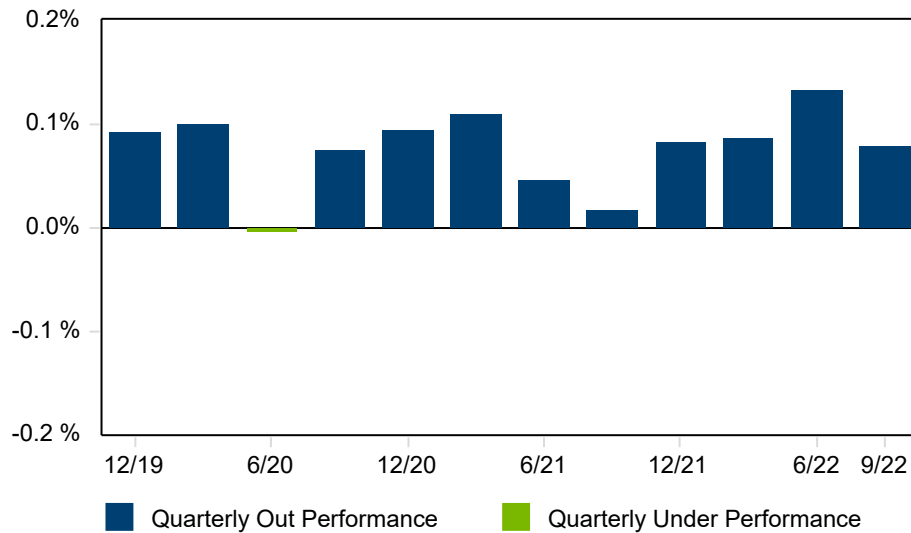
**Account Information**

Account Name: BlackRock MSCI ACWI IMI Fund  
 Inception Date: 06/30/2011  
 Account Structure: Commingled Fund  
 Asset Class: Global Equity  
 Benchmark: MSCI AC World IMI (Net)  
 Peer Group: IM Global Equity (SA+CF)

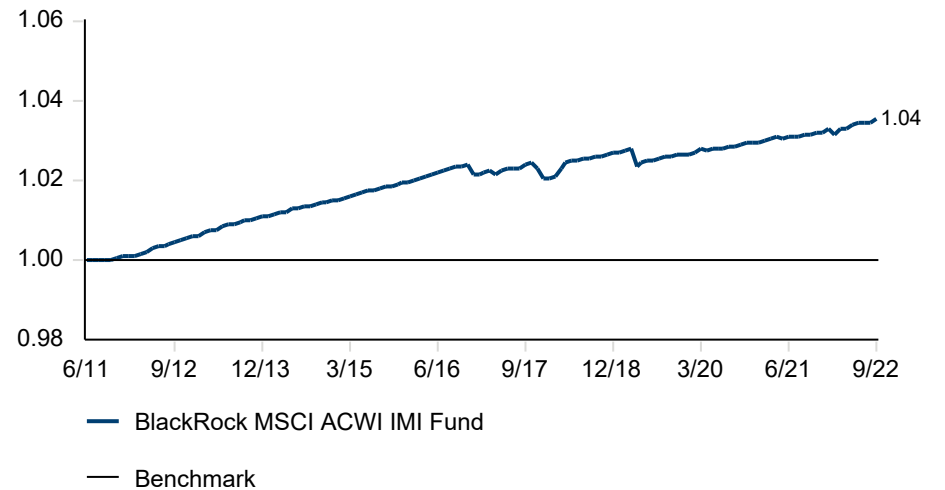
**Return Summary**



**Quarterly Excess Performance**

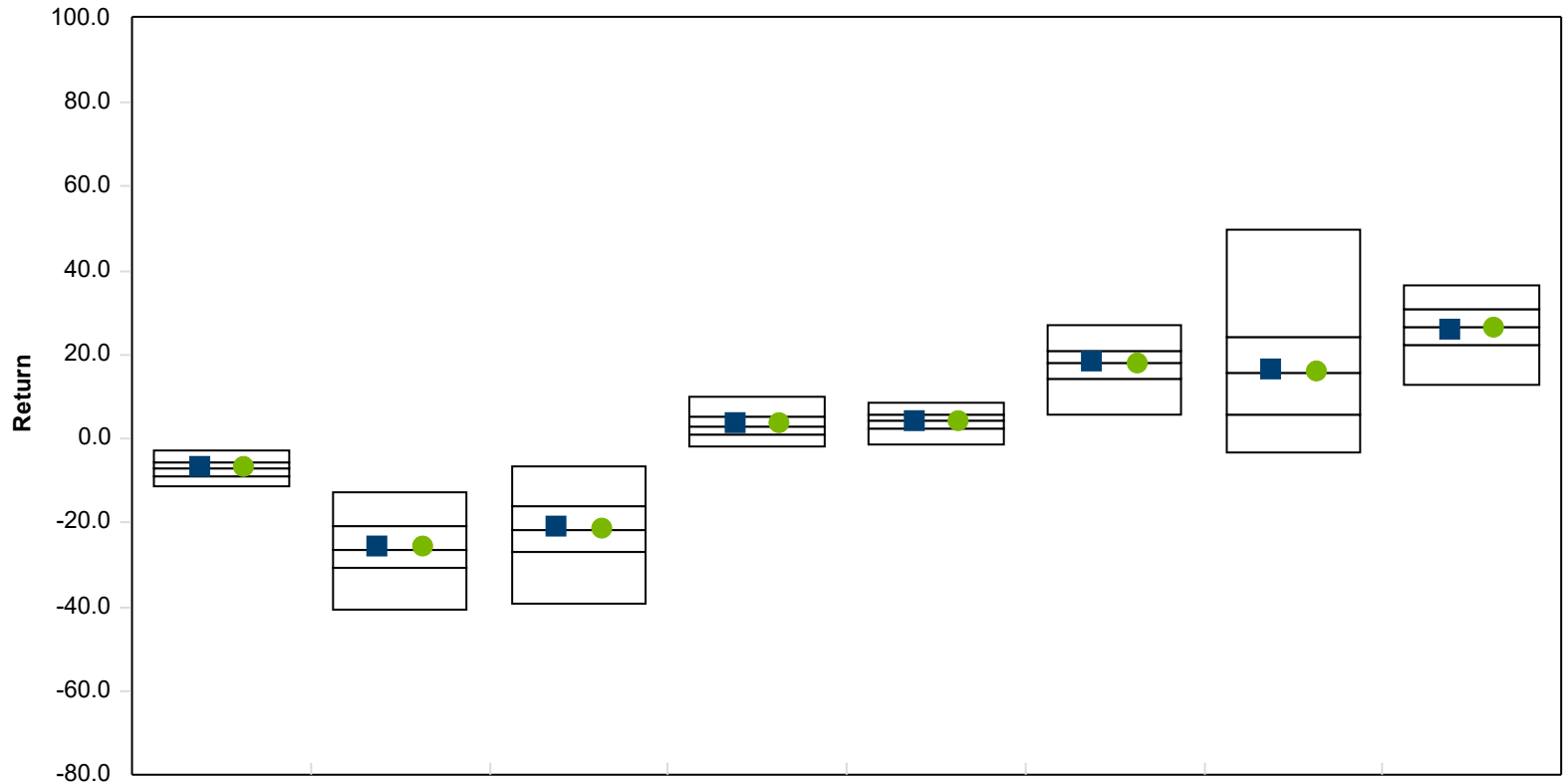


**Ratio of Cumulative Wealth - Since Inception**



Peer Group Analysis

IM Global Equity (SA+CF)

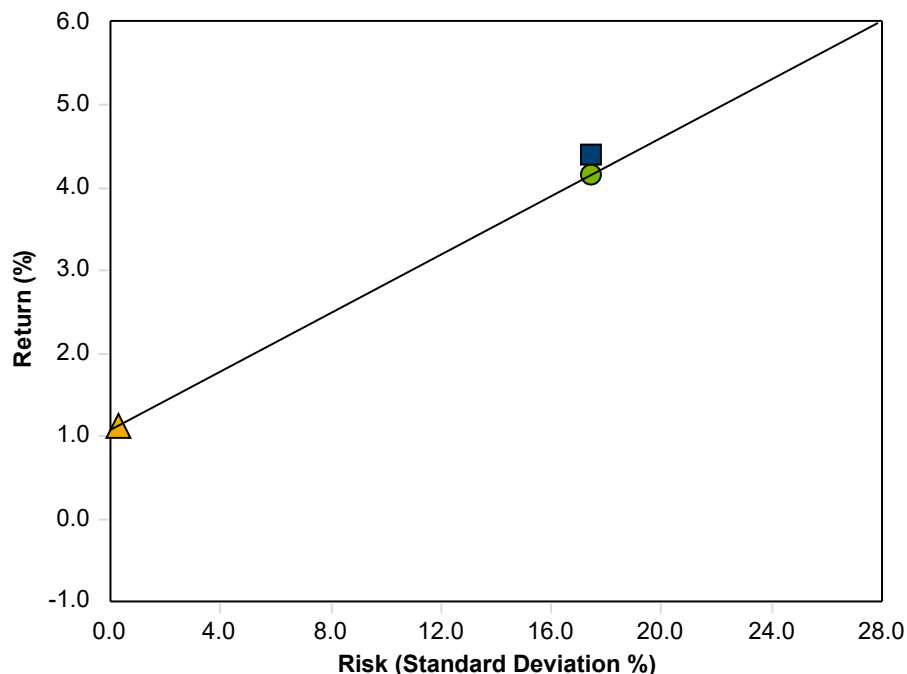


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2021	2020	2019
■ BlackRock MSCI ACWI IMI Fund	-6.6 (38)	-25.5 (44)	-20.9 (44)	4.0 (42)	4.4 (47)	18.5 (45)	16.6 (46)	26.3 (53)
● MSCI AC World IMI (Net)	-6.6 (40)	-25.7 (46)	-21.2 (47)	3.6 (45)	4.2 (50)	18.2 (48)	16.3 (48)	26.4 (52)
5th Percentile	-2.8	-12.6	-6.5	9.8	8.7	26.9	49.7	36.7
1st Quartile	-5.7	-20.8	-16.3	5.3	5.8	21.0	24.2	30.6
Median	-7.0	-26.3	-21.7	3.1	4.1	17.9	15.5	26.6
3rd Quartile	-8.9	-30.6	-27.0	0.9	2.3	14.0	5.7	22.2
95th Percentile	-11.3	-40.8	-39.3	-2.0	-1.4	5.5	-3.4	12.9
Population	397	391	389	368	340	416	437	451

Parantheses contain percentile rankings.

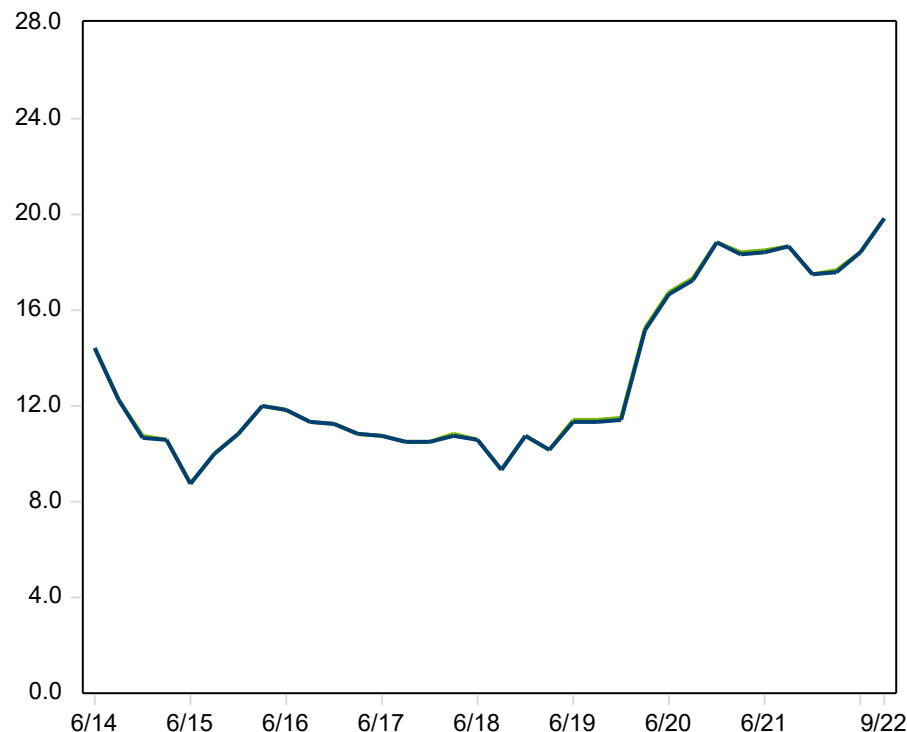
**BlackRock MSCI ACWI IMI Fund Risk Profile**

**Annualized Return vs. Annualized Standard Deviation  
5 Years**



- BlackRock MSCI ACWI IMI Fund
- MSCI AC World IMI (Net)
- ▲ FTSE 3 Month T-Bill

**Rolling 3 Years Standard Deviation**



- BlackRock MSCI ACWI IMI Fund
- MSCI AC World IMI (Net)

**5 Years Historical Statistics**

	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
BlackRock MSCI ACWI IMI Fund	0.22	0.30	0.72	1.00	0.27	0.23	1.00	4.40	17.42	1.00
MSCI AC World IMI (Net)	0.00	0.00	N/A	1.00	0.26	0.00	1.00	4.16	17.47	1.00
FTSE 3 Month T-Bill	-4.49	17.52	-0.26	0.03	N/A	1.14	0.00	1.13	0.27	-0.16

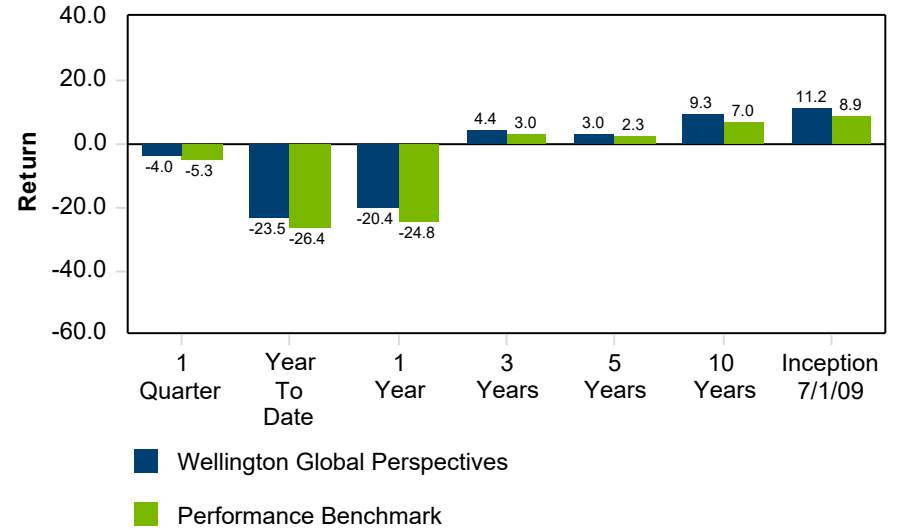


Wellington Global Perspectives Performance Summary

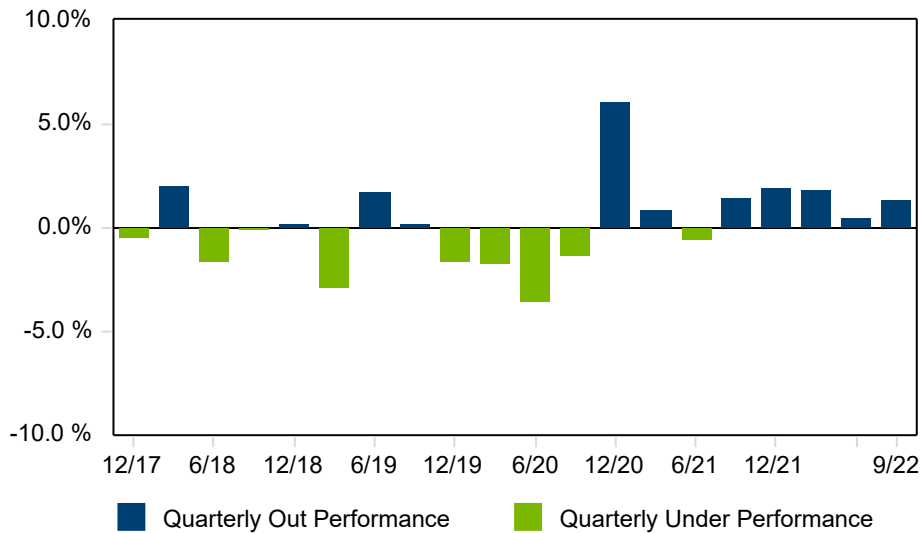
Account Information

Account Name: Wellington Global Perspectives  
 Inception Date: 06/30/2009  
 Account Structure: Separate Account  
 Asset Class: Global Equity  
 Benchmark: Performance Benchmark  
 Peer Group: IM Global Equity (SA+CF)

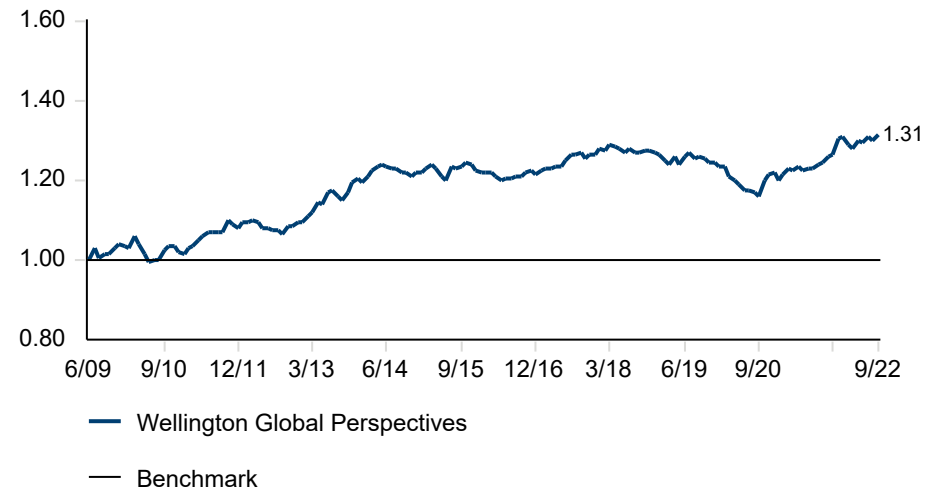
Return Summary



Quarterly Excess Performance

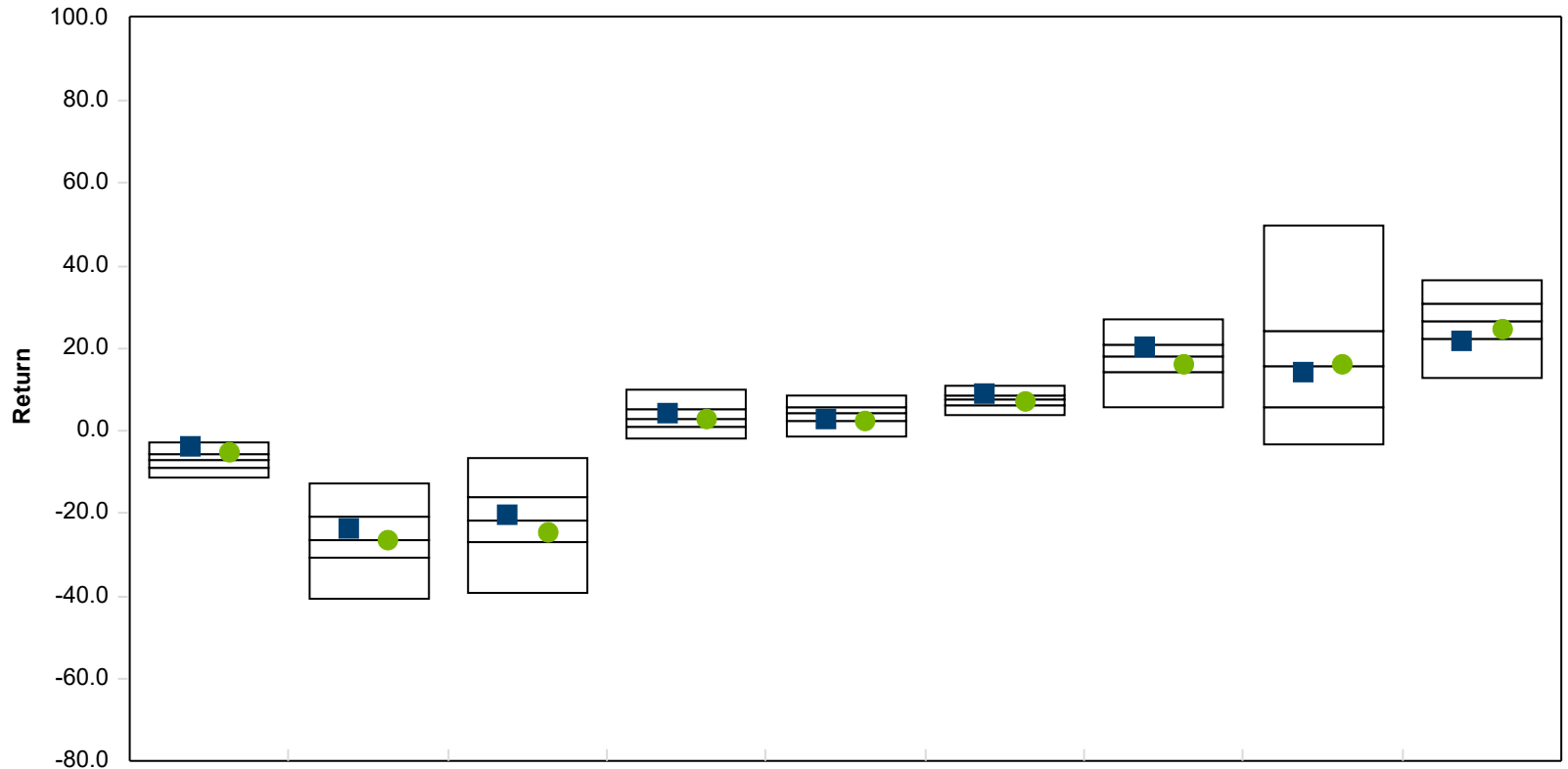


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM Global Equity (SA+CF)

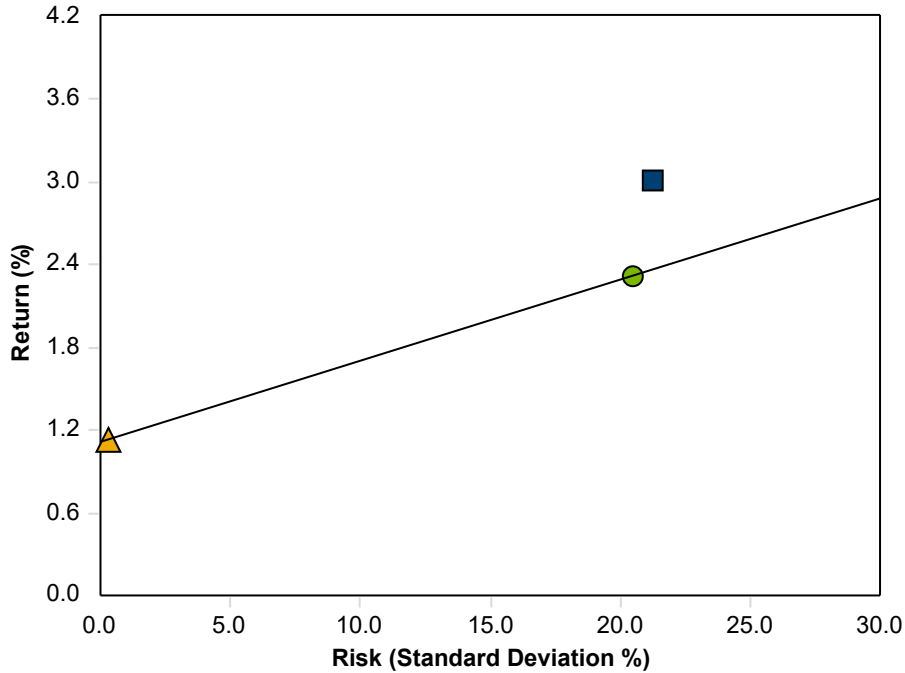


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2021	2020	2019
Wellington Global Perspectives	-4.0 (10)	-23.5 (36)	-20.4 (42)	4.4 (39)	3.0 (67)	9.3 (17)	20.4 (29)	14.1 (55)	21.9 (77)
Performance Benchmark	-5.3 (18)	-26.4 (51)	-24.8 (66)	3.0 (52)	2.3 (75)	7.0 (61)	16.1 (62)	16.3 (47)	24.7 (66)
5th Percentile	-2.8	-12.6	-6.5	9.8	8.7	10.9	26.9	49.7	36.7
1st Quartile	-5.7	-20.8	-16.3	5.3	5.8	8.6	21.0	24.2	30.6
Median	-7.0	-26.3	-21.7	3.1	4.1	7.4	17.9	15.5	26.6
3rd Quartile	-8.9	-30.6	-27.0	0.9	2.3	6.2	14.0	5.7	22.2
95th Percentile	-11.3	-40.8	-39.3	-2.0	-1.4	3.9	5.5	-3.4	12.9
Population	397	391	389	368	340	233	416	437	451

parentheses contain percentile rankings.

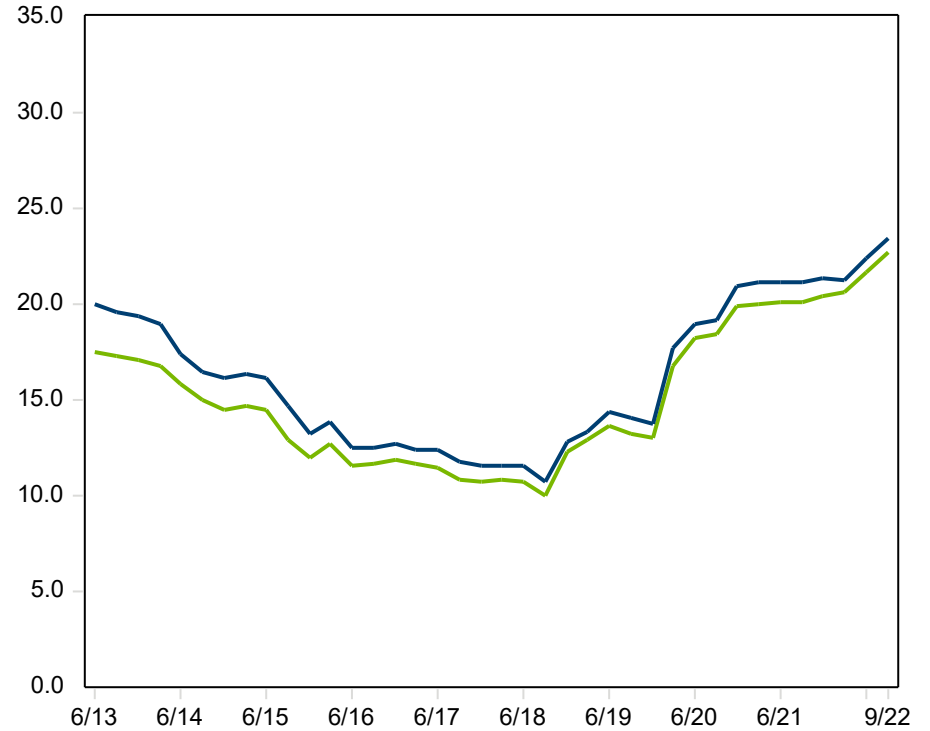
Wellington Global Perspectives Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



- Wellington Global Perspectives
- Performance Benchmark
- ▲ FTSE 3 Month T-Bill

Rolling 4 Years Standard Deviation



- Wellington Global Perspectives
- Performance Benchmark

5 Years Historical Statistics

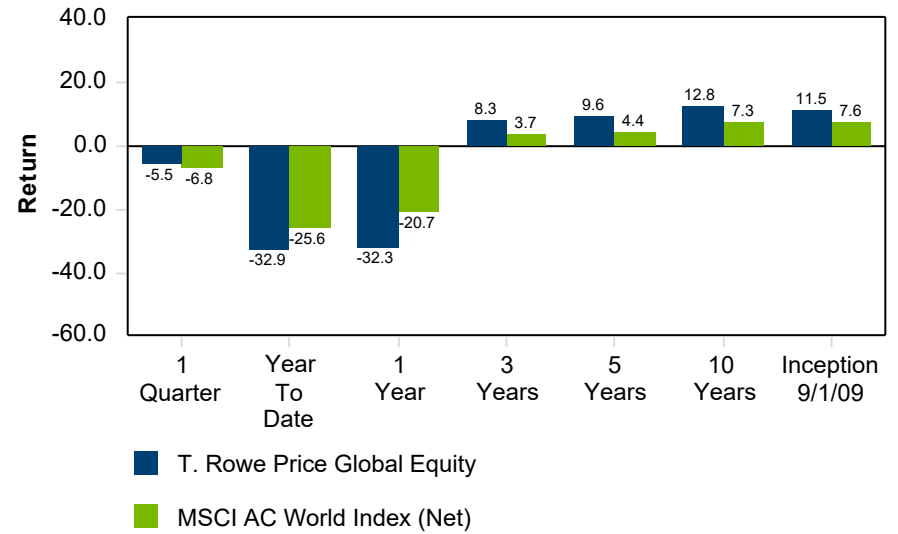
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Wellington Global Perspectives	0.84	3.72	0.22	0.97	0.19	0.75	1.02	3.01	21.23	0.98
Performance Benchmark	0.00	0.00	N/A	1.00	0.16	0.00	1.00	2.32	20.50	1.00
FTSE 3 Month T-Bill	-3.30	20.56	-0.16	0.04	N/A	1.14	0.00	1.13	0.27	-0.19

T. Rowe Price Global Equity Performance Summary

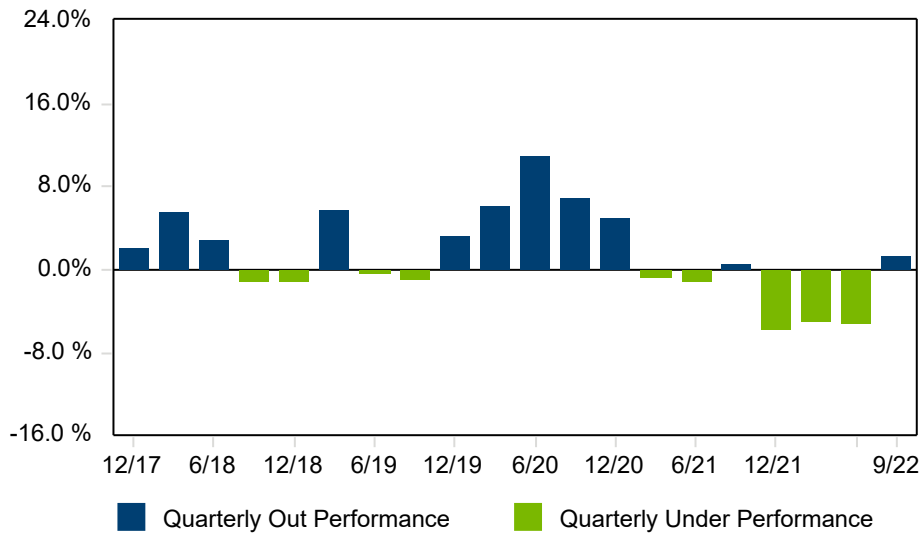
Account Information

Account Name: T. Rowe Price Global Equity  
 Inception Date: 08/31/2009  
 Account Structure: Separate Account  
 Asset Class: Global Equity  
 Benchmark: MSCI AC World Index (Net)  
 Peer Group: IM Global Equity (SA+CF)

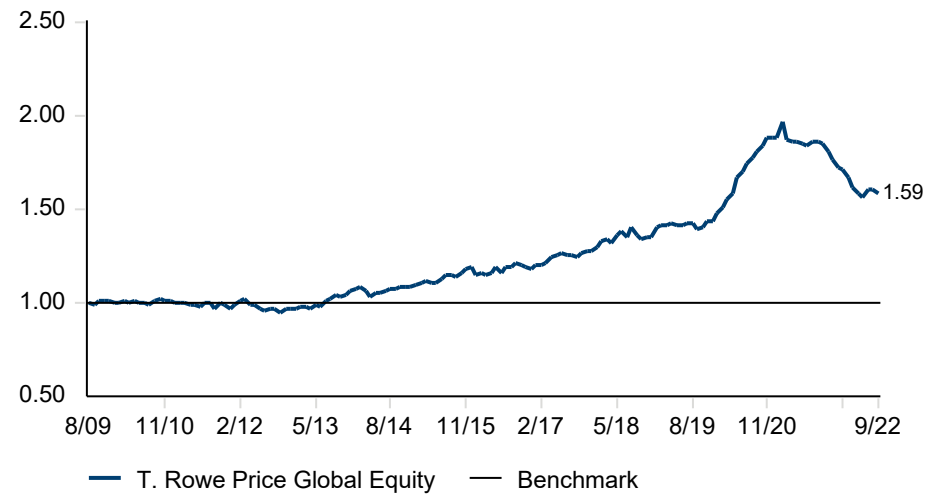
Return Summary



Quarterly Excess Performance

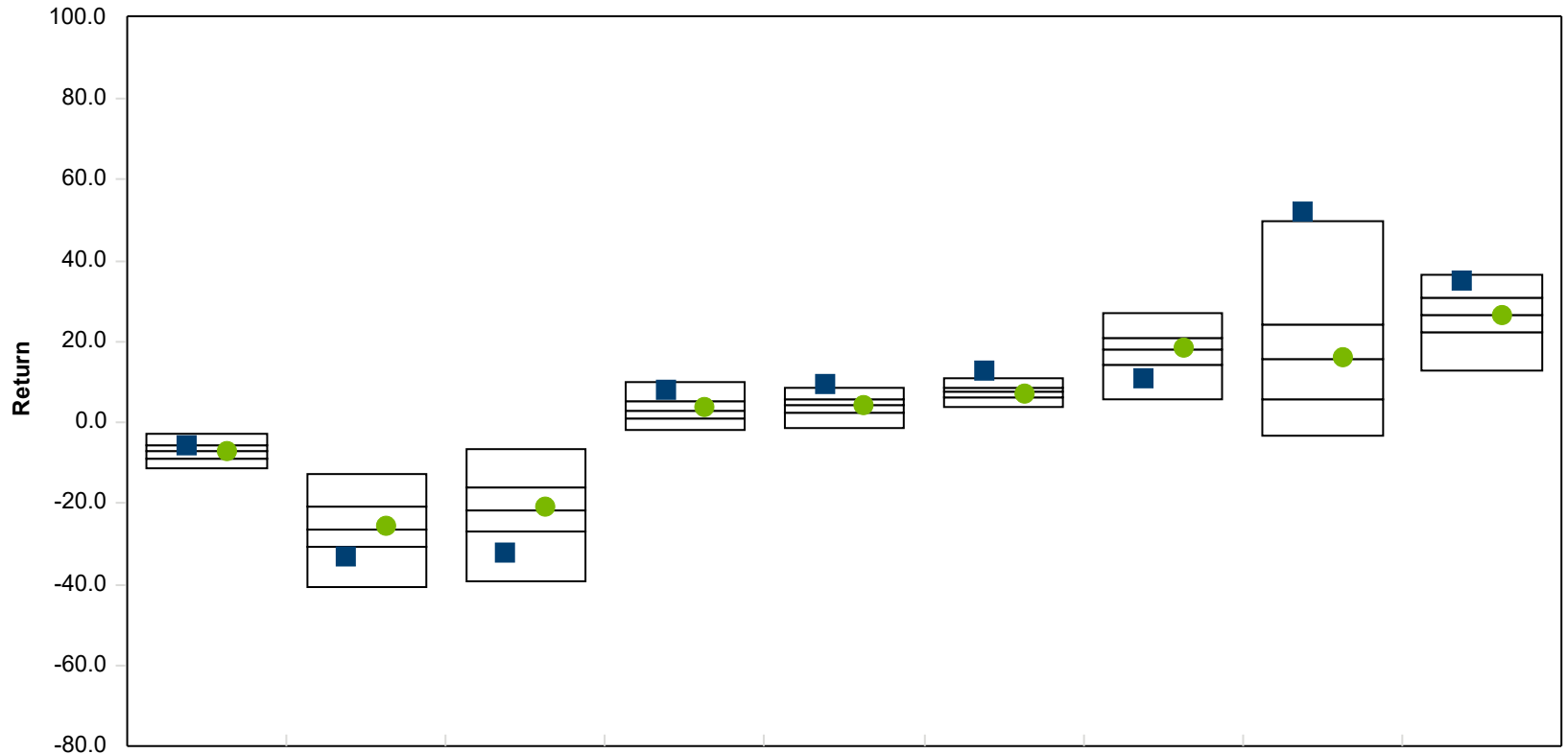


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM Global Equity (SA+CF)

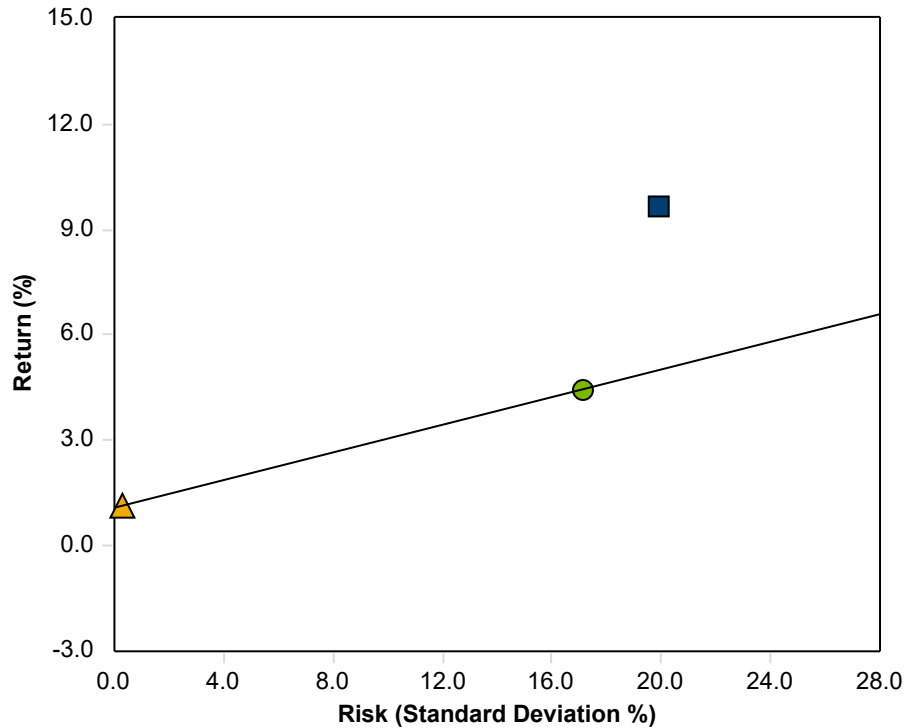


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2021	2020	2019
■ T. Rowe Price Global Equity	-5.5 (21)	-32.9 (81)	-32.3 (88)	8.3 (8)	9.6 (4)	12.8 (2)	10.8 (88)	52.2 (5)	35.2 (10)
● MSCI AC World Index (Net)	-6.8 (45)	-25.6 (45)	-20.7 (43)	3.7 (44)	4.4 (46)	7.3 (53)	18.5 (45)	16.3 (48)	26.6 (51)
5th Percentile	-2.8	-12.6	-6.5	9.8	8.7	10.9	26.9	49.7	36.7
1st Quartile	-5.7	-20.8	-16.3	5.3	5.8	8.6	21.0	24.2	30.6
Median	-7.0	-26.3	-21.7	3.1	4.1	7.4	17.9	15.5	26.6
3rd Quartile	-8.9	-30.6	-27.0	0.9	2.3	6.2	14.0	5.7	22.2
95th Percentile	-11.3	-40.8	-39.3	-2.0	-1.4	3.9	5.5	-3.4	12.9
Population	397	391	389	368	340	233	416	437	451

parentheses contain percentile rankings.

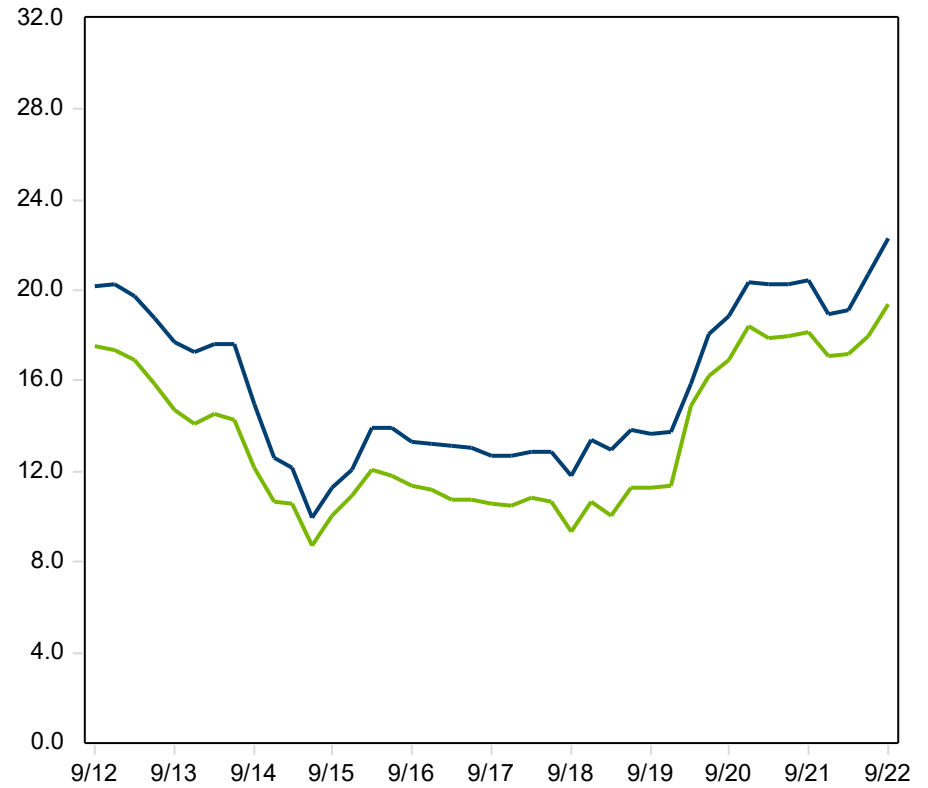
T. Rowe Price Global Equity Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



■ T. Rowe Price Global Equity   ● MSCI AC World Index (Net)  
▲ FTSE 3 Month T-Bill

Rolling 3 Years Standard Deviation



— T. Rowe Price Global Equity   — MSCI AC World Index (Net)

5 Years Historical Statistics

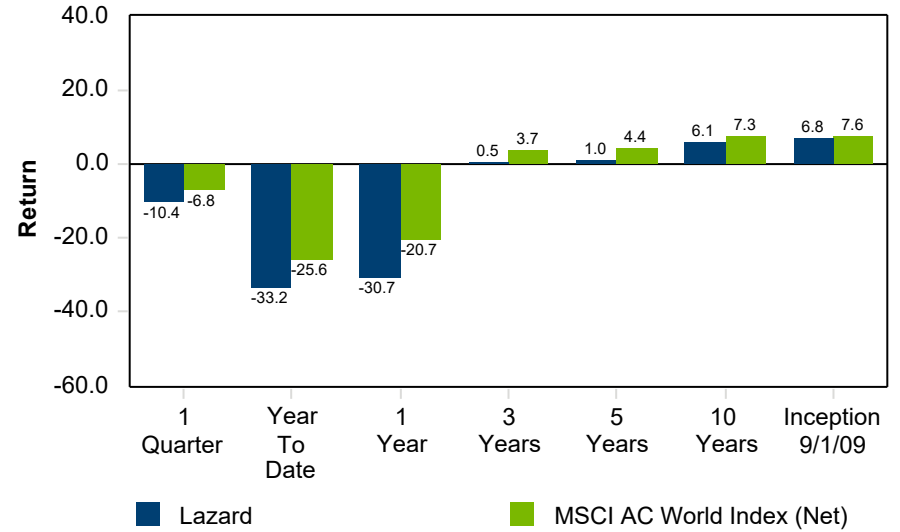
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
T. Rowe Price Global Equity	5.36	6.98	0.77	0.88	0.50	4.93	1.09	9.63	19.93	0.94
MSCI AC World Index (Net)	0.00	0.00	N/A	1.00	0.27	0.00	1.00	4.44	17.15	1.00
FTSE 3 Month T-Bill	-4.70	17.20	-0.27	0.03	N/A	1.14	0.00	1.13	0.27	-0.16

## Lazard Performance Summary

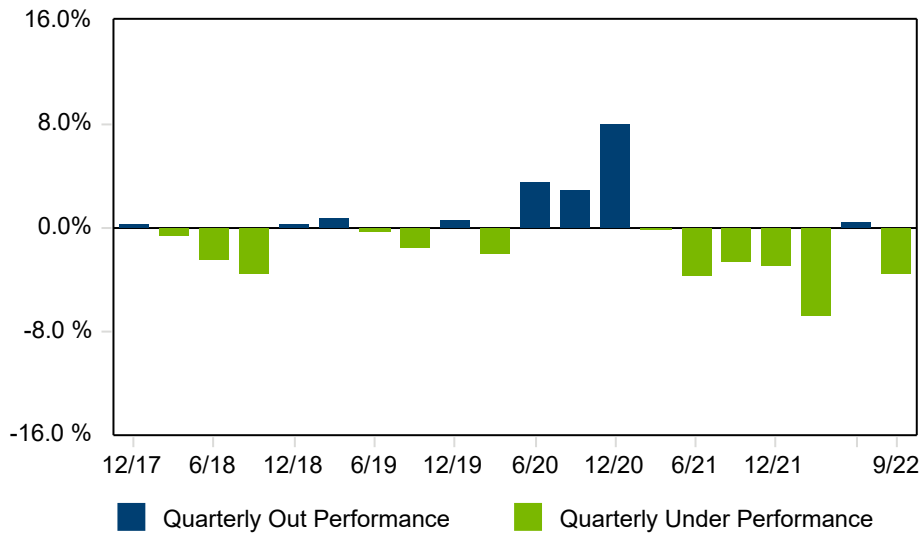
### Account Information

Account Name: Lazard  
 Inception Date: 08/31/2009  
 Account Structure: Separate Account  
 Asset Class: Global Equity  
 Benchmark: MSCI AC World Index (Net)  
 Peer Group: IM Global Equity (SA+CF)

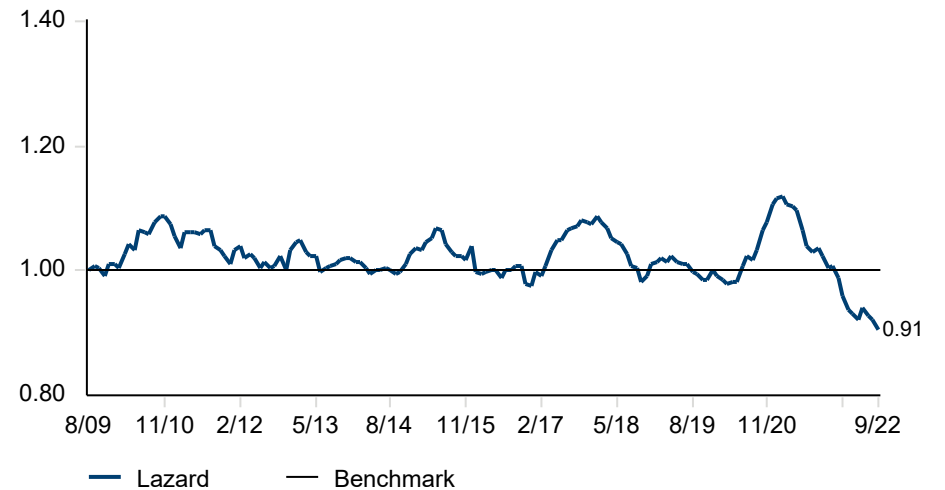
### Return Summary



### Quarterly Excess Performance

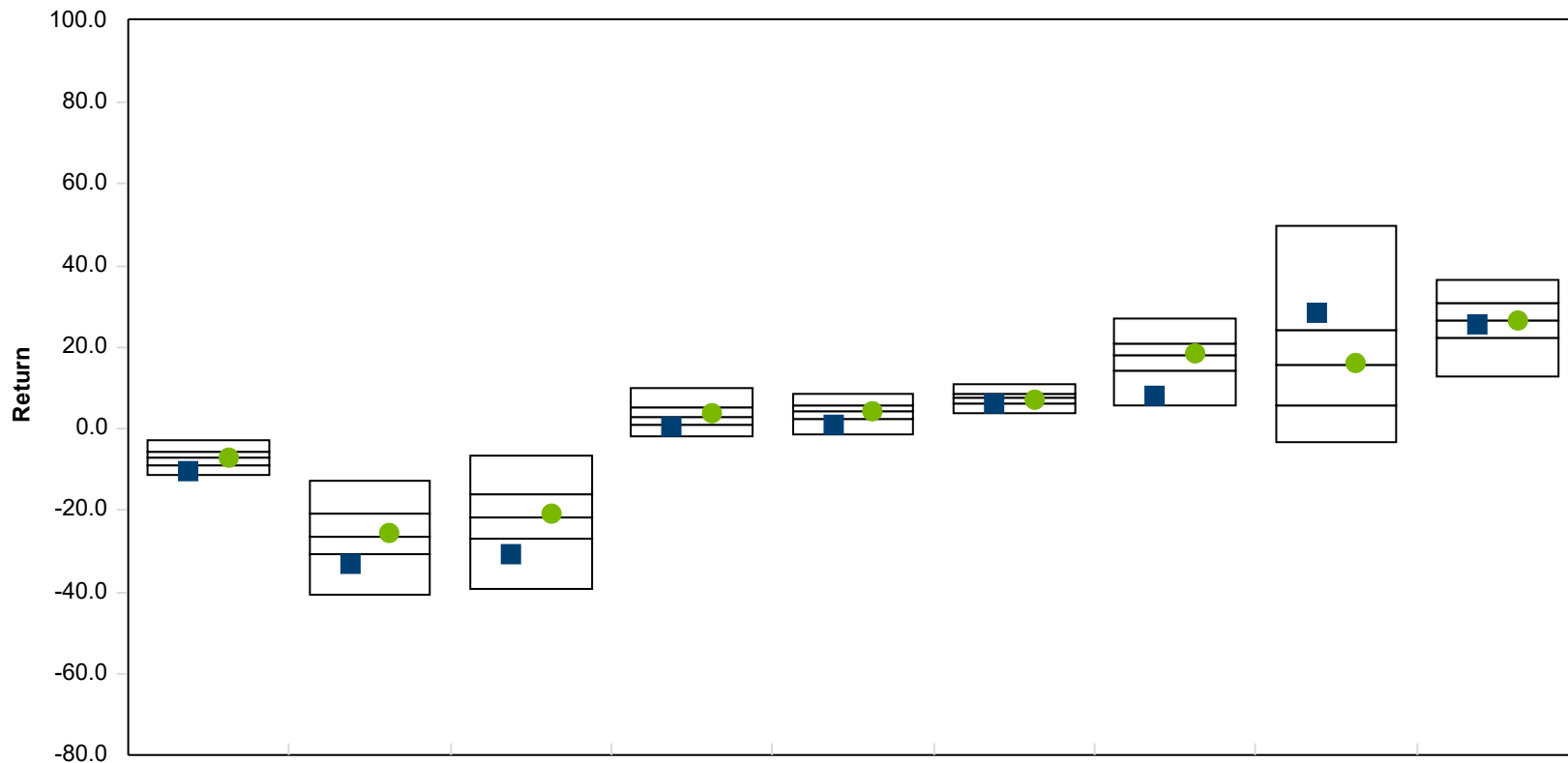


### Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM Global Equity (SA+CF)



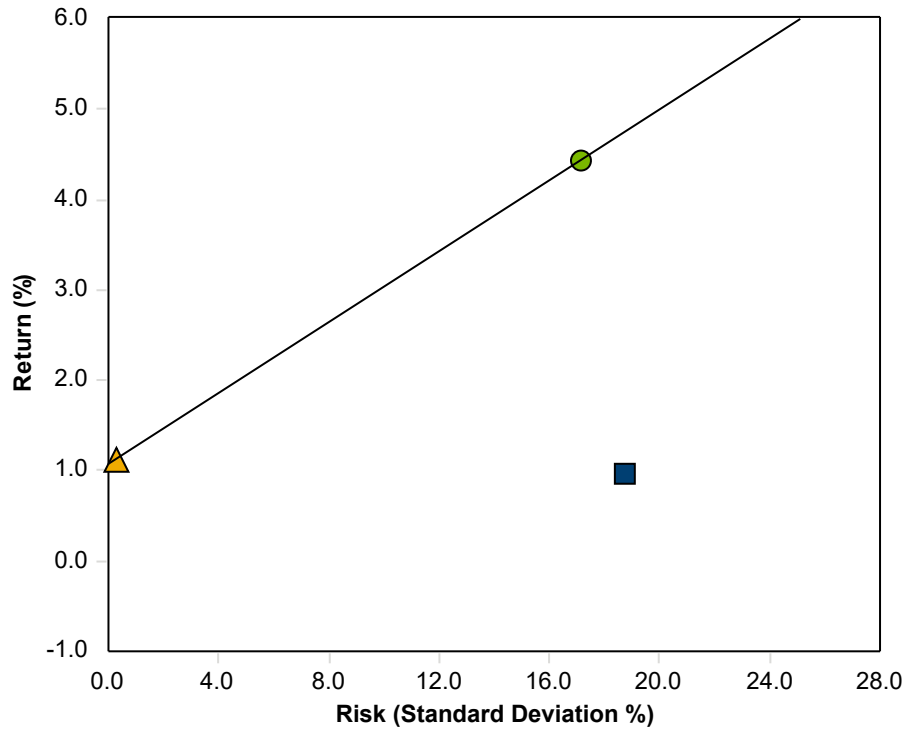
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2021	2020	2019
■ Lazard	-10.4 (91)	-33.2 (82)	-30.7 (85)	0.5 (81)	1.0 (88)	6.1 (77)	8.0 (93)	28.4 (22)	25.7 (57)
● MSCI AC World Index (Net)	-6.8 (45)	-25.6 (45)	-20.7 (43)	3.7 (44)	4.4 (46)	7.3 (53)	18.5 (45)	16.3 (48)	26.6 (51)
5th Percentile	-2.8	-12.6	-6.5	9.8	8.7	10.9	26.9	49.7	36.7
1st Quartile	-5.7	-20.8	-16.3	5.3	5.8	8.6	21.0	24.2	30.6
Median	-7.0	-26.3	-21.7	3.1	4.1	7.4	17.9	15.5	26.6
3rd Quartile	-8.9	-30.6	-27.0	0.9	2.3	6.2	14.0	5.7	22.2
95th Percentile	-11.3	-40.8	-39.3	-2.0	-1.4	3.9	5.5	-3.4	12.9
Population	397	391	389	368	340	233	416	437	451

parentheses contain percentile rankings.



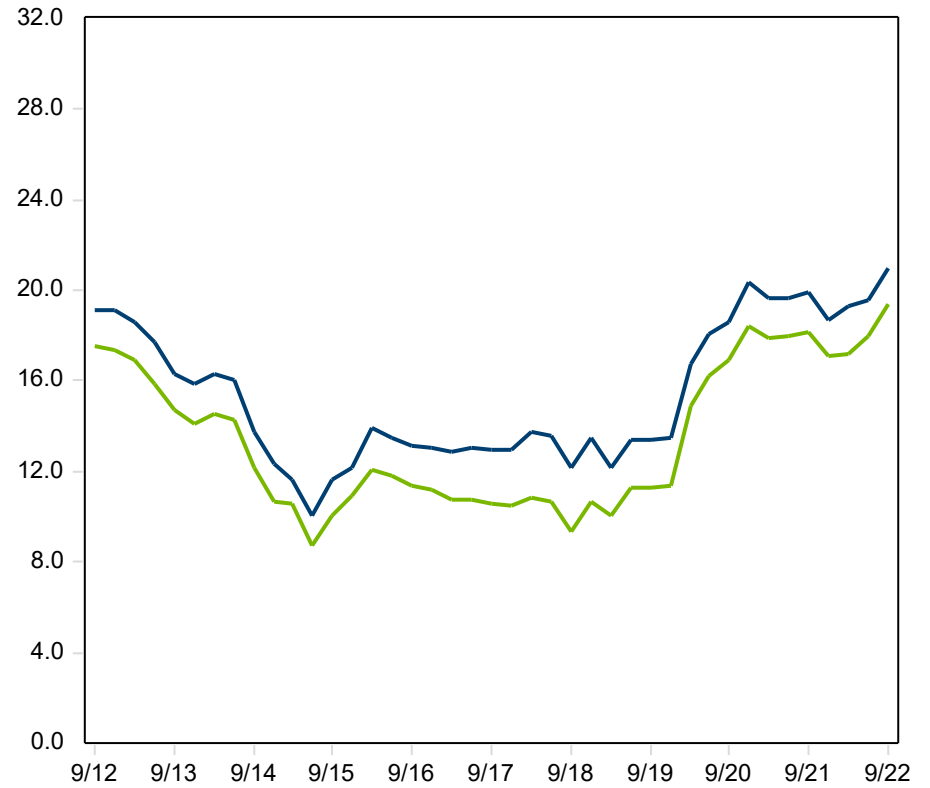
Lazard Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



■ Lazard                      ● MSCI AC World Index (Net)  
▲ FTSE 3 Month T-Bill

Rolling 3 Years Standard Deviation



— Lazard                      — MSCI AC World Index (Net)

5 Years Historical Statistics

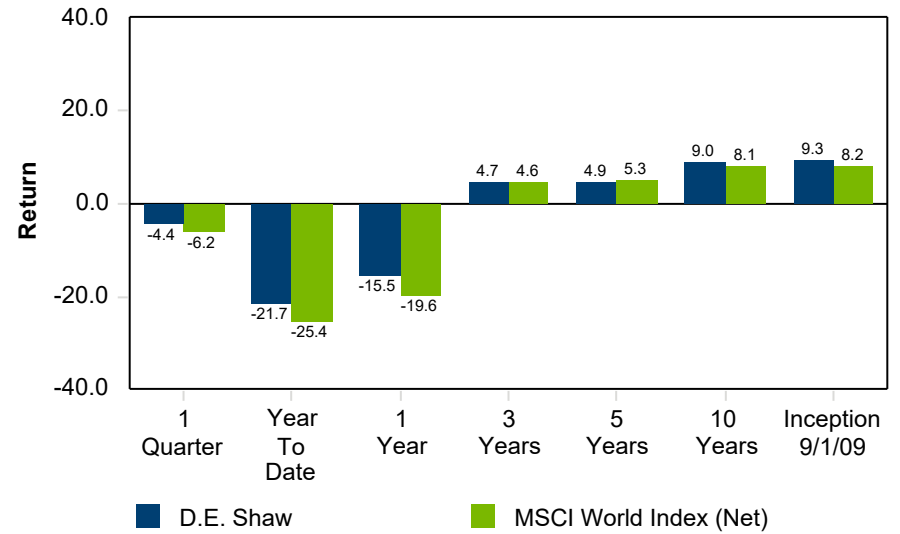
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Lazard	-3.11	4.81	-0.65	0.94	0.08	-3.38	1.06	0.97	18.73	0.97
MSCI AC World Index (Net)	0.00	0.00	N/A	1.00	0.27	0.00	1.00	4.44	17.15	1.00
FTSE 3 Month T-Bill	-4.70	17.20	-0.27	0.03	N/A	1.14	0.00	1.13	0.27	-0.16

D.E. Shaw Performance Summary

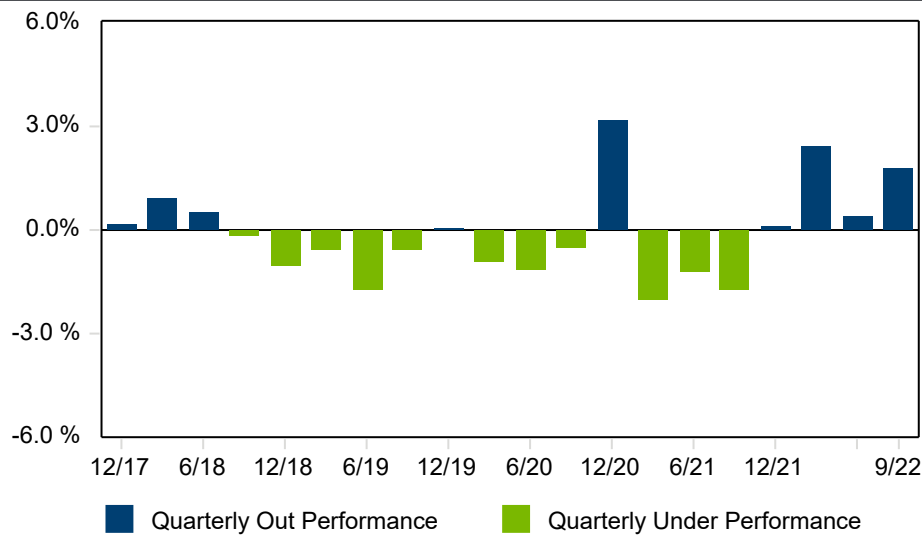
Account Information

Account Name: D.E. Shaw  
 Inception Date: 08/31/2009  
 Account Structure: Commingled Fund  
 Asset Class: Global Equity  
 Benchmark: MSCI World Index (Net)  
 Peer Group: IM Global Equity (SA+CF)

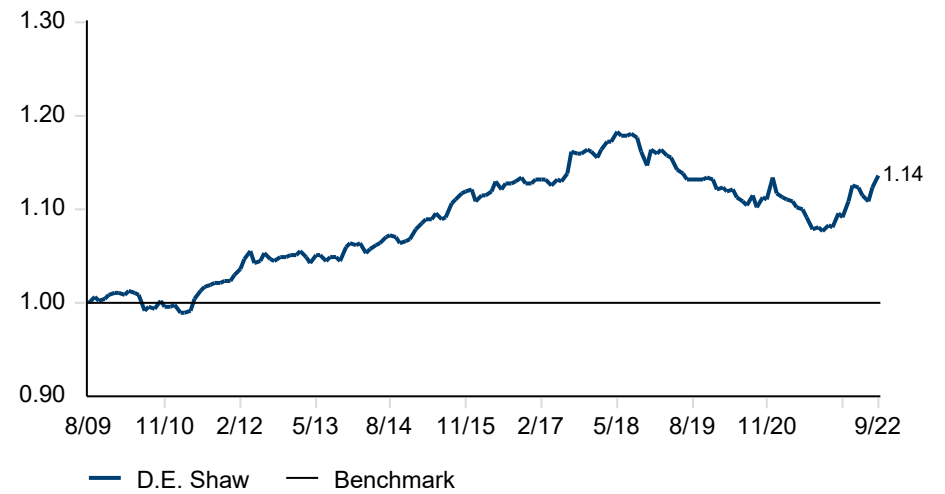
Return Summary



Quarterly Excess Performance

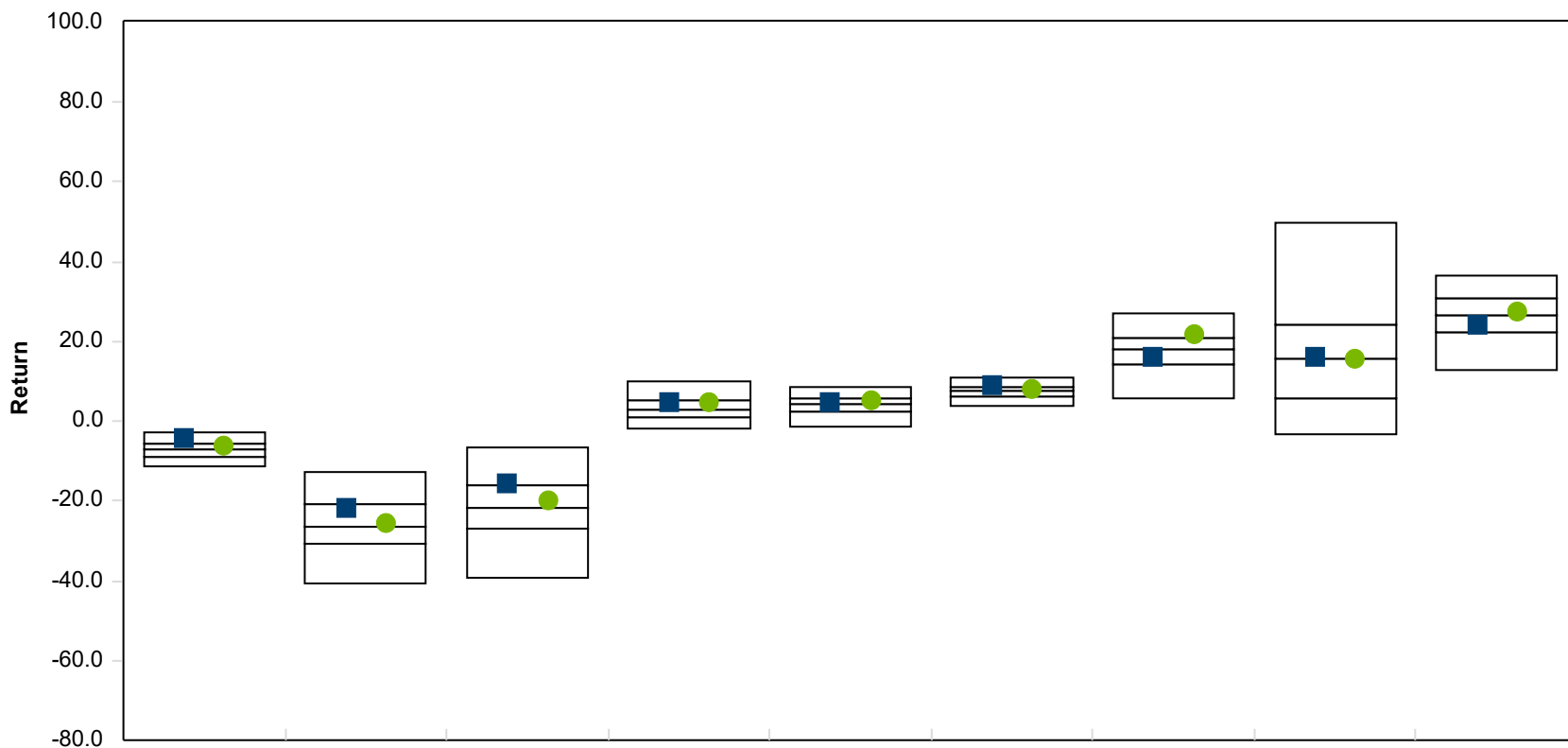


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM Global Equity (SA+CF)

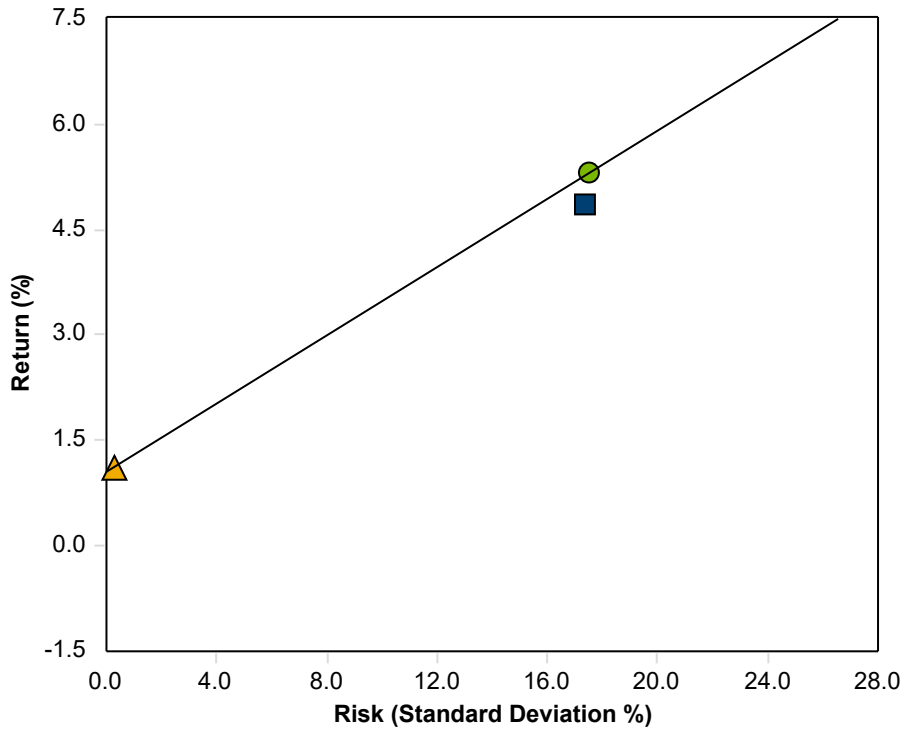


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2021	2020	2019
■ D.E. Shaw	-4.4 (13)	-21.7 (29)	-15.5 (23)	4.7 (34)	4.9 (39)	9.0 (19)	16.3 (61)	16.1 (49)	24.2 (67)
● MSCI World Index (Net)	-6.2 (33)	-25.4 (44)	-19.6 (39)	4.6 (35)	5.3 (33)	8.1 (36)	21.8 (21)	15.9 (49)	27.7 (45)
5th Percentile	-2.8	-12.6	-6.5	9.8	8.7	10.9	26.9	49.7	36.7
1st Quartile	-5.7	-20.8	-16.3	5.3	5.8	8.6	21.0	24.2	30.6
Median	-7.0	-26.3	-21.7	3.1	4.1	7.4	17.9	15.5	26.6
3rd Quartile	-8.9	-30.6	-27.0	0.9	2.3	6.2	14.0	5.7	22.2
95th Percentile	-11.3	-40.8	-39.3	-2.0	-1.4	3.9	5.5	-3.4	12.9
Population	397	391	389	368	340	233	416	437	451

parentheses contain percentile rankings.

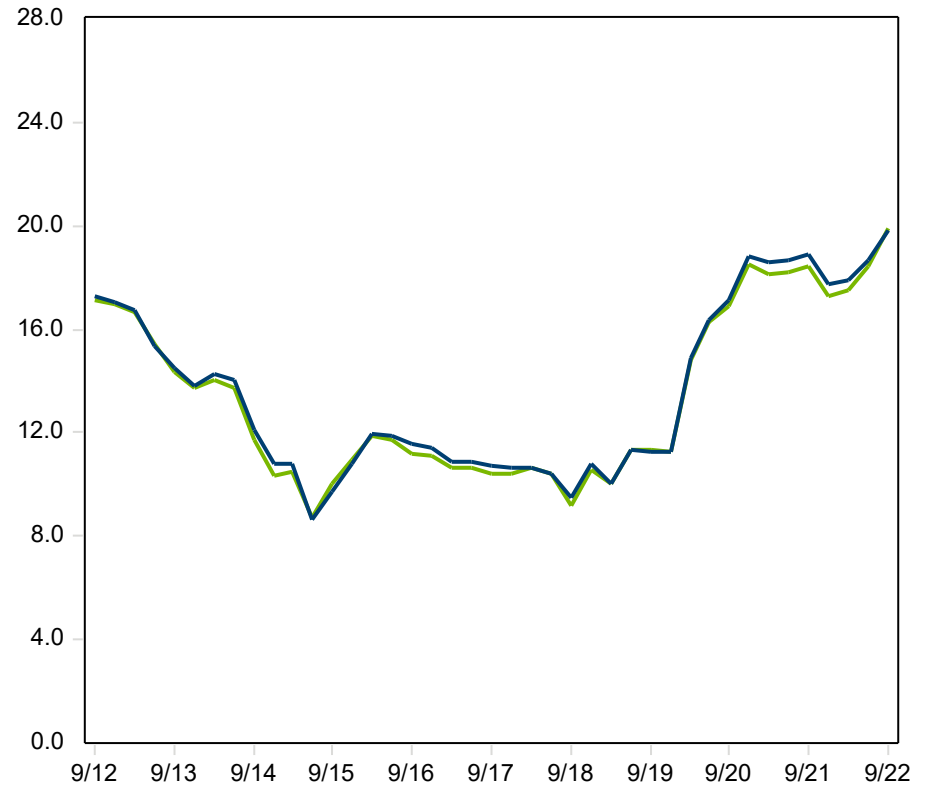
D.E. Shaw Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



■ D.E. Shaw      ● MSCI World Index (Net)  
▲ FTSE 3 Month T-Bill

Rolling 3 Years Standard Deviation



— D.E. Shaw      — MSCI World Index (Net)

5 Years Historical Statistics

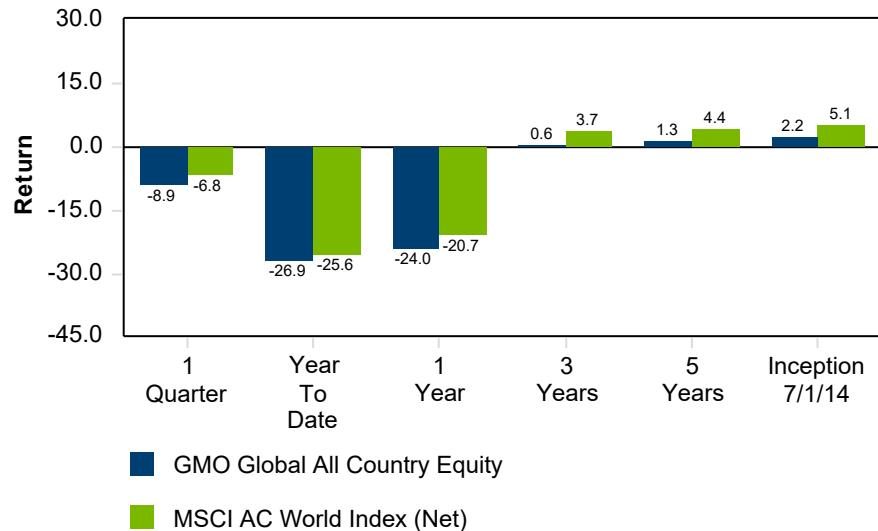
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
D.E. Shaw	-0.45	2.61	-0.17	0.98	0.29	-0.32	0.98	4.86	17.37	0.99
MSCI World Index (Net)	0.00	0.00	N/A	1.00	0.32	0.00	1.00	5.30	17.50	1.00
FTSE 3 Month T-Bill	-5.58	17.55	-0.32	0.02	N/A	1.14	0.00	1.13	0.27	-0.16

**GMO Global All Country Equity Performance Summary**

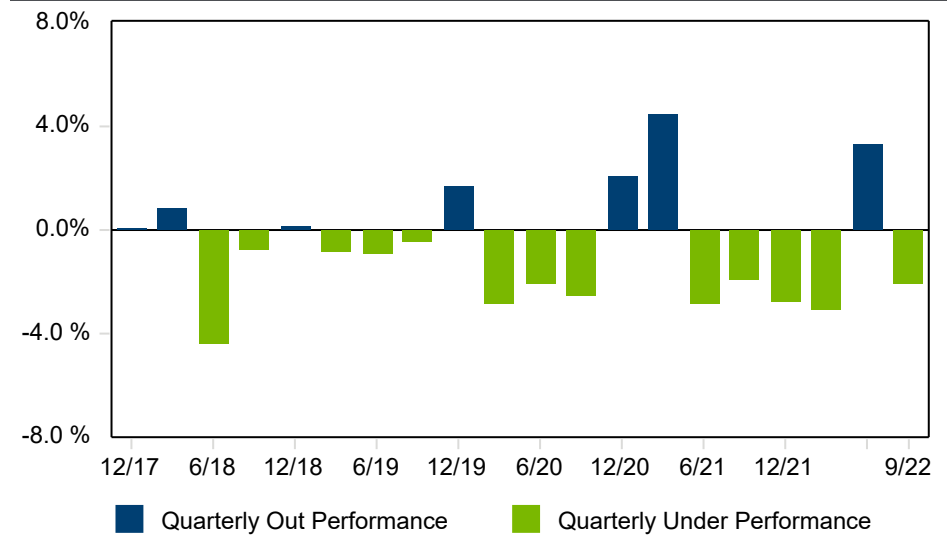
**Account Information as of 09/30/22**

Product Name : GMO:Global Eq All;III (GMGEX)  
 Fund Family : GMO  
 Ticker : GMGEX  
 Peer Group : IM Global Multi-Cap Core Equity (MF)  
 Benchmark : MSCI AC World Index (Net)  
 Fund Inception : 11/26/1996  
 Portfolio Manager : Team Managed  
 Total Assets : \$1,307.70 Million  
 Total Assets Date : 08/31/2022  
 Gross Expense : 0.60%  
 Net Expense : 0.59%  
 Turnover : 20%

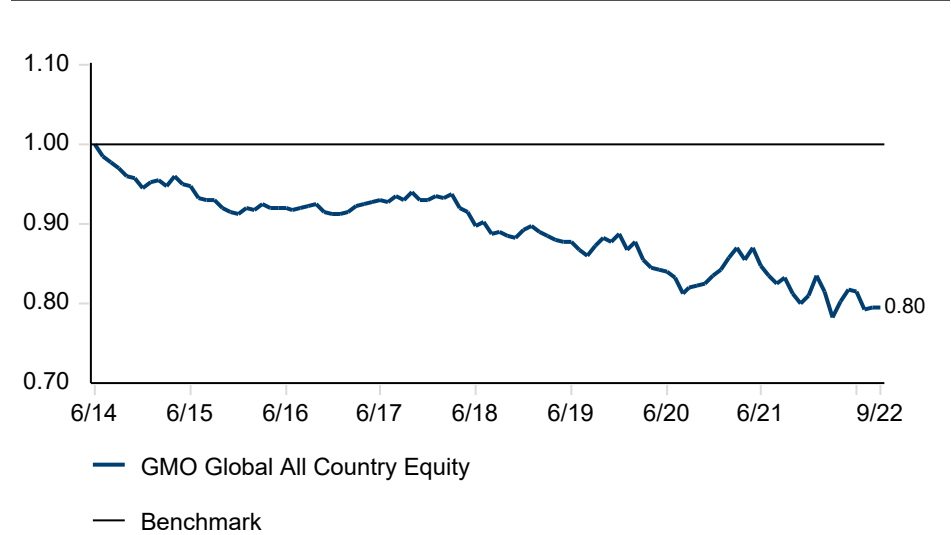
**Return Summary**



**Quarterly Excess Performance**

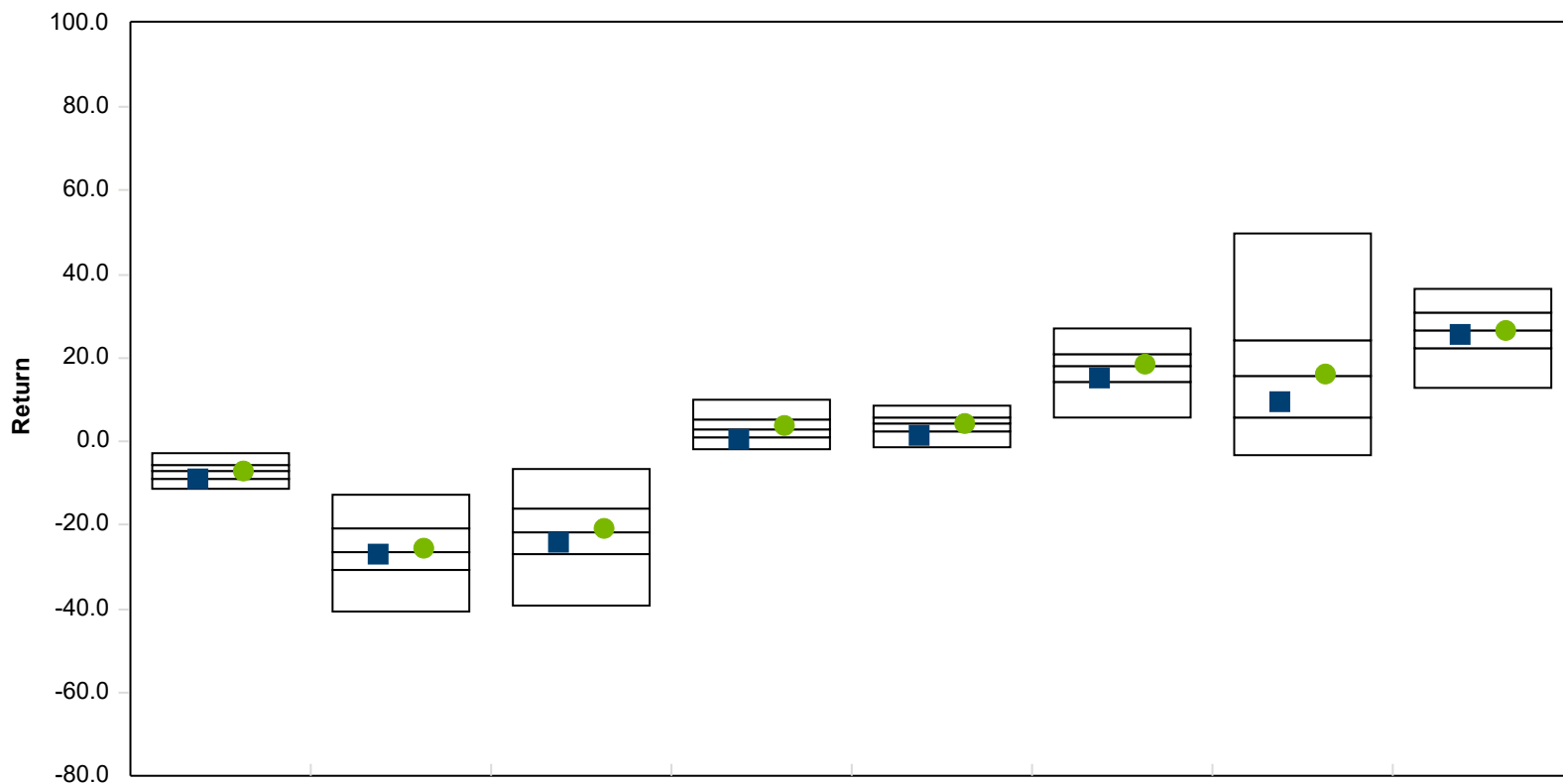


**Ratio of Cumulative Wealth - Since Inception**



Peer Group Analysis

IM Global Equity (SA+CF)

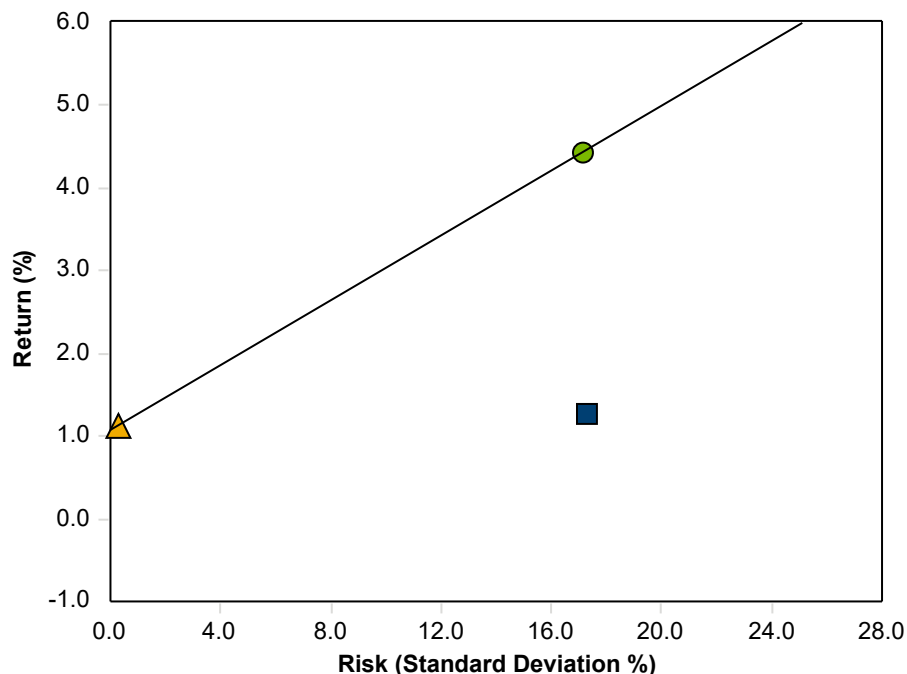


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2021	2020	2019
■ GMO Global All Country Equity	-8.9 (76)	-26.9 (57)	-24.0 (64)	0.6 (79)	1.3 (87)	15.0 (71)	9.5 (65)	25.8 (57)
● MSCI AC World Index (Net)	-6.8 (45)	-25.6 (45)	-20.7 (43)	3.7 (44)	4.4 (46)	18.5 (45)	16.3 (48)	26.6 (51)
5th Percentile	-2.8	-12.6	-6.5	9.8	8.7	26.9	49.7	36.7
1st Quartile	-5.7	-20.8	-16.3	5.3	5.8	21.0	24.2	30.6
Median	-7.0	-26.3	-21.7	3.1	4.1	17.9	15.5	26.6
3rd Quartile	-8.9	-30.6	-27.0	0.9	2.3	14.0	5.7	22.2
95th Percentile	-11.3	-40.8	-39.3	-2.0	-1.4	5.5	-3.4	12.9
Population	397	391	389	368	340	416	437	451

parentheses contain percentile rankings.

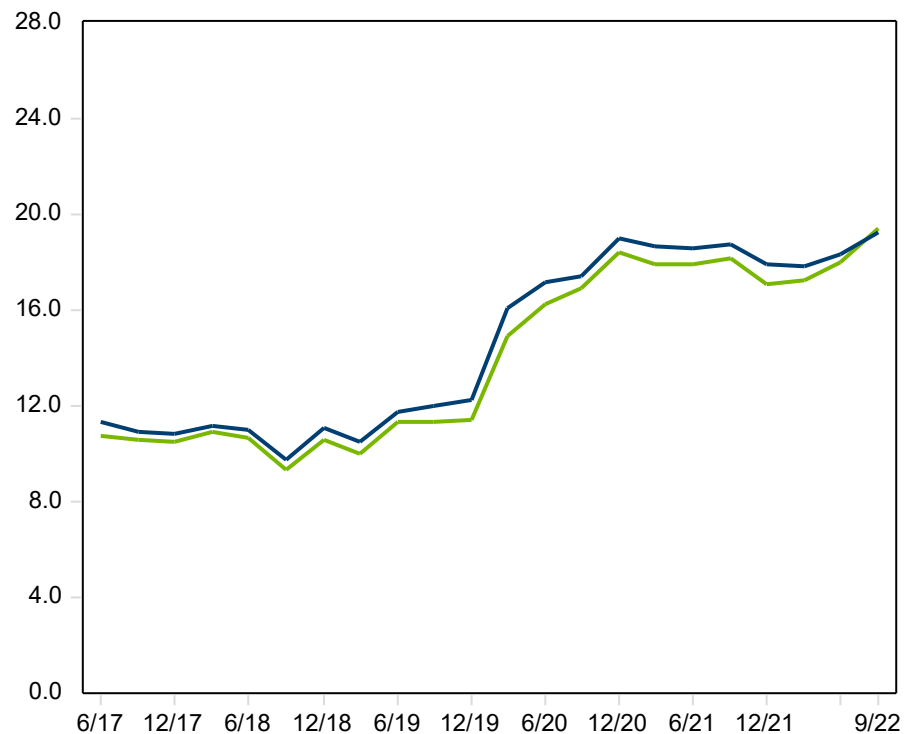
**GMO Global All Country Equity Risk Profile**

**Annualized Return vs. Annualized Standard Deviation  
5 Years**



- GMO Global All Country Equity
- MSCI AC World Index (Net)
- ▲ FTSE 3 Month T-Bill

**Rolling 3 Years Standard Deviation**



- GMO Global All Country Equity
- MSCI AC World Index (Net)

**5 Years Historical Statistics**

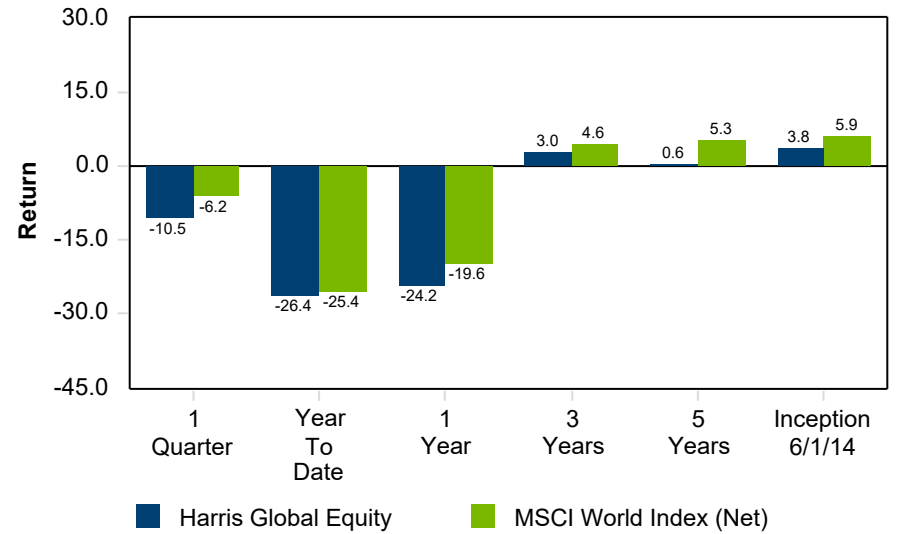
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
GMO Global All Country Equity	-3.07	5.01	-0.61	0.92	0.09	-2.83	0.97	1.26	17.29	0.96
MSCI AC World Index (Net)	0.00	0.00	N/A	1.00	0.27	0.00	1.00	4.44	17.15	1.00
FTSE 3 Month T-Bill	-4.70	17.20	-0.27	0.03	N/A	1.14	0.00	1.13	0.27	-0.16

Harris Global Equity Performance Summary

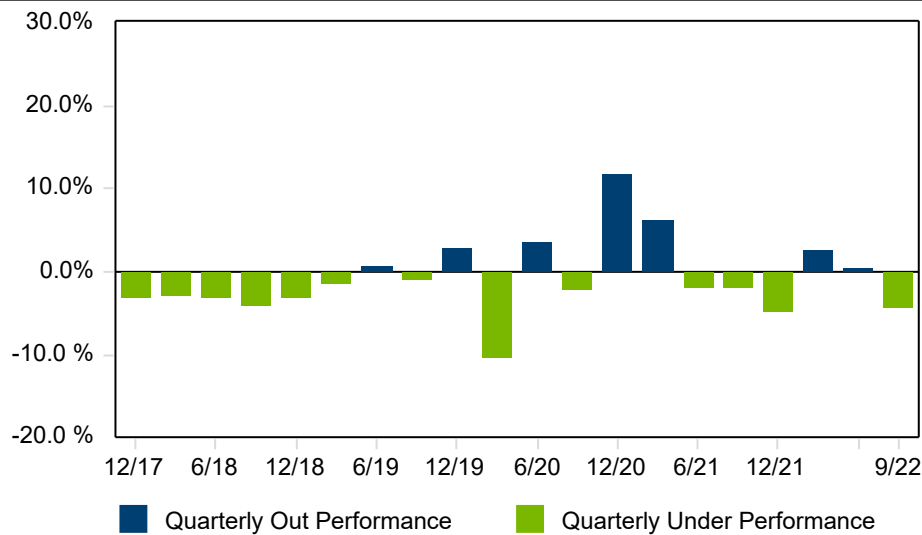
Account Information

Account Name: Harris Global Equity  
 Inception Date: 06/01/2014  
 Account Structure: Separate Account  
 Asset Class: Global Equity  
 Benchmark: MSCI World Index (Net)  
 Peer Group: IM Global Equity (SA+CF)

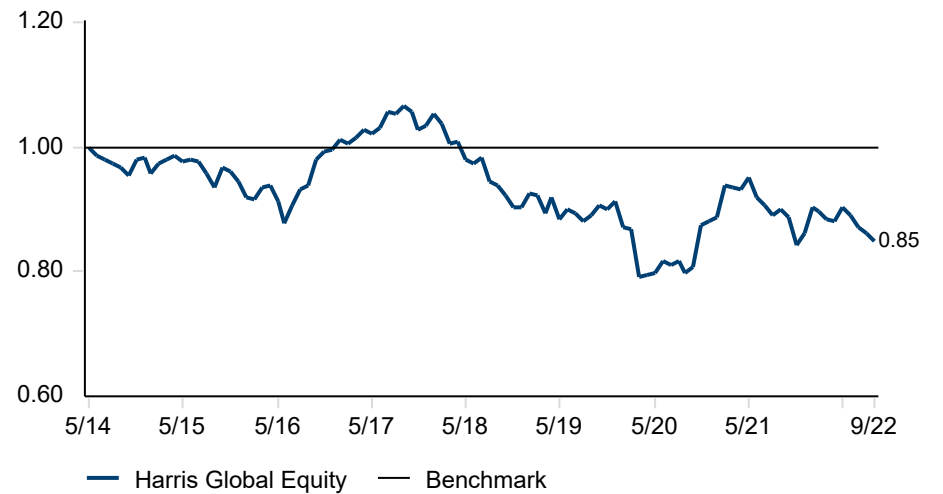
Return Summary



Quarterly Excess Performance



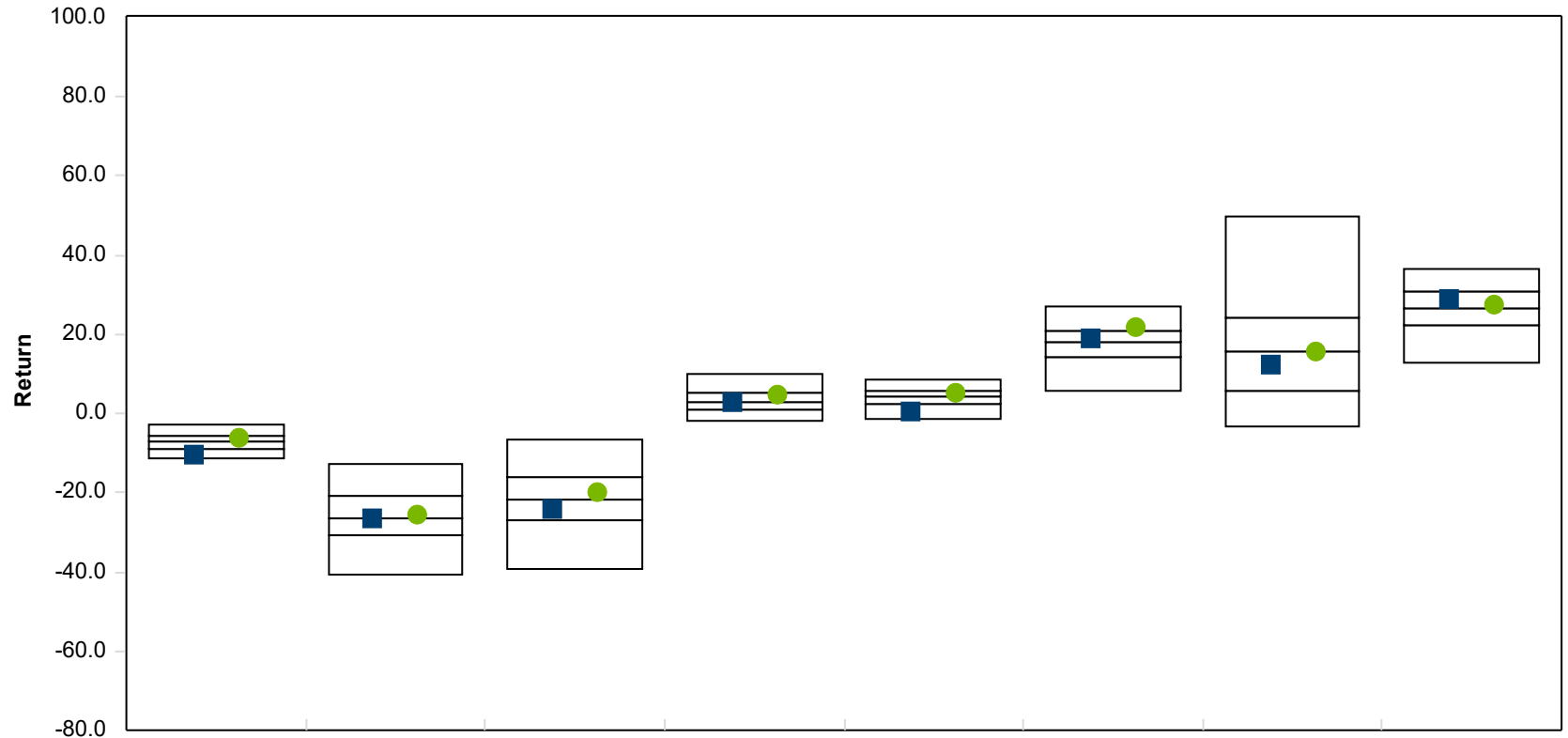
Ratio of Cumulative Wealth - Since Inception





Peer Group Analysis

IM Global Equity (SA+CF)

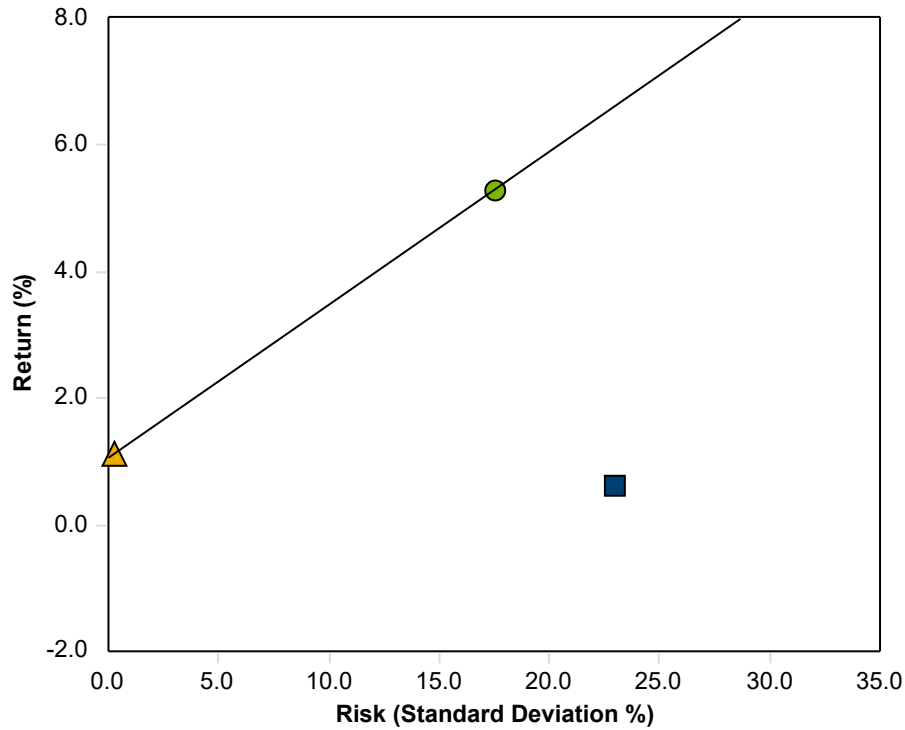


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2021	2020	2019
■ Harris Global Equity	-10.5 (92)	-26.4 (51)	-24.2 (65)	3.0 (51)	0.6 (91)	18.8 (42)	12.1 (60)	28.9 (38)
● MSCI World Index (Net)	-6.2 (33)	-25.4 (44)	-19.6 (39)	4.6 (35)	5.3 (33)	21.8 (21)	15.9 (49)	27.7 (45)
5th Percentile	-2.8	-12.6	-6.5	9.8	8.7	26.9	49.7	36.7
1st Quartile	-5.7	-20.8	-16.3	5.3	5.8	21.0	24.2	30.6
Median	-7.0	-26.3	-21.7	3.1	4.1	17.9	15.5	26.6
3rd Quartile	-8.9	-30.6	-27.0	0.9	2.3	14.0	5.7	22.2
95th Percentile	-11.3	-40.8	-39.3	-2.0	-1.4	5.5	-3.4	12.9
Population	397	391	389	368	340	416	437	451

parentheses contain percentile rankings.

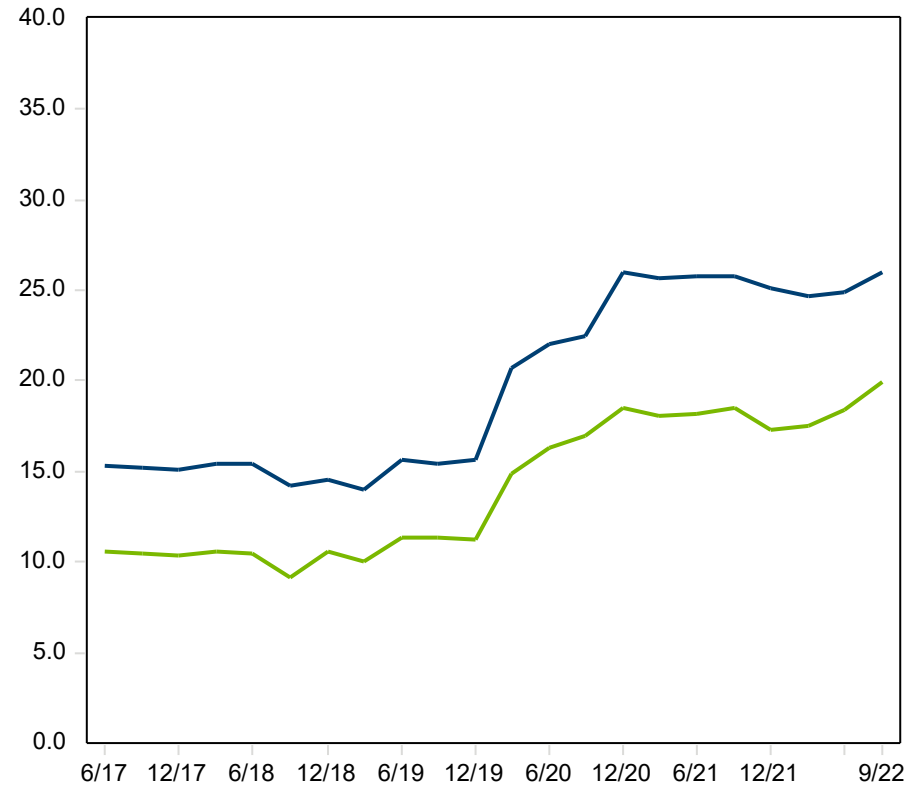
Harris Global Equity Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



■ Harris Global Equity     ● MSCI World Index (Net)  
▲ FTSE 3 Month T-Bill

Rolling 3 Years Standard Deviation



— Harris Global Equity     — MSCI World Index (Net)

5 Years Historical Statistics

	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Harris Global Equity	-3.47	9.16	-0.38	0.87	0.09	-4.87	1.23	0.60	23.00	0.93
MSCI World Index (Net)	0.00	0.00	N/A	1.00	0.32	0.00	1.00	5.30	17.50	1.00
FTSE 3 Month T-Bill	-5.58	17.55	-0.32	0.02	N/A	1.14	0.00	1.13	0.27	-0.16

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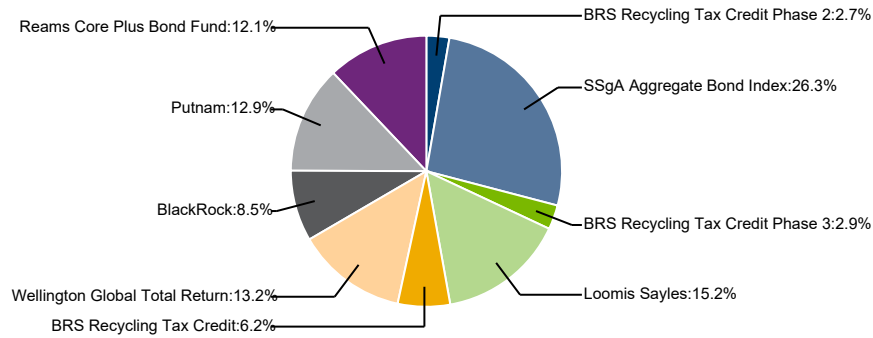
# Fixed Income

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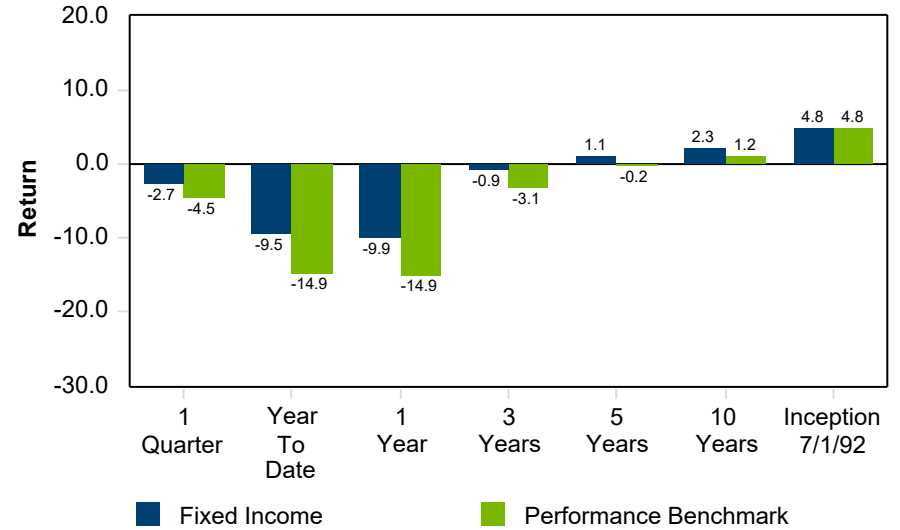
Fixed Income Portfolio Overview

Current Allocation

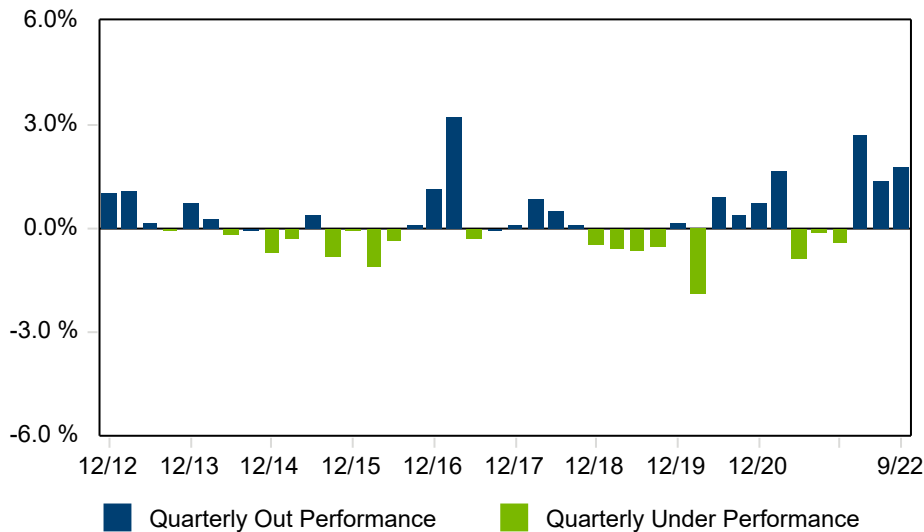
September 30, 2022 : \$2,823M



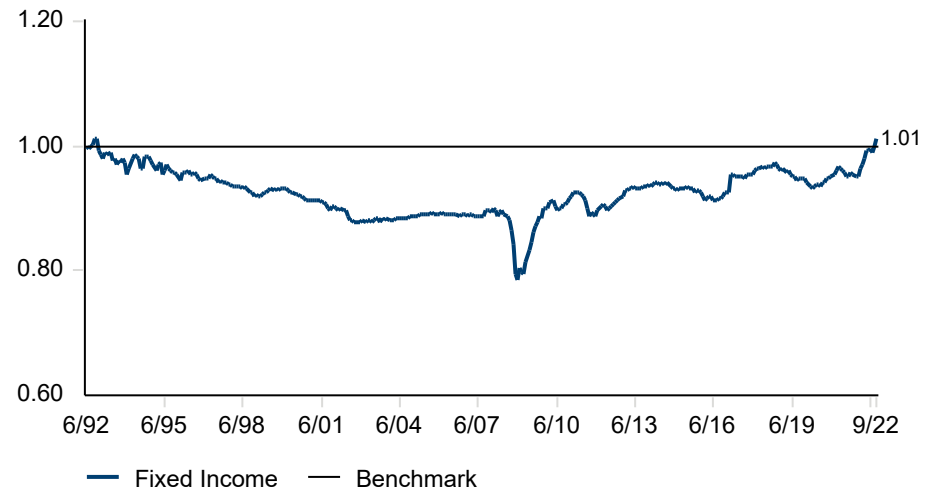
Return Summary



Quarterly Excess Performance

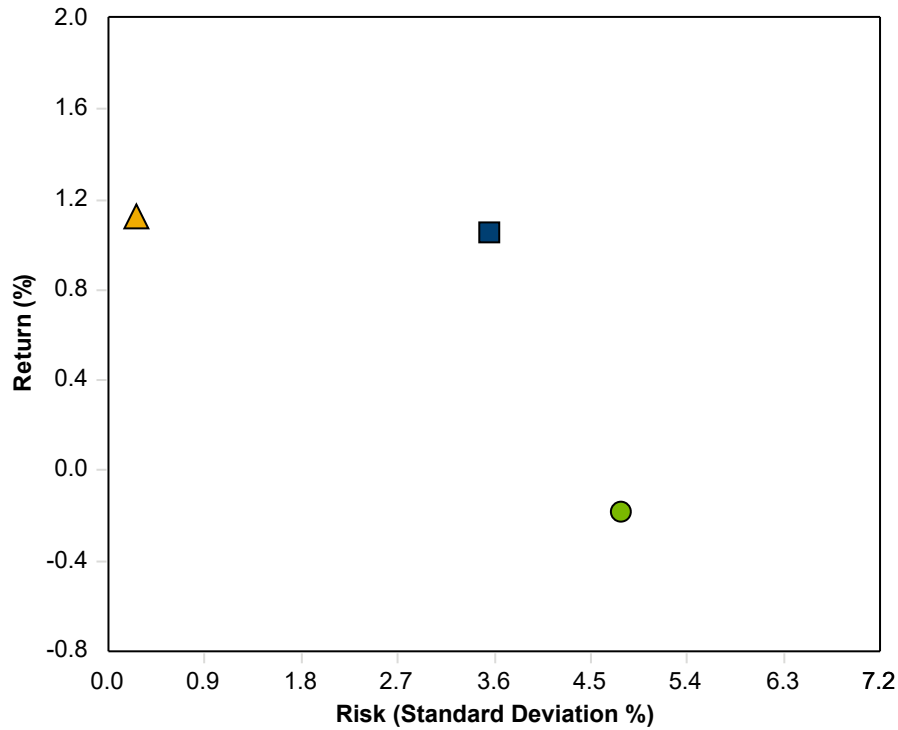


Ratio of Cumulative Wealth - Since Inception



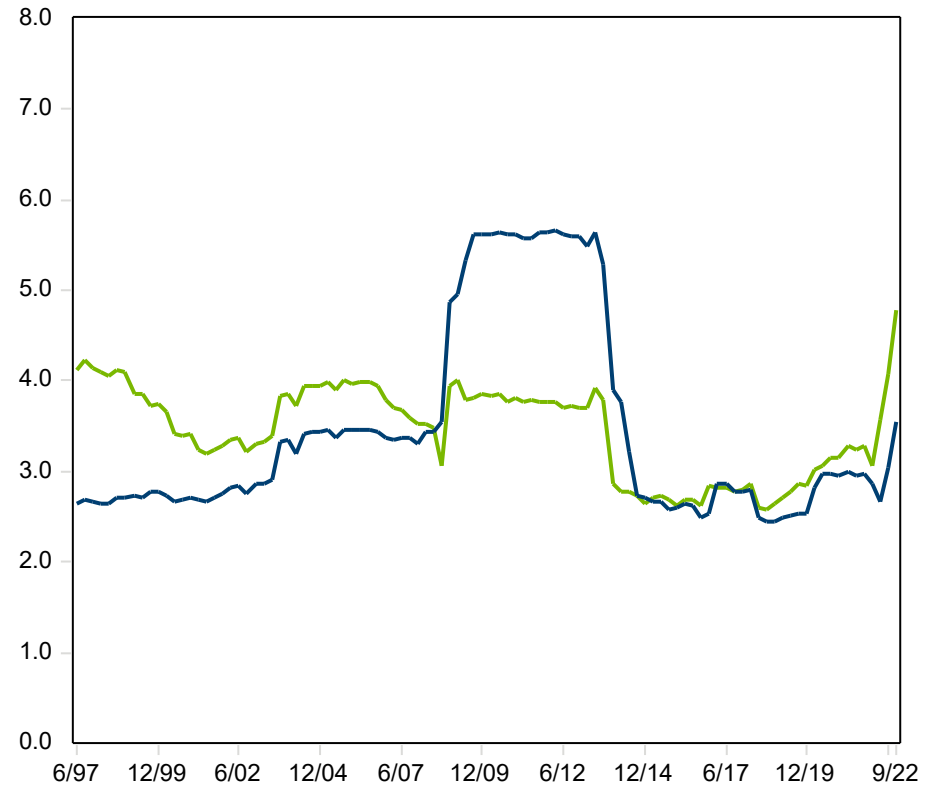
Fixed Income Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



■ Fixed Income      ● Performance Benchmark  
 ▲ FTSE 3 Month T-Bill

Rolling 5 Years Standard Deviation



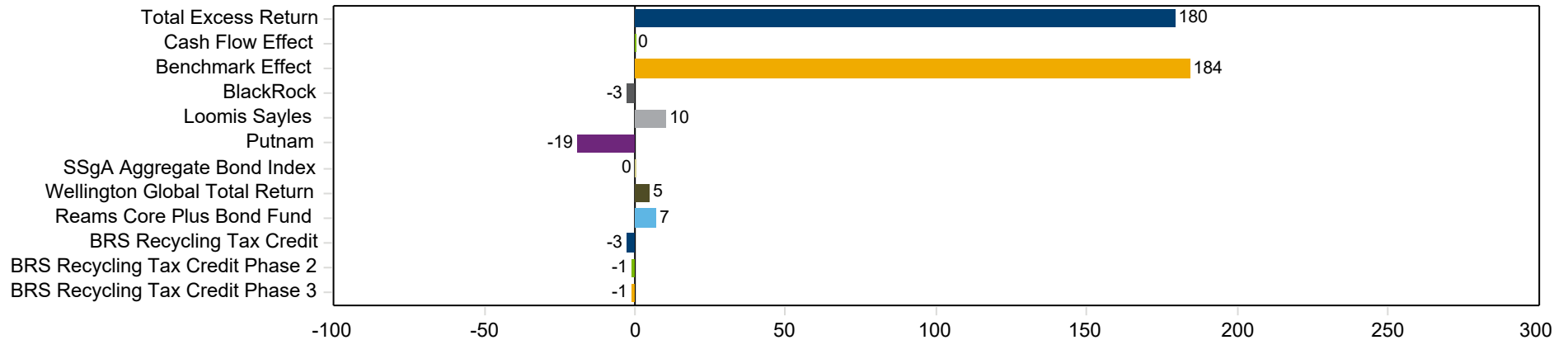
— Fixed Income      — Performance Benchmark

5 Years Historical Statistics

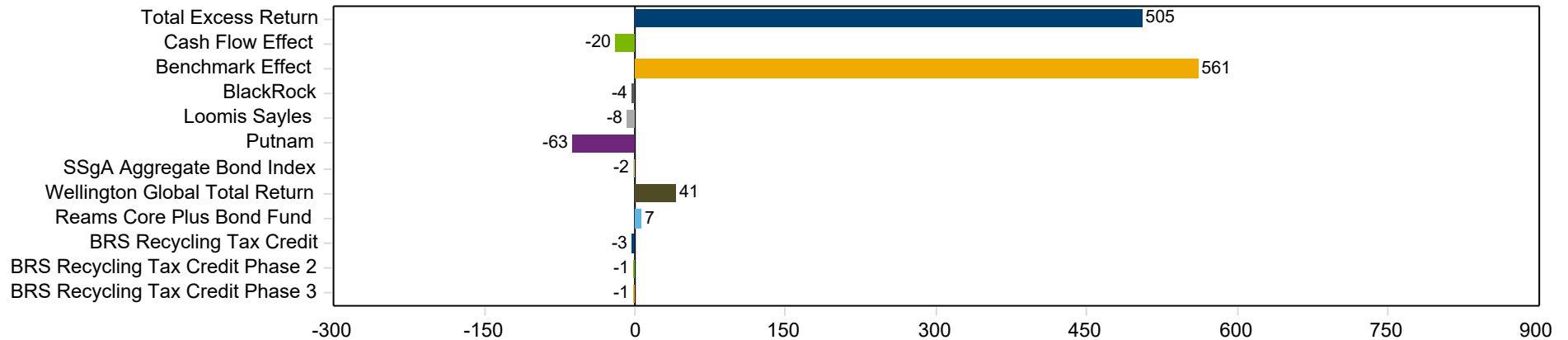
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Fixed Income	1.18	1.70	0.69	0.92	0.00	1.16	0.71	1.05	3.55	0.96
Performance Benchmark	0.00	0.00	N/A	1.00	-0.25	0.00	1.00	-0.18	4.78	1.00
FTSE 3 Month T-Bill	1.19	4.74	0.25	0.03	N/A	1.13	0.01	1.13	0.27	0.18

Asset Class Attribution

1 Quarter



1 Year



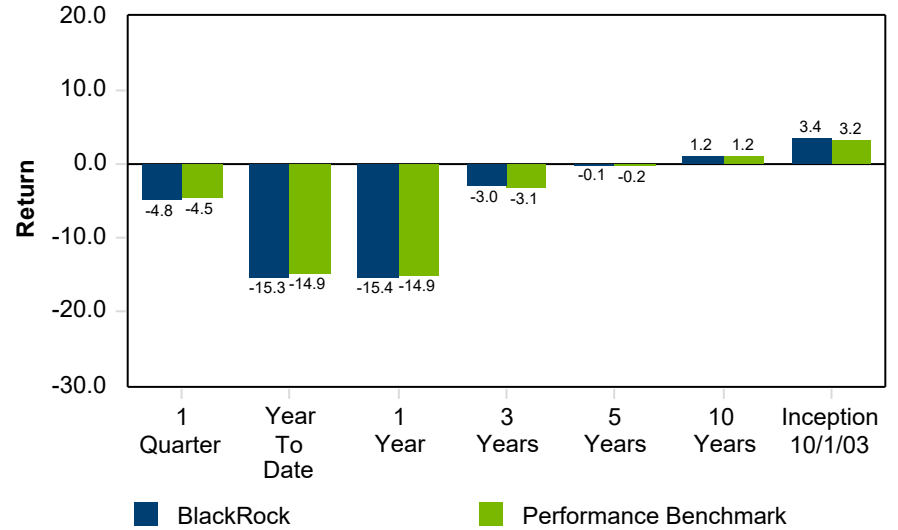
\*The BRS Recycling Tax Credit represents an annual income stream of \$16 million dollars over the next 14 years, which ATRS purchased for approximately \$162 million. This represents an approximate 9.9% yield for the 2017 fiscal year. The value shown above represents the year-end market value in accordance with GASB Statement 72, representing the 14 years of annual income, and has been incorporated into Total Fixed Income and Total Fund performance.

**BlackRock Performance Summary**

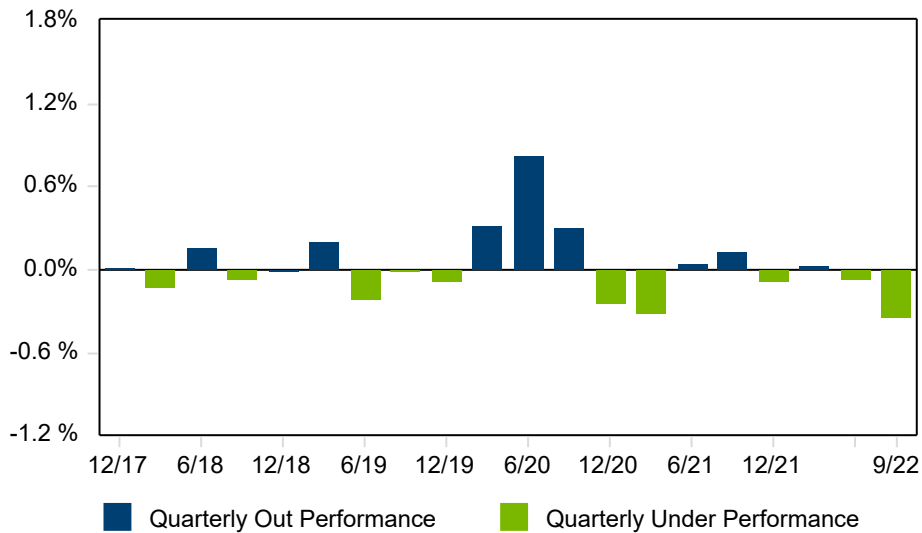
**Account Information**

Account Name: BlackRock  
 Inception Date: 09/30/2003  
 Account Structure: Separate Account  
 Asset Class: US Fixed Income  
 Benchmark: Performance Benchmark  
 Peer Group: IM U.S. Fixed Income (SA+CF)

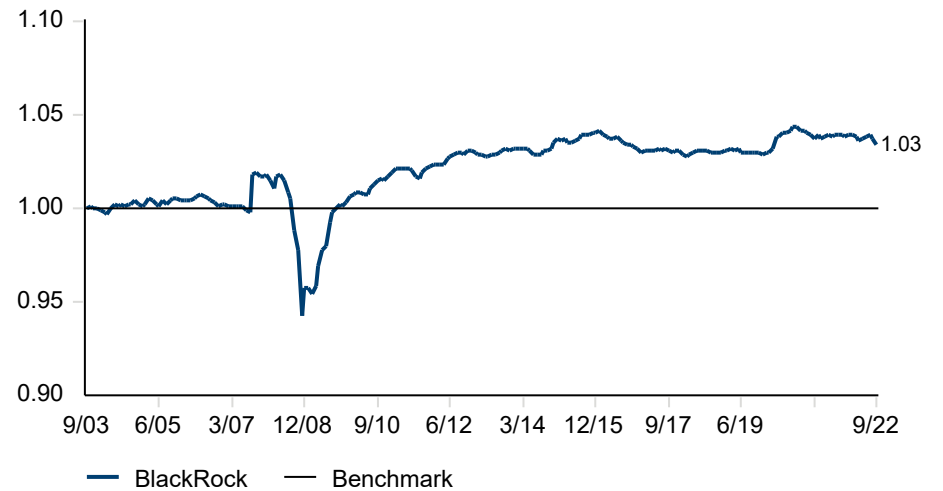
**Return Summary**



**Quarterly Excess Performance**



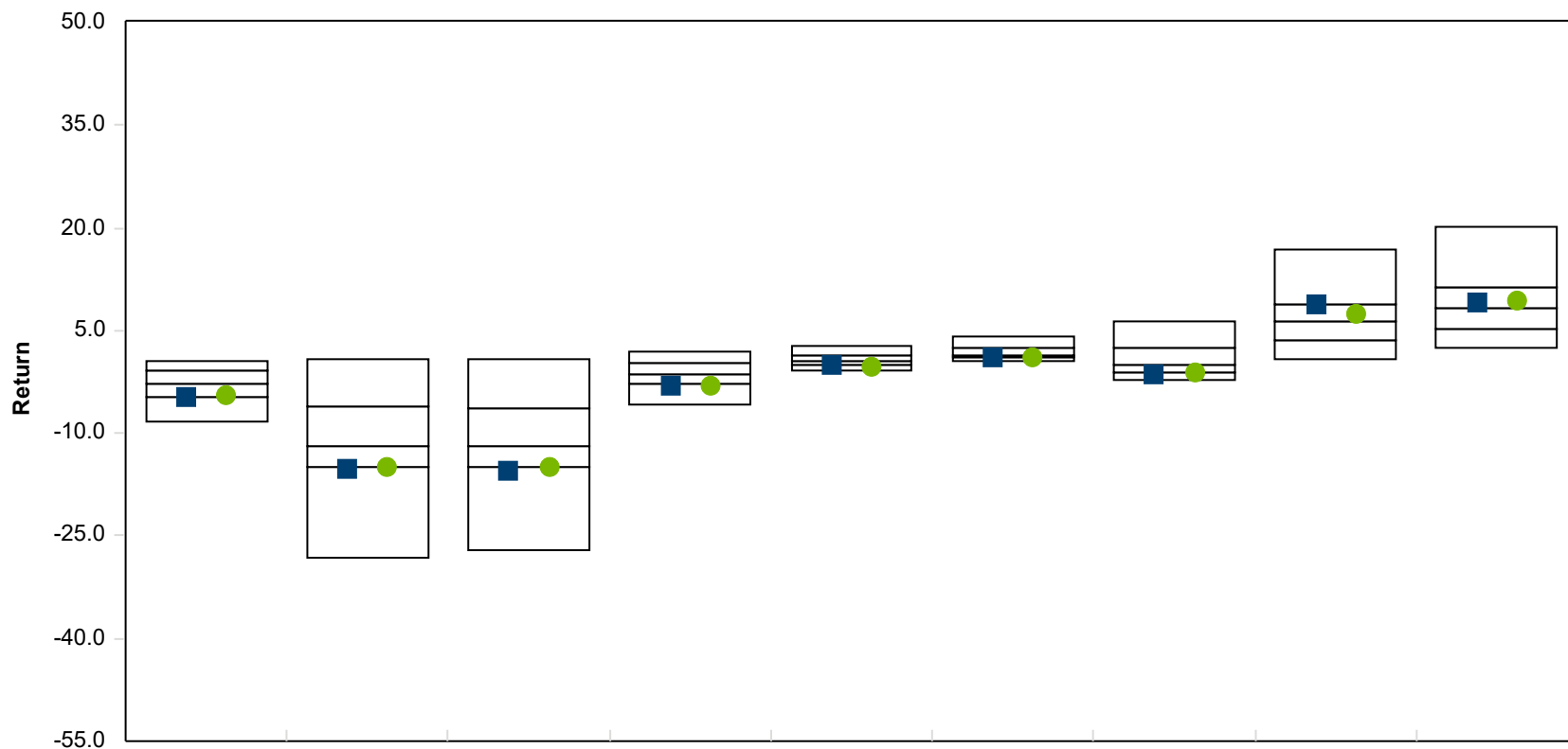
**Ratio of Cumulative Wealth - Since Inception**





Peer Group Analysis

IM U.S. Fixed Income (SA+CF)

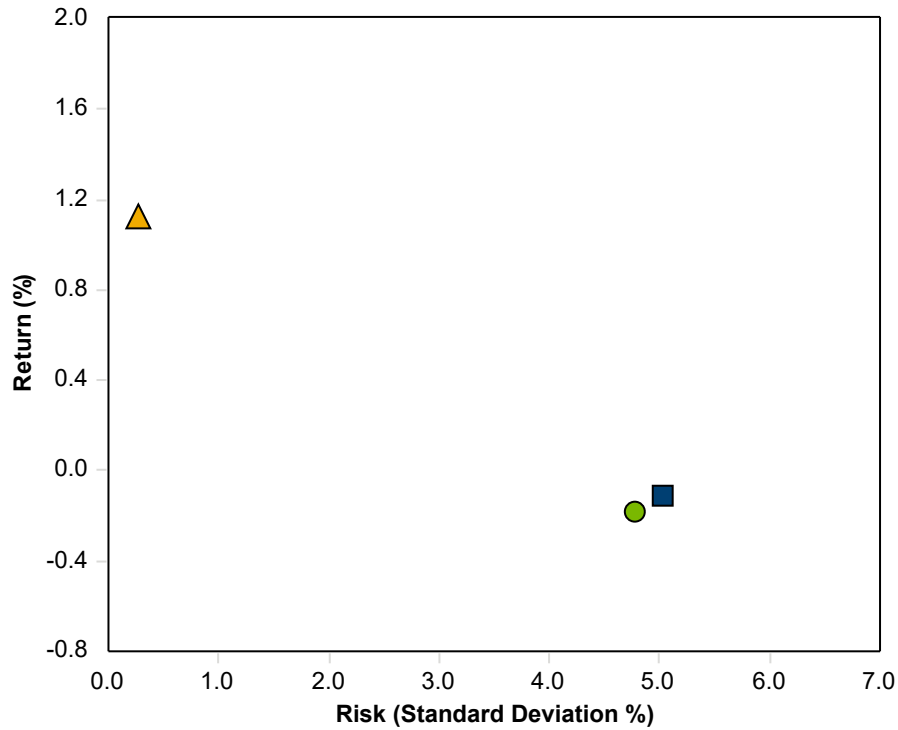


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2021	2020	2019
■ BlackRock	-4.8 (81)	-15.3 (79)	-15.4 (79)	-3.0 (78)	-0.1 (80)	1.2 (60)	-1.4 (81)	8.8 (27)	9.2 (40)
● Performance Benchmark	-4.5 (72)	-14.9 (74)	-14.9 (75)	-3.1 (81)	-0.2 (83)	1.2 (62)	-1.1 (74)	7.6 (38)	9.3 (38)
5th Percentile	0.6	0.7	0.7	2.0	2.7	4.1	6.4	16.8	20.1
1st Quartile	-0.8	-6.2	-6.4	0.2	1.4	2.4	2.5	8.9	11.4
Median	-2.9	-12.0	-11.9	-1.3	0.6	1.4	-0.1	6.4	8.3
3rd Quartile	-4.6	-15.0	-14.9	-2.9	0.0	1.0	-1.1	3.5	5.3
95th Percentile	-8.4	-28.2	-27.1	-5.9	-0.9	0.5	-2.2	0.9	2.4
Population	1,044	1,043	1,037	1,007	961	819	1,163	1,229	1,252

Parenteses contain percentile rankings.

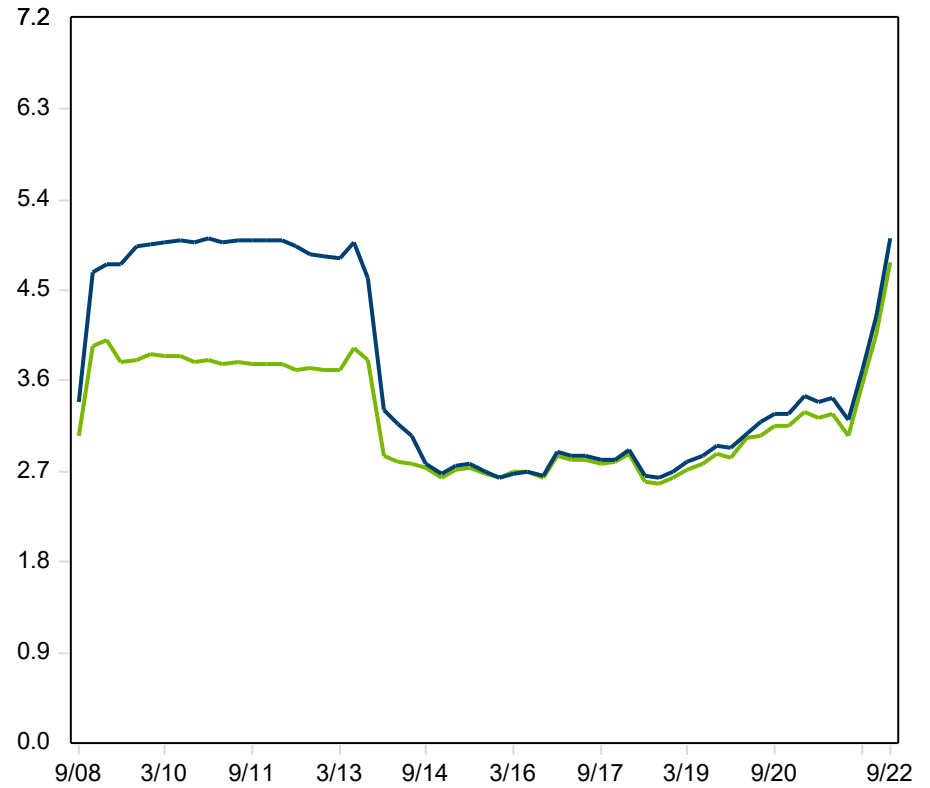
BlackRock Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



■ BlackRock      ● Performance Benchmark  
▲ FTSE 3 Month T-Bill

Rolling 5 Years Standard Deviation



— BlackRock      — Performance Benchmark

5 Years Historical Statistics

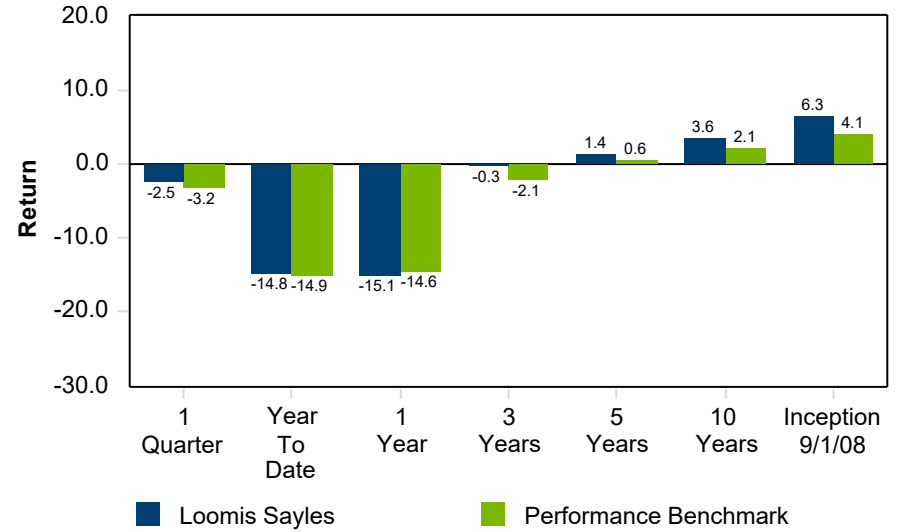
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
BlackRock	0.08	0.47	0.17	0.99	-0.22	0.08	1.05	-0.11	5.02	1.00
Performance Benchmark	0.00	0.00	N/A	1.00	-0.25	0.00	1.00	-0.18	4.78	1.00
FTSE 3 Month T-Bill	1.19	4.74	0.25	0.03	N/A	1.13	0.01	1.13	0.27	0.18

## Loomis Sayles Performance Summary

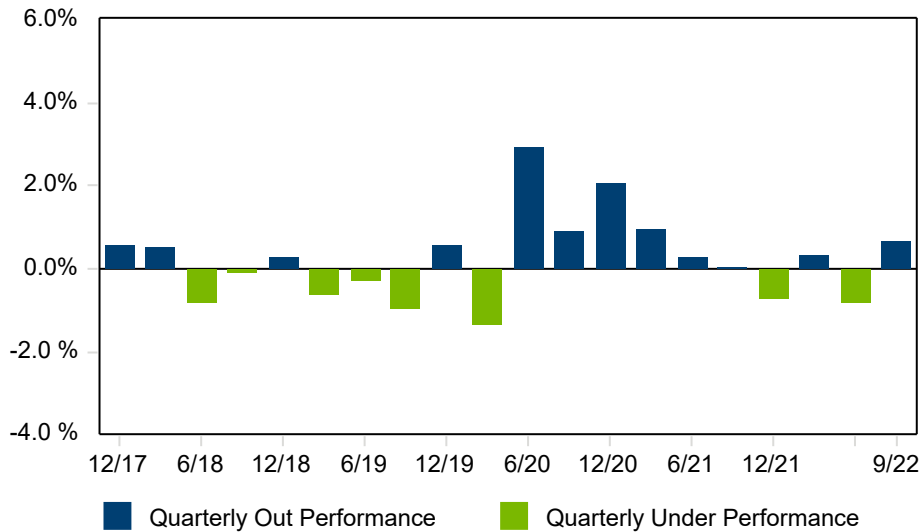
### Account Information

Account Name: Loomis Sayles  
 Inception Date: 06/30/2008  
 Account Structure: Separate Account  
 Asset Class: US Fixed Income  
 Benchmark: Performance Benchmark  
 Peer Group: IM U.S. Fixed Income (SA+CF)

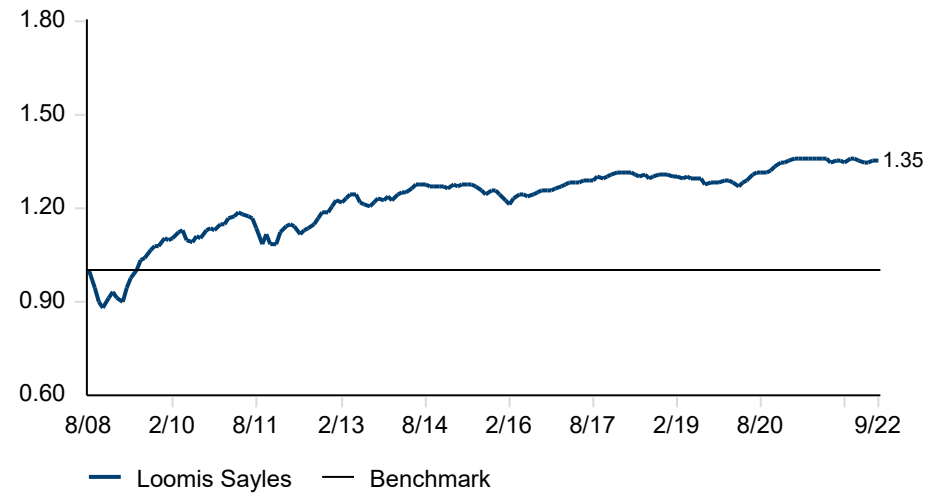
### Return Summary



### Quarterly Excess Performance

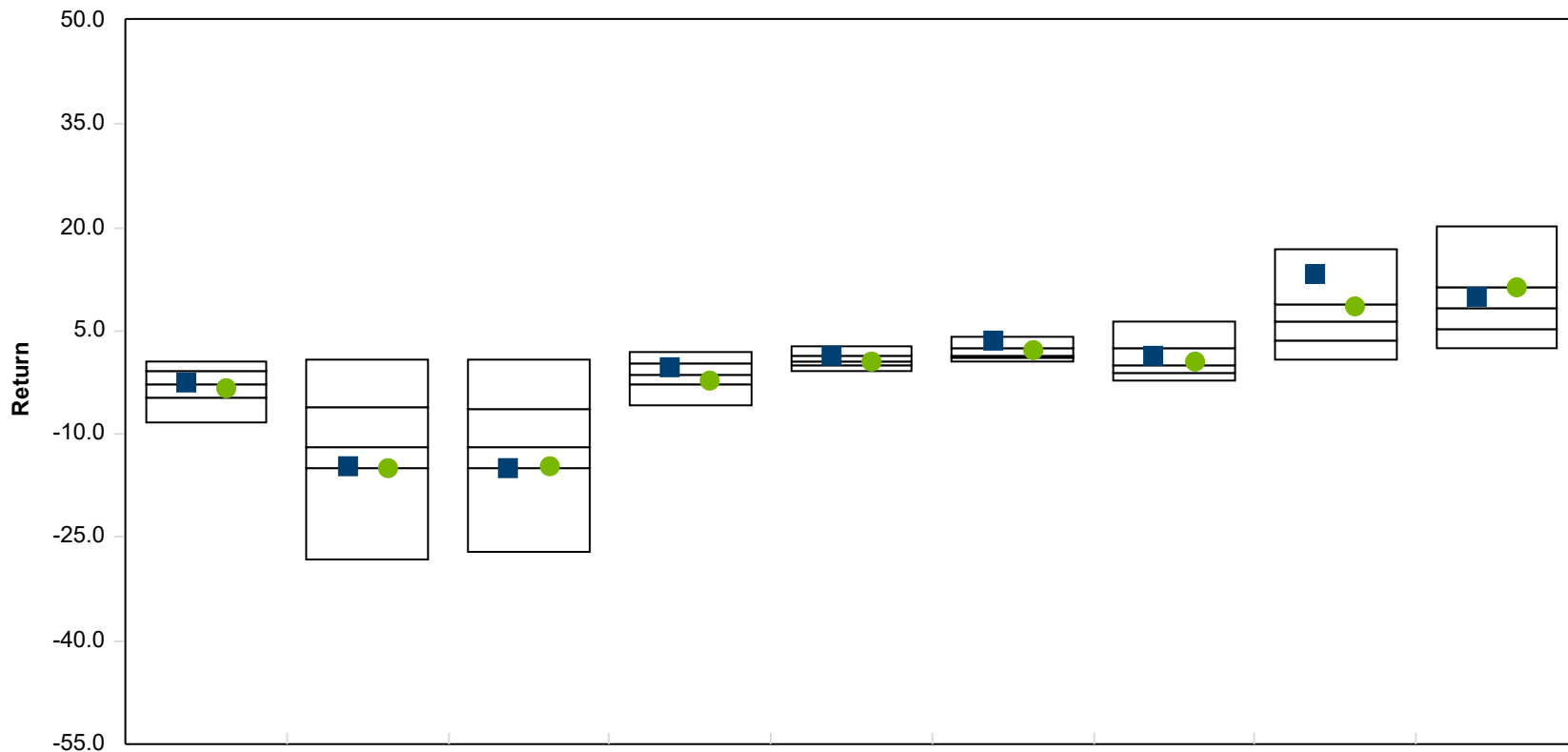


### Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM U.S. Fixed Income (SA+CF)

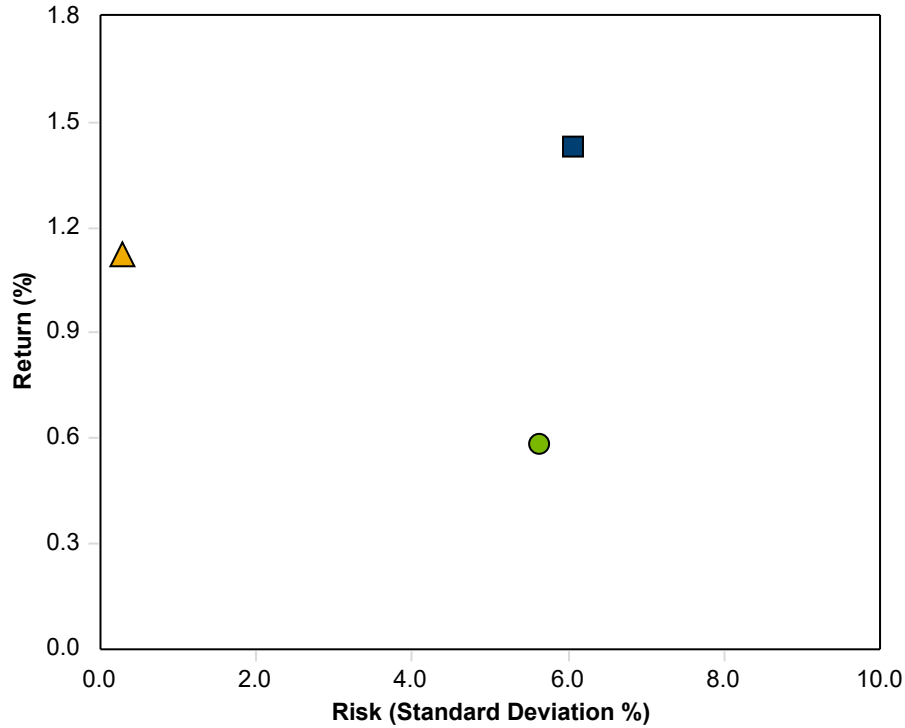


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2021	2020	2019
■ Loomis Sayles	-2.5 (46)	-14.8 (73)	-15.1 (77)	-0.3 (31)	1.4 (25)	3.6 (11)	1.2 (33)	13.1 (10)	10.0 (32)
● Performance Benchmark	-3.2 (57)	-14.9 (75)	-14.6 (72)	-2.1 (65)	0.6 (52)	2.1 (30)	0.7 (37)	8.5 (28)	11.4 (26)
5th Percentile	0.6	0.7	0.7	2.0	2.7	4.1	6.4	16.8	20.1
1st Quartile	-0.8	-6.2	-6.4	0.2	1.4	2.4	2.5	8.9	11.4
Median	-2.9	-12.0	-11.9	-1.3	0.6	1.4	-0.1	6.4	8.3
3rd Quartile	-4.6	-15.0	-14.9	-2.9	0.0	1.0	-1.1	3.5	5.3
95th Percentile	-8.4	-28.2	-27.1	-5.9	-0.9	0.5	-2.2	0.9	2.4
Population	1,044	1,043	1,037	1,007	961	819	1,163	1,229	1,252

Parenteses contain percentile rankings.

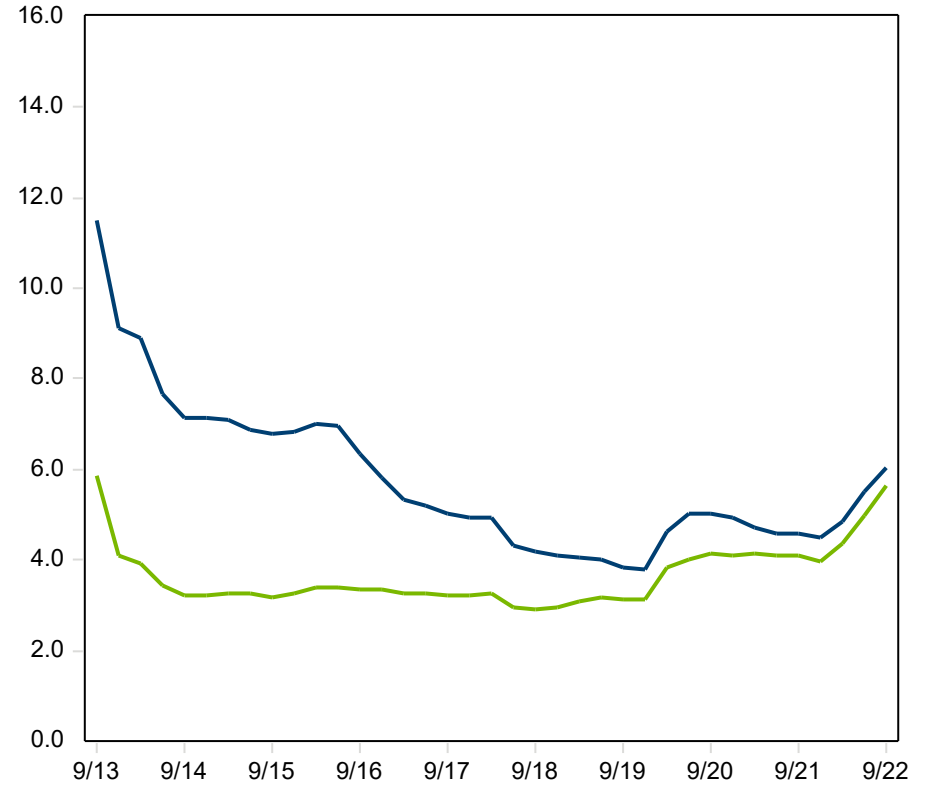
Loomis Sayles Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



■ Loomis Sayles      ● Performance Benchmark  
▲ FTSE 3 Month T-Bill

Rolling 5 Years Standard Deviation



— Loomis Sayles      — Performance Benchmark

5 Years Historical Statistics

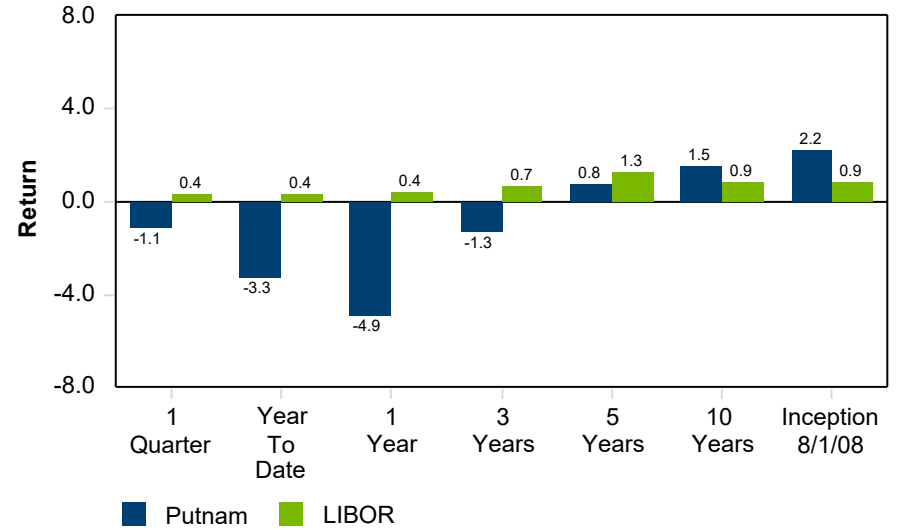
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Loomis Sayles	0.86	1.71	0.50	0.92	0.08	0.84	1.03	1.43	6.05	0.96
Performance Benchmark	0.00	0.00	N/A	1.00	-0.07	0.00	1.00	0.59	5.64	1.00
FTSE 3 Month T-Bill	0.38	5.62	0.07	0.01	N/A	1.12	0.00	1.13	0.27	0.09

Putnam Performance Summary

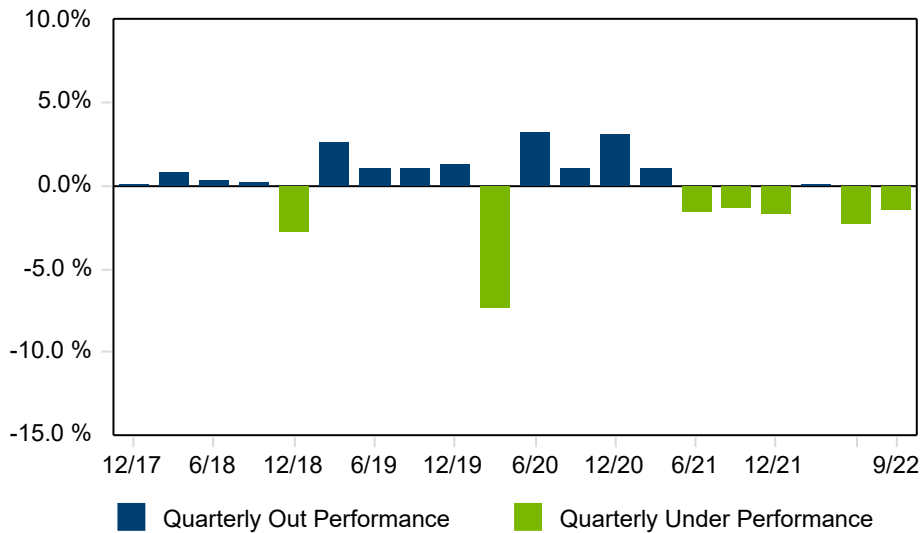
Account Information

Account Name: Putnam  
 Inception Date: 06/30/2008  
 Account Structure: Commingled Fund  
 Asset Class: US Fixed Income  
 Benchmark: LIBOR  
 Peer Group: IM U.S. Fixed Income (SA+CF)

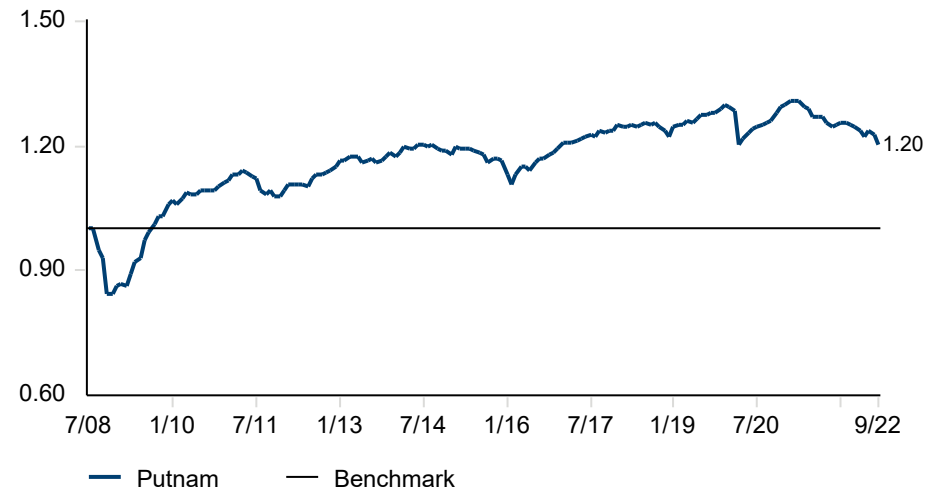
Return Summary



Quarterly Excess Performance

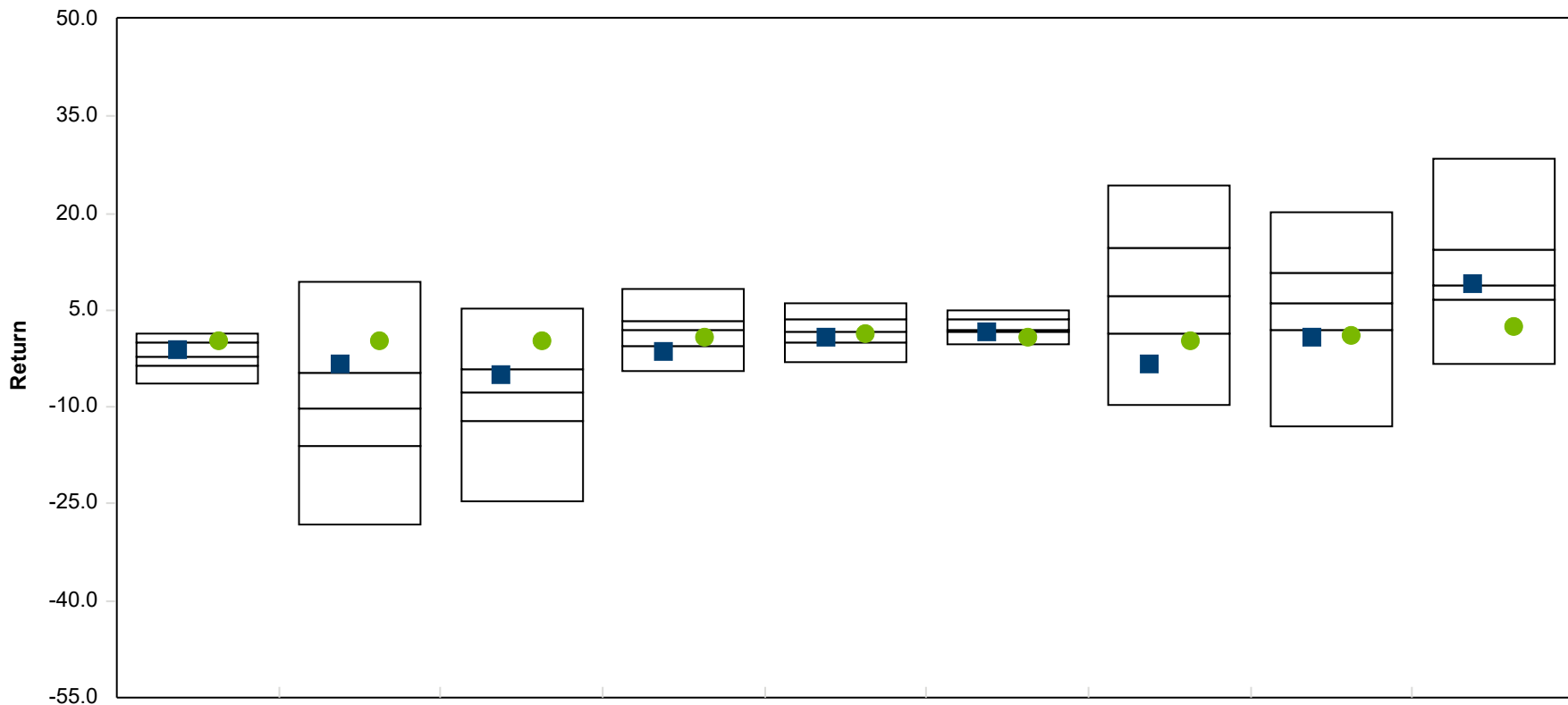


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM Absolute Return (MF)

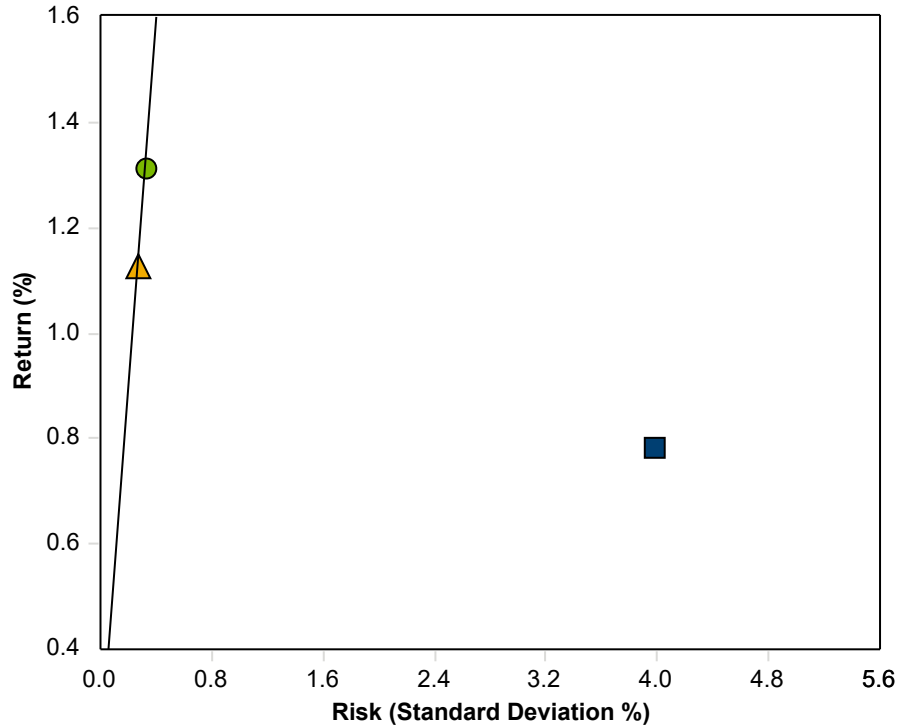


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2021	2020	2019
■ Putnam	-1.1 (40)	-3.3 (22)	-4.9 (27)	-1.3 (78)	0.8 (66)	1.5 (76)	-3.3 (89)	0.9 (78)	9.0 (50)
● LIBOR	0.4 (15)	0.4 (12)	0.4 (17)	0.7 (57)	1.3 (57)	0.9 (88)	0.2 (82)	1.1 (78)	2.6 (90)
5th Percentile	1.5	9.4	5.4	8.3	6.2	5.1	24.4	20.2	28.6
1st Quartile	-0.1	-4.8	-4.2	3.3	3.6	3.7	14.6	10.7	14.5
Median	-2.2	-10.3	-7.9	1.9	1.5	2.0	7.1	6.0	8.9
3rd Quartile	-3.5	-16.2	-12.1	-0.4	0.0	1.6	1.5	1.9	6.7
95th Percentile	-6.3	-28.1	-24.7	-4.6	-3.0	-0.4	-9.7	-13.1	-3.3
Population	46	46	45	42	37	11	48	46	45

Parenteses contain percentile rankings.

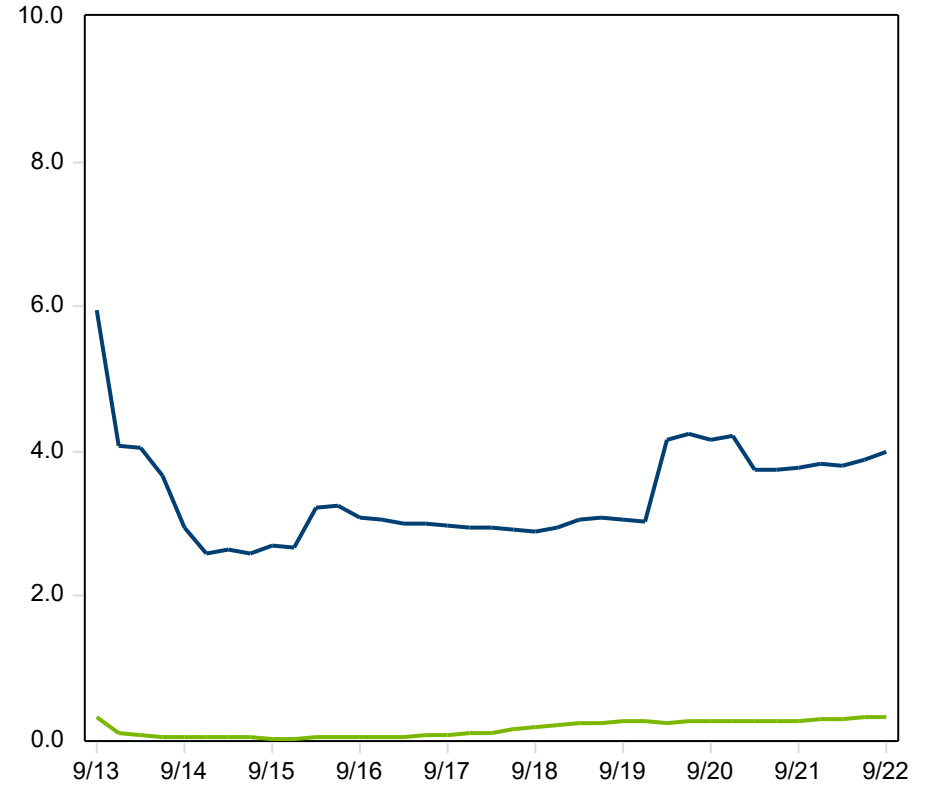
Putnam Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



■ Putnam      ● LIBOR  
▲ FTSE 3 Month T-Bill

Rolling 5 Years Standard Deviation



— Putnam    — LIBOR

5 Years Historical Statistics

	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Putnam	-0.45	3.93	-0.11	0.04	-0.07	-2.30	2.44	0.78	3.98	0.20
LIBOR	0.00	0.00	N/A	1.00	1.31	0.00	1.00	1.31	0.32	1.00
FTSE 3 Month T-Bill	-0.19	0.14	-1.31	0.81	N/A	0.14	0.75	1.13	0.27	0.90

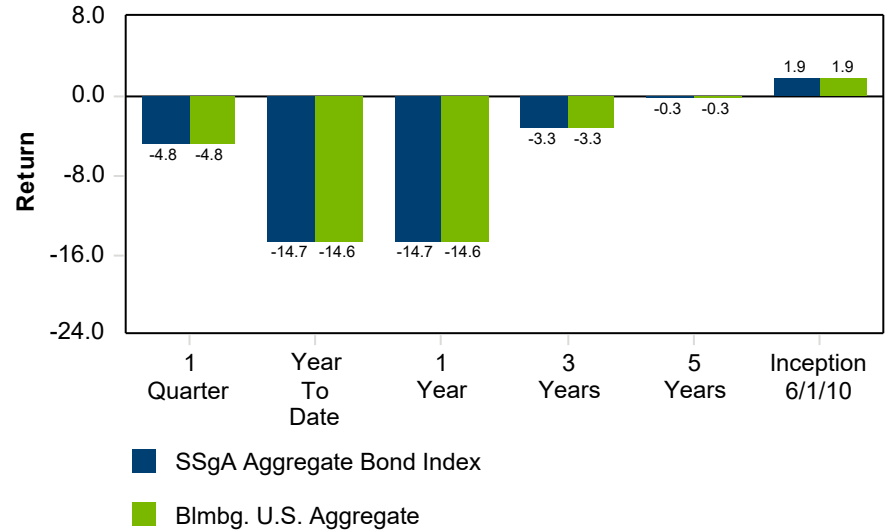


SSgA Aggregate Bond Index Performance Summary

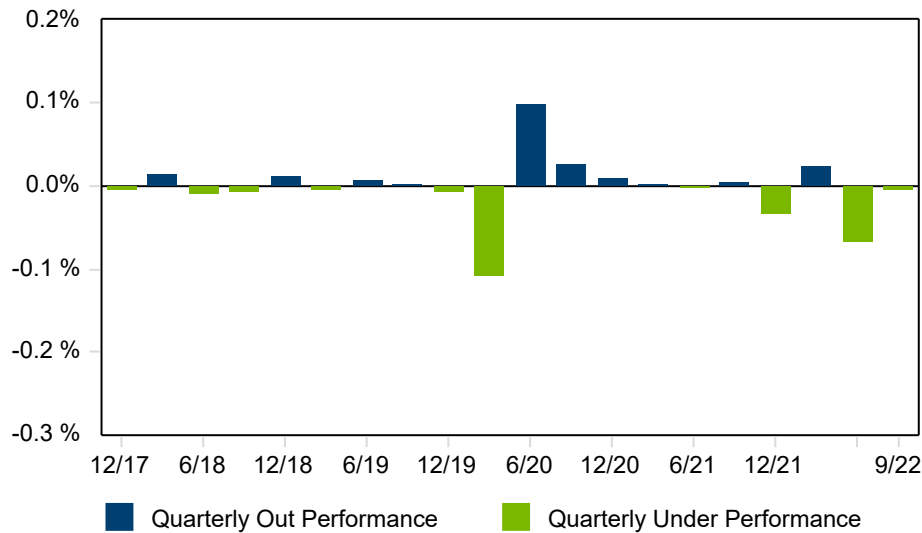
Account Information

Account Name: SSgA Aggregate Bond Index  
 Inception Date: 01/01/1901  
 Account Structure: Commingled Fund  
 Asset Class: US Fixed Income  
 Benchmark: Blmbg. U.S. Aggregate  
 Peer Group: IM U.S. Fixed Income (SA+CF)

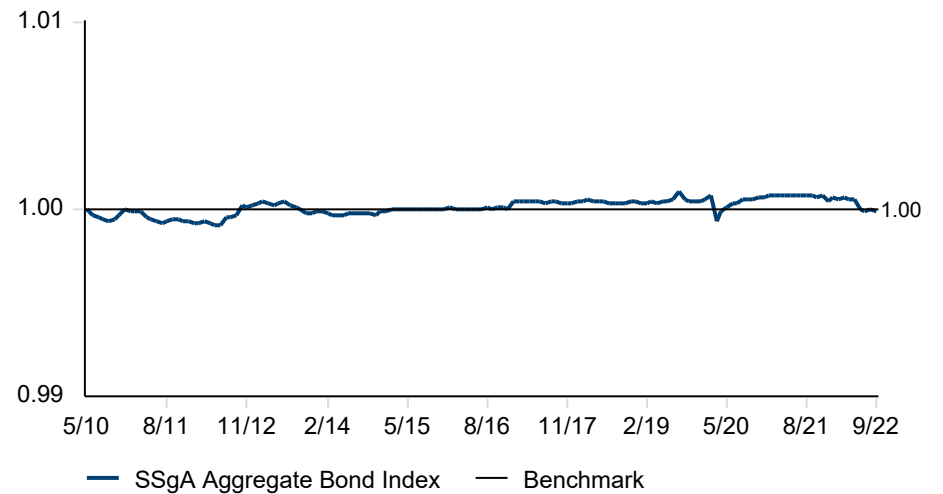
Return Summary



Quarterly Excess Performance

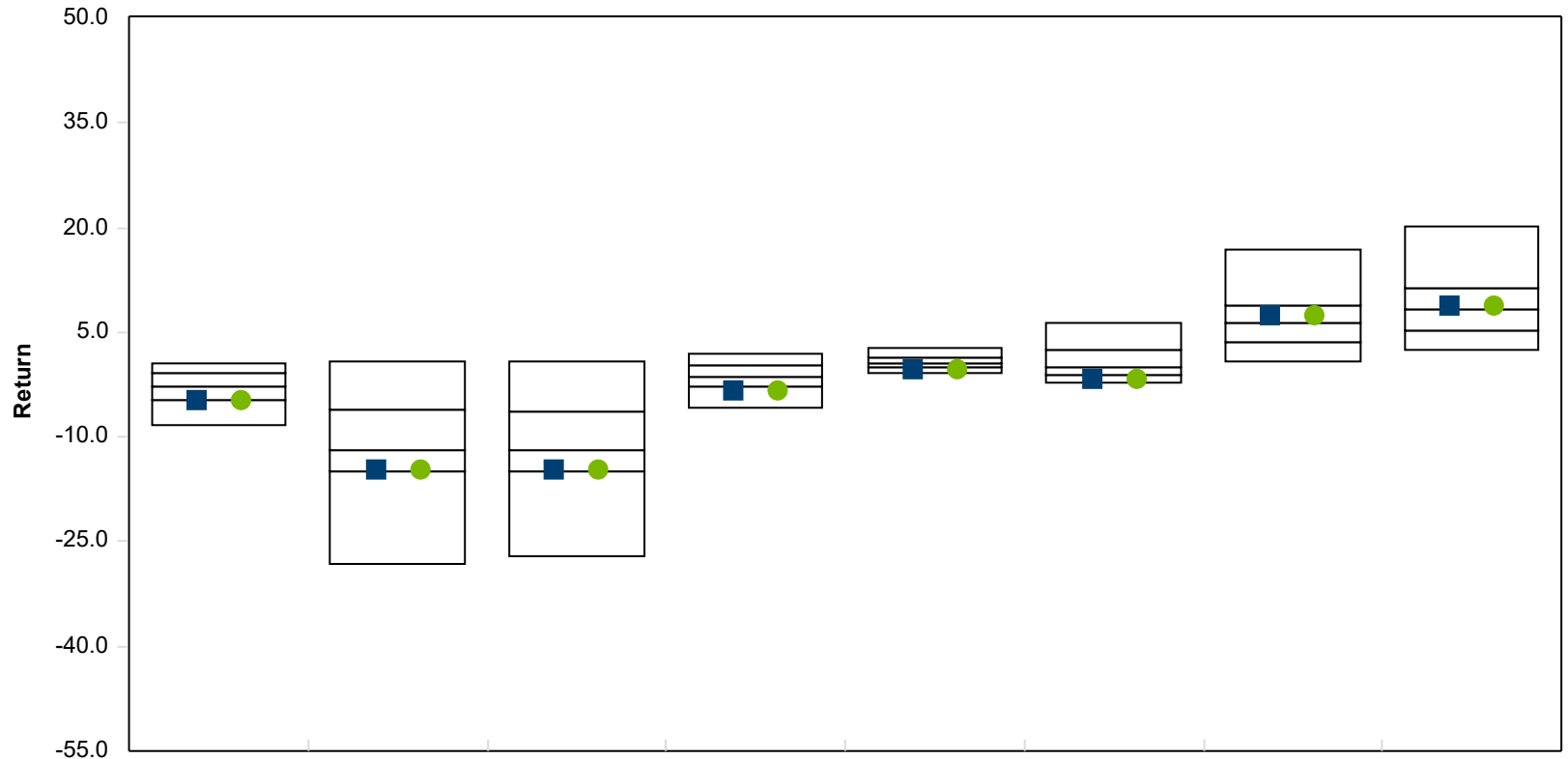


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM U.S. Fixed Income (SA+CF)

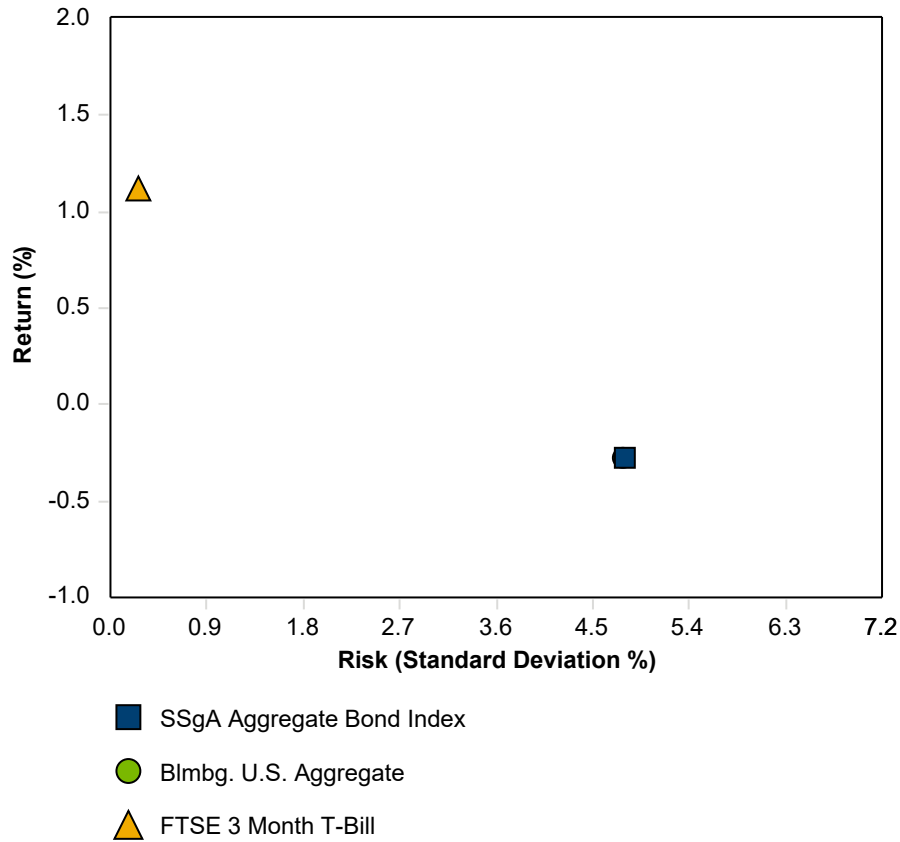


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2021	2020	2019
■ SSgA Aggregate Bond Index	-4.8 (80)	-14.7 (71)	-14.7 (73)	-3.3 (84)	-0.3 (85)	-1.6 (87)	7.5 (38)	8.7 (46)
● Blmbg. U.S. Aggregate	-4.8 (80)	-14.6 (70)	-14.6 (71)	-3.3 (84)	-0.3 (85)	-1.5 (86)	7.5 (39)	8.7 (46)
5th Percentile	0.6	0.7	0.7	2.0	2.7	6.4	16.8	20.1
1st Quartile	-0.8	-6.2	-6.4	0.2	1.4	2.5	8.9	11.4
Median	-2.9	-12.0	-11.9	-1.3	0.6	-0.1	6.4	8.3
3rd Quartile	-4.6	-15.0	-14.9	-2.9	0.0	-1.1	3.5	5.3
95th Percentile	-8.4	-28.2	-27.1	-5.9	-0.9	-2.2	0.9	2.4
Population	1,044	1,043	1,037	1,007	961	1,163	1,229	1,252

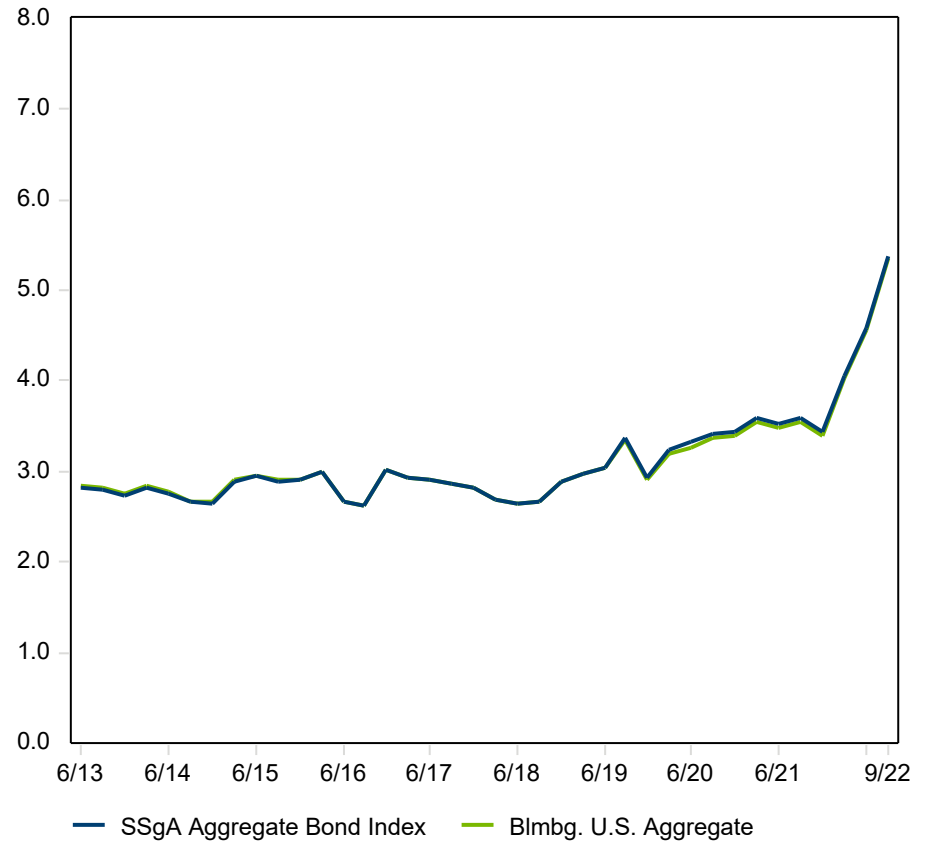
Parenteses contain percentile rankings.

SSgA Aggregate Bond Index Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 3 Years Standard Deviation



5 Years Historical Statistics

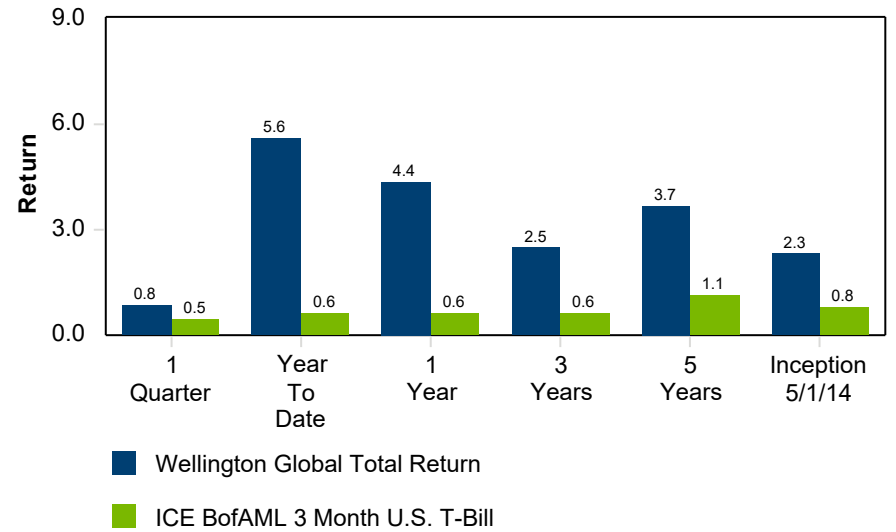
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
SSgA Aggregate Bond Index	-0.01	0.08	-0.10	1.00	-0.27	-0.01	1.00	-0.28	4.80	1.00
Blmbg. U.S. Aggregate	0.00	0.00	N/A	1.00	-0.27	0.00	1.00	-0.27	4.77	1.00
FTSE 3 Month T-Bill	1.28	4.72	0.27	0.04	N/A	1.13	0.01	1.13	0.27	0.21

Wellington Global Total Return Performance Summary

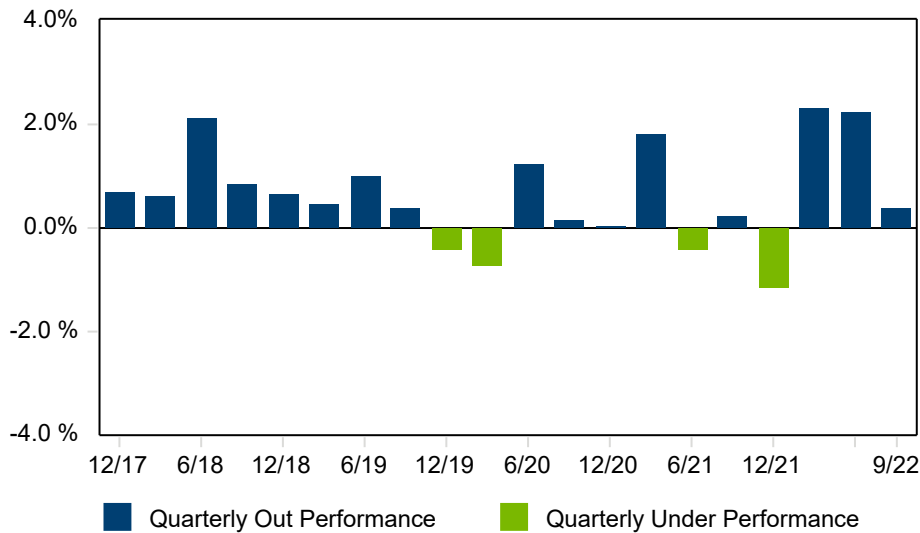
Account Information

Account Name: Wellington Global Total Return  
 Inception Date: 05/13/2014  
 Account Structure: Commingled Fund  
 Asset Class: Global Fixed Income  
 Benchmark: ICE BofAML 3 Month U.S. T-Bill  
 Peer Group: IM Absolute Return (MF)

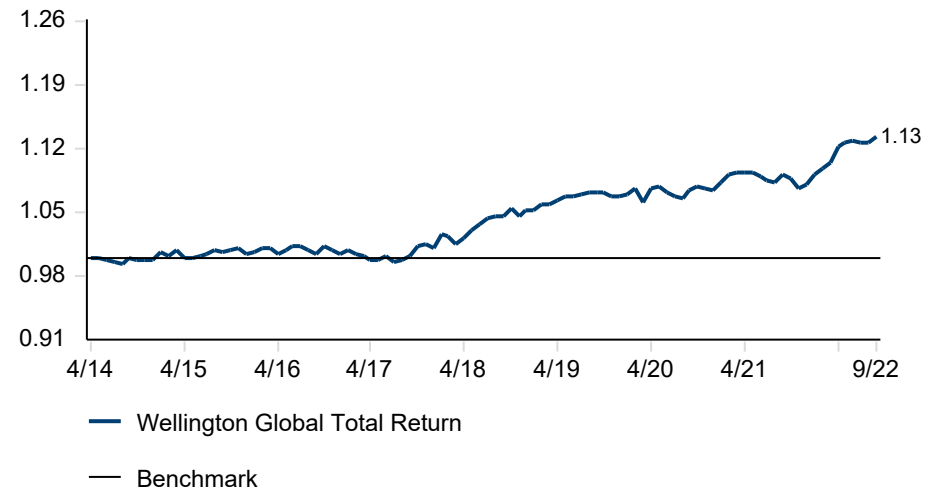
Return Summary



Quarterly Excess Performance

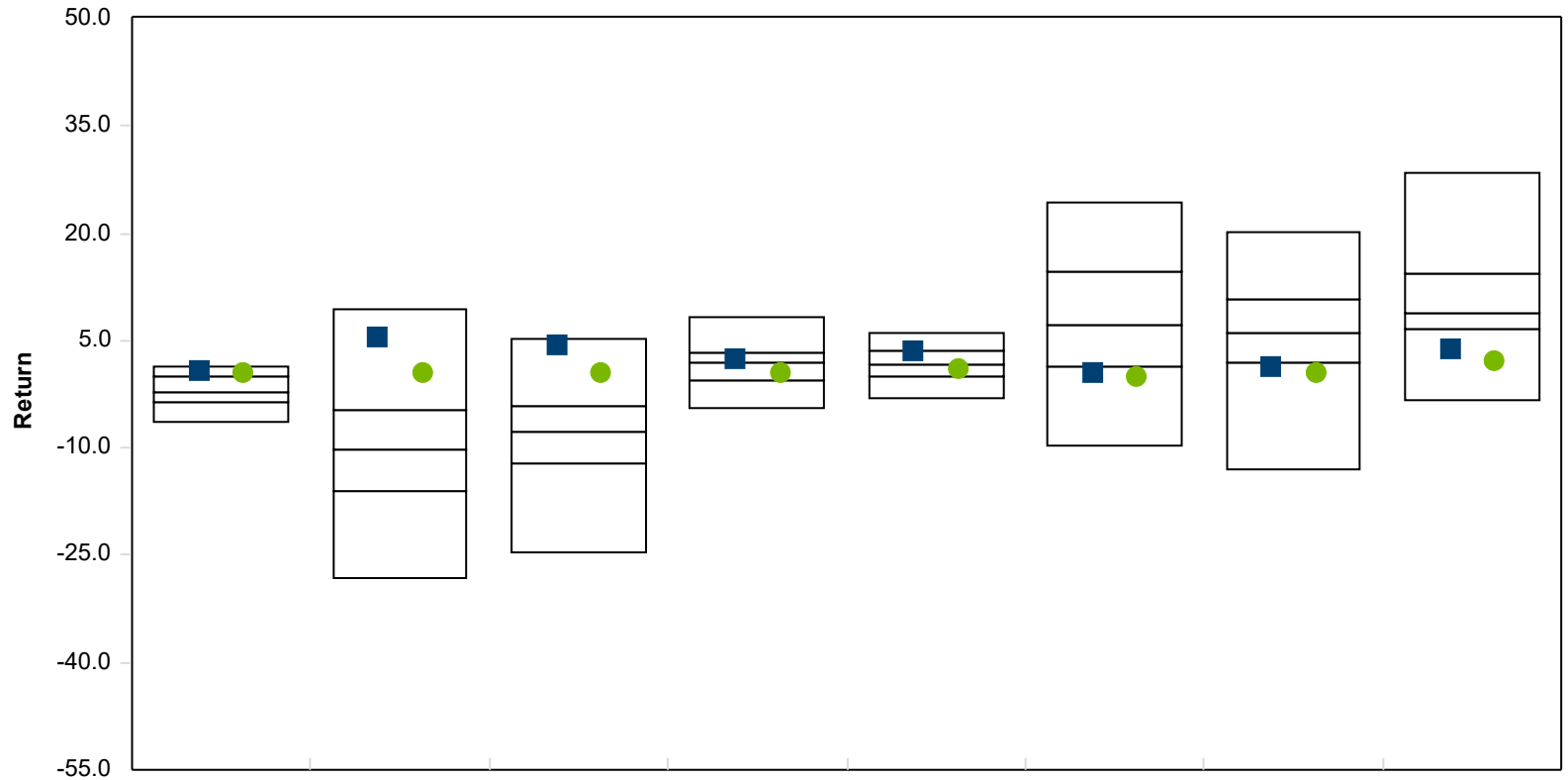


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM Absolute Return (MF)

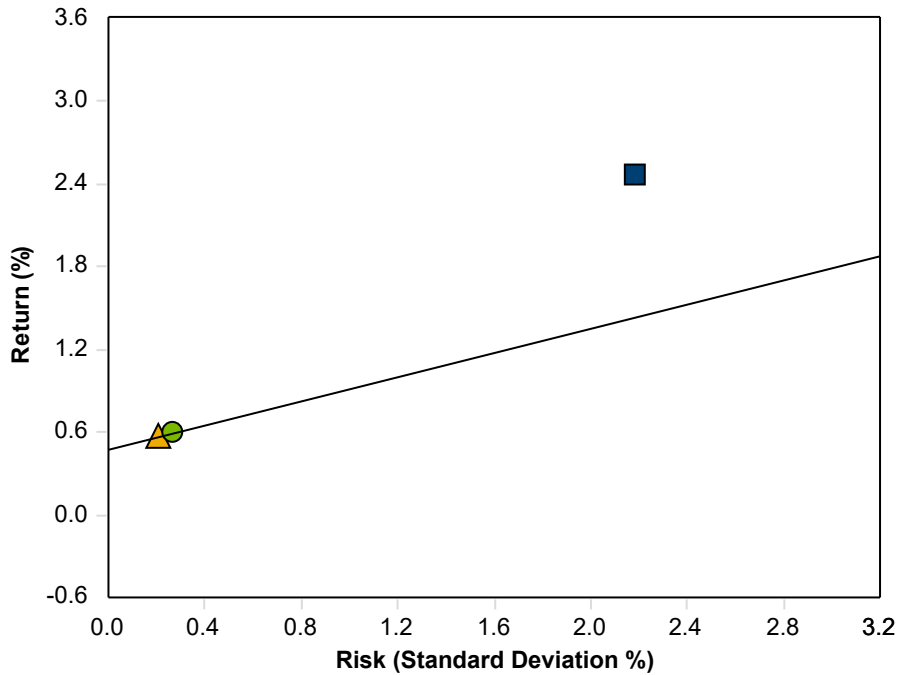


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2021	2020	2019
Wellington Global Total Return	0.8 (9)	5.6 (7)	4.4 (8)	2.5 (37)	3.7 (24)	0.5 (82)	1.4 (77)	3.7 (89)
ICE BofAML 3 Month U.S. T-Bill	0.5 (14)	0.6 (12)	0.6 (16)	0.6 (58)	1.1 (62)	0.0 (82)	0.7 (81)	2.3 (90)
5th Percentile	1.5	9.4	5.4	8.3	6.2	24.4	20.2	28.6
1st Quartile	-0.1	-4.8	-4.2	3.3	3.6	14.6	10.7	14.5
Median	-2.2	-10.3	-7.9	1.9	1.5	7.1	6.0	8.9
3rd Quartile	-3.5	-16.2	-12.1	-0.4	0.0	1.5	1.9	6.7
95th Percentile	-6.3	-28.1	-24.7	-4.6	-3.0	-9.7	-13.1	-3.3
Population	46	46	45	42	37	48	46	45

Parentheses contain percentile rankings.

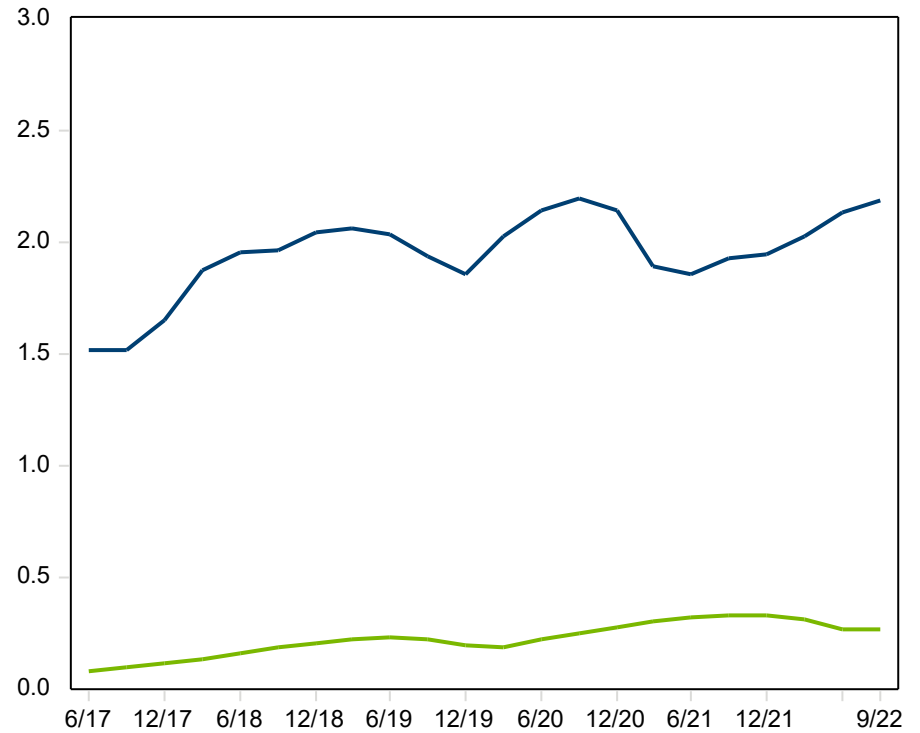
Wellington Global Total Return Risk Profile

Annualized Return vs. Annualized Standard Deviation 3 Years



- Wellington Global Total Return
- ICE BofAML 3 Month U.S. T-Bill
- ▲ FTSE 3 Month T-Bill

Rolling 3 Years Standard Deviation



- Wellington Global Total Return
- ICE BofAML 3 Month U.S. T-Bill

3 Years Historical Statistics

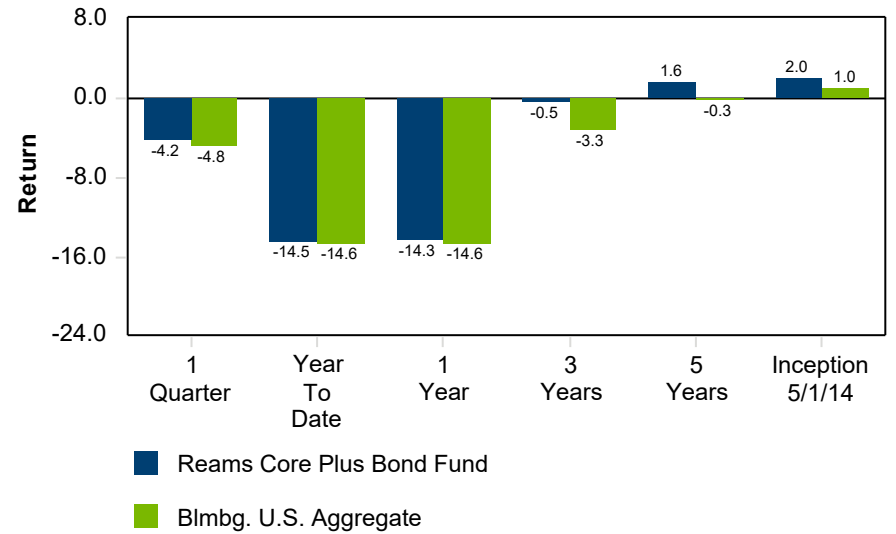
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Wellington Global Total Return	1.87	2.23	0.84	0.02	0.87	3.13	-1.05	2.47	2.18	-0.13
ICE BofAML 3 Month U.S. T-Bill	0.00	0.00	N/A	1.00	0.20	0.00	1.00	0.59	0.27	1.00
FTSE 3 Month T-Bill	-0.02	0.12	-0.20	0.80	N/A	0.15	0.70	0.57	0.21	0.89

Reams Core Plus Bond Fund Performance Summary

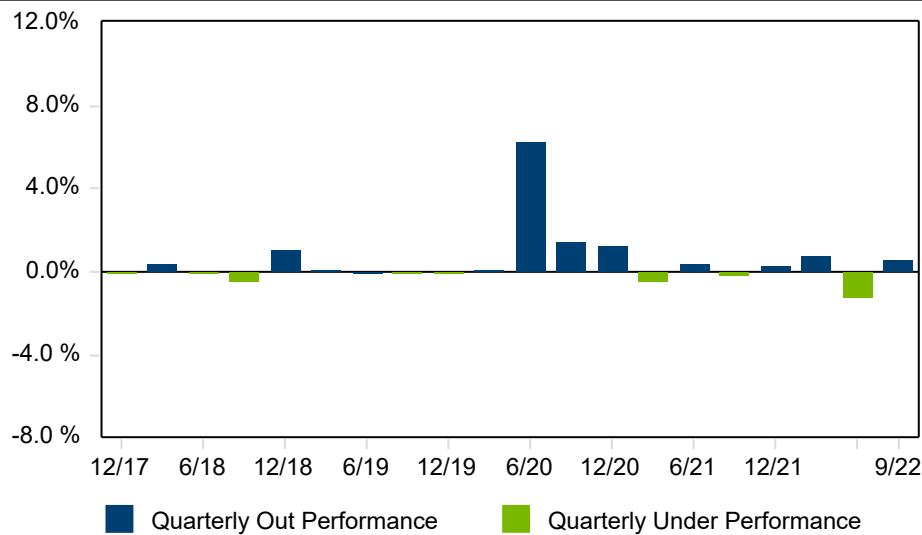
Account Information

Account Name: Reams Core Plus Bond Fund  
 Inception Date: 05/08/2014  
 Account Structure: Commingled Fund  
 Asset Class: US Fixed Income  
 Benchmark: Blmbg. U.S. Aggregate  
 Peer Group: IM U.S. Fixed Income (SA+CF)

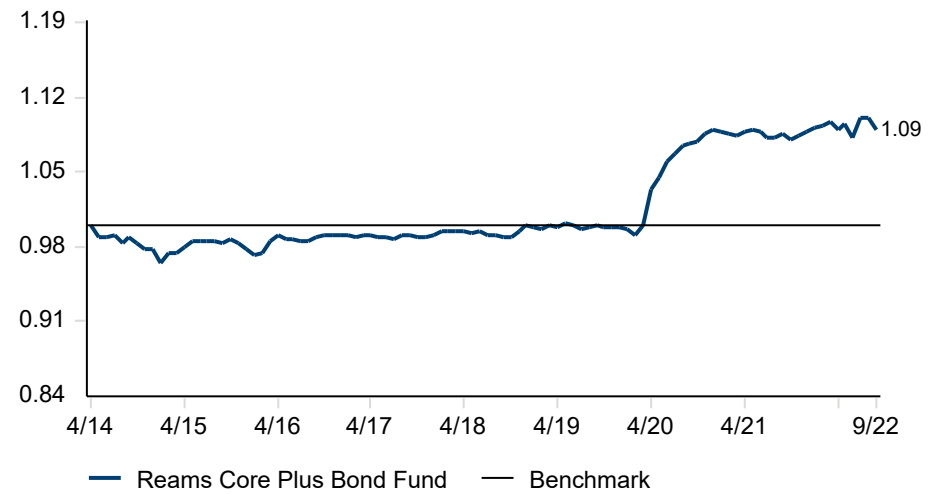
Return Summary



Quarterly Excess Performance

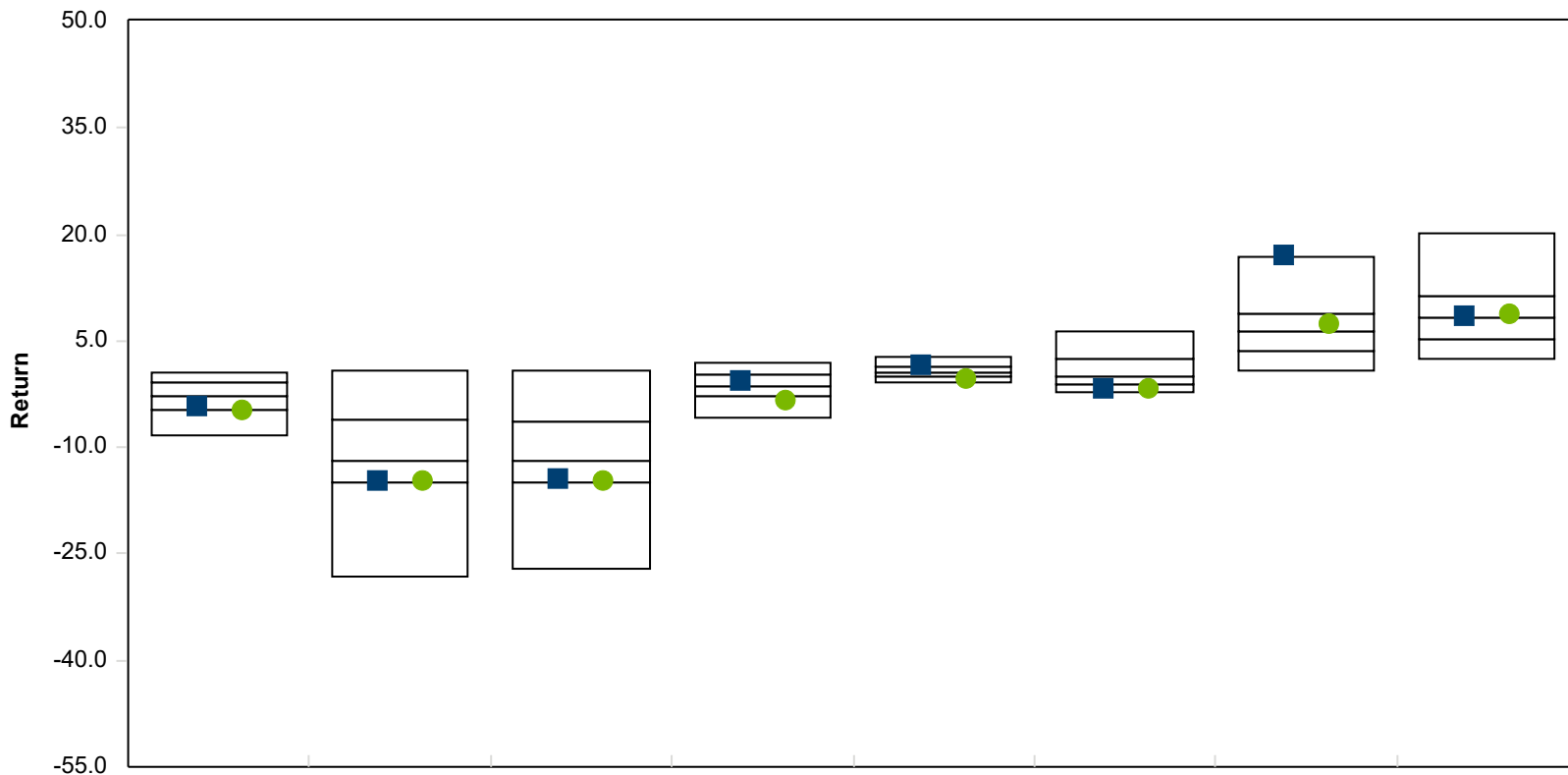


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM U.S. Fixed Income (SA+CF)



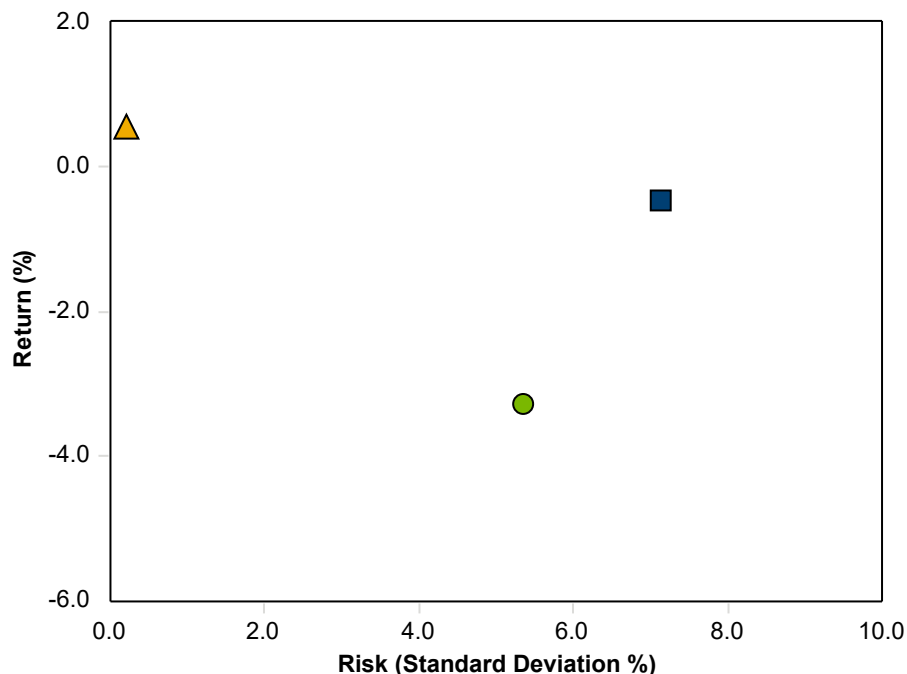
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2021	2020	2019
■ Reams Core Plus Bond Fund	-4.2 (67)	-14.5 (69)	-14.3 (67)	-0.5 (34)	1.6 (21)	-1.6 (88)	17.2 (5)	8.6 (47)
● Blmbg. U.S. Aggregate	-4.8 (80)	-14.6 (70)	-14.6 (71)	-3.3 (84)	-0.3 (85)	-1.5 (86)	7.5 (39)	8.7 (46)
5th Percentile	0.6	0.7	0.7	2.0	2.7	6.4	16.8	20.1
1st Quartile	-0.8	-6.2	-6.4	0.2	1.4	2.5	8.9	11.4
Median	-2.9	-12.0	-11.9	-1.3	0.6	-0.1	6.4	8.3
3rd Quartile	-4.6	-15.0	-14.9	-2.9	0.0	-1.1	3.5	5.3
95th Percentile	-8.4	-28.2	-27.1	-5.9	-0.9	-2.2	0.9	2.4
Population	1,044	1,043	1,037	1,007	961	1,163	1,229	1,252

Parenteses contain percentile rankings.



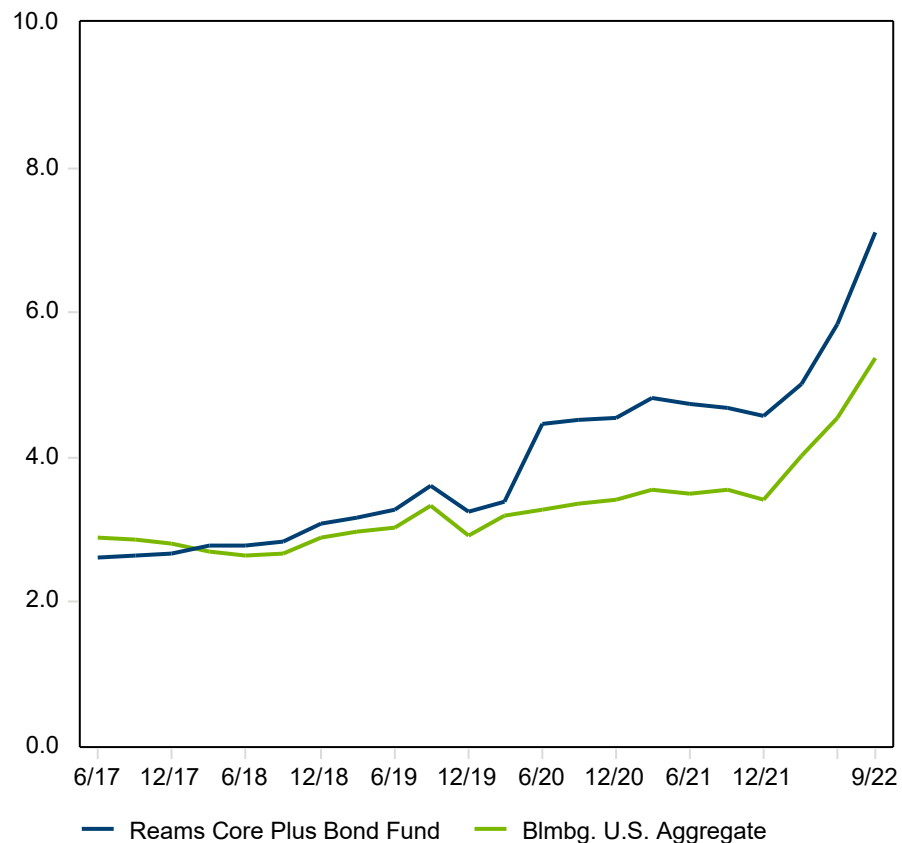
Reams Core Plus Bond Fund Risk Profile

Annualized Return vs. Annualized Standard Deviation 3 Years



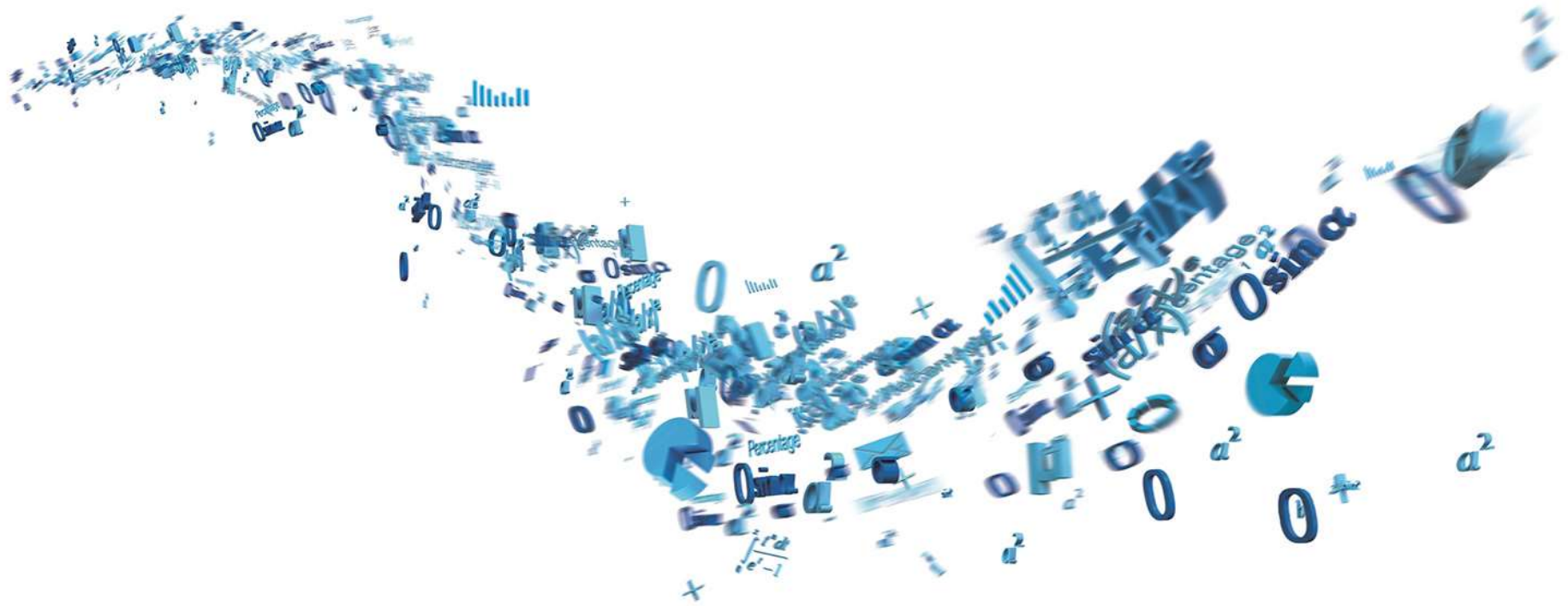
- Reams Core Plus Bond Fund
- Blmbg. U.S. Aggregate
- ▲ FTSE 3 Month T-Bill

Rolling 3 Years Standard Deviation



3 Years Historical Statistics

	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Reams Core Plus Bond Fund	2.96	2.80	1.06	0.88	-0.11	3.80	1.25	-0.45	7.12	0.94
Blmbg. U.S. Aggregate	0.00	0.00	N/A	1.00	-0.69	0.00	1.00	-3.26	5.36	1.00
FTSE 3 Month T-Bill	3.73	5.38	0.69	0.00	N/A	0.56	0.00	0.57	0.21	-0.06



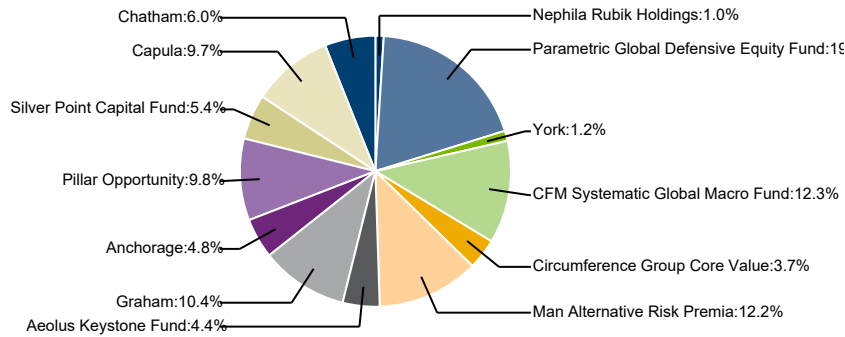
## Opportunistic/Alternatives

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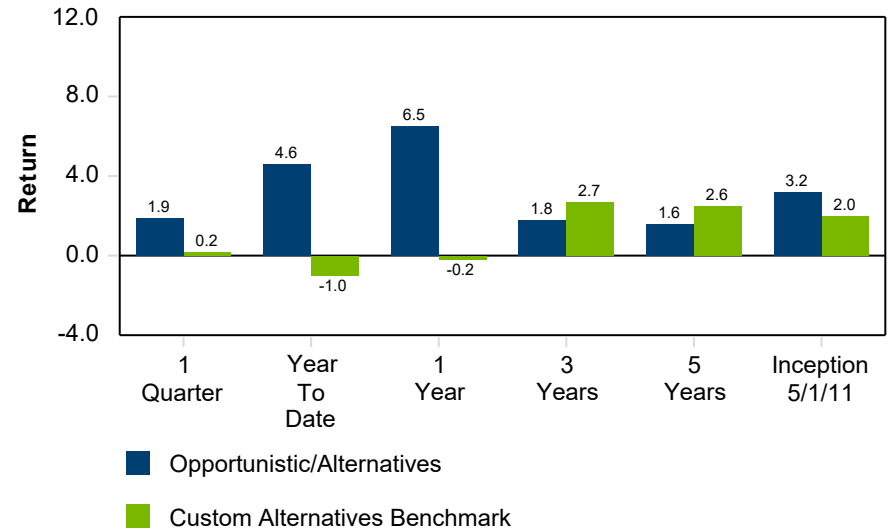
Opportunistic/Alternatives Portfolio Overview

Current Allocation

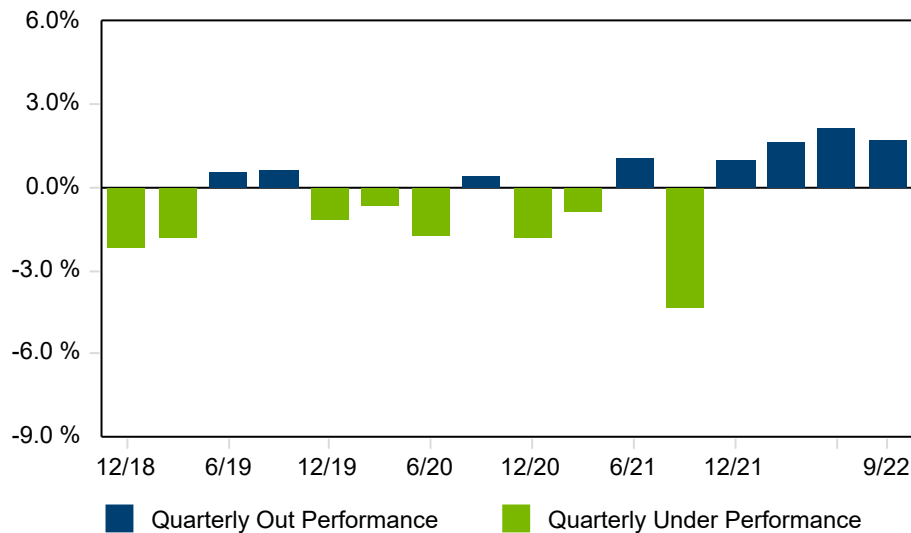
September 30, 2022 : \$917M



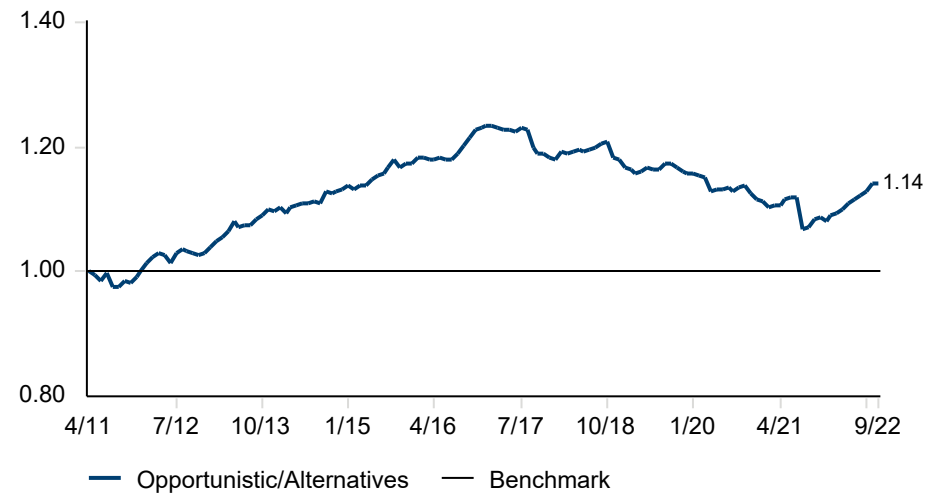
Return Summary



Quarterly Excess Performance

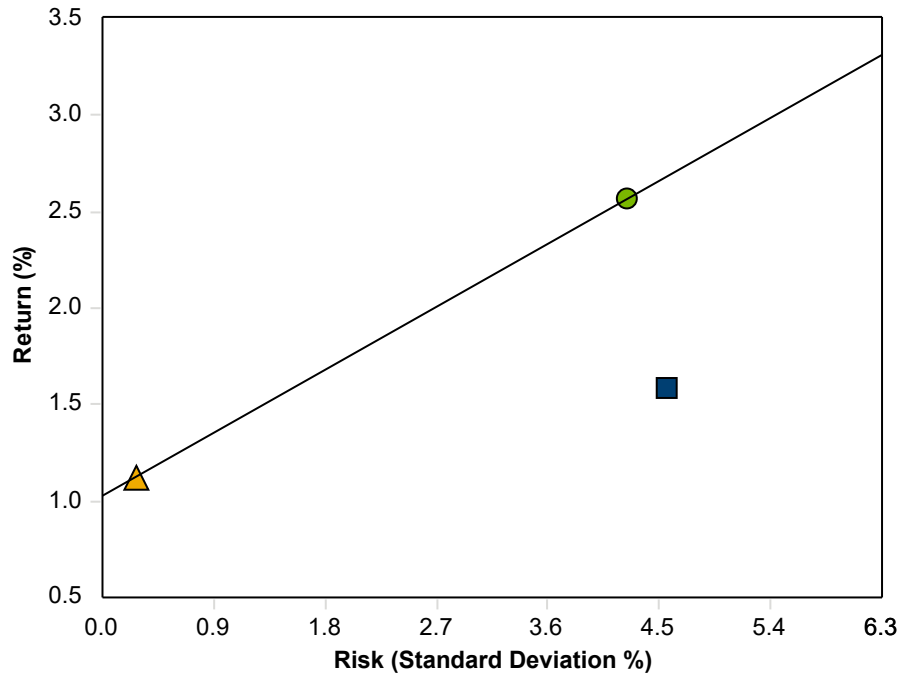


Ratio of Cumulative Wealth - Since Inception



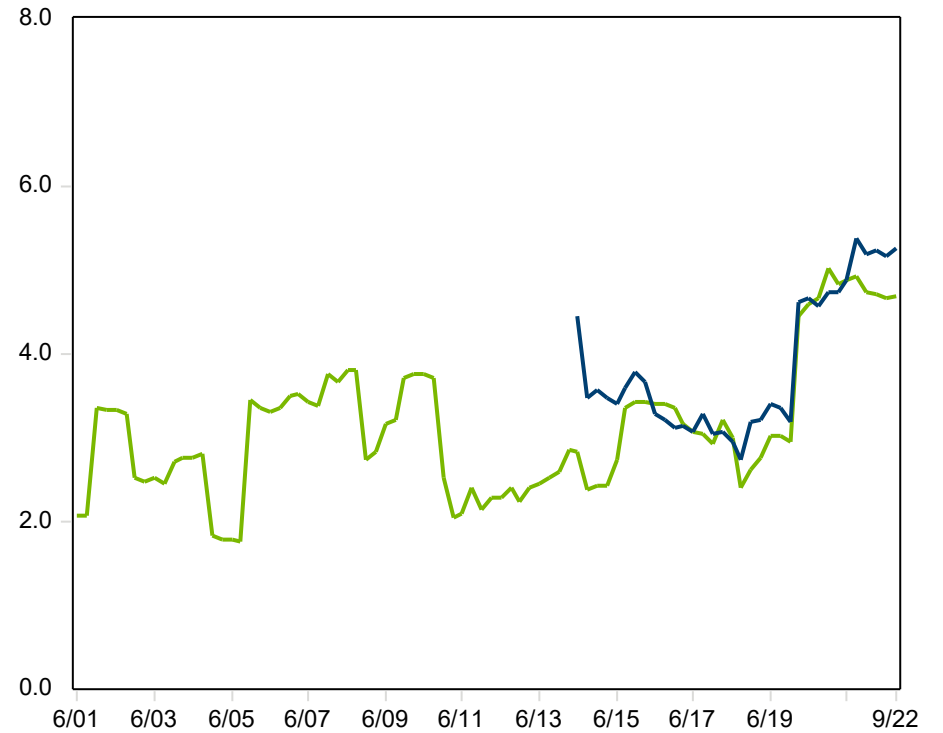
Opportunistic/Alternatives Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



- Opportunistic/Alternatives
- Custom Alternatives Benchmark
- ▲ FTSE 3 Month T-Bill

Rolling 3 Years Standard Deviation



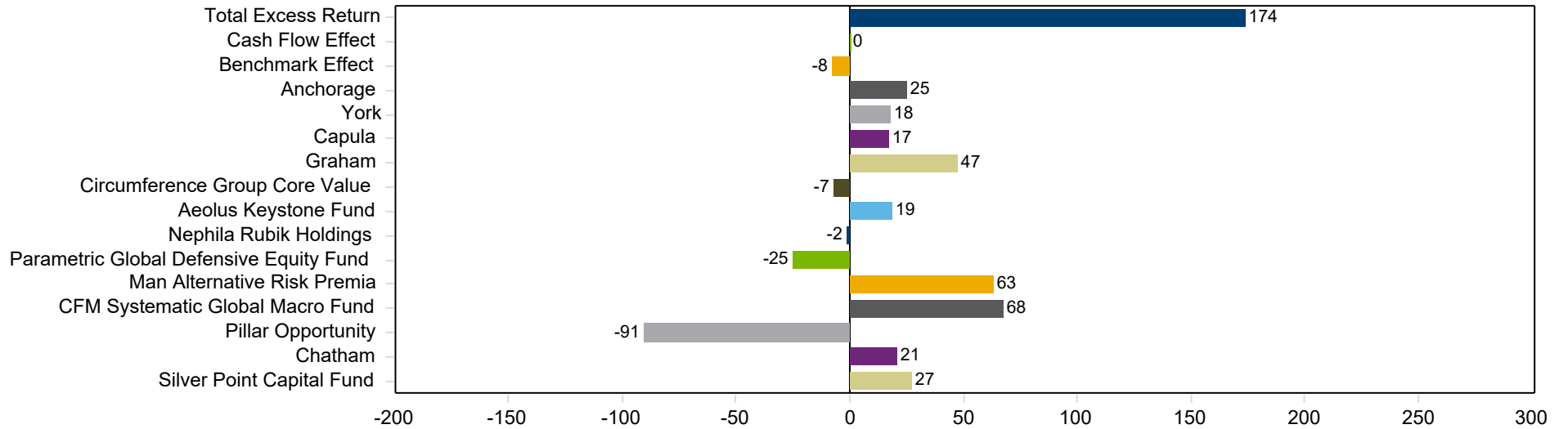
- Opportunistic/Alternatives
- Custom Alternatives Benchmark

5 Years Historical Statistics

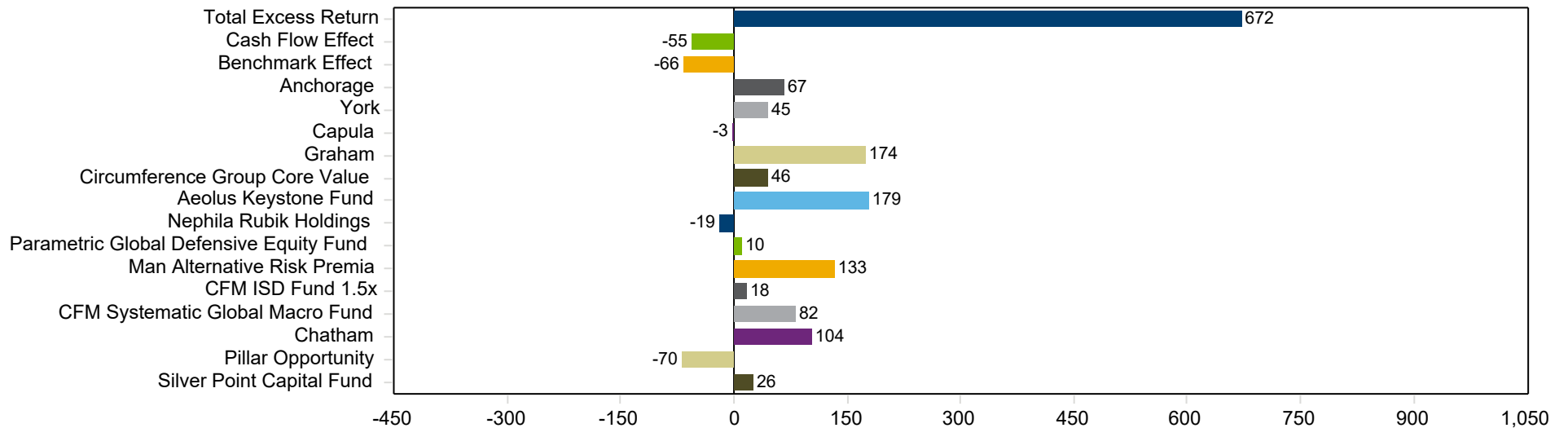
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Opportunistic/Alternatives	-0.95	3.10	-0.31	0.57	0.12	-0.45	0.81	1.59	4.57	0.75
Custom Alternatives Benchmark	0.00	0.00	N/A	1.00	0.35	0.00	1.00	2.56	4.24	1.00
FTSE 3 Month T-Bill	-1.50	4.30	-0.35	0.03	N/A	1.16	-0.01	1.13	0.27	-0.18

Asset Class Attribution

1 Quarter



1 Year

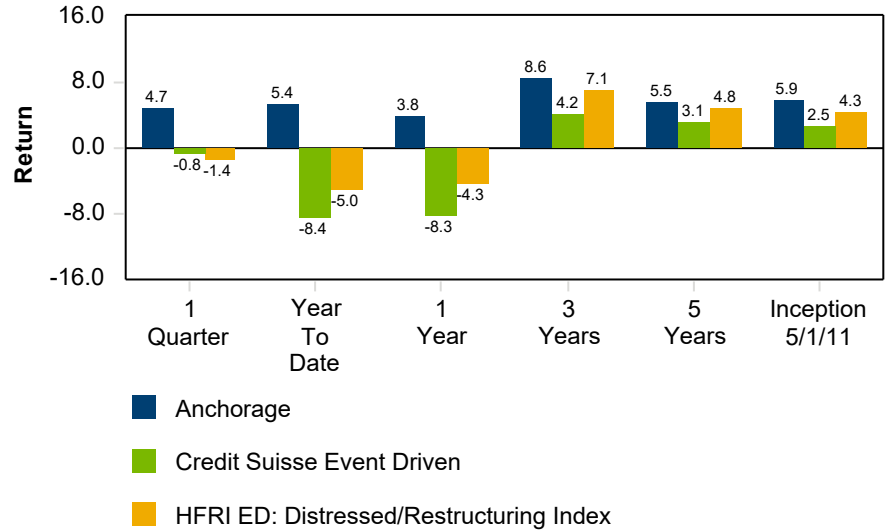


## Anchorage Performance Summary

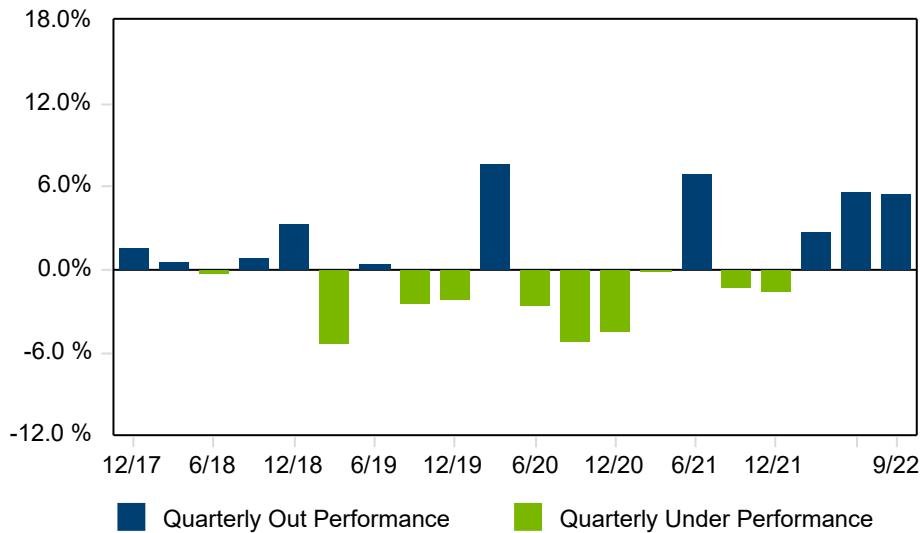
### Account Information

Account Name: Anchorage  
 Inception Date: 05/01/2011  
 Account Structure: Hedge Fund  
 Asset Class: US Hedge Fund  
 Benchmark: Credit Suisse Event Driven  
 Peer Group:

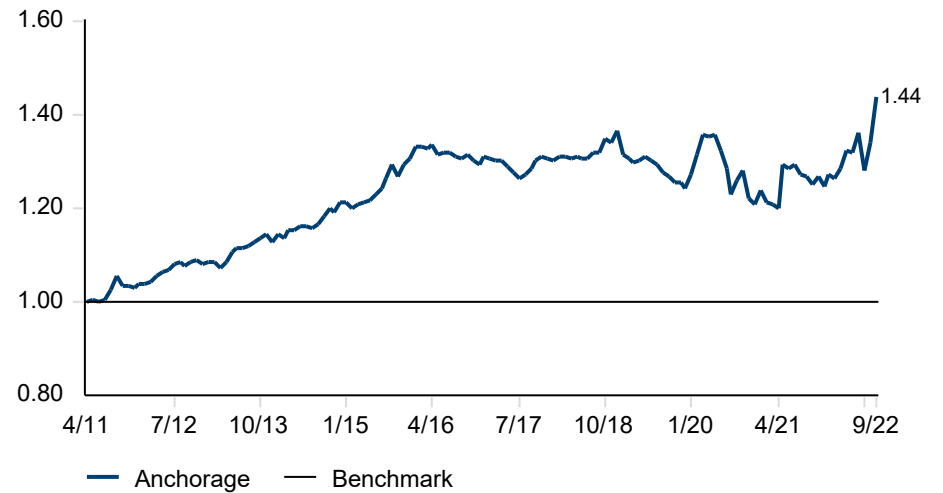
### Return Summary



### Quarterly Excess Performance

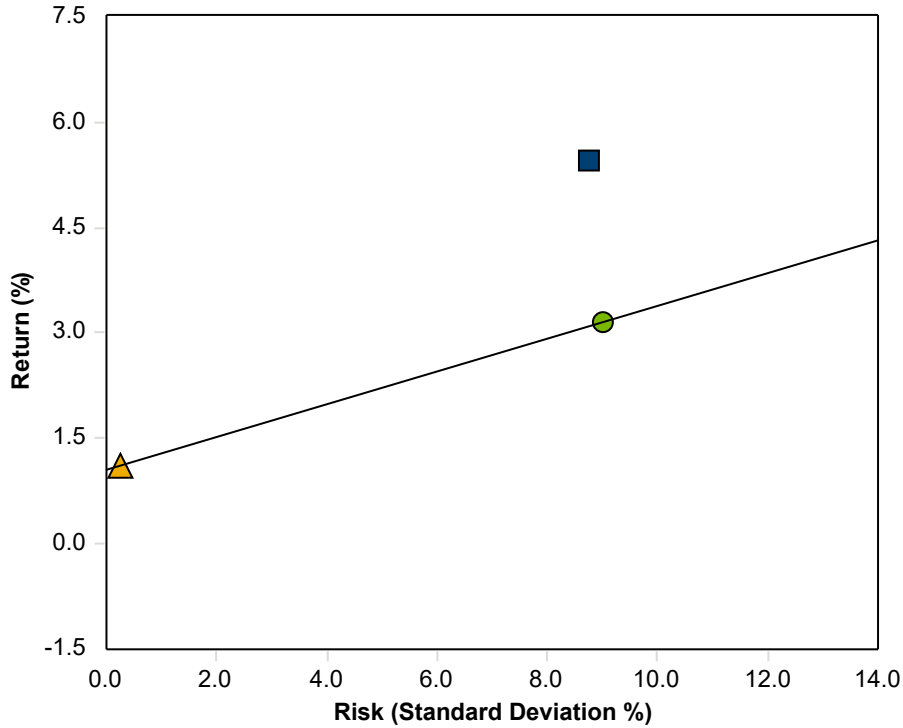


### Ratio of Cumulative Wealth - Since Inception



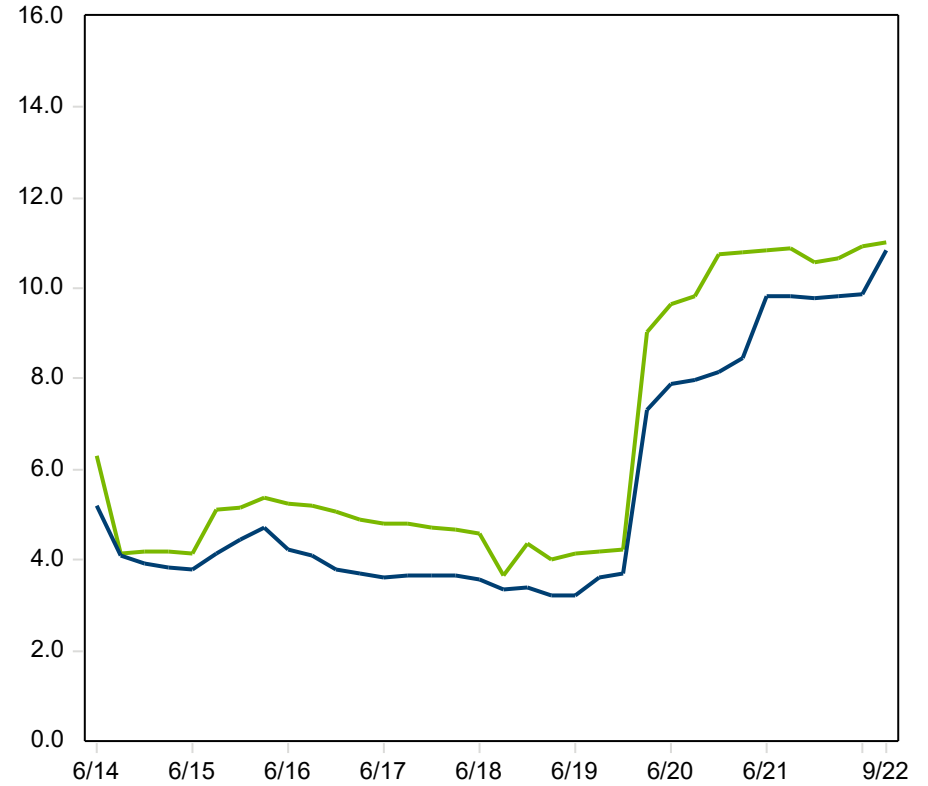
Anchorage Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



■ Anchorage      ● Credit Suisse Event Driven  
▲ FTSE 3 Month T-Bill

Rolling 3 Years Standard Deviation



— Anchorage      — Credit Suisse Event Driven

5 Years Historical Statistics

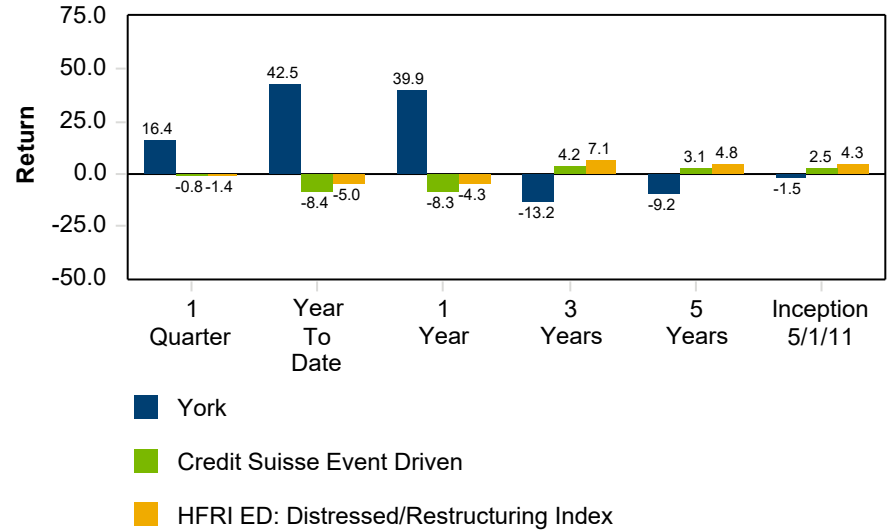
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Anchorage	2.19	8.30	0.26	0.32	0.52	3.85	0.55	5.46	8.75	0.56
Credit Suisse Event Driven	0.00	0.00	N/A	1.00	0.26	0.00	1.00	3.15	9.00	1.00
FTSE 3 Month T-Bill	-2.40	9.06	-0.26	0.06	N/A	1.15	-0.01	1.13	0.27	-0.24

York Performance Summary

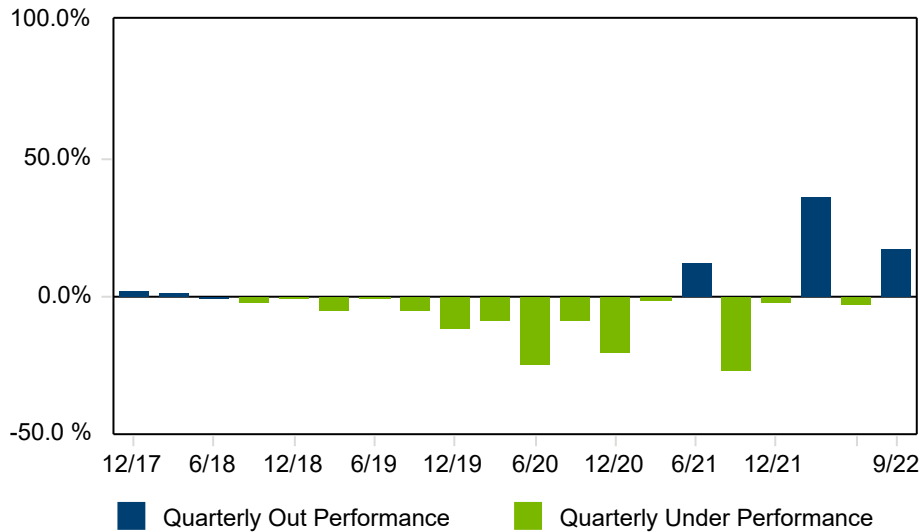
Account Information

Account Name: York  
 Inception Date: 05/01/2011  
 Account Structure: Hedge Fund  
 Asset Class: US Hedge Fund  
 Benchmark: Credit Suisse Event Driven  
 Peer Group:

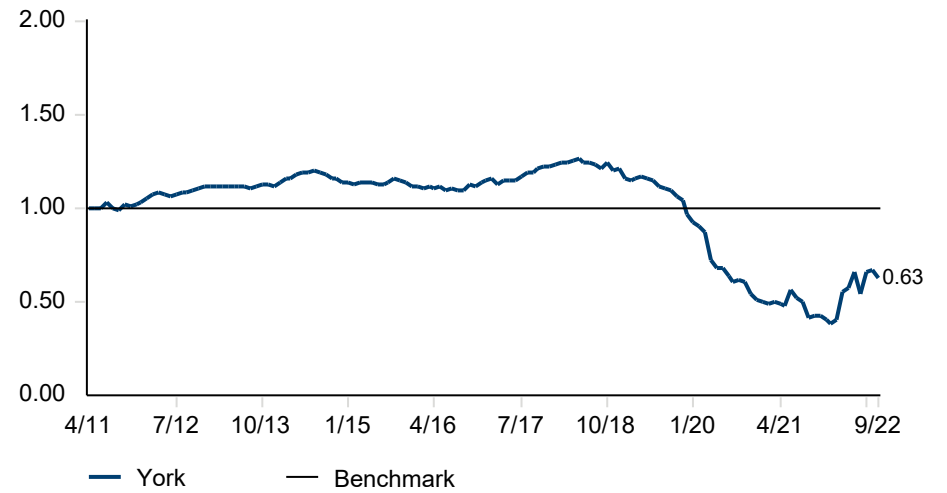
Return Summary



Quarterly Excess Performance



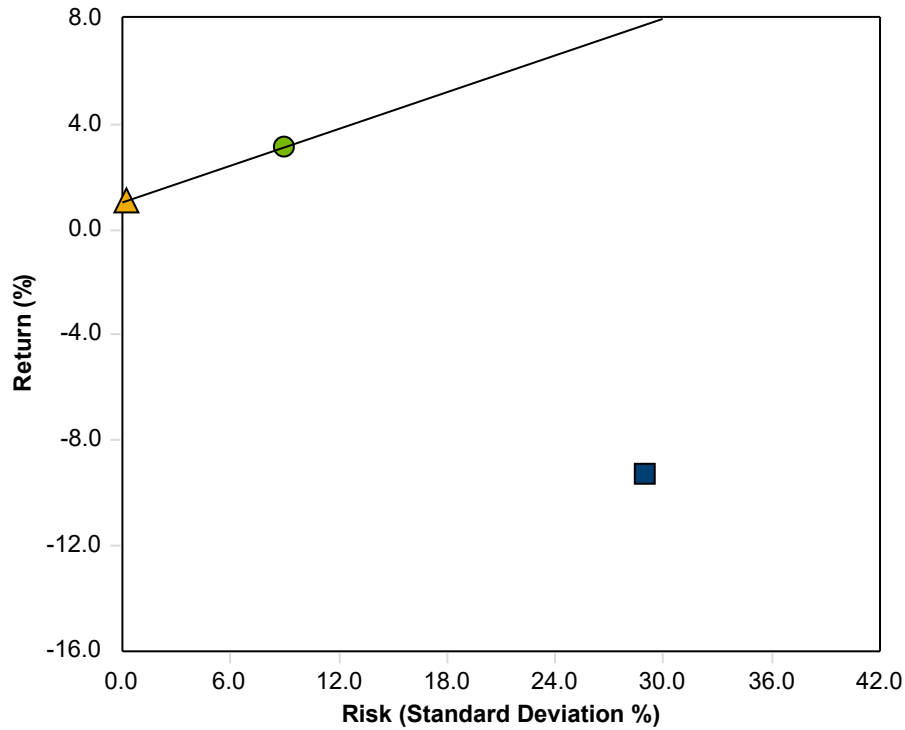
Ratio of Cumulative Wealth - Since Inception





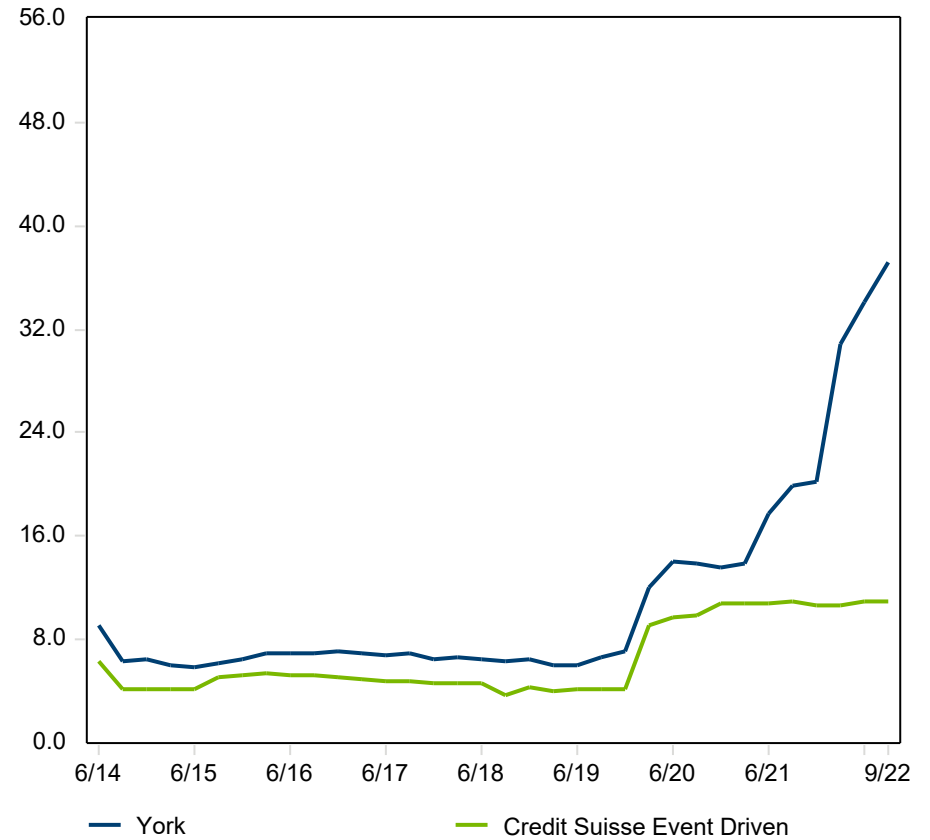
York Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



■ York  
● Credit Suisse Event Driven  
▲ FTSE 3 Month T-Bill

Rolling 3 Years Standard Deviation



5 Years Historical Statistics

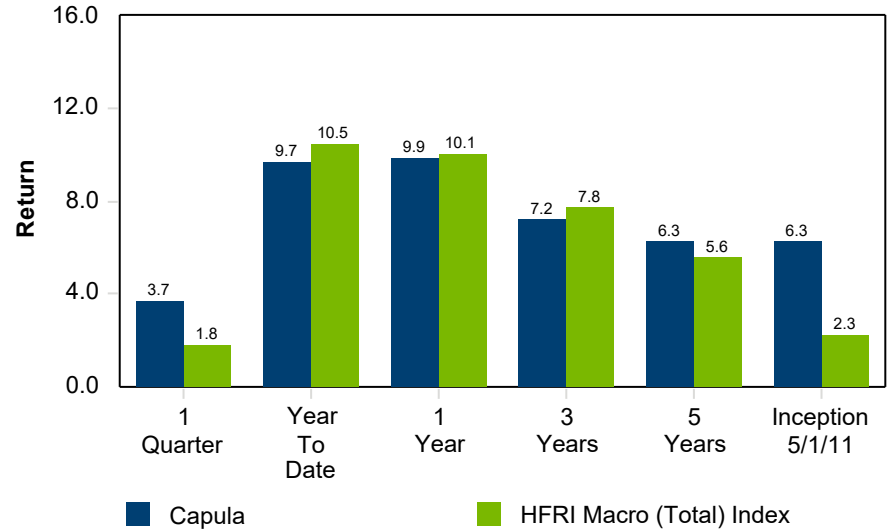
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
York	-9.31	28.29	-0.33	0.05	-0.24	-8.04	0.73	-9.24	28.93	0.23
Credit Suisse Event Driven	0.00	0.00	N/A	1.00	0.26	0.00	1.00	3.15	9.00	1.00
FTSE 3 Month T-Bill	-2.40	9.06	-0.26	0.06	N/A	1.15	-0.01	1.13	0.27	-0.24

Capula Performance Summary

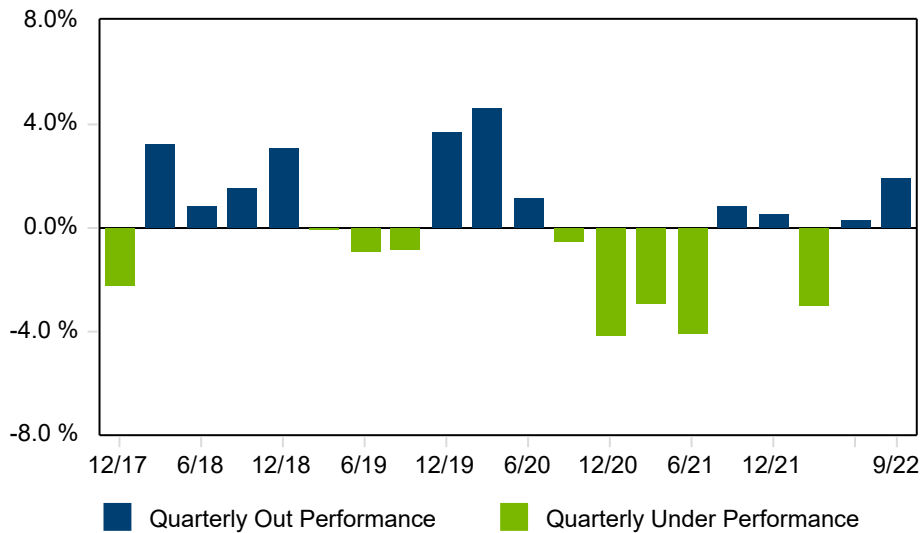
Account Information

Account Name: Capula  
 Inception Date: 05/01/2011  
 Account Structure: Hedge Fund  
 Asset Class: US Hedge Fund  
 Benchmark: HFRI Macro (Total) Index  
 Peer Group:

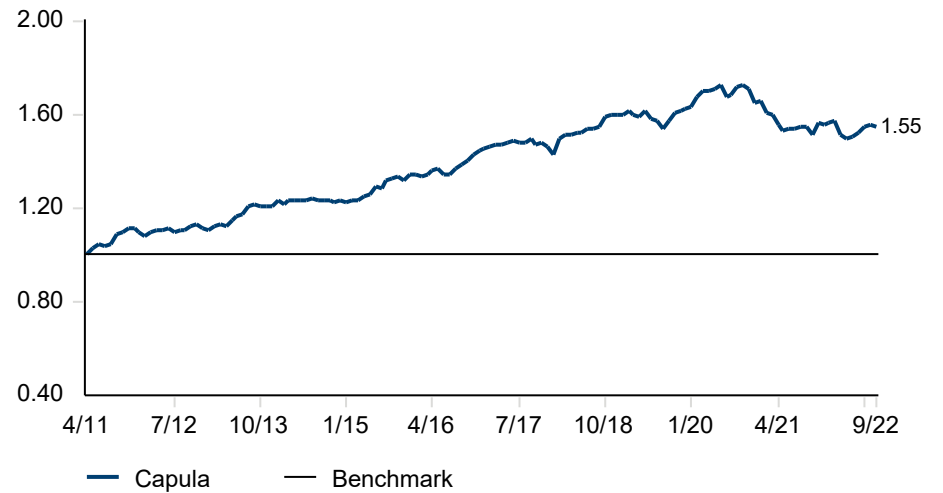
Return Summary



Quarterly Excess Performance

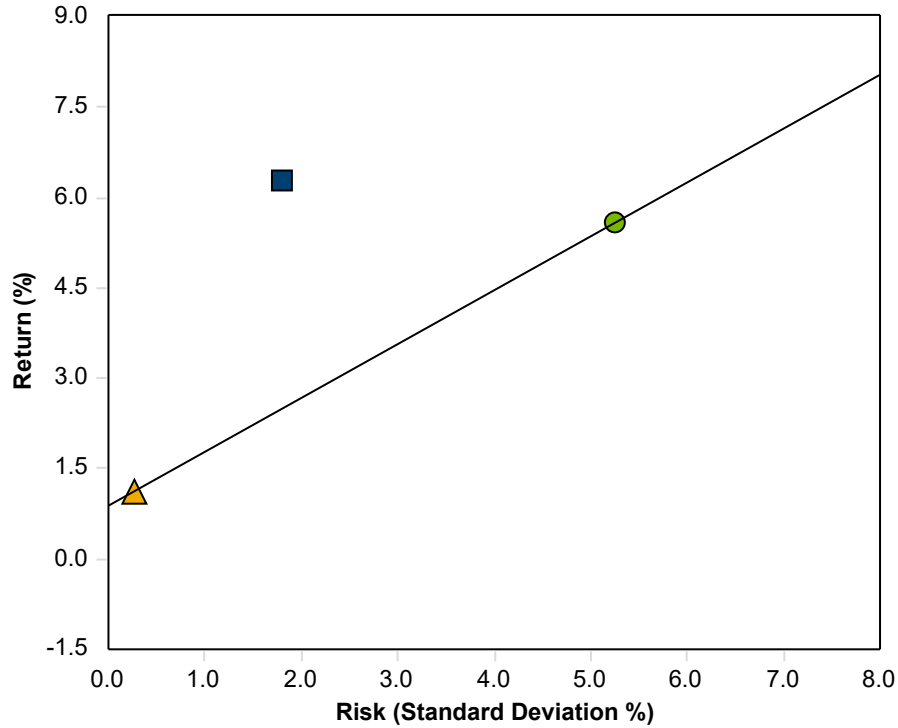


Ratio of Cumulative Wealth - Since Inception



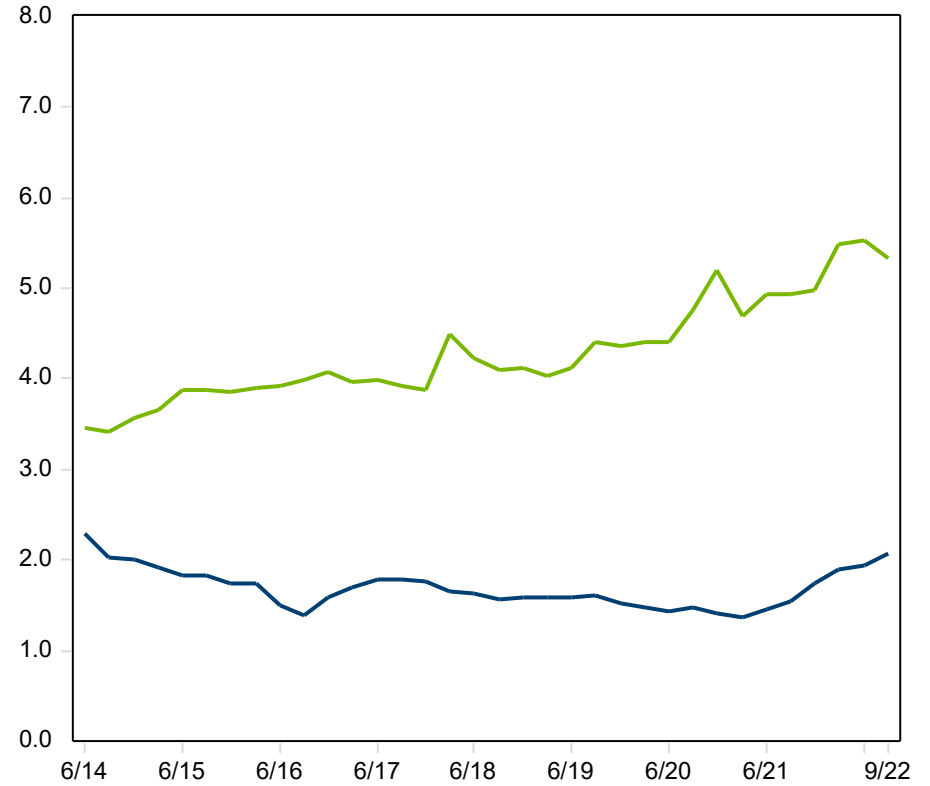
Capula Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



■ Capula                      ● HFRI Macro (Total) Index  
 ▲ FTSE 3 Month T-Bill

Rolling 3 Years Standard Deviation



— Capula                      — HFRI Macro (Total) Index

5 Years Historical Statistics

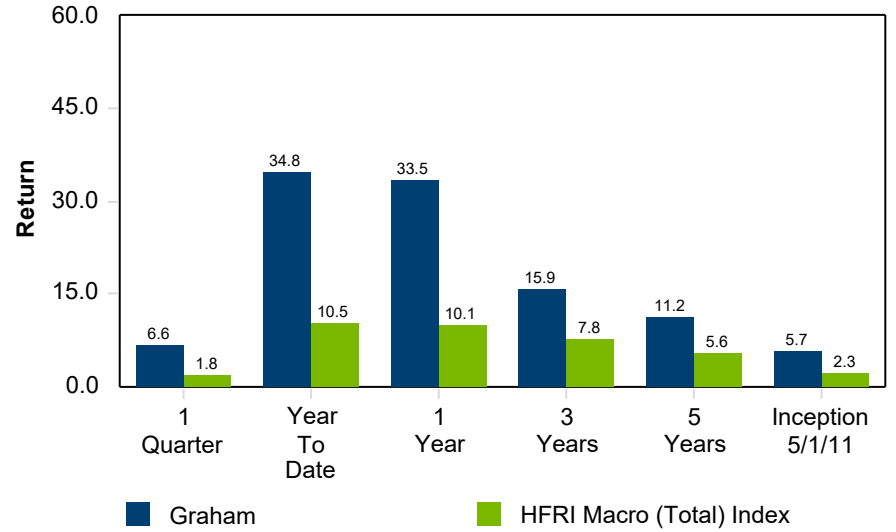
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Capula	0.55	5.62	0.10	0.00	2.83	6.38	-0.01	6.28	1.80	-0.04
HFRI Macro (Total) Index	0.00	0.00	N/A	1.00	0.84	0.00	1.00	5.57	5.25	1.00
FTSE 3 Month T-Bill	-4.45	5.31	-0.84	0.03	N/A	1.18	-0.01	1.13	0.27	-0.18

Graham Performance Summary

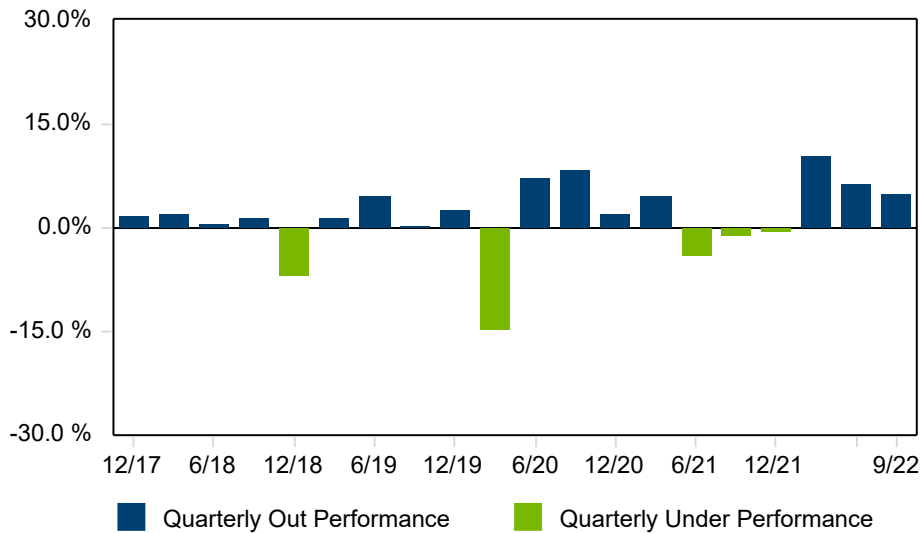
Account Information

Account Name: Graham  
 Inception Date: 05/01/2011  
 Account Structure: Hedge Fund  
 Asset Class: Hedge Fund  
 Benchmark: HFRI Macro (Total) Index  
 Peer Group:

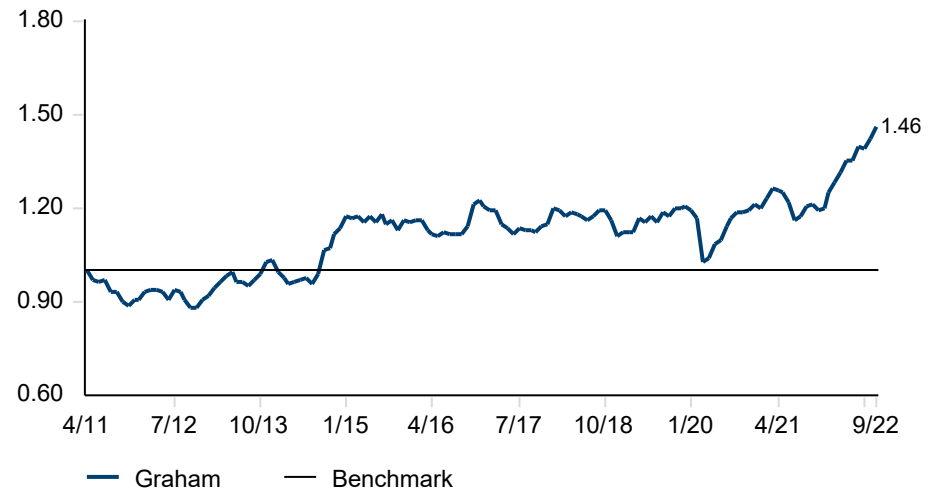
Return Summary



Quarterly Excess Performance

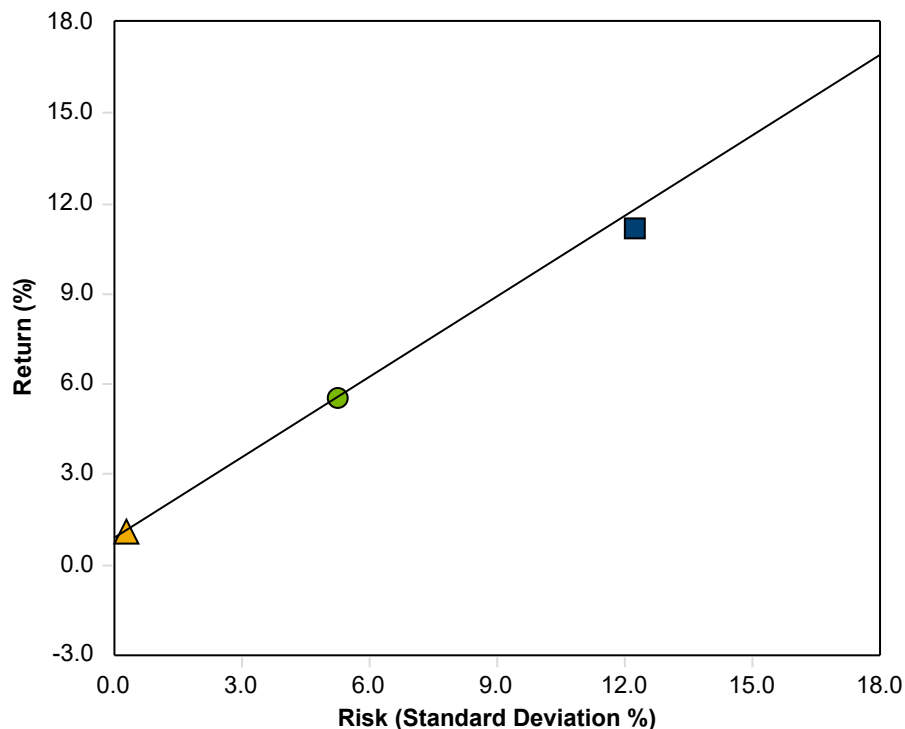


Ratio of Cumulative Wealth - Since Inception



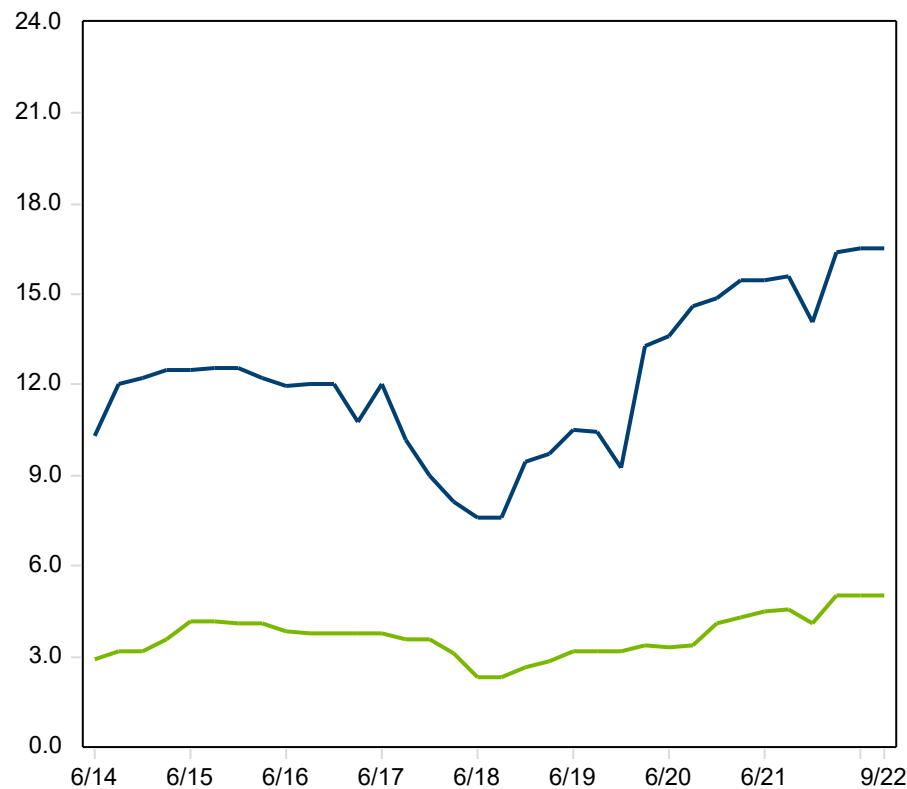
Graham Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



■ Graham      ● HFRI Macro (Total) Index  
 ▲ FTSE 3 Month T-Bill

Rolling 3 Years Standard Deviation



— Graham      — HFRI Macro (Total) Index

5 Years Historical Statistics

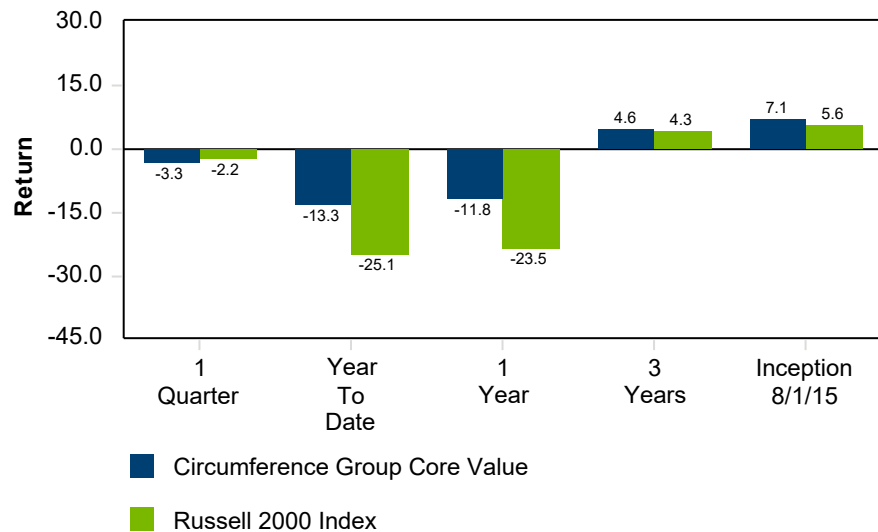
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Graham	5.81	9.17	0.63	0.53	0.83	1.97	1.69	11.17	12.24	0.73
HFRI Macro (Total) Index	0.00	0.00	N/A	1.00	0.84	0.00	1.00	5.57	5.25	1.00
FTSE 3 Month T-Bill	-4.45	5.31	-0.84	0.03	N/A	1.18	-0.01	1.13	0.27	-0.18

Circumference Group Core Value Performance Summary

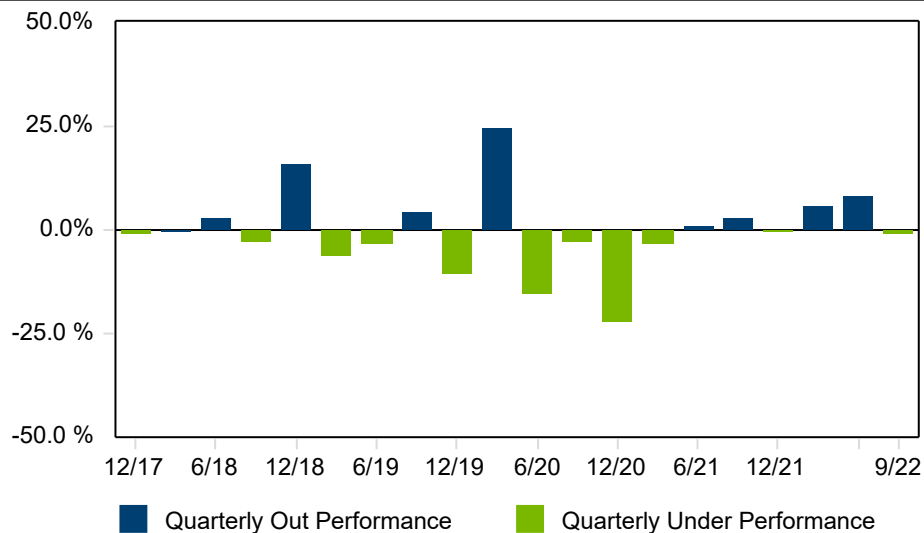
Account Information

Account Name: Circumference Group Core Value  
 Inception Date: 08/31/2015  
 Account Structure: Hedge Fund  
 Asset Class: US Hedge Fund  
 Benchmark: Russell 2000 Index  
 Peer Group:

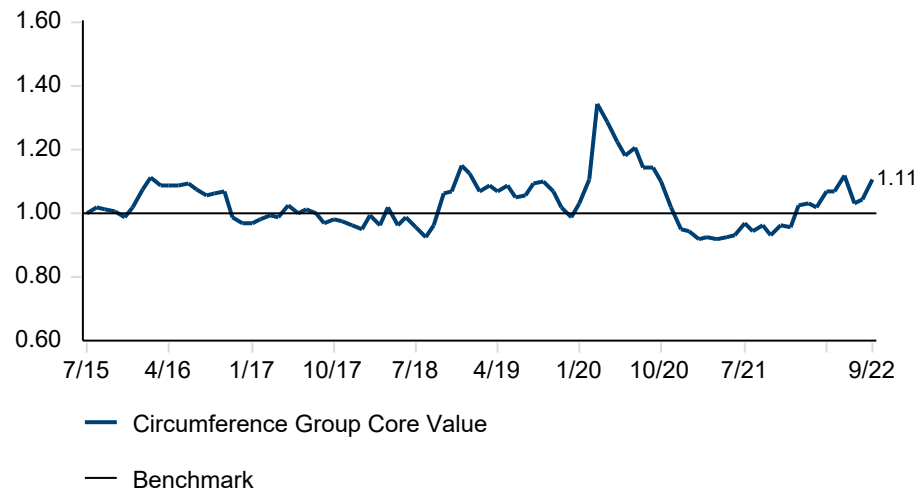
Return Summary



Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception

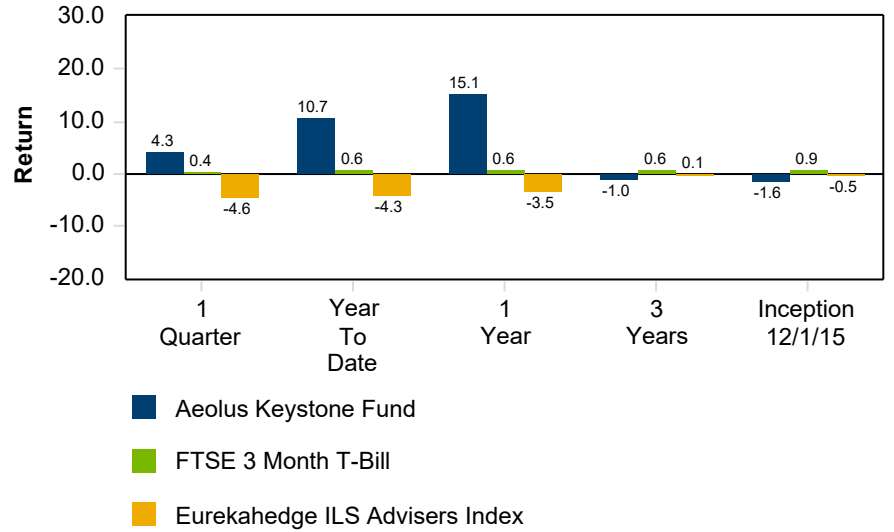


**Aeolus Keystone Fund Performance Summary**

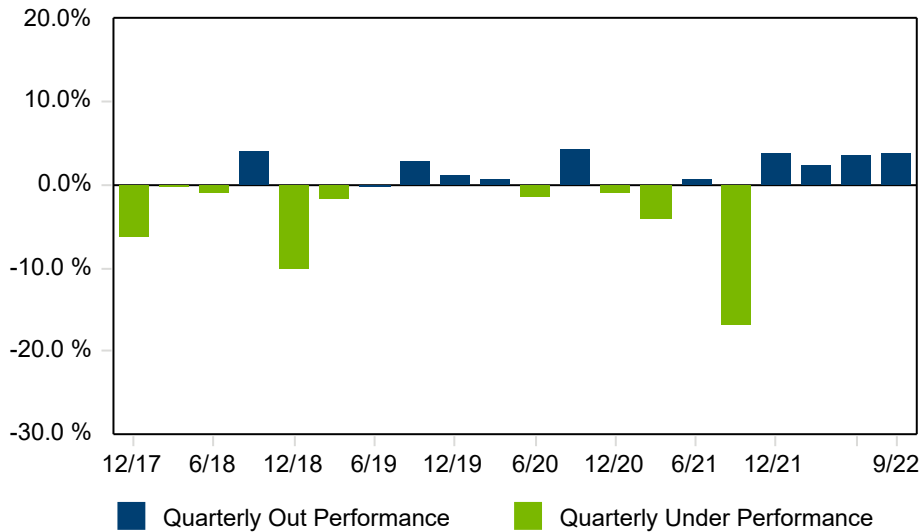
**Account Information**

Account Name: Aeolus Keystone Fund  
 Inception Date: 12/01/2015  
 Account Structure: Hedge Fund  
 Asset Class: Hedge Fund  
 Benchmark: FTSE 3 Month T-Bill  
 Peer Group:

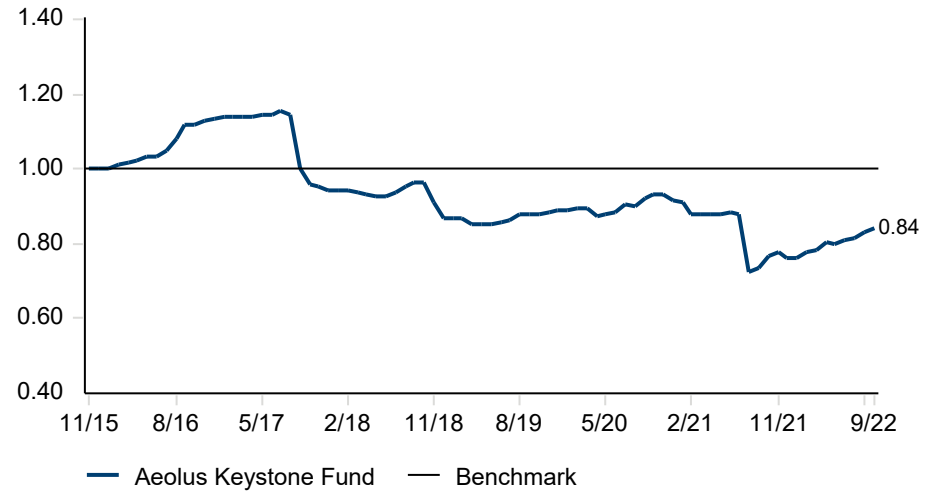
**Return Summary**



**Quarterly Excess Performance**



**Ratio of Cumulative Wealth - Since Inception**

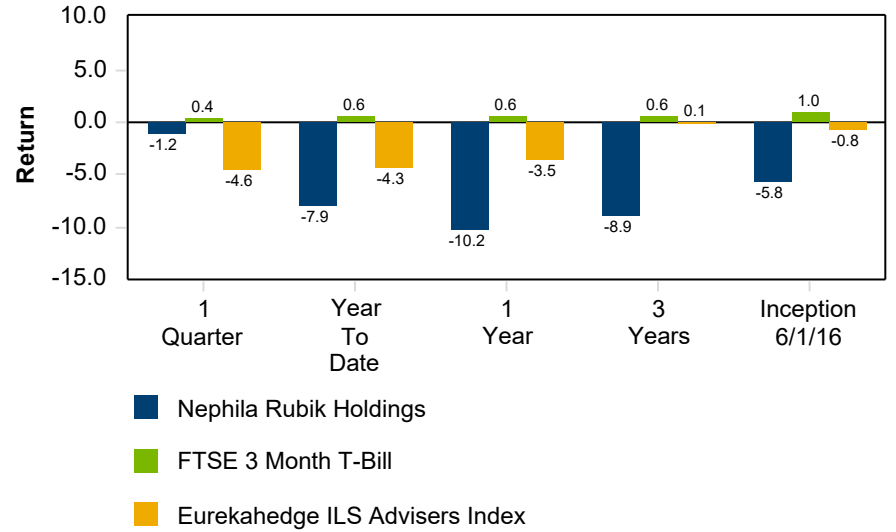


Nephila Rubik Holdings Performance Summary

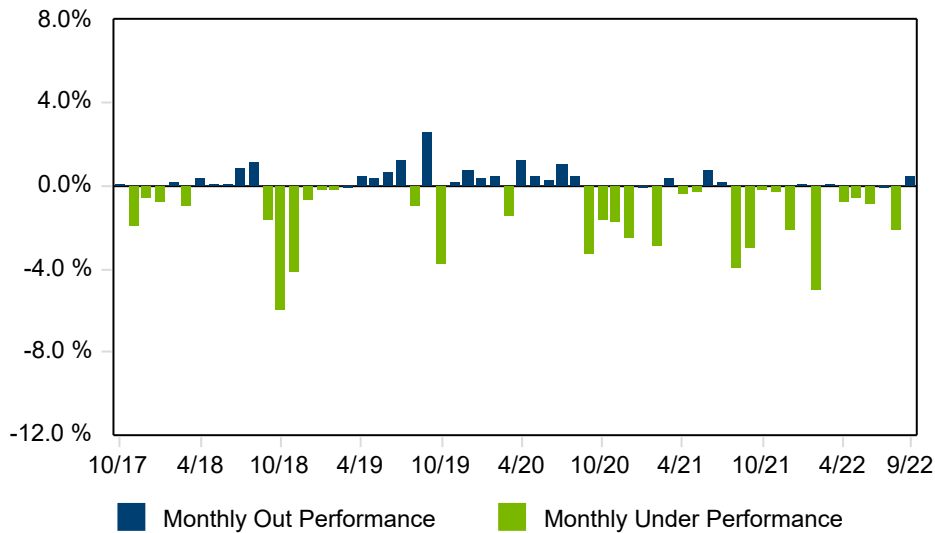
Account Information

Account Name: Nephila Rubik Holdings  
 Inception Date: 06/01/2016  
 Account Structure:  
 Asset Class: Hedge Fund  
 Benchmark: FTSE 3 Month T-Bill  
 Peer Group:

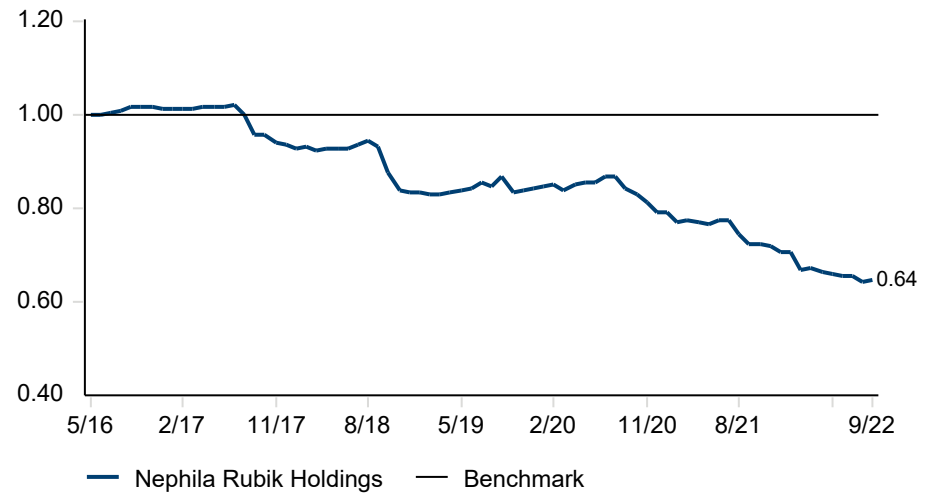
Return Summary



Monthly Excess Performance



Ratio of Cumulative Wealth - Since Inception



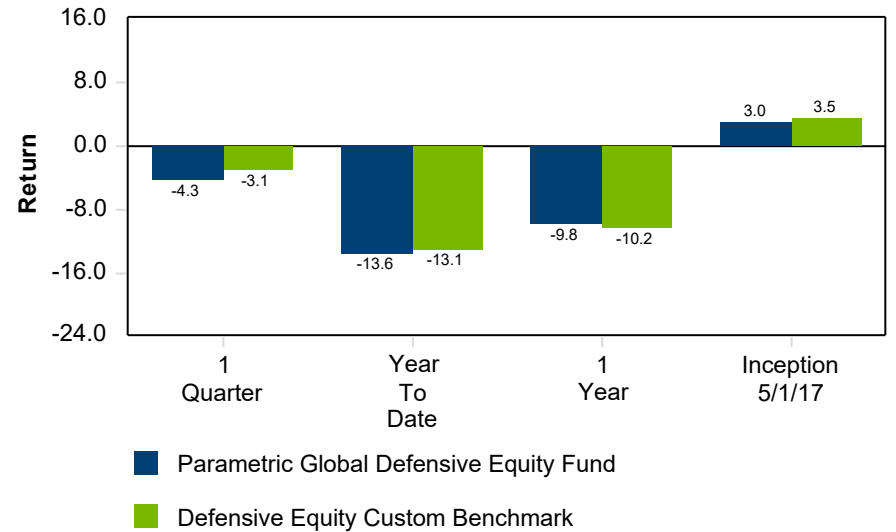


Parametric Global Defensive Equity Fund Performance Summary

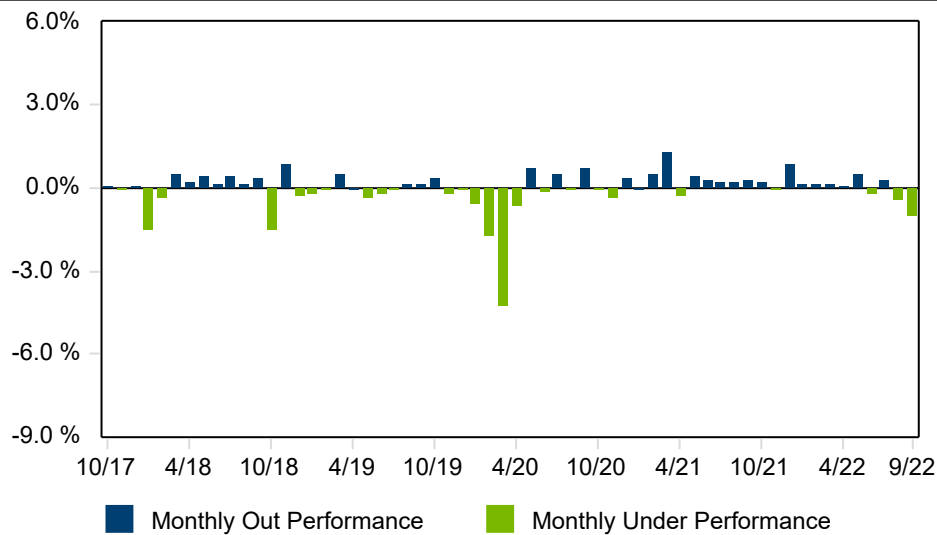
Account Information

Account Name: Parametric Global Defensive Equity Fund  
 Inception Date: 06/01/2017  
 Account Structure: Commingled Fund  
 Asset Class: Global Equity  
 Benchmark: Defensive Equity Custom Benchmark  
 Peer Group:

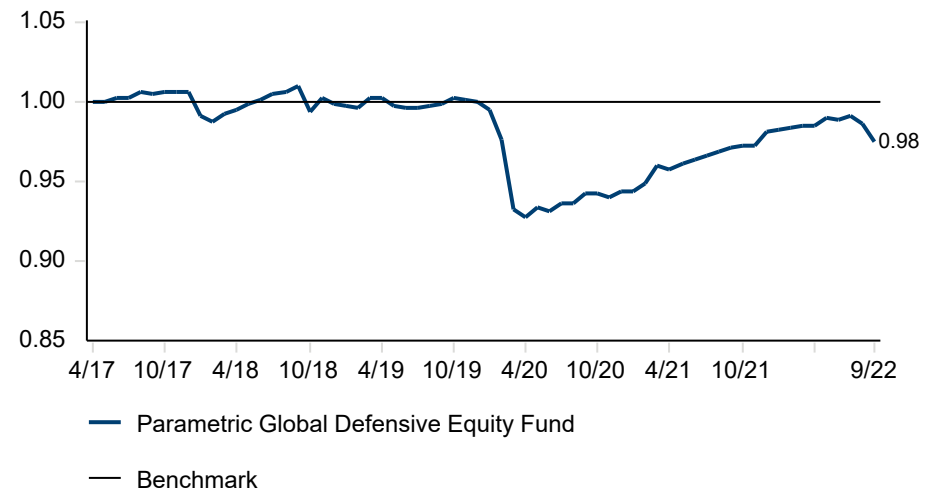
Return Summary



Monthly Excess Performance



Ratio of Cumulative Wealth - Since Inception

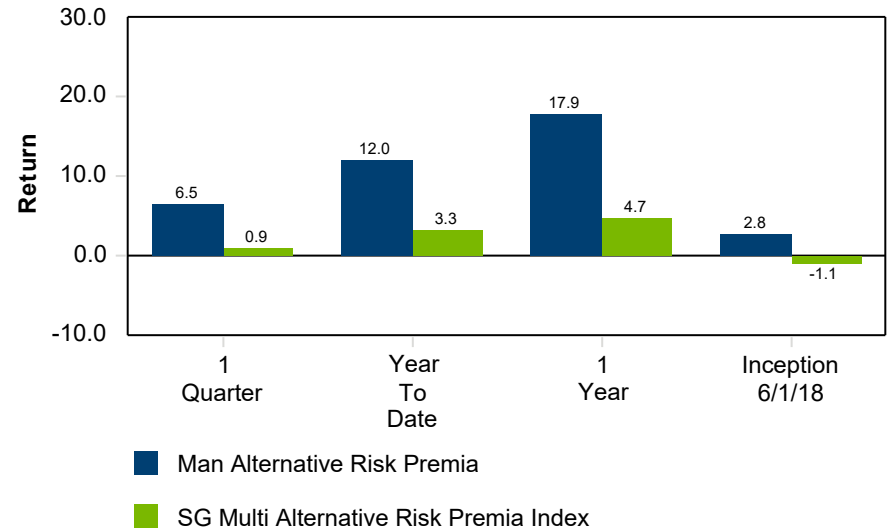


Man Alternative Risk Premia Performance Summary

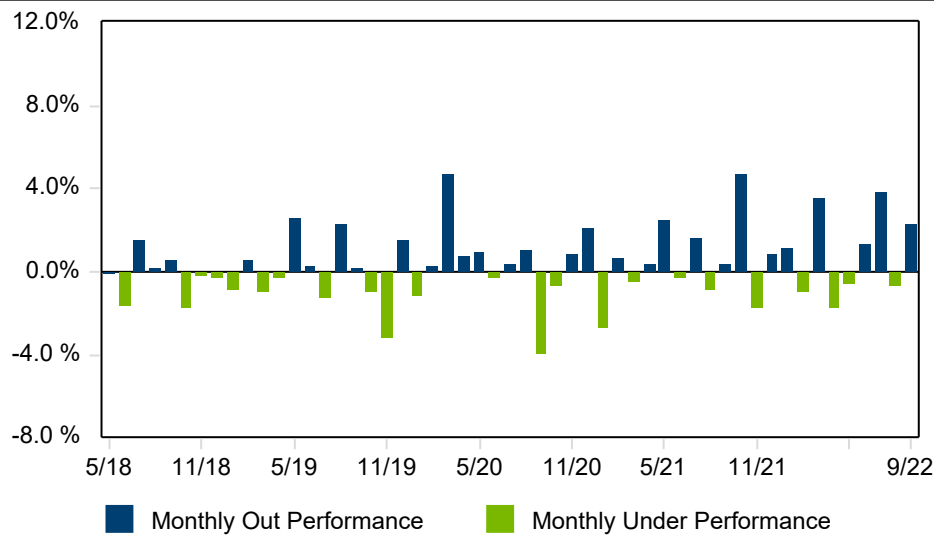
Account Information

Account Name: Man Alternative Risk Premia  
 Inception Date: 06/01/2018  
 Account Structure: Commingled Fund  
 Asset Class: US Equity  
 Benchmark: SG Multi Alternative Risk Premia Index  
 Peer Group:

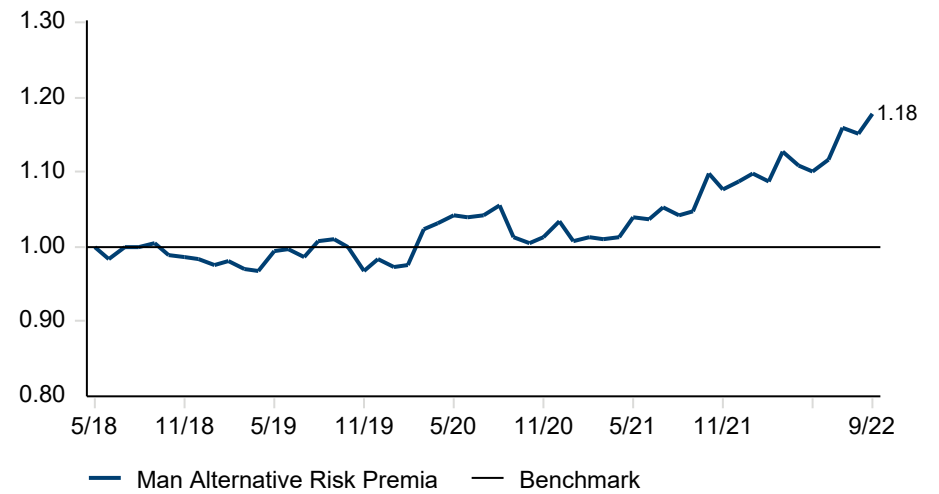
Return Summary



Monthly Excess Performance



Ratio of Cumulative Wealth - Since Inception

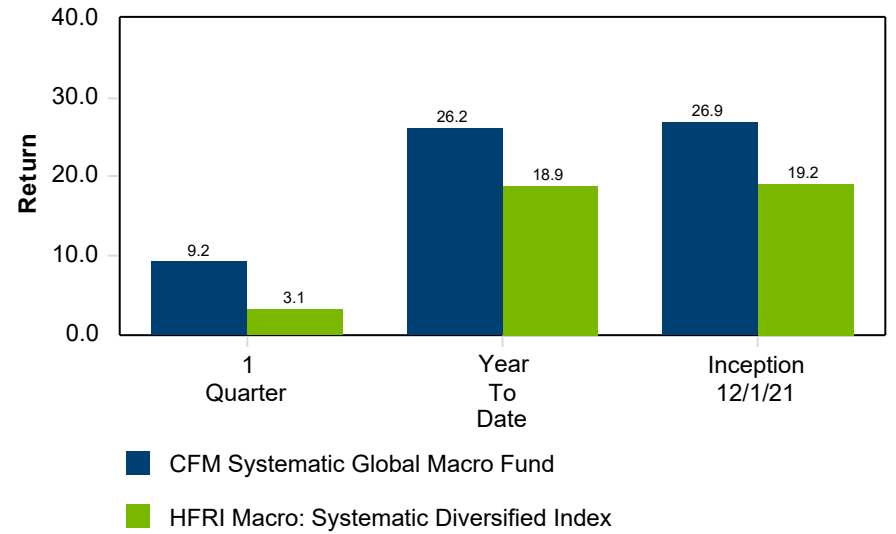


**CFM Systematic Global Macro Fund Performance Summary**

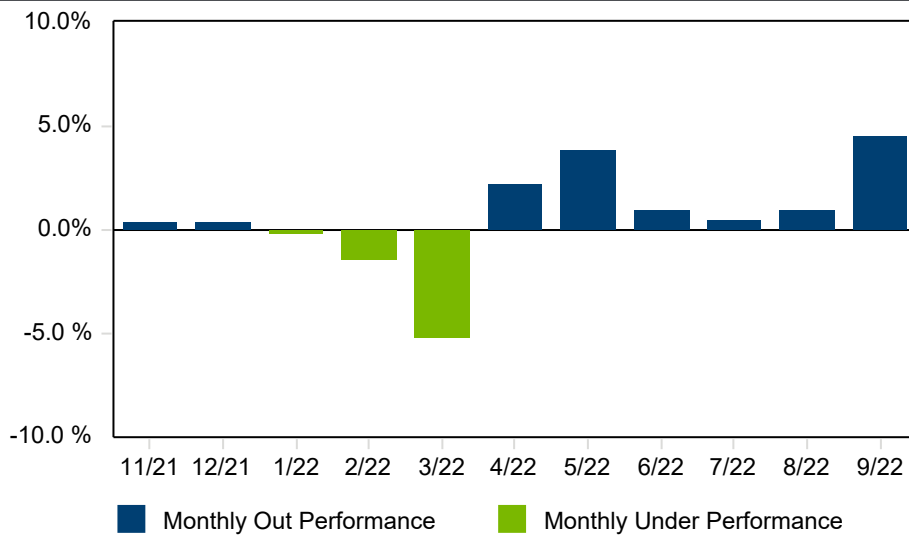
**Account Information**

Account Name: CFM Systematic Global Macro Fund  
 Inception Date: 11/01/2021  
 Account Structure: Commingled Fund  
 Asset Class: US Equity  
 Benchmark: HFRI Macro: Systematic Diversified Index  
 Peer Group:

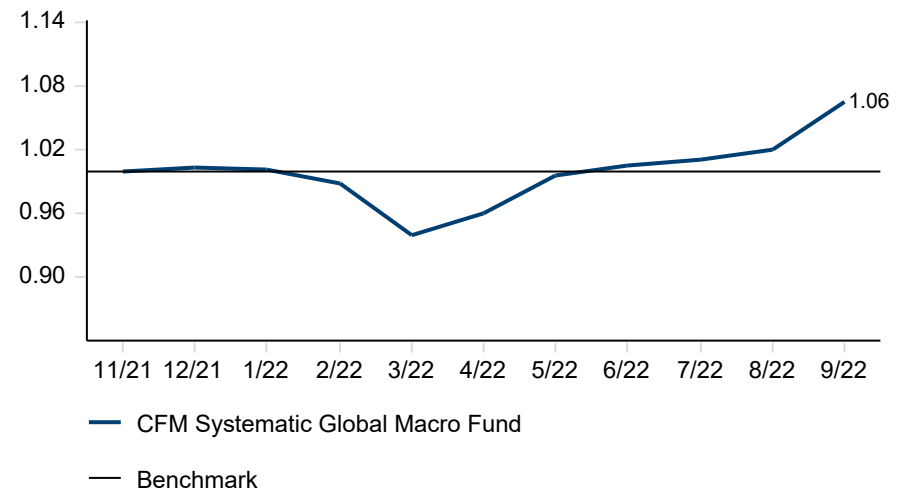
**Return Summary**



**Monthly Excess Performance**



**Ratio of Cumulative Wealth - Since Inception**

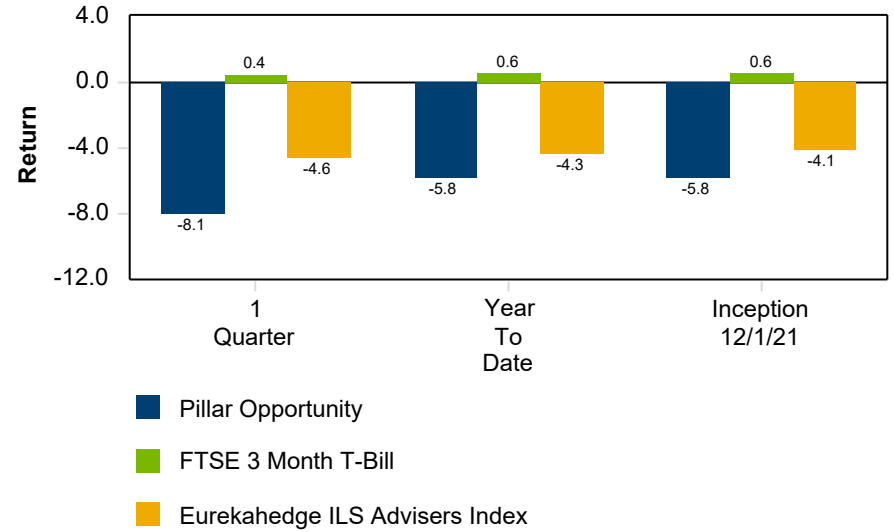


Pillar Opportunity Performance Summary

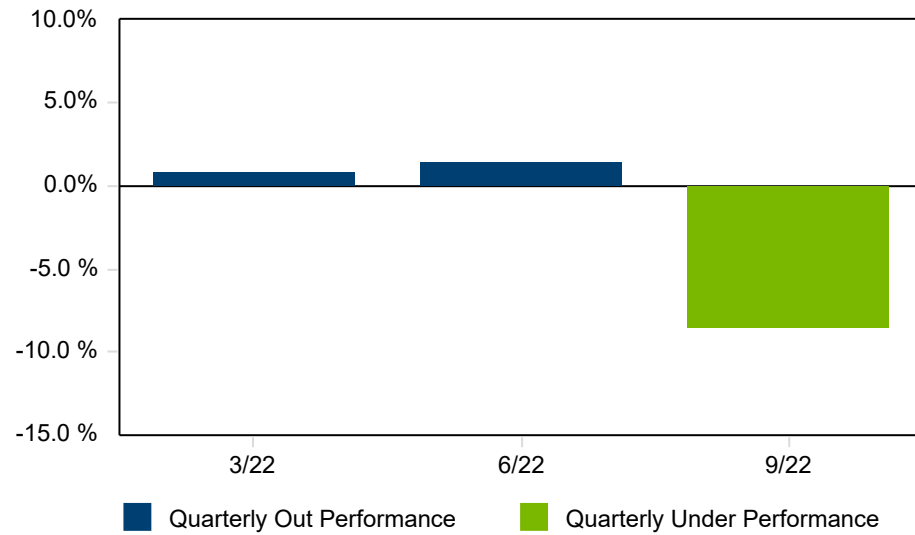
Account Information

Account Name: Pillar Opportunity  
 Inception Date: 12/01/2021  
 Account Structure: Commingled Fund  
 Asset Class: US Equity  
 Benchmark: FTSE 3 Month T-Bill  
 Peer Group:

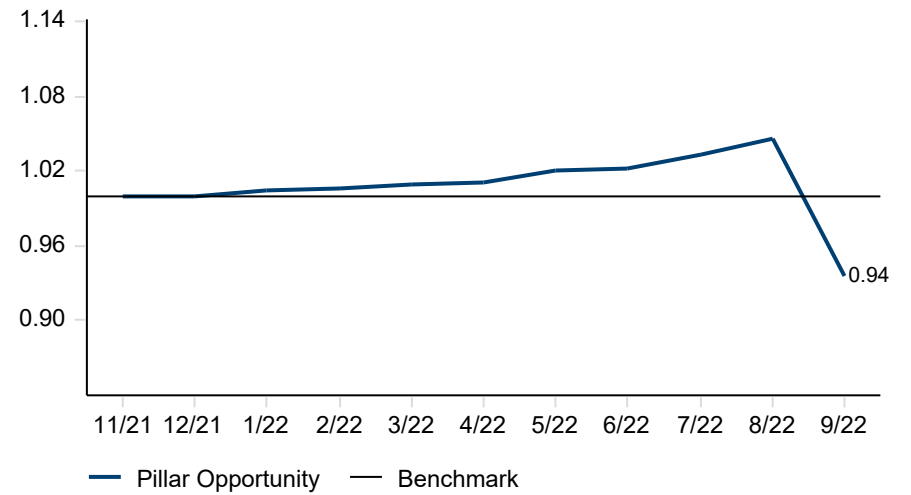
Return Summary



Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception

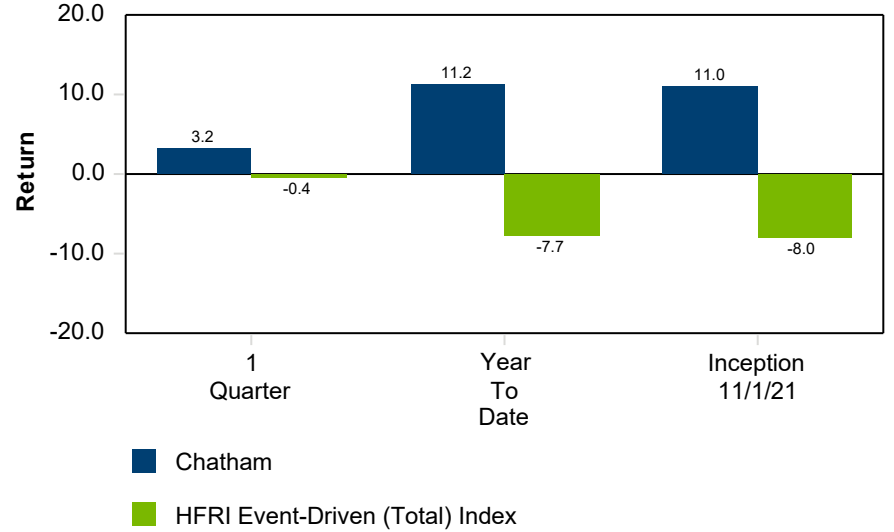


Chatham Performance Summary

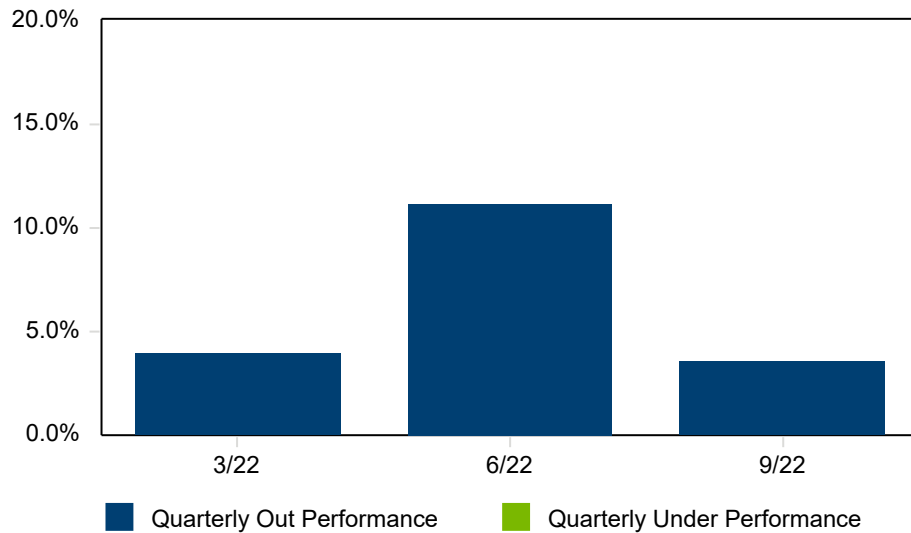
Account Information

Account Name: Chatham  
 Inception Date: 11/01/2021  
 Account Structure:  
 Asset Class: Hedge Fund  
 Benchmark: HFRI Event-Driven (Total) Index  
 Peer Group:

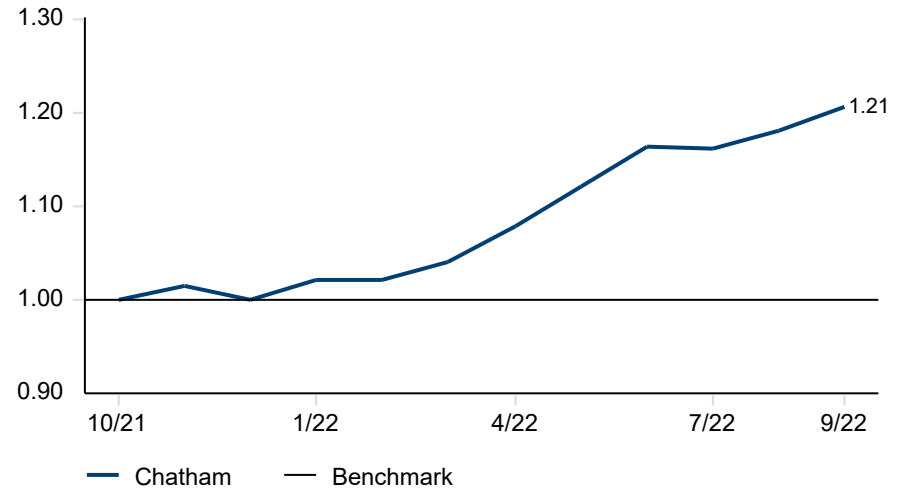
Return Summary



Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception

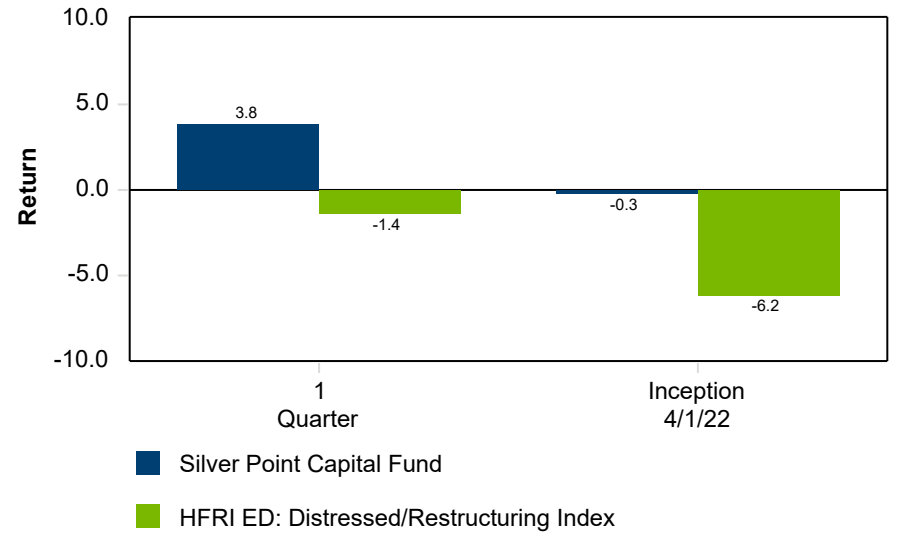


Silver Point Capital Fund Performance Summary

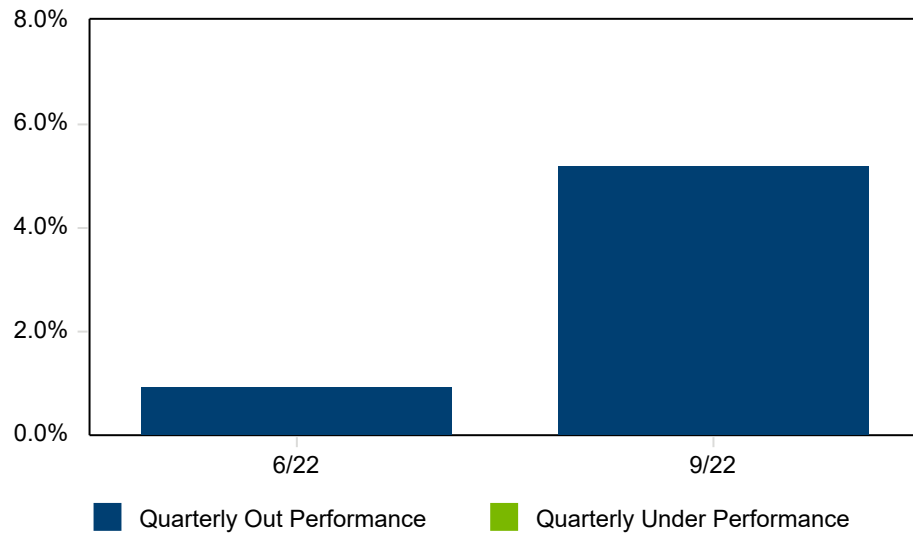
Account Information

Account Name: Silver Point Capital Fund  
 Inception Date: 03/01/2022  
 Account Structure:  
 Asset Class: Hedge Fund  
 Benchmark: HFRI ED: Distressed/Restructuring Index  
 Peer Group:

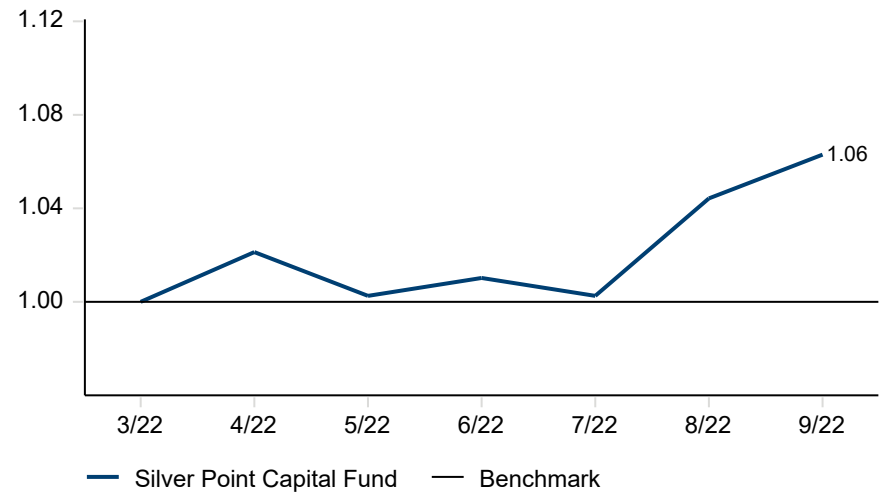
Return Summary

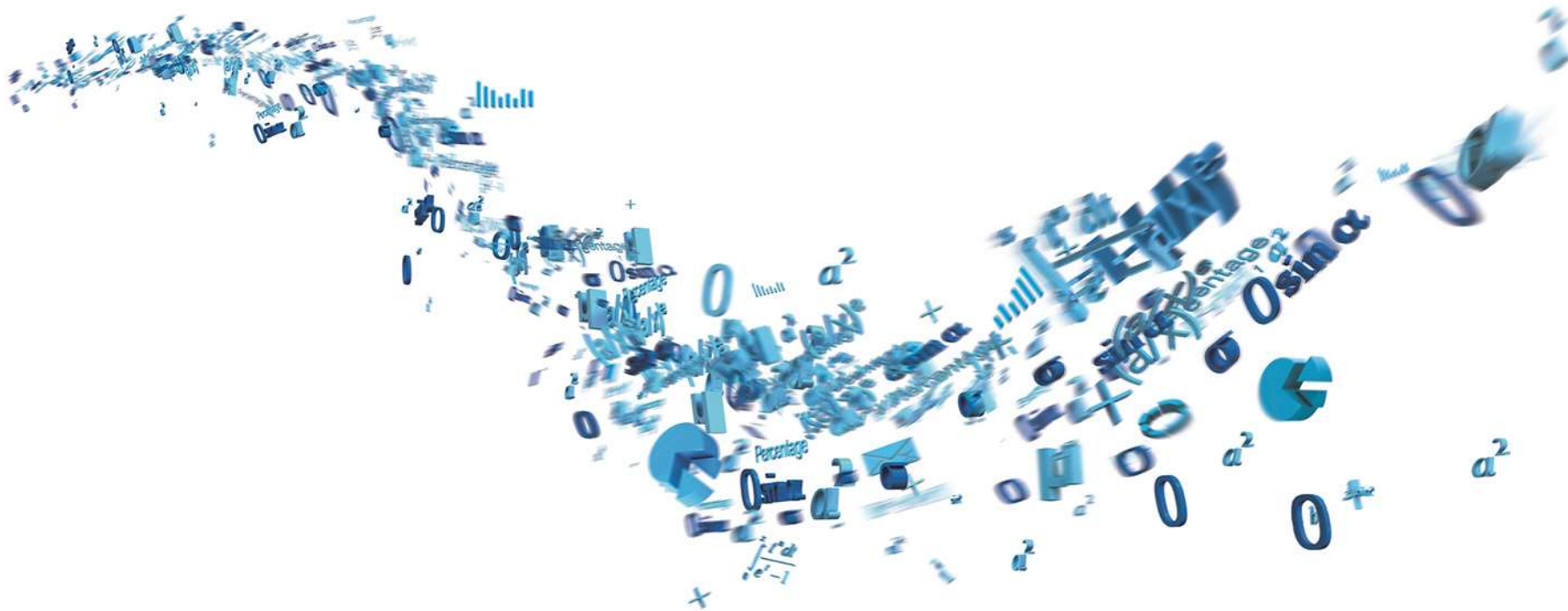


Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception





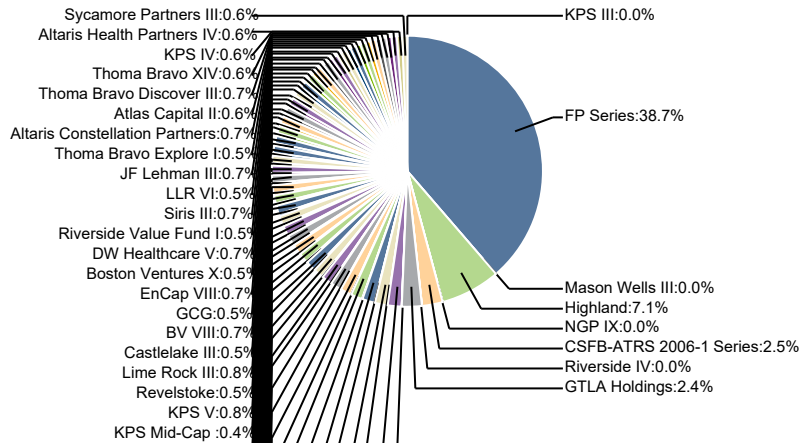
# Private Equity

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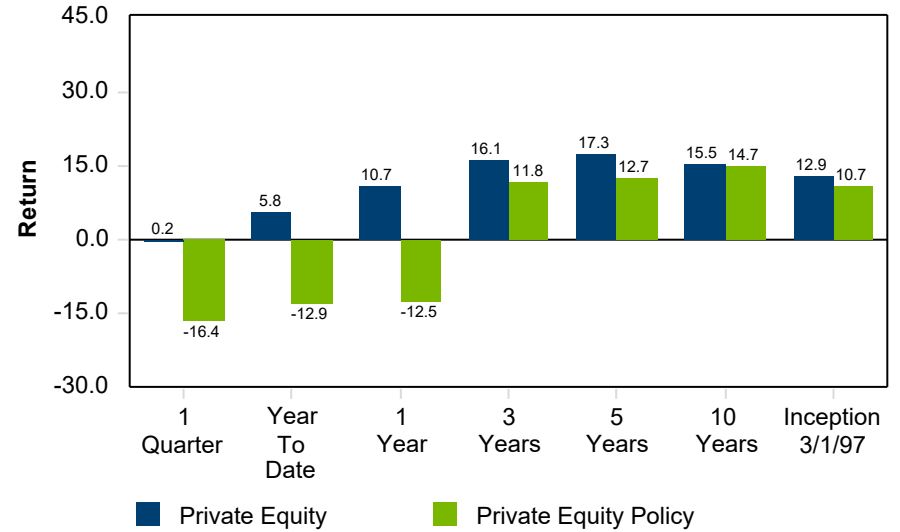
Private Equity Portfolio Overview

Current Allocation

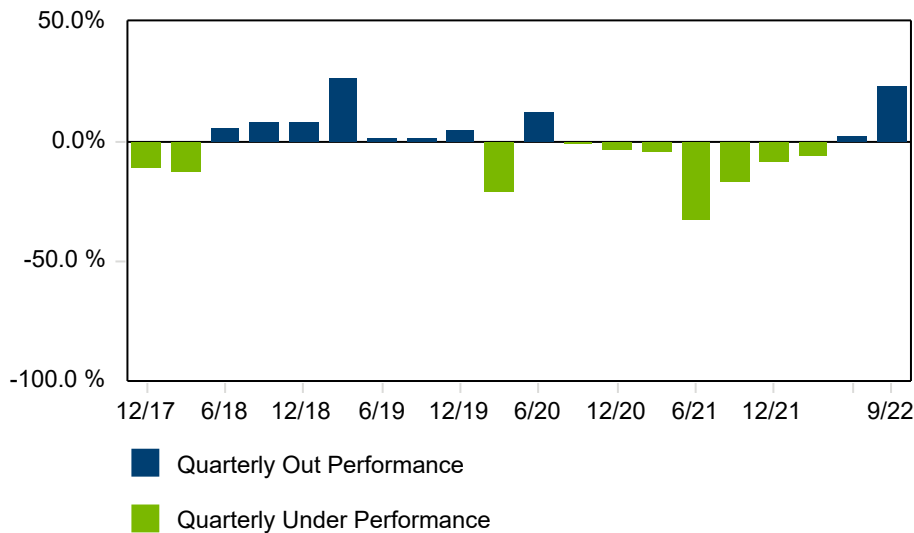
September 30, 2022 : \$2,952M



Return Summary



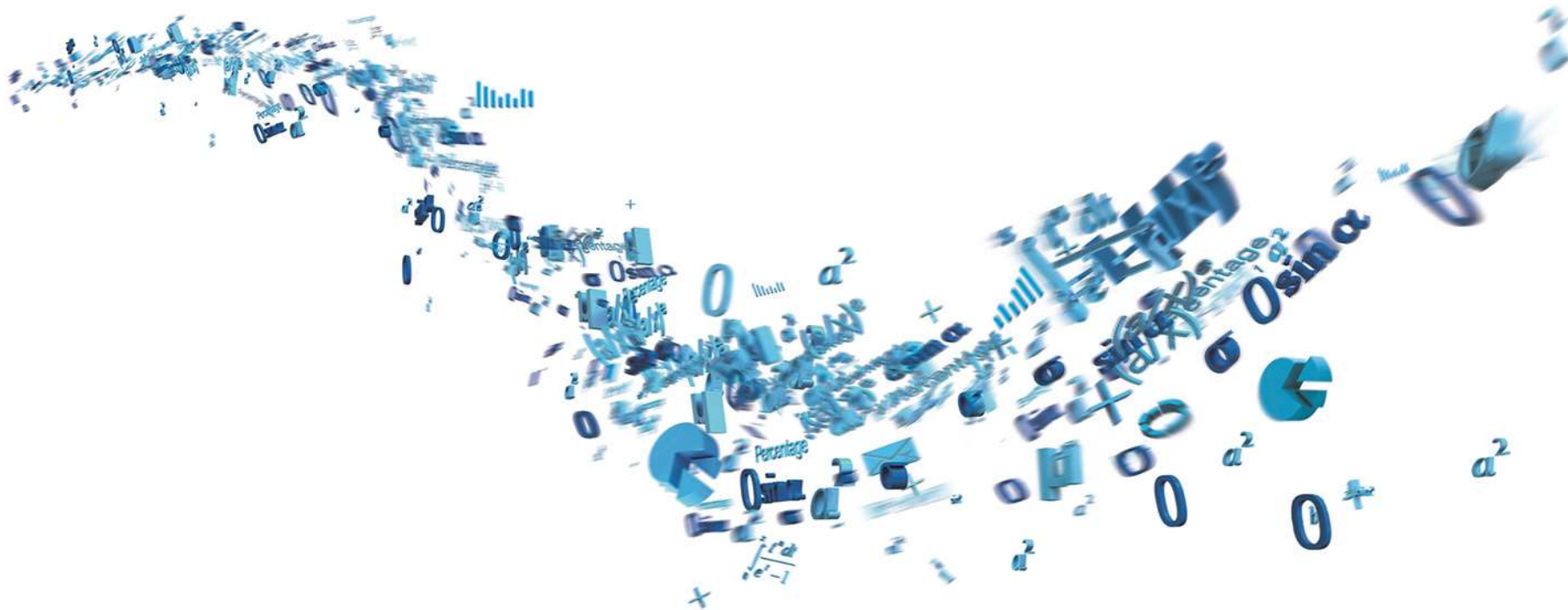
Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception







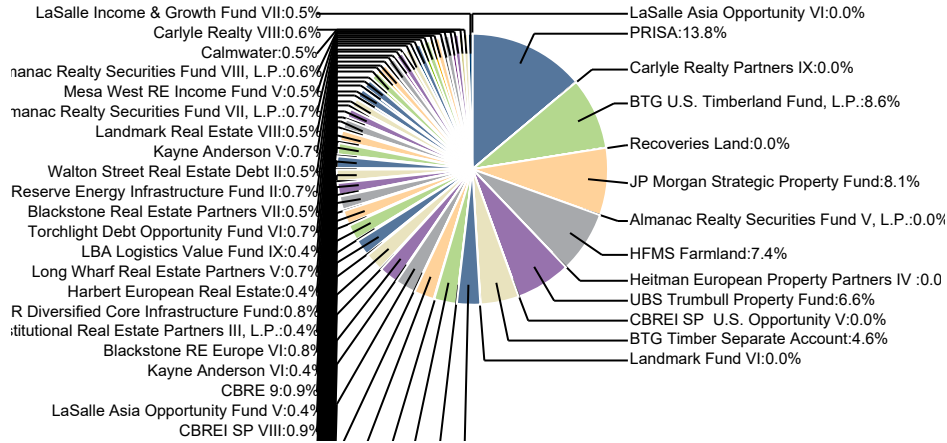
## Real Assets

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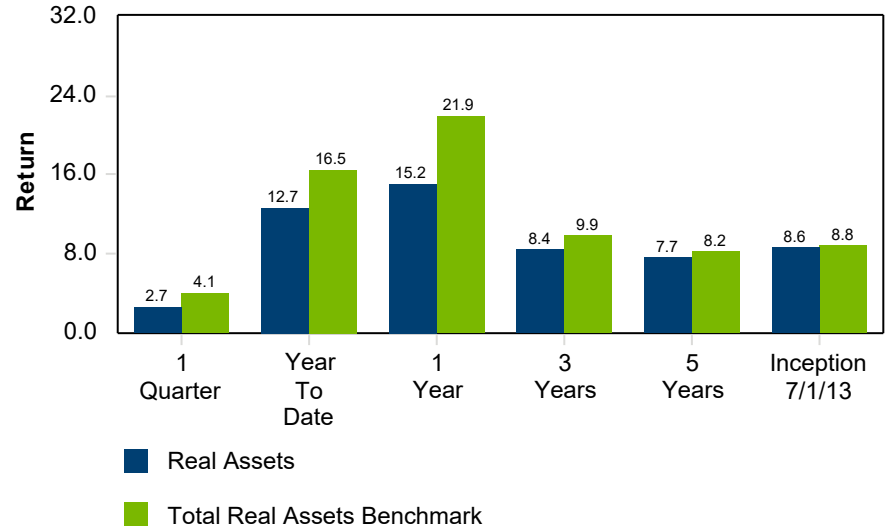
Real Assets Portfolio Overview

Current Allocation

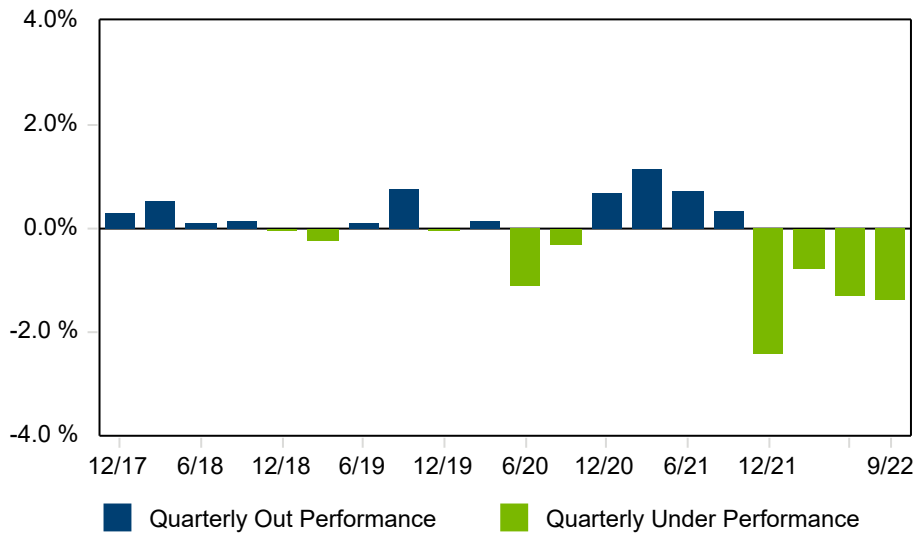
September 30, 2022 : \$2,524M



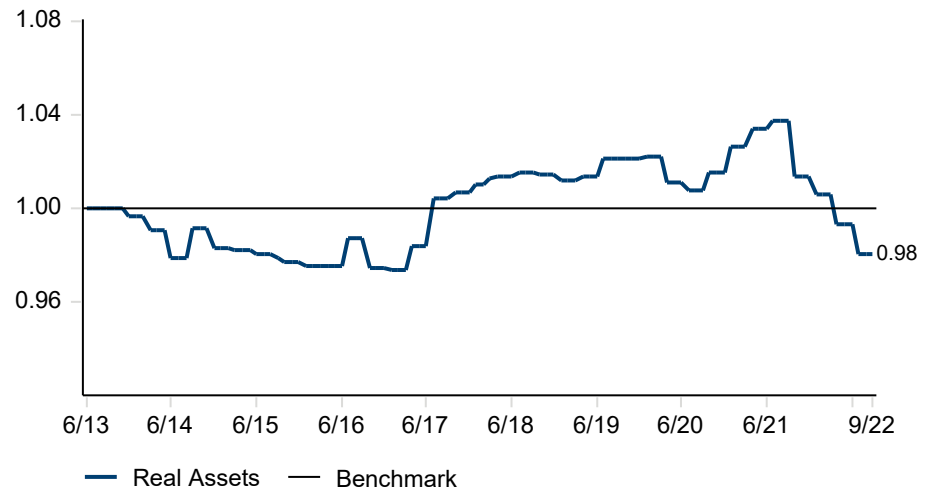
Return Summary



Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception





# Fee Schedule

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Total Equity

As of September 30, 2022

Fee Schedule

	Fee Schedule	Market Value As of 09/30/2022 \$000	Estimated Annual Fee \$000	Estimated Annual Fee (%)
<b>Total Equity</b>		<b>9,617,547</b>	<b>45,190</b>	<b>0.47</b>
Jacobs Levy 130/30	0.60 % of First \$200 M 0.35 % of Next \$300 M 0.30 % Thereafter	1,011,987	3,786	0.37
Kennedy Capital Management	0.60 % of First \$100 M 0.50 % Thereafter	658,484	3,392	0.52
Stephens	0.75 % of First \$150 M 0.70 % of Next \$50 M 0.65 % Thereafter	485,471	3,331	0.69
Voya Absolute Return	0.60 % of First \$250 M 0.40 % Thereafter	617,279	2,969	0.48
Voya U.S. Convertibles	0.40 % of First \$100 M 0.30 % of Next \$100 M 0.25 % of Next \$100 M 0.20 % Thereafter	855,782	2,062	0.24
Pershing Square International	1.50 % of Assets	-	-	1.50
Pershing Square Holdings	1.50 % of Assets	214,233	3,213	1.50
Triam Partners	1.50 % of Assets	65,509	983	1.50
Triam Co-Investments	0.50 % of Assets	41,210	206	0.50
SSgA Global Index	0.04 % of First \$1000 M 0.03 % Thereafter	867,461	347	0.04
BlackRock MSCI ACWI IMI Fund	0.05 % of First \$250 M 0.04 % Thereafter	783,463	338	0.04
Wellington Global Perspectives	0.80 % of Assets	611,690	4,894	0.80
T. Rowe Price Global Equity	0.43 % of First \$500 M 0.40 % Thereafter	1,141,317	4,690	0.41
Lazard	0.68 % of First \$300 M 0.65 % Thereafter	569,642	3,793	0.67
D.E. Shaw	0.84 % of First \$100 M 0.80 % of Next \$100 M 0.76 % Thereafter	791,138	6,133	0.78
GMO Global All Country Equity	0.64 % of Assets	416,492	2,666	0.64
Harris Global Equity	0.60 % of First \$100 M 0.50 % of Next \$100 M 0.45 % Thereafter	486,326	2,388	0.49

246 Above fees reflect only the current base management fee and excludes any performance fee arrangement.

Total Equity

As of September 30, 2022

Fee Schedule

	Fee Schedule	Market Value As of 09/30/2022 \$000	Estimated Annual Fee \$000	Estimated Annual Fee (%)
<b>Fixed Income</b>		<b>2,823,347</b>	<b>5,043</b>	<b>0.18</b>
BlackRock	0.20 % of First \$200 M 0.15 % of Next \$200 M 0.10 % of Next \$400 M 0.08 % Thereafter	238,996	458	0.19
Loomis Sayles	0.50 % of First \$20 M 0.40 % of Next \$30 M 0.30 % Thereafter	429,185	1,358	0.32
Putnam	0.40 % of First \$100 M 0.35 % of Next \$150 M 0.30 % of Next \$250 M 0.25 % Thereafter	363,250	1,265	0.35
SSgA Aggregate Bond Index	0.04 % of First \$100 M 0.02 % Thereafter	743,759	164	0.02
Wellington Global Total Return	0.30 % of Assets	372,256	1,117	0.30
Reams Core Plus Bond Fund	0.20 % of Assets	340,750	681	0.20
BRS Recycling Tax Credit		176,000	-	-
BRS Recycling Tax Credit Phase 2		77,032	-	-
BRS Recycling Tax Credit Phase 3		82,120	-	-
<b>Opportunistic/Alternatives</b>		<b>916,909</b>	<b>9,573</b>	<b>1.04</b>
Anchorage	2.00 % of Assets	43,935	879	2.00
York	1.50 % of Assets	11,057	166	1.50
Capula	2.00 % of Assets	88,774	1,775	2.00
Graham	2.00 % of Assets	95,802	1,916	2.00
Circumference Group Core Value	1.50 % of Assets	33,664	505	1.50
Aeolus Keystone Fund	2.00 % of Assets	40,242	805	2.00
Nephila Rubik Holdings	1.50 % of Assets	9,108	137	1.50
Parametric Global Defensive Equity Fund	0.40 % of First \$150 M 0.35 % Thereafter	175,960	691	0.39
Man Alternative Risk Premia	0.85 % of Assets	111,718	950	0.85
CFM Systematic Global Macro Fund	0.36 % of Assets	112,374	405	0.36
Pillar Opportunity	1.30 % of Assets	89,478	1,163	1.30
Chatham	0.33 % of Assets	55,387	183	0.33

247 Above fees reflect only the current base management fee and excludes any performance fee arrangement.

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## Disclaimers and Notes

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## Arkansas Teacher Retirement System

## Appendix

## Description of Benchmarks

**Total Fund** - The Performance Benchmark for the Total Fund reflects a weighted average of the underlying asset class benchmarks, weighted as follows: Opportunistic/Alternatives and Real Assets at the weight of the previous month's ending market values, Fixed Income at its long-term Policy Target of 15%, and Total Equity at its long-term Policy Target of 55% plus the balance of the unfunded or uncommitted assets of the Opportunistic/Alternatives and Real Assets categories. These targets can be found on page 21 of the this report. From October 2007 to July 2013, the Performance Benchmark was the performance of the asset class benchmarks as a weighted average of the previous month's ending market values. The historical components of the benchmark are shown in the table below. Returns prior to September 30, 1996, consist of the actual allocations to the seven different asset classes included in the Arkansas Teacher Retirement System over time. The historical benchmarks used for each asset class are noted below.

Date	DJ Total Stock Market Index	Russell 3000 Index	MSCI ACW ex-U.S. Index	MSCI All Country World Index	BC Universal Bond Index	BC Aggregate Bond Index	Alternative Policy*
03/2004-9/2007	40.0 %	--	17.5 %	--	25.0 %	--	17.5 %
06/2003-02/2004	40.0	--	17.5	--	--	25.0 %	17.5
10/2001-07/2003	--	40.0 %	17.5	--	--	25.0	17.5
08/1998-09/2001	--	40.0	17.0	--	--	28.0	15.0
10/1996-07/1998	--	40.0	20.0	--	--	28.0	12.0

\*Historically, the Alternative Policy was comprised of the weighted averages of the Private Equity, Real Estate, and Alternatives policy benchmarks. Prior to July 31, 2003 the alternative benchmark consisted of 57.0% of the Russell 3000 + a 2% Premium per year, 8.5% of the NCREIF Southeast Timberland Index, 28.5% of the Real Estate Index, 6% of the EnnisKnupp STIF Index.



## Benchmark Descriptions

**Total Equity** - A weighted average of the Dow Jones U.S. Total Stock Market Index and the MSCI All Country World IMI Index based on weights of the underlying investment manager allocations. As of June 1, 2022, the Total Equity Performance Benchmark was comprised of 33.0% DJ U.S. Total Stock Market Index and 67.0% MSCI ACWI IMI.

**Fixed Income** - The Barclays U.S. Universal Bond Index as of March 1, 2004.

**Opportunistic/Alternatives** - A custom benchmark consisting of 25% DJ/CS Event-Driven Index, 25% HFR Macro Index, and 50% South Timberland NCREIF Index until June 30, 2013; 60% HFRI Macro Index and 40% DJ/CS Event-Driven Index until July 31, 2015; 56% HFRI Macro Index, 38% DJ/CS Event-Driven Index, and 6% Russell 2000 Index until March 31, 2016; 45% HFRI Macro Index, 30% DJ/CS Event-Driven Index, 5% Russell 2000 Index, and 20% Citigroup 3 Month T-bill until May 31, 2016; 37% HFRI Macro Index, 25% DJ/CS Event-Driven Index, 5% Russell 2000 Index, and 33% Citigroup 3 Month T-bill until May 31, 2017; 28% HFRI Macro Index, 20% DJ/CS Event-Driven Index, 4% Russell 2000 Index, 25% Citigroup 3 Month T-bill, and 23% Parametric Performance Benchmark thereafter.

**Real Assets** - A custom benchmark consisting of a weighted average of the net asset values at previous month's end of the sub-categories' benchmarks, defined as Real Estate Benchmark, Timber Benchmark, Agriculture Benchmark and Infrastructure Benchmark.

**Real Estate- NFI-ODCE** - NCREIF Fund Index Open-end Diversified Core Equity Index is an index of investment returns reporting on both a historical and current basis the results of 33 open-end commingled funds pursuing a core investment strategy; underlying funds are leveraged with gross and net returns available.

**Timber Property Benchmark** - NCREIF Timberland Property Index (NTPI) weighted according to ATRS' regional exposure based on net asset value.

**Agriculture Benchmark** - NCREIF Farmland Index (NFI) weighted according to ATRS' regional and crop type exposure based on net asset value.

**Infrastructure Benchmark** - Consumer Price Index (CPI) plus 500 basis points annually.

**Private Equity** - The Dow Jones U.S. Total Stock Market Index + a 2% premium per year.

**Cash Equivalents** - The Citigroup 90 day T-bill.

## Benchmark Descriptions

**BlackRock Performance Benchmark** - The Barclays Universal Bond Index as of March 1, 2004. Previously it was the Barclays Aggregate Bond Index.

**Jacobs Levy Performance Benchmark** - On January 1, 2008, the benchmark for the portfolio was changed to the Russell 3000 Index. Prior to January 1, 2008, the portfolio benchmark was the Russell 1000 Growth Index.

**Loomis Sayles Performance Benchmark** - An Index that splices 65% of the Barclays Government/Credit Index and 35% Barclays High Yield Index.

**Voya U.S. Convertibles Performance Benchmark** - On January 1, 2005, the benchmark for the portfolio was changed to the Merrill Lynch Convertible Bond (All Quality) Index. Prior to January 1, 2005, the performance benchmark for the Voya U.S. Convertibles portfolio was the CSFB Convertible Securities Index. Prior to May 1, 2004, the performance benchmark consisted of 90% CSFB Convertible Securities Index and 10% Salomon High Yield Index.

**Parametric Performance Benchmark** - 50% MSCI All Country World Index (net) and 50% Citigroup 90 day T-Bill Index as of June 1, 2017.

**Wellington Global Performance Benchmark** - As of July 1, 2012 the benchmark was changed to MSCI All Country World Small Cap Index. Prior to July 1, 2012, the benchmark was MSCI All Country World Small/Mid Cap Index.

**Voya Absolute Return Performance Benchmark** - As of December 1, 2015 the benchmark was changed to MSCI All Country World Index. Prior to December 1, 2015, the benchmark was the S&P 500 Stock Index.

**Barclays Aggregate Bond Index** - A market-value weighted index consisting of the Barclays Corporate, Government and Mortgage-Backed Securities Indices. The Index also includes credit card-, auto- and home equity loan-backed securities, and is the broadest available measure of the aggregate U.S. fixed income market.

**Barclays Government/Credit Index** - The Barclays Government/Credit Index measures the investment return of all medium and larger public issues of U.S. Treasury, agency, investment-grade corporate, and investment-grade international dollar-denominated bonds.

**Barclays High Yield Index** - The Barclays High Yield Index covers the universe of fixed rate, non-investment grade debt. Pay-in-kind (PIK) bonds, Eurobonds, and debt issues from countries designated as emerging markets (e.g., Argentina, Brazil, Venezuela, etc.) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included.

**Barclays U.S. Universal Bond Index** - A market-value weighted index consisting of the components of the Barclays Aggregate Bond Index, plus EuroDollar bonds, emerging markets bonds, 144A fixed income securities, and U.S. corporate high yield securities.

## Benchmark Descriptions

**Barclays Mortgage Index** - A market value-weighted index consisting of the mortgage pass-through securities of Ginnie Mae (GNMA), Fannie Mae (FNMA) and Freddie Mac (FHLMC).

**Citigroup 90 day T-bill Index** - Treasury bill rates of return, as reported by Citigroup (Salomon Smith Barney), for bills with a maximum time remaining to maturity of 90 days.

**Dow Jones U.S. Total Stock Market Index** - A capitalization-weighted stock index representing all U.S. common stocks traded regularly on the organized exchanges. The Index is the broadest measure of the aggregate U.S. stock market.

**FTSE Europe** - A tradable index, designed to represent the performance of the 100 most highly capitalized blue chip companies in Europe.

**Merrill Lynch Convertible Bond (All Quality) Index** - The Merrill Lynch All Convertibles All Qualities Index is a widely used index that measures convertible securities' performance. It measures the performance of U.S. dollar-denominated convertible securities not currently in bankruptcy with a total market value greater than \$50 million at issuance.

**MSCI All Country World ex-U.S. Index** - A capitalization-weighted index consisting of 22 developed and 23 emerging countries, but excluding the U.S. Covers approximately 85% of global equity opportunity set outside of the U.S.

**MSCI All Country World Index** - A capitalization-weighted index of stocks representing 46 stock markets in Europe, Australia, the Far East, the Middle East, Latin America and North America.

**MSCI All Country World IMI Index** - A capitalization-weighted index representing large and small cap stock from 46 stock markets in Europe, Australia, the Far East, the Middle East, Latin America and North America.

**MSCI Europe, Australasia, Far East (EAFE) Non-U.S. Stock Index** - A capitalization-weighted index of stocks representing 21 developed and emerging country markets in Europe, Australia, Asia and the Far East.

**MSCI World Index** - A capitalization-weighted index of stocks representing 22 developed stock markets in Europe, Asia and Canada.

**NFI-ODCE Index**- NCREIF Fund Index Open-end Diversified Core Equity Index is an index of investment returns reporting on both a historical and current basis the results of 33 open-end commingled funds pursuing a core investment strategy; underlying funds are leveraged with gross and net returns available

**DJ/CS Event-Driven Index** - Event driven funds typically invest in various asset classes and seek to profit from potential mispricing of securities related to a specific corporate or market event. Such events can include: mergers, bankruptcies, financial or operational stress, restructurings, asset sales, recapitalizations, spin-offs, litigation, regulatory and legislative changes as well as other types of corporate events. Event driven funds can invest in equities, fixed income instruments (investment grade, high yield, bank debt, convertible debt and distressed), options and various other derivatives. Many event driven fund managers use a combination of strategies and adjust exposures based on the opportunity sets in each subsector.

## Benchmark Descriptions

**LIBOR Index** - London Interbank Offered Rate. A filtered average of the world's most creditworthy banks' interbank deposit rates with maturities between overnight and one full year.

**Russell 3000 Index** - An index that measures the performance of the 3,000 stocks that make up the Russell 1000 and Russell 2000 Indices.

**Russell 1000 Index** - An index that measures the performance of the largest 1,000 stocks contained in the Russell 3000 Index.

**Russell 1000 Value Index** - An index that measures the performance of those Russell 1000 companies with lower price-to-book ratios and lower I/B/E/S growth forecasts.

**Russell 2000 Index** - An index that measures the performance of the smallest 2,000 companies contained in the Russell 3000 Index.

**Russell 2000 Growth Index** - An index that measures the performance of those Russell 2000 companies with greater price-to-book ratios and greater I/B/E/S growth forecasts.

**Russell 2000 Value Index** - An index that measures the performance of those Russell 2000 companies with lower price-to-book ratios and lower I/B/E/S growth forecasts.

**Russell Mid Cap Value Index** - An index that measures the performance of those Russell 1000 companies with lower price-to-book ratios and lower forecasted growth values.

**S&P 500 Stock Index** - A capitalization-weighted stock index consisting of the 500 largest publicly traded U.S. stocks.

**South Timberland Index** - The largest regional subindex of the NCREIF Timberland Index, consisting of timberland properties held in the U.S. South. This includes close to 300 properties with more than 10 million cumulative acres of timberland in the following states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. Calculations are based on quarterly returns at the individual property level. Performance is reported on an all-cash, unlevered basis, gross of investment management fees.

**HFR Macro Index** - Macro: Investment Managers which trade a broad range of strategies in which the investment process is predicated on movements in underlying economic variables and the impact these have on equity, fixed income, hard currency and commodity markets. Managers employ a variety of techniques, both discretionary and systematic analysis, combinations of top down and bottom up theses, quantitative and fundamental approaches and long and short term holding periods. Primary investment thesis is predicated on predicted or future movements in the underlying instruments.

**HFR Distressed/Restructuring Index** - Distressed Restructuring Strategies employ an investment process focused on corporate fixed income instruments, primarily on corporate credit instruments of companies trading at significant discounts to their value at issuance or obliged (par value) at maturity as a result of either formal bankruptcy proceeding or financial market perception of near term proceedings. Distressed Strategies employ primarily debt (greater than 60%) but also may maintain related equity exposure. Hedge Fund Research, Inc. (HFR) utilizes a UCITSIII compliant methodology to construct the HFR Hedge Fund Indices. The methodology is based on defined and predetermined rules and objective criteria to select and rebalance components to maximize representation of the Hedge Fund Universe.

## Arkansas Teacher Retirement System

## Appendix

## Historical U.S. Equity and Global Equity composite returns

<b>As of June 30, 2015</b>	<b>1 Year</b>	<b>3 Years</b>	<b>5 Years</b>	<b>10 Years</b>	<b>Since Inception</b>	<b>Inception Date</b>
U.S. Equity	6.7	18.1	16.4	9.4	10.5	04/01/1986
Dow Jones U.S. Total Stock Market Index	7.2	17.6	17.5	8.3	-	
Global Equity	1.8	14.6	12.1	-	2.5	11/01/2007
MSCI AC World Index (Net)	0.7	13.0	11.9	6.4	2.1	

In June 2015, the ATRS Board approved the combination of the U.S. and Global equity asset classes to a single Total Equity asset class. Total Equity performance reporting began in July 2015. In the table above, we show the historical returns for the U.S. Equity and Global Equity asset classes since inception through June 2015. Performance for the Total Equity asset class prior to July 2015 represents a weighted average of the U.S. Equity and Global Equity historical performance.

## Benchmark Descriptions

**Bloomberg Barclays Corporate High Yield Bond Index** - An index that covers the U.S.D-dominated, non-investment grade, fixed rate, taxable corporate bond market. Debt issues from emerging market countries are excluded. Securities are classified as high-yield if the middle rating is Ba1/BB+ or below.

**Bloomberg Barclays Emerging Markets Index** - An unmanaged index that tracks total returns for external-currency-denominated debt instruments of the emerging markets.

**Bloomberg Barclays Global Aggregate** - Provides a broad-based measure of the global investment-grade fixed income markets. The three major components of this index are the U.S. Aggregate, the Pan-European Aggregate, and the Asian-Pacific Aggregate Indices. The index also includes Eurodollar and Euro-Yen corporate bonds, Canadian government, agency and corporate securities, and U.S.D investment grade 144A securities.

**Bloomberg Barclays Global Treasury Ex-U.S.** - The Barclays Global Treasury ex U.S. Index is a subset of the flagship Global Treasury Index that does not have any exposure to U.S. debt. This multi-currency benchmark includes investment grade, fixed-rate bonds issued by governments in their native currencies.

**Bloomberg Barclays Inflation Index** - Measures the performance of the U.S. Treasury Inflation Protected Securities ("TIPS") market.

**Bloomberg Barclays Universal Index** - A market value-weighted index which is the union of the U.S. Aggregate Index, U.S. High Yield Corporate Index, Eurodollar Index, U.S. Emerging Markets Index and the CMBS High Yield Index. The Index is appropriate for core plus fixed income mandates.

**Bloomberg Barclays U.S. Aggregate Bond Index** - A market value-weighted index consisting of government bonds, SEC-registered corporate bonds and mortgage-related and asset-backed securities with at least one year to maturity and an outstanding par value of \$250 M or greater. This index is a broad measure of the performance of the investment grade U.S. fixed income market.

**Bloomberg Barclays U.S. Government/Credit Index** - A subcomponent of the Barclays Capital Aggregate Index, this benchmark includes treasury securities, government related issues, and high quality corporate bonds with an outstanding par value of \$250 M or greater and at least one year of maturity remaining.

**Bloomberg Barclays U.S. Government Index** - A market value weighted index of U.S. government and government agency securities (other than mortgage securities) with maturities of one year or more.

**Bloomberg Barclays U.S. High Yield Index** - An index composed of non-investment grade corporate debt denominated in U.S. dollars. The issues have to have an outstanding par value of \$150 M or greater and at least one year of maturity remaining.

**Bloomberg Barclays U.S. Intermediate Aggregate Bond Index** - A market value-weighted index consisting of U.S. Treasury securities, corporate bonds and mortgage-related and asset-backed securities with one to ten years to maturity and an outstanding par value of \$250 M or greater.

**Bloomberg Barclays U.S. Intermediate Government Bond Index** - An unmanaged index considered representative of intermediate-term fixed-income obligations issued by the U.S. Treasury, government agencies and quasi-federal corporations.

**Bloomberg Barclays U.S. Intermediate Government/Credit Index** - A market-value weighted index consisting of U.S. government bonds and SEC-registered corporate bonds with one to ten years to maturity and an outstanding par value of \$150 M or greater.

**Bloomberg Barclays U.S. Intermediate Treasury** - An unmanaged index considered representative of intermediate-term fixed-income obligations issued by the U.S. Treasury.

**Bloomberg Barclays U.S. Long Credit Bond Index** - An unmanaged index considered representative of long-term fixed-income obligations issued by U.S. corporate, specified foreign debentures, and secured notes that meet the specified maturity, liquidity, and quality requirements. To qualify, bonds must be SEC-registered.

## Benchmark Descriptions

**Bloomberg Barclays U.S. Long Gov't/Credit Index** - The Barclays Capital U.S. Government/ Credit Bond Index measures performance of U.S. dollar denominated U.S. treasuries, government-related, and investment grade U.S. corporate securities that have a remaining maturity of greater than or equal to 1 year. In addition, the securities have \$250 M or more of outstanding face value, and must be fixed rate and non-convertible.

**Bloomberg Barclays U.S. Long Government Bond Index** - An unmanaged index considered representative of long-term fixed- income obligations issued by the U.S. Treasury, government agencies and quasi-federal corporations.

**Bloomberg Barclays U.S. TIPS** - A market value-weighted index consisting of U.S. Treasury Inflation Protected Securities with one or more years remaining until maturity with total outstanding issue size of \$500m or more.

**Bloomberg Barclays U.S. Treasury 20-30 Year STRIPS Index** - A subcomponent of the Barclays Aggregate Index, this benchmark includes long-term treasury STRIPS.

**Bloomberg Commodity Index** - Consists of 22 exchange-traded futures on physical commodities, which are weighted to account for economic significance and market liquidity. Performance is calculated on an excess return basis and reflects commodity future price movements.

**BofA Merrill Lynch 3 Month Treasury Bill** - An index that measures the average return of the last three-month U.S. Treasury Bill issues.

**BofA Merrill Lynch High Yield Master** - A market-capitalization weighted index that tracks the performance of U.S. dollar- denominated, below investment grade corporate debt publicly issued in the U.S. domestic market.

**Citigroup 90-Day T-Bill Index** - An index that measures the average return of the last three-month U.S. Treasury Bill issues.

**Credit Suisse Leveraged Loan Index** - Designed to mirror the investable universe of the U.S. dollar denominated leveraged loan market.

**CRSP U.S. Large Cap Index** - an index comprised of nearly 640 U.S. large cap companies and includes securities traded on NYSE, NYSE Market, NASDAQ, or ARCA, representing nearly 85% of the U.S. investable equity market. The index is reconstituted quarterly after the market close on the third Fridays of March, June, September, and December.

**CRSP U.S. Total Market Index** - an index comprised of nearly 4,000 constituents across mega, large, small, and micro capitalizations and includes securities traded on NYSE, NYSE Market, NASDAQ, or ARCA, representing nearly 100% of the U.S. investable equity market. The index is reconstituted quarterly after the market close on the third Fridays of March, June, September, and December.

**DJ U.S. Completion Total Stock Market Index** - A capitalization-weighted index that consists of the stocks in the Dow Jones U.S. Total Stock Market Index less the stocks in the S&P 500 Stock Index.

**DJ U.S. Total Stock Market Index** - A capitalization-weighted stock index representing all domestic common stocks traded regularly on the organized exchanges. The index is the broadest measure of the aggregate domestic stock market and includes approximately 5,000 stocks.

**FTSE 4Good U.S. Select Index** - a socially responsible investment (SRI) index of U.S. stocks that excludes companies with certain business activities such as weapons, tobacco, gambling, alcohol, nuclear power, and adult entertainment.

**FTSE All-World ex-U.S. Index** - A capitalization-weighted stock index representing 46 developed market countries and emerging market countries excluding the U.S.



## Benchmark Descriptions

**FTSE EPRA NAREIT Global ex-U.S. Index** - Designed to represent general trends in eligible real estate equities worldwide. Relevant real estate activities are defined as the ownership, disposal and development of income-producing real estate.

**FTSE Global All Cap ex U.S. Index** - a market-capitalization weighted index representing the performance of roughly 5350 large, mid and small cap companies in 46 Developed and Emerging markets worldwide, excluding the USA.

**FTSE Global Core Infrastructure Index** - Represents the performance of infrastructure and infrastructure-related securities companies in a set of industries that FTSE defines as being involved in infrastructure. The series is based on the FTSE Global Equity Index Series and both developed and emerging markets are included.

**FTSE NAREIT U.S. Equity REITS** - Free float adjusted, market capitalization weighted index of U.S. based equity real estate investment trusts (REITs).

**Goldman Sachs Commodity Index** - A composite index of commodity sector returns which represents a broadly diversified, unleveraged, long-only position in commodity futures.

**HFRI Fund-of-Fund Index** - This index is equal-weighted including 800 constituents. It includes both domestic and offshore accounts and is valued in U.S. dollars. Only fund-of-fund products are included in the index that have at least \$50 M under managements and have been actively trading for at least one year. All funds report net monthly returns.

**HFRI Fund Weighted Composite Index** - The HFRI Fund Weighted Composite Index is a global, equal-weighted index of over 2,000 single-manager funds that report to HFR Database. Constituent funds report monthly net of all fees performance in U.S. Dollar and have a minimum of \$50 M under management or a twelve (12) month track record of active performance. The HFRI Fund Weighted Composite Index does not include Funds of Hedge Funds.

**Hueler Stable Value Index** - The Hueler Analytics Stable Value Pooled Fund Comparative Universe represents investment strategies of \$96 billion in stable value assets, across 24 pooled funds, invested in contracts universe across a universe of 16 general account issuers and 14 synthetic wrap providers. The allocation of pooled fund assets is dominated by synthetic contracts issued by insurance companies and banks.

**iMoneyNet All Taxable Money Funds Index** - An index made up of the entire universe of money market mutual funds. The index currently represents over 1,300 funds, or approximately 99 percent of all money fund assets.

**iMoneyNet Money Fund Average** - An index made up of the entire universe of money market mutual funds. The index currently represents over 1,300 funds, or approximately 99 percent of all money fund assets.

**J.P. Morgan EMBI Global Diversified** - Comprised of dollar-denominated Brady bonds, traded loans and Eurobonds issued by emerging market sovereign and quasi-sovereign entities. The Diversified version limits the weights of the index countries by only including a specified portion of those countries' eligible current face amounts of debt outstanding, providing for a more even distribution of weights within the countries in the index.

**MSCI All Country World ex-U.S. Index** - A capitalization-weighted index of stocks representing 44 stock markets in Europe, Australia, the Far East, the Middle East, Latin America and North America. Index consists of 23 developed and 21 emerging countries, but excludes the U.S.

**MSCI All Country World ex-U.S. Index IMI** - A capitalization-weighted index of large, mid and small cap stocks representing 22 developed (excluding the United States) and 24 emerging market countries. The index is the broadest measure of the aggregate non-U.S. stock market, covering approximately 99% of the global equity investment opportunity set outside of the United States.



## Benchmark Descriptions

**MSCI All Country World ex-U.S. Small Cap Index** - Covers all investable small cap securities with a market capitalization below that of the companies in the MSCI Standard Indices (excluding U.S.), and target approximately 14% of each market's free-float adjusted market capitalization.

**MSCI All Country World Index** - A capitalization-weighted index of stocks representing 46 stock markets in Europe, Australia, the Far East, the Middle East, Latin America and North America.

**MSCI All Country World Index IMI** - A capitalization-weighted index of large, mid and small cap stocks representing 23 developed and 24 emerging market countries. The index is the broadest measure of the aggregate global stock market, covering approximately 99% of the global equity investment opportunity set.

**MSCI EAFE Growth Index** - A capitalization-weighted index of 21 stock markets in Europe, Australia, Asia and the Far East designed to capture the growth-oriented companies.

**MSCI EAFE Index** - A capitalization-weighted index of stocks representing 22 developed countries in Europe, Australia, Asia, and the Far East.

**MSCI EAFE Small Cap Index** - A capitalization-weighted index of small cap stocks representing 23 developed country markets in Europe, Australia, Asia, and the Far East.

**MSCI EAFE Value Index** - A capitalization-weighted index of 21 stock markets in Europe, Australia, Asia and the Far East designed to capture the value-oriented companies.

**MSCI Emerging Markets Index** - A capitalization-weighted index of stocks representing 22 emerging country markets.

**MSCI Emerging Markets Value Index** - A capitalization-weighted index considered representative of value stocks across 46 stock markets in Europe, Australia, the Far East, the Middle East, Latin America and North America.

**MSCI U.S. Broad Market Index** - A capitalization-weighted stock index that aggregates the MSCI U.S. Large Cap 300, Mid Cap 450, Small Cap 1,750 and Micro Cap Indices. This index represents approximately 99.5% of the capitalization of the U.S. Equity market and includes approximately 3,562 companies.

**MSCI U.S. REIT Index** - A broad index that fairly represents the equity REIT opportunity set with proper investability screens to ensure that the index is investable and replicable. The index represents approximately 85% of the U.S. REIT universe.

**MSCI World Index** - A free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets, representing 24 developed market country indices.

**NCREIF Property Index** - A capitalization-weighted index of privately owned investment grade income-producing properties representing approximately \$269 billion in assets.

**NFI ODCE Index** - A capitalization weighted index comprised of open-end, Core funds investing in commercial real estate properties. The funds that constitute the index are subject to certain geographic and property type diversification requirements as well as leverage restrictions. The index reflects the impact of leverage on investment results. The returns shown in this report are net of management fees of the respective funds included in the index.

**Rolling 3-year Constant Maturity Treasury Index** - An index published by the Federal Reserve Board based on the monthly average yield of a range of Treasury securities, all adjusted to the equivalent of a three-year maturity.

**Russell 1000 Growth Index** - An index that measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher I/B/E/S growth forecasts.

**Russell 1000 Index** - A capitalization-weighted index of the 1,000 largest publicly traded U.S. stocks by capitalization.

## Benchmark Descriptions

**Russell 1000 Value Index** - An index that measures the performance of those stocks included in the Russell 1000 Index with lower price-to-book ratios and lower I/B/E/S earnings growth forecasts.

**Russell 2000 Growth Index** - A capitalization-weighted index of those stocks in the Russell 2000 Index with higher price-to-book ratios and higher I/B/E/S earnings growth forecasts.

**Russell 2000 Index** - A capitalization-weighted index of the smallest 2,000 stocks in the Russell 3000 Index. The index excludes the largest- and smallest-capitalization issues in the domestic stock market.

**Russell 2000 Value Index** - An index that measures the performance of those stocks included in the Russell 2000 Index with lower price-to-book ratios and lower I/B/E/S earnings growth forecasts.

**Russell 2500 Growth Index** - A capitalization-weighted index representing those companies within the Russell 2500 Index with higher price-to-book ratios and higher I/B/E/S earnings growth forecasts.

**Russell 2500 Index** - The Index is constructed by first identifying the 3,000 largest-capitalization U.S. stocks and ranking them by market capitalizations, choosing the bottom 2,500 names on the list.

**Russell 2500 Value Index** - An index that measures the performance of those stocks included in the Russell 2500 Index with lower price-to-book ratios and lower I/B/E/S earnings growth forecasts.

**Russell 3000 Growth Index** - A capitalization-weighted index consisting of those Russell 3000 Index stocks that have higher price-to-book ratios and higher I/B/E/S earnings growth forecasts.

**Russell 3000 Index** - A capitalization-weighted index consisting of the 3,000 largest publicly traded U.S. stocks by capitalization. This index is a broad measure of the performance of the aggregate domestic equity market.

**Russell 3000 Value Index** - A capitalization-weighted index consisting of those Russell 3000 Index stocks that have lower price-to-book ratios and lower I/B/E/S earnings growth forecasts.

**Russell Mid Cap Growth Index** - A capitalization-weighted index representing those stocks in the Russell MidCap Index with higher price-to-book ratios and higher I/B/E/S earnings growth forecasts.

**Russell Mid Cap Index** - A capitalization-weighted index of the 800 smallest stocks in the Russell 1000 Index. This index is a broad measure of mid-capitalization stocks.

**Russell Mid Cap Value Index** - A capitalization-weighted index consisting of those Russell MidCap Index stocks that have lower price-to-book ratios and lower I/B/E/S earnings growth forecasts.

**S&P 500 Index** - A capitalization-weighted index representing stocks chosen by Standard & Poor's, Inc. for their size, liquidity, stability and industry group representation. The companies in the S&P 500 Index are generally among the largest in their industries.

## Benchmark Descriptions

**S&P Completion Index** -The S&P Completion Index is a sub-index of the S&P Total Market Index, including all stocks eligible for the S&P TMI and excluding all current constituents of the S&P 500. The index covers approximately 4,000 constituents, offering investors broad exposure to mid, small, and micro cap companies.

**S&P Leverage Loan Index** - A daily total return index that uses LSTA/LPC Mark-to-Market Pricing to calculate market value change.

**S&P MidCap 400 Index** - A market-capitalization-weighted index of stocks in all major industries in the mid-range of the U.S. stock market.

**Wilshire REIT** - A measure of the types of U.S. real estate securities that represent the ownership and operation of commercial or residential real estate. To be included in the index, a company must have a market capitalization of \$200 M and have at least 75% of the total revenue derived from the ownership and operation of the real estate assets.

- Indices cannot be invested in directly. Unmanaged index returns assume reinvestment of any and all distributions and do not reflect our fees or expenses.
- Past performance is no guarantee of future results.
- Please feel free to contact us at [retirement@aon.com](mailto:retirement@aon.com) for more index information.

## Thought Leadership Highlights – Public Funds

Aon United	Operational Diligence: Due for a Change? (Part 1)	<a href="#">Link</a>
Market View	Global Recession is Now Much More Likely	<a href="#">Link</a>
Market View	Quarterly Market Review and Outlook Video (access code 'aon!')	<a href="#">Link to Video</a>
Market View	Quarterly Investment Outlook	<a href="#">Link</a>
Market View	The good run in value stocks may be coming to an end	<a href="#">Request from Consultant</a>
Market View	Asset allocation views on the Inflation Reduction Act	<a href="#">Request from Consultant</a>
Plan Design	The Optimal Outsourced Chief Investment Officer	<a href="#">Link</a>
Quarterly Outlook	Key Themes for Public Funds (4-minute video, access code 'aon!')	<a href="#">Link to Video</a>
Public Funds	Expected Returns for Public Funds: Three Questions with John Sullivan	<a href="#">Link</a>
Asset Allocation	Client Video: US vs. Non-US Equity (access code 'aon!')	<a href="#">Link to Video</a>
Asset Allocation	White Paper: Why Diversify?	<a href="#">Link</a>
Asset Allocation	Inflation-Protecting Assets: 3 Questions with Sheila Noonan	<a href="#">Link</a>
Strategy Review	Conviction in Equity Investing Revisited: Paper and 4 Questions with Sudhakar	<a href="#">Link to Paper</a> <a href="#">Link to 4Q's</a>
Strategy Review	White Paper: Litigation Finance	<a href="#">Link</a>
Strategy Review	US Inflation: Another Shock, More Market Volatility to Come?	<a href="#">Link</a>
Strategy Review	Private Credit: 3 Questions with Galina Kalcheva	<a href="#">Link</a>
Strategy Review	Private Credit Today: A Diverse Opportunity Set in a Growing Market	<a href="#">Link</a>
Strategy Review	Will Commodities continue to Burn Bright	<a href="#">Link</a>
Strategy Review	Private Equity Past and Present: Three Questions with Bruce Ingram	<a href="#">Link</a>
Strategy Review	GP-led Secondaries and Continuation Vehicles: Three Questions with Oliver Graham and Katherine Montague	<a href="#">Link</a>
Other	Negotiating Fees for Investment Management: 3 Questions With Dino Nikolopoulos	<a href="#">Link</a>

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## Notes

- The rates of return contained in this report are shown on an after-fees basis unless otherwise noted. They are geometric and time-weighted. Returns for periods longer than one year are annualized.
- Universe percentiles are based upon an ordering system in which 1 is the best ranking and 100 is the worst ranking.
- Due to rounding throughout the report, percentage totals displayed may not sum to 100%. Additionally, individual fund totals in dollar terms may not sum to the plan total.

## Disclaimer

### Past performance is not necessarily indicative of future results.

Unless otherwise noted, performance returns presented reflect the respective fund's performance as indicated. Returns may be presented on a before-fees basis (gross) or after-fees basis (net). After-fee performance is net of each respective sub-advisors' investment management fees and include the reinvestment of dividends and interest as indicated on the notes page within this report or on the asset allocation and performance summary pages. Actual returns may be reduced by Aon Investments' investment advisory fees or other trust payable expenses you may incur as a client. Aon Investments' advisory fees are described in Form ADV Part 2A. Portfolio performance, characteristics and volatility also may differ from the benchmark(s) shown.

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Arkansas Teacher Retirement System | October 31, 2022

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## Monthly Investment Review

*All information presented in this report should be considered preliminary.*

*Finalized data will be available on the next Quarterly Investment Report after the close of the quarter.*

As of October 31, 2022

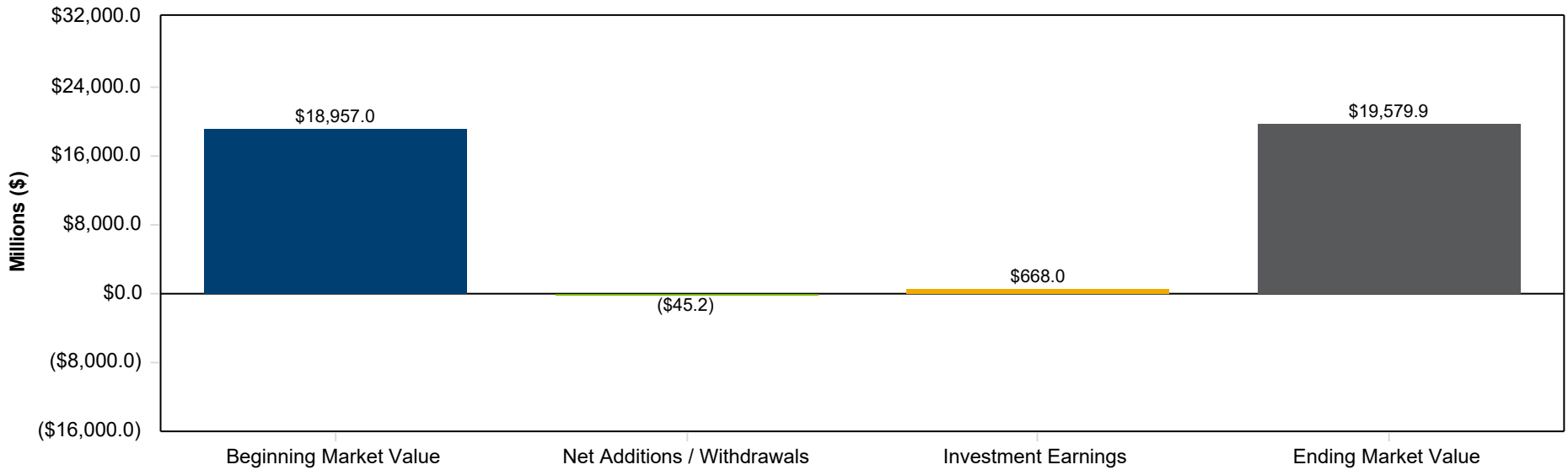
## Market Environment

	Performance(%)						
	1 Month	Fiscal YTD	Year To Date	1 Year	3 Years	5 Years	10 Years
Dow Jones U.S. Total Stock Market Index	8.2	3.2	-18.8	-16.9	9.6	9.7	12.4
S&P 500 Index	8.1	2.8	-17.7	-14.6	10.2	10.4	12.8
Russell 1000 Index	8.0	3.0	-18.5	-16.4	10.0	10.2	12.7
Russell 1000 Value Index	10.3	4.1	-9.3	-7.0	7.3	7.2	10.3
Russell 1000 Growth Index	5.8	2.0	-26.6	-24.6	11.7	12.6	14.7
Russell 2000 Index	11.0	8.6	-16.9	-18.5	7.0	5.6	9.9
Russell 2000 Value Index	12.6	7.4	-11.2	-10.7	8.1	5.3	9.4
Russell 2000 Growth Index	9.5	9.8	-22.6	-26.0	5.1	5.2	10.1
MSCI AC World IMI (Net)	6.2	-0.9	-21.1	-20.2	4.8	5.0	8.0
MSCI AC World ex USA IMI (Net)	3.0	-7.0	-24.7	-25.2	-1.4	-0.6	3.5
MSCI EAFE Index (Net)	5.4	-4.5	-23.2	-23.0	-1.3	-0.1	4.1
MSCI Emerging Markets Index (Net)	-3.1	-14.3	-29.4	-31.0	-4.4	-3.1	0.8
Blmbg. U.S. Universal Index	-1.1	-5.5	-15.8	-15.8	-3.6	-0.4	1.0
Blmbg. U.S. Aggregate	-1.3	-6.0	-15.7	-15.7	-3.8	-0.5	0.7
Blmbg. U.S. Government	-1.4	-5.6	-14.1	-13.9	-3.5	-0.5	0.4
Blmbg. Barc. Credit Bond Index	-1.0	-5.9	-18.9	-18.9	-4.1	-0.3	1.4
Blmbg. U.S. Mortgage Backed Securities	-1.4	-6.7	-14.9	-15.0	-4.2	-1.2	0.4
Blmbg. U.S. Corp: High Yield	2.6	1.9	-12.5	-11.8	0.3	2.0	4.1
Citigroup 90-Day T-Bill	0.2	0.7	0.9	0.9	0.6	1.2	0.7



**Total Plan Asset Summary**

**Change in Market Value  
From October 1, 2022 to October 31, 2022**



**Summary of Cash Flow**

	1 Month	Fiscal YTD	Year To Date	1 Year
Beginning Market Value	18,956,997,283	19,740,562,415	21,766,843,724	21,836,076,405
+ Additions / Withdrawals	-45,169,862	-312,431,638	-486,305,566	-681,478,343
+ Investment Earnings	668,045,940	151,742,584	-1,700,664,797	-1,574,724,701
<b>= Ending Market Value</b>	<b>19,579,873,361</b>	<b>19,579,873,361</b>	<b>19,579,873,361</b>	<b>19,579,873,361</b>

As of October 31, 2022

## Asset Allocation & Performance

	Allocation			Performance(%)								
	Market Value (\$)	%	Policy(%)	1 Month	Fiscal YTD	Year To Date	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
<b>Total Fund*</b>	<b>19,579,873,361</b>	<b>100.0</b>	<b>100.0</b>	<b>3.5</b>	<b>0.7</b>	<b>-8.0</b>	<b>-7.5</b>	<b>7.0</b>	<b>7.0</b>	<b>8.9</b>	<b>8.4</b>	<b>04/01/1986</b>
<i>Performance Benchmark</i>				<i>4.8</i>	<i>-0.8</i>	<i>-12.9</i>	<i>-12.2</i>	<i>6.3</i>	<i>6.6</i>	<i>8.5</i>	<i>8.4</i>	
<b>Total Equity</b>	<b>10,289,636,902</b>	<b>52.6</b>	<b>54.7</b>	<b>7.0</b>	<b>1.3</b>	<b>-16.2</b>	<b>-15.4</b>	<b>5.8</b>	<b>5.9</b>	<b>9.5</b>	<b>7.2</b>	<b>07/01/2015</b>
<i>Total Equity Performance Benchmark</i>				<i>6.8</i>	<i>0.5</i>	<i>-20.3</i>	<i>-19.1</i>	<i>6.3</i>	<i>6.5</i>	<i>9.6</i>	<i>7.7</i>	
<b>Fixed Income</b>	<b>2,770,889,838</b>	<b>14.2</b>	<b>15.0</b>	<b>-0.3</b>	<b>-2.9</b>	<b>-9.7</b>	<b>-9.8</b>	<b>-1.1</b>	<b>1.0</b>	<b>2.2</b>	<b>4.8</b>	<b>07/01/1992</b>
<i>Performance Benchmark</i>				<i>-1.1</i>	<i>-5.5</i>	<i>-15.8</i>	<i>-15.8</i>	<i>-3.6</i>	<i>-0.4</i>	<i>1.0</i>	<i>4.7</i>	
<b>Opportunistic/Alternatives</b>	<b>927,787,629</b>	<b>4.7</b>	<b>4.9</b>	<b>1.2</b>	<b>3.1</b>	<b>5.9</b>	<b>5.6</b>	<b>2.3</b>	<b>1.8</b>	<b>3.8</b>	<b>3.3</b>	<b>05/01/2011</b>
<i>Custom Alternatives Benchmark</i>				<i>1.6</i>	<i>1.8</i>	<i>0.6</i>	<i>0.7</i>	<i>3.2</i>	<i>2.7</i>	<i>2.7</i>	<i>2.1</i>	
<b>Real Assets</b>	<b>2,524,403,697</b>	<b>12.9</b>	<b>13.4</b>									
Real Estate	1,567,402,722	8.0										
Timber	331,953,047	1.7										
Agriculture	245,951,125	1.3										
Infrastructure	379,096,803	1.9										
Private Equity	2,952,437,887	15.1	12.0									
Cash	114,717,409	0.6	0.0									

**\*Preliminary Results**

\*Policy % is the interim target used for benchmarking purposes. See page 17 for long-term targets. Beginning July 1, 2013, an updated Investment Policy was adopted which includes the new Real Assets category, which includes Real Estate, Timber, Agriculture and Infrastructure.

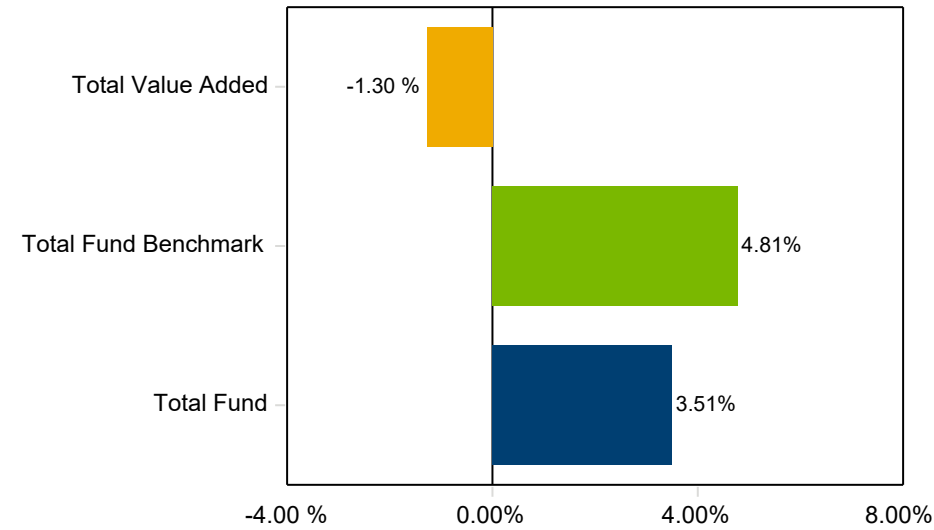
\*Real Assets and Private Equity are valued on a quarterly basis and reported on a quarter lag. Market values have been adjusted for the current month's cash flows. Updated results for these portfolios are not yet available and will be included in the quarterly performance report.

\*The inception of the Total Equity asset class was July 1, 2015. Performance prior to July 2015 represents the weighted average of the U.S. Equity and Global Equity asset class monthly returns. For historical performance of the U.S. Equity and Global Equity asset classes please see page 21 of this report.

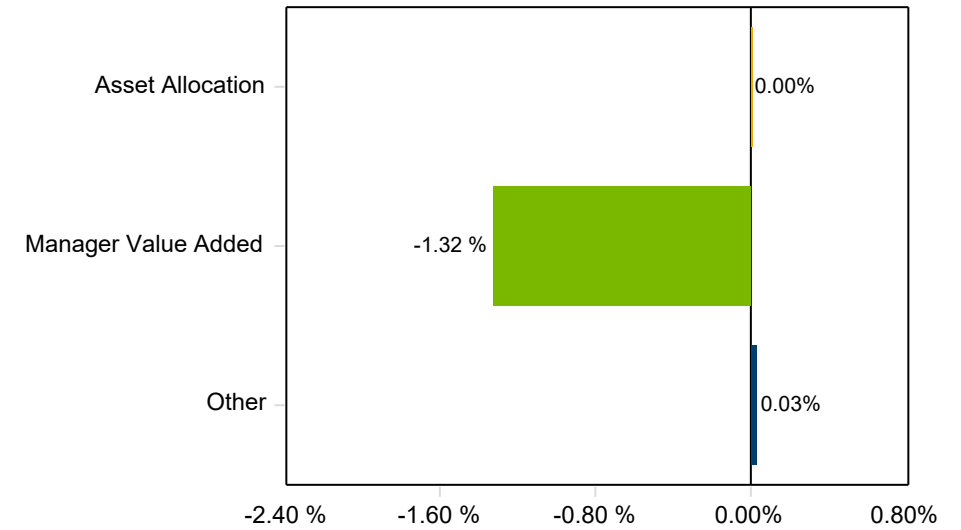
\*Includes investment gains from Allianz litigation income received on 2/28/2022.

Total Fund Attribution

Total Fund Performance

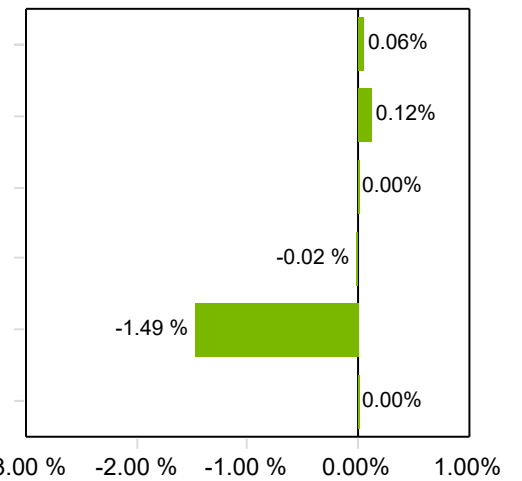
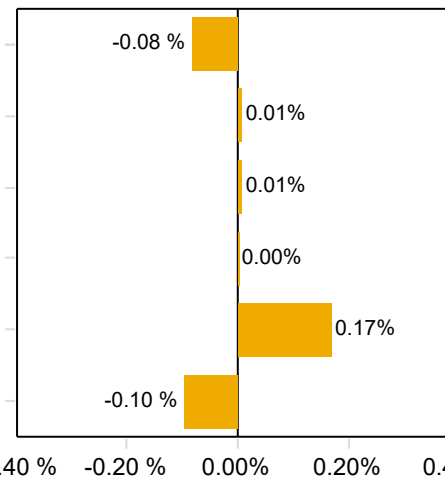
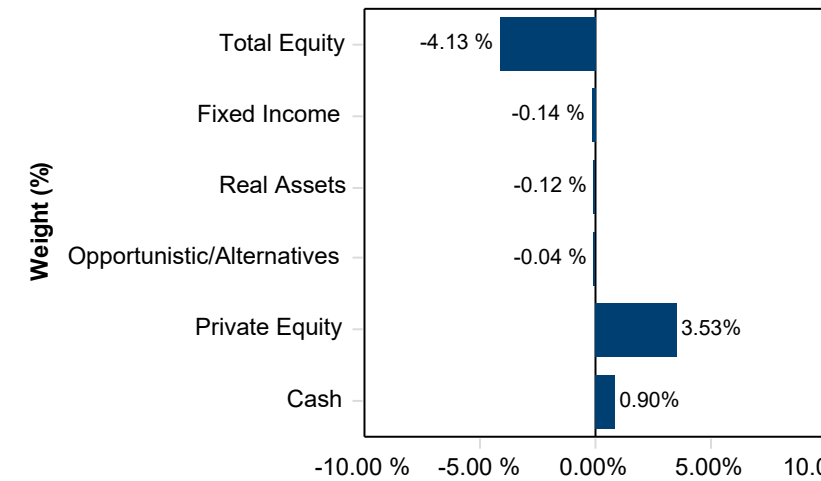


Total Value Added:-1.30 %



Total Asset Allocation:0.00%

Total Manager Value Added:-1.32 %



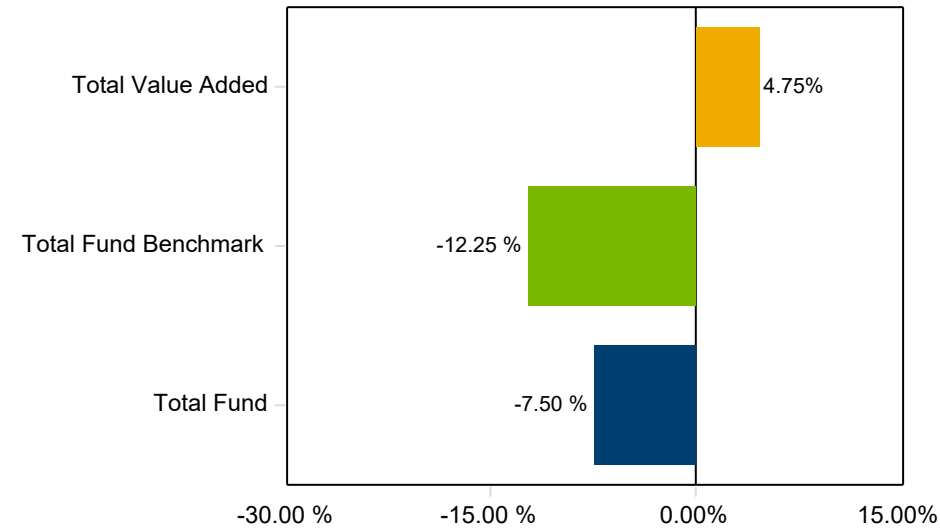
Average Active Weight

Asset Allocation Value Added

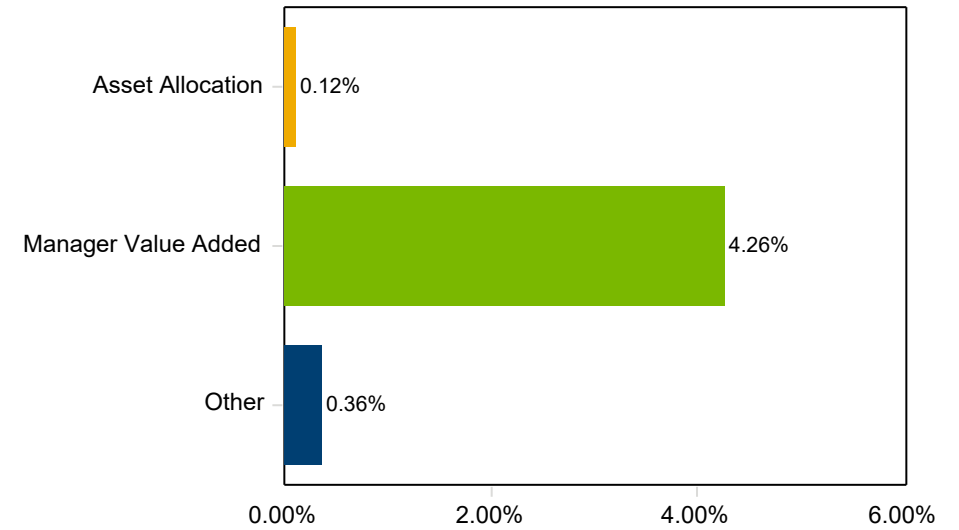
Manager Value Added

Total Fund Attribution

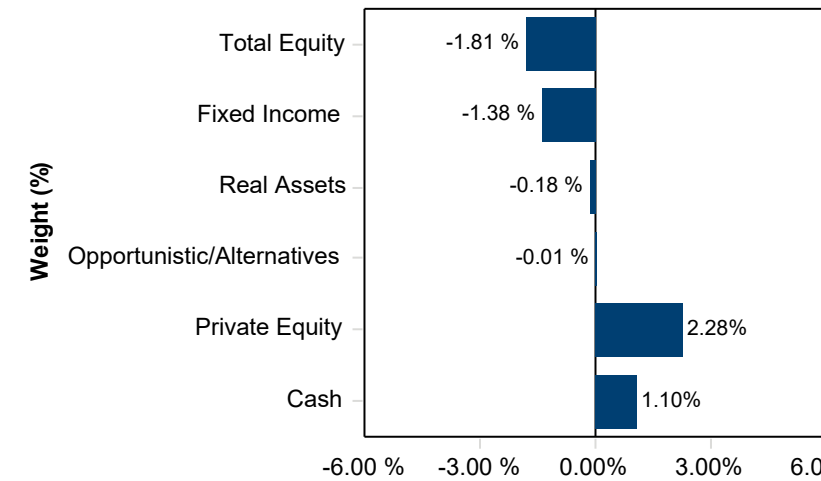
Total Fund Performance



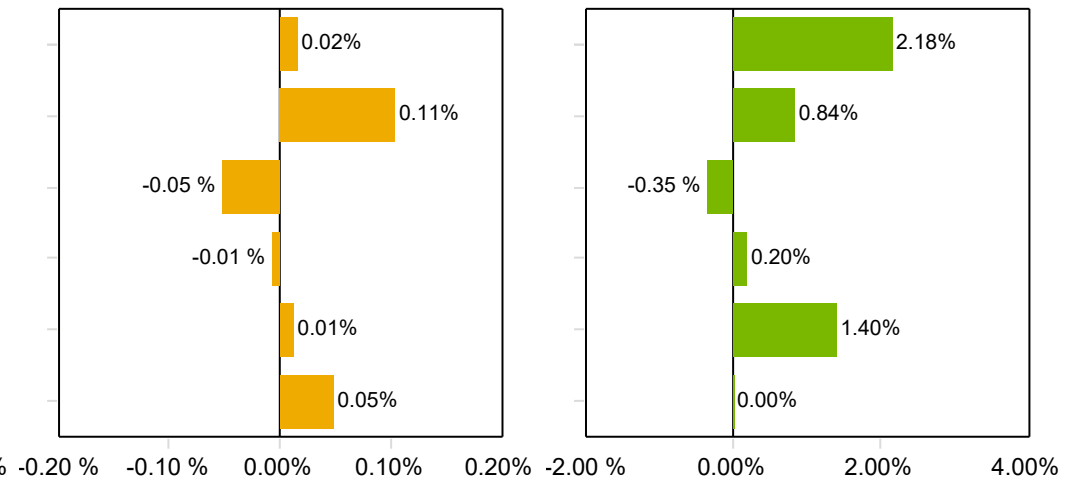
Total Value Added: 4.75%



Total Asset Allocation: 0.12%



Total Manager Value Added: 4.26%



■ Average Active Weight

■ Asset Allocation Value Added

■ Manager Value Added

As of October 31, 2022

## Asset Allocation & Performance

	Allocation		Performance(%)							
	Market Value (\$)	%	1 Month	Fiscal YTD	Year To Date	1 Year	3 Years	5 Years	Since Inception	Inception Date
Total Equity	10,289,636,902	100.0	7.0	1.3	-16.2	-15.4	5.8	5.9	7.2	07/01/2015
<i>Total Equity Performance Benchmark</i>			6.8	0.5	-20.3	-19.1	6.3	6.5	7.7	
Jacobs Levy 130/30	1,124,115,511	10.9	11.1	7.5	1.5	13.1	20.5	16.4	12.1	01/01/2008
<i>Russell 3000 Index</i>			8.2	3.4	-18.4	-16.5	9.8	9.9	8.8	
Kennedy Capital Management	723,952,523	7.0	9.9	5.3	-15.6	-11.4	9.6	5.2	11.8	01/01/1994
<i>Russell 2000 Value Index</i>			12.6	7.4	-11.2	-10.7	8.1	5.3	9.3	
Stephens	526,929,585	5.1	8.5	6.8	-24.0	-26.6	8.3	9.4	9.3	08/01/2006
<i>Russell 2000 Growth Index</i>			9.5	9.8	-22.6	-26.0	5.1	5.2	8.3	
Voya Absolute Return	655,903,612	6.4	6.2	-2.5	-21.6	-19.3	5.1	4.9	9.1	10/01/2008
<i>Performance Benchmark Voya Absolute Return</i>			6.0	-1.2	-21.1	-20.0	4.8	5.2	9.1	
Voya U.S. Convertibles	888,032,497	8.6	3.7	4.1	-16.8	-19.8	13.2	12.7	10.3	12/01/1998
<i>Performance Benchmark</i>			3.3	3.5	-17.4	-20.3	10.7	9.6	8.0	
Pershing Square Holdings	233,156,808	2.3	8.8	10.6	-19.9	-17.9	22.6	20.7	7.5	01/01/2013
<i>Dow Jones U.S. Total Stock Market Index</i>			8.2	3.2	-18.8	-16.9	9.6	9.7	12.4	
SSgA Global Index	920,982,963	9.0	6.2	-0.8	-20.9	-19.9	5.1	5.3	5.9	04/01/2008
<i>MSCI AC World IMI (Net)</i>			6.2	-0.9	-21.1	-20.2	4.8	5.0	5.6	
BlackRock MSCI ACWI IMI Fund	831,843,506	8.1	6.2	-0.8	-20.9	-19.9	5.1	5.2	7.2	07/01/2011
<i>MSCI AC World IMI (Net)</i>			6.2	-0.9	-21.1	-20.2	4.8	5.0	6.9	

\*Preliminary Results

\*The inception of the Total Equity asset class was July 1, 2015. Performance prior to July 2015 represents the weighted average of the U.S. Equity and Global Equity asset class monthly returns. For historical performance of the U.S. Equity and Global Equity asset classes please see page 21 of this report.

\*Includes investment gains from Allianz litigation income received on 2/28/2022.

As of October 31, 2022

## Asset Allocation & Performance

	Allocation		Performance(%)							
	Market Value (\$)	%	1 Month	Fiscal YTD	Year To Date	1 Year	3 Years	5 Years	Since Inception	Inception Date
Wellington Global Perspectives	662,234,412	6.4	8.2	3.9	-17.2	-16.9	6.4	4.5	11.8	07/01/2009
<i>Performance Benchmark</i>			7.0	1.4	-21.2	-22.0	4.3	3.4	9.4	
T. Rowe Price Global Equity	1,203,269,023	11.7	5.4	-0.4	-29.3	-31.6	8.9	10.0	11.9	08/01/2009
<i>MSCI AC World Index (Net)</i>			6.0	-1.2	-21.1	-20.0	4.8	5.2	8.3	
<i>MSCI AC World Index Growth (Net)</i>			3.5	-2.6	-29.8	-29.3	5.5	6.8	9.6	
Lazard	585,256,772	5.7	2.7	-7.9	-31.4	-31.3	0.9	0.9	6.8	08/01/2009
<i>MSCI AC World Index (Net)</i>			6.0	-1.2	-21.1	-20.0	4.8	5.2	8.3	
D.E. Shaw	850,552,410	8.3	7.5	2.8	-15.8	-13.8	6.3	6.0	9.8	09/01/2009
<i>MSCI World Index (Net)</i>			7.2	0.5	-20.1	-18.5	6.1	6.4	8.8	
GMO Global All Country Equity	441,689,269	4.3	6.0	-3.4	-22.5	-21.5	1.3	1.8	2.9	07/01/2014
<i>MSCI AC World Index (Net)</i>			6.0	-1.2	-21.1	-20.0	4.8	5.2	5.8	
<i>MSCI AC World Index Value (Net)</i>			8.5	0.2	-12.2	-10.3	3.3	3.1	3.7	
Harris Global Equity	526,906,825	5.1	8.3	-3.0	-20.3	-21.3	4.2	2.1	4.8	06/01/2014
<i>MSCI World Index (Net)</i>			7.2	0.5	-20.1	-18.5	6.1	6.4	6.7	
<i>MSCI World Value (Net)</i>			9.7	1.7	-10.6	-8.4	4.2	3.9	4.5	
Triam Partners	71,863,485	0.7	9.7	1.8	-18.1	-17.5	0.8	4.4	5.3	11/01/2015
<i>S&amp;P 500 Index</i>			8.1	2.8	-17.7	-14.6	10.2	10.4	11.4	
Triam Co-Investments	42,883,485	0.4	4.5	1.2	-14.4	-10.2	1.5	5.6	4.0	01/01/2017
<i>S&amp;P 500 Index</i>			8.1	2.8	-17.7	-14.6	10.2	10.4	11.8	

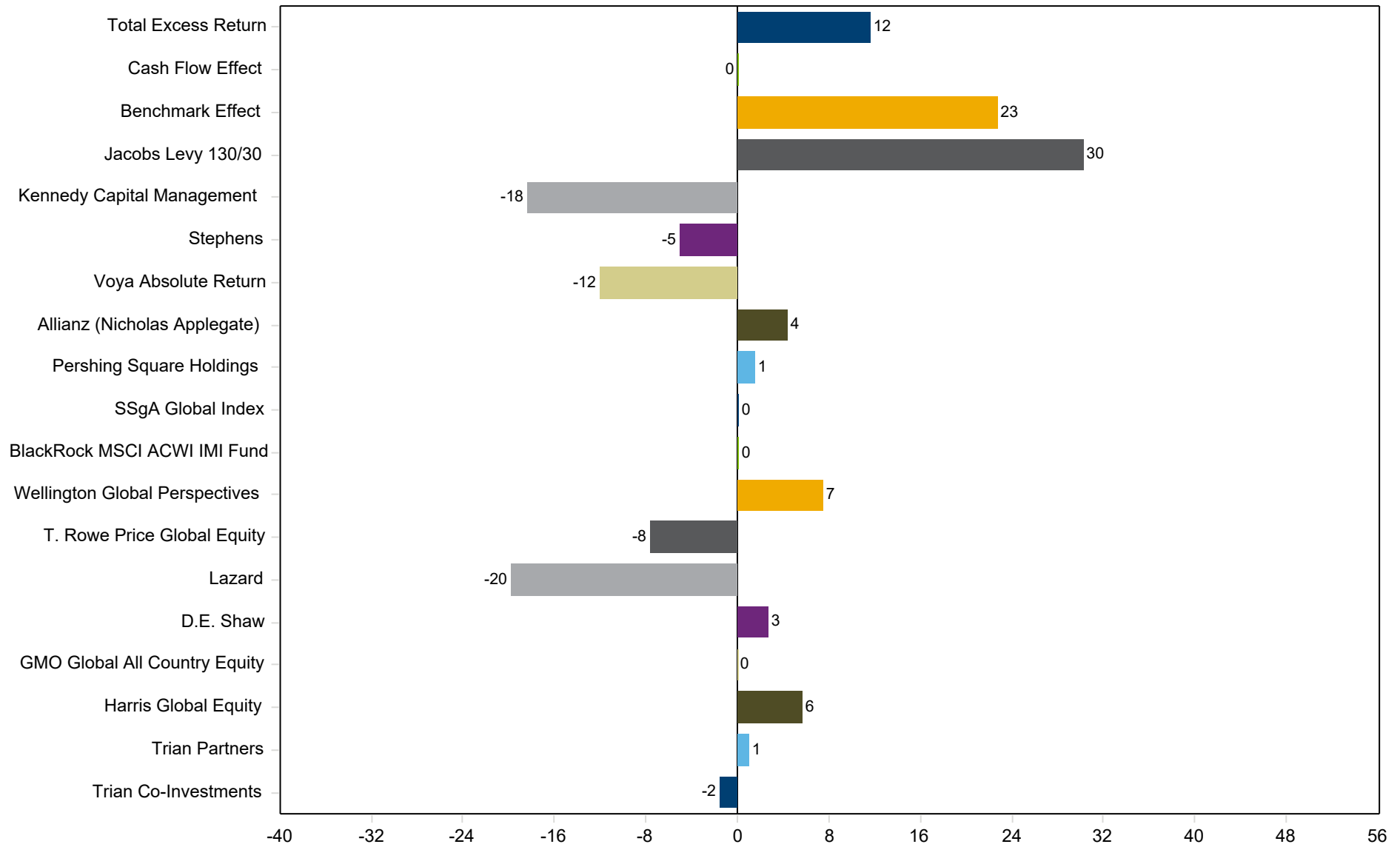
272  
\*Preliminary Results

The inception of the Total Equity asset class was July 1, 2015. Performance prior to July 2015 represents the weighted average of the U.S. Equity and Global Equity asset class monthly returns. For historical performance of the U.S. Equity and Global Equity asset classes please see page 21 of this report.

Includes investment gains from Allianz litigation income received on 2/28/2022.

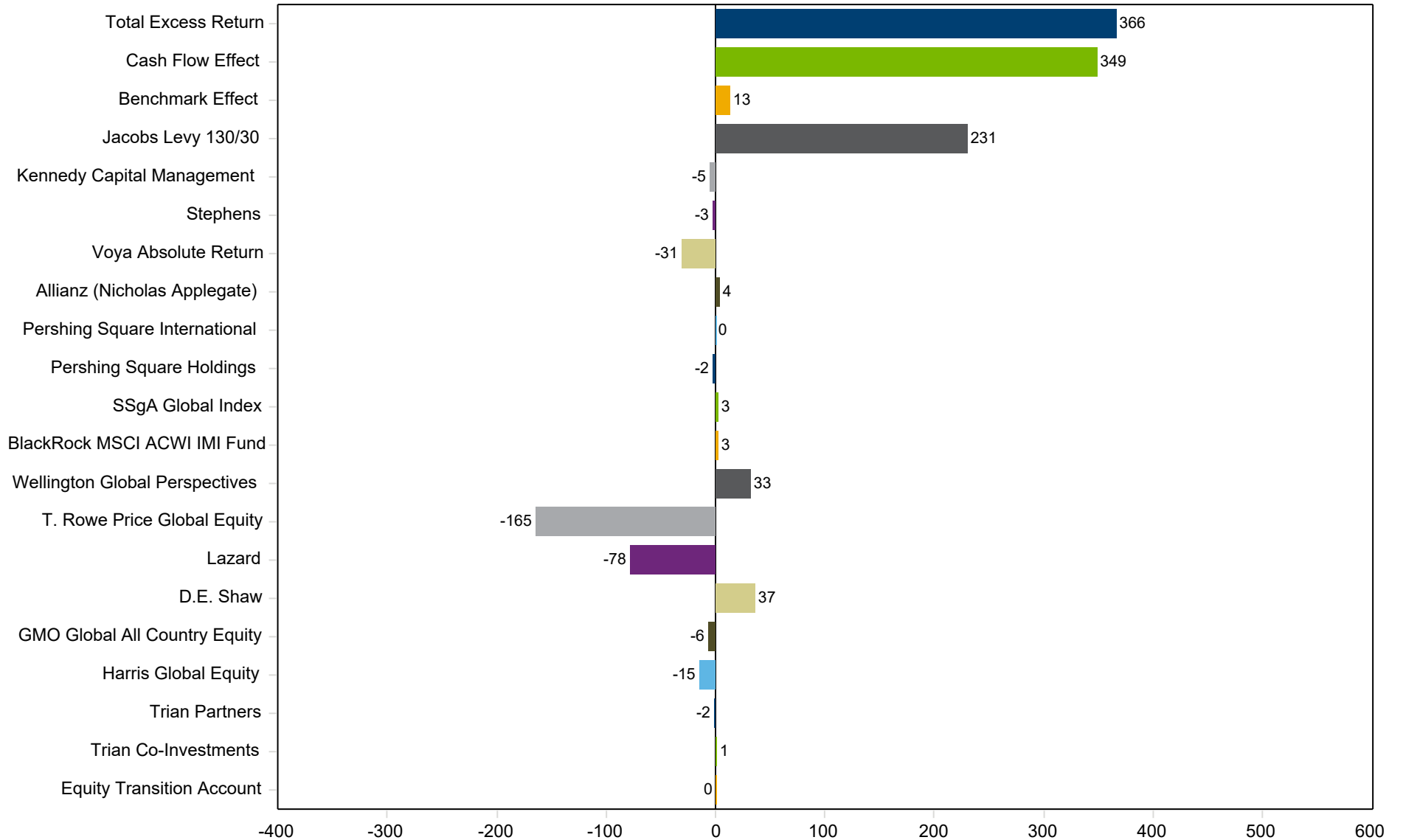
Asset Class Attribution

1 Month



Asset Class Attribution

1 Year





As of October 31, 2022

## Asset Allocation & Performance

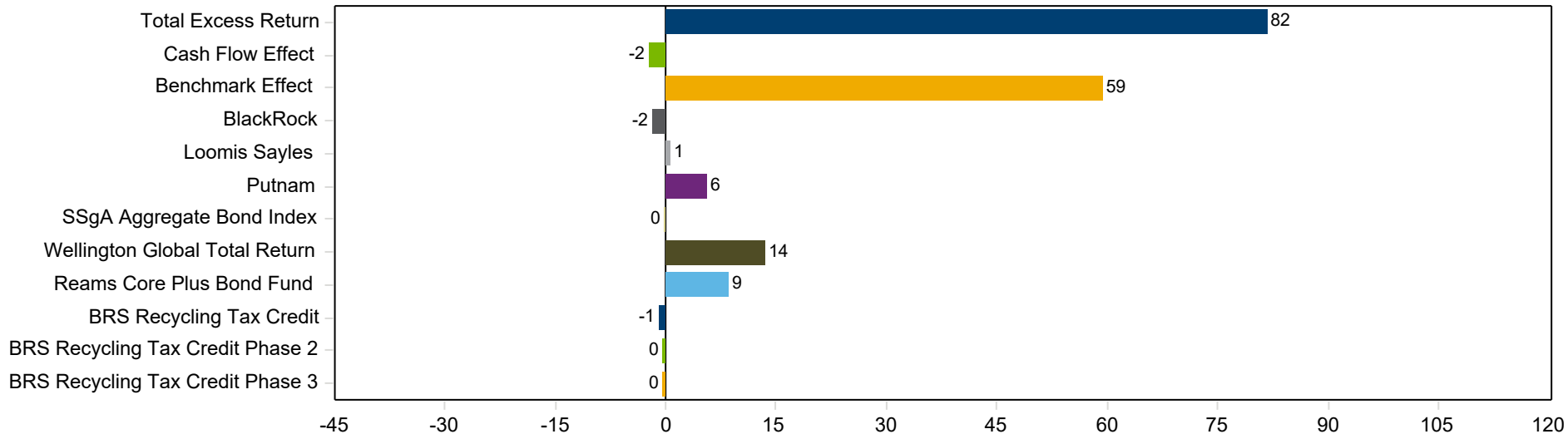
	Allocation		Performance(%)							
	Market Value (\$)	%	1 Month	Fiscal YTD	Year To Date	1 Year	3 Years	5 Years	Since Inception	Inception Date
Fixed Income	2,770,889,838	100.0	-0.3	-2.9	-9.7	-9.8	-1.1	1.0	4.8	07/01/1992
<i>Performance Benchmark</i>			-1.1	-5.5	-15.8	-15.8	-3.6	-0.4	4.7	
BlackRock	235,931,433	8.5	-1.3	-6.0	-16.4	-16.4	-3.5	-0.4	3.3	10/01/2003
<i>Performance Benchmark</i>			-1.1	-5.5	-15.8	-15.8	-3.6	-0.4	3.1	
Loomis Sayles	429,914,323	15.5	0.1	-2.4	-14.6	-14.6	-0.4	1.4	6.3	09/01/2008
<i>Performance Benchmark</i>			0.1	-3.1	-14.8	-14.5	-2.2	0.6	4.1	
Putnam	365,792,750	13.2	0.7	-0.4	-2.6	-3.2	-1.2	0.9	2.2	08/01/2008
<i>LIBOR</i>			0.2	0.6	0.6	0.6	0.7	1.3	0.9	
SSgA Aggregate Bond Index	688,515,382	24.8	-1.3	-6.0	-15.8	-15.7	-3.8	-0.6	1.8	06/01/2010
<i>Blmbg. U.S. Aggregate</i>			-1.3	-6.0	-15.7	-15.7	-3.8	-0.5	1.8	
Wellington Global Total Return	376,752,133	13.6	1.2	2.0	6.8	6.1	2.8	3.7	2.5	06/01/2014
<i>ICE BofAML 3 Month U.S. T-Bill</i>			0.2	0.6	0.8	0.8	0.6	1.2	0.8	
Reams Core Plus Bond Fund	338,832,443	12.2	-0.6	-4.7	-15.0	-14.4	-0.7	1.5	1.9	06/01/2014
<i>Blmbg. U.S. Aggregate</i>			-1.3	-6.0	-15.7	-15.7	-3.8	-0.5	0.7	
BRS Recycling Tax Credit	176,000,000	6.4								
BRS Recycling Tax Credit Phase 2	77,031,608	2.8								
BRS Recycling Tax Credit Phase 2	77,031,608	2.8								

\*Preliminary Results

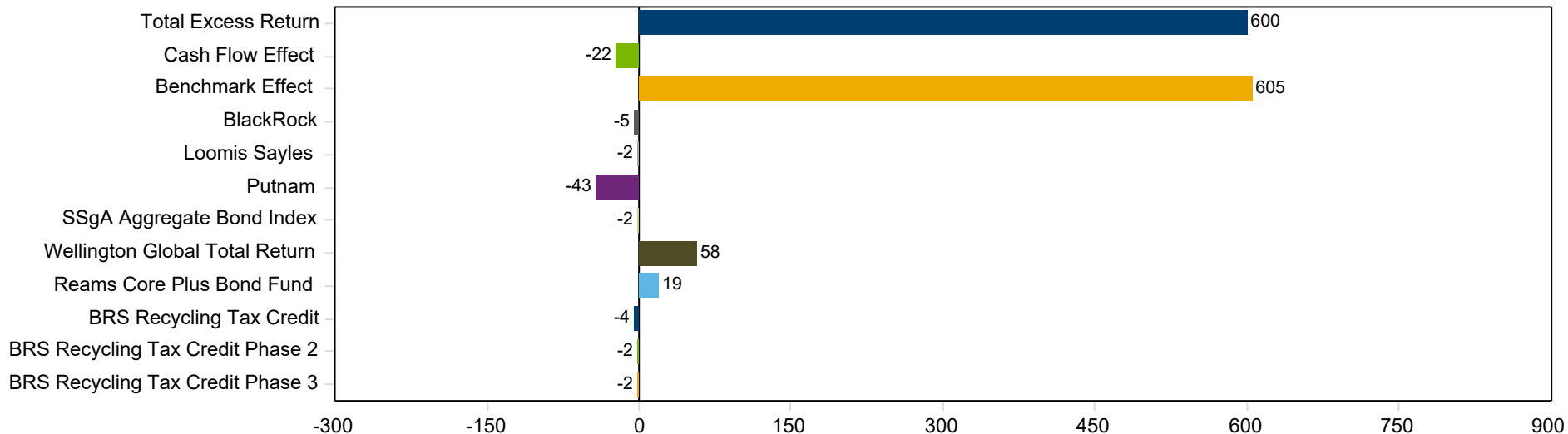
\*The BRS Recycling Tax Credit represents an annual income stream of \$16 million dollars over the next 14 years, which ATRS purchased for approximately \$162 million. The value shown above represents the year-end market value in accordance with GASB Statement 72, representing the 14 years of annual income, and has been incorporated into Total Fixed Income and Total Fund performance.

Asset Class Attribution

1 Month



1 Year



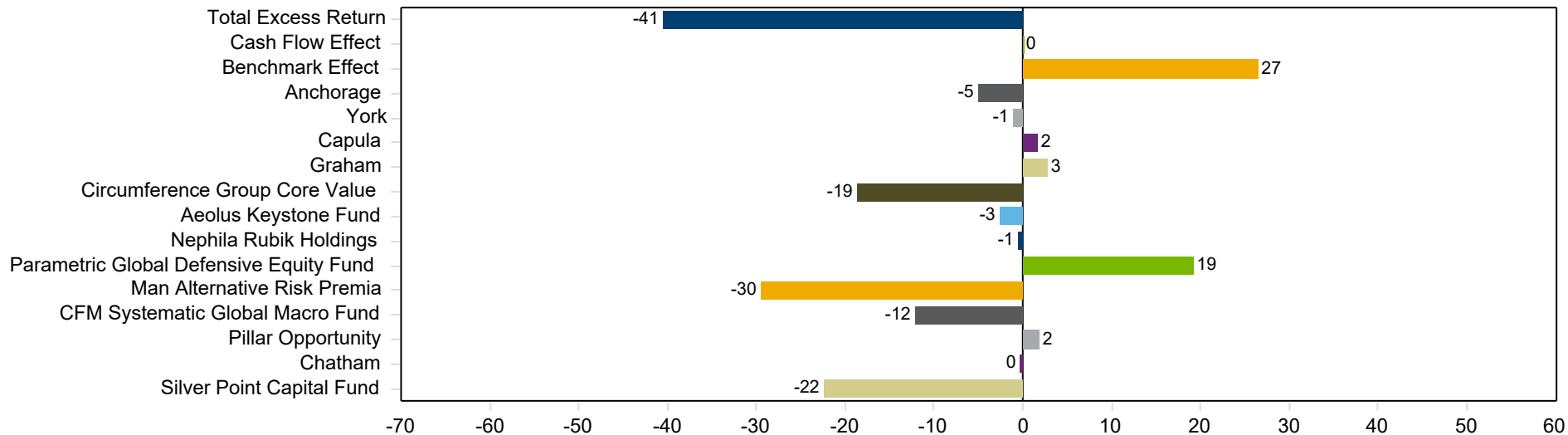
As of October 31, 2022

## Asset Allocation & Performance

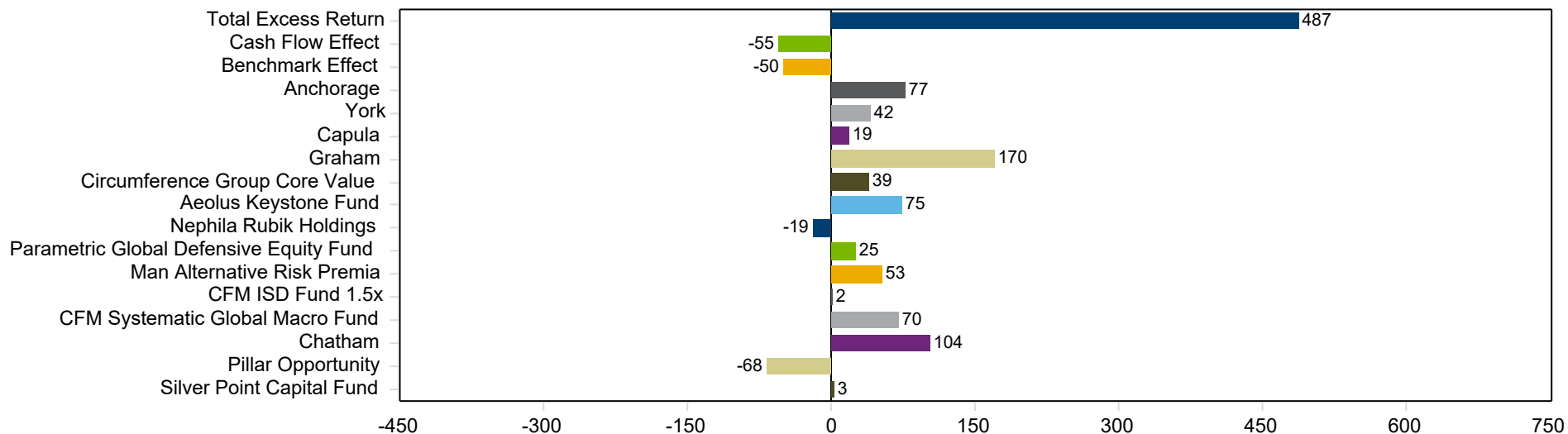
	Allocation		Performance(%)								
	Market Value (\$)	%	1 Month	Fiscal YTD	Year To Date	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Opportunistic/Alternatives	927,787,629	100.0	1.2	3.1	5.9	5.6	2.3	1.8	3.8	3.3	05/01/2011
<i>Custom Alternatives Benchmark</i>			1.6	1.8	0.6	0.7	3.2	2.7	2.7	2.1	
Anchorage	43,842,903	4.7	-0.2	4.5	5.2	3.3	8.9	5.1	6.4	5.8	05/01/2011
<i>Credit Suisse Event Driven</i>			0.9	0.1	-7.6	-9.1	4.6	3.3	3.6	2.6	
<i>HFRI ED: Distressed/Restructuring Index</i>			2.1	0.7	-3.0	-3.5	8.0	5.2	5.1	4.4	
York	11,057,439	1.2	0.0	16.4	42.5	34.8	-12.5	-9.5	-2.1	-1.5	05/01/2011
<i>Credit Suisse Event Driven</i>			0.9	0.1	-7.6	-9.1	4.6	3.3	3.6	2.6	
<i>HFRI ED: Distressed/Restructuring Index</i>			2.1	0.7	-3.0	-3.5	8.0	5.2	5.1	4.4	
Capula	89,661,631	9.7	1.0	4.7	10.8	12.1	7.2	6.4	6.8	6.3	05/01/2011
<i>HFRI Macro (Total) Index</i>			0.8	2.6	11.4	9.7	8.5	5.3	3.4	2.3	
Graham	96,846,578	10.4	1.1	7.8	36.3	32.3	15.9	11.0	8.8	5.8	05/01/2011
<i>HFRI Macro (Total) Index</i>			0.8	2.6	11.4	9.7	8.5	5.3	3.4	2.3	
Circumference Group Core Value	35,652,783	3.8	5.9	2.4	-8.2	-7.9	6.7	7.1		7.9	08/01/2015
<i>Russell 2000 Index</i>			11.0	8.6	-16.9	-18.5	7.0	5.6		7.1	
Aeolus Keystone Fund	40,095,300	4.3	-0.4	3.9	10.3	9.4	-1.1	-1.6		-1.6	12/01/2015
<i>FTSE 3 Month T-Bill</i>			0.2	0.7	0.9	0.9	0.6	1.2		1.0	
<i>Eurekahedge ILS Advisers Index</i>			0.8	-3.9	-3.6	-2.9	0.5	-0.3		-0.4	
Nephila Rubik Holdings	9,076,366	1.0	-0.3	-1.5	-8.2	-10.4	-7.9	-6.7		-5.7	06/01/2016
<i>FTSE 3 Month T-Bill</i>			0.2	0.7	0.9	0.9	0.6	1.2		1.0	
<i>Eurekahedge ILS Advisers Index</i>			0.8	-3.9	-3.6	-2.9	0.5	-0.3		-0.7	
Parametric Global Defensive Equity Fund	183,243,013	19.8	4.1	-0.3	-10.0	-8.6	2.6	3.1		3.8	06/01/2017
<i>Performance Benchmark</i>			3.1	0.0	-10.4	-9.7	3.2	3.6		4.1	
<i>MSCI AC World Index</i>			6.1	-1.1	-20.8	-19.6	5.3	5.8		6.8	
Man Alternative Risk Premia	111,668,376	12.0	0.0	6.5	11.9	14.3	3.8			2.7	06/01/2018
<i>SG Multi Alternative Risk Premia Index</i>			2.4	3.3	5.7	8.9	-1.0			-0.5	
CFM Systematic Global Macro Fund	111,331,713	12.0	-0.9	8.2	25.0	21.8				21.8	11/01/2021
<i>HFRI Macro: Systematic Diversified Index</i>			0.1	3.2	19.0	15.1				15.1	
Pillar Opportunity	89,870,095	9.7	0.4	-7.7	-5.4					-5.4	12/01/2021
<i>FTSE 3 Month T-Bill</i>			0.2	0.7	0.9					0.9	
<i>Eurekahedge ILS Advisers Index</i>			0.8	-3.9	-3.6					-3.3	
Chatham	57,044,848	6.1	3.0	6.3	14.5	14.3				14.3	11/01/2021
<i>HFRI Event-Driven (Total) Index</i>			3.1	2.7	-4.9	-5.2				-5.2	
Silver Point Capital Fund	48,396,584	5.2	-2.1	1.7						-2.3	03/01/2022
<i>HFRI ED: Distressed/Restructuring Index</i>			2.1	0.7						-2.8	

Asset Class Attribution

1 Month



1 Year



Asset Allocation as of 10/31/2022										Values in \$1,000	
	Total Equity	U.S. Bond	Real Estate	Private Equity	Cash	Total	Percent of Total	Interim Policy	Long-Term Target		
Jacobs Levy 130/30	\$1,124,115.5	--	--	--	--	\$1,124,115.5	5.74%				
Kennedy Capital Management	\$723,952.5	--	--	--	--	\$723,952.5	3.70%				
Stephens	\$526,929.6	--	--	--	--	\$526,929.6	2.69%				
Voya Absolute Return	\$655,903.6	--	--	--	--	\$655,903.6	3.35%				
Voya U.S. Convertibles	\$888,032.5	--	--	--	--	\$888,032.5	4.54%				
Pershing Square Holdings	\$233,156.8	--	--	--	--	\$233,156.8	1.19%				
SSgA Global Index	\$920,983.0	--	--	--	--	\$920,983.0	4.70%				
BlackRock MSCI ACWI IMI Fund	\$831,843.5	--	--	--	--	\$831,843.5	4.25%				
Wellington Global Perspectives	\$662,234.4	--	--	--	--	\$662,234.4	3.38%				
T. Rowe Price Global Equity	\$1,203,269.0	--	--	--	--	\$1,203,269.0	6.15%				
Lazard	\$585,256.8	--	--	--	--	\$585,256.8	2.99%				
D.E. Shaw	\$850,552.4	--	--	--	--	\$850,552.4	4.34%				
GMO Global All Country Equity	\$441,689.3	--	--	--	--	\$441,689.3	2.26%				
Harris Global Equity	\$526,906.8	--	--	--	--	\$526,906.8	2.69%				
Trian Partners	\$71,863.5	--	--	--	--	\$71,863.5	0.37%				
Trian Partners Co-Investments	\$42,883.5	--	--	--	--	\$42,883.5	0.22%				
Capital Guardian & Knight Vinke	\$64.2	--	--	--	--	\$64.2	0.00%				
<b>Total Equity</b>						\$10,289,636.9	52.55%	58.08%	53.00%		
BlackRock	--	\$235,931.4	--	--	--	\$235,931.4	1.20%				
Loomis Sayles	--	\$429,914.3	--	--	--	\$429,914.3	2.20%				
Putnam	--	\$365,792.8	--	--	--	\$365,792.8	1.87%				
SSgA Aggregate Bond Index	--	\$688,515.4	--	--	--	\$688,515.4	3.52%				
Wellington Global Total Return	--	\$376,752.1	--	--	--	\$376,752.1	1.92%				
Reams Core Plus Bond Fund	--	\$338,832.4	--	--	--	\$338,832.4	1.73%				
BRS Recycling Tax Credit	--	\$176,000.0	--	--	--	\$176,000.0	0.90%				
BRS Recycling Tax Credit Phase 2	--	\$77,031.6	--	--	--	\$77,031.6	0.39%				
BRS Recycling Tax Credit Phase 3	--	\$82,119.8	--	--	--	\$82,119.8	0.42%				
<b>Total Fixed Income</b>						\$2,770,889.8	14.15%	15.00%	15.00%		
Anchorage	--	--	--	\$43,842.9	--	\$43,842.9	0.22%				
Capula	--	--	--	\$89,661.6	--	\$89,661.6	0.46%				
Graham	--	--	--	\$96,846.6	--	\$96,846.6	0.49%				
York	--	--	--	\$11,057.4	--	\$11,057.4	0.06%				
Circumference Group Core Value	--	--	--	\$35,652.8	--	\$35,652.8	0.18%				
Aeolus Keystone Fund	--	--	--	\$40,095.3	--	\$40,095.3	0.20%				
Nephila Rubik Holdings	--	--	--	\$9,076.4	--	\$9,076.4	0.05%				
Parametric Global Defensive Equity	--	--	--	\$183,243.0	--	\$183,243.0	0.94%				
Man Alternative Risk Premia	--	--	--	\$111,668.4	--	\$111,668.4	0.57%				
CFM Systematic Global Macro	--	--	--	\$111,331.7	--	\$111,331.7	0.57%				
Juniperus	--	--	--	\$89,870.1	--	\$89,870.1	0.46%				
Chatham	--	--	--	\$57,044.8	--	\$57,044.8	0.29%				
Silver Point Capital	--	--	--	\$48,396.6	--	\$48,396.6	0.25%				
<b>Total Opportunistic/Alternatives</b>						\$927,787.6	4.74%	4.46%	5.00%		
<b>Real Estate</b>			\$1,567,402.7			\$1,567,402.7	8.01%				
<b>Timber</b>			\$331,953.0			\$331,953.0	1.70%				
<b>Agriculture</b>			\$245,951.1			\$245,951.1	1.26%				
<b>Infrastructure</b>			\$379,096.8			\$379,096.8	1.94%				
<b>Total Real Assets</b>						\$2,524,403.7	12.89%	10.46%	15.00%		
<b>Total Private Equity</b>				\$2,952,437.9		\$2,952,437.9	15.08%	12.00%	12.00%		
<b>Total Cash</b>					\$114,717.4	\$114,717.4	0.59%	0.00%	0.00%		
<b>Total Fund</b>	<b>\$10,289,636.9</b>	<b>\$2,770,889.8</b>	<b>\$2,524,403.7</b>	<b>\$3,880,225.5</b>	<b>\$114,717.4</b>	<b>\$19,579,873.4</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>		

\*Note: The market values for the Real Assets and Private Equity investments shown above are lagged one quarter and adjusted for the current quarter's cash flows. Market values and allocation percentages may not add to the sum total due to rounding.

Asset Allocation as of 10/31/2022				Values in \$1,000			
	Real Estate	Percent of Real Estate	Percent of Total Fund		Real Estate	Percent of Real Estate	Percent of Total Fund
Almanac Realty Securities Fund V	\$81.8	0.01%	0.00%	LaSalle Income & Growth Fund VI	\$5,065.1	0.32%	0.03%
Almanac Realty Securities Fund VI	\$4,008.8	0.26%	0.02%	LaSalle Income & Growth Fund VII	\$13,736.5	0.88%	0.07%
Almanac Realty Securities Fund VII	\$18,228.1	1.16%	0.09%	LaSalle Income & Growth Fund VIII	\$24,103.1	1.54%	0.12%
Almanac Realty Securities Fund VIII	\$16,015.2	1.02%	0.08%	LBA Logistics Value Fund	\$10,952.5	0.70%	0.06%
Almanac Realty Securities Fund IX	\$5,495.7	0.35%	0.03%	Lone Star Real Estate Fund IV	\$6,843.0	0.44%	0.03%
American Center	\$28,088.9	1.79%	0.14%	Long Wharf Real Estate Partners V	\$18,495.5	1.18%	0.09%
AR Insurance	\$2,126.7	0.14%	0.01%	Long Wharf Real Estate Partners VI	\$32,031.4	2.04%	0.16%
AR Teachers Retirement Building	\$6,644.6	0.42%	0.03%	Mesa West Income Fund V	\$12,169.4	0.78%	0.06%
Blackstone Real Estate Partners VII	\$11,814.6	0.75%	0.06%	Metropolitan RE Co-Investments	\$9,730.5	0.62%	0.05%
Blackstone RE Europe VI	\$20,723.9	1.32%	0.11%	Met Life Commercial Mtg Inc Fund	\$47,896.3	3.06%	0.24%
Carlyle Realty Partners VII	\$7,377.0	0.47%	0.04%	Morgan Stanley Prime Property Fund	\$69,665.8	4.44%	0.36%
Carlyle Realty VIII	\$14,787.6	0.94%	0.08%	New Boston Fund VII	\$8,309.5	0.53%	0.04%
Carlyle Realty IX	-\$262.0	-0.02%	0.00%	O'Connor NAPP II	\$4,559.5	0.29%	0.02%
CBREI SP U.S. Opportunity V	\$573.3	0.04%	0.00%	PRISA	\$349,546.3	22.30%	1.79%
CBREI SP VIII	\$23,236.5	1.48%	0.12%	Recoveries Land	\$70.0	0.00%	0.00%
CBREI SP IX	\$21,761.2	1.39%	0.11%	Rockwood Capital RE Partners IX	\$5,212.5	0.33%	0.03%
Cerberus Institutional RE Partners III	\$10,321.6	0.66%	0.05%	Rockwood Capital RE XI	\$25,700.3	1.64%	0.13%
Calmwater	\$13,376.6	0.85%	0.07%	Rose Law Firm	\$4,575.4	0.29%	0.02%
Fletcher Properties	\$1,220.0	0.08%	0.01%	RREEF Core Plus Industrial Fund	\$35,000.0	2.23%	0.18%
FPA Core Plus IV	\$35,190.3	2.25%	0.18%	Texasarkana DHS	\$0.0	0.00%	0.00%
GCP GLP IV	\$34,858.1	2.22%	0.18%	Torchlight Debt Opportunity Fund IV	\$4,466.1	0.28%	0.02%
Harbert European Real Estate	\$10,579.5	0.67%	0.05%	Torchlight Debt Opportunity Fund V	\$2,788.3	0.18%	0.01%
Heitman European Property IV	\$428.7	0.03%	0.00%	Torchlight Debt Opportunity Fund VI	\$18,471.5	1.18%	0.09%
JP Morgan Strategic Property Fund	\$203,429.5	12.98%	1.04%	Torchlight Debt Opportunity Fund VII	\$26,146.5	1.67%	0.13%
Kayne Anderson V	\$18,349.5	1.17%	0.09%	UBS Trumbull Property Fund	\$165,826.1	10.58%	0.85%
Kayne Anderson VI	\$10,293.2	0.66%	0.05%	UBS Trumbull Property Income Fund	\$60,067.6	3.83%	0.31%
Landmark Fund VI	\$904.0	0.06%	0.00%	Victory	\$33,864.2	2.16%	0.17%
Landmark Real Estate VIII	\$11,936.2	0.76%	0.06%	Walton Street Real Estate Debt II	\$11,918.2	0.76%	0.06%
LaSalle Asia Opportunity Fund IV	\$1,754.0	0.11%	0.01%	West Mphs. DHS	\$0.0	0.00%	0.00%
LaSalle Asia Opportunity Fund V	\$9,842.7	0.63%	0.05%	Westbrook IX	\$8,287.8	0.53%	0.04%
LaSalle Asia Opportunity Fund IV	-\$452.6	-0.03%	0.00%	Westbrook Real Estate Fund X	\$9,170.6	0.59%	0.05%
<b>Total Real Estate</b>					<b>\$1,567,402.7</b>	<b>100.00%</b>	<b>8.01%</b>

\*Note: The market values for the real estate investments shown above are lagged one quarter and adjusted for the current quarter's cash flows. Market values and allocation percentages may not add to the sum total due to rounding.

Asset Allocation as of 10/31/2022				Values in \$1,000			
	Private Equity	Percent of Private Equity	Percent of Total Fund		Private Equity	Percent of Private Equity	Percent of Total Fund
Alpine VIII	\$9,974.2	0.34%	0.05%	JF Lehman IV	\$8,172.3	0.28%	0.04%
Arlington Capital IV	\$37,878.7	1.28%	0.19%	JF Lehman V	\$25,068.1	0.85%	0.13%
Arlington Capital V	\$29,460.6	1.00%	0.15%	KPS III	\$26.7	0.00%	0.00%
Advent GPE VI	\$3,651.8	0.12%	0.02%	KPS IV	\$19,063.0	0.65%	0.10%
Altus Capital II	\$9,141.2	0.31%	0.05%	KPS X	\$22,537.9	0.76%	0.12%
American Industrial Partners VI	\$28,003.3	0.95%	0.14%	KPS Mid-Cap	\$12,962.5	0.44%	0.07%
American Industrial Partners VII	\$25,211.3	0.85%	0.13%	Levine Leichtman V	\$8,962.3	0.30%	0.05%
Altaris Constellation Partners	\$19,969.4	0.68%	0.10%	Lime Rock III	\$22,462.1	0.76%	0.11%
Altaris Health Partners IV	\$18,636.0	0.63%	0.10%	LLR III	\$1,966.8	0.07%	0.01%
Atlas Capital II	\$17,445.5	0.59%	0.09%	LLR VI	\$15,957.5	0.54%	0.08%
Audax Mezzanine III	\$1,247.8	0.04%	0.01%	Mason Wells III	\$28.7	0.00%	0.00%
Big River - Equity	\$1,677.9	0.06%	0.01%	NGP IX	\$182.4	0.01%	0.00%
Big River - Holdings Note 2023	\$0.0	0.00%	0.00%	NGP X	\$5,173.9	0.18%	0.03%
Big River - Holdings Note 3/16/23	\$0.0	0.00%	0.00%	NGP XI	\$23,864.5	0.81%	0.12%
Bison V	\$25,282.2	0.86%	0.13%	NGP XII	\$23,522.2	0.80%	0.12%
Boston Ventures VII	\$2,474.8	0.08%	0.01%	One Rock Capital Partners II	\$48,220.9	1.63%	0.25%
Boston Ventures IX	\$34,637.5	1.17%	0.18%	PineBridge	\$8,455.5	0.29%	0.04%
Boston Ventures X	\$15,868.4	0.54%	0.08%	Revelstoke	\$13,713.9	0.46%	0.07%
BV VIII	\$21,672.6	0.73%	0.11%	Riverside Value Fund I	\$15,885.9	0.54%	0.08%
Castlake II	\$11,913.4	0.40%	0.06%	Riverside IV	\$225.9	0.01%	0.00%
Castlake III	\$14,054.1	0.48%	0.07%	Riverside V	\$25,623.0	0.87%	0.13%
Clearlake V	\$40,296.2	1.36%	0.21%	Riverside VI	\$25,261.0	0.86%	0.13%
Clearlake VI	\$43,368.0	1.47%	0.22%	Siris III	\$20,404.5	0.69%	0.10%
Clearlake VII	\$9,937.4	0.34%	0.05%	Siris IV	\$33,783.4	1.14%	0.17%
Court Square III	\$32,534.1	1.10%	0.17%	SK Capital V	\$33,199.0	1.12%	0.17%
CSFB-ATRS 2005-1 Series	\$29,715.6	1.01%	0.15%	Sycamore Partners II	\$11,840.1	0.40%	0.06%
CSFB-ATRS 2006-1 Series	\$72,823.6	2.47%	0.37%	Sycamore Partners III	\$18,739.3	0.63%	0.10%
Diamond State Ventures II	\$2,631.9	0.09%	0.01%	TA XI	\$12,639.2	0.43%	0.06%
DW Healthcare III	\$4,674.3	0.16%	0.02%	Tennenbaum VI	\$827.5	0.03%	0.00%
DW Healthcare IV	\$26,292.4	0.89%	0.13%	Thoma Bravo Discover	\$5,631.5	0.19%	0.03%
DW Healthcare V	\$20,549.3	0.70%	0.10%	Thoma Bravo Discover II	\$22,936.2	0.78%	0.12%
EnCap IX	\$10,758.5	0.36%	0.05%	Thoma Bravo Discover III	\$19,665.5	0.67%	0.10%
EnCap VIII	\$21,047.7	0.71%	0.11%	Thoma Bravo Explore I	\$16,020.4	0.54%	0.08%
EnCap X	\$31,163.9	1.06%	0.16%	Thoma Bravo XI	\$24,636.8	0.83%	0.13%
EnCap XI	\$32,800.4	1.11%	0.17%	Thoma Bravo XII	\$36,817.4	1.25%	0.19%
Franklin Park Series	\$1,141,898.0	38.68%	5.83%	Thoma Bravo XIII	\$43,793.5	1.48%	0.22%
Greenbriar V	\$24,800.1	0.84%	0.13%	Thoma Bravo XIV	\$18,221.7	0.62%	0.09%
GCG IV	\$15,174.5	0.51%	0.08%	Thoma Bravo XV	\$4,553.1	0.15%	0.02%
GCG V	\$24,173.5	0.82%	0.12%	Vista Equity III	\$3,262.8	0.11%	0.02%
GTLA Holdings	\$70,000.0	2.37%	0.36%	Vista Foundation II	\$8,946.4	0.30%	0.05%
Highland	\$210,491.1	7.13%	1.08%	Vista Foundation III	\$33,058.5	1.12%	0.17%
Insight Equity II	\$8,769.1	0.30%	0.04%	Wellspring V	\$11,883.7	0.40%	0.06%
Insight Mezzanine I	\$1,799.8	0.06%	0.01%	Wicks IV	\$9,225.6	0.31%	0.05%
JF Lehman III	\$20,224.3	0.69%	0.10%	WNG II	\$10,890.1	0.37%	0.06%
				<b>Total Private Equity</b>	<b>\$2,952,437.9</b>	<b>100.00%</b>	<b>15.08%</b>

\*Note: The market values for the private equity investments shown above are lagged one quarter and adjusted for the current quarter's cash flows. Market values and allocation percentages may not add to the sum total due to rounding.

## Arkansas Teacher Retirement System

## Appendix

## Description of Benchmarks

**Total Fund** - The Performance Benchmark for the Total Fund reflects a weighted average of the underlying asset class benchmarks, weighted as follows: Opportunistic/Alternatives and Real Assets at the weight of the previous month's ending market values, Fixed Income and Private Equity at their long-term Policy Targets of 15% and 12%, respectively, and Total Equity at its long-term Policy Target of 50% plus the balance of the unfunded or uncommitted assets of the Opportunistic/Alternatives and Real Assets categories. These targets can be found on page 14 of the this report. From October 2007 to July 2013, the Performance Benchmark was the performance of the asset class benchmarks as a weighted average of the previous month's ending market values. The historical components of the benchmark are shown in the table below. Returns prior to September 30, 1996, consist of the actual allocations to the seven different asset classes included in the Arkansas Teacher Retirement System over time. The historical benchmarks used for each asset class are noted below.

Date	DJ Total Stock Market Index	Russell 3000 Index	MSCI ACW ex-U.S. Index	MSCI All Country World Index	BC Universal Bond Index	BC Aggregate Bond Index	Alternative Policy*
03/2004-9/2007	40.0 %	--	17.5 %	--	25.0 %	--	17.5 %
06/2003-02/2004	40.0	--	17.5	--	--	25.0 %	17.5
10/2001-07/2003	--	40.0 %	17.5	--	--	25.0	17.5
08/1998-09/2001	--	40.0	17.0	--	--	28.0	15.0
10/1996-07/1998	--	40.0	20.0	--	--	28.0	12.0

\*Historically, the Alternative Policy was comprised of the weighted averages of the Private Equity, Real Estate, and Alternatives policy benchmarks. Prior to July 31, 2003 the alternative benchmark consisted of 57.0% of the Russell 3000 + a 2% Premium per year, 8.5% of the NCREIF Southeast Timberland Index, 28.5% of the Real Estate Index, 6% of the EnnisKnupp STIF Index.



## Arkansas Teacher Retirement System

### Appendix

**Total Equity** -A weighted average of the Dow Jones U.S. Total Stock Market Index and the MSCI All Country World IMI Index based on weights of the underlying investment manager allocations. As of October 1, 2022, the Total Equity Performance Benchmark was comprised of 34.7% DJ U.S. Total Stock Market Index and 65.3% MSCI ACWI IMI.

**Fixed Income** - The Barclays Capital Universal Bond Index as of March 1, 2004.

**Opportunistic/Alternatives** - A custom benchmark consisting of 25% DJ/CS Event-Driven Index, 25% HFR Macro Index, and 50% South Timberland NCREIF Index until June 30,2013; 60% HFRI Macro Index and 40% DJ/CS Event-Driven Index until July 31, 2015; 56% HFRI Macro Index, 38% DJ/CS Event-Driven Index, and 6% Russell 2000 Index until March 31, 2016; 45% HFRI Macro Index, 30% DJ/CS Event-Driven Index, 5% Russell 2000 Index, and 20% FTSE 3 Month T-bill until May 31, 2016; 37% HFRI Macro Index, 25% DJ/CS Event-Driven Index, 5% Russell 2000 Index, and 33% FTSE 3 Month T-bill until May 31, 2017; 28% HFRI Macro Index, 20% DJ/CS Event-Driven Index, 4% Russell 2000 Index, 25% FTSE 3 Month T-bill, and 23% Parametric Performance Benchmark Until May 31, 2018. 22% HFRI Macro Index, 18% DJ/CS Event-Driven Index, 3% Russell 2000 Index, 27% FTSE 3 Month T-bill, 18.50% Parametric Performance Benchmark, and 11.5% SG Multi-Alternative Risk Premia Until June 30, 2018. 20% HFRI Macro Index, 15% DJ/CS Event-Driven Index, 3.5% Russell 2000 Index, 25% FTSE 3 Month T-bill, 16.5% Parametric Performance Benchmark, and 20% SG Multi-Alternative Risk Premia Until August 31, 2018. 17% HFRI Macro Index, 15% DJ/CS Event-Driven Index, 3.5% Russell 2000 Index, 28% FTSE 3 Month T-bill, 16.5% Parametric Performance Benchmark, and 20% SG Multi-Alternative Risk Premia Until November 30, 2018. 15% HFRI Macro Index, 15% DJ/CS Event-Driven Index, 3.5% Russell 2000 Index, 30% FTSE 3 Month T-bill, 16.5% Parametric Performance Benchmark, and 20% SG Multi-Alternative Risk Premia thereafter.

**Real Assets** - A custom benchmark consisting of a weighted average of the net asset values at previous month's end of the sub-categories' benchmarks, defined as Real Estate Benchmark, Timber Benchmark, Agriculture Benchmark and Infrastructure Benchmark.

**Real Estate**-The NCREIF Index.

**Timberland Property Benchmark** - NCREIF Timberland Property Index (NTPI) weighted according to ATRS' regional exposure based on net asset value.

**Agriculture Benchmark** - NCREIF Farmland Index (NFI) weighted according to ATRS' regional and crop type exposure based on net asset value.

**Infrastructure Benchmark** - Consumer Price Index (CPI) plus 500 basis points annually.

**Private Equity** - The Dow Jones U.S. Total Stock Market Index + a 2% premium per year.

**Cash Equivalents** - The Citigroup 90 day T-bill.

## Arkansas Teacher Retirement System

### Appendix

#### Description of Benchmarks

**FTSE 90 day T-bill Index** - Treasury bill rates of return, as reported by Citigroup (Salomon Smith Barney), for bills with a maximum time remaining to maturity of 90 days.

**Bloomberg Barclays Aggregate Bond Index** - A market-value weighted index consisting of the Barclays Capital Corporate, Government and Mortgage-Backed Securities Indices. The Index also includes credit card-, auto- and home equity loan-backed securities, and is the broadest available measure of the aggregate U.S. fixed income market.

**Bloomberg Barclays Universal Bond Index** - A market-value weighted index consisting of the components of the Barclays Capital Bond Index, plus EuroDollar bonds, emerging markets bonds, 144A fixed income securities, and U.S. credit high yield securities.

**Bloomberg Barclays Mortgage Index** - A market value-weighted index consisting of the mortgage pass-through securities of Ginnie Mae (GNMA), Fannie Mae (FNMA) and Freddie Mac (FHLMC).

**MSCI All Country World ex-U.S. Index** - A capitalization-weighted index consisting of 22 developed and 23 emerging countries, but excluding the U.S. Covers approximately 85% of global equity opportunity set outside of the U.S.

**MSCI All Country World Index** - A capitalization-weighted index of stocks representing 46 stock markets in Europe, Australia, the Far East, the Middle East, Latin America and North America.

**MSCI All Country World IMI Index** - A capitalization-weighted index representing large and small cap stock from 46 stock markets in Europe, Australia, the Far East, the Middle East, Latin America and North America.

**FTSE Europe** - A tradable index, designed to represent the performance of the 100 most highly capitalized blue chip companies in Europe.

**MSCI Europe, Australasia, Far East (EAFE) Non-U.S. Stock Index** - A capitalization-weighted index of stocks representing 21 developed and emerging country markets in Europe, Australia, Asia and the Far East.

**NCREIF Index** - The National Council of Real Estate Investment Fiduciaries (NCREIF) Net Property Index is an unlevered, market-value weighted Index consisting of \$128 billion in domestic institutional real estate assets. The Index is representative of the national real estate market, across all property types and regions.

**Voya U.S. Convertibles Performance Benchmark** - On January 1, 2005, the benchmark for the portfolio was changed to the Merrill Lynch Convertible Bond (All Quality) Index. Prior to January 1, 2005, the performance benchmark for the Voya U.S. Convertibles portfolio was the CSFB Convertible Securities Index. Prior to May 1, 2004, the performance benchmark consisted of 90% CSFB Convertible Securities Index and 10% Salomon High Yield Index.

**Wellington Global Performance Benchmark**- As of July 1, 2012 the benchmark was changed to MSCI All Country World Small Cap Index. Prior to July 1, 2012, the benchmark was MSCI All Country World Small/Mid Cap Index.

As of October 31, 2022

## Arkansas Teacher Retirement System

### Appendix

**BlackRock Performance Benchmark** - The Barclays Capital Universal Bond Index as of March 1, 2004.

**Voya Absolute Return Performance Benchmark** - As of December 1, 2015 the benchmark was changed to MSCI All Country World Index. Prior to December 1, 2015, the benchmark was the S&P 500 Stock Index.

**LIBOR Index** - London Interbank Offered Rate. A filtered average of the world's most creditworthy banks' interbank deposit rates with maturities between overnight and one full year.

**Russell 3000 Index** - An index that measures the performance of the 3000 stocks that make up the Russell 1000 and Russell 2000 Indices.

**Russell 1000 Index** - An index that measures the performance of the largest 1,000 stocks contained in the Russell 3000 Index.

**Russell 1000 Value Index** - An index that measures the performance of those Russell 1000 companies with lower price-to-book ratios and lower I/B/E/S growth forecasts.

**Russell 2000 Index** - An index that measures the performance of the smallest 2000 companies contained in the Russell 3000 Index.

**Russell 2000 Growth Index** - An index that measures the performance of those Russell 2000 companies with greater price-to-book ratios and greater I/B/E/S growth forecasts.

**Russell 2000 Value Index** - An index that measures the performance of those Russell 2000 companies with lower price-to-book ratios and lower I/B/E/S growth forecasts.

**Russell Mid Cap Value Index** - An index that measure the performance of those Russell 1000 companies with lower price-to-book ratios and lower forecasted growth values.

**S&P 500 Stock Index** - A capitalization-weighted stock index consisting of the 500 largest publicly traded U.S. stocks.

**HFR Macro Index** - Macro: Investment Managers which trade a broad range of strategies in which the investment process is predicated on movements in underlying economic variables and the impact these have on equity, fixed income, hard currency and commodity markets. Managers employ a variety of techniques, both discretionary and systematic analysis, combinations of top down and bottom up theses, quantitative and fundamental approaches and long and short term holding periods. Primary investment thesis is predicated on predicted or future movements in the underlying instruments.

**HFR Distressed/Restructuring Index** - Distressed Restructuring Strategies employ an investment process focused on corporate fixed income instruments, primarily on corporate credit instruments of companies trading at significant discounts to their value at issuance or obliged (par value) at maturity as a result of either formal bankruptcy proceeding or financial market perception of near term proceedings. Distressed Strategies employ primarily debt (greater than 60%) but also may maintain related equity exposure.

**Parametric Performance Benchmark** - 50% MSCI All Country World Index and 50% Citigroup 90 day T-Bill Index as of June 1, 2017.

**SG Multi Alternative Risk Premia Index** - An equally weighted index composed of risk premia managers who employ investment programs diversified across multiple asset classes while utilizing multiple risk premia factors.

## Arkansas Teacher Retirement System

## Appendix

## Historical U.S. Equity and Global Equity composite returns

<b>As of June 30, 2015</b>	<b>1 Year</b>	<b>3 Years</b>	<b>5 Years</b>	<b>10 Years</b>	<b>Since Inception</b>	<b>Inception Date</b>
U.S. Equity	6.7	18.1	16.4	9.4	10.5	04/01/1986
Dow Jones U.S. Total Stock Market Index	7.2	17.6	17.5	8.3	-	
Global Equity	1.8	14.6	12.1	-	2.5	11/01/2007
MSCI AC World Index (Net)	0.7	13.0	11.9	6.4	2.1	

In June 2015, the ATRS Board approved the combination of the U.S. and Global equity asset classes to a single Total Equity asset class. Total Equity performance reporting began in July 2015. In the table above, we show the historical returns for the U.S. Equity and Global Equity asset classes since inception through June 2015. Performance for the Total Equity asset class prior to July 2015 represents a weighted average of the U.S. Equity and Global Equity historical performance.

## Notes

- The rates of return contained in this report are shown on an after-fees basis unless otherwise noted. They are geometric and time-weighted. Returns for periods longer than one year are annualized.
- Universe percentiles are based upon an ordering system in which 1 is the best ranking and 100 is the worst ranking.
- Due to rounding throughout the report, percentage totals displayed may not sum to 100%. Additionally, individual fund totals in dollar terms may not sum to the plan total.
- All information presented in this report should be considered preliminary. Finalized data will be available on next Quarterly Investment Report after the close of the quarter.

## Disclaimer

### Past performance is not necessarily indicative of future results.

Unless otherwise noted, performance returns presented reflect the respective fund's performance as indicated. Returns may be presented on a before-fees basis (gross) or after-fees basis (net). After-fee performance is net of each respective sub-advisors' investment management fees and include the reinvestment of dividends and interest as indicated on the notes page within this report or on the asset allocation and performance summary pages. Actual returns may be reduced by Aon Investments' investment advisory fees or other trust payable expenses you may incur as a client. Aon Investments' advisory fees are described in Form ADV Part 2A. Portfolio performance, characteristics and volatility also may differ from the benchmark(s) shown.

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**AON**

# **Public Markets Structure Review**

Arkansas Teacher  
Retirement System

December 5, 2022



# Discussion Guide

<b>Section 1</b>	<b>Executive Summary</b>
<b>Section 2</b>	<b>Public Equity Structure Review</b>
<b>Section 3</b>	<b>Fixed Income Structure Review</b>
<b>Section 4</b>	<b>Appendix</b>



# 1

## Executive Summary



# Executive Summary

- Aon reviews the structure of the equity and fixed income asset classes on a regular basis
- Investment structure refers to the number and types of investment managers and its review ensures appropriate capital market exposure for the intended portfolio objectives by:
  - Identifying any material, *unintended* biases
  - Reviewing level and composition of active risk
  - Ensuring appropriate structure, considering long-term goals, liquidity needs, and the opportunity set
- Broadly, ATRS's public market portfolios are well-constructed to meet long-term investment objectives, are allocated across high conviction managers and have been successful over time
- As a result of our 2022 review, we have identified modest recommendations to further improve the structure of the portfolios and their ability to achieve the long-term risk/reward objectives in an efficient and cost effective manner



# 2

## Total Equity Structure Review



# Total Equity Structure Review

## Key Take-Aways and Recommendations

### Total Equity Structure Review observations:

- U.S. and small cap bias continue to exist at moderate levels
- Passive management used to improve efficiency and provide liquidity
- High conviction and diversified active strategies employed

### Overall, the Total Equity portfolio is well-structured and appropriately positioned to meet its long-term investment objectives

- Well-diversified among managers, geographies, style, size and active/passive mandates
- Active risk levels appropriate for desired return potential

### We have identified modest recommendations to improve the overall structure and efficiency of the Equity portfolio

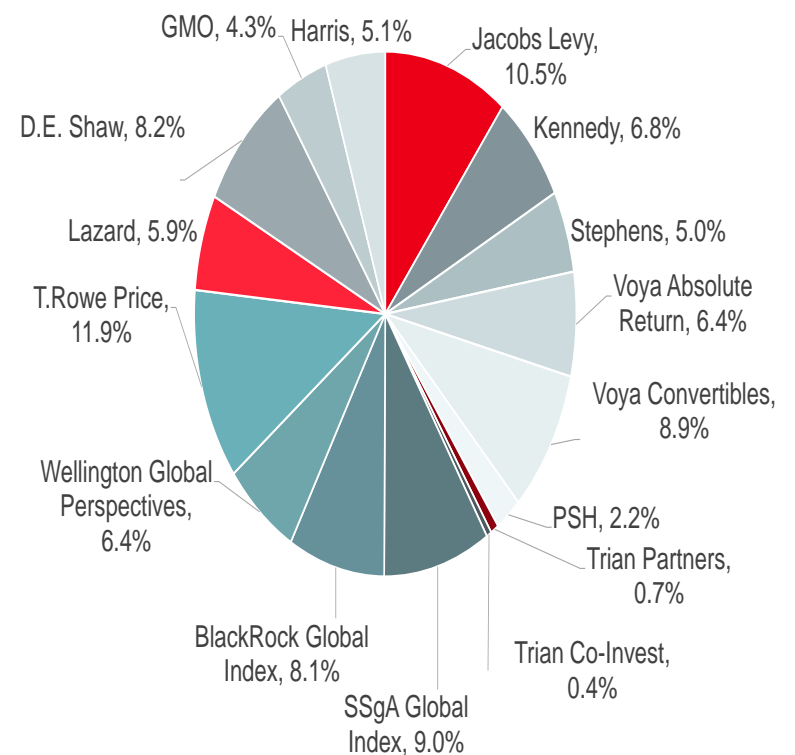
- Replace D.E. Shaw and GMO global equity managers with new Arrowstreet ACWI Alpha Extension 130/30/20 strategy
- Rebalance portfolio to replenish liquidity source and balance small cap bias

# Total Equity: Current Structure

- The Equity portfolio is well diversified across investment strategies and appropriately positioned to capture market growth and seek additional alpha

As of 9/30/2022	Total Equity
Role	• Growth, Alpha, Diversification
Benchmark	• 65.0% Global / 35% U.S. Equity*
Long-Term Target	• 53.0%
Current Allocation (\$B/% of total fund)	• \$9.6B / 50.7%
Active / Passive (%)	• 83% / 17%
Active / Passive Mandates	• 14 / 2
# of Managers	• 14
Active Risk	• 2.5%
Structural Biases	• Small cap bias • U.S. bias vs. Global opportunity set

Total Equity Portfolio

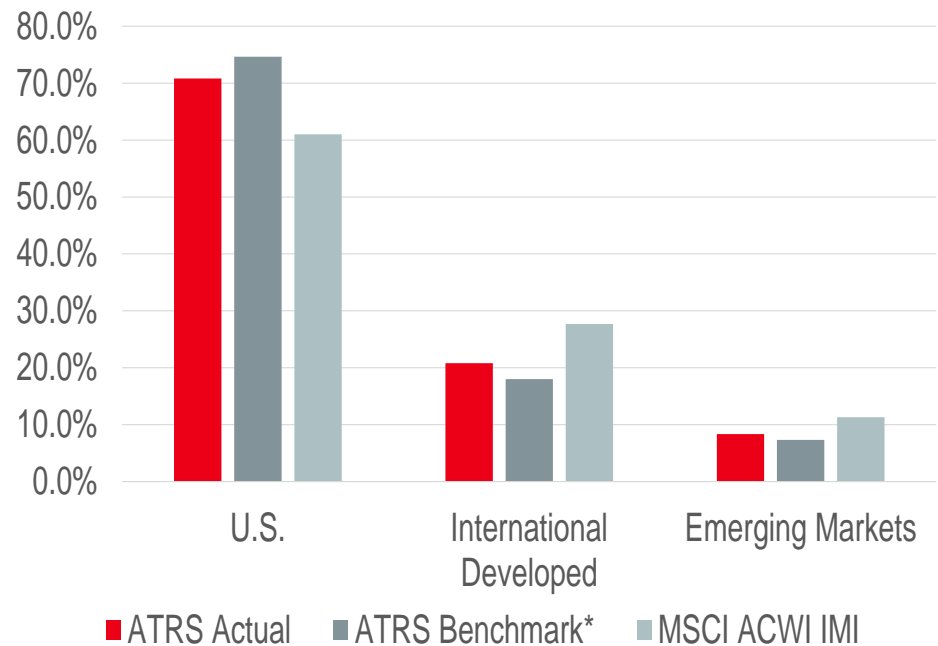


\*MSCI ACWI IMI / DJ U.S. TSMI

# Total Equity: Geographical Allocation Highlight

- The ATRS Total Equity portfolio has exposure across U.S., International developed and emerging markets
- Structurally, there remains an overweight to U.S. (dark grey) relative to the global market, which has been trimmed over time
- Active management tilts (red bar) have underweighted the U.S. relative to the ATRS benchmark (dark grey)
- U.S. bias has been beneficial relative to the global opportunity set as U.S. equity has outperformed
- As the global market has shifted towards the U.S. over time, we continue to monitor the ATRS portfolio's weight across global equity markets and considerations regarding U.S. bias on a regular basis

Geographical Breakout



Annualized Returns As of 9/30/2022	1- Year	3-Years	5-Years
U.S. Markets	-16.9%	9.6%	9.7%
Int'l Developed	-23.0%	-1.3%	-0.1%
Emerging Markets	-31.0%	-4.4%	-3.1%

\*35% Dow Jones US Total Stock Market, 65% MSCI ACWI IMI



# Total Equity: Active Risk

- Contribution to active risk is fairly diversified across active managers, as the level of active risk and weight impact each manager's contribution
- Approximately 1/4 of the active risk is due to the small cap bias

As of 9/30/2022	Allocation (\$M)	Allocation (%)	Active Risk	Contribution to Active Risk		
				Manager Specific	Misfit	Total
Jacobs Levy 130/30	\$1,012	10.5%	7.4%	13.6%	-2.0%	11.5%
Kennedy Capital Management	658	6.8%	3.8%	1.3%	16.9%	18.2%
Stephens	485	5.0%	6.6%	-1.9%	11.6%	9.7%
Voya Convertibles	855	6.4%	9.8%	18.7%	-5.6%	13.1%
Pershing Square Holdings	214	2.2%	15.1%	2.0%	-0.4%	1.6%
Trian	66	0.7%	8.8%	0.5%	-0.4%	0.0%
Trian Co-Invest	41	0.4%	11.6%	0.4%	-0.3%	0.1%
SSgA Global Index	867	9.0%	0.0%	0.0%	0.8%	0.8%
BlackRock Global Index	783	8.1%	0.0%	0.0%	0.7%	0.7%
Wellington Global Perspectives	612	6.4%	3.7%	1.9%	9.9%	11.8%
T. Rowe Price Global Equity	1,141	11.9%	7.0%	16.6%	-1.4%	15.2%
Lazard	570	5.9%	4.8%	5.7%	-0.7%	5.0%
D.E. Shaw	791	8.2%	2.6%	2.5%	-2.2%	0.3%
GMO Global All Country Equity	416	4.3%	5.0%	3.5%	-0.5%	3.0%
Harris Global All Cap Equity	486	5.1%	9.2%	9.5%	-1.3%	8.1%
Voya Absolute Return	617	6.4%	2.6%	1.5%	-0.7%	0.7%
<b>Total Equity</b>	<b>\$9,61</b>	<b>100.0%</b>	<b>2.5%</b>	<b>75.6%</b>	<b>24.4%</b>	<b>100.0%</b>

Low contribution to active risk

Approx. 1/4 of the active risk is due to the small cap bias

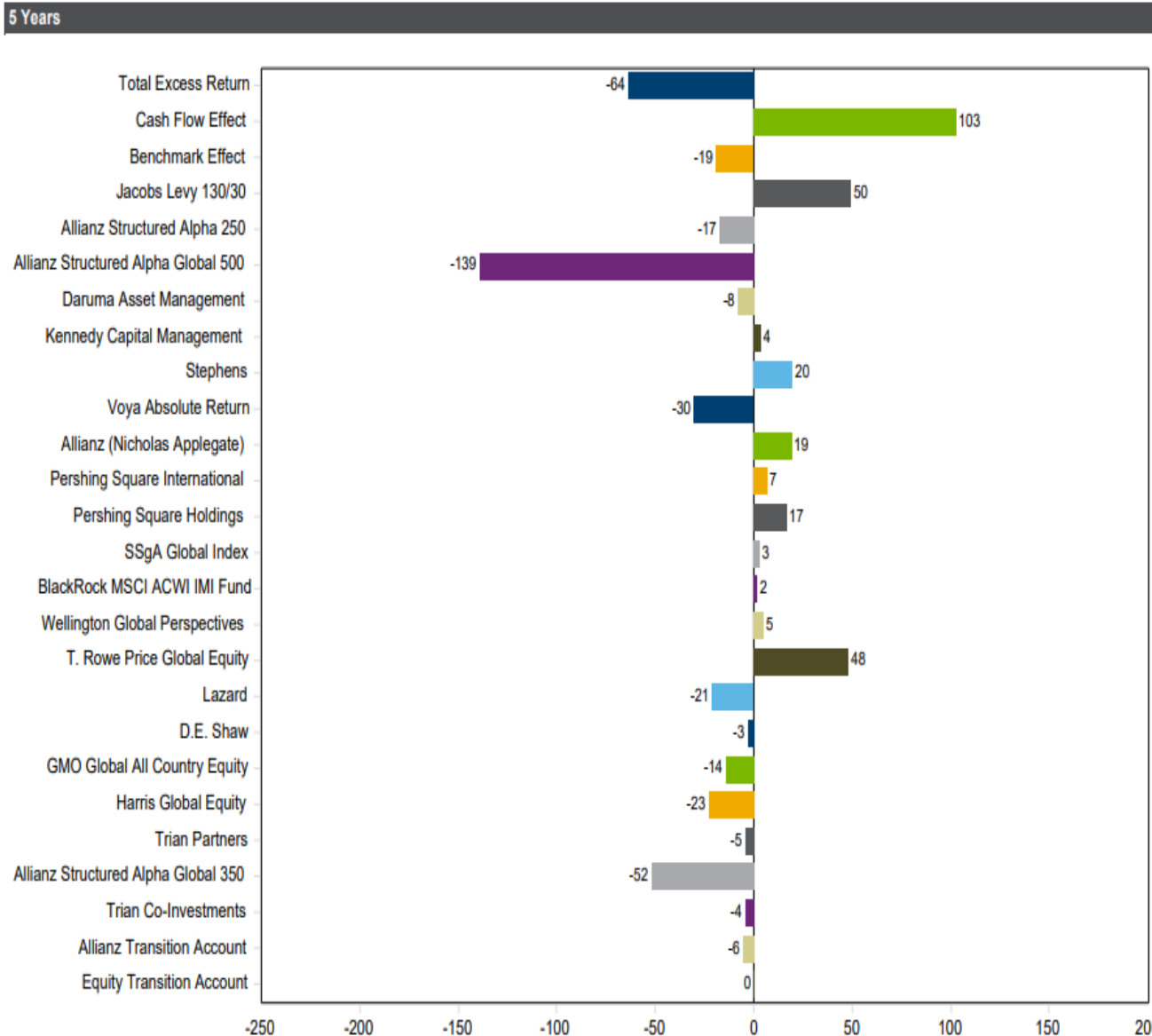
# Total Equity: Performance

- Absolute performance has been challenged recently, as inflation, rising rates and geopolitical tensions challenge equity markets broadly
- Relative returns have been favorable near-term due to some strong active manager results and due to the allocation to convertibles
- Longer-term relative returns primarily impacted by Allianz Structured Alpha fallout and we expect relative performance impact will dampen over time

As of 9/30/2022	YTD	1-Year	3-Year	5-Year
Total Equity	-27.1	-17.1	4.3	4.9
Benchmark*	-25.4	-20.1	4.9	5.5
<i>Excess Return</i>	+3.7	+3.0	-0.6	-0.6



# Total Equity: 5-year Attribution



- Active Manager relative performance has been mixed over time
- Small cap bias impact has been modest over past 5-years
- Allianz Structured Alpha strategy greatest detractor, though litigation income has offset some underperformance
- D.E. Shaw and GMO have been modest net detractors over this time

# Total Equity: Recommendation

**Aon recommends the following adjustments to the Total Equity portfolio**

1. Replace D.E. Shaw and GMO Global Equity with Arrowstreet ACWI Alpha Extension 130/30/20
  - Arrowstreet has been successful in adding value from both a top down and bottom up stock selection perspectives and is an efficient alternative to replace D.E. Shaw and GMO
2. Rebalance to replenish index exposure and balance active risk contribution
  - Ensure adequate index exposure for liquidity and better balance active risk contribution

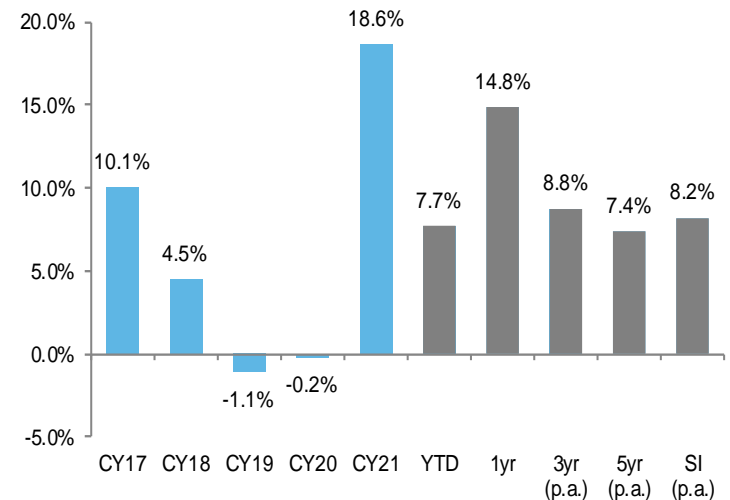
As of 9/30/2022	AUM (\$M)	Since Inception Relative Return	Aon's View
D.E. Shaw World Alpha Extension	\$791M	+1.1%	<ul style="list-style-type: none"> <li>• DES's competitive advantages have waned and previous areas of differentiation have produced lower alpha</li> <li>• Tracking error is low and performance has been lackluster and undifferentiated relative to peers</li> </ul>
GMO Global All Country Equity Allocation	\$416M	-2.9%	<ul style="list-style-type: none"> <li>• Success of portfolio is almost entirely reliant on effectiveness of limited top-down levers that are long term in nature and value focused</li> <li>• Strategy is susceptible to long periods of disappointing benchmark relative performance</li> <li>• Translation of GMO's top-down insights is suboptimal for most</li> </ul>

# Recommendation: Arrowstreet ACWI Alpha Extension 130/30/20

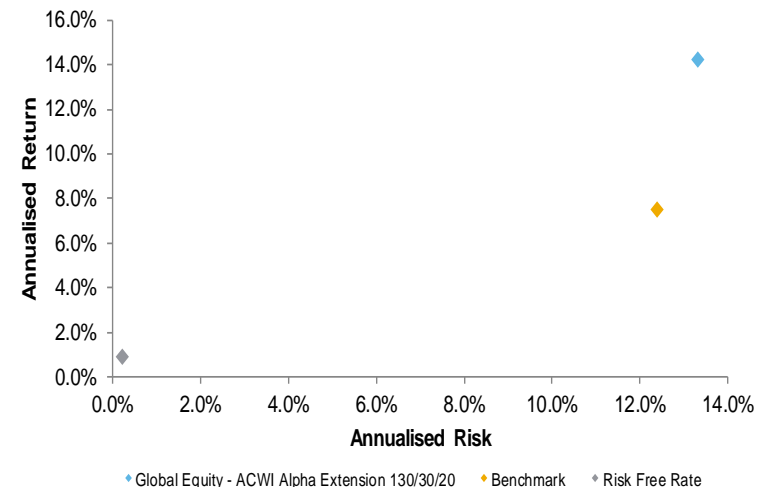
- Aon recommends replacing D.E. Shaw and GMO with Arrowstreet Alpha Extension 130/30/20 strategy and funding with \$800 million

As of 6/30/2022	Arrowstreet Global Equity - ACWI Alpha Extension 130/30/20
Strategy Description	<ul style="list-style-type: none"> <li>Quantitative strategy, marries top-down views + bottom-up stock selection</li> <li>130/30 approach similar to traditional long/short strategy</li> <li>Extra '20' allows for strategy to benefit dynamically from the low beta anomaly without a strategic beta of less than one</li> </ul>
Benchmark	MSCI ACWI IMI
Firm/Strategy AUM	\$169B / \$27B
Inception	2012
Performance Objective	5.5% annualized outperformance over a full market cycle
Risk Tolerance	4.5 - 8.5% annualized guideline tracking error range
Since Inception Relative Performance	+8.2%
Fees	30bps management / 20% Performance Fee

Relative Performance Through June 30, 2022



Risk vs. Return - Since Inception



# Recommendation: Rebalance

- Aon recommends the following adjustments to the Total Equity portfolio in order to replenish liquidity source and balance active risk contribution

Strategy	Allocation (\$M)	Allocation (%)	Rebalance	Post Rebalance (\$)	Post Rebalance (%)
Jacobs Levy 130/30	1,012	10.5%		1,012	10.5%
Kennedy	658	6.8%	(150)	508	5.3%
Stephens	485	5.0%		485	5.0%
Voya Convertibles	856	8.9%		856	8.9%
Pershing Square Holdings	214	2.2%		214	2.2%
Trian	66	0.7%		66	0.7%
Trian Co-Invest	41	0.4%		41	0.4%
SSgA Global Index	867	9.0%	351	1,218	12.7%
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Lazard	570	5.9%		570	5.9%
D.E. Shaw	791	8.2%	(791)	-	
GMO Global All Country	416	4.3%	(416)	-	
Harris Global All Cap	486	5.1%		486	5.1%
Voya Absolute Return	\$617	6.4%		617	6.4%
Arrowstreet 130/30/20	--	--	\$800	800	8.3%
<b>Total Equity</b>	<b>\$9,617</b>			<b>\$9,617</b>	<b>100%</b>

- Trim \$150M from Kennedy and \$100M Wellington in order to balance risk contribution from small cap
- Trim T.Rowe Price by \$200 to bring below 10% of portfolio and balance active risk contribution
- Allocate to SSgA and BlackRock Index Funds to bring passive exposure to approx. 25%

# Total Equity: Recommendation Impact

- Recommendations promote the long-term investment objectives of the portfolio
  - Streamline investment line up
  - Focus on high conviction investment strategies
  - Monitor and balance risk from small cap and U.S. equity biases
  - Replenish liquidity source
  - Cost conscious

	Current	Recommended
Active / Passive (%)	• 87% / 13%	• 75% / 25%
Active / Passive Mandates	• 14 / 2	• 13 / 2
# of Managers	• 14	• 13
Total Equity Active Risk*	• 2.5%	• 2.3%
Small Cap Bias	• Approx. ¼ of active risk	• Approx. ¼ of active risk
U.S. Equity Bias (relative to MSCI ACWI IMI)	• +14 perc. points	• +13 perc. points
Investment Management Fees*	• 47 bps	• 38 bps

\*As of 9/30/2022

\*\*Based on 9/30/2022 market values and represents investment management fees only. No performance based fees have been included





# 3

## Fixed Income Structure Review



# Fixed Income Structure Review

## Key Take-Aways and Recommendations

### Fixed Income Structure Review observations:

- Underweight duration verses Policy has benefited performance YTD 2022
- Exposure to higher yielding, plus sectors within fixed income offers potential for value-add
- High active management preferred: approximately 75% currently invested actively

**Overall, the fixed income portfolio is well positioned to provide diversification to the Total ATRS portfolio with the potential to add alpha**

- Diversified by strategy, quality, sector, maturity and duration exposure
- Streamlined portfolio with exposure to high conviction managers
- High allocation to active management
- Utilize modest passive management for liquidity

**We have identified modest recommendations to improve the overall structure of the portfolio to serve its intended role**

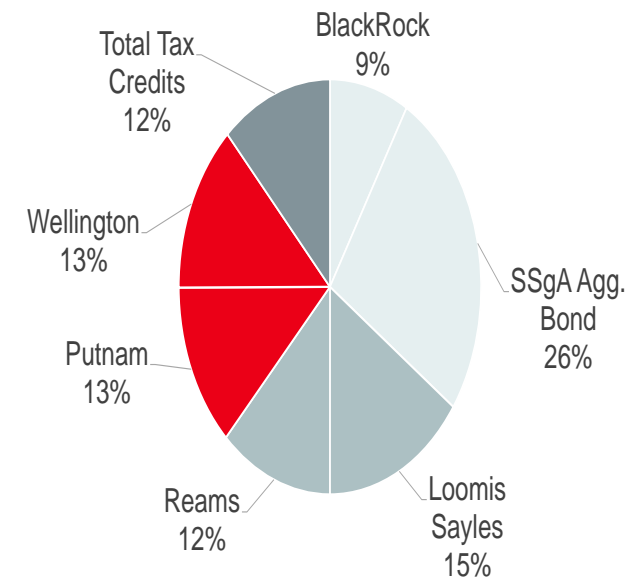
- Re-allocate Putnam Absolute Return assets evenly between Loomis Sayles and Reams Core Plus
- Serves to reduce duration underweight and re-allocate to high conviction active managers

# Fixed Income: Current Structure

- Overall, the fixed income portfolio is well diversified across strategy and managers

As of 9/30/2022	Fixed Income
Role	<ul style="list-style-type: none"> <li>Diversification, Downside Protection, Liquidity (esp. in times of market stress), Alpha</li> </ul>
Long-Term Target	<ul style="list-style-type: none"> <li>15%</li> </ul>
Current Alloc. (\$B / % of total fund)*	<ul style="list-style-type: none"> <li>\$2.8 / 14.9%</li> </ul>
Benchmark	<ul style="list-style-type: none"> <li>Bloomberg Barclays U.S. Universal Index</li> </ul>
Active / Passive (%)	<ul style="list-style-type: none"> <li>74% / 26%</li> </ul>
Active / Passive Mandates	<ul style="list-style-type: none"> <li>5 / 1</li> </ul>
Duration (benchmark)	<ul style="list-style-type: none"> <li>4.2 years (6.0)</li> </ul>
Yield (benchmark)	<ul style="list-style-type: none"> <li>5.4% (5.2%)</li> </ul>

Manager Allocation

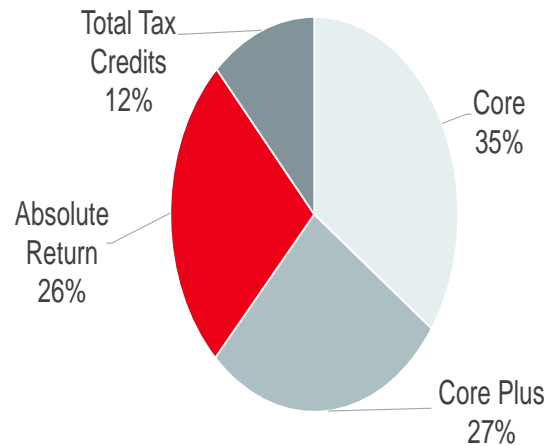


\*Includes BRS Recycling Tax Credit market value

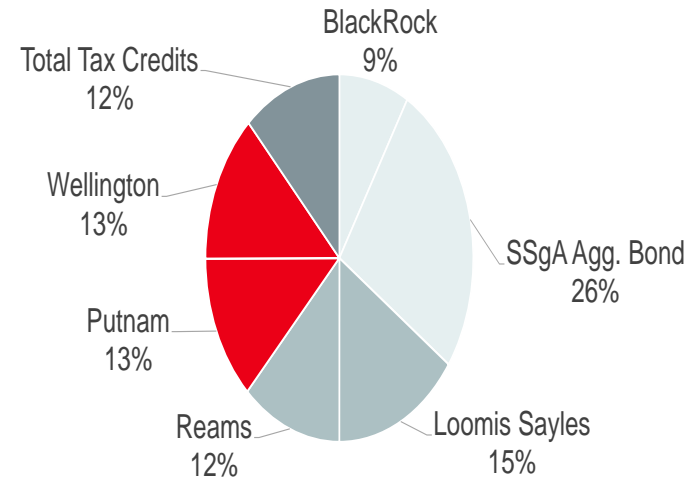


# Fixed Income: Manager and Strategy Allocation

Strategy Allocation



Manager Allocation



## Core

- High quality bond funds designed to modestly outperform the broad U.S. bond market
- Large allocation to U.S. Treasury and Agency Securities
- Lower tracking error objective as compared to the Bloomberg U.S. Aggregate Index

## Core Plus

- Designed to outperform the broad U.S. bond market via out-of-benchmark positions
- Higher allocation to “spread sectors” than core
- Higher tracking error budgets than Core strategies
- Generally outperform index funds during periods of spread tightening
- Greater duration, yield curve, currency, and sector perspective deviations from benchmark than core

## Absolute Return

- Returns independent of traditional market betas
- Seek consistently positive results
- Utilize techniques to profit from up & down markets
- Low correlations to traditional assets classes
- Typically only constrained by the overall risk budget and redemption terms
- Symmetrical discretion to be long or short credit, interest rate duration or currencies (mainly through use of derivatives)

## Tax Credits

- Purchased state income tax credits for recycling equipment from Big River Steel (BRS)
- Enables ATRS to sell credits to state and earn revenue stream
- Provides steady interest income
- Returns uncorrelated to bond markets
- Expect an approx. 6% annualized rate of return life of investment (14 years)

# Fixed Income Performance

- The absolute return strategies have lowered the ATRS Fixed Income portfolio's overall duration, or sensitivity to interest rate movements
- As interest rates have risen as of late, this has benefitted the portfolio's overall performance relative to its Policy

As of 9/30/2022	YTD	1-Year	3-Year	5-Year
Total Fixed Income	-10.7%	-11.1%	-1.4%	0.8%
Benchmark*	-14.9	-14.9	-3.1	-0.2
<b>Excess Return</b>	<b>+4.2</b>	<b>+3.8</b>	<b>+1.7</b>	<b>+1.0</b>

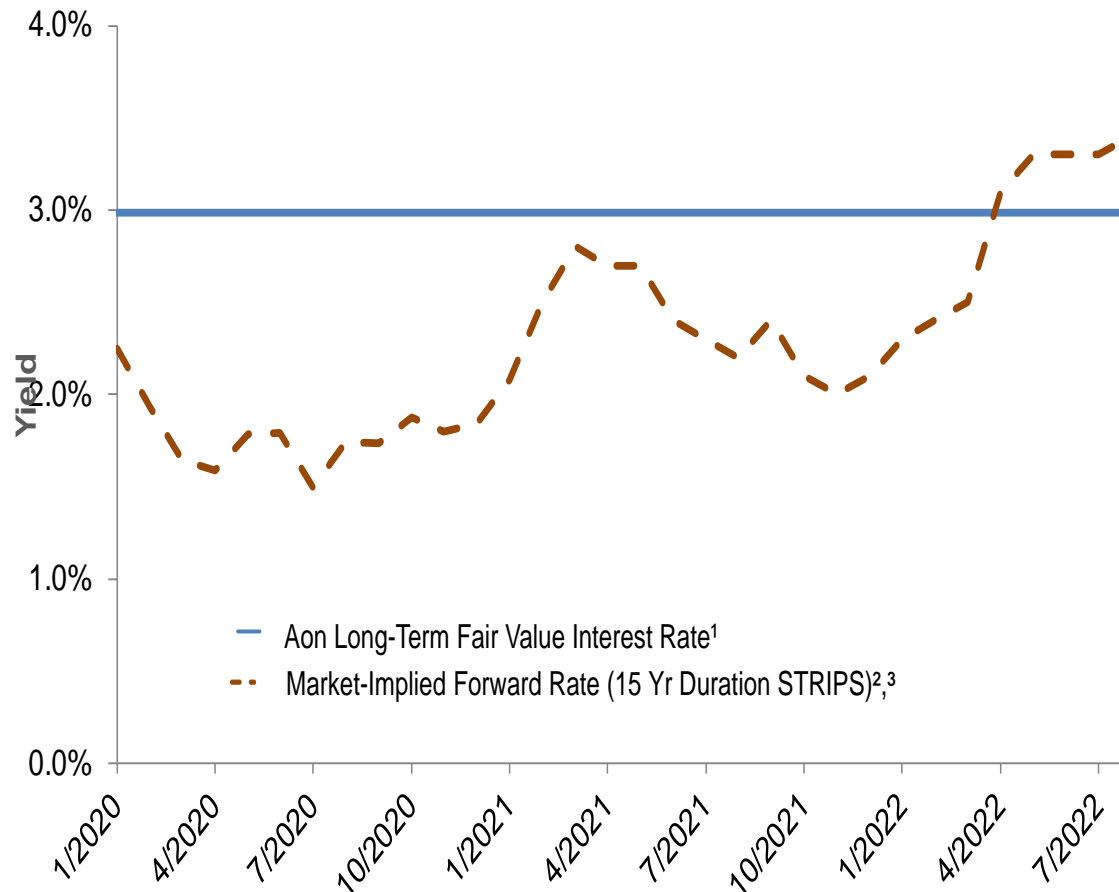
10-Year US Treasury Yield



As of 9/30/22	ATRS	Policy*
Effective Duration	4.2 years	6.0 years

# Neutral View on Duration

Aon Long-Term Fair Value vs. Market Implied Forward Rate



Sources: FactSet, Bloomberg Barclays, Aon; all data as of 08/31/2022

<sup>1</sup> Pricing information for Aon spot treasury yield curve is sourced from Bloomberg Barclays, which publishes pricing indices in one year maturity bands from which Aon calculates composite yields and durations. Aon then linearly interpolates between these data points to create a piecewise linear yield curve. See Appendix for index definitions.

<sup>2</sup> Aon Investments Long-term Fair Value interest rates are based on expectations for long-term steady states for the Federal Funds Rate, real term premium, and inflation risk premium.

<sup>3</sup> Market forward rates are based on implied forward rates extrapolated from Aon spot treasury yield curve.

Index Returns As of 10/31/2022	YTD
BB Intermediate Aggregate	-11.7%
BB Aggregate	-15.7%

- Shorter duration positioning has been beneficial year-to-date
- Given where interest rates are today, we see less reason to be underweight duration
- Recommend shifting towards a more duration neutral posture

# Fixed Income Recommendation

- Aon recommends re-allocating the assets within the Putnam Absolute Return strategy evenly between existing managers, Loomis Sayles and Reams
- Elimination of Putnam reduces the overall portfolio's structural underweight to duration
- Re-allocating assets between Loomis Sayles and Reams bring the portfolio closer to market duration neutral, reallocates to higher conviction names and offers the portfolio higher yielding prospects

As of 9/30/2022	Current (\$)	Current (%)	Recommend	Post (\$)	Post (%)
BlackRock	\$239	8.5%		\$239	8.5%
SSgA Agg. Bond	744	26.3%		744	26.3%
Loomis Sayles	429	15.2%	\$182	610	21.6%
Reams	341	12.1%	\$182	522	18.5%
Putnam	363	13.9%	\$(363)	-	
Wellington	372	13.2%		372	13.2%
Total BRS Recycling Tax Credits	335	11.9%		335	11.9%
<b>Total</b>	<b>\$2,823</b>	<b>100.0%</b>		<b>\$2,823</b>	<b>100.0%</b>

As of 9/30/2022	Putnam	Loomis	Reams
Since Inception Return	2.2% (8/2008)	6.3 (9/2008)	2.0% (5/2014)
Since Inception Relative Return (percentage points)	+1.3	+2.2	+1.0
Duration (years)	1.0	4.8	6.7
Yield	5.7%	7.1%	6.0%

# Fixed Income Structure Review Conclusions and Recommendation

- Overall, the fixed income portfolio is well positioned to provide diversification to the Total ATRS portfolio with the potential to add alpha
- Aon recommends re-allocating the assets within the Putnam Absolute Return strategy evenly between Loomis Sayles and Reams
- As interest rates have risen as of late, this has benefitted the portfolio's overall performance relative to its Policy
- Given where interest rates are today, we see less reason to be underweight duration and recommend shifting back towards a more duration neutral posture

As of 9/30/2022	Current	Recommendation
Active / Passive (%)	• 74% / 26%	• 74% / 26%
Active / Passive Mandates	• 5 / 1	• 4 / 1
Duration (benchmark)	• 4.2 years (6.0)	• 4.9 years (6.0)
Yield (benchmark)	• 5.4% (5.2%)	• 5.5% (5.2%)
Annual Fees*	• 0.18%	• 0.16%

\*As of 9/30/2022

\*\*Based on 9/30/2022 market values and represents investment management fees only. No performance based fees have been included





# 4

## Appendix



# Total Equity: Post Recommendation Active Risk

- Contribution to active risk is better balanced and allocated towards managers with higher conviction of adding value
- Approximately 1/4 of the active risk continues to come from small cap bias

As of 9/30/2022 – Post Recommendation	Allocation (\$M)	Allocation (%)	Active Risk	Contribution to Active Risk		
				Manager Specific	Misfit	Total
Jacobs Levy 130/30	\$1,012	10.5%	7.4%	16.6%	-2.7%	13.9%
Kennedy Capital Management	508	5.3%	3.8%	0.9%	13.2%	14.1%
Stephens	485	5.0%	6.6%	-1.3%	11.4%	10.1%
Voya Convertibles	856	8.9%	9.8%	20.1%	-6.2%	13.9%
Pershing Square Holdings	214	2.2%	15.1%	2.0%	-0.6%	1.5%
Trian	66	0.7%	8.8%	0.5%	-0.5%	0.0%
Trian Co-Invest	41	0.4%	11.6%	0.5%	-0.3%	0.2%
SSgA Global Index	1,218	12.7%	0.0%	0.0%	1.5%	1.5%
BlackRock Global Index	1,290	13.4%	0.0%	0.0%	1.6%	1.6%
Wellington Global Perspectives	512	5.3%	3.7%	1.3%	8.8%	10.0%
T. Rowe Price Global Equity	941	9.8%	7.0%	13.4%	-0.9%	12.4%
Lazard	570	5.9%	4.8%	6.1%	-0.6%	5.5%
Harris Global All Cap Equity	486	5.1%	9.2%	10.2%	-1.4%	8.8%
Voya Absolute Return	617	6.4%	2.6%	1.8%	-0.6%	1.2%
Arrowstreet 130/30/20	800	8.3%	5.0%	4.3%	1.0%	5.3%
<b>Total Equity</b>	<b>\$9,617</b>	<b>100.0%</b>	<b>2.3%</b>	<b>76.2%</b>	<b>23.8%</b>	<b>100.0%</b>

➤ New strategy expected to contribute 5%

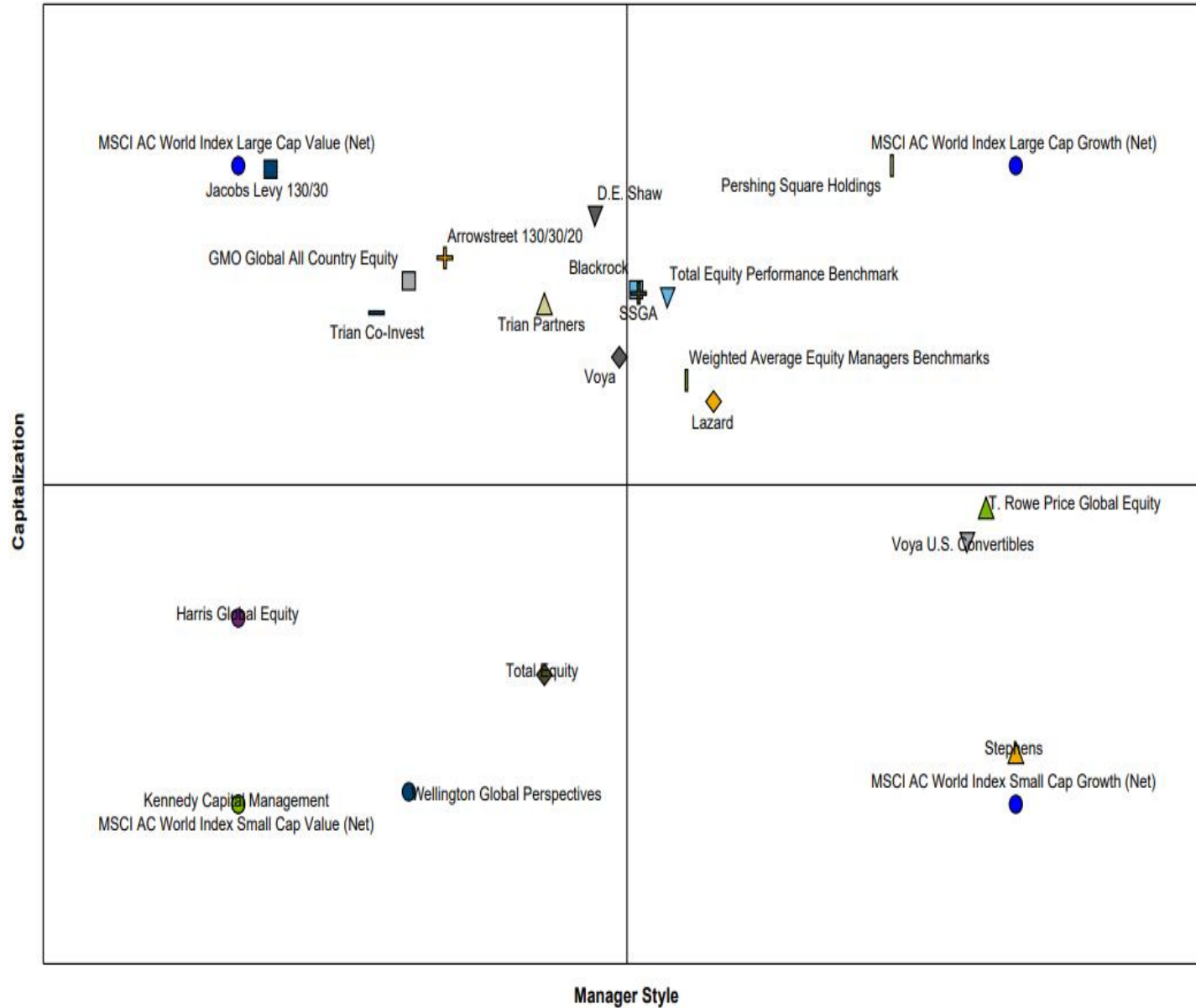
Similar active risk

Approx. 1/4 of the active risk continues to be due to small cap bias



# Total Equity: Style Map

Style Map(12 Months)





# Total Fixed Income Performance

	Allocation		Performance(%)							
	Market Value (\$)	%	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Fixed Income	2,823,346,733	14.9	-2.7	-9.5	-9.9	-0.9	1.1	2.3	4.8	07/01/1992
<i>Performance Benchmark</i>			-4.5	-14.9	-14.9	-3.1	-0.2	1.2	4.8	
BlackRock	238,995,649	1.3	-4.8 (81)	-15.3 (79)	-15.4 (79)	-3.0 (78)	-0.1 (80)	1.2 (60)	3.4 (41)	10/01/2003
<i>Performance Benchmark</i>			-4.5 (72)	-14.9 (74)	-14.9 (75)	-3.1 (81)	-0.2 (83)	1.2 (62)	3.2 (48)	
Loomis Sayles	429,184,709	2.3	-2.5 (46)	-14.8 (73)	-15.1 (77)	-0.3 (31)	1.4 (25)	3.6 (11)	6.3 (6)	09/01/2008
<i>Performance Benchmark</i>			-3.2 (57)	-14.9 (75)	-14.6 (72)	-2.1 (65)	0.6 (52)	2.1 (30)	4.1 (29)	
Putnam	363,250,000	1.9	-1.1 (40)	-3.3 (22)	-4.9 (27)	-1.3 (78)	0.8 (66)	1.5 (76)	2.2	08/01/2008
<i>LIBOR</i>			0.4 (15)	0.4 (12)	0.4 (17)	0.7 (57)	1.3 (57)	0.9 (88)	0.9	
SSgA Aggregate Bond Index	743,759,109	3.9	-4.8 (80)	-14.7 (71)	-14.7 (73)	-3.3 (84)	-0.3 (85)	0.9 (80)	1.9 (70)	06/01/2010
<i>Barclays Aggregate Index</i>			-4.8 (80)	-14.6 (70)	-14.6 (71)	-3.3 (84)	-0.3 (85)	0.9 (80)	1.9 (70)	
Wellington Global Total Return	372,256,145	2.0	0.8 (9)	5.6 (7)	4.4 (8)	2.5 (37)	3.7 (24)		2.3 (34)	05/01/2014
<i>BofA Merrill Lynch 3 Month US T-Bill</i>			0.5 (14)	0.6 (12)	0.6 (16)	0.6 (58)	1.1 (62)		0.8 (71)	
Reams Core Plus Bond Fund	340,749,747	1.8	-4.2 (67)	-14.5 (69)	-14.3 (67)	-0.5 (34)	1.6 (21)		2.0 (30)	05/01/2014
<i>Barclays Aggregate Index</i>			-4.8 (80)	-14.6 (70)	-14.6 (71)	-3.3 (84)	-0.3 (85)		1.0 (79)	

# Aon InTotal: Arrowstreet Capital, Limited Partnership

## Global Equity - ACWI Alpha Extension 130/30/20

Review Date	Overall Rating	Previous Overall Rating
October 2022	Buy	No Change

### Overall Rating

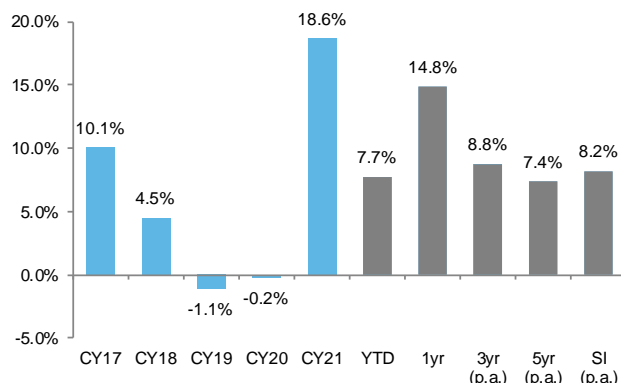
Arrowstreet has demonstrated an ability to differentiate its investment process from other quantitative managers. Critical elements to its success are a stable, high quality investment team and a robust research agenda that has resulted in a thoughtful evolution of its investment process and the early adoption of differentiated alpha sources. We believe this has led to strong and persistent investment performance in a wide range of market environments, with contributions from multiple sources of alpha. The firm's extension strategies benefit from the relaxing of traditional long-only constraints by allowing the manager to further leverage its alpha modeling and portfolio risk management capabilities through the use of shorting. For its 130/30/20 strategies, the manager may make use of equity index futures for an additional 20% of long market exposure to offset alpha signals which at times favor lower beta stocks, targeting market-like beta. We believe Arrowstreet to be a best-in-class quantitative manager and continue to Buy rate the Global Equity – ACWI Alpha Extension 130/30/20 strategy.

### Component Ratings

	Rating	Previous Rating	Aon InForm Assessment
Business	4	No Change	✓
Staff	4	No Change	-
Process	4	No Change	✓
Risk	4	No Change	✓
ODD	A1 Pass	No Change	-
Performance	4	No Change	✓
T&C	3	No Change	-
ESG	Integrated	No Change*	-

\*Effective 30 June 2021, Aon changed its ESG Rating evaluation from a scale of 1-4, to the descriptors: [Limited-Integrated-Advanced](#). Any material change to our ESG rating and view, will be noted in our summary comment below.

### Relative Performance to 30 Jun 2022



Performance Since Inception Date as of August 2012

Pooled fund performance(CAD) is gross of fees relative to MSCI All Country World Index-ND. CY = calendar year. Source: eVestment (performance has been converted to CAD by eVestment).

Performance is representative performance as reported in eVestment. The performance for a specific vehicle may differ from the representative strategy.

### Firm and Strategy Summary

Head Office Location	Boston, MA, US	Parent Name	Employee owned
Firm AUM	C\$169.3 billion	Equity AUM	C\$169.3 billion



See the last page of this report for disclosures.

<b>Team Location</b>	Boston, MA, US	<b>Team Head</b>	Peter Rathjens - CIO
<b>Strategy Inception</b>	August 2012	<b>Strategy Size</b>	C\$27.0 billion
<b>Number of Holdings</b>	1000+	<b>Annual Turnover</b>	~150-300%
<b>Benchmark</b>	MSCI All Country World Index-ND		
<b>Performance Objective</b>	5.5% p.a. outperformance over a full market cycle		
<b>Risk Tolerance Target</b>	4.5-8.5% p.a. guideline tracking error range		

Note: AUM data as of 30 June 2022. **Past performance is no guarantee of future results.**

## Investment Manager Evaluation

### Rating Sheet

Factor	Rating	Previous Rating	Comments
<b>Business</b>	4	<i>No Change</i>	<p>Arrowstreet Capital is wholly owned and controlled by the members of the firm's senior management team and a number of outside directors. The firm has experienced consistent and steady growth since its inception in 1999. Arrowstreet has demonstrated a strong investment culture and a willingness to close investment products for capacity reasons. The Firm announced the soft closure of its emerging market product in 2022. The firm's client base is well diversified by geographic region.</p>
<b>Investment Staff</b>	4	<i>No Change</i>	<p>Effective December 2019, Tuomo Vuolteenaho stepped down as Co-Head of Research. Having remained at Arrowstreet part time for two years since relinquishing this role, Vuolteenaho has moved to a governance only position as a non-executive director of the board, as of January 2022. While there has been minimal investment professional turnover over time, we have continued to monitor this change given our high view of Vuolteenaho. We view Peter Rathjens, CIO, Co-Head of Research, Derek Vance, and Christopher Malloy, Head of Alpha Development, as strong and thoughtful leaders of the research effort and believe they have had a large effect on the strides in the research agenda. The research and portfolio management groups are of reasonable size and are supported by an information technology department for coding and project work. Research team members appear thoughtful, pragmatic, and possess a clear understanding of the nuances of the quantitative application of an investment philosophy and process.</p>
<b>Investment Process</b>	4	<i>No Change</i>	<p>The investment approach employs an alpha forecasting model that balances "direct" (stock-specific) and "indirect" (peer group based) quantitative investment signals. Return forecasts are complemented by transaction cost analysis, risk estimates, and benchmark-relative and style-related portfolio construction constraints.</p> <p>The research efforts at Arrowstreet have led to early recognition of investment signals that differentiate the manager from quantitative peers. Furthermore, Arrowstreet has been effective at implementing process improvements as well as reducing its reliance on commoditized quantitative factors such as value and momentum. In particular, process evolutions strongly consider the complexity and difficulty of the data processing, alpha</p>

## Rating Sheet

Factor	Rating	Previous Rating	Comments
			<p>construction and risk management problem that are likely to result in more differentiated improvements over time. These steps have lessened the impact of market inflection points, where quantitative managers have typically underperformed. Another key competitive advantage of Arrowstreet's investment process is the dynamism based on proprietary measures which allows for significant tilts of style, sectors and countries. These bets have led to roughly 50% of the excess return over time.</p> <p>The firm's extension strategies benefit from the relaxing of traditional long-only constraints by further leveraging its alpha modeling and portfolio risk management capabilities.</p>
<b>Risk Management</b>	4	<i>No Change</i>	<p>Arrowstreet utilizes a proprietary risk model, which is an important differentiator in the industry as it enables a degree of flexibility in defining factors. The model defines risk exposures in the same fashion as the alpha forecast model, which allows for symmetry in determining the risk levels and the specific risk exposures being assumed in the portfolio. Furthermore, it provides a feedback loop for research which can be used to progress and improve risk modeling over time. We believe the risk management practices are also key to managing the style, sector, and country bets over time.</p>
<b>Operational Due Diligence (ODD)</b>	A1 Pass	<i>No Change</i>	<p>The Firm's investment process utilizes a quantitative modeling approach to identify and incorporate investment opportunities and execution into its proprietary return, risk, and transaction cost analysis models. Due to the highly automated, model-driven investment strategies, along with the outsourced middle office function and the strong compliance, and IT systems &amp; infrastructure, the Firm's investment operations has implemented institutional levels of effective controls and governance. An A1 Pass rating is appropriate. Arrowstreet recently experienced a cyber security breach which was reviewed by our Operational Risk Solutions and Analytics group. No action is recommended as a result.</p>

## Rating Sheet

Factor	Rating	Previous Rating	Comments
<b>Performance Analysis</b>	4	<i>No Change</i>	<p>We expect Arrowstreet to outperform in a variety of environments and it has historically shown an ability to continually evolve its process. We note the performance profile of Arrowstreet to be differentiated from peers. In particular, it has shown the ability to add value from both bottom-up stock selection and top-down allocation. We have confidence that the manager will be able to achieve its performance target over the longer term.</p> <p>Risk-adjusted performance targets for extension strategies, which have been modified for additional market exposure, have largely been achieved. We further note that enabling shorting has raised the level of impact (i.e. contribution to returns) from proprietary alpha models and other portfolio construction parameters.</p> <p>We note that while the beta arbitrage component of the strategy (the 20 in 130/30/20) is expected to add value, historical performance has been above both Aon's and Arrowstreet's expectations.</p>
<b>Terms &amp; Conditions (T&amp;C)</b>	3	<i>No Change</i>	<p>Client servicing experience has generally been mixed. Our requests have been dealt with efficiently and access to key personnel has been good. However, our clients have experienced implementation issues as Arrowstreet has shown less flexibility in the negotiation of non-investment issues within mandates. Segregated account and pooled fund fees are slightly higher than the median when compared to peers. Our rating in this area reflects several considerations, including the quality of the product in relation to price, a recent streamlining of investment vehicles which has led to economies of scale and thus lower expenses, as well as Arrowstreet's willingness to negotiate with Aon clients on capping fund expenses.</p> <p>For extension strategies, the manager has a stated performance fee of 30 basis points – base fee and 20% of outperformance fee. We note that the manager may be willing to negotiate on these terms depending on mandate specifics.</p>

## Rating Sheet

Factor	Rating	Previous Rating	Comments
<b>ESG</b>	Integrated	<i>No Change</i>	<p>Arrowstreet does not have dedicated full time RI or ESG staff but maintains a Responsible Investment Committee consisting of the CIO and individuals in portfolio management, research, legal, compliance, and client relations. There is some evidence of ESG integration in the quantitative analysis that is a feature of Arrowstreet's investment process incorporated within the risk model. The manager continues to research ESG as an alpha factor but has yet to identify sufficient evidence to incorporate ESG factors into its alpha forecasting model. The manager is able to incorporate client-specific restrictions in separate accounts, as well as manage a mandate relative to an ESG benchmark. This includes the resources to measure a portfolio-wide carbon footprint. In 2019, the manager launched an ESG-tilted Global Equity Beta Neutral Fund, which invests in long positions with positive ESG scores and short those with negative scores. The manager makes use of a third-party service provider, Institutional Shareholder Services (ISS), to assist in proxy services. As a quantitative manager, Arrowstreet does not typically engage with management through its investment process, nor does it monitor ESG considerations for each stock in its portfolio, except as they pertain to risk factors. There is no separate Climate Change Policy. Arrowstreet has been a UN PRI signatory since 2016.</p>
<b>Overall Rating</b>	Buy	<i>No Change</i>	<p>Arrowstreet has demonstrated an ability to differentiate its investment process from other quantitative managers. Critical elements to its success are a stable, high quality investment team and a robust research agenda that has resulted in a thoughtful evolution of its investment process and the early adoption of differentiated alpha sources. We believe this has led to strong and persistent investment performance in a wide range of market environments, with contributions from multiple sources of alpha. The firm's extension strategies benefit from the relaxing of traditional long-only constraints by allowing the manager to further leverage its alpha modeling and portfolio risk management capabilities through the use of shorting. For its 130/30/20 strategies, the manager may make use of equity index futures for an additional 20% of long market exposure to offset alpha signals which at times favor lower beta stocks, targeting market-like beta. We believe Arrowstreet to be a best-in-class quantitative manager and continue to Buy rate the Global Equity – ACWI Alpha Extension 130/30/20 strategy.</p>

## Manager Profile

### Overview

Arrowstreet Capital, headquartered in Boston, Massachusetts, manages long-only, extension, and market neutral equity strategies for institutional investors globally. The firm utilizes proprietary quantitative investment models to achieve risk-adjusted performance objectives for the platform of strategies it manages.

Arrowstreet Capital is a limited partnership, wholly-owned and operated by the members of its senior management team and a number of outside directors. The manager does not disclose the percentage ownership stakes of its partners, but it does consider new partnership promotions on an annual basis.

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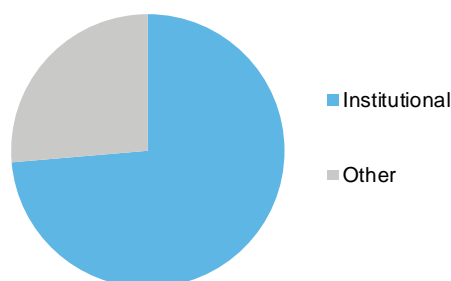
### Business

- Arrowstreet does not disclose the exact percentage ownership interests of its partners, however the three founders (Peter Rathjens, John Campbell, and Bruce Clarke) own a significant amount of shares. The ownership interest of the founders is being diluted over time as new partners are nominated and existing partners purchase additional shares. Arrowstreet actively seeks to nominate investment professionals to partnership level as their contribution to the organisation increases over time. This is an important retention tool.
- The firm is profitable and committed to spending a significant portion of its revenue on continued research and development to ensure that it remains at the forefront of quantitative equity research.
- The organization has strong links to academic institutions through some of its key senior employees, enabling Arrowstreet to recruit top academics into its organization.
- Arrowstreet has demonstrated a willingness to close investment products to maintain capacity.
- In recent years, Arrowstreet has seen an increase of interest in non-traditional strategies(130/30, market neutral, low volatility).

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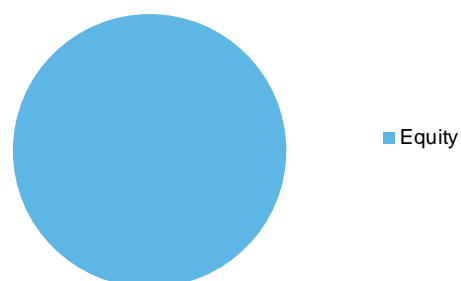
### Client Base

**Total AUM by Business Type**



*Data sourced from eVestment*

**Total AUM by Asset Class**



*Data sourced from eVestment*

- AUM totaled C\$169.3 billion as of June 30, 2022 with clients spread across North America, Europe and Australia. It is important to note that the entire firm's assets are managed using the same investment process.
- As of June 30, 2022, AUM for the Global Equity – ACWI Alpha Extension strategy totaled C\$27.0 billion.

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### Investment Staff



Key Staff	Position	Date Joined	Years of Experience
Peter Rathjens	Chief Investment Officer	1999	40
John Campbell	Co-Head of Research	1999	29
Derek Vance	Co-Head of Research	2008	14
Manolis Liodakis	Head of Portfolio Management	2012	23
Christopher Malloy	Head of Alpha Development	2019	18

- Effective December 2019, Tuomo Vuolteenaho stepped as Co-Head of Research. Starting in January 2022 Vuolteenaho has served on the board as a non-executive director. Vuolteenaho was replaced by former head of Alpha Development, Derek Vance, who has been elected to serve on Arrowstreet's Board of Directors.
- Arrowstreet recently hired Christopher Malloy, formerly of Harvard Business School, as Head of Alpha Development, succeeding Vance.
- Arrowstreet has historically sourced its staff from academia, particularly Harvard. Turnover at the partner level has been extremely low, historically.
- Peter Rathjens, CIO, has the overall responsibility for the firm's strategies and chairs its Investment Committee.
- The Research and Portfolio Management groups are of reasonable size and are supported by an information technology department for coding and project work.

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## Investment Process

### Philosophy

Arrowstreet's philosophy is based on the belief that it can consistently outperform its respective benchmarks by identifying a diverse set of quantitative factors that can reliably predict price changes that will occur over a medium to long term investment horizon. Arrowstreet avoids factors that exploit perceived, but arbitrary return patterns by ensuring that the factors it identifies, and the entire investment process are guided by sound investment principles.

### Process

Arrowstreet uses a bottom-up quantitative stock selection process to generate forecasts of expected relative returns (or 'alpha') which are used in the portfolio construction process.

The quantitative model that Arrowstreet uses exploits two types of effects that Arrowstreet has identified: Direct Effects and Indirect Effects. Direct Effects are those predictive factors that are directly related to the characteristics of an individual company relative to the basket of stocks that company is a member of. Indirect Effects are predictive factors that are based on the characteristics of related companies (these have been shown to impact an individual company's alpha forecast). Related companies primarily include stocks in the same country, sector and country/sector classifications.

In early 2006, Arrowstreet expanded the Indirect Effects category of factors to include a set of factors that it calls "expanded linkages". A quantitative model was developed to identify companies – not necessarily of the same country and sector – whose future cash flows are expected to co-vary. Information is then used from this "linked list" (of companies related to the target company) to build factors used in the alpha model. Initially, all of the expanded linkage factors were momentum-oriented. In late 2008, Arrowstreet introduced valuation-based expanded linkage factors.

Arrowstreet recognizes that indirect effects are now being pursued by other quantitative managers, but the team believes its advantage comes as one of the first quantitative managers to implement indirect effects, through the proprietary linkages model that was first built in 2005 and has seen continuous enhancements, through identifying

and exploiting unique/under-appreciated data sources that provide insight. Arrowstreet processes and tests large amounts of data to identify and implement these expanded linkage factors.

The Direct Effect and Indirect Effect factor groups contain factors that predict alpha over both short-term (one week to a few months) and long-term (one year and above) investment horizons. The quantitative model translates these forecasts into a single six-week alpha forecast for each company in the universe. This forecast is integrated with risk data from Arrowstreet's proprietary risk model and in conjunction with transaction cost estimates are fed into its proprietary optimization model. The optimization model creates an optimal portfolio based on these inputs and suggests the trades required to move the current portfolio towards the optimal portfolio. The nature of the optimization process, utilizes proprietary measures to allow the portfolio to tilt towards styles, sectors, and countries, based on the model forecasts. The suggested trades are reviewed by the portfolio management and research teams before any trades are sent to the trading desk. Full account trade sessions occur, at minimum, three times every two weeks and have been increasing in frequency over time.

In addition, the alpha forecasting model can be run multiple times a day, the output of which is available to the trading desk and portfolio management teams, so they can identify any changes that may cause them to speed up, slow down, or cancel a trade that resulted from an earlier run of the optimization.

With regards to constructing extension strategies, Arrowstreet manages gross and net exposure profiles through views formulated by its proprietary equity risk premium and cross-sectional beta premium (CSBP) models. The manager believes in the low beta anomaly. As such, when there is relatively wide dispersion in CSBP, the long book of the strategy will overweight lower beta stocks while the short book of the strategy will overweight higher beta stocks.

Arrowstreet portfolios tend to be core over time but may and have exhibited factor, sector and country tilts based on proprietary measures of the attractiveness of these tilts.

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## **Risk Management**

Arrowstreet has a number of risk controls in place. The first of these are explicit limits on the active portfolio weights (e.g. country +/-10%, sector +/-15%, basket +/-5%, and stock +/-3%).

The second is Arrowstreet's proprietary stock-level risk model. The risk model is a factor-based model that decomposes stock returns into two components, one that represents the return associated with a stock's exposure to common risk factors and another that represents Arrowstreet's proprietary alpha factors. The risk model is designed so that the factors driving risk forecasts are the same as those driving the return forecast. This prevents factors driving stock returns not being counted as risk exposures. Arrowstreet utilizes traditional risk models based on historical data and augments this with a model that utilizes stock options to measure risk from a forward-looking perspective. This model is better able to pick up shorter-term spikes in volatility.

Arrowstreet manages the active betas of the strategy. For every stock, the manager measures a number of style betas (e.g. market, value, quality, small cap, emerging, and momentum).

Finally, scenario analysis is also conducted to understand how the strategy and/or particular enhancements to the model will behave under various market conditions.

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## **Operational Due Diligence**

- Arrowstreet has established a Board of Directors ("Board") that is composed of four Executive Directors and three Non-Executive Directors. The Board meets on a quarterly basis and has the opportunity to meet annually outside the presence of the Executive Directors. The Board also has express authority to consult with the Firm's independent auditors, internal and external counsel, Chief Compliance Officer ("CCO"), or other experts if necessary.
- Trading decisions are made jointly with the Research, Portfolio Management, and Compliance departments. The trades proposed by the optimization process are summarized in the multi-account pre-trade reports. These reports are reviewed by the Investment team for reasonability and consistency. A Complete audit trail is

maintained in case any adjustments are made to the order. Once reviewed, these orders are authorized systematically in the Charles River Investment Management System (“CRIMS”).

- Arrowstreet has engaged State Street Bank and Trust Company (“State Street”) as its third-party middle office service provider to perform services relating to trade management, including trade capture, matching, broker confirmations, and settlement with brokers and custodians. The State Street is also responsible for portfolio recordkeeping and reconciliation with third parties, corporate actions, and performance calculations. The Firm’s Investment Services team, which provides data and compliance functions support to the Portfolio Management team, monitors the middle-office services by participating regularly scheduled meetings with the State Street and reviewing operational issues and service level agreement. The Firm’s portfolio accounting system is managed externally via State Street Middle-Office and CTM/Omgeo.
- Arrowstreet has not implemented a dedicated Internal Audit team as would be expected for firms of similar size; however, it has implemented several layers of oversight designed to provide assurance that its internal controls are operating as designed. For example, KPMG LLP conducts an annual SOC 1 review; the most recent review covered the timeframe from August 1, 2016 to July 31, 2017 and was reviewed by Aon as part of its assessment; no exceptions were noted. Internally, the firm’s Compliance function is responsible for an annual compliance review in accordance with Rule 206(4)7. In conducting its review, Compliance utilizes an Enterprise Risk Matrix. Risks are assigned to departmental owners who evaluate risks for completeness, accuracy, existing risk mitigants, and residual risks. The Operating Committee monitors the risks and any associated mitigation plans on a semi-annual basis. Additionally, the Compliance team reviews State Street’s SOC 1 report to evaluate its internal control structure. While implemented testing and oversight procedures are robust, Arrowstreet may benefit from implementing an additional level of oversight in the form of an Internal Audit team.
- We note the firm has relationships with, and utilizes, multiple prime brokers.

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## Terms & Conditions

- The manager offers multiple vehicles to suit the needs (reporting, tax, liquidity, market exposure management, etc.) of different investor types.
- Certain fund structures / vehicles may use equity index futures for an additional 20% of long market exposure with gross exposure of 180%.
- For extension strategies, the manager has a stated performance fee of 30 basis points – base fee and 20% of outperformance fee.
- Minimum Account size is \$10 million for Commingled Funds.

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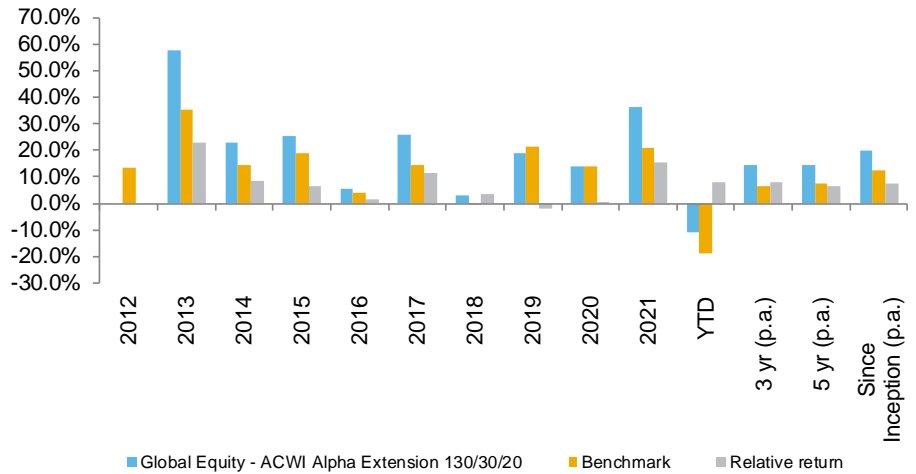
## ESG

- Arrowstreet has been a UN PRI signatory since 2016. UN PRI Assessment scores (2019): Strategy & Governance = B; Listed Equity - Integration = A+; and Listed Equity – Active Ownership = D. Arrowstreet does not have dedicated full time RI or ESG staff but maintains a Responsible Investment Committee consisting of the CIO and individuals in portfolio management, research, legal, compliance, and client relations. There is some evidence of ESG integration in the quantitative analysis that is a feature of Arrowstreet’s investment process, namely the manager focuses on the identification of ESG risk factors. The manager has yet to identify sufficient evidence to incorporate ESG factors into its alpha forecasting model, however. There is no separate Climate Change Policy.
- Arrowstreet incorporates ESG factors into its process primarily through its risk model, having identified several risk signals in this area. Although it has yet to find evidence convincing enough to incorporate ESG considerations into its alpha model, it is important to note that the manager is continually evaluating different signals and factors for potential inclusion in its model. The manager is able to incorporate client-specific restrictions in separate accounts, as well as manage a mandate relative to an ESG benchmark. This includes the resources to measure a portfolio-wide carbon footprint. In 2019, the manager launched an ESG-tilted Global Equity Beta Neutral Fund, which invests in long positions with positive ESG scores and short those with negative scores.

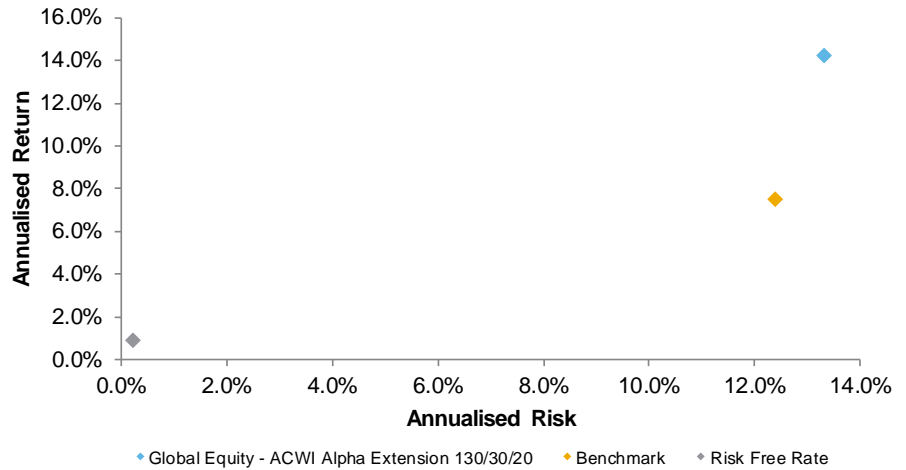
- In 2019 Arrowstreet cast its votes on approximately 98% of the 67,383 proposals it was eligible to vote on. Arrowstreet voted against management resolutions in roughly 10% of cases. The manager makes use of a third-party service provider, Institutional Shareholder Services (ISS), to assist in proxy services. Being a quantitative manager, Arrowstreet does not typically engage with management through its investment process, nor does it monitor ESG considerations for each stock in its portfolio, except as they pertain to risk factors.
-

## Performance and Risk Metrics

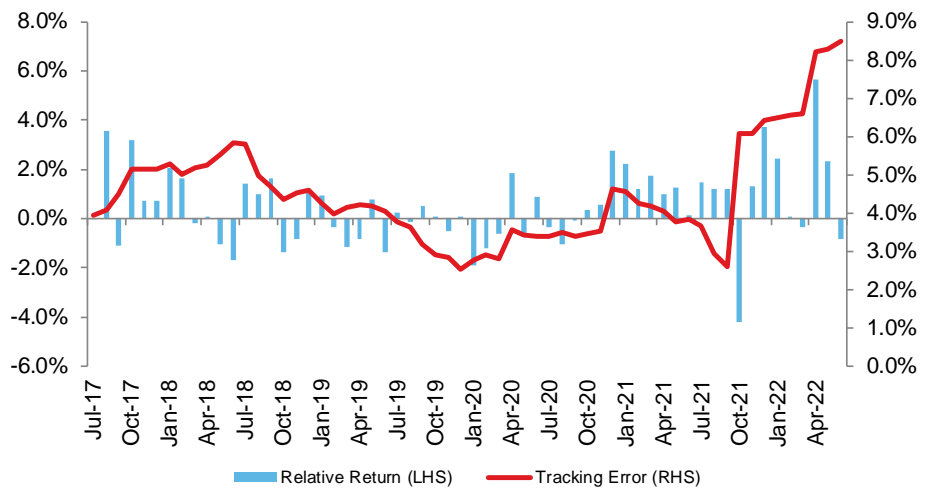
### Historic Performance (Inception: August 2012)



### Risk – Return 5 Years Ending 30 June 2022



### Monthly Return and 12-Month Rolling Tracking Error 5 Years Ending 30 June 2022

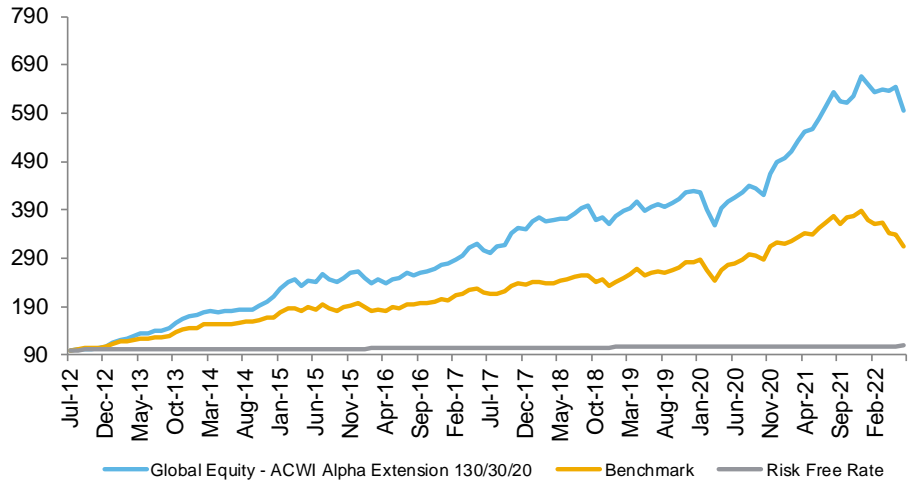


Benchmark: MSCI World-ND; Risk Free Rate: Canadian - 3 Month T-Bill

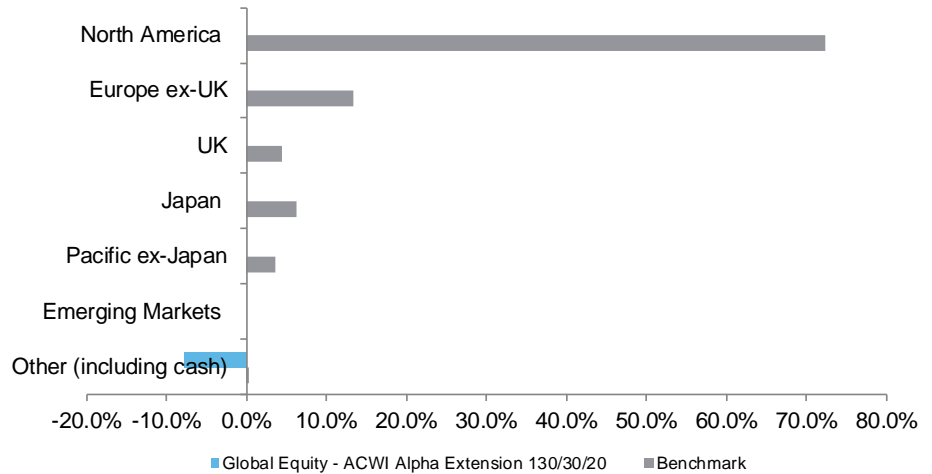
Past performance is no guarantee of future results.

## Performance and Risk Metrics

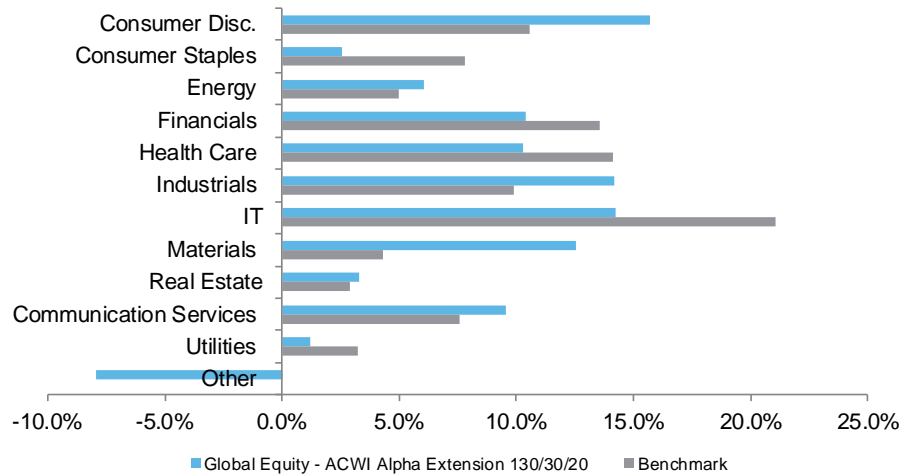
**Growth of C\$100  
(Inception: August 2012)**



**Regional Allocation Quarter  
Ending 30 June 2022**



**Sector Allocation Quarter  
Ending 30 June 2022**



Note: Pooled fund performance (CAD) is gross of fees and sourced from Manager/eVestment.


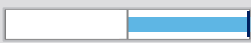
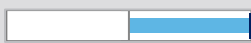
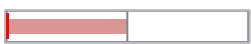
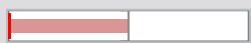

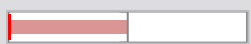


Benchmark: MSCI World-ND; Risk Free Rate: Canadian - 3 Month T-Bill

**Past performance is no guarantee of future results.**


## Aon InForm Assessment to 30 Jun 2022

The Aon InForm Assessment of this strategy is summarized in the sections below. Where this raises an alert, denoted by a flag (⚠️), we have added further clarification where we believe the points raised are material or worth highlighting.

- There are no flags indicated at present although data completion is low at the time of writing.

 <b>Business</b>	✓	<b>InForm Barometer</b> (   &   represents prior quarter)	<b>Current Value</b> (Threshold for ✓)
Employee Ownership	✓		100.0% (50.0%)
Last Change of Ownership	-	-	---
Institutional Client Base (Product)	✓		100.0% (50.0%)
Firm Net Asset Flow	⚠️		-C\$16.1 billion (C\$0)
Firm Gross Asset Outflow	⚠️		-11.4% (-7.0%)
Product Net Asset Flow	✓		C\$2.2 billion (C\$0)
Product Gross Asset Outflow	⚠️		-14.1% (-7.0%)
Product Importance to Firm	✓		15.9% (0.4%)
Asset class Importance to Firm	✓		100.0% (25.0%)

---

 <b>Investment Staff</b>	-	<b>InForm Barometer</b> (   &   represents prior quarter)	<b>Current Value</b> (Threshold for ✓)
Team Size	-	-	Portfolio Managers: --- Analysts: ---
Staff Turnover	-	-	Portfolio Managers: --- Analysts: ---
Experience	-	-	Portfolio Managers: --- Analysts: ---

## Aon InForm Assessment to 30 Jun 2022 (Continued)



### Investment Process



**InForm Barometer**  
( | & | represents prior quarter)

**Current Value**  
(Threshold for ✓)

Active Risk / Tracking Error			5.7% (7.0%)
Investment Process Consistency			Consistent (*)
Style Consistency - Market Capitalization			C\$3.4 billion (*)
Style Consistency - Value (Price-to-book)			2.6 (*)
Cash Allocation	-	-	---

\* Investment Process Consistency: Excess Return Rank Volatility (8 Years of Performance History) is 9.5, which is similar or below the peer group median of 18.9

Style Consistency – Market Capitalization: Product's median market capitalization is between the 5th and 95th percentile within the peer group

Style Consistency – Value: Changes of the product's dividend yield and Price/Book rankings within the peer group were not significant over the past 1 year



### Risk Management



**InForm Barometer**  
( | & | represents prior quarter)

**Current Value**  
(Threshold for ✓)

Maximum Drawdown			16.7% (17.9%)
Capture Ratio			1.4 (1.1)



### Performance Analysis

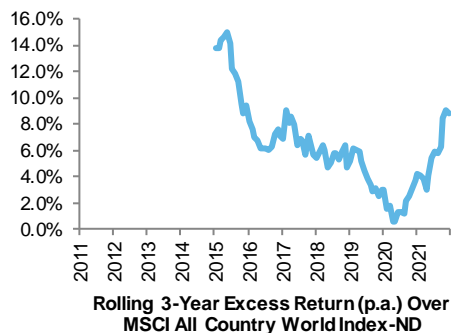


**InForm Barometer**  
( | & | represents prior quarter)

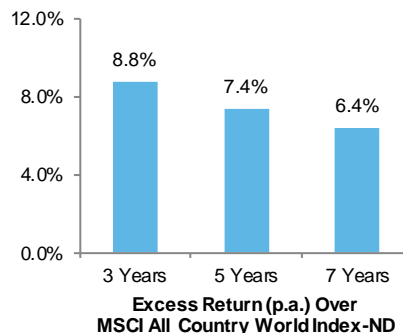
**Current Value**  
(Threshold for ✓)

Excess Return			6.4% (1.2%)
Risk Adjusted Return			1.0 (0.3)
Consistency of Outperformance vs Benchmark			100.0% (58.5%)
Consistency of Outperformance vs Peers			100.0% (58.5%)

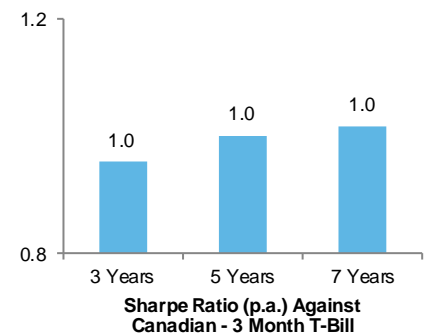
Historical Consistency



Historical Excess Return



Historical Risk-Adjusted Return



Source: eVestment



## Aon InForm Assessment to 30 Jun 2022 (Continued)



### Terms & Conditions

-

### InForm Barometer ( | & | represents prior quarter)

### Current Value (Threshold for ✓)

Management Fee

-

-

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### Operations\*

Is the firm affiliated with a Broker/Dealer?

No

GIPS (Global Investment Performance Standards) Compliant?

Yes

Errors & Omissions Insurance?

Yes

Fiduciary Liability Insurance?

Yes

Note: The Aon InForm Assessment is based on data as of 30 June 2022 (obtained on 23 September 2022 from eVestment) unless stated differently. Product data completion is 68.5% and peer group average data completion is 68.3%. Changes in manager or peer group data completion may impact the Aon InForm Assessment. \*The output to the questions above (Operations section) is self-reported by the manager and obtained through eVestment and is provided for informational purposes only. **Past performance is no guarantee of future results.**



### Environmental, Social & Governance (ESG)\*

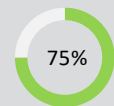
-

### Comparison with Equity Peers

#### Policies

Scope and granularity of policies and levels of disclosures (e.g. engagement policy, voting policies etc.)

✓



#### Staff

Level of resources, governance, senior oversight and accountability and incentives of product management team

-

-

#### Process

Breadth and depth of ESG integration and evaluates process efficacy and application

-

-

#### Stewardship

Voting, engagement and collaborative efforts where relevant and financially material

-





-

Legend for Quartile Rank: ■ Top ■ 2<sup>nd</sup> ■ 3<sup>rd</sup> ■ Bottom

\* See Appendix for more details on the ESG module

## Glossary – Equity Manager Model Description

The below table provides a more detailed description of the factors used in the above Aon InForm Assessment. Consultants will be pleased to answer questions should you require further information in relation to this report.

 <b>Business</b>	<b>Factor Description</b>
Employee Ownership	Percentage of firm ownership held by staff
Last Change of Ownership	Date of most recent ownership change
Institutional Client Base (Product)	Percentage of assets under management (“AUM”) held by institutional investors (pension funds, sovereign wealth funds, insurance companies, endowments, foundations etc.) at the product level
Firm and Product Net Asset Flow	Net asset flow over the last three years at the firm and product level. Product level factor incorporates an assessment relating to the strategy’s capacity.
Firm and Product Gross Asset Outflow	Average gross asset outflow over the last three years at the firm and product level
Product and Asset class Importance to Firm	The asset class and product AUM in relation to the firm level AUM
 <b>Investment Staff</b>	<b>Factor Description</b>
Team Size	The manager’s investment related resources across various functions
Staff Turnover	Percentage of investment staff turnover (average over the last three years)
Experience	Number of years’ worth of investment experience across various functions
 <b>Investment Process</b>	<b>Factor Description</b>
Active Risk / Tracking Error	Illustrates the product’s tracking error i.e. how closely a manager follows its benchmark
Investment Process Consistency	Volatility of the product’s performance relative to its peer group
Style Consistency	Displays the Market Capitalization and Price-to-Book of the product’s underlying holdings and assesses if this is in line with its peers
Cash Allocation	Highest cash allocation over the past 3 years as a percentage of the portfolio
 <b>Risk Management</b>	<b>Factor Description</b>
Maximum Drawdown	Measures the distance between the peak and trough of the product’s
Capture Ratio	Measures the differential between the product’s gains when its benchmark is up vs the product’s losses when its benchmark is down

 **Performance Analysis**

	<b>Factor Description</b>
Excess Return	Compares the excess return of the product against the manager's benchmark (longest available of 1, 2, 3, 5 or 7-years)
Risk Adjusted Return	Displays the Sharpe Ratio or Information Ratio (depending on the product's tracking error). These measures are different ways of assessing the product's return after adjusting for the level of risk taken.
Consistency of Outperformance*	Looks at long term consistency of excess return in relation to the product's benchmark and peers

\*Outperformance - The return of the investment less the return of the relevant benchmark.

 **Terms & Conditions**

	<b>Factor Description</b>
Management Fee	Management fee level relative to the product's peer group

 **Operations**

	<b>Factor Description</b>
Operations Factors	These factors look across a number of non-investment related areas such as operational infrastructure, compliance and industry best practice

 **Environmental, Social & Governance (ESG)**

	<b>Factor Description</b>
Policies (3 factors)	Scope and granularity of policies and levels of disclosures (e.g. engagement policy, voting policies etc.)
Staff (4 factors)	Covering level of resources, governance, senior oversight and accountability and incentives of product management team
Process (8 factors)	Breadth and depth of ESG integration and evaluates process efficacy and application
Stewardship (5 factors)	Voting, engagement and collaborative efforts where relevant and financially material

## Appendix – ESG Module Details

The table below provides a more detailed information of the ESG model. The model covers both firm and product factors but places a greater emphasis at the product level.

### ✓ Policies

Level	Questions	Reponses	✓/✘
Firm	Is the firm a PRI signatory?	Yes	✓
Firm	Do you have a formal engagement policy?	No	✘
Firm	Do you have a firm-wide policy on ESG/Responsible Investment?	Yes	✓

### - Staff

Level	Questions	Reponses	✓/✘
Firm	Is there a dedicated ESG oversight function at your firm?	No	✘
Product	Do you have C-suite personnel (CEO, CIO, COO etc.) responsible for the oversight of your ESG investment policy and its implementation on this strategy?	---	-
Product	Are the portfolio managers incentivized to consider ESG risks within their portfolio?	---	-
Product	Are the research analysts incentivized to consider ESG risks within their recommended stocks?	---	-

### - Process

Level	Questions	Reponses	✓/✘
Firm	Do you leverage Country-Specific Stewardship Codes in your investment process?	No	✘
Firm	Does firm identify material ESG issues or leverage third party identified issues for consideration?	Both	✓
Firm	Do you subscribe to any third-party ESG research data?	Yes	✓
Product	Do you integrate ESG factors into the security selection process for this strategy?	Yes	✓
Product	ESG considered as financial risks, opportunities in addition to traditional financial analysis?	---	-
Product	Is external buy-side, sell-side, or other ESG research as part of its qualitative holdings review?	---	-
Product	Does the product consider TCFD recommendations within the investment process?	---	-

Product	Has the portfolio structure been analyzed in terms of ESG ratings?	---	-
---------	--------------------------------------------------------------------	-----	---

## - Stewardship




Level	Questions	Reponses	✓/✗
Firm	Does the firm engage or advocate for ESG improvements within its portfolio holdings?	No	✗
Firm	Does the firm exercise its ownership rights through voting?	Yes	✓
Firm	Does the firm have a global policy around proxy voting?	Yes	✓
Product	Where listed equity is held, do you vote for your investors on the majority of ballot items, based on your own or the investor's own voting policy, or is voting delegated to the voting policy of a service provider?	---	-
Product	Do you have active ownership policies that cover your engagement and voting behaviors (as applicable) with respect to ESG investing for this strategy?	---	-
Product	Is the portfolio management team involved in proxy voting?	---	-
Product	Does the team have a default position for voting?	---	-
Product	How many potential votes could the team have cast in the prior year?	---	-
	How many actual votes did the team cast in the prior calendar year?	---	

## Ratings Explanation

Below we describe the criteria which we use to rate fund management organizations and their specific investment products. Our manager research process assesses each component using both our qualitative and Aon InForm criteria. With the exception of Operational Due Diligence ("ODD"), each component is assessed as follows:

Qualitative Outcome	Aon InForm Outcome
1 = Weak	✓ <b>Pass:</b> This component in isolation meets or exceed our desired criteria
2 = Average	⚠ <b>Alert:</b> This component in isolation does not meet our desired criteria, or the lack of data on this component means that we are not able to judge whether it meets our desired criteria
3 = Above Average	
4 = Strong	- <b>Not assessed:</b> There is a lack of data, which means that we are not able to assess this component, however we do not consider this in isolation to justify an Alert

### Aon InForm Barometer Outcome

-  Factor in isolation meets or exceed our desired criteria. The further the blue bar is to the right, the more favourable the outcome.
-  Factor in isolation does not meet our desired criteria. The further the red bar is to the left, the less favourable the outcome.
-  Represents prior quarter outcome
  - There is a lack of data, which means that we are not able to assess this factor, however we do not consider this in isolation to justify an Alert

The ODD factor is assigned a rating and can be interpreted as follows:

Overall ODD Rating*	What does this mean?
<b>A1 Pass</b>	No material operational concerns – the firm’s operations largely align with a well-controlled operating environment.
<b>A2 Pass</b>	The firm’s operations largely align with a well-controlled operating environment, with limited exceptions – managers may be rated within this category due to resource limitations or where isolated areas do not align with best practice.
<b>Conditional Pass (“CP”)</b>	Specific operational concerns noted that the firm has agreed to address in a reasonable timeframe; upon resolution, we will review the firm’s rating.
<b>F</b>	Material operational concerns that introduce the potential for economic or reputational exposure exist – we recommend investors do not invest and/or divest current holdings.

\*Operational due diligence inputs provided to the research team by Aon’s Operational Risk Solutions and Analytics Group (ORSA). ORSA is an independent entity from Aon Solutions UK Limited, Aon Investments USA Inc., and Aon Hewitt Inc./ Aon Investments Canada Inc. Investment advice is provided by these Aon entities.

Aon previously assigned ODD ratings of pass, conditional pass, or fail for the ODD factor. We are in the process of refreshing all ODD ratings to the new terminology. During the transition period, the prior ratings, as follows, may persist in some deliverables until the ODD factor rating is converted to the above noted letter ratings.

- **Pass** – Our research indicates that the manager has acceptable operational controls and procedures in place.
- **Conditional Pass** – We have specific concerns that the manager needs to address within a reasonable established timeframe.
- **Fail** – Our research indicates that the manager has critical operational weaknesses and we recommend that clients formally review the appointment.

An overall rating is then derived taking into account both the above outcomes for the product. The overall rating can be interpreted as follows:

Overall Rating	What does this mean?
<b>Buy</b>	We recommend clients invest with or maintain their existing allocation to our Buy rated high conviction products
<b>Buy (Closed)</b>	We recommend clients invest with or maintain their existing allocation to our Buy rated high conviction products, however it is closed to new investors
<b>Qualified</b>	A number of criteria have been met and we consider the investment manager to be qualified to manage client assets
<b>Not Recommended</b>	A quantitative assessment of this strategy indicates it does not meet our desired criteria for investment. This strategy is not recommended
<b>Sell</b>	We recommend termination of client investments in this product
<b>In Review</b>	The rating is under review as we evaluate factors that may cause us to change the current rating

The comments and assertions reflect our views of the specific investment product and our opinion of its quality. Differences between the qualitative and Aon InForm outcome can occur and if meaningful these will be explained within the Key Monitoring Points section. Although the Aon InForm Assessment forms a valuable part of our manager research process, it does not automatically alter the overall rating where we already have a qualitative assessment. Overall rating changes must go through our qualitative manager vetting process. Similarly, we will not issue a Buy recommendation before fully vetting the manager on a qualitative basis.

The ESG factor is assigned a rating and can be interpreted as follows:

<b>Overall ESG Rating</b>	<b>What does this mean?</b>
<b>Advanced</b>	The fund management team demonstrates an advanced awareness of potential ESG risks in the investment strategy. The fund management team can demonstrate advanced processes to identify, evaluate and potentially mitigate these risks across the entire portfolio.
<b>Integrated</b>	The fund management team has taken appropriate steps to identify, evaluate and mitigate potential financially material ESG risks within the portfolio.
<b>Limited</b>	The fund management team has taken limited steps to address ESG considerations in the portfolio.
N/A (Not Applicable)	ESG risks and considerations are not applicable to this strategy, for example, on the grounds of materiality or asset class relevance.
NR (Not Rated)	An evaluation of ESG risks is not yet available for this strategy.

### **ESG Percentile Ranking**

Legend for Quartile Rank:  Top  2<sup>nd</sup>  3<sup>rd</sup>  Bottom

Quartile rankings displayed for the ESG output provides an indication of how well a strategy fares compared to its universe. Top quartile rank indicates that that the strategy belongs to the top 25th percentile of their peers, 2nd quartile rank indicates that that the strategy belongs between 25th - 50th percentile, 3rd quartile rank indicates that that the strategy belongs between 50th - 75th percentile, Bottom quartile rank indicates that that the strategy belongs to the last 25th percentile of their peers.



## Disclaimer

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As of December 31, 2021, Aon's quantitative model is run on approximately 12,500 strategies from an external database. Aon assigned a quantitative rating of "Qualified" to 44% of these strategies and "Not Recommended" to 21% of these strategies. The remainder were not rated. A "Buy" rating cannot be assigned via quantitative analysis. Across asset classes (excludes private real estate and real assets), Aon had approximately 23,000 strategies in its internal database. Aon assigned a qualitative rating of "Buy" to approximately 6% of strategies in the database; "Qualified" to approximately 4% of strategies in the database; "Sell" to approximately 1% of strategies in the database; and "In Review" to <1% of strategies in the database. The remaining strategies in the database are not rated. Some strategies may be included in both the internal and external database. Where a qualitative rating exists, it prevails over the quantitative rating. These statistics exclude real estate / Townsend databases and ratings.

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**ARKANSAS TEACHER RETIREMENT SYSTEM**  
**1400 West Third Street**  
**Little Rock, Arkansas 72201**

**RESOLUTION**  
**No. 2022-50**

**To Rebalance and Redeem in Full Arkansas Teacher Retirement System  
Assets in the Grantham, Mayo, Van Otterloo & Co. L.L.C. (GMO) Global All  
Country Equity Allocation**

**WHEREAS**, the Board of Trustees (Board) of the Arkansas Teacher Retirement System (ATRS) is authorized to invest and manage trust assets for the benefit of its plan participants; and

**WHEREAS**, the ATRS Board has reviewed the recommendation of its general investment consultant, Aon Hewitt Investment Consulting, Inc., along with the recommendation of the Investment Committee and ATRS staff regarding the full redemption and rebalancing of the ATRS assets invested in the **Grantham, Mayo, Van Otterloo & Co. L.L.C. (GMO) Global All Country Equity Allocation**.

**NOW, THEREFORE, BE IT RESOLVED**, the ATRS Board approves the full redemption and rebalancing of the ATRS assets invested in the **Grantham, Mayo, Van Otterloo & Co. L.L.C. (GMO) Global All Country Equity Allocation**; and

**FURTHER, BE IT RESOLVED**, the ATRS Board approves the termination of ATRS agreements related to the **Grantham, Mayo, Van Otterloo & Co. L.L.C. (GMO) Global All Country Equity Allocation**; and

**FURTHER, BE IT RESOLVED**, that the ATRS staff is hereby authorized to take all necessary and proper steps to implement this full redemption, termination and rebalancing including the use of a transition manager.

**Adopted this 5th day of December, 2022**

---

**Mr. Danny Knight, Chair**  
**Arkansas Teacher Retirement System**

**ARKANSAS TEACHER RETIREMENT SYSTEM**  
**1400 West Third Street**  
**Little Rock, Arkansas 72201**

**RESOLUTION**  
**No. 2022-51**

**To Rebalance and Redeem in Full Arkansas Teacher Retirement System  
Assets in the D.E. Shaw World Alpha Extension Fund, L.L.C.**

**WHEREAS**, the Board of Trustees (Board) of the Arkansas Teacher Retirement System (ATRS) is authorized to invest and manage trust assets for the benefit of its plan participants; and

**WHEREAS**, the ATRS Board has reviewed the recommendation of its general investment consultant, Aon Hewitt Investment Consulting, Inc., along with the recommendation of the Investment Committee and ATRS staff regarding the full redemption and rebalancing of the ATRS assets invested in the **D.E. Shaw World Alpha Extension Fund, L.L.C.**

**NOW, THEREFORE, BE IT RESOLVED**, the ATRS Board approves the full redemption and rebalancing of the ATRS assets invested in the **D.E. Shaw World Alpha Extension Fund, L.L.C.**; and

**FURTHER, BE IT RESOLVED**, the ATRS Board approves the termination of ATRS agreements related to the **D.E. Shaw World Alpha Extension Fund, L.L.C.**; and

**FURTHER, BE IT RESOLVED**, that the ATRS staff is hereby authorized to take all necessary and proper steps to implement this full redemption, termination and rebalancing including the use of a transition manager.

**Adopted this 5th day of December, 2022**

---

**Mr. Danny Knight, Chair**  
**Arkansas Teacher Retirement System**

**ARKANSAS TEACHER RETIREMENT SYSTEM  
1400 West Third Street  
Little Rock, Arkansas 72201**

**RESOLUTION  
No. 2022-52**

**Approving Investment in Arrowstreet Global Equity ACWI Alpha  
Extension 130/30/20 LP**

**WHEREAS**, the Board of Trustees (Board) of the Arkansas Teacher Retirement System (ATRS) is authorized to invest and manage trust assets for the benefits of its plan participants; and

**WHEREAS**, the ATRS Board has reviewed the recommendation of its general investment consultant, Aon Hewitt Investment Consulting, Inc., along with the recommendation of the Investment Committee and ATRS staff regarding a potential investment in **Arrowstreet Global Equity ACWI Alpha Extension 130/30/20 LP**, a global, quantitative, long/short equity fund.

**NOW, THEREFORE, BE IT RESOLVED**, that the ATRS Board approves an investment of up to **\$800 million dollars (\$800,000,000.00)** in **Arrowstreet Global Equity ACWI Alpha Extension 130/30/20 LP**. The total investment amount is to be determined by the general investment consultant and ATRS staff based upon the allocation available to ATRS and the overall investment objectives set by the ATRS Board; and

**FURTHER, BE IT RESOLVED**, That the ATRS staff is hereby authorized to take all necessary and proper steps to implement this investment, if acceptable terms are reached.

**Adopted this 5th day of December, 2022.**

---

**Mr. Danny Knight, Chair**  
**Arkansas Teacher Retirement System**

**ARKANSAS TEACHER RETIREMENT SYSTEM**  
**1400 West Third Street**  
**Little Rock, Arkansas 72201**

**RESOLUTION**  
**No. 2022-53**

**To Rebalance and Redeem in Full Arkansas Teacher Retirement System  
Assets in the Putnam Absolute Return Fixed Income Fund**

**WHEREAS**, the Board of Trustees (Board) of the Arkansas Teacher Retirement System (ATRS) is authorized to invest and manage trust assets for the benefit of its plan participants; and

**WHEREAS**, the ATRS Board has reviewed the recommendation of its general investment consultant, Aon Hewitt Investment Consulting, Inc., along with the recommendation of the Investment Committee and ATRS staff regarding the full redemption and rebalancing of the ATRS assets invested in the **Putnam Absolute Return Fixed Income Fund**.

**NOW, THEREFORE, BE IT RESOLVED**, the ATRS Board approves the full redemption and rebalancing of the ATRS assets invested in the **Putnam Absolute Return Fixed Income Fund**; and

**FURTHER, BE IT RESOLVED**, the ATRS Board approves the termination of ATRS agreements related to the **Putnam Absolute Return Fixed Income Fund**; and

**FURTHER, BE IT RESOLVED**, that the ATRS staff is hereby authorized to take all necessary and proper steps to implement this full redemption, termination and rebalancing including the use of a transition manager.

**Adopted this 5th day of December, 2022**

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**Mr. Danny Knight, Chair**  
**Arkansas Teacher Retirement System**



**TOWNSEND<sup>®</sup>**  
**GROUP**

**an Aon company**

# Arkansas Teachers Retirement System Second Quarter 2022 Real Assets Performance Review

PROPRIETARY & CONFIDENTIAL  
December 2022

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## Agenda

<b>Section 1</b>	<b>Executive Summary</b>
Section 2	Market Overview
Section 3	Real Assets Portfolio Update
Section 4	Glossary



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## Real Assets Markets Performance and Overview

Performance Summary	Quarter (%)		1 Year (%)		3 Year (%)		5 Year (%)		10 Year (%)	
	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET
NFI-ODCE Value Weight	4.8	4.5	29.5	28.3	12.7	11.7	10.5	9.6	11.2	10.2
NCREIF Property Index "NPI"	3.2		21.5		10.2		8.9		9.7	
NCREIF Farmland Property Index "NFI"	1.4		9.7		6.1		6.1		9.5	
NCREIF Timberland Property Index "NTI"	1.9		12.0		5.0		4.4		5.8	

- In the first quarter of 2022, the NFI-ODCE (net) returned 4.5%, down 260 basis points quarter-over-quarter. NFI-ODCE returns have recovered to long-term expectations of 7% to 9% gross due to the robust recovery of the Global economy following the COVID-19 pandemic.
- The NCREIF Farmland Index ("NFI") returned 1.4%, down 118 basis points from the prior quarter. Row crops drove performance with a returns of 2.1%, while permanent crops returned 0.5%.
- The NCREIF Timberland Index ("NTI") returned 1.9% for the quarter and 12.0% for the trailing one-year return. Regionally, the Northwest (2.5%) was the NTI's top performer while the Lake States (-0.2%) lagged for the quarter.

## Portfolio Funding Status and Composition

As of June 30, 2022	ATRS' Portfolio \$ in Millions
Number of Investments	80
Total Commitments	4,262.2
Unfunded Commitments	791.4
Total Paid-In Capital	3,736.8
Total Distributions	3,435.5
Net Asset Value	2,476.3
Gross Asset Value	3,424.6
DPI	0.9x
TVPI	1.6x
Since Inception IRR	7.6%
<i>*Active and Liquidated</i>	

PORTFOLIO COMPOSITION TO TARGETS (As of 06/30/2022)		
	Target	Actual Funded
<b>Target Real Asset Allocation</b>	15%	12.5%
<b>Portfolio Style Composition</b>		
<b>Real Estate</b>	10%	7.6%
<b>Core*</b>	50%-70%	65.2%
<b>Non-Core</b>	30%-50%	34.8%
<b>Value-Added**</b>	N/A	22.4%
<b>Opportunistic**</b>	N/A	12.4%
<b>Agriculture</b>	1%	1.2%
<b>Timber</b>	2%	1.7%
<b>Infrastructure</b>	2%	1.9%
<b>Leverage</b>	50%	27.7%

\* Includes Arkansas Investments

\*\* No stated targets

- Recent infrastructure and real estate commitments will help the portfolio continue to move towards its target allocation irrespective of liquidating investments
- In general, the portfolio is in compliance with its Statement of Investment Policy. There are a few exceptions:
  - Timber geographic concentration to “Other” remains out of compliance largely due in part to the BTG OEF’s Ohio investments

## ATRS' Real Assets Performance

Performance Summary	Quarter (%)		1 Year (%)		3 Year (%)		5 Year (%)		10 Year (%)		Net IRR	Equity Multiple
	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET		
ATRS Total Portfolio	3.1	2.8	20.3	18.1	10.8	9.2	9.8	8.1	10.5	9.0	7.6	1.6
Total Real Assets Benchmark		4.1		21.9		9.9		8.2		9.0		

- The table shows the returns for ATRS' Total Real Assets Portfolio and the Real Assets Benchmark.
- ATRS has slightly under performed in the near term but continues to perform in-line over the longer-term period.

## ATRS' Real Estate Performance

Performance Summary	Quarter (%)		1 Year (%)		3 Year (%)		5 Year (%)		10 Year (%)		Net IRR	Equity Multiple
	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET		
Real Estate	3.1	2.8	23.8	21.2	10.2	8.6	9.3	7.7	11.1	9.6	8.2	1.6
NFI-ODCE Value Weight	4.8	4.5	29.5	28.3	12.7	11.7	10.5	9.6	11.2	10.2		

- The table shows the time-weighted, net of fee returns for ATRS' Total Real Estate Portfolio and the NFI-ODCE benchmark.
- There are a number of Non-Core Funds that have exited the J-curve and performance is expected to have a more meaningful impact as newer funds' investments are realized.
- The real estate portfolio underperformed the benchmark for the quarter, and all other measurement periods largely due in part to market distress caused by the global pandemic, relative underperformance of UBS TPF, and a cash out refinance and property sales from an Arkansas Investments that decreased net asset value and consequently effected the return.

## ATRS' Timberland and Agriculture Performance

Performance Summary	Quarter (%)		1 Year (%)		3 Year (%)		5 Year (%)		10 Year (%)		Net IRR	Equity Multiple
	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET		
Timberland	2.8	2.6	12.8	11.8	9.3	8.3	7.7	6.7	6.6	5.7	5.5	2.0
Timberland Property Benchmark*	1.9		8.9		4.5		3.2		4.7			
Agriculture	3.8	3.5	16.0	14.7	8.9	7.7	7.1	6.0	8.0	6.9	6.2	1.5
Agriculture Benchmark*	1.4		7.2		5.2		4.9		7.4			

- The timber portfolio is outperforming the benchmark over all measurable time periods.
- The agriculture portfolio is outperforming the benchmark over all measurement periods.

## ATRS' Infrastructure Performance

Performance Summary	Quarter (%)		1 Year (%)		3 Year (%)		5 Year (%)		10 Year (%)		Net IRR	Equity Multiple
	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET		
Infrastructure	2.9	2.2	16.4	13.6	16.7	14.2	17.4	14.2	N/A	N/A	13.6	1.5
Infrastructure Benchmark*	4.6		14.1		8.9		8.2		N/A			

- The infrastructure portfolio slightly underperformed the Infrastructure benchmark over the quarter, primarily driven by underperformance from Antin Infrastructure Partners Fund II (-5.5% net).
- ATRS' Infrastructure portfolio is outperforming the Infrastructure benchmark over all measurement periods excluding the current quarter.

## ATRS' Real Assets Portfolio Highlights

- Commitment activity update
  - ATRS made the following commitments during the quarter or subsequent to quarter end
    - KKR Diversified Core Infrastructure Fund: \$25 million
    - Blackstone Real Estate Partners X: \$75 million
    - LaSalle Value Partners US IX: \$75 million
  - ATRS is in the queue for a partial redemption of UBS TPF
    - As of October 18, 2022, the TPF redemption queue is \$7.2 billion and expect full repayment by YE25



## Significant Events

- Rockwood completed a sell of a majority stake to Colliers International. The team will keep all aspects of control. Townsend has reviewed and will report on any meaningful issues that arise.

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## Agenda

Section 1	Executive Summary
<b>Section 2</b>	<b>Market Overview</b>
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# United States Real Estate Market Update (2Q22)

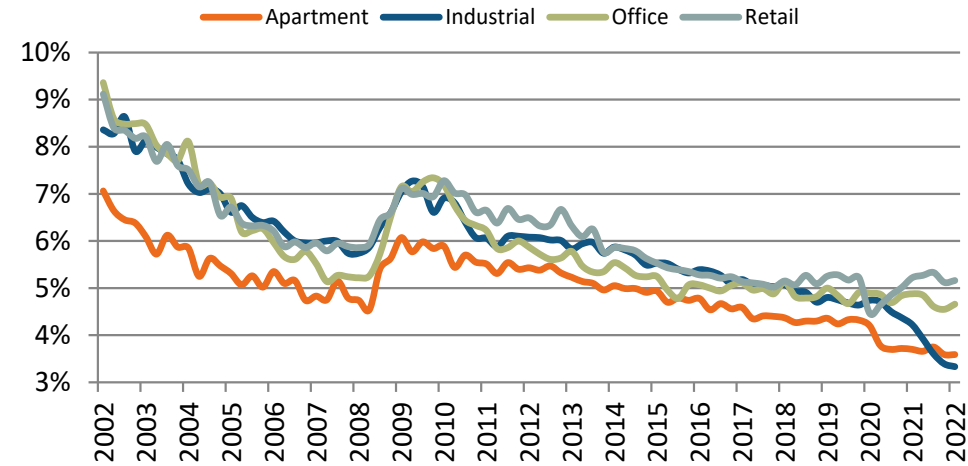
## General

- Townsend witnessed a robust recovery across the U.S. economy and U.S. real estate markets in 2021 but begun to moderate in 2022. The post-pandemic economic recovery has remained generally on track; however, an array of headwinds have emerged including rising interest rates, persistent inflation, various geopolitical events, and widespread global supply chain struggles. In first half 2022, tightening federal reserve policy and market volatility sent public markets plummeting. The S&P 500 produced a gross total return of -20.6% during the first six months of the year. The MSCI US REIT index also continued its cool off following a strong 2021, posting a gross second quarter return of -17.0%.
- Based on some definitions, the U.S. entered into a recession during second quarter 2022, as GDP decreased for a second straight quarter, at an annualized rate of 0.9%. Slowing economic growth is attributable to decreased federal, state and government spending, and decreased exports. As a result of the atrocities of the Russian-Ukraine war, prolonged lockdowns in Shanghai, and a rise in protectionist measures, commodity pricing has skyrocketed, in lockstep with inflation. Federal reserve officials remain committed to taming inflation and reducing the central bank's balance sheet, approving a 75-bps hike during its June session.

## Commercial Real Estate

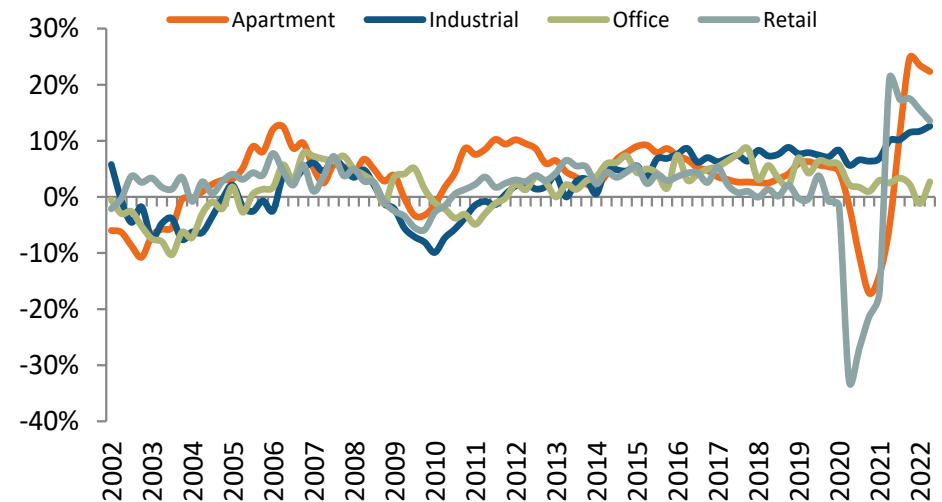
- Through the second quarter of 2022, total CRE transaction activity for the quarter was up 17% YoY, with annual transaction activity up 86% YoY. In 2Q22, U.S. private real estate deal volumes across all sectors remained strong but moderated from a historic high witnessed in fourth quarter 2021. Transaction volume has been the strongest in the apartment and industrial sectors.
- Transaction cap rates (4.6%) compressed during the quarter, to the tune of 35 bps. This decrease comes after a +74 bps quarter-over-quarter increase in 1Q22. Current valuation cap rates increased for retail (+21 bps) and office (+5 bps), while the industrial (-15 bps) and apartment (-2 bps) property sectors experienced slight cap rate compression.
- NOI growth has substantially diverged between property sectors due to the impacts of COVID-19. Retail NOI has expanded substantially (+14%) YoY as the sector continues to recover from decreased rent collections and retailer shutdowns. Apartment sector fundamentals remain strong, as many millennials seek out a more opportune time to purchase their first home. Apartment NOI expanded (+22%) YoY.
- 10-year treasury bond yields soared to nearly 3.5% intra-quarter; however, closed the quarter at 3.0% an increase of 70 basis points quarter-over-quarter. As economists expected rates have moved modestly higher throughout 2022.

Current Value Cap Rates by Property Type



Source: NCREIF

4 Qtr Rolling NOI Growth



Source: NCREIF

# United States Property Matrix (2Q22)



## INDUSTRIAL

- In 2Q22, industrial properties were the highest returning sector at 5.9% and outperformed the NPI by 263 bps.
- Transaction volumes decreased to \$35 billion in the second quarter of the year, resulting in an 8% increase year-over-year. Individual asset sales increased 4% year-over-year, while portfolio purchases turned in a year-over-year volume increase of 25%. At \$35 billion, the industrial sector decreased by \$4 billion quarter-over-quarter.
- The industrial sector turned in NOI growth of 12.6% over the past year. NOI continues to reach all time highs for the sector.
- Vacancy decreased by 144 bps year-over-year to 1.7%. Vacancy in the sector decreased 14 bps from last quarter, reaching all-time historic lows. E-commerce continues to drive demand across the sector.
- Industrial cap rates compressed approximately 89 bps from a year ago, to 3.3%. Industrial overall fundamentals still top all property sectors.

## MULTIFAMILY

- The apartment sector delivered a 3.9% return during the quarter, underperforming the NPI by 63 bps.
- Transaction volume in the second quarter of 2022 increased to \$86 billion, resulting in an increase of 42% year-over-year. Transaction volume for the sector is near historical levels. This volume continues to make multifamily the most actively traded sector for the eighteenth straight quarter.
- Cap rates remained steady at 3.6% quarter-over-quarter, decreasing 11 bps year-over-year. Multifamily cap rates remain at the lowest level observed in years, driven by continued increases in valuation.
- The multifamily sector saw increasing vacancy rates throughout the entirety of 2020 due to the global pandemic. Through 2021, the sector appeared to have shaken that trend although vacancy rates remained steady during the last 3 quarters. Vacancy rates slightly decreased by 22 bps quarter-over-quarter and are back to slightly below pre-pandemic levels. The aging millennials have begun shifting their desires to suburban living, but continued home price appreciation has deterred the full effect of this migratory trend.

## OFFICE

- The office sector returned 0.6% in 2Q22, 266 bps below the NPI return over the period.
- Transaction volumes decreased by 9% year-over-year in the second quarter. Transaction volume equated to \$25 billion for the quarter, a decrease of \$6 billion quarter-over-quarter. Office transaction levels have regressed from 1Q22 but not quite to levels seen during the COVID-19 pandemic.
- Office sector vacancy rates have expanded since the beginning of the pandemic due to work from home orders and uncertainty revolving around the future of office space. Office continues to be the highest vacancy property type at 12.9%, increasing 6 bps from last quarter.
- NOI growth in the office sector expanded quarter-over-quarter by 148 bps and appears to be in the midst of its recovery to pre-pandemic levels.
- Office cap rates compressed from a year ago, sitting at approximately 4.6%. Office-using job growth was stunted significantly through out 2020 due to work from home orders. Though we are observing a slow but steady flow back to in-office work, there is still uncertainty in the sector as many companies remain hesitant.

## RETAIL

- As of 2Q22, the retail sector delivered a quarterly return of 1.7%, underperforming 155 bps below the NPI.
- Transaction volumes totaled \$23 billion in the second quarter, increasing 46% year-over-year. Single asset transactions accounted for just over 81% of all sales volume for the quarter.
- Cap rates have compressed approximately 6 bps within the sector over the last year, to 5.2%. Current valuation cap rates compressed quarter-over-quarter by 4 bps due to valuation adjustments made across the sector in general.
- NOI growth slightly decreased, 2.0% over the last year. Retail has begun its slow recovery as vaccine rollouts have allowed a large portion of store nationally to open and operate safely.
- Retail vacancy rates decreased over the quarter by 35 bps, and down 102 bps over the past year to 8.7%. Many big box stores have closed as the need for retail space shrinks, translating to a negative outlook for rent growth. Paired with the global economic crisis, which has had a significant negative impact on this sector.

# Global Real Estate Market Update (2Q22)

- Significant headwinds have materialized in rising inflation, energy costs, and interest rates significantly impacting the global investment landscape in the first half of 2022. Rising debt costs have seen the number of traded properties recede, impacting pricing and bidding dynamics around the global market. This has culminated in the impending threat of a recession in some of the world's largest economies.
- Tangible effects of these challenges can be witnessed in the EMEA region, with deal volume falling 26% YOY. European markets, specifically Germany, have experienced liquidity issues with their economy being vulnerable due to its dependence on Russian energy supplies and global export markets. The UK market has remained steadfast, with demand remaining strong in the multifamily and industrial sector sustaining deal flow.
- That withstanding, the U.S. was at the forefront of this growth in deal volume improving 27% YOY reaching \$180.5B. This was the third best recorded quarter based on transactions \$10M or more. This was led by its multifamily sector, with rising demand in the Sun Belt Region resulting in record deal volumes and double-digit price growth.
- Inversely, the Asia Pacific market had an 8% decline YOY. A major proponent was China's continued widespread lockdowns in major cities to quell the spread of Covid-19 which has hampered deal activity (just \$1B in spent on income producing properties in April 2022, lowest since 2018).
- The hotel sector continued its strong recovery in Q2, despite global economic turbulence and labor shortages across travel/tourism industries. With consumers shifting their priorities towards experiences rather than material goods this favors leisure and resort destinations. Performance in luxury hotels across major European markets (Paris, Barcelona, London, Milan) is aiding in expediting the regions recovery. Asian markets with very little border or quarantine restrictions such as Bali and the Maldives have become more in favor.
- In Q2 demand for logistics and industrial space slowed year-over-year across all three regions. However, transaction activity was hampered by a lack of available supply in many markets and Q2 2021 leasing volumes were very high. Demand this year has become more broad-based with supply chain restructuring increasing demand from Logistics & Distribution and 3PL operators.
- Vacancy rates have remained broadly stable across the regions, and in the case of both the U.S. and Europe is at all-time lows. In the short term, high inflation should subdue consumer spending through the end of the year which may delay expansion plans for online retailers, with grocery delivery likely to be the only online sector that will continue to expand in the immediate future.

## Global Total Commercial Real Estate Volume - 2021 - 2022

\$ US Billions	% Change			% Change		
	Q2 2022	Q2 2021	Q2 22 - Q2 21	H1 2022	H1 2021	H1 22 - H2 21
Americas	181	142	27%	355	238	49%
EMEA	65	89	-27%	154	167	-8%
Asia Pacific	212	231	-8%	347	377	-8%
<b>Total</b>	<b>458</b>	<b>462</b>	<b>-1%</b>	<b>856</b>	<b>783</b>	<b>9%</b>

Source: Real Capital Analytics, Inc., Q2' 22

## Global Outlook - GDP (Real) Growth % pa, 2022-2024

	2022	2023	2024
<b>Global</b>	<b>5.9</b>	<b>4.3</b>	<b>3.6</b>
<b>Asia Pacific</b>	<b>4.4</b>	<b>4.6</b>	<b>4.4</b>
Australia	4.1	2.8	2.5
China	4.5	5.2	5.1
India	8.7	7.3	6.5
Japan	1.8	1.8	1.1
<b>North America</b>	<b>2.7</b>	<b>2.0</b>	<b>1.9</b>
US	2.6	2.0	1.9
<b>Middle East</b>	<b>4.1</b>	<b>4.4</b>	<b>4.5</b>
<b>European Union</b>	<b>3.0</b>	<b>2.1</b>	<b>2.0</b>
France	2.7	1.8	1.7
Germany	1.8	2.3	2.0
UK	3.7	1.2	1.7

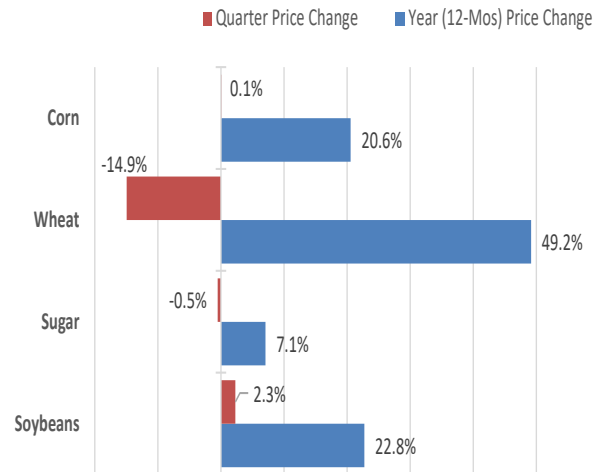
Source: Bloomberg

# Farmland – Second Quarter 2022 Market Update

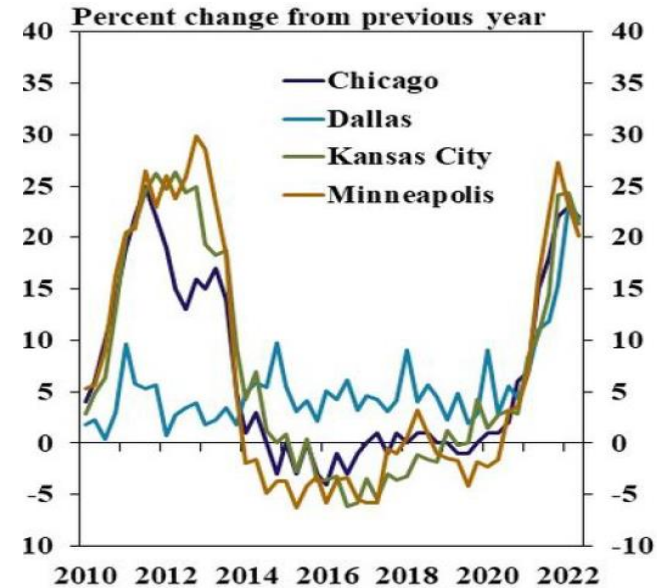
## FARMLAND MARKETS

- Rising inflation and the Ukraine/Russia war kept energy and input prices elevated while signs of a cooling farm economy began to emerge as an easing in price growth for major ag-commodities and cropland values emerged. **(Fig. 1 & 2)**
- Despite higher input costs, farmers have remained profitable mid-way through the year primarily driven by high crop prices exhibiting strong correlation to costs historically. **(Fig. 3)**
- Within permanent crops, tree nut exports increased substantially as port congestion and shipping costs declined, with notable increase in exports to the Middle East and W. Europe. **(Fig. 4)**
- In Brazil, farmers are expecting lower profits coming off two-years of record high margins due to lower production volumes and higher costs of production.
- Australian farm sector remained strong with high crop prices and above average production levels driving favorable farm economics.

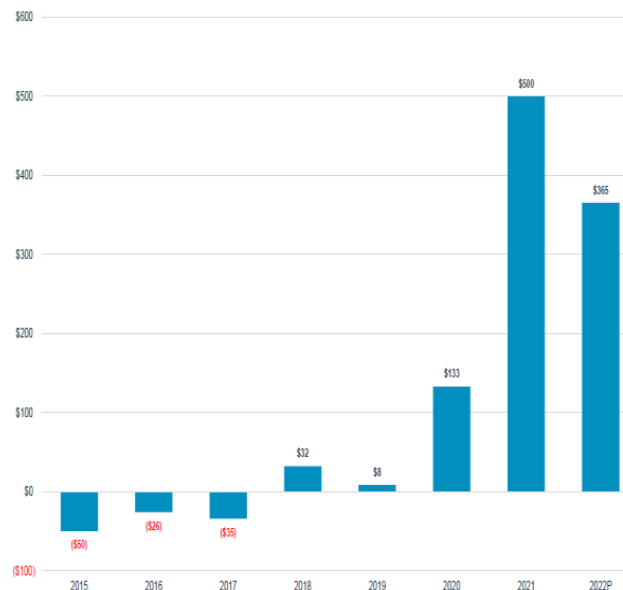
**FIGURE 1: Key Commodity Price Change**



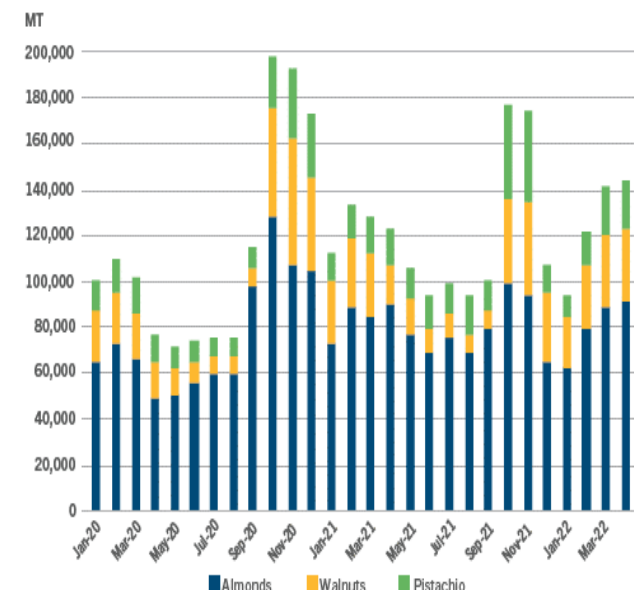
**FIGURE 2: Nonirrigated Cropland Values**



**FIGURE 3: Corn Farmer Return (per acre)**



**FIGURE 4: U.S. Tree Nut Exports**



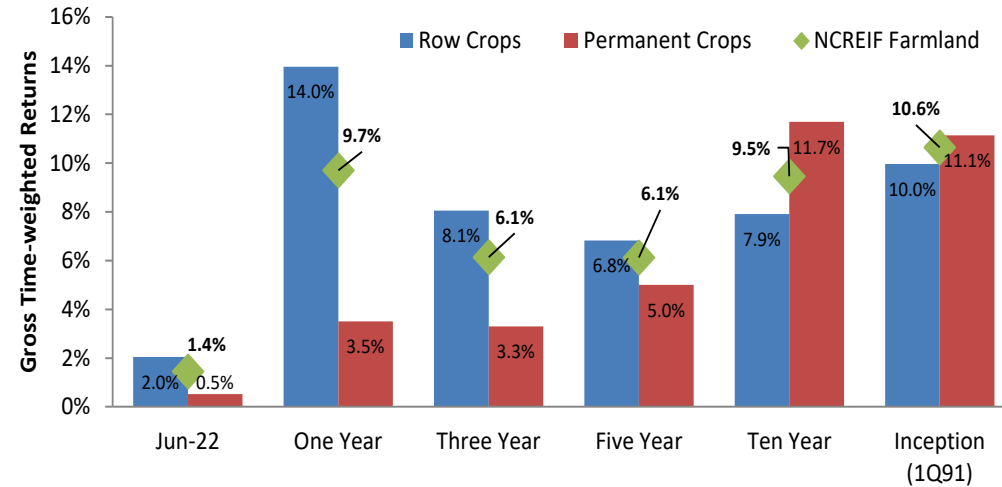


# Farmland – Second Quarter 2022 Performance Update

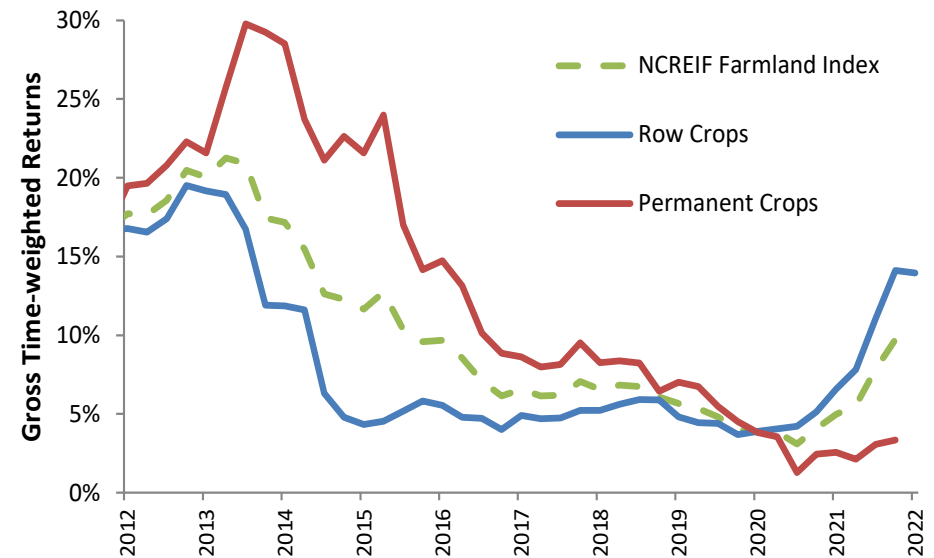
## FARMLAND PERFORMANCE

- The NCREIF Farmland Index (“NFI”) returned 1.5%, down from last quarter’s 2.6% return, and right in line with last year’s same quarter return of 1.47%. The return comprised 0.6% income and 0.9% appreciation.
- The NFI’s relative decline in quarter-over-quarter returns has been driven by a decline in row crop returns, which on an absolute basis remained strong at 2.1% (0.8% income; 1.3% appreciation) but was down 230 basis points from the prior quarter. Permanent crops returned 0.5% (0.4% income; 0.2% appreciation) during the quarter, a moderate increase over last quarter’s 0.1% return.
- Row crops have continued to outperform permanent crops for 2.5 years (10 quarters) as of 2Q22, which has been driven by strong commodity crop markets as robust supply shortages remain a key driver of inflated crop prices. The one-year return for commodity row crops (a sub-set of the row crop sub-index) delivered a 17.9%, which has been driven by strong markets across the core row crop markets of the Corn Belt and lake states.
- Within permanent crops, apples were the top performer during the quarter with a 2.0% return, although a smaller component of the permanent sub-index at only 5% (by MV). Wine grapes, the largest component (37% by MV) returned 0.9% for the quarter and 4.7% over the past 12-months. Within the NFI tree nut segment, almonds and pistachios (top 2 and 3 perm crops at ~18% each) remained mixed with pistachio markets remaining strong with an 8.5% return over the past year, while almonds remained challenged by oversupply issues and have returned -3.1% over the last year.

NCREIF Farmland Index Farm Type Returns June 2022



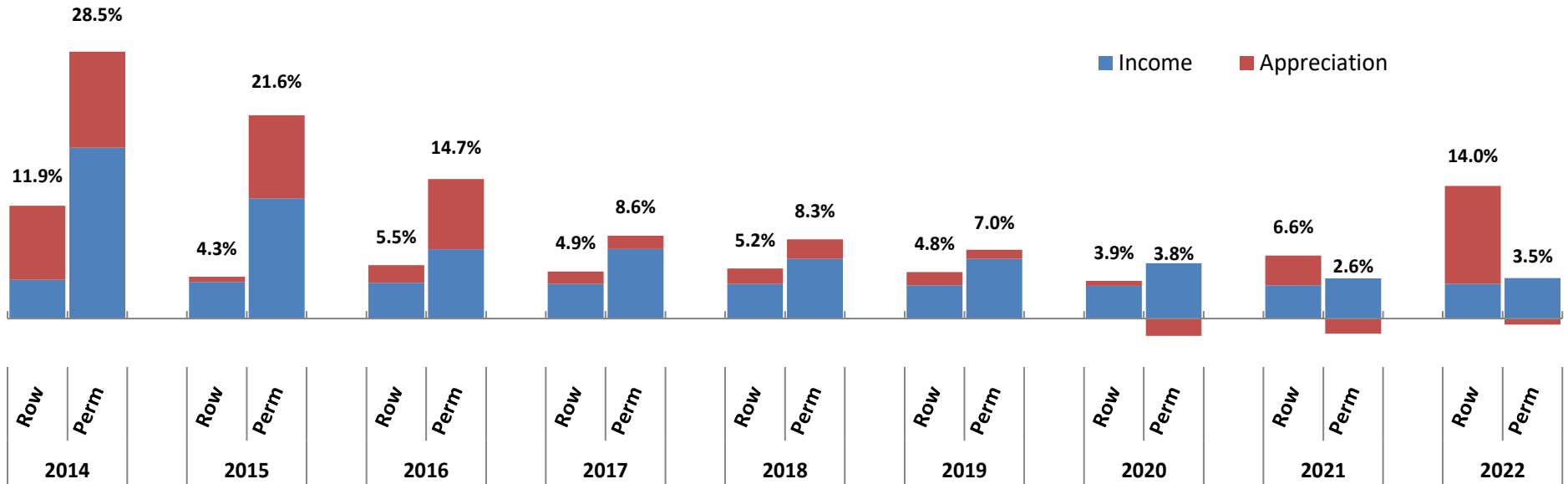
Farm Type Rolling 12-Month Returns June 2022



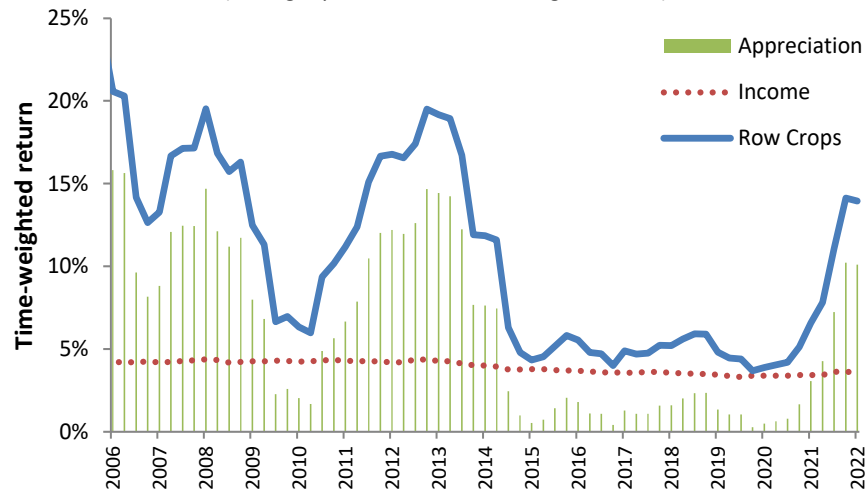
# Farmland – Second Quarter 2022 Performance Update

## FARMLAND PERFORMANCE

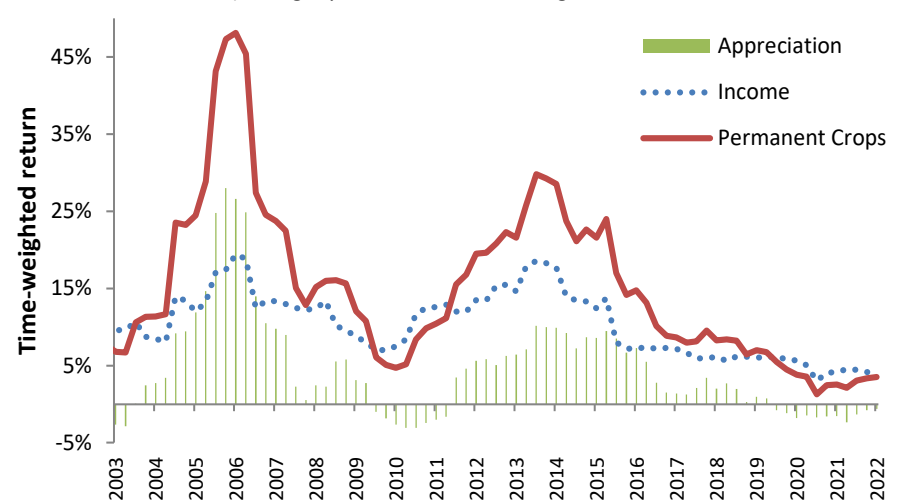
NCREIF Farm Type Performance Attribution June 14' - June 22'  
Annual Returns as of 2Q 2022



NCREIF Row Crop Performance  
(Rolling 1-year total returns through 2Q 2022)



NCREIF Permanent Crop Performance  
(Rolling 1-year total returns through 2Q 2022)



# Infrastructure – Second Quarter 2022 Market Update

## General

- Infrastructure transaction activity decreased 11%, quarter-over-quarter, following a very active end to 2021. Despite tempered transactions activity, the aggregate value of these deals increased 10% quarter-over-quarter, returning to levels last seen in 2020 and falling in line with the five-year average. In terms of fundraising, 25 funds reached their final close during Q2 2022; matching the total funds raised during the first quarter. Since Q4 2020, total funds raised on a quarterly basis have experienced a decrease of 51%. Aggregate capital raised during Q2 2022 remained strong at \$56 billion. Since the pandemic-driven lows in Q2 2020, aggregate capital raised levels have soared +267%.

## Europe

- Notable European transactions for the quarter were headlined by the €19.0 billion take-private offer, made by Blackstone Infrastructure Partners, in a consortium with its partners, Edizione and Fondazione CRT. The deal, expected to close at year-end 2022, represents the largest LBO and infrastructure transaction of all-time and is comprised of 20% of the toll road networks in Spain and France, the second largest airport in France, and the only rail link between the U.K. and continental Europe.

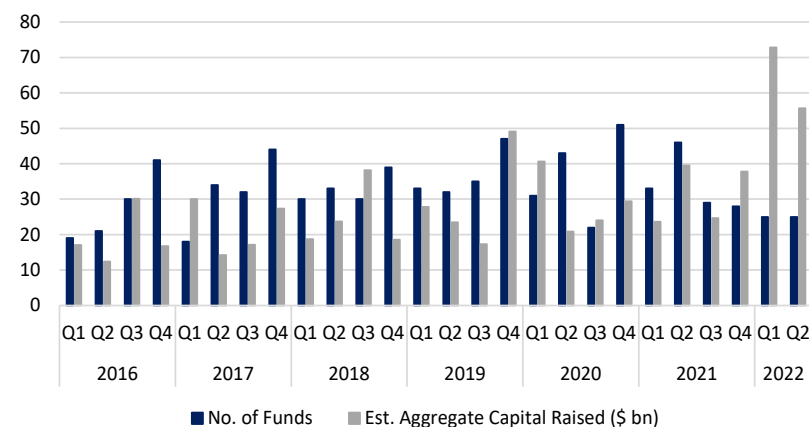
## North America

- North American transactions for the quarter were headlined by a \$11.0 billion take-private deal, made by IFM Global Infrastructure Fund, in a consortium with DigitalBridge Investment Management. In May 2022, the consortium acquired all outstanding shares of Switch, Inc. (“Switch”, NYSE: SWCH), a leading provider of North American data center communications network solutions. This marks IFM’s first data center investment in its Global Infrastructure Fund.

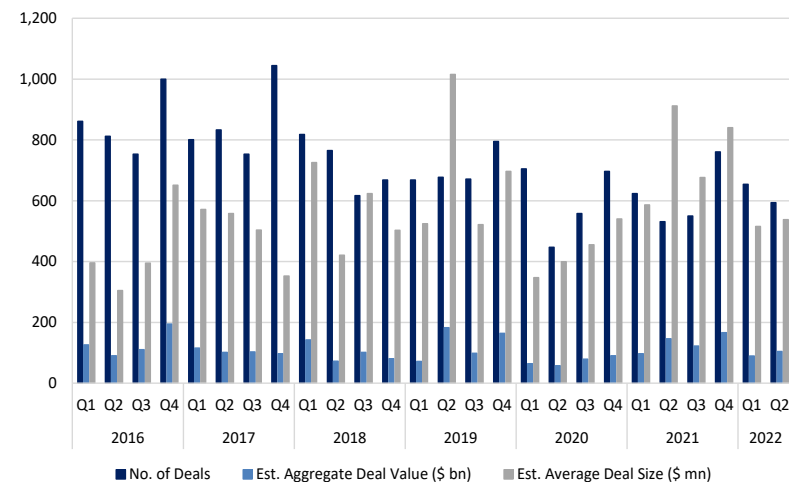
## Asia Pacific

- In 2Q22, specific to the Asia Pacific region, it is worth highlighting Macquarie Asset Management’s \$3.6 billion total sale of Axicom, Australia’s largest independent mobile towers owner, to Singtel and Australia’s largest pension fund, AustralianSuper.

Infrastructure Fundraising



Infrastructure Deals Completed

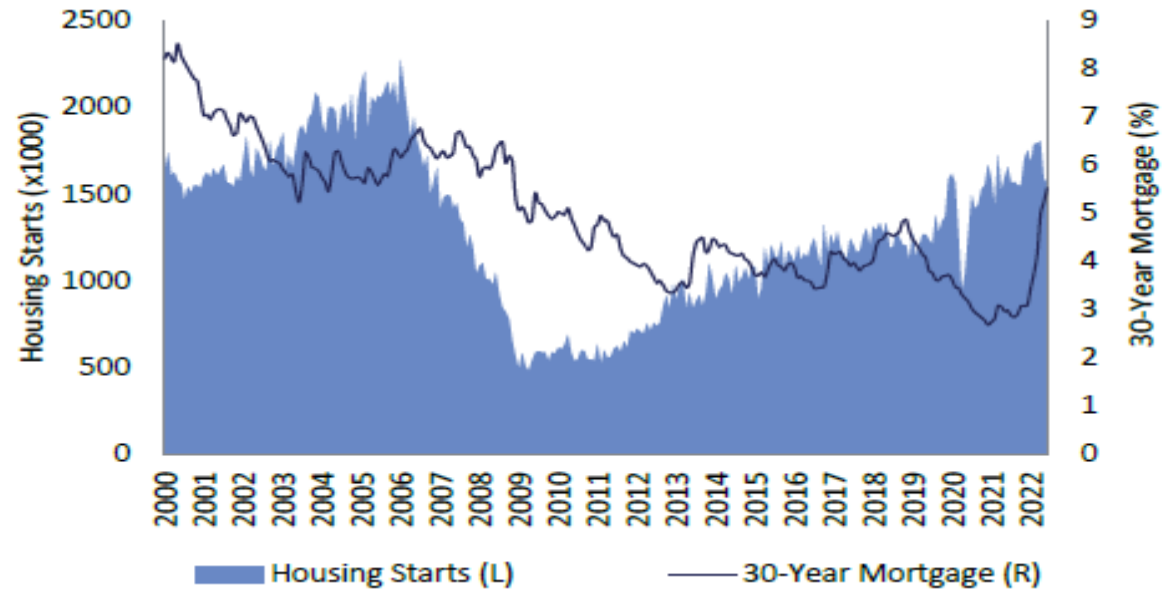


# Timberland – Second Quarter 2022 Market Update

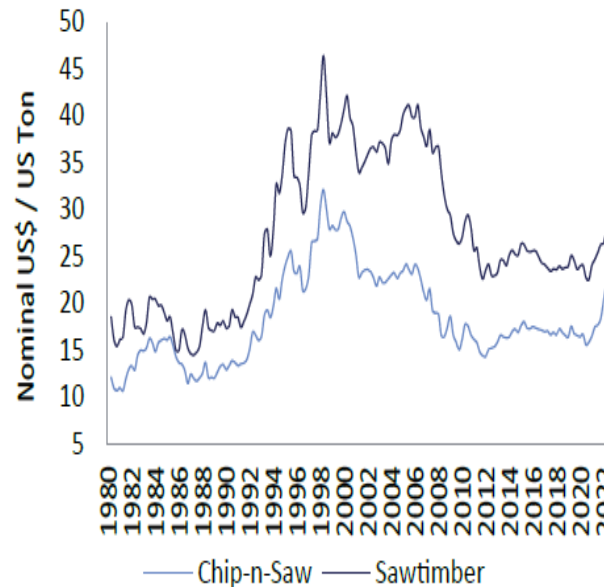
## TIMBERLAND MARKETS

- Global timber and forestry markets began to exhibit some signs of softening with as a slowdown in housing, economic uncertainty and rising inflation had varying impacts.
- After several quarters of high construction and sales activity, U.S. housing starts declined 13.1% from last quarter (Fig. 1) with rising interest rates and overall declining home affordability levels.
- Prices in the US South experienced slight declines driven by a mix of slowing demand for solid wood and increasing supply due to favorable harvest conditions; however, prices remain near 10-year high as the “supply-overhang” continued to drain faster throughout the South. (Fig. 2)
- Markets in the Pacific Northwest remained strong with general increases in log prices driven by strong domestic demand for wood products along with sawmill capacity increases. (Fig. 3)
- Brazil and Oceania both experienced strong markets during the quarter, with general increases in timberland prices.

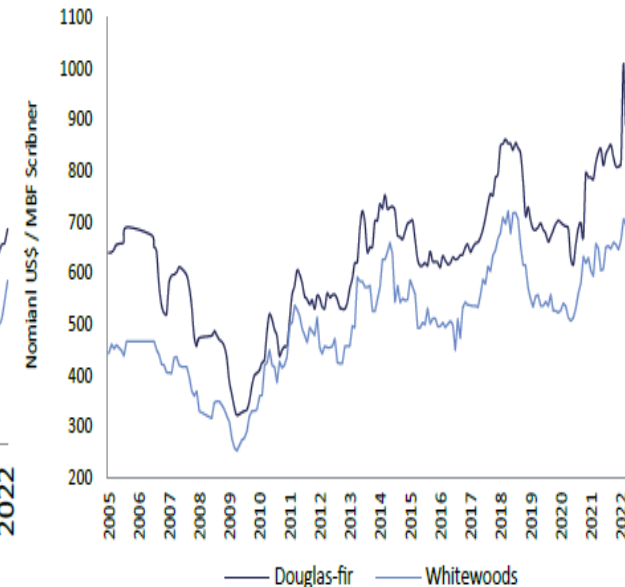
**FIGURE 1: U.S. Annual Housing Starts (SAAR) & 30-Year Mortgage Rates**



**FIGURE 2: U.S. South Timber Prices**



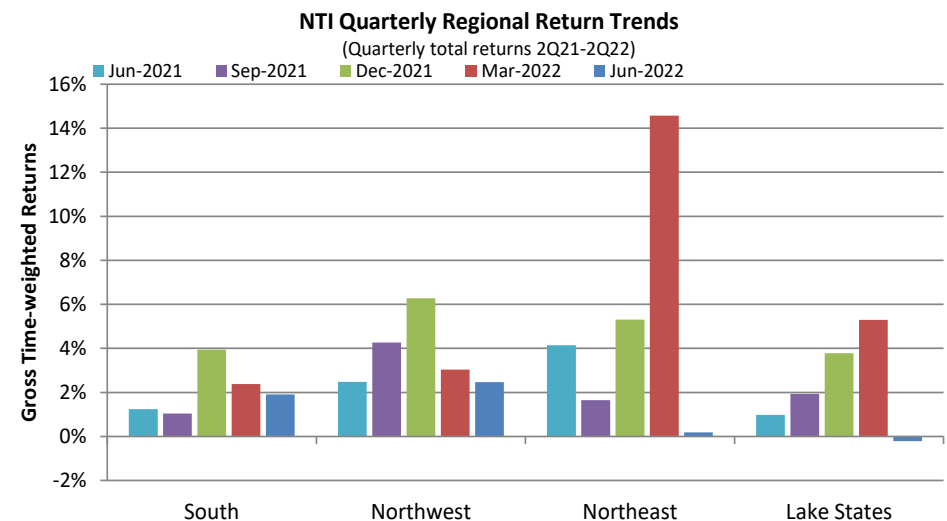
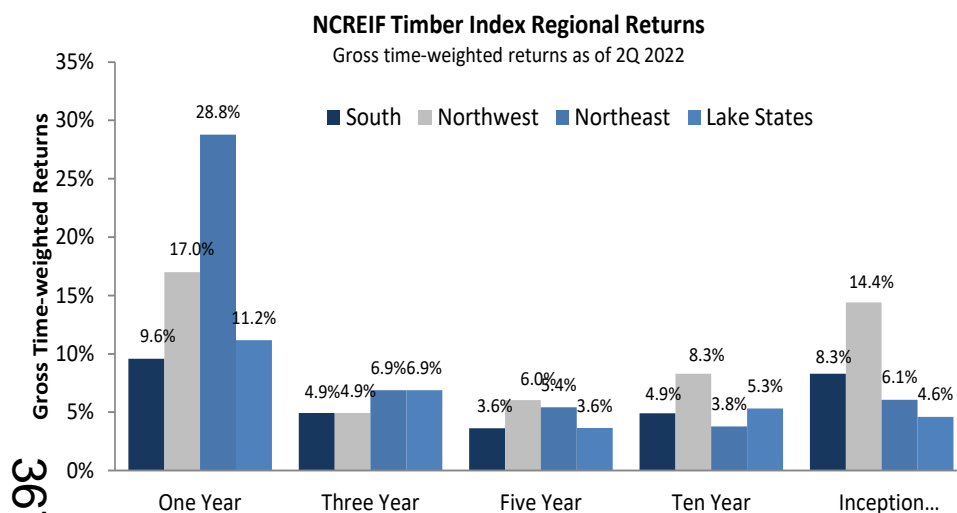
**FIGURE 3: U.S. PNW Timber Prices**



# Timberland – Second Quarter 2022 Performance Update

## TIMBERLAND PERFORMANCE

- The NCREIF Timberland Index (“NTI”) returned 1.9% for the quarter, a decrease from last quarter’s 3.2% return and coming off two top returning consecutive quarters (ie, 1Q22–3.2% / 4Q21–4.6%) over the past five years; the return was comprised of 0.8% income and 1.1% appreciation. The NTI’s trailing twelve-month return of 12.0% was the highest 12-month return since 2008; it was driven by a strong appreciation return of 8.4% and income of 3.4%.
- The U.S. South and Pacific Northwest, the NTI’s two largest regions by MV (c. 80%) – had quarterly returns of 1.9% and 2.5%, respectively, both declining slightly relative to last quarter’s corresponding returns of 2.4% and 3.0%. The South’s return was comprised of 0.8% income and 1.1% appreciation, and the Northwest was comprised of 1.1% income and 1.4% appreciation.
- Over the trailing 12-month period, the Northeast was the top performing region delivering a 22.9% total return, which was driven predominantly by record appreciation of 19.1%, with an income return of 3.3%. The Northwest returned 17.0% over the same time period, followed by the Lake States with an 11.2% return, and finally the South generating a 9.6% return over the last 12-months. Strong NTI performance has been driven by a surge in demand for wood products post-pandemic, which has been exacerbated by global logistics issues and supply shortages; however, the market has begun to cool as the US entered a recession during 2Q22, which has lowered discretionary spending - a large amount of which is used for housing-related purposes (remodeling, etc.) – coupled with rising interest rates and lower home affordability.



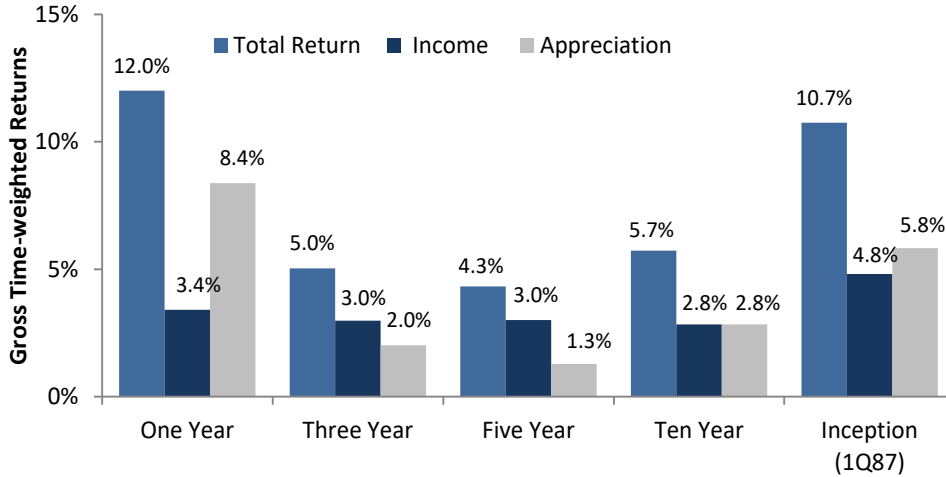
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# Timberland – Second Quarter 2022 Performance Update

## TIMBERLAND PERFORMANCE

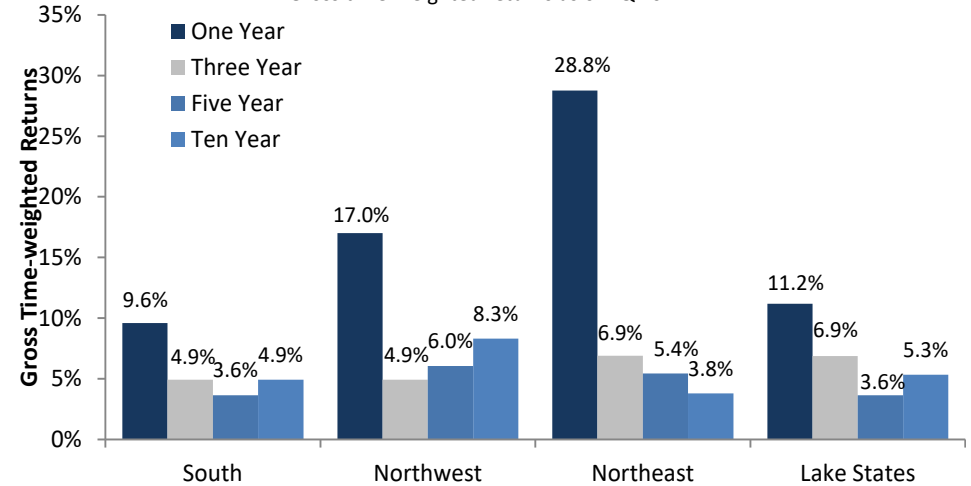
**NCREIF Timber Index Returns**

Gross time-weighted returns as of 2Q 2022



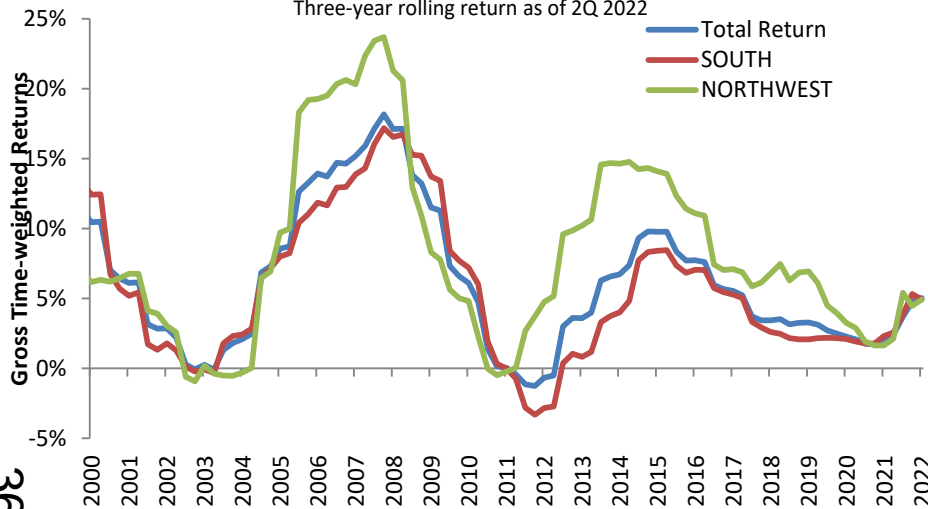
**NCREIF Timber Index Regional Returns**

Gross time-weighted returns as of 2Q 2022



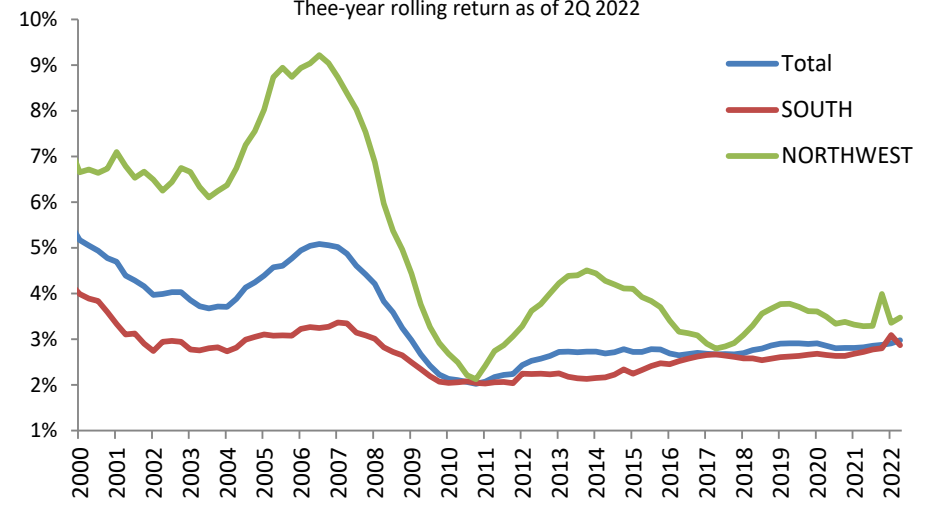
**Total Returns by Region**

Three-year rolling return as of 2Q 2022



**EBITDA Returns by Region**

Three-year rolling return as of 2Q 2022



## Agenda

Section 1	Executive Summary
<b>Section 2</b>	Market Overview
<b>Section 3</b>	<b>Real Assets Portfolio Update</b>
Section 4	Glossary

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# ATRS' Real Estate Performance: Core Portfolio

As of 06/30/2022

Funding Status (\$)	Investment Vintage Year	Commitment Amount	Funded Amount	Unfunded Commitments	Capital Returned	Market Value	Market Value (%)	Market Value + Unfunded Commitments (%)
<b>Core</b>								
Arkansas Investments	2007	142,694,200	144,624,546	0	201,609,489	76,960,693	3.1	2.4
JP Morgan Strategic Property Fund	2007	170,000,000	170,000,000	0	223,351,605	204,557,915	8.3	6.3
Metlife Commercial Mortgage Income Fund	2019	50,000,000	50,000,000	0	6,592,427	48,415,607	2.0	1.5
Prime Property Fund	2022	70,000,000	70,000,000	0	172,463	70,360,033	2.8	2.2
PRISA SA	2005	170,000,000	184,182,196	0	124,627,135	351,906,546	14.2	10.8
UBS Trumbull Property Fund	2006	170,000,000	190,587,980	0	206,759,621	171,719,574	6.9	5.3
UBS Trumbull Property Income Fund	2017	50,000,000	50,000,000	0	7,872,763	60,487,342	2.4	1.9
<b>Core</b>	<b>2005</b>	<b>822,694,200</b>	<b>859,394,723</b>	<b>0</b>	<b>770,985,503</b>	<b>984,407,710</b>	<b>39.8</b>	<b>30.2</b>

Returns (%)	Quarter				1 Year				3 Year				5 Year				10 Year				Inception		TWR Calculation Inception	Net IRR	Equity Multiple
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	TGRS	TNET			
<b>Core</b>																									
Arkansas Investments	0.0	4.2	4.2	4.2	0.0	5.5	5.5	5.5	0.0	-2.5	-2.5	-2.5	0.0	0.1	0.1	0.1	0.0	7.1	7.1	7.1	7.3	7.3	1Q08	8.1	1.9
JP Morgan Strategic Property Fund	0.7	3.9	4.7	4.4	3.4	23.9	28.0	26.8	3.6	8.0	11.8	10.8	3.7	5.8	9.7	8.8	4.3	6.4	10.9	10.0	7.5	6.6	2Q07	7.4	2.5
Metlife Commercial Mortgage Income Fund	1.3	-1.2	0.0	-0.2	5.3	-1.8	3.5	2.6	5.4	-1.1	4.2	3.4									4.2	3.4	3Q19	3.4	1.1
Prime Property Fund	0.8	2.5	3.3	2.9																	3.3	2.9	2Q22	3.1	1.0
PRISA SA	0.9	4.6	5.6	5.4	4.0	24.3	28.9	28.0	4.0	8.7	13.0	12.2	4.2	6.7	11.1	10.2	4.6	6.6	11.4	10.6	8.2	7.4	3Q05	7.4	2.6
UBS Trumbull Property Fund	0.9	3.1	4.0	3.8	3.9	19.9	24.4	23.6	4.1	3.7	7.9	7.1	4.3	1.9	6.2	5.5	4.6	3.3	8.0	7.1	6.5	5.6	2Q06	5.8	2.0
UBS Trumbull Property Income Fund	1.0	1.3	2.3	2.1	3.8	13.4	17.6	16.7	3.7	4.9	8.7	7.9	3.9	4.0	7.9	7.2					7.9	7.2	3Q17	7.1	1.4
<b>Core</b>	<b>0.8</b>	<b>3.6</b>	<b>4.4</b>	<b>4.2</b>	<b>3.6</b>	<b>19.6</b>	<b>23.7</b>	<b>22.8</b>	<b>3.6</b>	<b>5.7</b>	<b>9.4</b>	<b>8.6</b>	<b>3.7</b>	<b>4.3</b>	<b>8.0</b>	<b>7.3</b>	<b>3.9</b>	<b>5.6</b>	<b>9.7</b>	<b>9.0</b>	<b>8.6</b>	<b>7.9</b>	<b>3Q05</b>	<b>7.0</b>	<b>2.0</b>

Note: Arkansas Investments are included in Core portfolio

# ATRS' Real Estate Performance: Value-Add Portfolio

As of 06/30/2022

Funding Status (\$)	Investment Vintage Year	Commitment Amount	Funded Amount	Unfunded Commitments	Capital Returned	Market Value	Market Value (%)	Market Value + Unfunded Commitments (%)
<b>Value Added</b>								
Almanac Realty Securities IX, L.P.	2022	40,000,000	593,205	39,406,795	0	239,744	0.0	1.2
Almanac Realty Securities V, LP	2008	50,000,000	21,787,314	0	48,380,466	81,826	0.0	0.0
Almanac Realty Securities VI	2012	30,000,000	19,102,008	0	21,006,051	4,008,828	0.2	0.1
Almanac Realty Securities VII	2015	30,000,000	31,475,764	4,449,254	24,445,149	18,881,684	0.8	0.7
Almanac Realty Securities VIII	2018	30,000,000	15,626,261	15,640,323	2,861,963	16,168,472	0.7	1.0
Calmwater Real Estate Credit Fund III	2017	30,000,000	23,113,383	7,427,676	14,454,698	14,555,263	0.6	0.7
CBRE Strategic Partners U.S. Value 8	2017	25,000,000	22,826,523	2,173,477	10,377,578	23,236,549	0.9	0.8
CBRE Strategic Partners U.S. Value 9	2020	50,000,000	24,284,771	29,914,818	4,571,449	21,761,209	0.9	1.6
FPA Core Plus Fund IV	2018	30,000,000	30,000,000	0	2,824,763	35,503,306	1.4	1.1
GLP Capital Partners IV	2021	50,000,000	24,859,156	25,761,214	620,370	26,392,869	1.1	1.6
Harbert European Real Estate Fund IV	2016	25,011,918	23,920,550	1,595,219	18,763,651	10,579,546	0.4	0.4
LaSalle Income & Growth Fund VI	2013	20,000,000	19,047,619	0	22,379,425	5,065,117	0.2	0.2
LaSalle Income & Growth Fund VII	2017	20,000,000	19,571,839	1,539,268	11,938,138	16,027,563	0.6	0.5
LaSalle Income & Growth Fund VIII	2020	50,000,000	22,522,414	33,024,990	10,739,208	17,418,694	0.7	1.5
LBA Logistics Value Fund IX	2022	55,000,000	7,756,410	47,243,590	0	7,426,896	0.3	1.7
Long Wharf Real Estate Partners V	2015	30,000,000	29,828,371	0	21,660,360	19,180,957	0.8	0.6
Long Wharf Real Estate Partners VI, L.P.	2020	50,000,000	33,031,001	16,927,651	14,568,880	27,660,734	1.1	1.4
Mesa West Real Estate Income Fund V	2021	40,000,000	8,156,242	31,843,758	0	8,440,740	0.3	1.2
PGIM Real Estate Capital VII (USD Feeder) SCSp	2021	40,000,000	8,177,564	32,095,703	273,267	8,309,462	0.3	1.2
Rockwood Capital Real Estate Partners Fund IX	2012	30,000,000	27,422,960	1,692,085	32,185,259	5,212,506	0.2	0.2
Rockwood Capital Real Estate Partners Fund XI	2019	40,000,000	20,452,602	20,540,747	1,623,581	23,323,321	0.9	1.3
Walton Street Real Estate Debt Fund II, L.P.	2019	40,000,000	18,211,727	30,376,082	8,599,126	11,044,073	0.4	1.3
Westbrook Real Estate Fund IX	2013	40,000,000	46,375,912	3,603,488	48,361,088	8,262,582	0.3	0.4
Westbrook Real Estate Fund X	2016	25,000,000	24,212,096	2,016,766	21,324,570	9,140,719	0.4	0.3
<b>Value Added</b>	<b>2007</b>	<b>870,011,918</b>	<b>522,355,692</b>	<b>347,272,903</b>	<b>341,959,040</b>	<b>337,922,660</b>	<b>13.6</b>	<b>21.0</b>

## ATRS' Real Estate Performance: Value-Add Portfolio (Cont.)

### Time Weighted Returns:

Returns (%)	Quarter				1 Year				3 Year				5 Year				Inception		TWR Calculation Inception	Net IRR	Equity Multiple
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	TGRS	TNET			
<b>Value Added</b>																					
Almanac Realty Securities IX, L.P.	13.7	0.0	13.7	121.1													13.7	121.1	2Q22	-61.7	0.4
Almanac Realty Securities V, LP	-1.8	0.4	-1.4	-1.4	-7.5	1.5	-6.0	-6.0	-16.2	-1.0	-16.2	-16.6	0.7	-6.2	-3.6	-4.4	5.8	4.4	4Q09	11.9	2.2
Almanac Realty Securities VI	0.0	-5.4	-5.4	-5.7	0.6	2.6	3.2	2.0	2.9	-10.8	-7.9	-8.9	5.0	-10.3	-5.6	-6.5	5.0	3.6	1Q13	9.2	1.3
Almanac Realty Securities VII	1.6	0.6	2.3	2.0	7.4	6.2	13.9	12.7	8.1	4.1	12.4	11.2	7.8	6.3	14.4	12.9	15.0	12.2	3Q15	12.6	1.4
Almanac Realty Securities VIII	2.9	0.9	3.8	3.5	9.0	18.0	28.3	26.2	7.8	11.0	19.4	8.8					32.2	-39.1	1Q19	16.1	1.2
Calmwater Real Estate Credit Fund III	1.7	0.0	1.7	1.5	8.1	0.0	8.1	6.6	10.0	0.0	10.0	7.3					10.7	7.3	1Q18	7.3	1.3
CBRE Strategic Partners U.S. Value 8	1.5	-1.7	-0.2	0.1	7.2	13.9	21.9	18.4	7.2	5.1	12.6	11.1	6.8	6.6	13.7	11.9	13.4	11.5	2Q17	11.0	1.5
CBRE Strategic Partners U.S. Value 9	0.5	3.9	4.4	3.6	3.0	23.6	27.2	21.7									19.6	13.9	4Q20	7.8	1.1
FPA Core Plus Fund IV	1.2	4.9	6.1	5.9	4.4	15.5	20.4	19.8	4.3	6.5	11.0	10.3					9.2	8.5	4Q18	10.0	1.3
GLP Capital Partners IV	0.7	1.2	1.9	1.9													22.0	20.9	4Q21	11.2	1.1
Harbert European Real Estate Fund IV	4.0	-9.6	-5.6	-5.9	20.5	-26.6	-10.0	-11.1	12.9	-14.6	-2.6	-1.7	8.5	-4.8	3.9	3.0	4.8	3.6	3Q16	4.9	1.2
LaSalle Income & Growth Fund VI	1.2	-10.4	-9.2	-7.0	4.2	-10.4	-6.5	-4.5	3.9	-10.1	-6.5	-4.7	4.0	-5.9	-2.1	-1.3	5.9	5.3	4Q13	10.0	1.4
LaSalle Income & Growth Fund VII	0.2	-2.2	-2.0	-1.5	1.0	35.6	36.7	31.5	0.3	12.2	12.6	10.7	1.7	11.2	13.0	10.8	13.0	10.8	3Q17	11.5	1.4
LaSalle Income & Growth Fund VIII	-0.7	2.4	1.7	0.6	-2.2	59.0	55.8	37.2									38.6	26.1	2Q20	23.0	1.3
LBA Logistics Value Fund IX	-0.1	0.0	-0.2	-2.6													-0.2	-2.6	2Q22	-5.8	1.0
Long Wharf Real Estate Partners V	0.4	-0.2	0.3	1.0	1.9	16.2	18.3	14.9	1.6	7.5	9.1	8.6	1.8	10.9	12.8	10.7	11.9	8.6	1Q16	9.3	1.4
Long Wharf Real Estate Partners VI, L.P.	0.3	0.2	0.6	-0.1	4.6	63.8	70.3	49.5									61.0	40.4	2Q20	33.7	1.3
Mesa West Real Estate Income Fund V	2.6	6.0	8.6	6.0													15.7	8.5	1Q22	6.8	1.0
PGIM Real Estate Capital VII (USD Feeder) SCSp	0.0	1.3	1.3	1.3	3.3	8.7	12.3	12.1									12.9	11.9	2Q21	8.9	1.0
Rockwood Capital Real Estate Partners Fund IX	0.5	-1.5	-1.0	-1.7	4.6	3.7	8.3	5.7	3.4	-8.9	-5.8	-8.5	3.2	-2.5	0.6	-2.2	9.5	6.4	4Q13	10.5	1.4
Rockwood Capital Real Estate Partners Fund XI	0.5	1.6	2.1	1.5	3.8	15.1	19.3	16.5									-49.1	1.8	1Q20	16.8	1.2
Walton Street Real Estate Debt Fund II, L.P.	2.4	0.0	2.4	1.9	10.3	-1.6	8.6	6.9	10.8	-1.7	9.0	7.2					9.0	7.2	3Q19	7.3	1.1
Westbrook Real Estate Fund IX	-0.1	0.8	0.7	0.4	-0.7	7.3	6.6	5.3	-0.7	-7.2	-7.8	-9.0	-0.5	-0.6	-1.2	-2.4	6.4	3.7	3Q13	7.4	1.2
Westbrook Real Estate Fund X	0.8	1.4	2.1	1.8	2.4	11.6	14.2	12.8	1.0	10.3	11.4	9.8	-0.2	14.2	14.0	11.3	15.8	10.1	4Q16	11.1	1.3
<b>Value Added</b>	<b>1.0</b>	<b>0.5</b>	<b>1.5</b>	<b>1.2</b>	<b>4.8</b>	<b>15.0</b>	<b>20.4</b>	<b>16.1</b>	<b>4.9</b>	<b>5.3</b>	<b>10.4</b>	<b>7.7</b>	<b>4.8</b>	<b>6.4</b>	<b>11.5</b>	<b>8.7</b>	<b>7.7</b>	<b>5.2</b>	<b>2Q07</b>	<b>7.6</b>	<b>1.3</b>

# ATRS' Real Estate Performance: Opportunistic Portfolio

As of 06/30/2022

Funding Status (\$)	Investment Vintage Year	Commitment Amount	Funded Amount	Unfunded Commitments	Capital Returned	Market Value	Market Value (%)	Market Value + Unfunded Commitments (%)
<b>Opportunistic</b>								
Blackstone Real Estate Partners Europe VI (EURO Vehicle)	2019	49,096,184	24,395,149	31,440,656	13,665,444	18,347,628	0.7	1.5
Blackstone Real Estate Partners VII	2012	50,000,000	64,871,402	5,565,591	97,571,064	12,854,592	0.5	0.6
Carlyle Realty Partners IX		35,000,000	0	35,000,000	0	-261,973	0.0	1.1
Carlyle Realty Partners VII	2014	30,000,000	28,912,864	14,406,050	36,157,130	8,123,343	0.3	0.7
Carlyle Realty Partners VIII	2018	25,000,000	18,665,962	16,718,949	14,888,074	14,787,638	0.6	1.0
CBRE Strategic Partners U.S. Opportunity 5	2008	50,000,000	48,619,340	1,380,660	67,502,477	573,291	0.0	0.1
Cerberus Institutional Real Estate Partners III	2013	30,000,000	37,777,980	7,307,395	49,328,767	10,321,574	0.4	0.5
Heitman European Property Partners IV	2008	26,677,345	34,546,944	0	26,836,893	428,708	0.0	0.0
Kayne Anderson Real Estate Partners V	2018	25,000,000	24,000,000	2,184,595	14,401,637	20,376,516	0.8	0.7
Kayne Anderson Real Estate Partners VI	2021	50,000,000	10,500,000	39,500,000	0	10,293,174	0.4	1.5
Landmark Real Estate Fund VI	2010	40,000,000	35,090,608	4,909,392	52,753,910	904,036	0.0	0.2
Landmark Real Estate Fund VIII	2017	25,000,000	15,053,311	13,696,689	9,198,312	12,216,408	0.5	0.8
LaSalle Asia Opportunity Fund IV	2014	30,000,000	28,823,325	2,013,173	39,655,278	1,753,951	0.1	0.1
LaSalle Asia Opportunity V	2016	30,000,000	24,914,799	12,471,815	19,401,209	9,842,733	0.4	0.7
LaSalle Asia Opportunity VI	2022	50,000,000	0	50,000,000	0	-452,596	0.0	1.5
Lone Star Real Estate Fund IV	2015	24,260,817	19,445,848	4,814,970	19,779,413	6,843,020	0.3	0.4
Metropolitan Real Estate Partners Co-Investments Fund, L.P.	2015	20,000,000	19,132,876	867,124	17,632,804	9,735,157	0.4	0.3
O'Connor North American Property Partners II, L.P.	2008	50,000,000	58,349,078	5,000,000	44,505,783	4,559,474	0.2	0.3
Torchlight Debt Fund VII, LP	2020	50,000,000	15,000,000	35,000,000	0	16,146,539	0.7	1.6
Torchlight Debt Opportunity Fund IV	2013	30,000,000	29,369,211	0	37,982,059	4,466,060	0.2	0.1
Torchlight Debt Opportunity Fund V	2015	25,000,000	20,001,024	5,000,000	23,566,718	2,788,313	0.1	0.2
Torchlight Debt Opportunity Fund VI	2018	25,000,000	22,479,558	2,500,000	6,254,498	21,945,144	0.9	0.7
<b>Opportunistic</b>	<b>1998</b>	<b>770,034,346</b>	<b>579,949,279</b>	<b>289,777,058</b>	<b>591,081,470</b>	<b>186,592,729</b>	<b>7.5</b>	<b>14.6</b>



# ATRS' Real Estate Performance: Opportunistic Portfolio (Cont.)

## Time Weighted Returns:

Returns (%)	Quarter				1 Year				3 Year				5 Year				Inception		TWR Calculation Inception	Net IRR	Equity Multiple
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	TGRS	TNET			
<b>Opportunistic</b>																					
Blackstone Real Estate Partners Europe VI (EURO Vehicle)	-0.1	-5.6	-5.7	-6.4	0.3	35.4	35.7	22.6									19.8	9.9	1Q20	21.1	1.3
Blackstone Real Estate Partners VII	0.2	1.1	1.3	0.8	6.0	38.9	47.1	35.8	3.4	5.8	9.4	6.8	3.4	7.9	11.6	8.4	18.4	13.1	2Q12	15.4	1.7
Carlyle Realty Partners IX																			4Q22	N/M	N/M
Carlyle Realty Partners VII	3.6	-4.9	-1.4	-0.7	18.3	-1.8	16.5	15.6	22.6	-8.2	13.5	14.1	20.5	-3.5	16.9	15.7	17.6	13.2	1Q15	14.7	1.5
Carlyle Realty Partners VIII	6.5	2.7	9.3	8.2	45.5	46.4	108.2	88.0	23.4	30.9	59.5	43.7					48.4	31.3	4Q18	35.7	1.6
CBRE Strategic Partners U.S. Opportunity 5	-1.0	0.0	-1.0	-1.0	-1.8	39.2	36.7	36.7	-1.4	20.1	18.4	18.4	-0.6	15.2	14.5	14.1	-7.2	-8.8	4Q08	5.4	1.4
Cerberus Institutional Real Estate Partners III	-0.1	-26.7	-26.8	-21.5	-0.8	45.5	44.5	37.3	-0.5	25.2	24.6	19.1	-0.2	18.7	18.5	14.7	19.1	14.3	4Q13	13.4	1.6
Heitman European Property Partners IV	4.9	-6.0	-1.1	-1.1	4.1	-11.8	-7.9	-7.9	0.7	1.3	2.1	1.7	2.6	-15.5	-13.1	-14.0	-4.6	-5.9	1Q11	-3.8	0.8
Kayne Anderson Real Estate Partners V	-0.1	5.4	5.3	3.9	0.2	29.4	31.2	22.9	3.3	23.3	27.6	20.3					21.9	15.0	3Q18	15.5	1.4
Kayne Anderson Real Estate Partners VI	1.5	4.6	6.1	4.3	11.7	11.7	24.4	-4.5									24.4	-4.5	3Q21	-3.8	1.0
Landmark Real Estate Fund VI	-62.5	67.8	5.3	5.3	-93.9	120.3	-42.5	-43.2	-63.7	26.0	-24.0	-24.9	-41.7	4.5	-16.4	-17.5	18.4	16.0	3Q10	18.5	1.5
Landmark Real Estate Fund VIII	8.1	-4.3	3.8	2.9	29.9	23.9	58.4	48.0	17.4	7.4	25.4	19.3	16.8	10.9	30.5	22.0	30.5	22.0	3Q17	19.8	1.4
LaSalle Asia Opportunity Fund IV	2.7	-4.7	-1.9	-2.1	2.5	-3.6	-1.0	-1.6	-10.4	4.3	-4.4	-6.7	-5.8	8.7	5.2	-3.0	16.5	9.3	4Q14	32.3	1.4
LaSalle Asia Opportunity V	-4.5	0.3	-4.3	-5.0	-7.2	5.6	-1.9	-4.8	-4.7	11.8	7.4	4.3	-4.0	17.7	14.3	8.7	13.2	7.3	4Q16	10.3	1.2
LaSalle Asia Opportunity VI	39.0	2.5	41.5	130.2													41.5	130.2	2Q22	N/M	N/M
Lone Star Real Estate Fund IV	-1.4	0.6	-0.8	0.1	-6.6	7.3	0.4	2.6	0.7	-3.8	-3.0	-3.5	6.1	-0.9	5.4	4.1	8.7	7.2	4Q15	11.8	1.4
Metropolitan Real Estate Partners Co-Investments Fund, L.P.	0.3	3.1	3.4	2.8	2.3	18.5	21.0	17.8	1.4	2.8	4.3	3.0	1.4	8.9	10.5	8.6	9.3	7.2	1Q16	10.8	1.4
O'Connor North American Property Partners II, L.P.	-0.1	0.0	-0.1	-0.2	-0.2	4.1	3.9	3.3	0.2	-5.3	-5.1	-5.8	0.1	-7.6	-7.5	-8.3	-5.0	-7.6	2Q08	-3.0	0.8
Torchlight Debt Fund VII, LP	1.6	3.4	4.9	4.1	8.5	2.9	11.7	7.2									14.8	7.9	4Q20	5.9	1.1
Torchlight Debt Opportunity Fund IV	0.5	-3.2	-2.7	-0.8	1.7	4.5	6.3	5.4	2.6	-5.9	-3.4	0.6	4.8	-2.0	2.7	4.1	7.5	7.3	4Q13	9.6	1.4
Torchlight Debt Opportunity Fund V	-0.2	-2.3	-2.5	-0.8	3.1	12.8	16.2	10.4	4.7	3.6	8.5	7.2	7.0	4.2	11.4	8.8	14.6	9.2	3Q15	10.5	1.3
Torchlight Debt Opportunity Fund VI	1.2	1.5	2.7	2.1	6.3	17.0	24.1	18.8	7.9	3.4	11.6	8.2					15.7	8.0	2Q18	9.0	1.3
<b>Opportunistic</b>	<b>0.8</b>	<b>-1.1</b>	<b>-0.3</b>	<b>-0.6</b>	<b>5.4</b>	<b>23.6</b>	<b>29.7</b>	<b>22.1</b>	<b>4.8</b>	<b>9.3</b>	<b>14.4</b>	<b>10.3</b>	<b>5.4</b>	<b>7.6</b>	<b>13.3</b>	<b>9.3</b>	<b>9.9</b>	<b>7.4</b>	<b>1Q98</b>	<b>10.3</b>	<b>1.4</b>

# ATRS' Timberland, Agriculture, and Infrastructure Performance

As of 06/30/2022

Funding Status (\$)	Investment Vintage Year	Commitment Amount	Funded Amount	Unfunded Commitments	Capital Returned	Market Value	Market Value (%)	Market Value + Unfunded Commitments (%)
<b>Agriculture</b>								
Agrivest Farmland Fund	2015	50,000,000	50,000,000	0	8,579,174	60,162,124	2.4	1.8
US Agriculture, LLC	2011	125,000,000	160,939,470	2,134,323	52,529,476	186,062,659	7.5	5.8
<b>Agriculture</b>	<b>2011</b>	<b>175,000,000</b>	<b>210,939,470</b>	<b>2,134,323</b>	<b>61,108,650</b>	<b>246,224,783</b>	<b>9.9</b>	<b>7.6</b>
<b>Timber</b>								
BTG Pactual Open Ended Core U.S. Timberland Fund, LP	2019	182,930,629	182,930,628	0	10,142,217	220,642,441	8.9	6.8
BTG Timber Separate Account	1998	133,069,371	156,893,281	0	324,750,000	115,280,635	4.7	3.5
<b>Timber</b>	<b>1998</b>	<b>316,000,000</b>	<b>339,823,909</b>	<b>0</b>	<b>334,892,217</b>	<b>335,923,076</b>	<b>13.6</b>	<b>10.3</b>

Funding Status (\$)	Investment Vintage Year	Commitment Amount	Funded Amount	Unfunded Commitments	Capital Returned	Market Value	Market Value (%)	Market Value + Unfunded Commitments (%)
<b>Infrastructure – Core</b>								
AxInfra NA II LP	2021	50,000,000	50,743,452	0	2,479,237	53,820,252	2.2	1.6
DIF Infrastructure V	2018	47,762,784	37,737,737	11,024,119	4,911,280	41,660,373	1.7	1.6
IFM Global Infrastructure	2018	50,000,000	50,000,000	0	5,477,775	67,599,296	2.7	2.1
KKR Diversified Core Infrastructure Fund	2022	75,000,000	19,990,442	55,009,558	103,204	20,031,247	0.8	2.3
Macquarie Infrastructure Partners III	2013	50,000,000	50,452,584	5,826,663	46,043,669	48,067,023	1.9	1.7
Macquarie Infrastructure Partners V	2020	50,000,000	33,489,876	16,599,190	89,067	40,125,132	1.6	1.7
<b>Infrastructure - Core</b>	<b>2015</b>	<b>322,762,784</b>	<b>242,414,091</b>	<b>88,459,531</b>	<b>59,104,231</b>	<b>271,303,324</b>	<b>11.0</b>	<b>11.0</b>
<b>Infrastructure - Non-Core</b>								
Antin Infrastructure Partners Fund II	2014	47,696,920	35,953,565	4,769,892	65,524,367	5,349,238	0.2	0.3
Global Energy & Power Infrastructure Fund II	2014	50,000,000	54,891,434	1,203,299	52,257,576	19,560,180	0.8	0.6
Global Infrastructure Partners III	2016	50,000,000	49,565,896	6,422,898	14,830,391	57,005,845	2.3	1.9
ISQ Global Infrastructure Fund III	2021	50,000,000	3,933,526	46,066,474	0	3,194,878	0.1	1.5
KKR Global Infrastructure Investors II	2014	50,000,000	54,942,186	2,024,764	66,747,763	28,472,636	1.1	0.9
<b>Infrastructure - Non-Core</b>	<b>2014</b>	<b>247,696,920</b>	<b>199,286,607</b>	<b>60,487,327</b>	<b>199,360,097</b>	<b>113,582,777</b>	<b>4.6</b>	<b>5.3</b>
<b>Infrastructure</b>	<b>2014</b>	<b>570,459,704</b>	<b>441,700,698</b>	<b>148,946,858</b>	<b>258,464,328</b>	<b>384,886,100</b>	<b>15.5</b>	<b>16.4</b>





## Portfolio Performance Detail: By Vintage Year

As of 06/30/2022

Investment Vintage Year	Commitment Amount	Funded Amount	Unfunded Commitments	Capital Returned	Market Value	Market Value (%)	Market Value + Unfunded Commitments (%)
1997	75,000,000	80,737,536	0	120,795,230	0	0.0	0.0
1998	233,069,371	269,755,930	0	472,689,777	115,280,635	4.7	3.5
1999	178,794,401	189,842,518	0	316,052,650	0	0.0	0.0
2000	209,242,960	228,396,220	0	289,418,462	355,396	0.0	0.0
2005	170,000,000	184,182,196	0	124,627,135	351,906,546	14.2	10.8
2006	170,000,000	190,587,980	0	206,759,621	171,719,574	6.9	5.3
2007	417,694,200	418,942,712	0	537,886,804	281,518,608	11.4	8.6
2008	246,677,345	229,747,453	9,604,568	277,130,583	5,643,300	0.2	0.4
2010	40,000,000	35,090,608	4,909,392	52,753,910	904,036	0.0	0.2
2011	125,000,000	160,939,470	2,134,323	52,529,476	186,062,659	7.5	5.8
2012	110,000,000	111,396,370	7,257,675	150,762,374	22,075,926	0.9	0.9
2013	170,000,000	183,023,306	16,737,546	204,095,009	76,182,356	3.1	2.8
2014	207,696,920	203,523,374	24,417,178	260,342,114	63,259,347	2.6	2.7
2015	179,260,817	169,883,882	15,131,348	115,663,618	117,591,255	4.7	4.1
2016	130,011,918	122,613,341	22,506,698	74,319,821	86,568,843	3.5	3.3
2017	150,000,000	130,565,056	24,837,110	53,841,489	126,523,125	5.1	4.6
2018	232,762,784	198,509,518	48,067,986	51,619,990	218,040,745	8.8	8.2
2019	362,026,813	295,990,106	82,357,485	40,622,794	321,773,070	13.0	12.4
2020	250,000,000	128,328,062	131,466,649	29,968,604	123,112,307	5.0	7.8
2021	280,000,000	106,369,940	175,267,149	3,372,874	110,451,375	4.5	8.8
2022	325,000,000	98,340,057	226,659,943	275,667	97,343,352	3.9	9.9
<b>Total Portfolio (Including Current &amp; Historical Activity)</b>							
	<b>4,262,237,529</b>	<b>3,736,765,635</b>	<b>791,355,050</b>	<b>3,435,528,002</b>	<b>2,476,312,455</b>	<b>100.0</b>	<b>100.0</b>



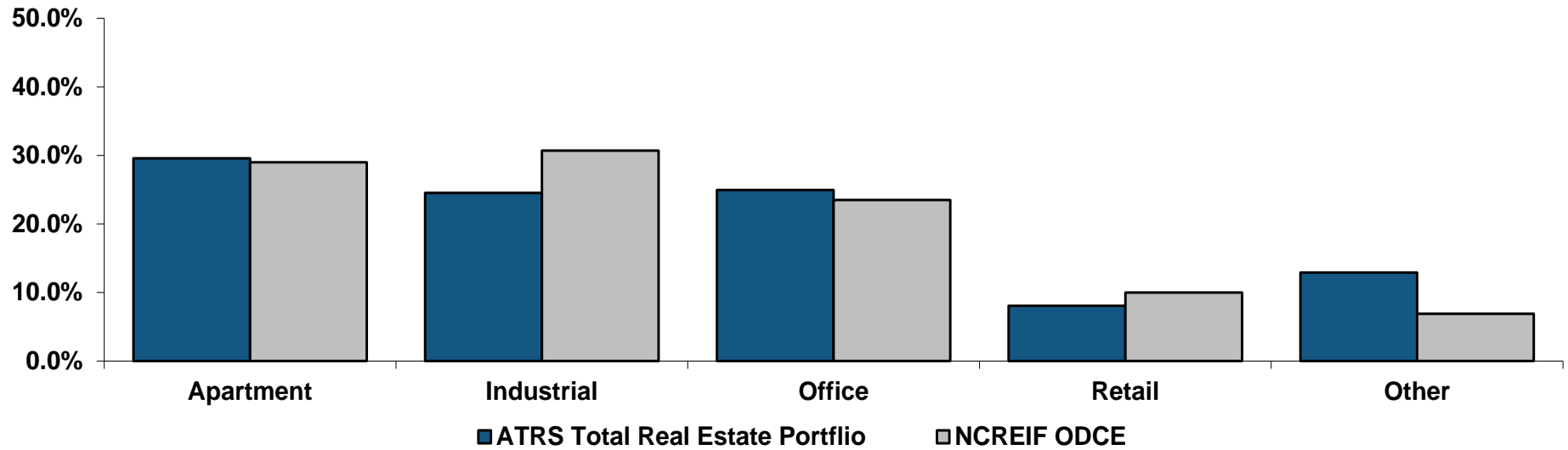
## Portfolio Performance Detail: By Vintage Year (Cont.)

### Time Weighted Returns:

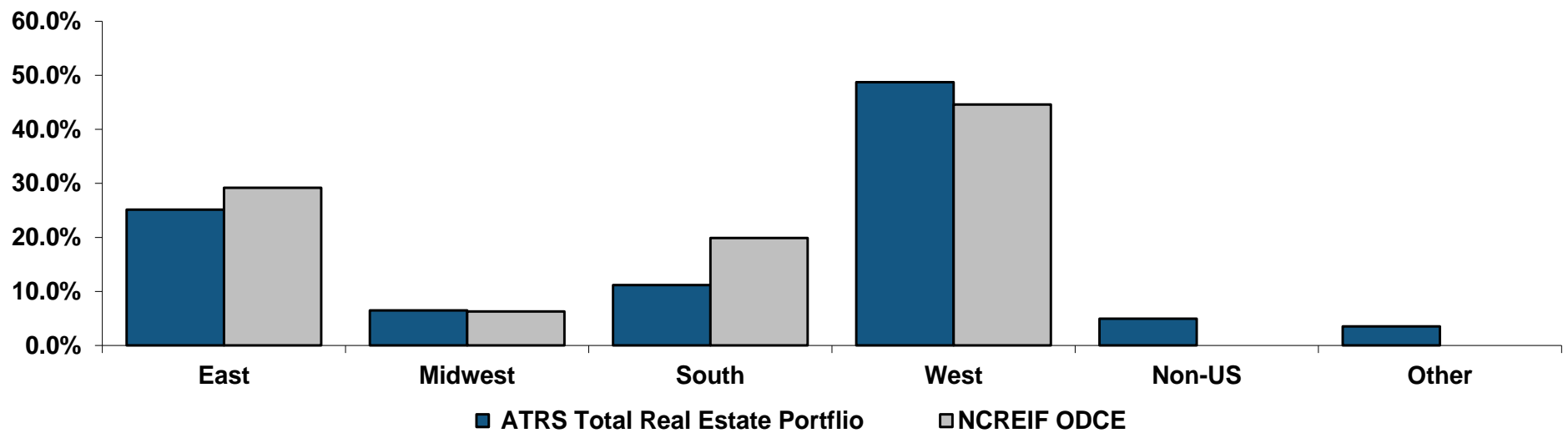
Investment Vintage Year	Quarter				1 Year				3 Year				5 Year				Inception		TWR Calculation Inception	Net IRR	Equity Multiple
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	TGRS	TNET			
1997																	3.8	3.2	1Q98	13.4	1.5
1998	1.9	3.0	4.9	4.8	5.2	8.4	13.8	13.0	18.0	-18.5	7.1	6.4	11.8	-10.8	6.4	5.6	7.7	6.7	2Q98	5.6	2.2
1999																			4Q99	15.9	1.7
2000													-5.8	-5.8	-5.8		2.4	1.5	4Q00	8.5	1.3
2005	0.9	4.6	5.6	5.4	4.0	24.3	28.9	28.0	4.0	8.7	13.0	12.2	4.2	6.7	11.1	10.2	8.2	7.4	3Q05	7.4	2.6
2006	0.9	3.1	4.0	3.8	3.9	19.9	24.4	23.6	4.1	3.7	7.9	7.1	4.3	1.9	6.2	5.5	6.5	5.6	2Q06	5.8	2.0
2007	0.5	4.0	4.6	4.3	2.6	19.7	22.7	21.8	2.7	5.4	8.2	7.5	2.7	4.4	7.2	6.6	7.8	7.1	2Q07	6.5	2.0
2008	0.1	-0.3	-0.2	-0.3	-0.2	4.2	4.0	3.5	-0.2	1.5	1.3	0.9	1.4	-3.2	-1.8	-2.5	-1.0	-3.8	2Q08	3.9	1.2
2010	-62.5	67.8	5.3	5.3	-93.9	120.3	-42.5	-43.2	-63.7	26.0	-24.0	-24.9	-41.7	4.5	-16.4	-17.5	18.4	16.0	3Q10	18.5	1.5
2011	1.5	2.9	4.4	4.1	2.9	14.5	17.7	16.4	3.5	6.0	9.6	8.4	3.6	3.8	7.5	6.3	7.8	6.5	3Q11	6.6	1.5
2012	0.3	-0.3	0.0	-0.5	5.1	27.1	33.4	25.3	3.4	0.5	4.0	1.6	3.7	3.1	6.9	4.2	15.6	11.0	2Q12	13.5	1.6
2013	4.2	-4.1	0.2	0.1	5.2	20.9	27.3	21.1	2.1	15.6	18.1	13.4	2.1	14.2	16.6	12.4	16.3	11.7	3Q13	11.9	1.5
2014	1.4	-3.2	-1.9	-2.0	11.3	-5.1	6.2	5.5	14.6	-1.1	14.2	13.3	10.4	4.6	16.0	14.0	17.6	14.0	4Q14	15.9	1.6
2015	0.6	1.0	1.7	1.7	3.0	10.0	13.1	11.4	3.4	3.6	7.0	6.1	4.2	5.2	9.5	8.0	9.8	7.7	2Q15	8.1	1.4
2016	2.1	-1.1	1.0	0.6	5.9	8.8	15.2	13.4	4.8	4.8	10.0	9.0	3.7	8.0	12.0	9.4	11.5	8.1	3Q16	9.2	1.3
2017	1.7	-0.4	1.3	1.2	6.6	15.0	22.4	19.6	6.0	5.4	11.6	9.8	6.0	5.7	12.0	9.8	12.5	9.9	2Q17	9.2	1.4
2018	1.1	1.8	2.9	2.3	5.3	15.2	21.1	17.6	5.3	10.2	16.0	12.7					12.0	0.6	2Q18	12.1	1.4
2019	0.3	0.6	1.0	0.7	9.3	3.0	13.0	10.9	4.4	5.5	10.3	8.5					10.3	8.5	3Q19	9.3	1.2
2020	0.3	4.5	4.8	4.2	2.8	37.2	40.7	30.8									25.6	14.4	2Q20	19.8	1.2
2021	0.6	2.5	3.2	2.4	2.2	12.5	14.8	9.3									18.1	11.5	2Q21	8.6	1.1
2022	0.4	1.1	1.5	0.0													1.5	0.0	2Q22	-2.2	1.0

# Portfolio Diversification – Real Estate

Property Type Diversification  
(As of 06/30/2022)

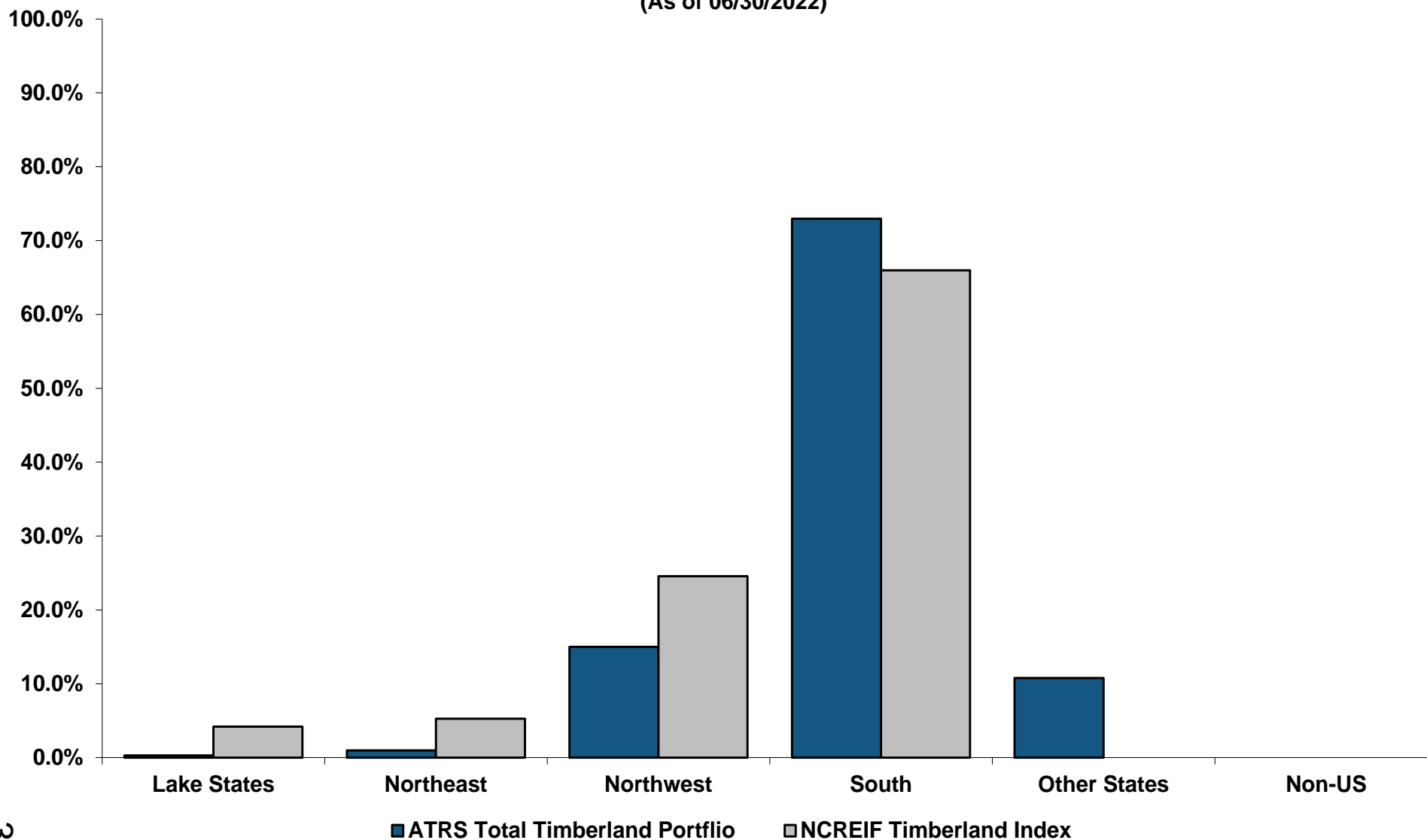


Geographic Type Diversification  
(As of 06/30/2022)



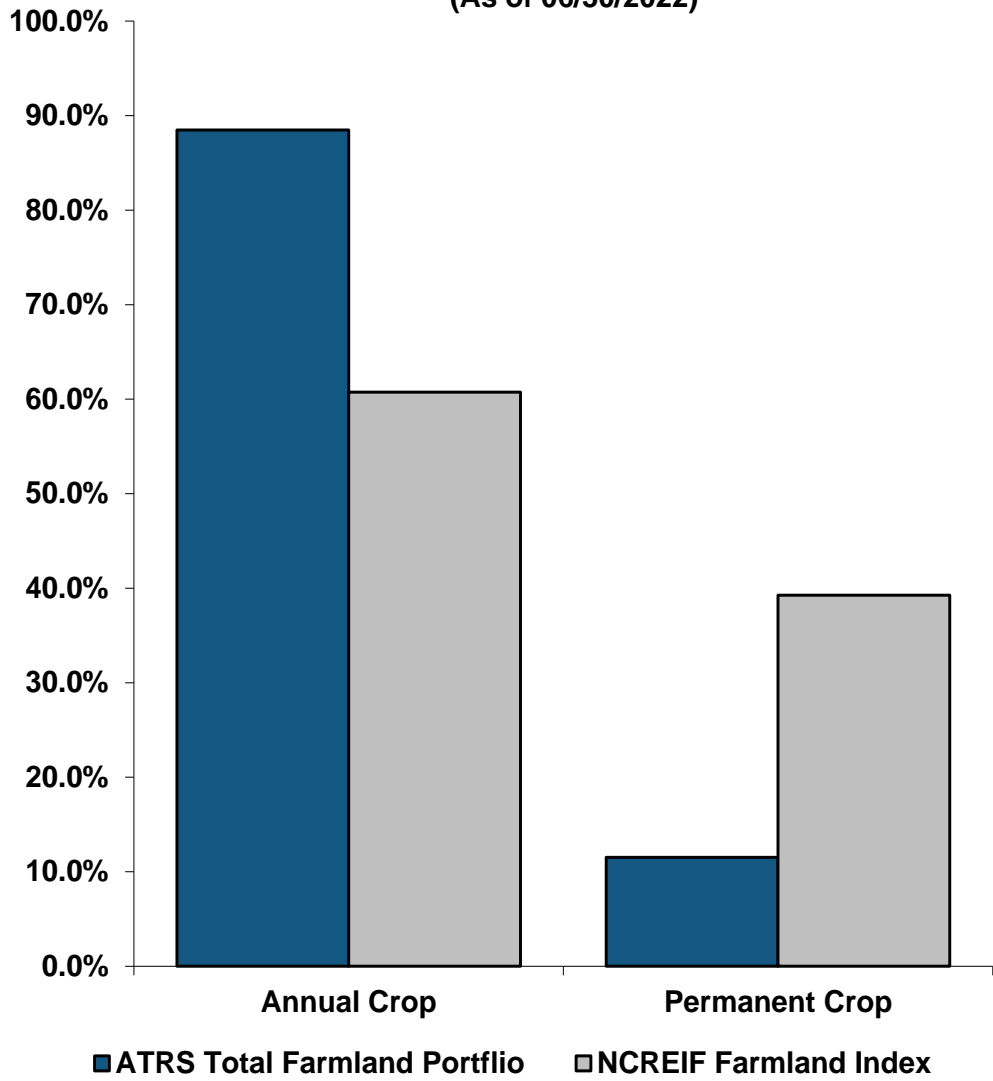
# Portfolio Diversification – Timberland

Geographic Type Diversification  
(As of 06/30/2022)

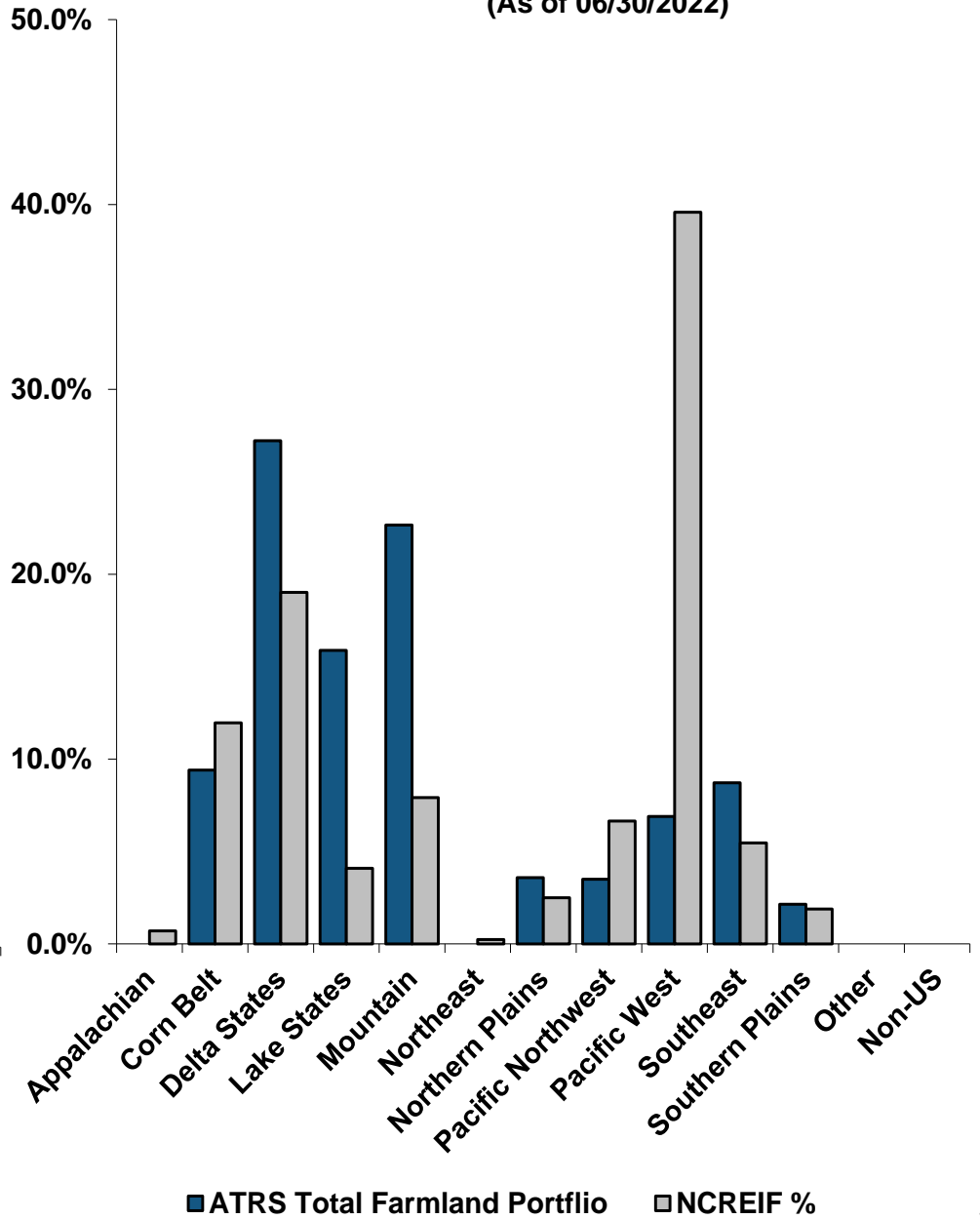


# Portfolio Diversification – Agriculture

**Crop Type Diversification  
(As of 06/30/2022)**

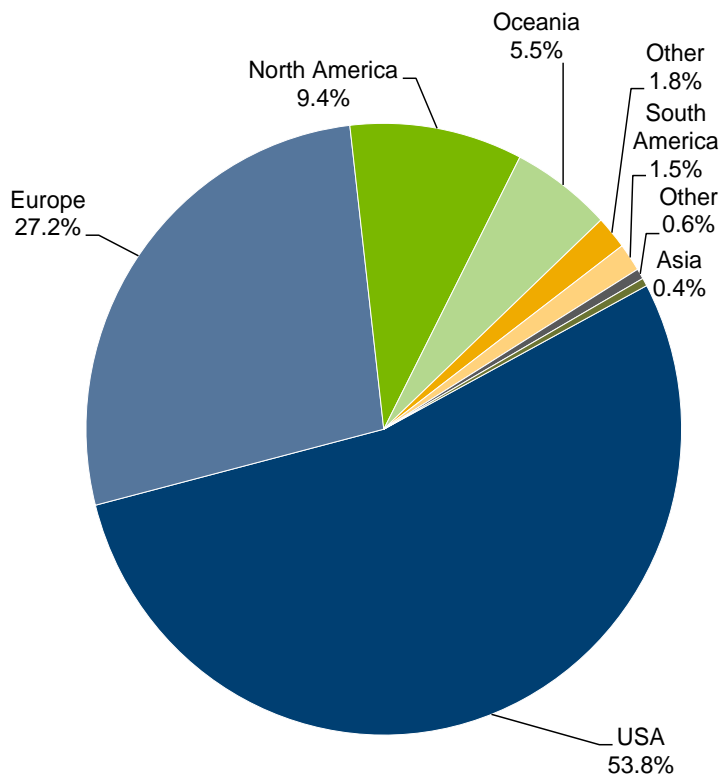


**Geographic Type Diversification  
(As of 06/30/2022)**

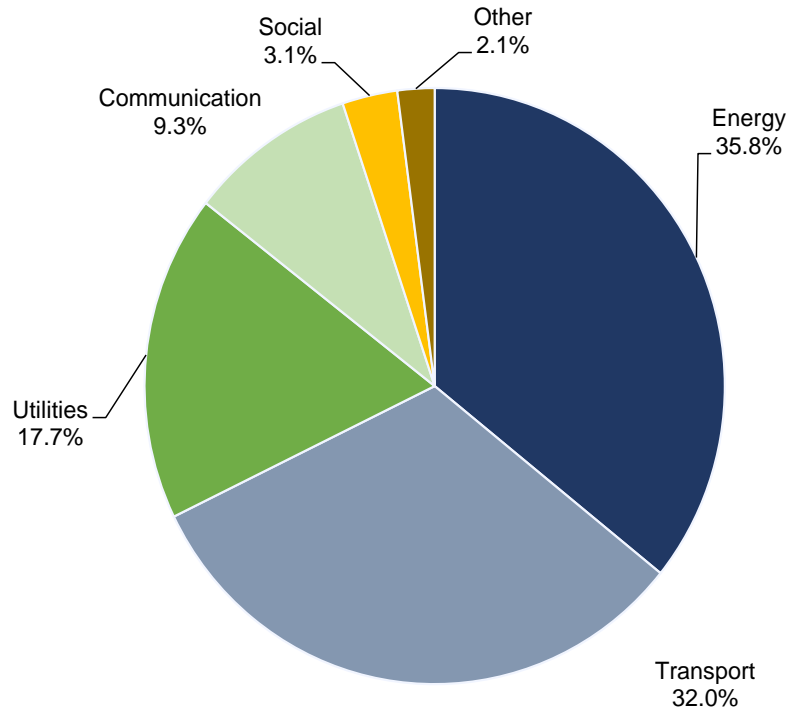


# Portfolio Diversification – Infrastructure

**Geographic Diversification  
as % of Portfolio Company Value**

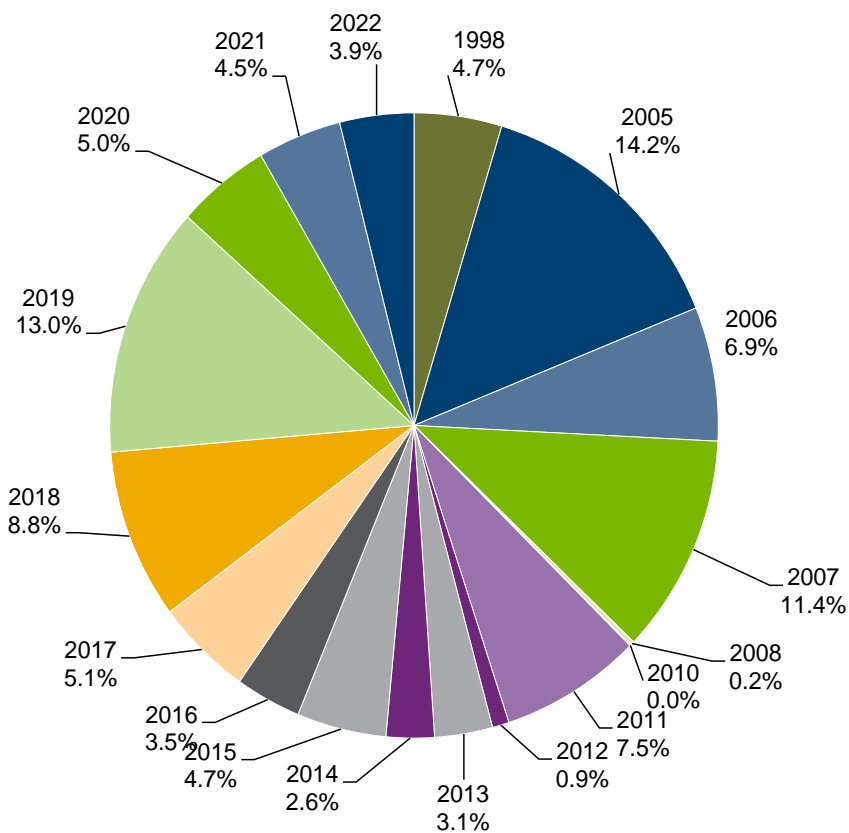


**Industry Diversification  
as % of Portfolio Company Value**

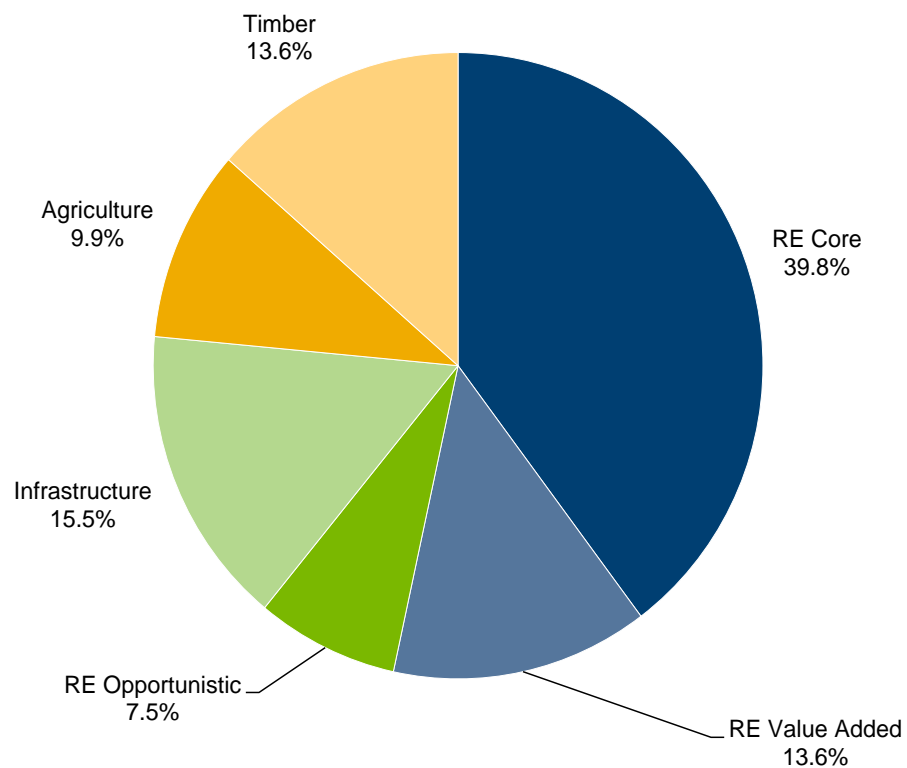


## Portfolio Diversification (cont'd)

**Vintage Year Diversification by Net Asset Value  
(As of 06/30/2022)**

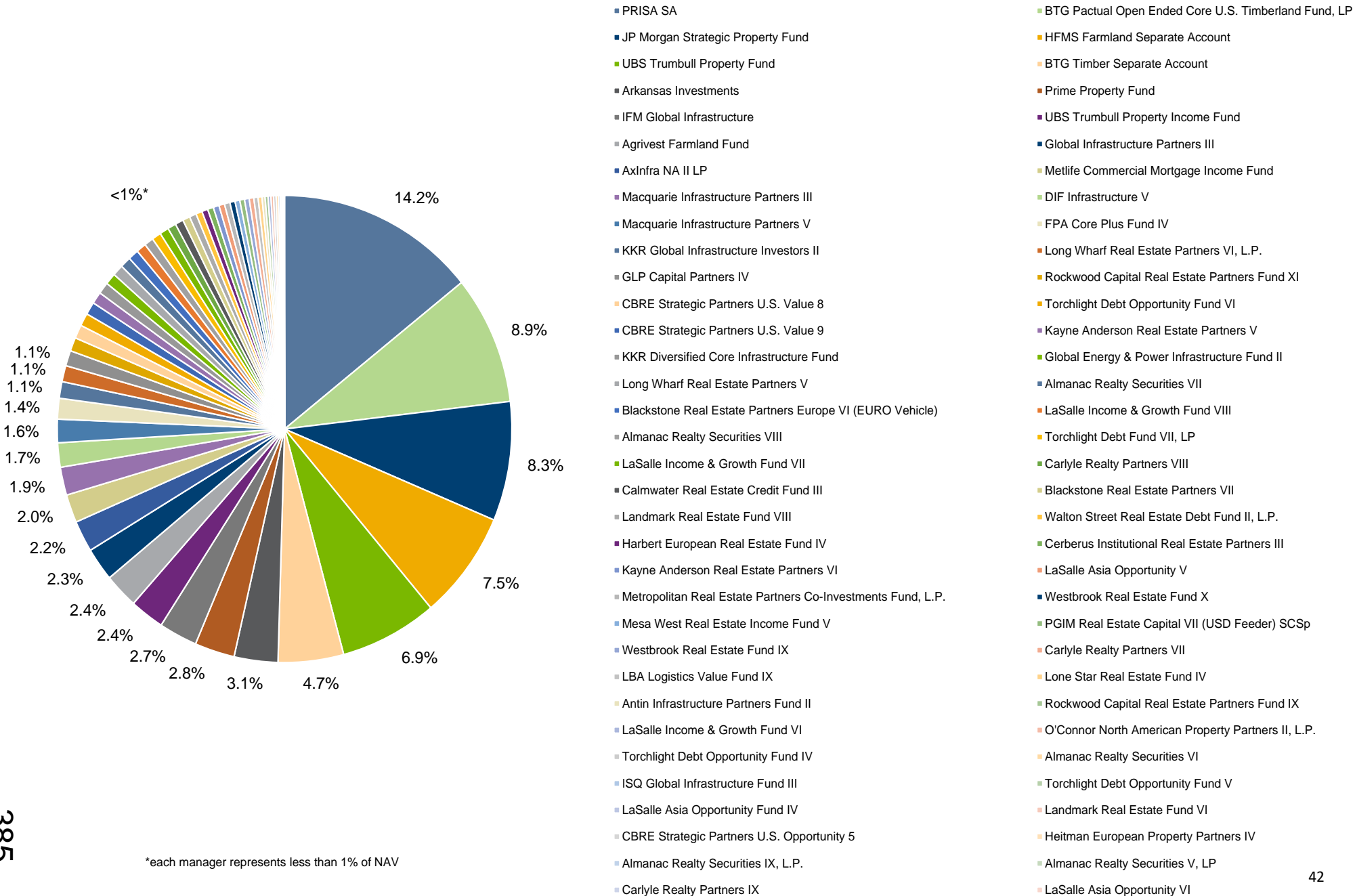


**Style Diversification by Net Asset Value  
(As of 06/30/2022)**



Note: Arkansas Investments are included in Core portfolio

# Manager Diversification



\*each manager represents less than 1% of NAV

# Management Fees

Partnership Name	Current Quarter Management Fees	YTD Management Fees
<b>Core</b>		
Arkansas Investments	0	0
JP Morgan Strategic Property Fund	-637,238	-1,244,311
Metlife Commercial Mortgage Income Fund	-100,000	-200,000
PrimeProperty Fund	-36,750	-36,750
PRISA SA	-649,505	-1,270,250
UBS Trumbull Property Fund	-303,997	-626,329
UBS Trumbull Property Income Fund	-115,542	-229,030
<b>Core</b>	<b>-1,843,033</b>	<b>-3,606,669</b>
<b>Value Added</b>		
Almanac Realty Securities IX, L.P.	-114,685	-228,110
Almanac Realty Securities V, LP	0	0
Almanac Realty Securities VI	-11,141	-22,159
Almanac Realty Securities VII	-51,300	-98,632
Almanac Realty Securities VIII	-37,056	-67,152
Calmwater Real Estate Credit Fund III	-61,886	-124,731
CBRE Strategic Partners U.S. Value 8	-44,031	-88,062
CBRE Strategic Partners U.S. Value 9	-156,249	-312,498
FPA Core Plus Fund IV	-50,049	-96,228
GLP Capital Partners IV	-197	-197
Harbert European Real Estate Fund IV	-34,095	-76,336
LaSalle Income & Growth Fund VI	-8,835	-17,573
LaSalle Income & Growth Fund VII	-47,209	-92,938
LaSalle Income & Growth Fund VIII	-124,658	-247,945
LBA Logistics Value Fund IX	-158,125	-261,785
Long Wharf Real Estate Partners V	-55,362	-110,369
Long Wharf Real Estate Partners VI, L.P.	-186,986	-371,918
Mesa West Real Estate Income Fund V	-134,630	-267,781
PGIM Real Estate Capital VII (USD Feeder) SCSp	-340	-680
Rockwood Capital Real Estate Partners Fund IX	-38,271	-76,722
Rockwood Capital Real Estate Partners Fund XI	-128,680	-256,753
Walton Street Real Estate Debt Fund II, L.P.	-50,984	-94,476
Westbrook Real Estate Fund IX	-25,173	-51,470
Westbrook Real Estate Fund X	-29,985	-61,232
<b>Value Added</b>	<b>-1,549,927</b>	<b>-3,025,746</b>



## Management Fees (cont'd)

Partnership Name	Current Quarter Management Fees	YTD Management Fees
<b>Opportunistic</b>		
Blackstone Real Estate Partners Europe VI (EURO Vehicle)	-172,974	-355,577
Blackstone Real Estate Partners VII	-60,789	-121,642
Carlyle Realty Partners IX	-121,762	-243,096
Carlyle Realty Partners VII	-31,348	-62,698
Carlyle Realty Partners VIII	-65,641	-131,282
CBRE Strategic Partners U.S. Opportunity 5	0	0
Cerberus Institutional Real Estate Partners III	-5,294	-12,468
Heitman European Property Partners IV	0	0
Kayne Anderson Real Estate Partners V	-79,665	-173,514
Kayne Anderson Real Estate Partners VI	-156,250	-312,500
Landmark Real Estate Fund VI	0	-4,696
Landmark Real Estate Fund VIII	-62,500	-125,000
LaSalle Asia Opportunity Fund IV	-2,634	-5,239
LaSalle Asia Opportunity V	-78,239	-154,779
LaSalle Asia Opportunity VI	-174,521	-174,521
Lone Star Real Estate Fund IV	-5,165	-10,330
Metropolitan Real Estate Partners Co-Investments Fund, L.P.	-23,433	-47,336
O'Connor North American Property Partners II, L.P.	-10,010	-21,626
Torchlight Debt Fund VII, LP	-137,500	-275,000
Torchlight Debt Opportunity Fund IV	-13,311	-26,291
Torchlight Debt Opportunity Fund V	-12,455	-26,721
Torchlight Debt Opportunity Fund VI	-71,719	-143,102
<b>Opportunistic</b>	<b>-1,285,209</b>	<b>-2,427,417</b>
<b>Real Estate</b>	<b>-4,678,169</b>	<b>-9,059,832</b>

## Management Fees (cont'd)

Partnership Name	Current Quarter Management Fees	YTD Management Fees
<b>Infrastructure - Core</b>		
AxInfra NA II LP	-164,064	-342,559
DIF Infrastructure V	-135,544	-291,834
IFM Global Infrastructure	-127,922	-251,812
KKR Diversified Core Infrastructure Fund	-21,548	-21,548
Macquarie Infrastructure Partners III	-104,240	-205,041
Macquarie Infrastructure Partners V	-161,112	-320,190
<b>Infrastructure - Core</b>	<b>-714,430</b>	<b>-1,432,983</b>
<b>Infrastructure - Non-Core</b>		
Antin Infrastructure Partners Fund II	-13,317	-41,316
Global Energy & Power Infrastructure Fund II	-105,759	-215,297
Global Infrastructure Partners III	-162,115	-344,989
ISQ Global Infrastructure Fund III	-164,571	-316,242
KKR Global Infrastructure Investors II	-65,411	-130,400
<b>Infrastructure - Non-Core</b>	<b>-511,173</b>	<b>-1,048,244</b>
<b>Infrastructure</b>	<b>-1,225,603</b>	<b>-2,481,228</b>
<b>Agriculture</b>		
Agrivest Farmland Fund	-149,395	-296,616
US Agriculture, LLC	-514,247	-1,009,190
<b>Agriculture</b>	<b>-663,642</b>	<b>-1,305,806</b>
<b>Timber</b>		
BTG Pactual Open Ended Core U.S. Timberland Fund, LP	-553,077	-1,103,763
BTG Timber Separate Account	-178,021	-353,030
<b>Timber</b>	<b>-731,098</b>	<b>-1,456,793</b>
<b>Total Real Assets</b>	<b>-2,620,344</b>	<b>-5,243,827</b>
<b>Total Portfolio</b>		
Arkansas Teachers Retirement System	-7,298,513	-14,303,659

# Compliance Matrix

RISK MANAGEMENT						
Property Type - Real Estate	NFI-ODCE	Target/Constraint	Minimum	Maximum	Actual	Compliant?
Office	23.50	NFI-ODCE +/- 50%	11.75	35.25	24.95	Yes
Retail	10.00	NFI-ODCE +/- 50%	5.00	15.00	8.05	Yes
Industrial	30.70	NFI-ODCE +/- 50%	15.35	46.05	24.52	Yes
Multifamily	29.00	NFI-ODCE +/- 50%	14.50	43.50	29.58	Yes
Other	6.90	n/a	0.00	20.00	12.90	Yes
Geography - Real Estate	NFI-ODCE	Target/Constraint	Minimum	Maximum	Actual	Compliant?
West	44.60	NFI-ODCE +/- 50%	22.30	66.90	48.73	Yes
East	29.20	NFI-ODCE +/- 50%	14.60	43.80	25.15	Yes
Midwest	6.30	NFI-ODCE +/- 50%	3.15	9.45	6.47	Yes
South	19.90	NFI-ODCE +/- 50%	9.95	29.85	11.16	Yes
Other	0.00	n/a	n/a	n/a	3.54	Yes
Non-U.S.	0.00	n/a	0.00	40.00	4.95	Yes
Geography - Timber	NCREIF Timberland	Target/Constraint	Minimum	Maximum	Actual	Compliant?
Lake States	4.20	NCREIF Timberland +/- 15%	0.63	4.83	0.29	No
Northeast	5.26	NCREIF Timberland +/- 15%	0.79	6.05	0.97	Yes
Northwest	24.56	NCREIF Timberland +/- 15%	3.68	28.24	15.00	Yes
South	65.98	NCREIF Timberland +/- 15%	9.90	75.88	72.96	Yes
Other	0.00	NCREIF Timberland +/- 15%	0.00	0.00	10.78	No

## Compliance Matrix (cont'd)

RISK MANAGEMENT						
<b>Geography - Agriculture</b>	<b>NCREIF Farmland</b>	<b>Target/Constraint</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Actual</b>	<b>Compliant?</b>
Appalachian	0.71		0.00	50.00	0.00	Yes
Corn Belt	11.96		0.00	50.00	9.41	Yes
Delta States	19.02		0.00	50.00	27.22	Yes
Lake States	4.09		0.00	50.00	15.88	Yes
Mountain	7.91		0.00	50.00	22.66	Yes
Northeast	0.24		0.00	50.00	0.00	Yes
Northern Plains	2.49		0.00	50.00	3.59	Yes
Pacific Northwest	6.65		0.00	50.00	3.50	Yes
Pacific West	39.58		0.00	50.00	6.89	Yes
Southeast	5.46		0.00	50.00	8.72	Yes
Southern Plains	1.89		0.00	50.00	2.14	Yes
Other	0.00		0.00	50.00	0.00	Yes
Non-U.S.	0.00		0.00	50.00	0.00	Yes
<b>Geography - Infrastructure</b>	<b>Target/Constraint</b>		<b>Minimum</b>	<b>Maximum</b>	<b>Actual</b>	<b>Compliant?</b>
U.S.			n/a	n/a	53.78	Yes
Non-U.S.			0.00	50.00	46.22	Yes
<b>Asset Type - Infrastructure</b>	<b>Target/Constraint</b>		<b>Minimum</b>	<b>Maximum</b>	<b>Actual</b>	<b>Compliant?</b>
Energy/Utilities			0.00	70.00	53.55	Yes
Transportation			0.00	70.00	31.98	Yes
Social			0.00	70.00	3.07	Yes
Communications			0.00	70.00	9.34	Yes
Other			0.00	70.00	2.06	Yes
<b>Manager</b>	<b>Target/Constraint</b>		<b>Minimum</b>	<b>Maximum</b>	<b>Max</b>	<b>Compliant?</b>
			0.00	30.00	14.21	Yes
<b>Style - Real Estate</b>	<b>Target/Constraint</b>		<b>Minimum</b>	<b>Maximum</b>	<b>Actual</b>	<b>Compliant?</b>
Core			50.00	70.00	65.22	Yes
Non-Core			30.00	50.00	34.75	Yes

## Agenda

Section 1	Executive Summary
Section 2	Market Overview
Section 3	Real Assets Portfolio Update
<b>Section 4</b>	<b>Glossary</b>

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## Glossary of Terms

- Catch-up - The provision that dictates how cash flows from the fund will be allocated between the investors and the manager in order for the manager to receive their performance fee. This allocation of cash flows occurs once the investors have collected their capital and preferred return
- Core - The most conservative institutional real estate investing style
- Core-Plus - A style whereby investments have a slightly higher level of risk and expected return than Core, primarily through use of leverage
- Development - The construction of buildings from breaking the ground through building completion. This may also include entitlement of the land and the pursuit of permits prior to construction
- DPI – Distributions to Paid In; the ratio of distributions from investments to total invested capital
- First Closing - The point at which a manager receives and executes the subscription documents and can begin drawing capital from investors
- Final Closing - The final date at which new investors can subscribe to a fund
- Internal Rate of Return (IRR) - A method of measuring the performance of a portfolio from inception through a particular point in time. This method weights returns according to the dollars invested at each point in time. Hence, this is known as dollar-weighted return. This is a better measure when the manager controls when dollars must be invested and is the most commonly used method of real estate performance evaluation; Gross IRR is gross of fee and Net IRR is net of fee
- NFI-ODCE – NCREIF Fund Index Open-end Diversified Core Equity Index is an index of investment returns reporting on both a historical and current basis the results of 33 open-end commingled funds pursuing a core investment strategy; underlying funds are leveraged with gross and net returns available
  - NCREIF changed the basis of diversification for the NFI ODCE from NREA to GRE effective 1Q20
- NPI – NCREIF Property Index is a quarterly time series composite total rate of return measure of investment performance of a very large pool of individual commercial real estate properties acquired in the private market for investment purposes only; it is reported unlevered and gross of fee

## Glossary of Terms (Cont'd)

- FTSE-NAREIT Equity REIT – An unmanaged capitalization-weighted index of all equity real estate investment trusts
- FTSE EPRA/NAREIT Global REIT – An unmanaged market-weighted total return index, which consists of many companies from Global markets whose floats are larger than \$100 million and derive more than half of their revenue from property-related activities
- Opportunistic - A style that is the riskiest form of real estate investing. The name derives from when such funds were formed after the early 1990s real estate market crash to take advantage of opportunities in unwanted properties. Such investments include ground-up development, highly-leveraged purchases, or transactions involving highly complicated legal or environmental situations
- Pre-Specified Deals – Investments that are purchased for a fund before its final close. The assets are typically warehoused on a line of credit
- Promote (Carried Interest) -The performance fee a manager receives once the investors have received their return of capital and the preferred return (return promised by the manager)
- RVPI – Residual Value to Paid In; the ratio of the residual value of an investment to total invested capital
- Time-Weighted Return - A method of measuring the performance of a portfolio over a particular period of time. Effectively, it is the return of one dollar invested in the portfolio at the beginning of the measurement period. This is a better return measure when the manager does not control when the dollars must be invested
- TVPI – Total value to paid-in ratio; the ratio of total value from an investment, including distributions, to total invested capital
- Value-Added - A style that represents moderate-risk real estate. A manager typically increases the future value of the investment by undertaking activities such as leasing, improving an existing building, or taking some risk through operating intensive assets, such as hotels or self-storage
- Vintage Year - The year in which a fund has its final closing. Typically coincides with the year a fund begins making investments



## Glossary of Terms (Cont'd)

- NCREIF Timberland Index- The National Council of Real Estate Investment Fiduciaries (NCREIF) Timberland Index is a quarterly time series composite return measure of investment performance of a large pool of individual timber properties acquired in the private market for investment purposes only.
- NCREIF Farmland Index- The National Council of Real Estate Investment Fiduciaries (NCREIF) Farmland Index is a quarterly time series composite return measure of investment performance of a large pool of individual agricultural properties acquired in the private market for investment purposes only.

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Material market or economic conditions may have had an effect on the results portrayed.

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There can be no assurance that any account will achieve results comparable to those presented. Past performance is not indicative of future results.

## Memorandum

**To:** Arkansas Teacher Retirement System (“ATRS”)  
**From:** Chae Hong; Iftikhar Ahmed  
**CC:** PJ Kelly; Jack Dowd  
**Date:** December 5, 2022  
**Re:** DIF Infrastructure Fund VII – €50 million<sup>1</sup> Commitment Recommendation

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### Background and Recommendation

DIF Infrastructure Fund VII (“DIF VII” or the “Fund”) is a €4.0 billion closed-end, core infrastructure fund sponsored by DIF Management B.V. (“DIF”, the “Firm”, or the “Manager”), privately owned specialist infrastructure asset manager. DIF VII is seventh of Firm’s flagship infrastructure fund series (“DIF Funds”) focused on core and build-to-core infrastructure assets and companies. Across its prior six funds, the Firm has raised approximately €7.5 billion in aggregate commitments, invested €5.5 billion across 192 individual transactions, 130 of which have been realized that generated €3.6 billion in proceeds. The DIF Funds have produced a combined net internal rate of return (“IRR”) of 11.1% and net total value to paid-in capital (“TVPI”) of 1.4x, in Euro (“€” or “EUR”) terms, as of March 31, 2022.

Aon Investments, USA is satisfied with the strategy of the Fund and its appropriateness for ATRS. Additionally, we believe that the merits of this offering outweigh its risks. A DIF VII Investment Summary is attached as **Exhibit A**. We recommend that ATRS invest €50 million in the Fund to fulfill ATRS’ 2022 infrastructure allocation, in accordance with the previously approved 2022 ATRS Real Asset Pacing Schedule. Additionally, Fund VII may provide investors with various investment vehicles. Townsend recommends ATRS consult with its tax and legal counsel to determine the most appropriate vehicle for the Plan.

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<sup>1</sup> At the time this memo was written (November 8, 2022), the USD/EUR conversion was 0.9921 Euros per 1 U.S. Dollar. As such, the Euro commitment represents roughly \$50,398,145.

## Exhibit A



Real Estate Investment Summary

## DIF Infrastructure Fund

July 2022

# EXECUTIVE SUMMARY

## OVERVIEW

Date	Rating	Prior Fund Rating
July 2022	<b>Buy</b>	Buy

DIF Infrastructure Fund VII (“DIF VII” or the “Fund”) is a €4.0 billion closed-end, core infrastructure fund sponsored by DIF Management B.V. (“DIF”, the “Firm”, or the “Manager”), privately owned specialist infrastructure asset manager. DIF VII is seventh of Firm’s flagship infrastructure fund series (“DIF Funds”) focused on core and build-to-core infrastructure assets and companies. Across its prior six funds, the Firm has raised approximately €7.5 billion in aggregate commitments, invested €5.5 billion across 192 individual transactions, 130 of which have been realized that generated €3.6 billion in proceeds. The DIF Funds have produced a combined net internal rate of return (“IRR”) of 11.1% and net total value to paid-in capital (“TVPI”) of 1.4x, in Euro (“€” or “EUR”) terms, as of March 31, 2022.

The Townsend Group, an Aon Company (“Townsend”) has reviewed and performed an in-depth analysis of the above categories which includes, but is not limited to:

- Retention of Limited Partners
- Institutional Investor Representation
- Management Company Ownership
- Consistency/ Volatility of Returns
- Write-offs
- Transaction Experience in Strategy
- Organization Expenses
- Management Fee
- Incentive Fees/ Waterfall Distribution
- Fund Size
- Sponsor Commitment
- Ability to Create Value in Deals
- Valuation Discipline
- Reporting Transparency
- Back-Office Resources
- Investment Period
- Fund Term
- Key Person Provision
- Turnover/Tenure
- GP Attribution Concentration
- Fault Provisions
- Advisory Board
- Priority of Distributions
- Alignment of Partner Interest
- Firm Leadership

In addition, Aon Investments, USA’s Operational Due Diligence team has reviewed the Firm from an operating perspective and has given DIF a Pass rating.

## RECOMMENDATION

Aon Investments, USA is satisfied with the strategy of the Fund and its appropriateness for ATRS. Additionally, we believe that the merits of this offering outweigh its risks. We recommend that ATRS invest €50 million in the Fund to fulfill ATRS’ 2022 infrastructure allocation, in accordance with the previously approved 2022 ATRS Real Asset Pacing Schedule. Additionally, Fund VII may provide investors with various investment vehicles. Townsend recommends ATRS consult with its tax and legal counsel to determine the most appropriate vehicle for the Plan.

### Sponsor:

<b>HQ Location</b>	Schiphol, Netherlands	<b>Parent</b>	DIF Management B.V.
<b>Ownership</b>	Owned by employees	<b>Founded</b>	2005
<b>Employees</b>	~190	<b>Investment Staff</b>	~110
<b>AUM</b>	~9.8 billion <sup>1</sup>		

<sup>1</sup> As of Dec 31, 2021

Performance as of March 31, 2022:

Fund	Vintage Year	Fund Size	Capital Invested	# of Inv.	Inv. Realized	Realized Value	Unrealized Value	Total Value	Loss Ratio	Ave. Hold Period	Gross TVPI	Net TVPI	Gross IRR	Net IRR
DIF I (PPP)	2005	€ 120.8	€ 116.9	16	16	€ 224.0	€ 0.0	€ 224.0	0.0%	7.0	1.9x	1.6x	13.6%	8.0%
DIF II	2008	572.0	538.2	58	58	1,074.9	0.0	1,074.9	3.1%	6.4	2.0	1.6x	15.7%	10.6%
DIF III	2011	800.0	676.4	53	48	1,089.6	207.4	1,297.0	0.6%	5.2	1.9	1.6x	16.8%	11.5%
DIF IV	2015	1,150.0	1,235.9	28	7	713.5	1,129.0	1,842.6	4.3%	3.7	1.5	1.4x	12.4%	8.8%
DIF V	2017	1,900.0	1,636.0	24	1	447.6	1,806.8	2,254.5	1.1%	3.1	1.4	1.3	15.7%	11.0%
DIF VI	2020	3,030.0	1,279.1	13	0	35.3	1,583.7	1,619.0	0.0%	N/A	1.3	1.2	34.0%	45.0%
<b>Total</b>		<b>€ 7,572.8</b>	<b>€ 5,482.4</b>	<b>192</b>	<b>130</b>	<b>€ 3,585.0</b>	<b>€ 4,727.0</b>	<b>€ 8,312.0</b>	<b>1.7%</b>	<b>N/A</b>	<b>1.5x</b>	<b>1.4x</b>	<b>15.5%</b>	<b>11.1%</b>

Note: As of June 30, 2022, DIF VI had committed \$2.3 billion of capital to 16 portfolio companies representing approximately 76% of the fund size.

Portfolio Characteristics and Terms:

Structure	Closed end	Risk Segment	Core & Build-to-Core
Size	EUR 4.0 billion	GP Commitment	1% of the aggregate commitments
Target Sectors	PPP/Concessions, Renewable Energy, Utilities, Energy Transition, and Social Infrastructure	Target Geography	Global (80% in Europe and North America)
Target Stage	Brownfield and Greenfield	Investment Limitations	<ul style="list-style-type: none"> <li>• 15% max in a single investment</li> <li>• 10% max outside target geographies<sup>2</sup></li> <li>• 10% in South America</li> <li>• 30% in single country</li> <li>• 50% in renewable energy</li> </ul>
Target Return (USD)	12-14% gross IRR including a 6%+ cash yield	Leverage	<ul style="list-style-type: none"> <li>• Asset level: 40-70%</li> <li>• Fund level: 20% (secured by unfunded commitments)</li> </ul>
Fund Term	12 years with three one-year extensions	Investment Period	4 years
Minimum Commitment	€10.0 million		

Fees and Timing:

Management Fee	1.5% p.a. <sup>3</sup>	Carried Interest	17.5%
Hurdle Rate	7.0%	Catch-Up	50% GP catch up
Organization Expenses	Up to €4 million	Fee Income	100% offset against management fee for all transaction, break-up, directors', monitoring, financing and other fees
Co-invest Rights	Offered at DIF's discretion, usually through pooled co-invest vehicle	Valuations	Quarterly by DIF and audited annually by external auditor
Status/Timing	First close mid-July 2022 / Final between Q4 2022 and Q1 2023		

<sup>2</sup> Member countries of the European Economic Area (EEA) as of 31 December 2021, together with Australia, Canada, Chile, Colombia, New Zealand, Switzerland, the United Kingdom, the United States of America, and Uruguay.

<sup>3</sup> First close discount and aggregation rebates may be available. Please refer to "Fund Structure" section of this report.

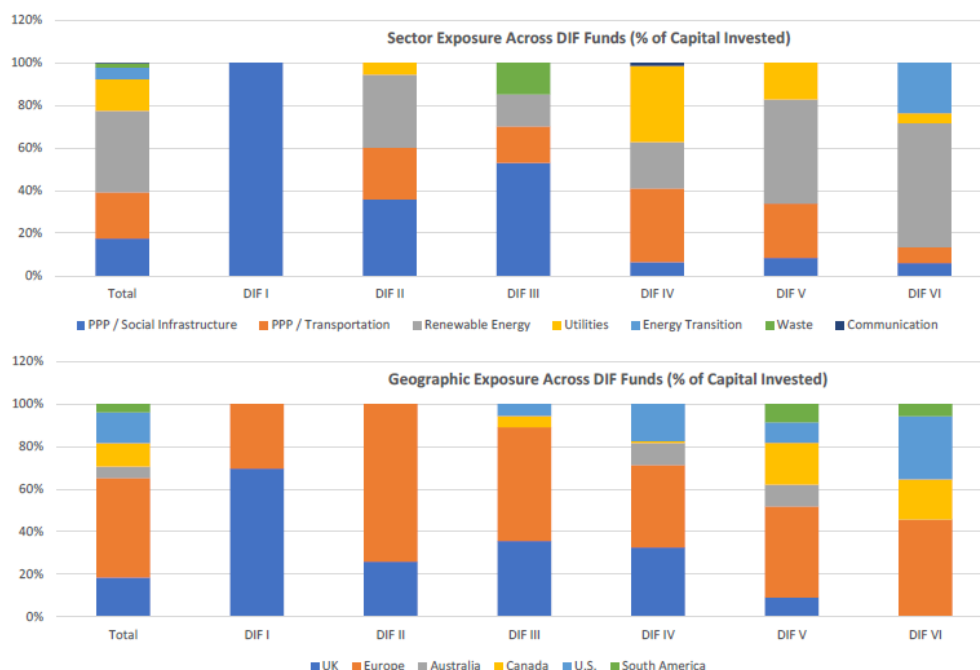
**Primary Strategy:** The Fund’s strategy is largely a continuation of the strategy pursued by prior DIF Funds with the exception of DIF I that totally focused on public private partnerships (“PPP”). DIF VII will target infrastructure investments across PPPs, renewable energy, utilities, and energy transition that generate long-term, predictable, and typically inflation linked cashflows secured typically by contracts with governments and/or acceptable corporate counterparties. DIF VII will continue to invest in a combination of single projects or assets as well companies or platforms that own a portfolio of operating assets (core) but also a captive pipeline for development or construction opportunities (build-to-core). In terms of geography, the Fund will predominantly target investments in Europe, North America and Australasia (at least 90% of the aggregate commitments) with some allocation to select countries in South America (up to 10% of the aggregate commitments).

## STRATEGY

### OVERVIEW

The Fund’s strategy is largely a continuation of the strategy pursued by prior DIF Funds with the exception of DIF I that totally focused on public private partnerships (“PPP”). DIF VII will target infrastructure investments across renewable energy, utilities, PPPs, and energy transition assets with long-term, predictable, and generally inflation linked cashflows secured typically by contracts with governments and/or corporate counterparties of high credit rating. DIF VII will continue to invest in a combination of single projects or assets as well companies or platforms that own a portfolio of operating assets (core) but also a captive pipeline for development or construction opportunities (build-to-core). In terms of geography, the Fund will target predominantly investments in Europe, Australasia, and North America with up to 10% in South America.

DIF Funds’ strategy has evolved over time with the changing landscape opportunity set, particularly from sector allocation perspective. While DIF I was totally focused on PPP (social infrastructure), DIF II and DIF III added PPP (transportation) and renewable energy exposure, DIF IV and DIF V added utilities and closed fewer PPP (social infrastructure) transactions as market for such deals became extremely competitive. The strategy has also evolved from geography allocation perspective as well. While DIF I allocated 70% of the capital to UK and 30% to Europe, exposure to UK market declined from DIF II through DIF III and significantly declined in subsequent funds, replaced with increased allocation to Canada and U.S. and Australia. DIF V further expanded the geographic focus to select South American countries.





While the strategy has evolved in terms of sector and geography allocation, DIF has continued to focus on companies and projects with contracted, regulated and availability-based cashflows. There is minimal exposure to volume-based or throughout revenues. We believe most recent funds, Fund V and Fund VI (still investing) are better representative of the current strategy that Fund VII will continue.

DIF VII will target small and mid-market brownfield (core) and greenfield (build-to-core) projects in the range of €30 to €400 million of equity commitments for control or significant minority interests. The smaller investments will generally be (construction) PPPs, concessions and single renewable energy projects. Such investments can be bundled and sold as a sizeable and optimized portfolios. The larger investments targeted by the Fund will typically be utilities (e.g. Loimua, a Finnish district heating company in DIF V, Bernhard, a US-based Energy as a Service company in DIF VI), larger PPPs and concessions (e.g. Dublin WtE, an Irish Waste-to-Energy plant in DIF V), portfolios of assets (e.g. Anemoui, a US-based wind portfolio in DIF IV) and platform investments (e.g. American Roads, a US-based toll road network in DIF V, BluEarth, a North-American renewables platform in DIF V / VI, and ib vogt, a global solar PV developer in DIF VI). Overall allocation to various sectors, geographies, and asset types are expected to be in the following range;

<ul style="list-style-type: none"> <li>• PPP/ concessions (30-50%): Social and transportation infrastructure</li> <li>• Renewable Energy and energy transition (30-50%): wind, solar, hydro, waste-to-energy, and energy storage , etc.</li> <li>• Utilities (10-30%): Gas and electricity transmission and distribution, district heating / cooling, etc.</li> </ul>
<ul style="list-style-type: none"> <li>• Europe/UK (50-60%)</li> <li>• North America (30-40%)</li> <li>• Rest of the world (up to 20%)</li> </ul>
<ul style="list-style-type: none"> <li>• Brownfield / operational (60-70%)</li> <li>• Greenfield / construction (30-40%)</li> </ul>

The Fund is targeting 12-14% gross IRR including a 6% cash yield.

#### INVESTMENT GUIDELINES

Without the approval of the LP advisory committee (the “Advisory Committee”), the Fund shall not invest more than:

- 10% of the aggregate commitments in companies or projects outside of the target geographies
- 10% of the aggregate commitments in companies or projects in South America;
- 30% of the aggregate commitments in any single country;
- 15% of the aggregate commitments in a single company or project or a group of project companies that are jointly and severally liable for each other’s debts and obligations; and
- 50% of the aggregate commitments in renewable energy companies or projects.

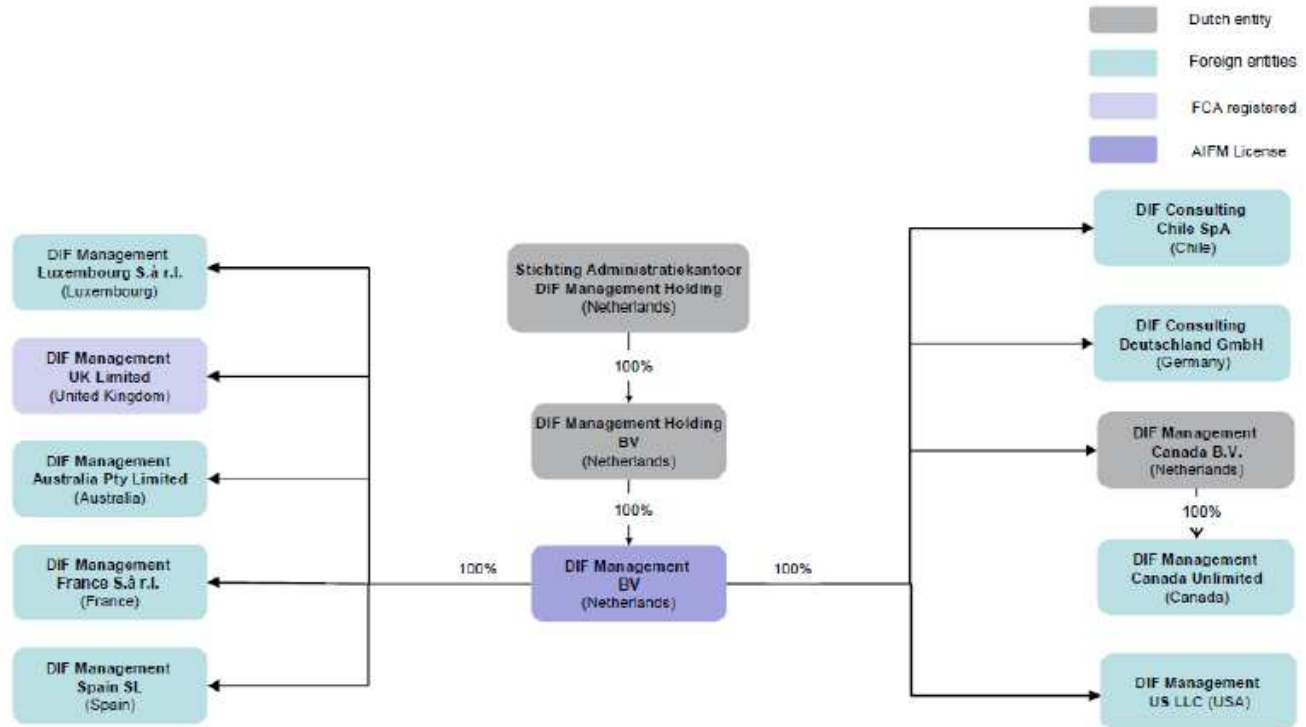
#### LEVERAGE

- Fund level recourse borrowing is permitted for funding new investments and fund expenses, up to 20% of aggregate commitments but shall not exceed the aggregate amount of the remaining commitments.
- Leverage at the portfolio companies or projects level will vary by sector and type of infrastructure with no specific target. Weighted average net debt / enterprise value across all remaining DIF Funds was below 60% as of December 31, 2021.

<sup>5</sup> European Economic Area (EEA) as of 31 December 2021, together with Australia, Canada, Chile, Colombia, New Zealand, Switzerland, the United Kingdom, the United States of America, and Uruguay.



## Exhibit A



**About Townsend Group – An Aon Company**

Founded in 1983, The Townsend Group provides custom real asset solutions that help clients worldwide achieve their unique investment goals. As an Aon company, The Townsend Group is now part of one of the top three outsourced chief investment officer (OCIO) providers in the world measured by global assets under management. Aon’s Investment organization, including Townsend, manages more than \$130 billion of worldwide assets under management and has advised on more than \$240 billion of real estate assets.

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Infrastructure InDetail

# DIF Infrastructure Fund VII

July 2022

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# EXECUTIVE SUMMARY

## OVERVIEW

Review Date	Rating	Previous Rating
July 2022	Buy	N/A

DIF Infrastructure Fund VII (“DIF VII” or the “Fund”) is a €4.0 billion closed-end, core infrastructure fund sponsored by DIF Management B.V. (“DIF”, the “Firm”, or the “Manager”), privately owned specialist infrastructure asset manager. DIF VII is seventh of Firm’s flagship infrastructure fund series (“DIF Funds”) focused on core and build-to-core infrastructure assets and companies. Across its prior six funds, the Firm has raised approximately €7.5 billion in aggregate commitments, invested €5.5 billion across 192 individual transactions, 130 of which have been realized that generated €3.6 billion in proceeds. The DIF Funds have produced a combined net internal rate of return (“IRR”) of 11.1% and net total value to paid-in capital (“TVPI”) of 1.4x, in Euro (“€” or “EUR”) terms, as of March 31, 2022.

- DIF Infrastructure Fund I (“DIF I”), a €120.8 million 2005 vintage fund that completed 16 PPP investments, all of which have been fully realized, generated a net IRR and TVPI of 8.0% and 1.6x, respectively.
- DIF Infrastructure Fund II (“DIF II”), a €572.0 million 2008 vintage fund that completed 58 investments, all of which have been realized, generated a net IRR and TVPI of 10.6% 1.6x, respectively.
- DIF Infrastructure Fund III (“DIF III”), a €800.0 million 2011 vintage fund that completed 53 investments, 48 of which have been fully realized, has generated a net IRR and TVPI of 11.5% and 1.6x, respectively.
- DIF Infrastructure Fund IV (“DIF IV”), a €1.1 billion 2015 vintage fund that completed 28 investments, 7 of which have been fully realized, has generated a net IRR and TVPI of 8.8% and 1.4x, respectively.
- DIF Infrastructure Fund V (“DIF V”), a €1.9 billion 2017 vintage fund that completed 24 investments, has generated a net IRR and TVPI of 11.0% and 1.3x, respectively.
- DIF Infrastructure Fund VI (“DIF VI”), a \$3.0 billion 2020 vintage fund, has completed 13 investments and is still investing. Performance is not yet meaningful for this fund (As of June 30, 2022, DIF VI had committed \$2.3 billion of capital to 16 portfolio companies representing approximately 76% of the fund size).

**Strategy:** The Fund’s strategy is largely a continuation of the strategy pursued by prior DIF Funds with the exception of DIF I that totally focused on public private partnerships (“PPP”). DIF VII will target infrastructure investments across PPPs, renewable energy, utilities, and energy transition that generate long-term, predictable, and typically inflation linked cashflows secured typically by contracts with governments and/or acceptable corporate counterparties. DIF VII will continue to invest in a combination of single projects or assets as well companies or platforms that own a portfolio of operating assets (core) but also a captive pipeline for development or construction opportunities (build-to-core). In terms of geography, the Fund will predominantly target investments in Europe, North America and Australasia (at least 90% of the aggregate commitments) with some allocation to select countries in South America (up to 10% of the aggregate commitments).

The Fund is targeting 12-14% gross IRR including a 6% cash yield.

### Sponsor:

<b>HQ Location</b>	Schiphol, Netherlands	<b>Parent</b>	DIF Management B.V.
<b>Ownership</b>	Owned by employees	<b>Founded</b>	2005
<b>Employees</b>	~190	<b>Investment Staff</b>	~110
<b>AUM</b>	~9.8 billion <sup>1</sup>		

<sup>1</sup> As of Dec 31, 2021

## Performance as of March 31, 2022:

Fund	Vintage Year	Fund Size	Capital Invested	# of Inv.	Inv. Realized	Realized Value	Unrealized Value	Total Value	Loss Ratio	Ave. Hold Period	Gross TVPI	Net TVPI	Gross IRR	Net IRR
DIF I (PPP)	2005	€ 120.8	€ 116.9	16	16	€ 224.0	€ 0.0	€ 224.0	0.0%	7.0	1.9x	1.6x	13.6%	8.0%
DIF II	2008	572.0	538.2	58	58	1,074.9	0.0	1,074.9	3.1%	6.4	2.0	1.6x	15.7%	10.6%
DIF III	2011	800.0	676.4	53	48	1,089.6	207.4	1,297.0	0.6%	5.2	1.9	1.6x	16.8%	11.5%
DIF IV	2015	1,150.0	1,235.9	28	7	713.5	1,129.0	1,842.6	4.3%	3.7	1.5	1.4x	12.4%	8.8%
DIF V	2017	1,900.0	1,636.0	24	1	447.6	1,806.8	2,254.5	1.1%	3.1	1.4	1.3	15.7%	11.0%
DIF VI	2020	3,030.0	1,279.1	13	0	35.3	1,583.7	1,619.0	0.0%	N/A	1.3	1.2	34.0%	45.0%
<b>Total</b>		<b>€ 7,572.8</b>	<b>€ 5,482.4</b>	<b>192</b>	<b>130</b>	<b>€ 3,585.0</b>	<b>€ 4,727.0</b>	<b>€ 8,312.0</b>	<b>1.7%</b>	<b>N/A</b>	<b>1.5x</b>	<b>1.4x</b>	<b>15.5%</b>	<b>11.1%</b>

Note: As of June 30, 2022, DIF VI had committed \$2.3 billion of capital to 16 portfolio companies representing approximately 76% of the fund size.

## Portfolio Characteristics and Terms:

<b>Structure</b>	Closed end	<b>Risk Segment</b>	Core & Build-to-Core
<b>Size</b>	EUR 4.0 billion	<b>GP Commitment</b>	1% of the aggregate commitments
<b>Target Sectors</b>	PPP/Concessions, Renewable Energy, Utilities, Energy Transition, and Social Infrastructure	<b>Target Geography</b>	Global (80% in Europe and North America)
<b>Target Stage</b>	Brownfield and Greenfield	<b>Investment Limitations</b>	<ul style="list-style-type: none"> <li>• 15% max in a single investment</li> <li>• 10% max outside target geographies<sup>2</sup></li> <li>• 10% in South America</li> <li>• 30% in single country</li> <li>• 50% in renewable energy</li> </ul>
<b>Target Return (USD)</b>	12-14% gross IRR including a 6%+ cash yield	<b>Leverage</b>	<ul style="list-style-type: none"> <li>• Asset level: 40-70%</li> <li>• Fund level: 20% (secured by unfunded commitments)</li> </ul>
<b>Fund Term</b>	12 years with three one-year extensions	<b>Investment Period</b>	4 years
<b>Minimum Commitment</b>	€10.0 million		

## Fees and Timing:

<b>Management Fee</b>	1.5% p.a. <sup>3</sup>	<b>Carried Interest</b>	17.5%
<b>Hurdle Rate</b>	7.0%	<b>Catch-Up</b>	50% GP catch up
<b>Organization Expenses</b>	Up to €4 million	<b>Fee Income</b>	100% offset against management fee for all transaction, break-up, directors', monitoring, financing and other fees
<b>Co-invest Rights</b>	Offered at DIF's discretion, usually through pooled co-invest vehicle	<b>Valuations</b>	Quarterly by DIF and audited annually by external auditor
<b>Status/Timing</b>	First close mid-July 2022 / Final between Q4 2022 and Q1 2023		

<sup>2</sup> Member countries of the European Economic Area (EEA) as of 31 December 2021, together with Australia, Canada, Chile, Colombia, New Zealand, Switzerland, the United Kingdom, the United States of America, and Uruguay.

<sup>3</sup> First close discount and aggregation rebates may be available. Please refer to "Fund Structure" section of this report.



## COMPETITIVE ADVANTAGES

### 1. Long and Realized Track Record

DIF has one of the most established, longest and realized infrastructure track record in the industry. The Firm has been actively investing in infrastructure since 2005 when it raised its maiden fund. Across its six flagship funds, DIF has invested approximately €5.5 billion in 192 individual transactions, 130 of which have been fully realized with 62 remaining investments being currently managed by the team. As shown in the table below, DIF I and DIF II have been fully realized, DIF III is largely realized, and DIF IV, a 2015 vintage fund, has also shown strong early realizations.

Fund	Vintage Year	# of Inv.	Inv. Realized	Ave. Hold Period	% Realized	Gross DPI	Net DPI
DIF I (PPP)	2005	16	16	7.0	100.0%	1.9x	1.6x
DIF II	2008	58	58	6.4	100.0%	2.0	1.6
DIF III	2011	53	48	5.2	84.0%	1.6	1.3
DIF IV	2015	28	7	3.7	38.7%	0.6	0.6
DIF V	2017	24	1	3.1	19.9%	0.3	0.1
DIF VI	2020	13	0	N/A	2.2%	0.0	0.0
<b>Total</b>		<b>192</b>	<b>130</b>	<b>N/A</b>	<b>43.1%</b>	<b>0.7x</b>	<b>N/A</b>

### 2. Performance

Across its prior six funds, the Firm has raised approximately €7.5 billion in aggregate commitments, invested €5.5 billion, realized €3.6 billion, and produced a combined net IRR of 11.1% and net TVPI of 1.4x, in EUR terms, as of March 31, 2022. This is compelling given roughly 3/4th of the capital invested in brownfield core infrastructure companies or projects. Most of the prior funds have either achieved target returns or are well on track. We believe the performance of prior funds is generally consistent with the risk level embedded in DIF's strategy.

Fund	Vintage Year	Fund Size	Capital Invested	# of Inv.	Inv. Realized	Realized Value	Unrealized Value	Total Value	Loss Ratio	Ave. Hold Period	Gross TVPI	Net TVPI	Gross IRR	Net IRR
DIF I (PPP)	2005	€ 120.8	€ 116.9	16	16	€ 224.0	€ 0.0	€ 224.0	0.0%	7.0	1.9x	1.6x	13.6%	8.0%
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DIF VI	2020	3,030.0	1,279.1	13	0	35.3	1,583.7	1,619.0	0.0%	N/A	1.3	1.2	34.0%	45.0%
<b>Total</b>		<b>€ 7,572.8</b>	<b>€ 5,482.4</b>	<b>192</b>	<b>130</b>	<b>€ 3,585.0</b>	<b>€ 4,727.0</b>	<b>€ 8,312.0</b>	<b>1.7%</b>	<b>N/A</b>	<b>1.5x</b>	<b>1.4x</b>	<b>15.5%</b>	<b>11.1%</b>

- DIF Infrastructure Fund I (“DIF I”), a €120.8 million 2005 vintage fund that completed 16 PPP investments, all of which have been fully realized, generated a net IRR and TVPI of 8.0% and 1.6x, respectively.
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- DIF Infrastructure Fund III (“DIF III”), a €800.0 million 2011 vintage fund that completed 53 investments, 48 of which have been fully realized, has generated a net IRR and TVPI of 11.5% and 1.6x, respectively.
- DIF Infrastructure Fund IV (“DIF IV”), a €1.1 billion 2015 vintage fund that completed 28 investments, 7 of which have been fully realized, has generated a net IRR and TVPI of 8.8% and 1.4x, respectively.
- DIF Infrastructure Fund V (“DIF V”), a €1.9 billion 2017 vintage fund that completed 24 investments, has generated a net IRR and TVPI of 11.0% and 1.3x, respectively.

- DIF Infrastructure Fund VI (“DIF VI”), a \$3.0 billion 2020 vintage fund, has completed 13 investments and is still investing. Performance is not yet meaningful for this fund (As of June 30, 2022, DIF VI had committed \$2.3 billion of capital to 16 portfolio companies representing approximately 76% of the fund size).

### 3. Small and Mid-Market Focus and Diversified Portfolio Approach

The strategy focuses on investing in small and mid-market brownfield (core) and greenfield (build-to-core) projects in the range of €30 to €400 million of equity commitments for control or significant minority interests.

The smaller investments will generally be (construction) PPPs, concessions and single renewable energy projects. Such investments can be bundled and sold as a sizeable and optimized portfolios to lower cost of capital investors. There is strong evidence that DIF team has repeatedly and successfully implemented this approach (most of DIF IV assets, the European PPP assets by Fund III and IV were bundled and sold, including assets in Netherlands, Germany and Austria). Such lower cost of capital investors generally target larger assets than the average size of assets DIF acquires at entry, and therefore are generally not in direct competition with DIF. The larger investments targeted by the Fund will typically be utilities, larger PPPs and concessions, portfolios of assets and platform investments.

DIF generally creates a well-diversified portfolio of 20-25 investments (targeting 25 investments for DIF VII) across various sectors and geographies generally uncorrelated with each other that helps lower total risk of the portfolio. The Fund also has well-defined investment limitations (e.g., 15% to single company, 30% to single country, 10% to South America, 50% to renewable energy, etc.) that ensure strong diversification. Based on our review of prior funds, the average equity investment per deal accounted for less than 4% of the fund size.

### 4. Fee Terms

The standard management fee of 1.5% p.a. is in line with market, however larger commitments can take advantage of a discount with the fee being reduced to 1.4%, 1.3%, 1.2%, 1.175%, 1.15%, and 1.125% for commitment of over €50 million, €100 million, €150 million, €200 million, €250 million and €400 million, respectively. In addition, DIF offers 7.5% discount to the relevant fee scale for investors in the first close. At a time when managers are raising larger funds and increasing fees, DIF has kept the same terms from the most recent funds and remains one of the reasonable cost options available to access a globally diversified strategy. Townsend has also negotiated aggregation rebates that may help achieve lower fee level, depending on the aggregate commitments from all Townsend clients.

Carried interest of 17.5% is lower than market with favorable 50/50 catch up, however this is partially offset by lower preferred return of 7.0%.

## POTENTIAL ISSUES AND CONCERNS

Although we believe the Fund offers a compelling investment opportunity, below we have listed concerns that should be considered prior to the investment decision. Following each is a discussion of mitigating factors that help reduce our level of concern.

### 1. Strategy Overlap, Exclusivity and Allocation Concerns

DIF is also raising €1.5 bn for CIF III, third fund of its separate series launched in 2016 with a focus on core plus assets (the “CIF Strategy”). While there are some differences in target sectors of each strategy (e.g., DIF Strategy focuses on core and build-to-core investments across PPP/concessions, renewable energy, utilities, and energy transition sectors, whereas CIF Strategy focuses on companies with core plus profile across digital, transportation, and energy transition sectors), we believe CIF III may overlap with DIF VII, particularly in the energy transition and transportation sectors. This raises questions around availability and exclusivity of such deals for DIF VII. Additionally, DIF did not have a clear restriction on investments in digital and non-PPP transportation infrastructure before the launch of CIF Strategy. These segments have naturally become unavailable for DIF Funds.

**Discussion:** CIF III will continue to pursue smaller deals (smaller than DIF Funds' target in recent funds and going forward) with higher risk profile involving relatively shorter contractual length and / or higher amount of exposure to volume-based revenues. As a result, the target returns for CIF III (at 15-18% gross IRR) are meaningfully higher than that of DIF VII (at 12-14% gross IRR). However, there is only 100 bps gap between the higher end of DIF and lower end of CIF target gross returns which does not completely eliminate the possibility of some conflict of interest in overlapping transactions where the risk profile may be consistent with core or build-to-core assets with upside potential that make them equally attractive for both fund series. In such situation, we believe the transaction size may also be a decision factor.

DIF has established a conflict of interest and allocation committee (the "Allocation Committee") that reviews potential conflict of interest and determines the allocation of deals to appropriate funds managed by DIF. We believe the composition of the Allocation Committee seems appropriate to ensure neutrality and independence and will include the following members;

- Managing Partner
- CFO
- Head of Investor Relations & Business Development
- Head of Risk, Legal & Compliance
- Head of Asset Management
- Compliance Officer (non-voting member)
- Investor Relations & Business Development Staff Member (Secretary)

In addition, in case the Allocation Committee determines the conflict of interest exists, such deals will be brought to the Advisory Committee for further discussion and approval. We believe DIF has an established policy in place that ensures transparency in disclosing details of the instances of conflict of interest to the Advisory Committee as well as to all of its fund investors on a periodic basis.

## 2. Higher Loss Ratio Associated with Fund II and IV

We estimate DIF II and DIF IV had 15.5% and 21.4% loss ratio based on the number of deals marked below cost as % of total deals. This is significantly higher than what we expect in infrastructure. While DIF II concluded a strong net IRR (at 10.8%), this higher loss ratio has had a slight drag on DIF IV's performance (at 8.8% net IRR).

**Discussion:** While the loss ratio has been higher based on number of deals as described above, the loss ratio for DIF II and DIF IV was 3.1% and 4.3% based on the capital invested to deals marked below cost to total capital invested. This is within the acceptable range. DIF II was extremely diversified portfolio comprised of 58 individual deals and DIF IV was also well diversified with 28 completed deals in the portfolio. Bulk of the underperformance can be attributed to renewable energy deals that were faced with changing market conditions, regulatory framework and / or declining power prices in the relevant period. While DIF II portfolio has been fully realized, we believe DIF has a plan to recover the value of underperforming deals in Fund IV.

- **ASPI:** A minority equity interest in an operational Italian toll road portfolio that also included Morandi bridge that collapsed in August 2018. This led to material changes proposed by the Italian Government in regulatory framework of the asset from toll-based to regulated asset base model. While the revenue model reflects lower asset risk now, it has taken the potential upside away. Traffic volumes also impacted by COVID, however they have largely recovered by now. A preliminary agreement with the government assumes the recovery of lost revenues during the last months of 2020 and early months of 2021 (on account of government-imposed lockdowns). Credit outlook for ASPI was upgraded by Moody's and S&P's in 2021 and 2022. The investment in ASPI is marked at 0.95x as of March 31, 2022, however, DIF team expects a conservative non-optimized gross TVPI of 1.23x at exit.
- **Avertas Energy:** Avertas Energy was a construction stage waste-to-energy investment in Australia closed in 2018 with Acciona as a contractor. The project experienced significant delays in construction relative to investment case and due to delays in procurement and poor productivity by the contractor which was further exacerbated by COVID-19. These risks are passed on to the contractor and will be covered by contracts. DIF currently has an on-going dispute with Acciona which will likely need to be settled through settlements/negotiations, avoiding several years of litigation. Avertas has secured increased waste processing volumes relative to the acquisition case which reflects an upside for

the investment. DIF believes there is material upside in residual value of the asset as presently a 30-year life is assumed whereas this could be a project that can be valued as an evergreen asset running in perpetuity. The investment is marked at 0.9x cost as of March 31, 2022, however DIF team forecast to exit this investment with 1.59x cost on the books.

- **Bungala 1 and Bungala 2:** Bungala 1 and 2 are two Australian solar projects that were under construction at entry but are now fully operational, marked at 0.79x and 0.88x, respectively, due to various factors including construction delays, declining power prices, addition of cheaper renewable capacity in the grid, higher than expected grid balancing costs (which are applied to the projects based on the variance in actual generation vs. forecasts provided to the grid operator) and unfavorable marginal loss factors (cost of transmitting power to energy demand centers). We believe these grid-related items and movements in the marginal loss factors were an industry-wide occurrence and have affected multiple projects active in the region. While new financing structure and stronger demand for operational solar should allow for recovery of the initial invested capital, DIF is exploring opportunities to add storage capacity to manage supply/demand more efficiently. DIF forecasts to exit these investments at 0.95x and 1.06x TVPI, respectively.
- **Clare Solar Farm:** Another construction stage solar project in Australia that is fully operational now. The investment has been marked at 0.66x TVPI cost due to similar factors described above for Bungala 1 and 2. DIF forecasts to exit this investment at conservative non-optimized TVPI of 0.80x.
- **Irish Schools 5:** Irish School 5 represents an investment in construction stage availability-based education facilities in Ireland that experienced significant delays due to bankruptcy of Carillion, the EPC contractor for the project. The project is marked at 0.40x cost and is conservatively forecasted to exit at marginally higher multiple, however this is a very small investment in DIF IV representing sub-1% of the capital invested.

### 3. Lower target returns for closed-end fund

As highlighted earlier in this report, DIF targets 12-14% gross IRR which translates into 9-11% net IRR based on our estimates. The returns close to the lower end of this range can be achieved by investing into some open-ended infrastructure funds that may provide immediate exposure to a diversified portfolio (better portfolio visibility vs. DIF VII being essentially a blind pool), greater liquidity through a redemption mechanism at relatively lower fee spread.

**Discussion:** We believe open-ended infrastructure funds generally target net returns in the range of 8% (core infrastructure with limited exposure to sensitive assets<sup>4</sup>) and 10% (core and core plus infrastructure with higher exposure to sensitive assets). While DIF may invest up to 30-40% in build-to-core (greenfield) projects, there is generally insignificant exposure to sensitive assets. As presented in the table below, DIF allocated more than 95% of the capital since inception to assets and projects with fully contracted, regulated and availability-based revenues. DIF has been able to generate 11.1% net IRR on combined basis (please refer to performance section of this report for more details) which is generally higher than comparable core open-ended funds.

Investments by Revenue Type Since Inception

Revenue Type	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	% of Gain	Gross TVPI
Contracted	71	€ 3,409.9	€ 1,563.2	€ 3,223.4	€ 4,786.6	62.2%	48.7%	1.4x
PPP-Availability	108	1,382.4	1,716.7	762.8	2,479.5	25.2%	38.8%	1.8
Regulated	7	475.3	164.1	545.9	709.9	8.7%	8.3%	1.5
Volume-Based	6	214.8	141.0	194.9	335.9	3.9%	4.3%	1.6
<b>Total</b>	<b>192</b>	<b>€ 5,482.4</b>	<b>€ 3,585.0</b>	<b>€ 4,727.0</b>	<b>€ 8,312.0</b>	<b>100.0%</b>	<b>N/A</b>	<b>1.5x</b>

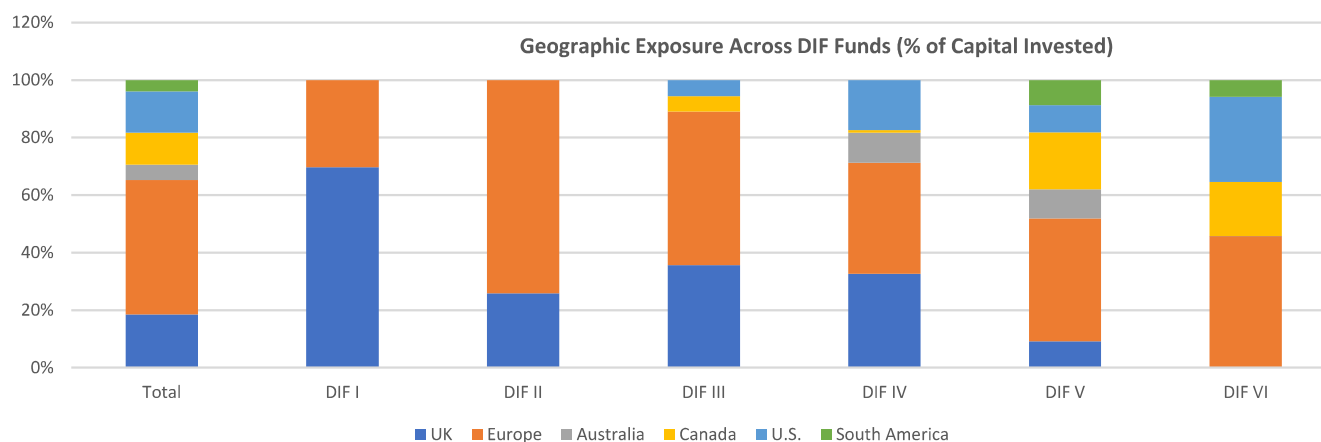
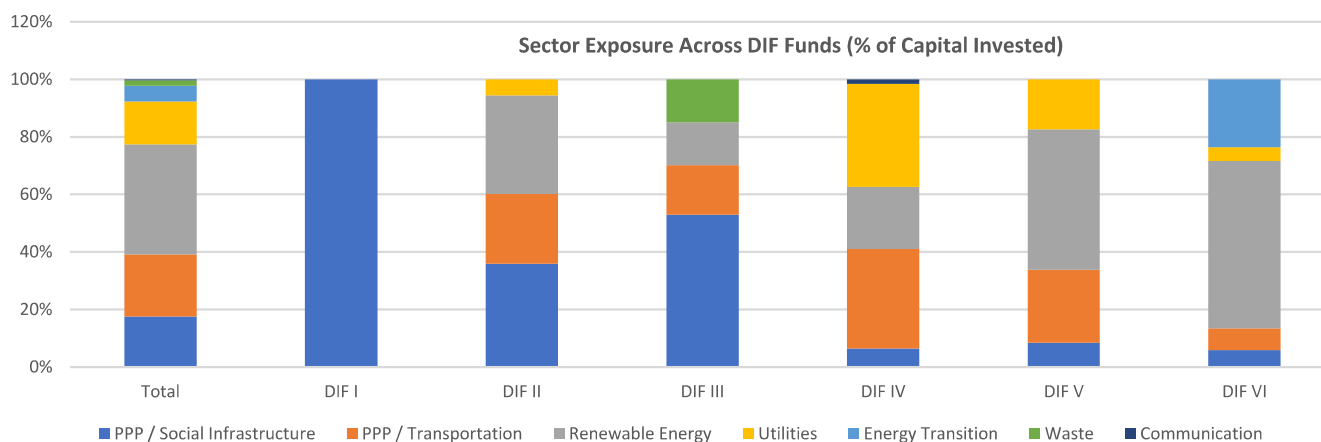
<sup>4</sup> Assets sensitive to broader economic and/or commodity price cycles

## STRATEGY

### OVERVIEW

The Fund's strategy is largely a continuation of the strategy pursued by prior DIF Funds with the exception of DIF I that totally focused on public private partnerships ("PPP"). DIF VII will target infrastructure investments across renewable energy, utilities, PPPs, and energy transition assets with long-term, predictable, and generally inflation linked cashflows secured typically by contracts with governments and/or corporate counterparties of high credit rating. DIF VII will continue to invest in a combination of single projects or assets as well companies or platforms that own a portfolio of operating assets (core) but also a captive pipeline for development or construction opportunities (build-to-core). In terms of geography, the Fund will target predominantly investments in Europe, Australasia, and North America with up to 10% in South America.

DIF Funds' strategy has evolved over time with the changing landscape opportunity set, particularly from sector allocation perspective. While DIF I was totally focused on PPP (social infrastructure), DIF II and DIF III added PPP (transportation) and renewable energy exposure, DIF IV and DIF V added utilities and closed fewer PPP (social infrastructure) transactions as market for such deals became extremely competitive. The strategy has also evolved from geography allocation perspective as well. While DIF I allocated 70% of the capital to UK and 30% to Europe, exposure to UK market declined from DIF II through DIF III and significantly declined in subsequent funds, replaced with increased allocation to Canada and U.S. and Australia. DIF V further expanded the geographic focus to select South American countries.



While the strategy has evolved in terms of sector and geography allocation, DIF has continued to focus on companies and projects with contracted, regulated and availability-based cashflows. There is minimal exposure to volume-based or throughout revenues. We believe most recent funds, Fund V and Fund VI (still investing) are better representative of the current strategy that Fund VII will continue.

DIF VII will target small and mid-market brownfield (core) and greenfield (build-to-core) projects in the range of €30 to €400 million of equity commitments for control or significant minority interests. The smaller investments will generally be (construction) PPPs, concessions and single renewable energy projects. Such investments can be bundled and sold as a sizeable and optimized portfolios. The larger investments targeted by the Fund will typically be utilities (e.g. Loimua, a Finnish district heating company in DIF V, Bernhard, a US-based Energy as a Service company in DIF VI), larger PPPs and concessions (e.g. Dublin WtE, an Irish Waste-to-Energy plant in DIF V), portfolios of assets (e.g. Anemoi, a US-based wind portfolio in DIF IV) and platform investments (e.g. American Roads, a US-based toll road network in DIF V, BluEarth, a North-American renewables platform in DIF V / VI, and ib vogt, a global solar PV developer in DIF VI). Overall allocation to various sectors, geographies, and asset types are expected to be in the following range;

<ul style="list-style-type: none"> <li>• PPP/ concessions (30-50%): Social and transportation infrastructure</li> <li>• Renewable Energy and energy transition (30-50%): wind, solar, hydro, waste-to-energy, and energy storage , etc.</li> <li>• Utilities (10-30%): Gas and electricity transmission and distribution, district heating / cooling, etc.</li> </ul>
<ul style="list-style-type: none"> <li>• Europe/UK (50-60%)</li> <li>• North America (30-40%)</li> <li>• Rest of the world (up to 20%)</li> </ul>
<ul style="list-style-type: none"> <li>• Brownfield / operational (60-70%)</li> <li>• Greenfield / construction (30-40%)</li> </ul>

The Fund is targeting 12-14% gross IRR including a 6% cash yield.

#### LEVERAGE

- Fund level recourse borrowing is permitted for funding new investments and fund expenses, up to 20% of aggregate commitments but shall not exceed the aggregate amount of the remaining commitments.
- Leverage at the portfolio companies or projects level will vary by sector and type of infrastructure with no specific target. Weighted average net debt / enterprise value across all remaining DIF Funds was below 60% as of December 31, 2021.

#### HEDGING

- Currency: DIF generally does not hedge Non-EUR exposure but will determine to do so on asset by asset basis.
- Rates: Preference for fixed rate debt or hedged through matched maturity interest rate swaps.

#### INVESTMENT GUIDELINES

Without the approval of the LP advisory committee (the “Advisory Committee”), the Fund shall not invest more than:

- 10% of the aggregate commitments in companies or projects outside of the target geographies<sup>5</sup>
- 10% of the aggregate commitments in companies or projects in South America;
- 30% of the aggregate commitments in any single country;
- 15% of the aggregate commitments in a single company or project or a group of project companies that are jointly and severally liable for each other’s debts and obligations; and
- 50% of the aggregate commitments in renewable energy companies or projects.

#### PIPELINE

The Fund does not have any pre-identified / closed transactions. Please refer to **Exhibit E** for pipeline of investments under DIF’s review.

<sup>5</sup> European Economic Area (EEA) as of 31 December 2021, together with Australia, Canada, Chile, Colombia, New Zealand, Switzerland, the United Kingdom, the United States of America, and Uruguay.



## SPONSOR

### OVERVIEW

DIF was established in 2005 by Maarten Koopman and Menno Witteveen (the “Co-Founding Partners”) as a specialist infrastructure investment management firm. The Co-Founding Partners and Managing Partner, Wim Blaasse, respectively hold 37.5%, 37.5% and 25% of the legal ownership of the Firm. Over time the Co-Founding Partners have gradually stepped back from management role and handed over these responsibilities to the Managing Partner and 11 other Partners who are responsible for the management of the firm. To further the succession planning, an economic sharing structure was put in place starting in 2014, with Partners being allocated 25% of the economic interest in the operational results of the Firm over time. The Partners began the process of acquiring their related legal ownership in 2021.

Since inception, the Firm has grown to 190 employees (100+ investment professionals) across various offices globally including Paris, Frankfurt, London, Luxembourg, Madrid, Toronto, New York, Santiago and Sydney. The Firm has ~9.8 billion in assets under management across various infrastructure funds.

Led by Gijs Voskuyl, DIF Funds’ investment team (the “Investment Team”) is organized by sectors with leaders in each of the target geographies. He is supported by 6 managing directors, 15+ senior directors and directors dedicated to DIF Funds and a large pool of junior investment professionals at associate and analyst level. In addition, the Firm has inhouse experienced asset management team of 35 professionals who support the Investment Team. A snapshot of senior team members is as follows.

Name	Title / Role	Location	Total Experience	Years with DIF	Investment Committee Member
Wim Blaasse	Managing Partner	Netherlands	32	17	Yes
Gijs Voskuyl	Partner (Head of Infrastructure Equity)	Netherlands	16	13	Yes
Angela Roshier	Partner (Head of Asset Management)	UK	24	12	Yes
Allard Ruijs	Partner (Head of Investor Relations and Business Development)	Netherlands	>20	15	Yes
Andrew Freeman	Partner (Head of UK)	UK	>20	13	No
Thomas Vieillescazes	Partner (Head of France)	France	19	15	No
Marko Kremer	Partner (Head of North America)	Canada	13	13	No
Fernando Moreno	Partner (Head of Spain)	Spain	22	7	No
Tom Goossens	Managing Director (Deputy Head of Infrastructure)	Netherlands	10	7	No
Martin Hanke	Managing Director (Head of Australia)	Australia	10	6	No
Jeff Rodgers	Managing Director	Canada	11	5	No
Vincent Liu	Managing Director	Canada	12	6	No
Daniel Aninat	Managing Director (Head of Chile)	Chile	12	3	No
Caine Bouwmeester	Managing Director (Head of Renewable Energy)	UK	14	1	No
Marcel Beverungen	Managing Director (Head of Germany)	Germany	17	2	No
Mathieu Hévin	Senior Director	France	15	11	No
Henrik Luerssen	Senior Director	Germany	14	9	No
Dennis Jong	Senior Director	Netherlands	11	7	No
Luis Hinojosa	Senior Director	Chile	14	6	No
Kon Kim	Senior Director	Australia	14	6	No
Jesse van Schouwenburg	Senior Director	Netherlands	8	5	No
Neil Marvell	Senior Director	UK	14	4	No
Pierre Boschin	Senior Director	France	14	1	No
Jorge Casado	Senior Director	Spain	10	4	No
Ritesh Ramji	Senior Director	UK	9	6	No
Simran Bal	Director	Australia	7	5	No
Cristina Sanchez Raymundo	Director	Spain	10	1	No
Charlie Websper	Director	UK	10	<1	No
Lauri Lappalainen	Director	Finland	6	<1	No
Alastair Wong	Director	Canada	10	<1	No
Chris Jacobs	Director	UK	12	<1	No
Javier Serrano	Director	Spain	8	4	No
Angelo Lacroix	Director	Netherlands	7	4	No
Jared Jimmieson	Director	Australia	4	4	No

An organizational chart of the Fund team is attached as **Exhibit F** and biographies of key personnel are attached as **Exhibit G**.

### TURNOVER

Turnover among the senior members of the infrastructure group has been moderate. In the last five years, DIF disclosed 7 senior level professionals at the director level and above that have left, none of which we believe will have a measurable impact

on the Fund. In addition, 3 partners retired over the last 3 years as they reached the retirement age of 58 as per DIF policy. In the last 5 years, DIF has added 3 managing directors, 8 senior directors and several others at director, associate and analyst level. Lastly, Robert Doekes, Partner and CFO, will reach DIF's partner retirement age of 58 within the life of the DIF VII. The Firm has already started a search for his successor.

#### COMPENSATION AND RETENTION

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DIF's compensation structure for the investment professionals comprises a base salary and a performance based variable incentive. In addition, all employees having a contract for >1 year are entitled to carried interest, with the % being dependent on each employee's position within the team, and can co-invest in the funds managed by DIF.

#### CLIENT BASE

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DIF's client base in prior funds is well diversified geographically and by type among public pension plans, sovereign wealth funds, insurance companies, Fund of Funds, and other institutional investors.

#### COMPLIANCE / LITIGATION DISCLOSURES

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DIF indicated that it does not have current/pending litigation or regulatory investigation(s).



## OPERATIONAL DUE DILIGENCE

### SUMMARY

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#### A2 Pass (✓)

DIF is a privately held investment management company headquartered in Schiphol, the Netherlands. The firm invests into two main strategies: Infrastructure and Private Debt.

Aon identified some areas of risk in particular the fact that DIF has not engaged an independent third-party for fund administration nor has appointed an independent valuation agent to undertake formal appraisals of portfolio assets. While DIF has introduced appropriate segregation of duties within the Investment and Accounting functions which in conjunction with the external audit of the DIF Infrastructure VII mitigate the risk associated with the lack of external administration and external valuers, Aon is of the opinion that the overall administration framework is deviating from best practice.

DIF has developed robust procedures and controls that govern the selection, approval, and ongoing monitoring of all investments. In 2021, the firm established an Internal Audit function which Aon views as a positive addition to its control framework..

# INVESTMENT PROCESS

## OVERVIEW

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### Sourcing:

DIF has experienced team with diverse backgrounds, ranging from construction and industry to banking and consultancy and a global office network. The Team enjoys strong industry relationships that provide access to a broad pipeline of investment opportunities. Based on our review of prior funds, these relationships include ACS/Hochtief (including subsidiaries such as CPB and CIMIC in Australia), Acciona, Bouygues, CAF, Kiewit, Sacyr, SSE, Strabag, Vinci and VolkerWessels in the PPP/concession space, Enel, EDP, Canadian Solar, Boralex, Apex, Nextera, Covanta, FRV, Vestas, Siemens, GE and Enercon in the renewable energy space, and EDF, Shell, Statkraft, Synergy and Total, in the utilities space.

The Investment Team generally targets off-market, proprietary transactions that allow DIF to execute and close transactions on exclusive basis. This is supported by the fact that majority of the deals in prior funds were closed on either bilateral basis or in a limited competition setting.

### Investment Due Diligence:

The investment review process begins with a quick and thorough analysis of potential opportunities staffed with appropriate team members in terms of seniority, geography, and sector expertise, ensuring relevant expertise is applied and a timely execution of deals.

During the investment review, the deal team develops a thorough understanding of a potential investment to identify and address the key merits, scope of value addition and risks. In particular, the deal team seeks to identify key risks early-on in the process and withdraw from a transaction if such risks cannot be mitigated adequately.

In addition to the in-house sector specialists, the deal team may also retain the services of specialist third party advisors (e.g. commercial, technical, ESG, legal, tax), if required. Before the deal team involves third party advisors, it prepares a Transaction Pre-approval Form (“TPAF”), which outlines the key investment merits and risks, the target return and yield profile, due diligence focus areas, and due diligence budget.

Part of the TPAF are the results from the ESG Intrinsic Benefits Tool and ESG Screening Tool, which respectively indicate to what extent the selected SDGs are promoted and identify ESG topics that require further due diligence and to confirm that the investment complies with DIF’s ESG exclusion policy<sup>6</sup>.

The TPAF is discussed and approved by the deal lead, the Managing Partner and either the Head of Infrastructure Equity or the Head of Renewable Energy. Regular updates are provided by the deal team, with a view to evaluating due diligence findings, throughout the investment review process.

For each investment, the deal team will develop a detailed business case, including a financial model, which it will subject to various sensitivity analyses. These analyses should provide comfort that in downside scenarios the investment is robust and is still expected to generate an acceptable return. Furthermore, at this stage a post-acquisition plan, including scope of value addition, is prepared.

### Investment Structuring:

For DIF, investment structuring includes: (i) establishing an appropriate governance framework, including through legal documentation (e.g. shareholder agreements and management agreements), (ii) ensuring appropriate alignment of interest with management teams, if relevant, (iii) the optimization of contractual relationships, achieved as part of the negotiation of

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<sup>6</sup> Please refer to ESG section of this report for details about the ESG Intrinsic Benefits Tool and ESG Screening Tool.

the EPC, O&M and other contracts, (iv) minimization of the cost of capital, achieved through the negotiation of the debt package and the legal and tax structure of the investment and (v) optimization of interest rate risks through hedging.

When investing directly into an infrastructure project, the Manager will typically establish a standalone special purpose vehicle (“SPV”). DIF aims to tailor the allocation of risks between the SPV and third parties through various contracts that the SPV enters into. As is typical in the industry, this often results in the SPV retaining limited risks; although the exact level of risk involved will be project specific. The SPV will typically enter into a long-term contract with one or more government or better rated corporate counterparties to secure the revenue stream; often through offtake contracts with fixed (indexed) rates. At the same time, as relevant, the SPV will enter into engineering, procurement and construction (“EPC”) and operation and maintenance (“O&M”) contracts with specialized contractors. Under these contracts the construction and operating risks are to a large extent transferred from the SPV to the EPC and O&M contractors. In addition, the SPV may also take out insurance coverage, including business interruption, major repairs and third-party liability coverage.

When investing in companies with management teams, the Manager will focus on collaboration with the management team during the acquisition, integration and operational phases of the transaction. The Manager will seek to map the skillsets and composition of the existing management team to identify key talent needed for business continuity and to deliver the envisaged business plan. If and when needed, the Manager will make additions and/or replacements to the management teams. To ensure alignment of interests with the management team and to retain key staff, tailored long-term incentive plans are put in place. In addition, the Manager will communicate the near-term financial and strategic goals to all key stakeholders through a comprehensive 100-day plan. This plan will also act as a tool for planning and resource management for the management teams, in combination with the long-term business plans (including actionable goals) that the Manager together with the management teams develop. The Manager may engage one of its industry experts to ensure the business plan, applied governance framework and other policies are appropriate in order to meet the pre-defined investment objectives.

#### **Investment Approval:**

All investments made by the Fund require prior approval from the Investment Committee (“IC”). Following this, signing and closing of the transaction is subject to sign-off from various senior DIF team members that are responsible for the oversight of certain aspects of the transaction.

The deal team will prepare an investment proposal, containing the major conclusions and findings from the investment due diligence and structuring, including a mandatory section on ESG aspects. The IC will also receive an independent memo from the Head of Risk, Legal & Compliance, detailing the key risks and related mitigates, and a memo from the tax and treasury department providing an assessment of the tax structure and potential foreign exchange hedging of the investment.

Subsequent to the approval from the IC, which may be conditional on certain requirements being fulfilled, the deal team will work to finalize the outstanding conditions as well as the transaction documentation. Final sign-off from various senior DIF Team members including the Managing Partner, the Head of Infrastructure Equity, the Head of Finance, the Head of Risk, Legal & Compliance, the Compliance Officer and the Head of Tax & Treasury is required to complete an investment.

#### **Asset Management:**

DIF has a proactive approach to asset management, with investment team members and asset managers collaborating closely. This joint team is responsible for managing an investment during the hold period by the Fund, typically between 5 to 10 years, including implementing the business plan that has been prepared during the investment review phase.

As part of the investment review of a potential transaction the investment team will have prepared a business plan and financial model, including value and/or ESG enhancement initiatives and exit options. Prior to completion of an investment, a team consisting of one or more investment team members and one or more asset management members is appointed to manage the investment post-closing.

During the hold period of an investment, the joint team will work closely with the management teams to create and maintain long-term alignment of interest, closely monitor asset performance, and execute on business plans developed during the investment phase.

The composition of the joint team and level of involvement of the individual members may change over time. Typically, the investment team members will become less involved once the post-acquisition plan has been implemented and full handover has taken place to the asset management team.

Oversight is provided by the Head of Asset Management, the Head of Infrastructure Equity, the Head of Renewable Energy and the broader senior team. DIF's Head of ESG supports the teams to appropriately address ESG initiatives and ensure sufficient ESG reporting. Regular investment performance reviews are conducted to ensure upside potential and issues are addressed in a timely manner. In addition, material variations to the business plan are documented in a "asset management checklist".

### Exits Management:

DIF has a dedicated exit team, led by the Head of Exits, responsible for exit planning as well as execution of sales processes. The exit team develops a plan for each fund, as well as each investment or portfolio of investments within a fund. These plans form the basis of the sales process and are regularly reviewed by the Exit Committee.

An exit of a (portfolio of) investment(s) will typically be explored once the total value of the exit is sufficiently large and the portfolio or individual investment has been optimized and de-risked; thereby maximizing exit value. For each exit, the Manager will explore a variety of exit routes, possibly in parallel, including (i) sale to strategic or industrial companies, larger institutional investors (e.g. pension funds) and/or financial buyers, (ii) sale to listed or unlisted funds, and (iii) public listing in the domestic, regional or international markets.

Once an exit plan is approved by the Exit Committee, a dedicated team will be established to execute the exit, including members of the exit team, asset management and investment teams, as required.

### INVESTMENT COMMITTEE ("IC")

The expected composition of the Investment Committee for DIF VII will be as follows;

Name	Title / Role	Location	Total Experience	Years with DIF
Wim Blaasse	Managing Partner	Netherlands	32	17
Gijs Voskuyl	Partner (Head of Infrastructure Equity)	Netherlands	16	13
Angela Roshier	Partner (Head of Asset Management)	UK	24	12
Allard Ruijs	Partner (Head of Investor Relations and Business Development)	Netherlands	>20	15
Christopher Mansfield	Partner (Retired - former Head of Renewable Energy)	UK	31	13

In addition, there will be one external member appointed on the investment committee for DIF VII.

### LIMITED PARTNER ADVISORY COMMITTEE

The Manager will establish an advisory committee for the Fund (the "Advisory Committee" or "LPAC") composed of representatives of the limited partners (all must be unaffiliated with DIF). LPAC will provide advice as requested by the Manager in connection with Fund investments, potential conflicts of interest, and other Fund matters.

### VALUATIONS

The valuation policy is consistent with market standards and comparable to closed-end infrastructure funds reviewed by Townsend. Unrealized investments will be reported at fair market value ("FMV") with valuations determined at least annually by DIF with quarterly reviews to reflect significant changes. The Finance team of DIF, headed by the CFO, is responsible for

administering each Asset, as well as the value thereof, in the administration and quarterly and annual reports of the respective Equity Fund. The Valuation Committee is ultimately responsible for determining the FMV of each Asset that is to be included in the reports.

## ENVIRONMENTAL, SOCIAL AND GOVERNANCE

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The Manager has been given an Environmental, social and governance (“ESG”) assessment rating of Advanced (as defined in the Appendix).

DIF has well-established ESG policy and aims to continuously review and improve its ESG policy, tools and procedures. DIF’s ESG policy is reviewed at least on an annual basis by its ESG Committee that has formal responsibility for approving any revision in the ESG policy. ESG is incorporated and imbedded in DIF’s investment process and the Firm has been a signatory to the United Nations inspired Principles for Responsible Investing (“PRI”) since 2011. In addition, DIF has actively participated in meetings and working groups across Institutional Investor Group on Climate Change (IIGCC), Net Zero Asset Managers Initiative (NZAMI), and Global Infrastructure Investor Association (GIIA).

DIF VII classifies as an Article 8 fund under the Sustainable Finance Disclosure Regulation (“SFDR”) as it promotes environmental and social characteristics, alongside the following Sustainable Development Goals (SDGs): affordable and clean energy (SDG 7), industry, innovation & infrastructure (SDG 9), sustainable cities and communities (SDG 11) and climate action (SDG 13).

From a process perspective, the Investment Team is responsible for implementing the ESG policy during the investment phase to ensure (i) the potential assets are screened using the ESG Screening Tool (including compliance with the exclusion policy) and the Intrinsic Benefit Tool (way of positive screening that attempts to identify impacts mapped against the SDGs), (ii) proper ESG due diligence is conducted, (iii) ESG matters are included in the contracts, (iv) ESG matters are reported in the IC paper, and (v) action items are communicated to the asset management team for management and monitoring. The asset management team is fully involved in implementing the ESG policy during the portfolio management phase.

DIF communicates ESG-related information to its investors through regular and ad hoc reporting. ESG reporting consists of an ESG section in fund-level quarterly reports, fund-level annual ESG reporting and a dedicated ESG report on an annual basis. ESG-related information is included on the agenda of the annual general meetings and advisory committee meetings.

DIF has a dedicated head of ESG who is supported by DIF’s ESG Committee and an associate. The ESG team is expected to grow in the near future to total of 4 dedicated members. The ESG Committee is responsible for reviewing progress against DIF’s ESG strategy and policy implementation plan. The ESG Committee is accountable for DIF’s ESG strategy, including ensuring that ESG matters are addressed during IC meetings, investors receive ESG reporting, ESG is accounted for in the assets in which DIF’s funds invest and sufficient funding is available annually to implement the ESG strategy across its business. In addition, DIF is supported by leading sustainability consultancy firm ERM on several matters.

## FUND STRUCTURE

### OVERVIEW

Closed-end fund offered through DIF Infrastructure VII Cooperatief U.A. (a Netherland domiciled cooperative structure) and DIF Infrastructure VII SCSp (a Luxembourg domiciled special limited partnership structure). Below is a summary of the key terms sourced from the PPM dated January 2022. These terms may be subject to change.

### REVIEW OF TERMS & CONDITIONS

Key Terms		Townsend Comment	
<b>Target Return:</b>	12-14% Gross IRR including 6% cash yield	Neutral	Consistent with strategy and predecessor funds
<b>Fund Size:</b>	Target: €4.0 billion Hard cap: €5.0 billion	Neutral	Addressed in the concerns section of this report
<b>Sponsor Commitment:</b>	1% of commitments	Negative	Significant increase in fund size
<b>Commitment Period:</b>	4 years from the final close	Positive	Four years is preferred by Townsend and compares favorably to peer funds that mostly utilize five year commitment periods
<b>Term:</b>	12 years from the final close, subject to up to two 1-year extensions at Manager's discretion and another 1-year extension that requires advisory committee approval	Neutral	Consistent with market and predecessor funds
<b>Key Person Provision:</b>	At least 5 of Wim Blaasse, Allard Ruijs, Angela Roshier, Gjis Voskuyl, Thomas Vieillescazes, Fernando Moreno, and Marko Kremer, and Caine Bouwmeester must devote substantially all of their time to the Fund	Neutral	Covers senior most team members and is consistent with market and predecessor funds
<b>For Cause GP Removal Provisions</b>	Limited Partners may remove the General Partner for "Cause" with the approval of 50% interest of the Limited partners	Neutral	Consistent with market and predecessor funds
<b>No Fault Remedies</b>	The Manager may be removed, subject to a 3 months' notice period, by a vote of investors representing more than 75% of the aggregate commitments cast at any time after the first anniversary of the final closing	Neutral	Consistent with market and predecessor funds
<b>Placement Agent:</b>	N/A		

Fees and Distribution Waterfall																														
<b>Organizational Expenses:</b>	Up to €4.0 million																													
<b>Investment Management Fee:</b>	<p>&lt;€50,000,000: 1.500% p.a.            ≥ €50,000,000 and &lt;€100,000,000: 1.400%            ≥ €100,000,000 and &lt;€150,000,000: 1.300%            ≥ €150,000,000 and &lt;€200,000,000: 1.200%            ≥ €200,000,000 and &lt;€250,000,000: 1.175%            ≥ €250,000,000 and &lt;€400,000,000: 1.150%            ≥ €400,000,000: 1.125%</p> <p>First Close Discount: 7.5 bps off the applicable management fee.</p> <p>Townsend clients will benefit from the following aggregation rebate;</p> <table border="1"> <thead> <tr> <th>Investor Commitment</th> <th>Townsend Aggregate</th> <th>Applicable Fee</th> </tr> </thead> <tbody> <tr> <td>&lt; €50,000,000</td> <td>AND &lt; €50,000,000</td> <td>1.500%</td> </tr> <tr> <td>&lt; €50,000,000</td> <td>AND ≥ €50,000,000 and &lt;€100,000,000</td> <td>1.450%</td> </tr> <tr> <td>&lt; €50,000,000</td> <td>AND ≥ €100,000,000 and &lt;€150,000,000</td> <td>1.400%</td> </tr> <tr> <td>&lt; €50,000,000</td> <td>AND ≥ €150,000,000</td> <td>1.350%</td> </tr> <tr> <td>≥ €50,000,000 and &lt;€100,000,000</td> <td>AND ≥ €100,000,000 and &lt;€150,000,000</td> <td>1.350%</td> </tr> <tr> <td>≥ €50,000,000 and &lt;€100,000,000</td> <td>AND ≥ €150,000,000</td> <td>1.300%</td> </tr> <tr> <td>≥ €100,000,000</td> <td>AND ≥ €150,000,000</td> <td>1.250%</td> </tr> <tr> <td>≥ €100,000,000</td> <td>AND ≥ €250,000,000</td> <td>1.225%</td> </tr> </tbody> </table>			Investor Commitment	Townsend Aggregate	Applicable Fee	< €50,000,000	AND < €50,000,000	1.500%	< €50,000,000	AND ≥ €50,000,000 and <€100,000,000	1.450%	< €50,000,000	AND ≥ €100,000,000 and <€150,000,000	1.400%	< €50,000,000	AND ≥ €150,000,000	1.350%	≥ €50,000,000 and <€100,000,000	AND ≥ €100,000,000 and <€150,000,000	1.350%	≥ €50,000,000 and <€100,000,000	AND ≥ €150,000,000	1.300%	≥ €100,000,000	AND ≥ €150,000,000	1.250%	≥ €100,000,000	AND ≥ €250,000,000	1.225%
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<b>Distributions / Incentive Waterfall:</b>	<ul style="list-style-type: none"> <li>• Fund as a whole structure</li> <li>• 7% preferred return</li> <li>• 50% GP catch-up</li> <li>• 17.5% Carried Interest</li> </ul>																													
<b>Clawback:</b>	Yes																													

## FEE AND EXPENSE ANALYSIS

The standard management fee of 1.5% p.a. is in line with market, however larger commitments can take advantage of a discount with the fee being reduced to 1.4%, 1.3%, 1.2%, 1.175%, 1.15%, and 1.125% for commitment of over €50 million, €100 million, €150 million, €200 million, €250 million and €400 million, respectively. In addition, DIF offers 7.5% discount to the relevant fee scale for investors in the first close. At a time when managers are raising larger funds and increasing fees, DIF has kept the same terms from the most recent funds and remains one of the reasonable cost options available to access a globally diversified strategy. Townsend has also negotiated aggregation rebates that may help clients achieve lower fee level, depending on the aggregate commitments from all Townsend clients.

Carried interest of 17.5% is lower than market with favorable 50/50 catch up, however this is partially offset by lower preferred return of 7.0%.



## PERFORMANCE

### SUMMARY

Fund	Vintage Year	Fund Size	Capital Invested	# of Inv.	Inv. Realized	Realized Value	Unrealized Value	Total Value	Loss Ratio	Ave. Hold Period	Gross TVPI	Net TVPI	Gross IRR	Net IRR
DIF I (PPP)	2005	€ 120.8	€ 116.9	16	16	€ 224.0	€ 0.0	€ 224.0	0.0%	7.0	1.9x	1.6x	13.6%	8.0%
DIF II	2008	572.0	538.2	58	58	1,074.9	0.0	1,074.9	3.1%	6.4	2.0	1.6x	15.7%	10.6%
DIF III	2011	800.0	676.4	53	48	1,089.6	207.4	1,297.0	0.6%	5.2	1.9	1.6x	16.8%	11.5%
DIF IV	2015	1,150.0	1,235.9	28	7	713.5	1,129.0	1,842.6	4.3%	3.7	1.5	1.4x	12.4%	8.8%
DIF V	2017	1,900.0	1,636.0	24	1	447.6	1,806.8	2,254.5	1.1%	3.1	1.4	1.3	15.7%	11.0%
DIF VI	2020	3,030.0	1,279.1	13	0	35.3	1,583.7	1,619.0	0.0%	N/A	1.3	1.2	34.0%	45.0%
<b>Total</b>		<b>€ 7,572.8</b>	<b>€ 5,482.4</b>	<b>192</b>	<b>130</b>	<b>€ 3,585.0</b>	<b>€ 4,727.0</b>	<b>€ 8,312.0</b>	<b>1.7%</b>	<b>N/A</b>	<b>1.5x</b>	<b>1.4x</b>	<b>15.5%</b>	<b>11.1%</b>

Across its prior six funds, the Firm has raised approximately €7.5 billion in aggregate commitments, invested €5.5 billion across 192 individual transactions, 130 of which have been realized that generated €3.6 billion in proceeds. The DIF Funds have produced a combined net IRR of 11.1% and net TVPI of 1.4x, in EUR terms, as of March 31, 2022.

- DIF Infrastructure Fund I (“DIF I”), a €120.8 million 2005 vintage fund that completed 16 PPP investments, all of which have been fully realized, generated a net IRR and TVPI of 8.0% and 1.6x, respectively.
- DIF Infrastructure Fund II (“DIF II”), a €572.0 million 2008 vintage fund that completed 58 investments, all of which have been realized, generated a net IRR and TVPI of 10.6% 1.6x, respectively.
- DIF Infrastructure Fund III (“DIF III”), a €800.0 million 2011 vintage fund that completed 53 investments, 48 of which have been fully realized, has generated a net IRR and TVPI of 11.5% and 1.6x, respectively.
- DIF Infrastructure Fund IV (“DIF IV”), a €1.1 billion 2015 vintage fund that completed 28 investments, 7 of which have been fully realized, has generated a net IRR and TVPI of 8.8% and 1.4x, respectively.
- DIF Infrastructure Fund V (“DIF V”), a €1.9 billion 2017 vintage fund that completed 24 investments, has generated a net IRR and TVPI of 11.0% and 1.3x, respectively.
- DIF Infrastructure Fund VI (“DIF VI”), a \$3.0 billion 2020 vintage fund, has completed 13 investments and is still investing. Performance is not yet meaningful for this fund (As of June 30, 2022, DIF VI had committed \$2.3 billion of capital to 16 portfolio companies representing approximately 76% of the fund size).

### VINTAGE COMPARISON

The following chart compares DIF Funds’ since inception net returns to the Burgiss Private iQ Global Infrastructure Benchmark (“Benchmark”). All funds’ returns are based on realized and fair market value of unrealized investments as of March 31, 2022.

Fund	Vintage Year	Net IRR	Sample Size	1st	2nd	3rd	Benchmark Quartile
DIF I (PPP)	2005	8.0%	5	10.3%	10.3%	3.8%	3rd
DIF II	2008	10.6%	12	11.9%	10.6%	2.5%	3rd
DIF III	2011	11.5%	5	21.6%	14.2%	9.9%	3rd
DIF IV	2015	8.8%	18	14.9%	8.9%	3.5%	3rd
DIF V	2017	11.0%	22	15.8%	10.2%	7.4%	2nd
DIF VI	2020	45.0%	25	32.2%	14.8%	6.8%	1st

Fund	Vintage Year	Net TVPI	Sample Size	1st	2nd	3rd	Quartile
DIF I (PPP)	2005	1.6x	5	1.5x	1.3x	1.3x	1st
DIF II	2008	1.6	12	2.0x	1.7x	1.1x	3rd
DIF III	2011	1.6	5	2.1x	1.6x	1.5x	3rd
DIF IV	2015	1.4	18	1.6x	1.4x	1.1x	2nd
DIF V	2017	1.3	22	1.5x	1.3x	1.2x	2nd
DIF VI	2020	1.2	25	1.3x	1.1x	1.1x	2nd

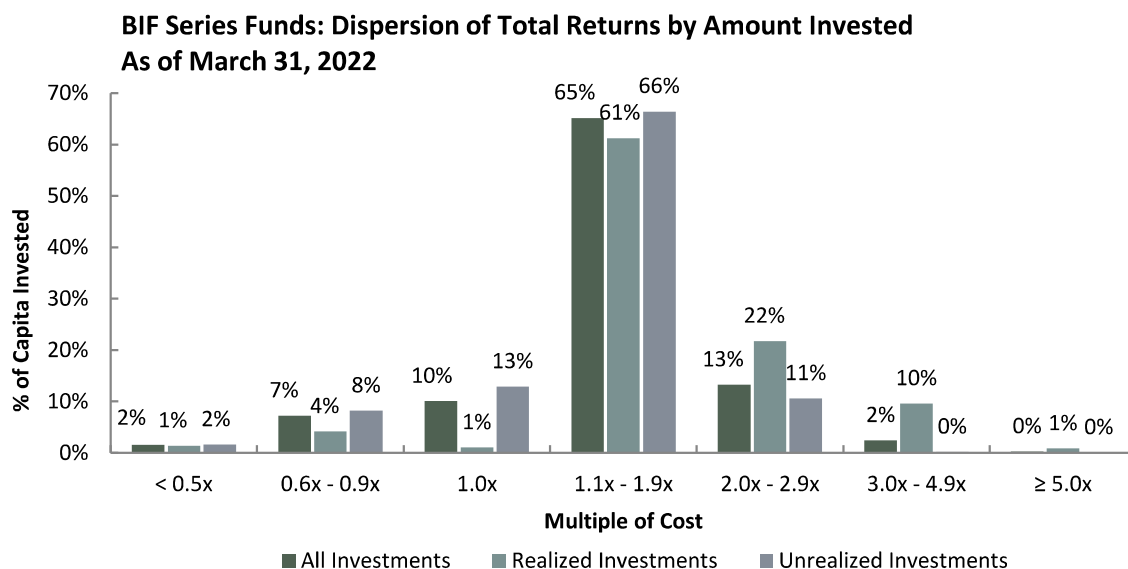
  

Fund	Vintage Year	Net DPI	Sample Size	1st	2nd	3rd	Quartile
DIF I (PPP)	2005	1.6x	5	1.3x	1.2x	1.0x	1st
DIF II	2008	1.6	12	1.7x	1.4x	1.0x	2nd
DIF III	2011	1.3	5	1.3x	1.2x	0.7x	1st
DIF IV	2015	0.6	18	0.8x	0.5x	0.4x	2nd
DIF V	2017	0.1	22	0.4x	0.2x	0.1x	3rd
DIF VI	2020	0.0	25	0.1x	0.0x	0.0x	3rd



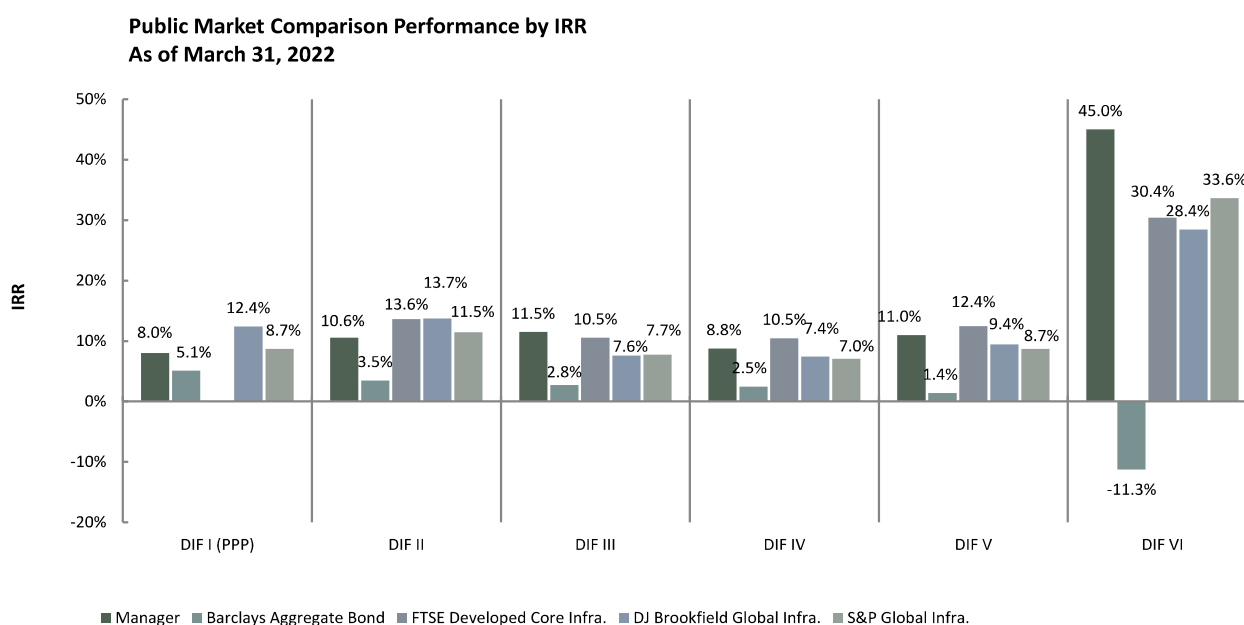
## DISPERSION OF RETURNS

The following charts display the dispersion of individual investment returns across the DIF Funds.

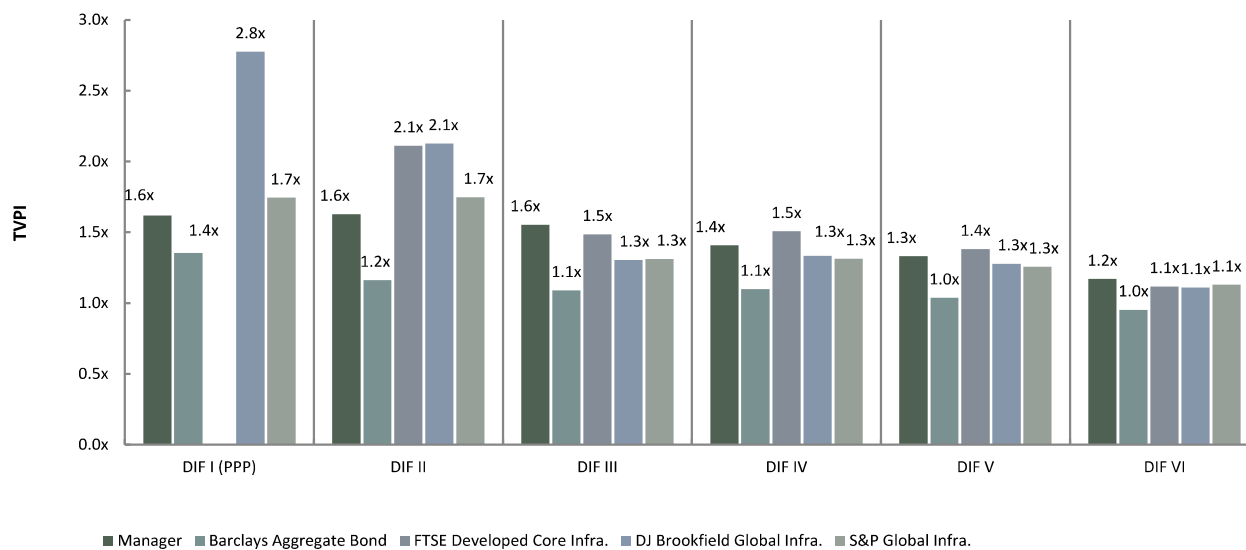


## PUBLIC MARKET COMPARISON

The charts below compare performance of DIF Funds to public infrastructure market indices: Barclays Aggregate Bond Index, FTSE Developed Core Infrastructure Index, DJ Brookfield Infrastructure Index, and S&P Global Infrastructure Index. We are comparing the manager's prior performance against the opportunity cost represented by the multiples and IRRs that would have been generated by investing in the public market indices highlighted. The fund series' net cash flows are assumed to be invested into and redeemed out of the index to create a comparable IRR.



**Public Market Comparison Performance by TVPI**  
As of March 31, 2022



## EXHIBITS

## EXHIBIT A: INVESTMENT SCHEDULE

DIF I (PPP)  
(in millions)

Company	Entry Date	Exit Date	Capital Invested	Realized Value	Unrealized Value	Total Value	Ownership %	% of Gain	Gross TVPI	Gross IRR
Rochdale Schools Axiom Education	Nov-06	Nov-14	€9.33	€22.44	€0.00	€22.44	90%	12.2%	2.4x	17.8%
Hull (Healthcare Solutions)	Nov-06	Nov-14	10.7	24.0	0.0	24.0	80%	12.5%	2.2	19.8%
Caen Nacre 2008	Dec-06	Nov-14	7.3	13.5	0.0	13.5	90%	5.7%	1.8	13.4%
Douai Logi Services	Dec-06	Nov-14	0.9	2.0	0.0	2.0	90%	1.1%	2.3	16.3%
Ministry of Finance Renovation	Dec-06	Nov-14	8.7	14.3	0.0	14.3	85%	5.2%	1.6	12.8%
Danish State Archives Project	Aug-07	Nov-14	2.6	10.0	0.0	10.0	50%	6.8%	3.8	28.4%
Bristol Schools PFI	Dec-07	Nov-14	9.3	15.3	0.0	15.3	50%	5.6%	1.6	9.8%
Crawley Schools PFI	Dec-07	Nov-14	7.8	15.6	0.0	15.6	50%	7.3%	2.0	13.2%
Dalkeith Schools PFI	Dec-07	Nov-14	6.7	10.6	0.0	10.6	50%	3.7%	1.6	8.9%
East Renfrewshire Schools PFI	Dec-07	Nov-14	11.9	16.8	0.0	16.8	50%	4.6%	1.4	6.5%
Topco Ltd St. Andrews	Feb-08	Nov-14	7.1	13.5	0.0	13.5	100%	6.0%	1.9	15.3%
Lewisham PFI	Mar-08	Nov-14	7.8	10.7	0.0	10.7	100%	2.7%	1.4	5.4%
Willesden PFI	Mar-08	Nov-14	7.3	10.6	0.0	10.6	100%	3.1%	1.5	6.4%
Uttlesford PFI	Mar-08	Nov-14	3.7	7.9	0.0	7.9	100%	4.0%	2.2	13.3%
Irish Schools	Apr-09	Nov-14	10.3	16.8	0.0	16.8	100%	6.1%	1.6	13.0%
CEI (Centre d'Entretien et Intervention)	Dec-09	Nov-14	5.5	19.9	0.0	19.9	43%	13.4%	3.6	33.0%
<b>Total Realized</b>	<b>N/A</b>	<b>N/A</b>	<b>€ 116.86</b>	<b>€ 224.00</b>	<b>€ 0.00</b>	<b>€ 224.00</b>	<b>N/A</b>	<b>N/A</b>	<b>1.9</b>	<b>13.6%</b>
<b>Total Unrealized</b>	<b>N/A</b>	<b>N/A</b>	<b>€ 0.00</b>	<b>€ 0.00</b>	<b>€ 0.00</b>	<b>€ 0.00</b>	<b>N/A</b>	<b>N/A</b>		<b>0.0%</b>
<b>Total</b>			<b>€ 116.86</b>	<b>€ 224.00</b>	<b>€ 0.00</b>	<b>€ 224.00</b>	<b>N/A</b>	<b>N/A</b>	<b>1.9x</b>	<b>13.6%</b>

**DIF II**  
*(in millions)*

Company	Entry Date	Exit Date	Capital Invested	Realized Value	Unrealized Value	Total Value	Ownership %	% of Gain	Gross TVPI	Gross IRR
Windfarm Heede (DIL)	Dec-08	Sep-17	€ 14.92	€ 13.18	€ 0.00	€ 13.18	100%	-0.3%	0.9x	-1.9%
Tricomm Housing Portsmouth	Feb-09	Sep-17	12.0	43.4	0.0	43.4	100%	5.8%	3.6x	19.5%
Herts Ellenbrook	Mar-09	Sep-17	12.9	27.6	0.0	27.6	50%	2.7%	2.1x	14.7%
Windfarm Dörenberg (DIL)	Aug-09	Sep-17	4.6	3.6	0.0	3.6	100%	-0.2%	0.8x	-3.3%
Windfarm Wiesmoor (DIL)	Aug-09	Sep-17	12.4	11.7	0.0	11.7	100%	-0.1%	0.9x	-0.8%
Harrow Schools	Aug-09	Sep-17	3.0	9.3	0.0	9.3	100%	1.2%	3.1x	19.1%
Windfarm Wehrhain	Sep-09	Sep-17	8.1	6.7	0.0	6.7	100%	-0.3%	0.8x	-2.8%
Avon & Somerset	Dec-09	Sep-17	1.4	3.5	0.0	3.5	10%	0.4%	2.5x	16.1%
Belfast	Dec-09	Sep-17	7.2	21.0	0.0	21.0	50%	2.6%	2.9x	20.0%
Bradford	Dec-09	Sep-17	1.5	3.8	0.0	3.8	13%	0.4%	2.5x	15.2%
Dumfries & Galloway	Dec-09	Sep-17	6.4	16.7	0.0	16.7	43%	1.9%	2.6x	18.6%
C Vehicles (ALC)	Dec-09	Sep-17	6.1	15.2	0.0	15.2	25%	1.7%	2.5x	15.3%
Renfrewshire	Dec-09	Sep-17	4.8	12.0	0.0	12.0	18%	1.3%	2.5x	16.2%
N Ireland DBFO2	Dec-09	Sep-17	4.7	16.9	0.0	16.9	25%	2.3%	3.6x	27.3%
Norfolk Street Lighting	Dec-09	Sep-17	2.7	6.5	0.0	6.5	50%	0.7%	2.4x	20.7%
Manchester Street Lighting	Dec-09	Sep-17	2.0	4.9	0.0	4.9	25%	0.5%	2.4x	16.6%
Wakefield Street Lighting	Dec-09	Sep-17	1.2	3.6	0.0	3.6	25%	0.4%	3.0x	22.6%
Barts Hospital	Dec-09	Sep-17	19.3	44.6	0.0	44.6	13%	4.7%	2.3x	16.2%
Oresmaux	Mar-10	Sep-17	5.0	3.5	0.0	3.5	100%	-0.3%	0.7x	-5.4%
Canton de Quesnoy	Apr-10	Sep-17	3.8	6.1	0.0	6.1	100%	0.4%	1.6x	8.4%
Pouillé-les-Côteaux	Jun-10	Sep-17	4.5	0.9	0.0	0.9	100%	-0.7%	0.2x	-24.6%
Hohenseefeld + Wawern (Pooled)	Jun-10	Sep-17	4.5	4.7	0.0	4.7	100%	0.0%	1.1x	0.9%
Gabardan 2	Jun-10	Sep-17	6.1	15.4	0.0	15.4	100%	1.7%	2.5x	16.3%
Galerie (Fierville)	Jun-10	Sep-17	9.5	8.3	0.0	8.3	100%	-0.2%	0.9x	-2.4%
Irish Schools 2	Jun-10	Sep-17	16.3	30.1	0.0	30.1	80%	2.6%	1.9x	12.8%
HPCP1: Green Yellow 3, 3c, 4								N/A		
Stelplaatsen 1	Sep-10	Sep-17	9.7	16.4	0.0	16.4	91%	1.2%	1.7x	11.6%
Amadousol (Sabaranis)	Sep-10	Sep-17	4.8	16.0	0.0	16.0	100%	2.1%	3.3x	23.6%
Wawern	Oct-10	Sep-17	4.1	1.7	0.0	1.7	100%	-0.4%	0.4x	-12.0%
Eupen	Nov-10	Sep-17	6.2	12.7	0.0	12.7	62%	1.2%	2.1x	26.4%
Campigny	Nov-10	Sep-17	4.3	1.1	0.0	1.1	100%	-0.6%	0.3x	-24.6%
Remlingen	Dec-10	Sep-17	3.6	6.4	0.0	6.4	100%	0.5%	1.7x	9.8%
Gabardan 5	Dec-10	Sep-17	4.9	12.0	0.0	12.0	100%	1.3%	2.4x	17.3%
Dundalk	Jan-11	Sep-17	23.1	47.6	0.0	47.6	33%	4.6%	2.1x	14.4%
A63	Jan-11	Sep-17	35.1	138.7	0.0	138.7	17%	19.3%	3.9x	34.3%
M25	Jun-11	Sep-17	27.0	83.6	0.0	83.6	8%	10.6%	3.1x	23.0%
Finsterwalde	Jul-11	Sep-17	13.3	35.8	0.0	35.8	50%	4.2%	2.7x	23.4%
Noord Zuid Kempen	Nov-11	Sep-17	12.3	25.8	0.0	25.8	50%	2.5%	2.1x	35.6%
Strukton A15	Dec-11	Sep-17	11.4	18.8	0.0	18.8	19%	1.4%	1.7x	32.1%
Strukton Delfluent	Dec-11	Sep-17	30.4	47.3	0.0	47.3	8%	3.1%	1.6x	13.7%
Strukton DUO	Dec-11	Sep-17	2.9	4.4	0.0	4.4	24%	0.3%	1.5x	9.8%
Strukton Kromhout	Dec-11	Sep-17	13.5	22.6	0.0	22.6	24%	1.7%	1.7x	12.9%
Strukton Montaigne	Dec-11	Sep-17	0.3	0.5	0.0	0.5	36%	0.0%	1.9x	12.9%
TGI	Feb-12	Sep-17	20.0	23.6	0.0	23.6	38%	0.7%	1.2x	NM
Belfort	Jun-12	Sep-17	2.7	5.1	0.0	5.1	85%	0.4%	1.9x	31.5%
Angouleme	Oct-12	Sep-17	1.0	1.6	0.0	1.6	81%	0.1%	1.6x	40.8%
London Fire Stations	Jul-13	Sep-17	3.0	5.9	0.0	5.9	50%	0.5%	2.0x	45.6%
Sathonay	Sep-15	Sep-17	13.7	16.6	0.0	16.6	95%	0.5%	1.2x	10.9%
Windfarm Pobzig (DIL)	Aug-09	Mar-11	4.0	4.5	0.0	4.5	100%	0.1%	1.1x	9.5%
Windfarm Dornbock (DIL)	Aug-09	Mar-11	7.7	8.6	0.0	8.6	100%	0.2%	1.1x	8.5%
Windfarm Kleinpaschleben (DIL)	Aug-09	Mar-11	8.9	10.6	0.0	10.6	100%	0.3%	1.2x	13.3%
Bristol Schools PFI	Dec-09	Nov-14	6.8	13.7	0.0	13.7	50%	1.3%	2.0x	18.9%
Crawley Schools PFI	Dec-09	Nov-14	5.6	14.1	0.0	14.1	50%	1.6%	2.5x	24.2%
Dalkeith Schools PFI	Dec-09	Nov-14	4.6	9.4	0.0	9.4	50%	0.9%	2.0x	18.8%
East Renfrewshire Schools PFI	Dec-09	Nov-14	7.2	15.2	0.0	15.2	50%	1.5%	2.1x	19.6%
Eastlink	Sep-10	May-16	11.3	18.3	0.0	18.3	58%	1.3%	1.6x	20.3%
Danish State Archives Project	Mar-11	Nov-14	4.4	9.4	0.0	9.4	50%	0.9%	2.1x	24.9%
Ministry of Finance Renovation	Dec-11	Dec-14	0.8	1.1	0.0	1.1	4%	0.1%	1.4x	14.3%
<b>Total Realized</b>	<b>N/A</b>	<b>N/A</b>	<b>€ 538.16</b>	<b>€ 1,074.91</b>	<b>€ 0.00</b>	<b>€ 1,074.91</b>	<b>N/A</b>	<b>N/A</b>	<b>2.0</b>	<b>15.7%</b>
<b>Total Unrealized</b>	<b>N/A</b>	<b>N/A</b>	<b>€ 0.00</b>	<b>€ 0.00</b>	<b>€ 0.00</b>	<b>€ 0.00</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
<b>Total</b>			<b>€ 538.16</b>	<b>€ 1,074.91</b>	<b>€ 0.00</b>	<b>€ 1,074.91</b>	<b>N/A</b>	<b>N/A</b>	<b>2.0x</b>	<b>15.7%</b>

**DIF III**  
(in millions)

Company	Entry Date	Exit Date	Capital Invested	Realized Value	Unrealized Value	Total Value	Ownership %	% of Gain	Gross TVPI	Gross IRR
Grove Village	Dec-12	Apr-19	€ 6.29	€ 9.09	€ 0.00	€ 9.09	85%	0.5%	1.4x	14.9%
Toulouse (Miralis)	Dec-12	Apr-20	6.4	13.7	0.0	13.7	51%	1.2%	2.2x	24.5%
Strukton Delfluent	Mar-13	Apr-19	1.4	1.9	0.0	1.9	35%	0.1%	1.3x	15.2%
A1/A6	Mar-13	Dec-21	9.3	83.0	0.0	83.0	43%	11.9%	8.9x	31.6%
Avantage	Apr-13	Sep-17	1.4	2.2	0.0	2.2	10%	0.1%	1.6x	20.5%
Belfast	Apr-13	Sep-17	8.9	15.6	0.0	15.6	8%	1.1%	1.8x	13.8%
Bradford	Apr-13	Sep-17	1.5	2.9	0.0	2.9	40%	0.2%	1.9x	15.1%
C Vehicles (ALC)	Apr-13	Sep-17	7.0	10.9	0.0	10.9	20%	0.6%	1.6x	11.5%
Dumfries & Galloway	Apr-13	Sep-17	6.7	11.9	0.0	11.9	20%	0.8%	1.8x	15.0%
Green Yellow Lot 6	Apr-13	Sep-17	31.6	49.6	0.0	49.6	34%	2.9%	1.6x	16.7%
Netz West	Apr-13	Sep-17	12.9	63.5	0.0	63.5	20%	8.2%	4.9x	15.0%
Plaza de Castilla	Apr-13	Sep-17	13.4	22.5	0.0	22.5	40%	1.5%	1.7x	14.2%
Saint Léger (Newsolar)	Apr-13	Sep-17	12.9	24.7	0.0	24.7	14%	1.9%	1.9x	12.1%
Wakefield Street Lighting	Apr-13	Sep-17	1.3	2.3	0.0	2.3	20%	0.2%	1.8x	16.1%
Lone Valley	Apr-13	Aug-18	5.3	1.7	0.0	1.7	100%	-0.6%	0.3x	27.4%
SDIS Loiret	Jul-13	Mar-20	0.9	1.5	0.0	1.5	40%	0.1%	1.7x	6.3%
Ijmuiden Sea Lock	Oct-13	Apr-19	3.9	10.7	0.0	10.7	85%	1.1%	2.7x	15.8%
Solaire Durance	Nov-13	Apr-20	14.5	26.1	0.0	26.1	51%	1.9%	1.8x	32.5%
Principe Pio	Dec-13	Feb-20	5.5	16.5	0.0	16.5	50%	1.8%	3.0x	8.6%
Swarcliffe (YTL)	Dec-13	Feb-20	6.2	10.0	0.0	10.0	33%	0.6%	1.6x	10.3%
Toulon (Chateaubanne)	Jan-14	Apr-20	7.6	17.8	0.0	17.8	85%	1.6%	2.3x	51.4%
North Kent	Jan-14	Dec-21	5.4	8.2	0.0	8.2	95%	0.5%	1.5x	35.0%
Canadian Solar	Feb-14	Sep-18	31.5	66.7	0.0	66.7	100%	5.7%	2.1x	32.6%
A63	Apr-14	Jun-18	11.5	50.1	0.0	50.1	5%	6.2%	4.4x	47.7%
Themis	Jul-14	Apr-20	13.0	22.0	0.0	22.0	81%	1.4%	1.7x	13.8%
A7 Nord	Jul-14	Dec-21	1.8	39.5	0.0	39.5	41%	6.1%	22.0x	>50%
Green Yellow Lot 5	Jul-14	Sep-17	34.1	49.8	0.0	49.8	2%	2.5%	1.5x	12.2%
Line 9 Tram	Jul-14	Sep-20	39.6	63.6	0.0	63.6	90%	3.9%	1.6x	9.8%
Strukton Kromhout	Aug-14	Sep-18	3.3	4.0	0.0	4.0	100%	0.1%	1.2x	10.4%
Chrysalis	Nov-14	Feb-20	7.9	9.3	0.0	9.3	67%	0.2%	1.2x	3.8%
ISE School	Nov-14	Feb-20	32.4	38.1	0.0	38.1	75%	0.9%	1.2x	8.5%
Avenida de America	Nov-14	Dec-20	14.4	36.1	0.0	36.1	67%	3.5%	2.5x	<-20%
Royal Jubilee Hospital	Dec-14	Oct-20	9.3	12.3	0.0	12.3	50%	0.5%	1.3x	37.3%
Avon & Somerset	Dec-14	Jan-20	1.5	2.4	0.0	2.4	25%	0.2%	1.6x	32.6%
M3	Dec-14	Jan-20	38.6	18.8	46.4	65.2	21%	4.3%	1.7x	11.6%
RBG	Dec-14	Jan-20	3.7	9.4	0.0	9.4	9%	0.9%	2.5x	13.0%
Renfrewshire	Dec-14	Jan-20	5.3	8.2	0.0	8.2	18%	0.5%	1.5x	26.8%
Norfolk Street Lighting	Feb-15	Apr-20	3.2	5.2	0.0	5.2	55%	0.3%	1.6x	17.9%
Worcester library	Mar-15	Feb-20	13.4	13.0	0.0	13.0	100%	-0.1%	1.0x	-0.7%
M4	May-15	Feb-21	38.2	8.8	38.9	47.7	49%	1.5%	1.2x	3.8%
N Ireland DBFO2	Jun-15	Jan-20	26.1	40.2	0.0	40.2	23%	2.3%	1.5x	5.1%
Seine St. Denis (Maylia)	Jul-15	Apr-19	0.8	1.2	0.0	1.2	100%	0.1%	1.5x	22.3%
Valence (Solarphoton)	Jul-15	Apr-19	10.9	18.5	0.0	18.5	100%	1.2%	1.7x	19.6%
Lyon University (Camely)	Sep-15	Sep-17	0.8	1.8	0.0	1.8	6%	0.2%	2.2x	12.3%
Islip & Springhill	Oct-15	Aug-21	18.7	46.6	0.0	46.6	25%	4.5%	2.5x	>50%
Theia	Dec-15	Apr-20	11.1	18.5	0.0	18.5	56%	1.2%	1.7x	15.2%
M50	Feb-16	Apr-20	19.7	17.3	26.7	44.0	90%	3.9%	2.2x	25.0%
Stone Mills	Jul-16	Apr-20	10.0	14.2	0.0	14.2	43%	0.7%	1.4x	33.9%
<b>Total Realized</b>	<b>N/A</b>	<b>N/A</b>	<b>€ 520.8</b>	<b>€ 1,035.9</b>	<b>€ 0.0</b>	<b>€ 1,035.9</b>	<b>N/A</b>	<b>N/A</b>	<b>2.0</b>	<b>14.9%</b>
Manchester Street Lighting	Feb-13	N/A	€ 1.8	€ 3.2	€ 0.0	€ 3.2	34%	0.2%	1.7x	7.9%
Montpellier Train Station	Jul-13	N/A	3.8	7.2	0.0	7.2	45%	0.5%	1.9x	13.9%
UKSH	Sep-14	N/A	0.4	0.4	4.7	5.1	45%	0.8%	12.8x	>50%
Thames Tideway Tunnel	Aug-15	N/A	58.7	8.5	90.7	99.2	4%	6.5%	1.7x	10.8%
Majadahonda Hospital	Feb-16	N/A	40.6	48.6	0.0	48.6	80%	1.3%	1.2x	16.0%
<b>Total Unrealized</b>	<b>N/A</b>	<b>N/A</b>	<b>€ 155.6</b>	<b>€ 53.7</b>	<b>€ 207.4</b>	<b>€ 261.1</b>	<b>N/A</b>	<b>N/A</b>	<b>1.7</b>	<b>10.1%</b>
<b>Total</b>			<b>€ 676.4</b>	<b>€ 1,089.6</b>	<b>€ 207.4</b>	<b>€ 1,297.0</b>	<b>N/A</b>	<b>N/A</b>	<b>1.9x</b>	<b>16.8%</b>

**DIF IV**  
*(in millions)*

Company	Entry Date	Exit Date	Capital Invested	Realized Value	Unrealized Value	Total Value	Ownership %	% of Gain	Gross TVPI	Gross IRR
N18	May-16	Dec-21	€ 4.3	€ 8.4	€ 0.0	€ 8.4	48%	0.7%	2.0x	29.3%
KAV Vienna Hospital	Jun-16	Dec-21	7.2	13.7	0.0	13.7	81%	1.1%	1.9	>50%
A63	Jul-16	Mar-19	63.9	114.0	0.0	114.0	0%	8.2%	1.8	32.4%
Thyssengas	Oct-16	Oct-21	113.8	52.0	205.0	257.0	38%	23.6%	2.3	20.0%
Green Yellow Lot 7	Nov-16	Apr-19	11.7	14.6	0.0	14.6	85%	0.5%	1.2	13.0%
Newcastle North Tyneside Street Lighting	Mar-17	Feb-20	18.7	25.4	0.0	25.4	100%	1.1%	1.4	14.0%
Leeds Street Lighting	Mar-17	Feb-20	21.9	29.5	0.0	29.5	100%	1.3%	1.3	13.8%
Stoke Street Lighting	Mar-17	Feb-20	8.1	10.8	0.0	10.8	100%	0.5%	1.3	13.5%
<b>Total Realized</b>	<b>N/A</b>	<b>N/A</b>	<b>€ 135.9</b>	<b>€ 216.4</b>	<b>€ 0.0</b>	<b>€ 216.4</b>	<b>N/A</b>	<b>N/A</b>	<b>1.6</b>	<b>24.8%</b>
Thames Tideway Tunnel	Aug-15	N/A	€ 90.7	€ 13.0	€ 140.1	€ 153.1	6%	10.3%	1.7x	10.8%
Kentucky Fiber	Oct-15	N/A	19.9	6.1	29.1	35.2	68%	2.5%	1.8	14.0%
Royalla Solar	Jan-16	N/A	18.9	12.7	7.4	20.2	100%	0.2%	1.1	1.1%
Anemoui	Feb-16	N/A	100.7	54.0	132.4	186.4	53%	14.1%	1.9	14.0%
Etobicoke Hospital	May-16	N/A	4.0	3.2	3.6	6.8	50%	0.5%	1.7	29.3%
Irish Schools 5	Jul-16	N/A	8.8	0.1	3.7	3.8	75%	-0.8%	0.4	<-20%
Wadlow	Sep-16	N/A	27.4	19.3	28.2	47.5	100%	3.3%	1.7	14.8%
Mallorca Fire Station	Sep-16	N/A	4.6	0.9	14.1	15.1	100%	1.7%	3.3	26.1%
A6 West	Dec-16	N/A	1.9	2.8	4.1	6.9	70%	0.8%	3.7	>50%
Northwest Parkway	Mar-17	N/A	95.6	22.0	177.9	199.9	20%	17.2%	2.1	17.1%
Bungala 1	Apr-17	N/A	22.9	0.5	9.6	10.1	49%	-2.1%	0.4	-7.3%
Fados road portfolio	Apr-17	N/A	90.7	85.6	47.9	133.5	28%	7.1%	1.5	10.5%
Affinity	May-17	N/A	236.8	152.7	121.5	274.1	10%	6.1%	1.2	7.1%
Clare Solar Farm	May-17	N/A	35.9	0.0	17.8	17.8	50%	-3.0%	0.5	-13.5%
Aragon	Jun-17	N/A	51.0	44.5	34.9	79.4	75%	4.7%	1.6	19.5%
Herrrentunnel	Jun-17	N/A	17.1	15.2	19.0	34.2	50%	2.8%	2.0	30.5%
Bungala 2	Jul-17	N/A	21.6	0.0	14.8	14.8	49%	-1.1%	0.7	-4.7%
ASPI	Jul-17	N/A	102.2	8.8	87.0	95.8	1%	-1.1%	0.9	-1.1%
Niagara Falls EC	Aug-17	N/A	6.9	3.7	7.0	10.7	80%	0.6%	1.5	29.5%
Avertas Energy	Oct-18	N/A	28.6	0.0	24.0	24.0	24%	-0.8%	0.8	-8.0%
<b>Total Unrealized</b>	<b>N/A</b>	<b>N/A</b>	<b>€ 1,100.1</b>	<b>€ 497.1</b>	<b>€ 1,129.0</b>	<b>€ 1,626.2</b>	<b>N/A</b>	<b>N/A</b>	<b>1.5</b>	<b>11.5%</b>
<b>Total</b>			<b>€ 1,235.9</b>	<b>€ 713.5</b>	<b>€ 1,129.0</b>	<b>€ 1,842.6</b>	<b>N/A</b>	<b>N/A</b>	<b>1.5x</b>	<b>12.4%</b>

**DIF V**  
*(in millions)*

Company	Entry Date	Exit Date	Capital Invested	Realized Value	Unrealized Value	Total Value	Ownership %	% of Gain	Gross TVPI	Gross IRR
Regional Rail	Feb-19	Mar-22	€ 0.7	€ 1.1	€ 0.0	€ 1.1	26%	0.1%	1.8x	>50%
<b>Total Realized</b>	<b>N/A</b>	<b>N/A</b>	<b>€ 0.7</b>	<b>€ 1.1</b>	<b>€ 0.0</b>	<b>€ 1.1</b>	<b>N/A</b>	<b>N/A</b>	<b>1.8</b>	<b>&gt;50%</b>
Affinity	Jun-17	Jan-00	€ 136.7	€ 6.7	€ 198.2	€ 204.9	17%	11.0%	1.5	9.6%
French toll road	Jun-17	Jan-00	15.5	3.5	31.6	35.1	4%	3.2%	2.3	20.0%
ASPI	Jul-17	Jan-00	104.0	8.9	87.7	96.6	1%	-1.2%	0.9	-1.3%
UTAS	Sep-17	Jan-00	62.0	4.0	61.8	65.9	100%	0.6%	1.1	6.5%
A1 Poland	Dec-17	Jan-00	44.1	21.5	43.3	64.8	9%	3.4%	1.5	11.9%
Synergy	Apr-18	Jan-00	39.5	5.8	70.7	76.4	40%	6.0%	1.9	44.6%
A150	May-18	Jan-00	86.9	6.0	148.6	154.6	67%	10.9%	1.8	16.9%
American Roads	Jul-18	Jan-00	76.4	18.5	111.3	129.8	100%	8.6%	1.7	19.0%
Avertas Energy	Oct-18	Jan-00	43.0	0.2	36.0	36.2	36%	-1.1%	0.8	-7.9%
Liege Tram	Jan-19	Jan-00	0.3	1.7	2.1	3.8	80%	0.6%	14.7	>50%
Vallecas Hospital	Jan-19	Jan-00	42.7	14.0	25.7	39.7	100%	-0.5%	0.9	-2.7%
Walloon Streetlighting	Feb-19	Jan-00	0.2	0.2	1.7	2.0	70%	0.3%	9.1	>50%
Dublin WtE PPP	May-19	Jan-00	259.4	97.2	212.2	309.4	31%	8.1%	1.2	9.8%
Karratha Accommodation Facility	Jun-19	Jan-00	12.8	3.0	19.5	22.5	100%	1.6%	1.8	43.9%
Cross River Rail	Jul-19	Jan-00	1.2	3.4	1.2	4.6	26%	0.6%	3.9	>50%
Loimua	Jul-19	Jan-00	146.2	28.1	174.2	202.3	38%	9.1%	1.4	14.9%
Idaho Wind Partners/Brahms Wind	Jul-19	Jan-00	79.4	18.6	92.4	111.0	75%	5.1%	1.4	15.7%
Monza Road Portfolio	Nov-19	Jan-00	87.8	2.4	104.9	107.4	49%	3.2%	1.2	13.9%
BluEarth	Nov-19	Jan-00	322.4	170.6	317.2	487.8	51%	26.7%	1.5	45.8%
SA Schools PPP	Dec-19	Jan-00	7.1	0.6	8.0	8.6	78%	0.3%	1.2	>50%
Cerro Grande	Dec-19	Jan-00	54.9	31.5	45.5	77.0	100%	3.6%	1.4	25.1%
Goldsmiths University	Dec-21	Jan-00	11.9	0.0	12.2	12.2	90%	0.0%	1.0	8.6%
LSE Glengall Road	Dec-21	Jan-00	0.8	0.0	0.9	0.9	80%	0.0%	1.0	10.8%
<b>Total Unrealized</b>	<b>N/A</b>	<b>N/A</b>	<b>€ 1,635.3</b>	<b>€ 446.5</b>	<b>€ 1,806.8</b>	<b>€ 2,253.3</b>	<b>N/A</b>	<b>N/A</b>	<b>1.4</b>	<b>15.6%</b>
<b>Total</b>			<b>€ 1,636.0</b>	<b>€ 447.6</b>	<b>€ 1,806.8</b>	<b>€ 2,254.5</b>	<b>N/A</b>	<b>N/A</b>	<b>1.4x</b>	<b>15.7%</b>

**DIF VI**  
(in millions)

Company	Entry Date	Exit Date	Capital Invested	Realized Value	Unrealized Value	Total Value	Ownership %	% of Gain	Gross TVPI	Gross IRR
<b>Total Realized</b>	<b>N/A</b>	<b>N/A</b>	<b>€ 0.0</b>	<b>€ 0.0</b>	<b>€ 0.0</b>	<b>€ 0.0</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
BluEarth	Apr-20	N/A	€ 179.6	€ 23.0	€ 406.5	€ 429.5	49%	73.5%	2.4	>50%
Cascade Power	Aug-20	N/A	60.9	-2.6	68.7	66.1	33%	1.5%	1.1	30.0%
Fados Road Portfolio	Dec-20	N/A	56.7	3.7	77.8	81.5	49%	7.3%	1.4	23.7%
Grace Wind Farms	Dec-20	N/A	2.7	2.0	14.0	16.0	100%	3.9%	5.9	35.8%
Peralta	Mar-21	N/A	36.2	1.7	41.6	43.2	100%	2.1%	1.2	20.3%
BTS Toll Road	Apr-21	N/A	38.4	0.0	44.4	44.4	38%	1.8%	1.2	19.0%
White Eagle Wind Farms	May-21	N/A	138.0	0.2	141.2	141.4	100%	1.0%	1.0	6.1%
Toledo Hospital	Jun-21	N/A	75.6	0.2	76.3	76.5	33%	0.3%	1.0	1.3%
Kingfisher Wind	Sep-21	N/A	76.9	3.0	83.6	86.6	100%	2.8%	1.1	23.4%
lb vogt	Oct-21	N/A	311.4	0.0	313.0	313.0	32%	0.5%	1.0	10.1%
Bernhard	Nov-21	N/A	301.7	3.6	315.6	319.2	55%	5.1%	1.1	13.9%
Dombasle WtE	Dec-21	N/A	0.2	0.1	0.6	0.7	80%	0.2%	4.4	10.9%
North East Link	Dec-21	N/A	0.7	0.5	0.3	0.8	20%	0.0%	1.1	12.4%
<b>Total Unrealized</b>	<b>N/A</b>	<b>N/A</b>	<b>€ 1,279.1</b>	<b>€ 35.3</b>	<b>€ 1,583.7</b>	<b>€ 1,619.0</b>	<b>N/A</b>	<b>N/A</b>	<b>1.3</b>	<b>34.0%</b>
<b>Total</b>			<b>€ 1,279.1</b>	<b>€ 35.3</b>	<b>€ 1,583.7</b>	<b>€ 1,619.0</b>	<b>N/A</b>	<b>N/A</b>	<b>1.3x</b>	<b>34.0%</b>

**EXHIBIT B: REALIZED AND UNREALIZED INVESTMENT SCHEDULE**

Fund	# of Inv.	Capital Invested	Realized Value	Unrealized Value	Gross TVPI	Gross IRR
DIF I (PPP) - Realized	16	€ 116.9	€ 224.0	€ 0.0	1.9x	13.6%
DIF I (PPP) - Unrealized	0	€ 0.0	€ 0.0	€ 0.0	N/A	N/A
	<b>16</b>	<b>€ 116.9</b>	<b>€ 224.0</b>	<b>€ 0.0</b>	<b>1.9x</b>	<b>13.6%</b>
DIF II - Realized	58	€ 538.2	€ 1,074.9	€ 0.0	2.0x	15.7%
DIF II - Unrealized	0	€ 0.0	€ 0.0	€ 0.0	N/A	N/A
	<b>58</b>	<b>€ 538.2</b>	<b>€ 1,074.9</b>	<b>€ 0.0</b>	<b>2.0x</b>	<b>15.7%</b>
DIF III - Realized	48	€ 520.8	€ 1,035.9	€ 0.0	2.0x	18.3%
DIF III - Unrealized	5	€ 155.6	€ 53.7	€ 207.4	1.7	10.1%
	<b>53</b>	<b>€ 676.4</b>	<b>€ 1,089.6</b>	<b>€ 207.4</b>	<b>1.9x</b>	<b>16.8%</b>
DIF IV - Realized	7	€ 135.9	€ 216.4	€ 0.0	1.6x	24.8%
DIF IV - Unrealized	21	€ 1,100.1	€ 497.1	€ 1,129.0	1.5	11.5%
	<b>28</b>	<b>€ 1,235.9</b>	<b>€ 713.5</b>	<b>€ 1,129.0</b>	<b>1.5x</b>	<b>12.4%</b>
DIF V - Realized	1	€ 0.7	€ 1.1	€ 0.0	1.8x	>50%
DIF V - Unrealized	23	€ 1,635.3	€ 446.5	€ 1,806.8	1.4	15.6%
	<b>24</b>	<b>€ 1,636.0</b>	<b>€ 447.6</b>	<b>€ 1,806.8</b>	<b>1.4x</b>	<b>15.7%</b>
DIF VI - Realized	0	€ 0.0	€ 0.0	€ 0.0	0.0x	0.0%
DIF VI - Unrealized	13	€ 1,279.1	€ 35.3	€ 1,583.7	1.3	34.0%
	<b>13</b>	<b>€ 1,279.1</b>	<b>€ 35.3</b>	<b>€ 1,583.7</b>	<b>1.3x</b>	<b>34.0%</b>
<i>All Prior Funds - Realized</i>	130	€ 1,312.3	€ 2,552.3	€ 0.0	1.9x	16.3%
<i>All Prior Funds - Unrealized</i>	62	€ 4,170.1	€ 1,032.7	€ 4,726.9	1.4x	14.6%
<b>All Prior Funds - Total</b>	<b>192</b>	<b>€ 5,482.4</b>	<b>€ 3,585.0</b>	<b>€ 4,727.0</b>	<b>1.5</b>	<b>15.5%</b>

## EXHIBIT C: PERFORMANCE BY SECTORS

## DIF I (PPP)

Industry	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
Social Infrastructure	16	€ 116.9	€ 224.0	€ 0.0	€ 224.0	100.0%	0.0%	100.0%	1.9x	13.6%
<b>Total</b>	<b>16</b>	<b>€ 116.9</b>	<b>€ 224.0</b>	<b>€ 0.0</b>	<b>€ 224.0</b>	<b>100.0%</b>	<b>0.0%</b>	<b>N/A</b>	<b>1.9x</b>	<b>13.6%</b>

## DIF II

Industry	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
Renewable Energy	20	€ 183.8	€ 263.5	€ 0.0	€ 263.5	34.2%	9.1%	14.8%	1.4x	7.3%
Social Infrastructure	29	193.0	399.2	0.0	399.2	35.9%	0.0%	38.4%	2.1	17.6%
Transportation	8	131.0	365.0	0.0	365.0	24.3%	0.0%	43.6%	2.8	24.4%
Utilities	1	30.4	47.3	0.0	47.3	5.6%	0.0%	3.1%	1.6	13.7%
<b>Total</b>	<b>58</b>	<b>€ 538.2</b>	<b>€ 1,074.9</b>	<b>€ 0.0</b>	<b>€ 1,074.9</b>	<b>100.0%</b>	<b>3.1%</b>	<b>N/A</b>	<b>2.0x</b>	<b>15.7%</b>

## DIF III

Industry	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
Transportation	11	€ 115.9	€ 321.4	€ 0.0	€ 321.4	17.1%	0.0%	33.1%	2.8x	21.4%
Social Infrastructure	30	358.5	569.5	77.8	647.4	53.0%	0.1%	46.5%	1.8	12.4%
Renewable Energy	9	101.6	122.6	38.9	161.5	15.0%	3.5%	9.7%	1.6	17.9%
Waste	3	100.3	76.1	90.7	166.7	14.8%	0.0%	10.7%	1.7	12.7%
<b>Total</b>	<b>53</b>	<b>€ 676.4</b>	<b>€ 1,089.6</b>	<b>€ 207.4</b>	<b>€ 1,297.0</b>	<b>100.0%</b>	<b>0.6%</b>	<b>N/A</b>	<b>1.9x</b>	<b>16.8%</b>

## DIF IV

Industry	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
Transportation	8	€ 426.7	€ 301.3	€ 370.8	€ 672.1	34.5%	1.5%	40.5%	1.6x	13.8%
Utilities	3	441.4	217.7	466.5	684.3	35.7%	0.0%	40.0%	1.6	13.3%
Renewable Energy	8	267.7	101.0	234.2	335.2	21.7%	15.8%	11.1%	1.3	8.1%
Social Infrastructure	8	80.3	87.4	28.4	115.8	6.5%	6.2%	5.9%	1.4	15.4%
Communication	1	19.9	6.1	29.1	35.2	1.6%	0.0%	2.5%	1.8	13.8%
<b>Total</b>	<b>28</b>	<b>€ 1,235.9</b>	<b>€ 713.5</b>	<b>€ 1,129.0</b>	<b>€ 1,842.6</b>	<b>100.0%</b>	<b>4.3%</b>	<b>N/A</b>	<b>1.5x</b>	<b>12.4%</b>

## DIF V

Industry	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
Transportation	9	€ 416.9	€ 67.0	€ 530.8	€ 597.8	25.5%	1.8%	29.3%	1.4x	11.8%
Utilities	2	282.9	34.8	372.4	407.2	17.3%	0.0%	20.1%	1.4	11.1%
Renewable Energy	6	798.6	323.9	773.9	1,097.8	48.8%	0.9%	48.4%	1.4	25.6%
Social Infrastructure	7	137.5	21.9	129.8	151.6	8.4%	2.2%	2.3%	1.1	8.3%
<b>Total</b>	<b>24</b>	<b>€ 1,636.0</b>	<b>€ 447.6</b>	<b>€ 1,806.8</b>	<b>€ 2,254.5</b>	<b>100.0%</b>	<b>1.1%</b>	<b>N/A</b>	<b>1.4x</b>	<b>15.7%</b>

## DIF VI

Industry	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
Energy	1	€ 301.7	€ 3.6	€ 315.6	€ 319.2	23.6%	0.0%	5.1%	1.1x	9.9%
Renewable Energy	6	744.9	29.9	1,000.0	1,029.8	58.2%	0.0%	83.8%	1.4	47.3%
Transportation	3	95.8	4.2	122.6	126.7	7.5%	0.0%	9.1%	1.3	21.8%
Utilities	2	61.1	-2.5	69.3	66.8	4.8%	0.0%	1.7%	1.1	23.0%
Social Infrastructure	1	75.6	0.2	76.3	76.5	5.9%	0.0%	0.3%	1.0	1.2%
<b>Total</b>	<b>13</b>	<b>€ 1,279.1</b>	<b>€ 35.3</b>	<b>€ 1,583.7</b>	<b>€ 1,619.0</b>	<b>100.0%</b>	<b>0.0%</b>	<b>N/A</b>	<b>1.3x</b>	<b>34.0%</b>

## Investments by Industry Since Inception

Industry	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	% of Gain	Gross TVPI
Renewable Energy	49	€ 2,096.6	€ 840.9	€ 2,047.0	€ 2,887.8	38.2%	28.0%	1.4x
Social Infrastructure	91	961.8	1,302.2	312.3	1,614.5	17.5%	23.1%	1.7
Transportation	39	1,186.3	1,058.8	1,024.2	2,083.0	21.6%	31.7%	1.8
Utilities	8	815.8	297.4	908.2	1,205.5	14.9%	13.8%	1.5
Energy	1	301.7	3.6	315.6	319.2	5.5%	0.6%	1.1
Waste	3	100.3	76.1	90.7	166.7	1.8%	2.3%	1.7
Communication	1	19.9	6.1	29.1	35.2	0.4%	0.5%	1.8
<b>Total</b>	<b>192</b>	<b>€ 5,482.4</b>	<b>€ 3,585.0</b>	<b>€ 4,727.0</b>	<b>€ 8,312.0</b>	<b>100.0%</b>	<b>N/A</b>	<b>1.5x</b>



## EXHIBIT D: PERFORMANCE BY STAGE TYPE

## DIF I (PPP)

Type	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
Brownfield	7	€ 54.4	€ 87.6	€ 0.0	€ 87.6	46.5%	0.0%	31.0%	1.6x	8.8%
Greenfield	9	62.5	136.4	0.0	136.4	53.5%	0.0%	69.0%	2.2	18.3%
<b>Total</b>	<b>16</b>	<b>€ 116.9</b>	<b>€ 224.0</b>	<b>€ 0.0</b>	<b>€ 224.0</b>	<b>100.0%</b>	<b>0.0%</b>	<b>N/A</b>	<b>1.9x</b>	<b>13.6%</b>

## DIF II

Type	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
Brownfield	34	€ 285.1	€ 537.8	€ 0.0	€ 537.8	53.0%	2.1%	47.1%	1.9x	14.0%
Greenfield	24	253.1	537.1	0.0	537.1	47.0%	4.2%	52.9%	2.1	17.8%
<b>Total</b>	<b>58</b>	<b>€ 538.2</b>	<b>€ 1,074.9</b>	<b>€ 0.0</b>	<b>€ 1,074.9</b>	<b>100.0%</b>	<b>3.1%</b>	<b>N/A</b>	<b>2.0x</b>	<b>15.7%</b>

## DIF III

Type	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
Greenfield	16	€ 208.9	€ 416.9	€ 122.1	€ 538.9	30.9%	0.0%	53.2%	2.6x	25.2%
Brownfield	37	467.5	672.7	85.3	758.1	69.1%	0.8%	46.8%	1.6	12.9%
<b>Total</b>	<b>53</b>	<b>€ 676.4</b>	<b>€ 1,089.6</b>	<b>€ 207.4</b>	<b>€ 1,297.0</b>	<b>100.0%</b>	<b>0.6%</b>	<b>N/A</b>	<b>1.9x</b>	<b>16.8%</b>

## DIF IV

Type	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
Brownfield	16	€ 983.3	€ 662.1	€ 875.3	€ 1,537.4	79.6%	0.7%	91.3%	1.6x	13.8%
Greenfield	12	252.6	51.4	253.7	305.2	20.4%	18.7%	8.7%	1.2	7.0%
<b>Total</b>	<b>28</b>	<b>€ 1,235.9</b>	<b>€ 713.5</b>	<b>€ 1,129.0</b>	<b>€ 1,842.6</b>	<b>100.0%</b>	<b>4.3%</b>	<b>N/A</b>	<b>1.5x</b>	<b>12.4%</b>

## DIF V

Type	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
Brownfield	15	€ 1,530.4	€ 431.6	€ 1,666.7	€ 2,098.3	93.5%	0.7%	91.8%	1.4x	14.9%
Greenfield	8	66.1	10.3	69.4	79.7	4.0%	10.3%	2.2%	1.2	35.2%
Greenfield & Brownfield	1	39.5	5.8	70.7	76.4	2.4%	0.0%	6.0%	1.9	43.5%
<b>Total</b>	<b>24</b>	<b>€ 1,636.0</b>	<b>€ 447.6</b>	<b>€ 1,806.8</b>	<b>€ 2,254.5</b>	<b>100.0%</b>	<b>1.1%</b>	<b>N/A</b>	<b>1.4x</b>	<b>15.7%</b>

## DIF VI

Type	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
Brownfield	7	€ 765.2	€ 35.1	€ 1,045.9	€ 1,081.0	59.8%	0.0%	92.9%	1.4x	38.9%
Greenfield	5	202.5	0.3	224.8	225.1	15.8%	0.0%	6.6%	1.1	18.0%
Greenfield & Brownfield	1	311.4	0.0	313.0	313.0	24.3%	0.0%	0.5%	1.0	2.1%
<b>Total</b>	<b>13</b>	<b>€ 1,279.1</b>	<b>€ 35.3</b>	<b>€ 1,583.7</b>	<b>€ 1,619.0</b>	<b>100.0%</b>	<b>0.0%</b>	<b>N/A</b>	<b>1.3x</b>	<b>34.0%</b>

## Investments by Stage Since Inception

Type	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Gross TVPI	% of Gain
Brownfield	116	€ 4,085.8	€ 2,426.9	€ 3,673.3	€ 6,100.1	74.5%	1.5x	71.2%
Greenfield	74	1,045.7	1,152.3	670.0	1,822.4	19.1%	1.7	27.4%
Greenfield & Brownfield	2	350.9	5.8	383.7	389.4	6.4%	1.1	1.4%
<b>Total</b>	<b>192</b>	<b>€ 5,482.4</b>	<b>€ 3,585.0</b>	<b>€ 4,727.0</b>	<b>€ 8,312.0</b>	<b>100.0%</b>	<b>1.5x</b>	<b>N/A</b>

## EXHIBIT E: PERFORMANCE BY GEOGRAPHIES

## DIF I (PPP)

Geography	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
UK	10	€ 81.5	€ 147.6	€ 0.0	€ 147.6	69.7%	0.0%	61.7%	1.8x	11.7%
Europe	6	35.4	76.4	0.0	76.4	30.3%	0.0%	38.3%	2.2	18.7%
<b>Total</b>	<b>16</b>	<b>€ 116.9</b>	<b>€ 224.0</b>	<b>€ 0.0</b>	<b>€ 224.0</b>	<b>100.0%</b>	<b>0.0%</b>	<b>N/A</b>	<b>1.9x</b>	<b>13.6%</b>

## DIF II

Geography	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
UK	20	€ 139.5	€ 370.9	€ 0.0	€ 370.9	25.9%	0.0%	43.1%	2.7x	19.3%
Europe	38	398.6	704.0	0.0	704.0	74.1%	4.2%	56.9%	1.8	13.6%
<b>Total</b>	<b>58</b>	<b>€ 538.2</b>	<b>€ 1,074.9</b>	<b>€ 0.0</b>	<b>€ 1,074.9</b>	<b>100.0%</b>	<b>3.1%</b>	<b>N/A</b>	<b>2.0x</b>	<b>15.7%</b>

## DIF III

Geography	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
UK	18	€ 241.4	€ 339.2	€ 90.7	€ 429.9	35.7%	1.6%	30.4%	1.8x	12.5%
Europe	31	361.1	669.3	77.8	747.2	53.4%	0.0%	62.2%	2.1	19.0%
Canada	3	35.7	72.3	0.0	72.3	5.3%	0.0%	5.9%	2.0	21.1%
U.S.	1	38.2	8.8	38.9	47.7	5.6%	0.0%	1.5%	1.2	3.8%
<b>Total</b>	<b>53</b>	<b>€ 676.4</b>	<b>€ 1,089.6</b>	<b>€ 207.4</b>	<b>€ 1,297.0</b>	<b>100.0%</b>	<b>0.6%</b>	<b>N/A</b>	<b>1.9x</b>	<b>16.8%</b>

## DIF IV

Geography	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
UK	6	€ 403.7	€ 250.8	€ 289.7	€ 540.5	32.7%	0.0%	22.5%	1.3x	10.0%
Europe	12	477.2	360.6	415.7	776.3	38.6%	2.4%	49.3%	1.6	15.1%
Australia	5	127.8	13.2	73.6	86.8	10.3%	33.1%	-6.8%	0.7	-7.1%
Canada	2	11.0	6.9	10.6	17.5	0.9%	0.0%	1.1%	1.6	27.2%
U.S.	3	216.2	82.0	339.4	421.4	17.5%	0.0%	33.8%	1.9	15.2%
<b>Total</b>	<b>28</b>	<b>€ 1,235.9</b>	<b>€ 713.5</b>	<b>€ 1,129.0</b>	<b>€ 1,842.6</b>	<b>100.0%</b>	<b>4.3%</b>	<b>N/A</b>	<b>1.5x</b>	<b>12.4%</b>

## DIF V

Geography	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
UK	3	€ 149.5	€ 6.7	€ 211.2	€ 217.9	9.1%	0.0%	11.1%	1.5x	9.4%
Europe	9	699.3	181.2	727.1	908.2	42.7%	1.5%	33.8%	1.3	9.7%
Australia	7	166.2	18.2	197.2	215.4	10.2%	4.1%	7.9%	1.3	18.7%
Canada	1	322.4	170.6	317.2	487.8	19.7%	0.0%	26.7%	1.5	45.2%
U.S.	2	155.8	37.1	203.7	240.8	9.5%	0.0%	13.7%	1.5	17.5%
South America	2	142.7	33.9	150.4	184.3	8.7%	0.0%	6.7%	1.3	17.2%
<b>Total</b>	<b>24</b>	<b>€ 1,636.0</b>	<b>€ 447.6</b>	<b>€ 1,806.8</b>	<b>€ 2,254.5</b>	<b>100.0%</b>	<b>1.1%</b>	<b>N/A</b>	<b>1.4x</b>	<b>15.7%</b>

## DIF VI

Geography	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	% of Gain	Gross TVPI	Gross IRR
Europe	6	€ 584.6	€ 6.3	€ 623.0	€ 629.2	45.7%	0.0%	13.1%	1.1x	12.6%
Australia	1	0.7	0.5	0.3	0.8	0.1%	0.0%	0.0%	1.1	53.8%
Canada	2	240.6	20.4	475.2	495.6	18.8%	0.0%	75.0%	2.1	64.1%
U.S.	2	378.7	6.5	399.2	405.8	29.6%	0.0%	8.0%	1.1	12.1%
South America	2	74.7	1.7	86.0	87.7	5.8%	0.0%	3.8%	1.2	18.0%
<b>Total</b>	<b>13</b>	<b>€ 1,279.1</b>	<b>€ 35.3</b>	<b>€ 1,583.7</b>	<b>€ 1,619.0</b>	<b>100.0%</b>	<b>0.0%</b>	<b>N/A</b>	<b>1.3x</b>	<b>34.0%</b>

## Investments by Geography Since Inception

Geography	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Gross TVPI	% of Gain
UK	57	€ 1,015.5	€ 1,115.2	€ 591.6	€ 1,706.8	18.5%	1.7x	24.4%
Europe	102	2,556.3	1,997.8	1,843.6	3,841.4	46.6%	1.5	45.4%
Australia	13	294.7	31.9	271.1	303.0	5.4%	1.0	0.3%
U.S.	8	788.9	134.5	981.2	1,115.7	14.4%	1.4	11.5%
Canada	8	609.7	270.2	803.0	1,073.2	11.1%	1.8	16.4%
South America	4	217.3	35.5	236.4	272.0	4.0%	1.3	1.9%
<b>Total</b>	<b>192</b>	<b>€ 5,482.4</b>	<b>€ 3,585.0</b>	<b>€ 4,727.0</b>	<b>€ 8,312.0</b>	<b>100.0%</b>	<b>1.5x</b>	<b>N/A</b>

## EXHIBIT F: PERFORMANCE BY REVENUE TYPE

## DIF I (PPP)

Revenue Type	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	Gross TVPI	Gross IRR
PPP-Availability	16	€ 116.9	€ 224.0	€ 0.0	€ 224.0	100.0%	0.0%	1.9x	13.6%
<b>Total</b>	<b>16</b>	<b>€ 116.9</b>	<b>€ 224.0</b>	<b>€ 0.0</b>	<b>€ 224.0</b>	<b>100.0%</b>	<b>0.0%</b>	<b>1.9x</b>	<b>13.6%</b>

## DIF II

Revenue Type	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	Gross TVPI	Gross IRR
Contracted	28	€ 314.8	€ 628.4	€ 0.0	€ 628.4	58.5%	5.3%	2.0x	14.7%
PPP-Availability	30	223.4	446.5	0.0	446.5	41.5%	0.0%	2.0	17.3%
<b>Total</b>	<b>58</b>	<b>€ 538.2</b>	<b>€ 1,074.9</b>	<b>€ 0.0</b>	<b>€ 1,074.9</b>	<b>100.0%</b>	<b>3.1%</b>	<b>2.0x</b>	<b>15.7%</b>

## DIF III

Revenue Type	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	Gross TVPI	Gross IRR
Contracted	9	€ 101.6	€ 122.6	€ 38.9	€ 161.5	15.0%	3.5%	1.6x	17.9%
PPP-Availability	39	454.6	838.9	77.8	916.8	67.2%	0.1%	2.0	16.7%
Regulated	1	58.7	8.5	90.7	99.2	8.7%	0.0%	1.7	10.7%
Volume-Based	4	61.5	119.5	0.0	119.5	9.1%	0.0%	1.9	0.0%
<b>Total</b>	<b>53</b>	<b>€ 676.4</b>	<b>€ 1,089.6</b>	<b>€ 207.4</b>	<b>€ 1,297.0</b>	<b>100.0%</b>	<b>0.6%</b>	<b>1.9x</b>	<b>16.8%</b>

## DIF IV

Revenue Type	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	Gross TVPI	Gross IRR
Contracted	13	€ 817.5	€ 432.8	€ 686.0	€ 1,118.8	66.1%	3.7%	1.4x	10.1%
PPP-Availability	12	345.6	157.4	428.9	586.3	28.0%	6.7%	1.7	14.2%
Regulated	3	72.8	123.3	14.1	137.4	5.9%	0.0%	1.9	31.5%
<b>Total</b>	<b>28</b>	<b>€ 1,235.9</b>	<b>€ 713.5</b>	<b>€ 1,129.0</b>	<b>€ 1,842.6</b>	<b>100.0%</b>	<b>4.3%</b>	<b>1.5x</b>	<b>12.4%</b>

## DIF V

Revenue Type	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	Gross TVPI	Gross IRR
Contracted	13	€ 1,167.7	€ 348.8	€ 1,221.6	€ 1,570.3	71.4%	1.2%	1.3x	17.3%
PPP-Availability	8	109.0	45.5	101.6	147.1	6.7%	2.8%	1.4	14.1%
Regulated	2	282.9	34.8	372.4	407.2	17.3%	0.0%	1.4	11.1%
Volume-Based	1	76.4	18.5	111.3	129.8	4.7%	0.0%	1.7	18.9%
<b>Total</b>	<b>24</b>	<b>€ 1,636.0</b>	<b>€ 447.6</b>	<b>€ 1,806.8</b>	<b>€ 2,254.5</b>	<b>100.0%</b>	<b>1.1%</b>	<b>1.4x</b>	<b>15.7%</b>

## DIF VI

Revenue Type	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	Loss Ratio by Invested Capital	Gross TVPI	Gross IRR
Contracted	8	€ 1,008.3	€ 30.6	€ 1,277.0	€ 1,307.6	78.8%	0.0%	1.3x	39.9%
PPP-Availability	3	133.0	4.4	154.5	158.8	10.4%	0.0%	1.2	14.4%
Regulated	1	60.9	-2.6	68.7	66.1	4.8%	0.0%	1.1	23.5%
Volume-Based	1	76.9	3.0	83.6	86.6	6.0%	0.0%	1.1	20.1%
<b>Total</b>	<b>13</b>	<b>€ 1,279.1</b>	<b>€ 35.3</b>	<b>€ 1,583.7</b>	<b>€ 1,619.0</b>	<b>100.0%</b>	<b>0.0%</b>	<b>1.3x</b>	<b>34.0%</b>

## Investments by Revenue Type Since Inception

Revenue Type	# of Deals	Capital Invested	Proceeds	Unrealized	Total Value	% of Cost	% of Gain	Gross TVPI
Contracted	71	€ 3,409.9	€ 1,563.2	€ 3,223.4	€ 4,786.6	62.2%	48.7%	1.4x
PPP-Availability	108	1,382.4	1,716.7	762.8	2,479.5	25.2%	38.8%	1.8
Regulated	7	475.3	164.1	545.9	709.9	8.7%	8.3%	1.5
Volume-Based	6	214.8	141.0	194.9	335.9	3.9%	4.3%	1.6
<b>Total</b>	<b>192</b>	<b>€ 5,482.4</b>	<b>€ 3,585.0</b>	<b>€ 4,727.0</b>	<b>€ 8,312.0</b>	<b>100.0%</b>	<b>N/A</b>	<b>1.5x</b>

## EXHIBIT G: PIPELINE

## Infrastructure

Investment	Sector	Status	Equity ticket	Internal approvals	Equity stake	Stage	Country	Target IRR
Project Tree	District Heating	Limited process	TBD	Pre TPAF	Majority	D	UK	>13%
Project XYZ	Toll Road	Likely wont reach price agreement						
Copperstring	Electricity Grid	Likely wont reach agreement with state		TPAF		D	Australia	>10%
Project Kinzigtal	Rail	Exclusive	Ca. € 35 mln	IC scheduled	100%	C	Germany	>13%
Project XYZ	Student Housing	NBO	€ 150- 175 mln	TPAF	50%	D+O	Spain	>10%
Project XYZ	Toll Road	Likely wont reach price agreement / possible exit	Tbc			O	France	~10%
Project Toll	Toll Road	Discussions ongoing	Tbc	IC approved	50%	O	Spain	>10%
Project Geo	Heat pumps	Discussions ongoing	\$100-200 mln	TPAF	tbc	D+C+O	Canada	>10%
Project XYZ	Rail PPP	NBO	tbc	TPAF	tbc	O	Italy	>10%
Project XYZ	WtE/biomass	Pre NBO	Tbc	No	50%	D+O	Denmark	>10%
Project XYZ	Concessions	Pre NBO	Tbc	No	Tbc	O	Ireland	~10%
<b>Add-ons</b>								
Loimua (DIF V)	District Heating		Various	No	100%	O	Finland	>10%

## Renewable generation / related storage

Investment	Sector	Status	Equity ticket	Internal approvals	Equity stake	Stage	Country	Target IRR
Project XYZ	Various	Nearing exclusivity	~€250 mln	IC approved	~20%	D+C+O	France / Global	>13%
Project Verdant	Solar + battery portfolio	Exclusive	~€300 mln	Pre-IC	100%	D+C	UK	>12%
Project XYZ	C&I Solar	Nearing exclusivity	~€150 mln	TPAF	51%	D+C	Sweden	>12%
Project Siren	Offshore	Pre-emptive offer submitted	~€150 mln	TPAF	100%	O	UK	>15%
Project XYZ	Wind +solar +H2	1 of 3 in phase 2	~€300 mln	TPAF	10-15%	D+C+O	Denmark / Global	>12%
Multiple early phase offers								
<b>Add-ons</b>								
Battery add-on (IB Vogt)	Storage	In negotiations	~€20 mln	no	51%	D+C	UK	>12%
Hand Hills (BluEarth)	Wind (Onshore)	Construction ongoing	~€ 80 mln	IC approved	100%	O+D+C	Canada (Alberta)	>10%
Two Rivers (BluEarth)	Wind (Onshore)	Near PPA signing	~€ 50 mln	IC approved	50%	O+D+C	US	>10%
Wheatcrest (BluEarth)	Solar		~€ 35 mln	IC scheduled	100%	O+D+C	Canada (Alberta)	>10%

## PPP Procurements

Investment	Sector	Status	Equity ticket	Internal approvals	Equity stake	Stage	Country	Target IRR
Project XYZ	PPP/Rail	Teamed (Pre-Launch)	ca. € 50 mln	No	Majority	D+C	Ireland	>15%
Western Sydney Metro	PPP/Rail	Teamed (RFP)	Ca € 50 mln	Yes	25%	D+C	Australia	>15%
Project XYZ	Toll Road	Teamed (RFP)	ca. € 50 mln	No	minority	D+C	US	>15%
Project XYZ	Water purification	Teamed (RFP)	Ca € 30 mln	No	49%	D+C	US	>15%
Project XYZ	Water	Teaming discussions	TBD	No	TBD	D	UK	>10%

## EXHIBIT H: ORGANIZATIONAL CHART

## Investment team

DIF has separate dedicated investment teams for its infrastructure equity and private debt strategies:

Infrastructure Equity			Credit
Origination	Asset Management	Exits	
<ul style="list-style-type: none"> <li>61 employees</li> <li>Headed by: <b>Gijs Voskuyl &amp; Willem Jansonius</b></li> </ul>	<ul style="list-style-type: none"> <li>37 employees</li> <li>Headed by: <b>Angela Roshier</b></li> </ul>	<ul style="list-style-type: none"> <li>7 employees</li> <li>Headed by: <b>Andrew Freeman</b></li> </ul>	<ul style="list-style-type: none"> <li>3 employees</li> <li>Headed by: <b>Hugo Peek</b></li> </ul>

## Support staff

DIF's investment teams are supported by various specialist teams:

IR&BD	Risk, legal & compliance	Finance	IT	HR	General
<ul style="list-style-type: none"> <li>11 employees</li> <li>Headed by: <b>Allard Ruijs</b></li> </ul>	<ul style="list-style-type: none"> <li>16 employees</li> <li>Headed by: <b>Anne Snel</b></li> </ul>	<ul style="list-style-type: none"> <li>33 employees</li> <li>Headed by: <b>Robert Doekes</b></li> </ul>	<ul style="list-style-type: none"> <li>5 employees</li> <li>Headed by: <b>Twan van Vlerken</b></li> </ul>	<ul style="list-style-type: none"> <li>5 employees</li> <li>Headed by: <b>Marjolein van Erven</b></li> </ul>	<ul style="list-style-type: none"> <li>11 employees</li> </ul>

**EXHIBIT I: BIOGRAPHIES****Wim Blaasse, Managing Partner**

Wim Blaasse joined the group at its inception in 2005. Prior to DIF he was a partner at PricewaterhouseCoopers where he was responsible for infrastructure/PPP and energy related transactions and, before that, Head of Project Finance at Rabobank International, where Wim was responsible for a global mandate covering among others power and telecom deals. During a 12-year tenure at Rabobank International he held various roles within corporate finance covering a wide range of sectors and global markets.

Wim holds a Master's degree in Business Economics from the University of Amsterdam, the Netherlands

**Angela Roshier, Partner, Head of Asset Management**

Angela Roshier is a Partner and Head of Asset Management. She joined in 2010 and oversees the asset management of DIF's investment portfolio. Prior to DIF, Angela was a member of 3i Plc and Actis' Infrastructure teams. Over the past 12 years she has contributed to the investment and asset management of a wide variety of infrastructure assets in the PPP, water, oil tanking and railway sectors, both in Europe and emerging markets.

She has a Master's degree in Business Administration from London Business School and a Master's degree in Arts from the University of Cambridge, UK.

**Allard Ruijs, Partner, Head of Investor Relations & Business Development**

Allard Ruijs is Partner and Head of Investor Relations & Business Development. He joined in 2007 and was responsible for origination, execution, value enhancement and exit of investments. In 2012 Allard assumed responsibility for DIF's fund raising, investor relations, business development and marketing activities. He was previously Head of private equity, infrastructure, commodities and special products at Mn Services, one of the largest Dutch asset managers, where he managed a €5 billion portfolio of alternative investments. Prior to Mn Services, Allard was a Senior Advisor in mergers and acquisitions at Essent (now RWE) and before that held positions at private equity firm Residex Capital and PricewaterhouseCoopers covering among others energy, waste, rail and telecom investments.

Allard has an Executive Master in Auditing from the University of Groningen, the Netherlands and is registered as Register Accountant (Chartered Accountant) with the Dutch Institute of Chartered Accountants.

**Thomas Vieillescazes, Partner, Head of France**

Thomas Vieillescazes is a Partner and Head of DIF France. He joined DIF in 2007 to establish its operations in France. He is responsible for the origination, execution, and value enhancement of investments in France. Prior to DIF he worked with the Ministry of Transport and Infrastructure for the French Government and was responsible for the budget and financing of the French public railway sector and the development and financing of major French rail infrastructure projects. In his earlier career Thomas worked for telecom infrastructure supplier Alcatel and spent a year in the project finance team.

He has the equivalent of Master's degrees in Physics and Economics from the French Ecole Polytechnique, where he graduated as Ingénieur des Ponts et Chaussées and has a second degree from the Ecole National des Ponts et Chaussées, France.

**Gijs Voskuyl, Partner, Head of Infrastructure Equity**

Gijs Voskuyl is a Partner and Head of Infrastructure Equity. He is responsible for the origination and execution of investments. He joined DIF in 2008 focusing on PPP projects in the Benelux and Central Europe and worked in the period 2012 - 2015 at DIF's Toronto office to open up the North American market. He became a Partner in 2018.

Prior to joining DIF, he was an Associate in the Infrastructure Team at ING Bank, where he carried out due diligence and advised consortia on a range of large infrastructure projects in the period 2005 - 2008. Prior to joining the Infrastructure Team, he was a Management Trainee within the ING Wholesale Banking Program.

He holds a Master in Economics of Infrastructure from the Technical University of Delft, The Netherlands

#### **Andrew Freeman, Partner, Head of UK and Exits**

Andrew Freeman is a Partner, Head of the UK and Head of Exits. Since the end of 2016, Andy assumed responsibility for the exit processes at DIF. He joined DIF in early 2011 and was before responsible for the analysis, execution, value enhancement and exit of investments. Prior to joining DIF, Andrew was an Assistant Director in the Infrastructure Team at PricewaterhouseCoopers, responsible for advising on construction project and operational PPP transactions, with a focus on fund setups and exits, listings and valuations.

He has a Bachelor's degree in Accountancy from the University of Portsmouth, UK, and is registered as a Chartered Accountant with the Institute of Chartered Accountants of Scotland

#### **Marko Kremer, Partner, Head of Americas**

Marko Kremer is a Partner and Head of Americas. He joined DIF in 2008 in the Schiphol office and headed the Australian office from 2015 to mid-2020. He now heads DIF's office in Toronto, where he is responsible for the origination, execution and optimization of investments in North America. Prior to joining DIF he was an Associate Director in the Leveraged Finance Team at ABN AMRO, with responsibility for originating, structuring and executing leveraged finance opportunities (2006-2008) and spent prior to that, five years at ING Wholesale Banking.

Marko holds a Master in Management Engineering from the University of Twente, the Netherlands and is a CFA- and CAIA charter holder.

#### **Fernando Moreno, Partner, Head of Spain**

Fernando Moreno is a Partner and Head of Spain. Fernando joined DIF in 2015 and is responsible for the origination, execution and asset management of investments in Spain. Fernando has over 15 years of experience in the infrastructure sector. Prior to DIF he worked in several leading Spanish infrastructure businesses, including infrastructure developer Globalvia Inversiones as a Senior Investment Director, as CFO with construction group Sacyr Concesiones, as Head of International Structured Finance with concession company Itinere and as head of finance with construction company FCC. Fernando was involved in a wide range of transactions in the transportation, healthcare and water sector.

Fernando holds an EMBA from IESE Business School and a Bachelor of Business Administration from Universidad Complutense, Spain.

#### **Robert Doekes, Partner, CFO**

Robert Doekes is a Partner of DIF and is Chief Financial Officer. He joined DIF in 2009 and is responsible for finance, tax and IT. He was previously Chief Financial Officer of MCI (Mirror Controls International), responsible for finance and controlling, treasury, ICT, tax and legal affairs, from 2007 to 2009. Prior to joining MCI, Robert was Executive Vice President in Finance at Stork Aerospace Industries for two years and before joining Stork, held similar roles at DSM/Gist Brocades for over seven years and Ballast Nedam for over five years.

He holds a Master's degree in Business Economics from the University of Groningen, the Netherlands and completed a post-graduate study for Controller at the Free University in Amsterdam, the Netherlands. He is a member of the Dutch Institute of Chartered Controllers.



**Anne Snel, Partner, Head of Risk, Legal & Compliance**

Anne Snel is a Partner and Head of Risk, Legal & Compliance. She joined DIF in 2018 and is responsible for risk management, compliance and legal activities within DIF. Anne joined DIF from Rabobank where she headed up the Integrated Risk function. Prior to that she spent two years at De Nederlandsche Bank as Senior Supervisor and interim Department Head. In her earlier career Anne worked for more than 16 years at ABN AMRO Bank leading transactions in Structured Trade and Project Finance; Capital Structure Advisory and was a Senior Investment Manager in AAC Capital's Private Equity Buyout team; she later assisted the Managing Board at Group Strategic Decision Support.

Anne holds a Bachelor of Arts in Financial Administration from Michigan State University and a Master of Business Administration in General Management at the Erasmus University. Subsequently she attended executive education in General and Risk Management at the London Business School and Insead respectively.

**Daniel Aninat – Managing Director, Santiago**

Daniel Aninat joined DIF in 2019 and leads the Manager's office in Santiago, Chile. He is responsible for sourcing, structuring and executing investments in the South American market, with a specific focus on Chile and Uruguay. Prior to DIF, Daniel was at Scotiabank in Chile where he has been leading the corporate banking team, covering the infrastructure, energy, media and telecom sectors. Prior to Scotiabank, Daniel worked at Santander in Chile and Spain, in his last role as managing director responsible for corporate clients in infrastructure and mining.

Daniel holds a degree in commercial engineering from Universidad Diego Portales in Chile and a MSc in Finance from London Business School.

**Marcel Beverungen – Managing Director, Frankfurt**

Marcel Beverungen joined DIF in 2020 and became a managing director and Head of DIF's German office in 2021. He is responsible for the origination, execution and optimization of investments in Germany and broader Europe. Previously, Marcel has worked on the origination and execution of M&A transactions in the Energy, Power and Infrastructure space at Rothschild & Co.'s Energy & Power Team in Frankfurt. Prior to this, he worked at UBS in the Investment Banking team in Frankfurt and London. He originally started his career at Dresdner Kleinwort in the Energy & Renewables Team.

Marcel holds a BSc in Economics from the University of St Gallen and a Master's degree from the University of Erlangen-Nuremberg.

**Caine Bouwmeester – Managing Director, London**

Caine Bouwmeester joined DIF in 2020 and took over the role of Head of Renewables in 2021 from Christopher Mansfield. He is responsible for overseeing DIF's renewable energy investments and the sourcing, executing and management of these deals in the United Kingdom and continental Europe. Prior to joining DIF, he was a Senior Vice President at the Green Investment Group (GIG), where he was responsible for renewable energy investments in amongst others UK, Sweden, Spain and Germany. At GIG, Caine gained significant experience in the development of renewable energy investments. Prior to that, he worked for Macquarie Capital in Toronto, where he advised on primarily renewables, power and utilities transactions. Caine has a Master's degree in Finance from INSEAD and a Bachelor's degree from Wilfrid Laurier University, Canada.

**Tom Goossens – Managing Director, Schiphol**

Tom Goossens joined DIF in 2014 and is DIF's deputy Head of Infrastructure Equity, supporting Gijs Voskuyl in overseeing DIF's origination, structuring, and execution efforts. He is primarily focused on investments in Europe, including the UK and the Nordics. Prior to joining DIF, he was a Director in the Structured Finance Natural Resources team at ING Bank, responsible for origination, structuring, and managing of project finance and structured corporate debt financings in the metals and mining sector (2008 - 2014). Prior to ING Bank, Tom worked in the structured finance department within ABN AMRO, in Amsterdam and London.

Tom holds a BSc and MSc in Business Administration from the VU University in Amsterdam as well as a Masters in Financial Law from the Erasmus University in Rotterdam.

#### **Martin Hanke – Managing Director, Australia**

Martin Hanke joined DIF in 2015 and is leading DIF's office in Australia. He is responsible for origination, structuring and execution of investments in Australia and New Zealand. Prior to DIF, Martin worked at PwC as a Senior Manager within their Infrastructure Advisory team, primarily advising government agencies on high-value high-risk infrastructure projects, as well as State government asset recycling initiatives. Having worked on both sides of PPP transactions, Martin has a unique insight into the requirements and motivations of both the public and private sectors.

Martin holds a Bachelor of Engineering (Honours) and a Bachelor of Commerce from the University of Melbourne and is a qualified Chartered Accountant with the Institute of Chartered Accountants of Australia.

#### **Vincent Liu – Managing Director, Toronto**

Vincent Liu is a Managing Director in DIF's investment team, based in Toronto, and is one of DIF's sector specialists in digital infrastructure. Vincent joined DIF in 2016 and is responsible for origination, structuring and execution of transactions in North America, primarily in digital infrastructure and renewables. Prior to joining DIF, he was a Vice President in the North American Infrastructure group at Macquarie Capital, the advisory and principal investment division of Macquarie Group. Prior to Macquarie Capital, Vincent worked in the Infrastructure and Project Finance group at BMO Capital Markets where he was primarily responsible for advising public and private sector clients in the North American infrastructure and power sectors.

Vincent holds a Bachelor of Applied Sciences degree in Electrical Engineering from the University of Waterloo.

#### **Jeff Rodgers – Managing Director, Toronto**

Jeff Rodgers joined DIF in 2016 and is responsible for the origination, structuring and execution of investments across North America. Prior to DIF, Jeff worked at Plenary Group where he was responsible for leading development, financial advisory and principal investments for infrastructure projects. Prior to that, Jeff worked at Bilfinger Project Investments in a similar role. Before working in a development and principal investment capacity, Jeff worked at Grant Thornton and later FTI Consulting as a consultant for corporate and project finance mandates, mergers and acquisitions and valuation for international arbitration proceedings.

Jeff holds a Bachelor of Commerce from the University of Guelph and is a Chartered Professional Accountant and a Chartered Business Valuator.

#### **Pierre Boschin – Senior Director, Paris**

Pierre Boschin joined DIF in 2020 and is responsible for the sourcing, structuring and execution of investments in France and broader Europe, with a particular focus on energy and energy transition. Prior to joining DIF in 2020, Pierre was Managing Director at French leading M&A boutique Messier Maris & Associés, where he advised numerous transactions for major French utilities, blue-chips and prime PE houses in the energy and industrial segments, in France and Southern Europe. Prior to that, he worked as an investment banker for Credit Suisse and Lazard.

Pierre has Master's degrees from the Ecole Polytechnique (France) and Oxford University (UK)..

#### **Mathieu Hévin – Senior Director, Paris**

Mathieu Hévin joined DIF in 2010 and is one of DIF's sector specialists in the transportation and LNG sectors. He is responsible for the origination, execution, value enhancement and exit of investments in particularly these sectors in France and Southern Europe. Prior to joining DIF, he was an Associate within the Infrastructure team at Babcock & Brown in Paris

where he was advising bidding consortia and investing on French primary infrastructure projects. Prior to this Mathieu worked at Crédit Agricole CIB as part of their Loan Syndication Group.

He holds a Master's in Finance from ESCP Europe in Paris.

#### **Luis Hinojosa – Senior Director, Santiago**

Luis Hinojosa joined DIF in 2015 in the Madrid office. In 2019 he moved to Chile to set-up the Manager's new office in Santiago. He is responsible for the origination, structuring and execution of transactions in South America. Prior to DIF he worked as an Investment Director for Globalvia, responsible for the divestiture of non-core assets as well as the origination and execution of infrastructure projects (2012 - 2015). Prior to Globalvia, Luis worked as an Associate in the Corporate Finance division at Banco Santander (2007-2012). During his career at Santander Luis gained substantial experience in project finance and PPP related transactions having worked on several M&A transactions.

Luis holds a degree in Business Administration from the Universidad Pontificia Comillas, Madrid (ICADE).

#### **Dennis Jong – Senior Director, Schiphol**

Dennis Jong is a Senior Director of DIF, joining in 2014. He is responsible for origination, structuring and execution of renewable energy investments. Prior to DIF, Dennis worked at Vattenfall on the development and construction of offshore wind projects across Europe, as well as acquisitions and divestments of offshore windfarms. He is an experienced transaction lead, having worked in 3 of DIF's offices and closed transactions in energy, transport and accommodation assets. He benefits from an in-depth understanding of the renewables markets and sector network.

Dennis holds an MSc in Aerospace Engineering from Delft University of Technology.

#### **Kanan Joshi – Senior Director, New York**

Kanan Joshi joined DIF in 2021 to set up DIF's presence in New York and is a true specialist within digital infrastructure. Kanan is responsible for the origination, structuring and execution of investments in the United States, in close collaboration with the team in Toronto. Prior to DIF, she was the head of telecom infrastructure at Upper Bay Infrastructure Partners. Before that, she was at Digital Bridge and led their foray into data center investments. She started her career in investment banking, first at JPMorgan and thereafter at Deutsche Bank, where she executed M&A and capital raising transactions for companies in the telecom, technology, and media industries.

Kanan holds an MBA from the University of Chicago and a Bachelor's degree from the University of Mumbai.

#### **Henrik Luerssen – Senior Director, Frankfurt**

Henrik Luerssen joined DIF in 2012 and is responsible for sourcing, execution and management of transactions in Germany and surrounding European countries, primarily within the transportation sector, including road transportation and rolling stock. Prior to joining DIF, he was an assistant manager in the Corporate Finance department of KPMG, where he gained substantial experience in project finance, transportation PPP projects, and the broader transportation sector. Prior to that, he participated in a two-year apprenticeship at BHF Bank AG.

He holds a Master of Business Administration in Finance and Accounting from the Johann-Wolfgang-Goethe University, Frankfurt.

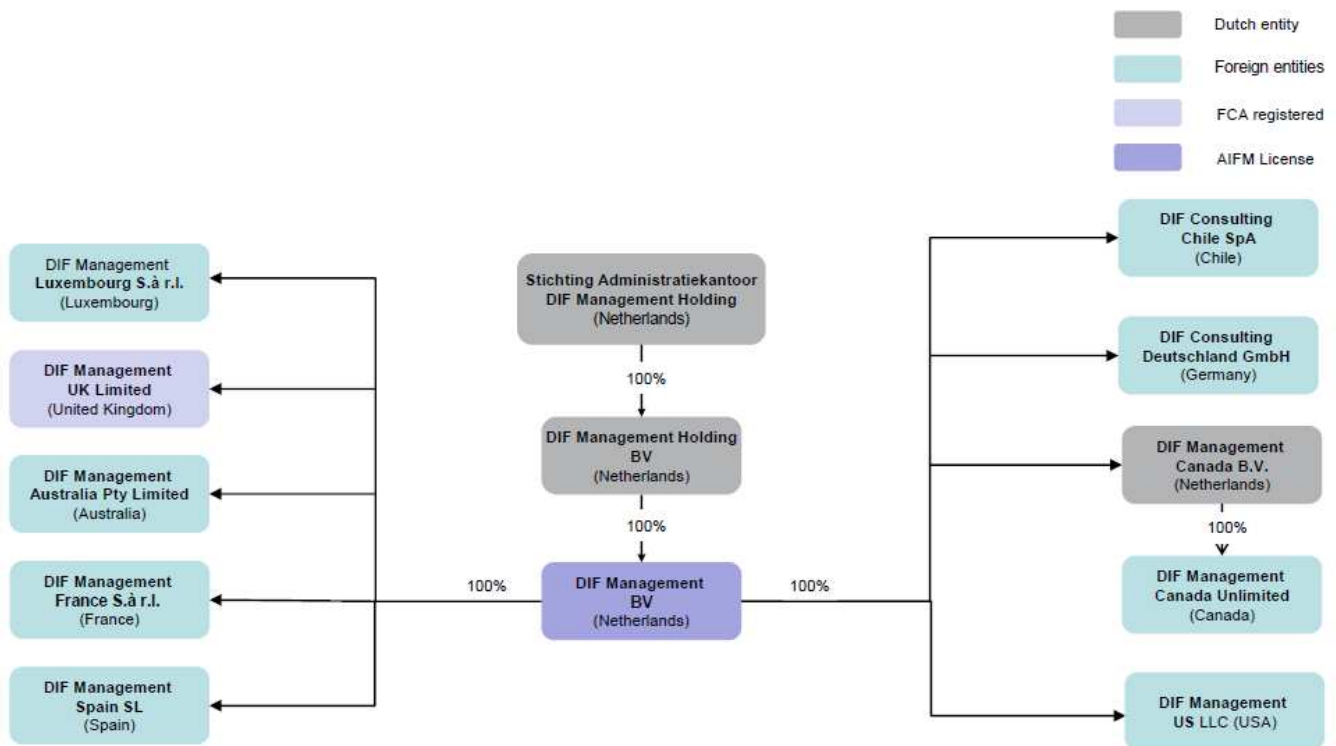
#### **Jesse van Schouwenburg – Senior Director, Schiphol**

Jesse van Schouwenburg joined DIF in 2017 is one of DIF's sector specialists in the energy and energy transition sectors. He is responsible for the origination, structuring and execution of investments in the Benelux, with a particular focus on these sectors. Prior to joining DIF, he was an associate director in ABN AMRO's M&A Advisory team focused on Energy, Commodities

and Transportation. In this role, he advised corporates and financial investors on corporate finance topics as mergers & acquisitions and capital raisings. Prior to ABN AMRO, Jesse worked in the M&A department within Rabobank.

Jesse holds a BSc in Economics from Utrecht University and a MSc in (Macro)Economics from the University of Amsterdam.

EXHIBIT J: STRUCTURE CHART



## APPENDIX

### RATING RATIONALE

Factor	Comments
<b>Strategy</b>	The strategy focuses on investing in small and mid-market brownfield (core) and greenfield (build-to-core) projects in the range of €30 to €400 million of equity commitments for control or significant minority interests. The smaller investments will generally be (construction) PPPs, concessions and single renewable energy projects. Such investments can be bundled and sold as a sizeable and optimized portfolios to lower cost of capital investors. The larger investments targeted by the Fund will typically be utilities, larger PPPs and concessions, portfolios of assets and platform investments. DIF generally creates a well-diversified portfolio of 20-25 investments (targeting at least 25 investments for DIF VII) across various sectors and geographies generally uncorrelated with each other that helps lower total risk of the portfolio. The Fund also has well-defined investment limitations (e.g., 15% to single company, 30% to single country, 10% to South America, etc.) that ensure diversification. Based on our review of prior funds, the average equity investment per deal accounted for less than 4% of the fund size.
<b>Sponsor</b>	Owned fully by its Co-founding Partners and other partners, DIF has one of the most established teams, longest and realized infrastructure track record in the industry. Since inception, the Firm has grown to 190 employees (100+ investment professionals) across various offices globally including Paris, Frankfurt, London, Luxembourg, Madrid, Toronto, New York, Santiago and Sydney. The Firm has ~9.8 billion in assets under management across various infrastructure funds.
<b>Investment Process</b>	DIF utilizes a proven investment process evidenced by consistently successful execution across multiple infrastructure funds.
<b>Fund Structure / Terms &amp; Conditions</b>	The Fund terms are generally in line with market among comparable infrastructure offerings in the market.
<b>Performance</b>	The Firm has been actively investing in infrastructure since 2005 when it raised its maiden fund. Across its prior six funds, the Firm has raised approximately €7.5 billion in aggregate commitments, invested €5.5 billion across 192 individual transactions, 130 of which have been realized that generated €3.6 billion in proceeds. The DIF Funds have produced a combined net IRR of 11.1% and net TVPI of 1.4x, in EUR terms, as of March 31, 2022. The aggregate performance as well as performance for most funds is consistent with its target returns and the risk level embedded in the strategy.
<b>Operational Due Diligence</b>	✓
<b>ESG</b>	Advanced
<b>Overall Rating</b>	Overall, we believe that DIF is a proven manager, and that DIF VII offers investors a good approach to infrastructure market targeting lower risk core and build-to-core investments with strong cash yield component.

## INVESTMENT RATING EXPLANATION

The comments and assertions reflect Townsend views of the specific investment product and its strengths and weaknesses in general and in the context of Townsend's *View of the World* and same vintage alternative choices.

**Buy** – Townsend recommends the investment for those client portfolios where it is a fit.

**Qualified** – Townsend believes the manager to be qualified to manage client assets.

## OPERATIONAL DUE DILIGENCE RATING EXPLANATION

Operational due diligence rating provided by Operational Risk Solutions and Analytics (“ORSA”), Aon’s dedicated multi-asset class Operational Due Diligence team according to its autonomous review of the Sponsor’s policies & procedures, infrastructure and capabilities across a range of operations, middle and back office, and control functions.

**A1 Pass (✓+)** – No material operational concerns; firm’s operations largely align with a well-controlled environment.

**A2 Pass (✓)** – The firm’s operations largely align with a well-controlled environment, with limited exceptions.

**Conditional Pass** – AON identified specific operation concerns that the firm agreed to address in a reasonable time frame.

**Fail (✓-)** – AON noted material operational concerns that introduce potential economic or reputational exposure.

## ESG RATING EXPLANATION

ESG scoring and an associated rating is according to guidance from AON’s internal ESG Committee and sub-committees for various asset classes.

**Limited** - The fund management team takes limited steps to address ESG considerations in existing and anticipated portfolios.

**Integrated** - The fund management team takes essential steps to identify, evaluate, and mitigate potential financially material ESG risks within existing and anticipated portfolios.

**Advanced** - The fund management team demonstrates an advanced awareness of potential ESG risks in the investment strategy. The fund management team can demonstrate advanced processes to identify, evaluate, and potentially mitigate these risks across its activities.

About Townsend Group – An Aon Company

Founded in 1983, The Townsend Group provides custom real asset solutions that help clients worldwide achieve their unique investment goals. As an Aon company, The Townsend Group is now part of one of the top three outsourced chief investment officer (OCIO) providers in the world measured by global assets under management. Aon's Investment organization, including Townsend, manages more than \$130 billion of worldwide assets under management and has advised on more than \$240 billion of real estate assets.

Disclaimer

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Past Performance is no guarantee of future results. Investing involves risk, including possible loss of principal.

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Townsend is a registered investment adviser with the Securities and Exchange Commission and is a wholly owned, indirect subsidiary of Aon plc.



**ARKANSAS TEACHER RETIREMENT SYSTEM**  
**1400 West Third Street**  
**Little Rock, Arkansas 72201**

**RESOLUTION**  
**No. 2022-54**

**Approving Investment in DIF Infrastructure VII Coöperatief U.A.  
and DIF Infrastructure VII SCSp (Collectively DIF Infrastructure  
Fund VII)**

**WHEREAS**, the Board of Trustees (Board) of the Arkansas Teacher Retirement System (ATRS) is authorized to invest and manage trust assets for the benefits of its plan participants; and

**WHEREAS**, the ATRS Board has reviewed the recommendation of its real assets investment consultant, Aon Hewitt Investment Consulting, Inc., along with the recommendation of the Investment Committee and ATRS staff regarding a potential investment in **DIF Infrastructure VII Coöperatief U.A.** and **DIF Infrastructure VII SCSp (collectively DIF Infrastructure Fund VII)**, a closed-end, core infrastructure fund that will invest in high quality public-private partnership projects including toll roads, regulated utilities, and renewable energy projects; and

**WHEREAS**, the collective investment in **DIF Infrastructure Fund VII** is divided into two entities, **DIF Infrastructure VII Coöperatief U.A.** and **DIF Infrastructure VII SCSp**, to separate the equity and debt investments of the fund; and

**WHEREAS**, both **DIF Infrastructure VII Coöperatief U.A.** and **DIF Infrastructure VII SCS** each require a subscription agreement for the total ATRS commitment to allow the fund manager flexibility in the allocation of the ATRS total commitment between equity and debt investments; and

**WHEREAS**, the subscription agreements have a bridge agreement that no more than the ATRS commitment can be called in total between the two funds; and

**WHEREAS**, both fund subscription documents require the amount of commitment to each fund be in euros.

***NOW, THEREFORE, BE IT RESOLVED***, that the ATRS Board approves a total initial investment of up to **€50 million euros (€50,000,000)**, approximately the equivalent of **\$50 million dollars (\$50,000,000)** at the time of adoption of this Resolution, in **DIF Infrastructure VII Coöperatief U.A.** and **DIF Infrastructure VII SCSp (collectively DIF Infrastructure Fund VII)**. The total investment amount is to be determined by the real assets consultant and ATRS staff based upon the allocation available to ATRS and the overall investment objectives set by the ATRS Board.

***FURTHER, BE IT RESOLVED***, that the ATRS staff is hereby authorized to execute all required agreements for both **DIF Infrastructure VII Coöperatief U.A.** and **DIF Infrastructure VII SCSp** including a subscription agreement to each fund for the total ATRS commitment.

***FURTHER, BE IT RESOLVED***, that since this commitment amount is euro based, the maximum commitment is €50 million euros (€50,000,000) and it is understood that the approximate dollar amount of the maximum commitment is approximately \$50 million dollars (\$50,000,000) but due to conversion rates, the ultimate dollar amount may be more or less than \$50 million dollars (\$50,000,000) due to conversion rates when capital is called.

***FURTHER, BE IT RESOLVED***, that the ATRS staff is hereby authorized to take all necessary and proper steps to implement this investment including executing all required agreements for both **DIF Infrastructure VII Coöperatief U.A.** and **DIF Infrastructure VII SCSp** if acceptable terms are reached.

**Adopted this 5th day of December, 2022.**

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**Mr. Danny Knight, Chair**  
**Arkansas Teacher Retirement System**



**TOWNSEND<sup>®</sup>**  
**GROUP**

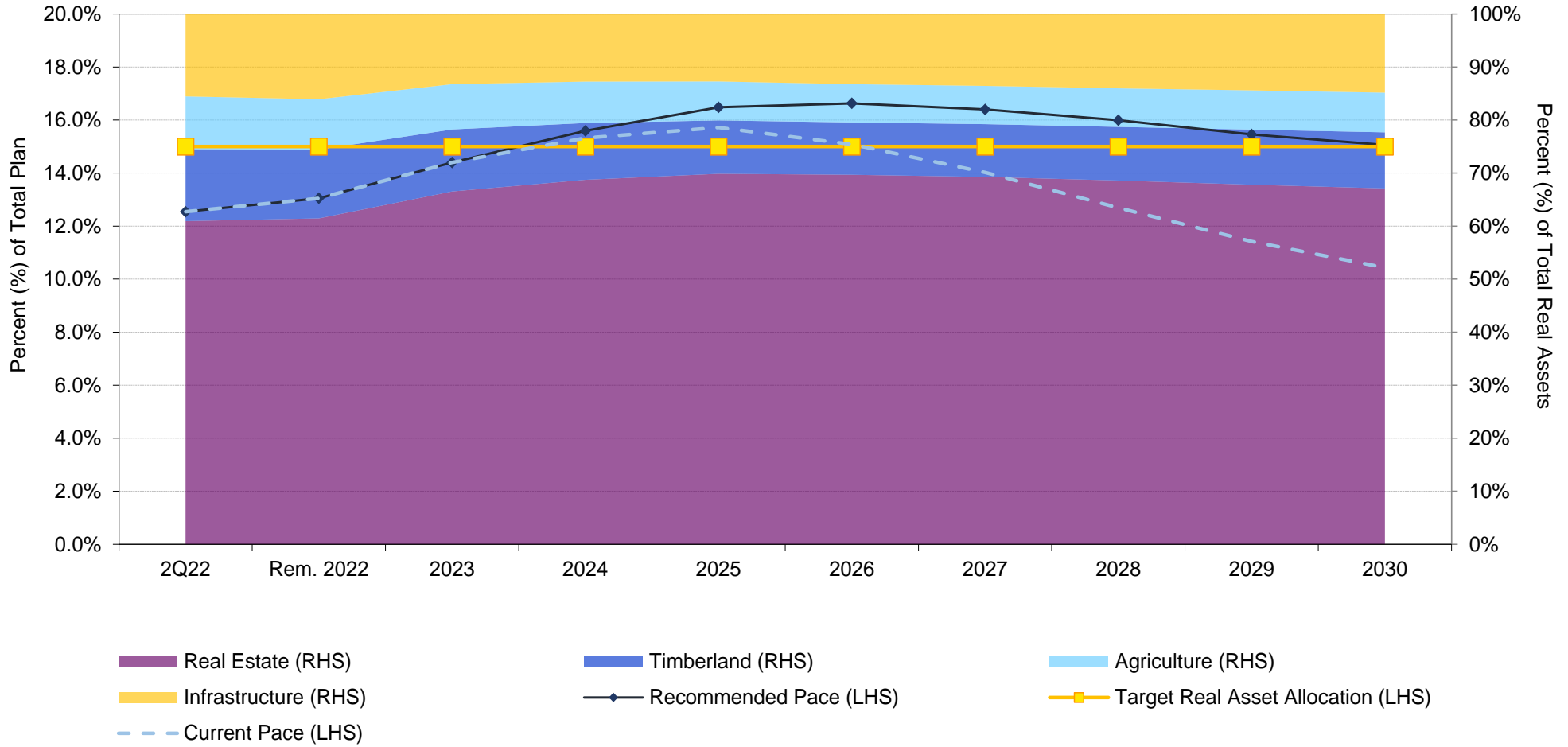
an Aon company

# Arkansas Teacher's Retirement System 2023 Annual Planning

PROPRIETARY & CONFIDENTIAL  
December 2022

# Real Assets 2023 Pacing

## ATRS Real Assets Pacing



# Real Assets 2023 Pacing Commitment Overview

	Complete	2022	2023	2024	2025	2025 Forecasted Allocations	
<b>Non-Core (&lt; 50%)</b>		\$150	\$200	\$100	\$150	39%	30%-50% Target
<b>Core (50-70%)</b>		\$0	\$200	\$150	\$150	61%	50%-70% Target
<b>Real Estate Total</b>			<u>\$400</u>	<u>\$250</u>	<u>\$300</u>	<u>100%</u>	
<b>Infrastructure (2%)</b>		\$125	\$75	\$50	\$50	2%	
<b>Agriculture (1%)</b>		\$0	\$0	\$0	\$0	1%	
<b>Timberland (2%)</b>		\$0	\$0	\$0	\$0	2%	
<b>Real Assets Total</b>			<u>\$75</u>	<u>\$50</u>	<u>\$50</u>		

## 2023 Investment Themes

- **KEY INVESTMENT THEMES FOR 2023 INCLUDE:**

- Reposition the Core Real Estate portfolio for current market conditions
  - In 2021 approved repositioning the underperforming core portfolio with a \$140 million redemption from the JP Morgan Strategic Property Fund and proceeds to be equally distributed to the RREEF Core Plus Industrial Fund and the Morgan Stanley Prime Property Fund
- Strategically approach new commitments to Core Real Estate in accordance with Townsend's View of the World
  - UBS TPF redemption queue expected to be extinguished by 2025
  - Reduce allocation to COVID-19 impacted property types such as Retail and Office
  - Increase allocation to property types with secular tailwinds such as Apartments and Industrial
- Continue to commit capital to Non-Core real estate funds, albeit at a slower pace while monitoring the denominator effect, new capital should look to capitalize on secular trends and potential distress as a result of the rising rate market environment
  - Commit capital to fund managers opportunistically investing with a higher risk and return profile
  - Search for real estate opportunities looking to capitalize on property types with secular tailwinds such as Apartments and Industrial
  - As a result of a growing plan and Real Estate portfolio, increase commitments sizes within the range of \$50 million to \$90 million, leading to roughly two total commitments for ease of administration
- Continue to commit infrastructure capital to complementary strategies and move up the risk return spectrum to capitalize on potential distress from the rising rate market environment

# Arkansas Teacher Retirement System Private Equity Portfolio Review

June 30, 2022



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# Executive Summary

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### Portfolio Summary

Since establishing the private equity program in 1996, Arkansas Teacher Retirement System (“ATRS”) has committed approximately \$5.9 billion to 98 primary funds, 30 fund-of-funds, 1 co-investment fund, and 12 direct investments through June 30, 2022. Of the \$5.9 billion committed, 90% has been contributed, 114% of contributed capital has been returned, and a total value of 1.7 times contributed capital has been generated. ATRS’ portfolio has outperformed the Dow Jones U.S. Total Stock Market Index equivalent (“PME”) by 420 basis points since inception.

### Investment Activity

For the six months ended June 30, 2022, ATRS made capital contributions of approximately \$209.2 million and received distributions of \$192.4 million, for net contributions of \$16.8 million.

### Commitment Activity

Since January 1, 2022, ATRS closed on the following commitments:

- FP Venture Opp - \$30.0 million
- FP Venture XIV - \$60.0 million
- FP Intl XI - \$30.0 million
- FP CF Access II - \$60.0 million
- SK Capital VI - \$30.0 million
- Riverside Value Fund I - \$30.0 million
- Thoma Bravo Discover IV - \$15.0 million
- Thoma Bravo XV - \$15.0 million
- Arlington VI - \$30.0 million
- Thoma Bravo Explore II - \$15.0 million
- BV XI - \$30.0 million

Additionally, ATRS has approved the following commitments, which remain pending:

- JF Lehahn VI - \$30.0 million
- Greenbriar VI - \$30.0 million

### Market Commentary

#### COVID-19 Update

After more than two years, there is continued uncertainty around the full impact of the COVID-19 pandemic, including fund manager operations, economic conditions, capital market activity, portfolio management, and fundraising.

#### U.S. Private Equity

PE markets exhibited a slowdown in 2Q 2022 with 1,425 deals closed totaling \$157 billion, down 38% from the prior quarter. However, PE markets remain active compared to historical standards with cumulative totals over \$400 billion for the first half of the year. Pricing and leverage remain high with median entry multiples of 11.8x EBITDA and median leverage multiples of 5.9x EBITDA. While fund count is down with 191 funds, total capital raised is on pace to exceed the 2021 record.

Add-on acquisitions continue to be a key driver of private equity investment activity with those deals representing 78% of all PE buyout activity. First-time funds represent just 14% of all PE funds closed in the first half of 2022. First-time funds face challenges as a surplus of established managers seek to re-up with limited partners. Public listings, which had been the main driver of exit activity in 2021 with 141 IPOs, finished the first half of the year with just 9 IPOs which represent only 2% of all exit activity.

#### U.S. Venture Capital

Venture investment activity continues to remain strong through the first half of 2022 with 7,841 deals closed, despite a significant decline from the high in 2021. Exit activity continued to slowdown through the second quarter with the lowest quarterly exit values experienced since 2Q 2020. Contrary to the exit market, fundraising activity remained strong as 415 funds closed on \$121 billion in the first half of 2022 and is on pace to exceed records set in 2021.

*Franklin Park*

October 14, 2022

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# Portfolio Overview

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## Portfolio Summary



Group	Num.	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	Remaining Value (%)	Exposure (\$)	DPI	TVPI	Net IRR
<b>By Vehicle</b>											
1996-2000: Legacy Portfolio	13	1,106,390,461	1,070,676,238	0	1,641,226,547	0	0.0%	0	1.5 x	1.5 x	9.2%
2005-2006: CSFB Portfolio	2	654,300,000	688,202,653	65,002,753	1,027,252,376	106,149,131	3.5%	171,151,884	1.5 x	1.6 x	9.1%
Post 2006 Fund Portfolio	114	3,658,323,718	3,037,588,402	1,189,502,420	2,960,275,134	2,679,640,365	87.3%	3,869,142,785	1.0 x	1.9 x	17.9%
Big River Steel	8	257,880,449	257,940,356	0	430,039,782	1,677,862	0.1%	1,677,862	1.7 x	1.7 x	14.4%
Blue Oak Arkansas	1	18,000,000	19,740,000	0	5,385,136	0	0.0%	0	0.3 x	0.3 x	-34.8%
Highland LLC	2	218,244,727	234,114,727	0	31,674,525	210,491,053	6.9%	210,491,053	0.1 x	1.0 x	1.3%
GTLA Holdings	1	20,000,000	20,000,000	0	0	70,000,000	2.3%	70,000,000	0.0 x	3.5 x	38.6%
<b>Total</b>	<b>141</b>	<b>5,933,139,355</b>	<b>5,328,262,376</b>	<b>1,254,505,173</b>	<b>6,095,853,498</b>	<b>3,067,958,410</b>	<b>100.0%</b>	<b>4,322,463,584</b>	<b>1.1 x</b>	<b>1.7 x</b>	<b>11.7%</b>
<b>By Fund Type</b>											
Co-Investment Fund	1	263,823,718	398,906,193	160,184,609	317,760,489	412,492,676	13.4%	572,677,285	0.8 x	1.8 x	21.4%
Fund-of-Funds	30	1,574,300,000	1,222,814,937	447,338,690	1,480,764,025	882,647,813	28.8%	1,329,986,503	1.2 x	1.9 x	12.3%
Operating Company	12	514,125,176	531,795,084	0	467,099,442	282,168,914	9.2%	282,168,914	0.9 x	1.4 x	10.9%
Primary Fund	98	3,580,890,461	3,174,746,163	646,981,874	3,830,229,543	1,490,649,007	48.6%	2,137,630,881	1.2 x	1.7 x	11.3%
<b>Total</b>	<b>141</b>	<b>5,933,139,355</b>	<b>5,328,262,376</b>	<b>1,254,505,173</b>	<b>6,095,853,498</b>	<b>3,067,958,410</b>	<b>100.0%</b>	<b>4,322,463,584</b>	<b>1.1 x</b>	<b>1.7 x</b>	<b>11.7%</b>

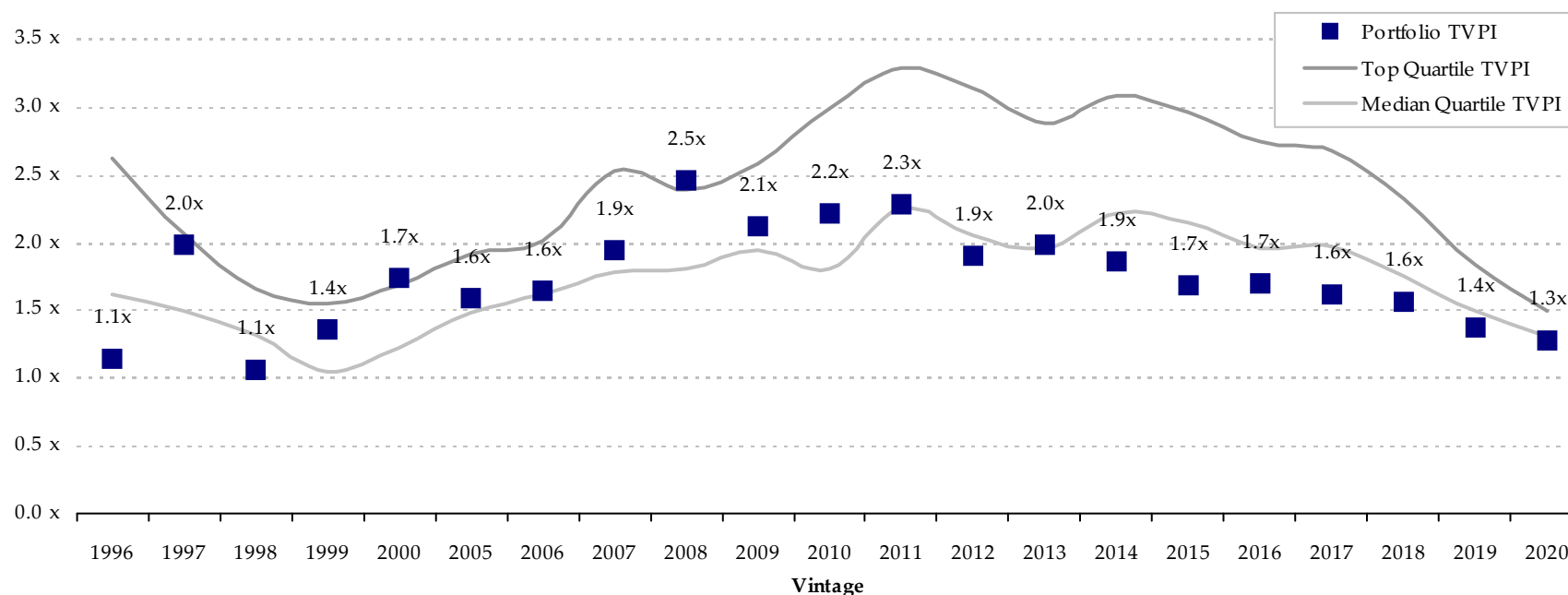
## Portfolio Summary



Group	Num.	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	Remaining Value (%)	Exposure (\$)	DPI	TVPI	Net IRR
<b>By Strategy</b>											
Buyout	73	2,797,390,461	2,345,530,212	638,912,089	2,830,225,888	1,252,444,465	40.8%	1,891,356,554	1.2 x	1.7 x	11.8%
Distressed Debt	3	100,000,000	93,881,464	34,882,798	102,338,004	30,180,581	1.0%	65,063,379	1.1 x	1.4 x	6.6%
Growth Equity	3	120,000,000	104,104,590	18,757,033	236,836,421	38,574,317	1.3%	57,331,350	2.3 x	2.6 x	20.9%
Hard Assets	12	545,744,727	559,614,185	25,162,781	256,874,942	462,818,752	15.1%	487,981,534	0.5 x	1.3 x	7.6%
Infrastructure	8	270,880,449	272,676,670	0	427,199,627	1,677,862	0.1%	1,677,862	1.6 x	1.6 x	12.3%
Mezzanine	7	285,000,000	207,204,482	23,918,202	232,508,761	40,506,399	1.3%	64,424,601	1.1 x	1.3 x	10.2%
Multi-Strategy	6	974,123,718	1,154,096,880	225,670,362	1,377,114,512	521,273,733	17.0%	746,944,095	1.2 x	1.6 x	9.3%
Special Assets	1	30,000,000	13,738,498	17,315,022	1,178,625	10,376,767	0.3%	27,691,789	0.1 x	0.8 x	-9.2%
Structured Capital	4	115,000,000	90,773,654	48,765,017	77,874,237	52,112,301	1.7%	100,877,318	0.9 x	1.4 x	12.9%
Turnaround	9	240,000,000	179,500,459	78,437,309	179,970,286	129,185,608	4.2%	207,622,917	1.0 x	1.7 x	17.1%
Venture Capital	15	455,000,000	307,141,283	142,684,560	373,732,196	528,807,625	17.2%	671,492,185	1.2 x	2.9 x	23.9%
<b>Total</b>	<b>141</b>	<b>5,933,139,355</b>	<b>5,328,262,376</b>	<b>1,254,505,173</b>	<b>6,095,853,498</b>	<b>3,067,958,410</b>	<b>100.0%</b>	<b>4,322,463,584</b>	<b>1.1 x</b>	<b>1.7 x</b>	<b>11.7%</b>
<b>By Sub-Asset Class</b>											
Corporate Finance	114	4,964,014,179	4,489,326,010	1,111,820,613	5,255,021,860	2,256,981,871	73.6%	3,368,802,484	1.2 x	1.7 x	11.2%
Direct Investments	12	514,125,176	531,795,084	0	467,099,442	282,168,914	9.2%	282,168,914	0.9 x	1.4 x	10.9%
Venture Capital	15	455,000,000	307,141,283	142,684,560	373,732,196	528,807,625	17.2%	671,492,185	1.2 x	2.9 x	23.9%
<b>Total</b>	<b>141</b>	<b>5,933,139,355</b>	<b>5,328,262,376</b>	<b>1,254,505,173</b>	<b>6,095,853,498</b>	<b>3,067,958,410</b>	<b>100.0%</b>	<b>4,322,463,584</b>	<b>1.1 x</b>	<b>1.7 x</b>	<b>11.7%</b>

- Remaining Value is defined as the investor's value as reported by the fund's manager.
- Exposure is defined as the sum of the investor's Remaining Value plus Unfunded Commitment.
- DPI is the ratio of Distributed Capital to Contributed Capital.
- TVPI is the ratio of Distributed Capital plus Remaining Value to Contributed Capital.
- Net IRR is defined as the annualized, compound rate of return using daily draws, distributions and Remaining Value as of the Report Date, net of fees and expenses, including late closing interest.
- Results include fully liquidated investments (if applicable).
- Commitments made in a foreign currency have been converted into U.S. dollars using an exchange rate as of the Report Date.

TVPI by Vintage



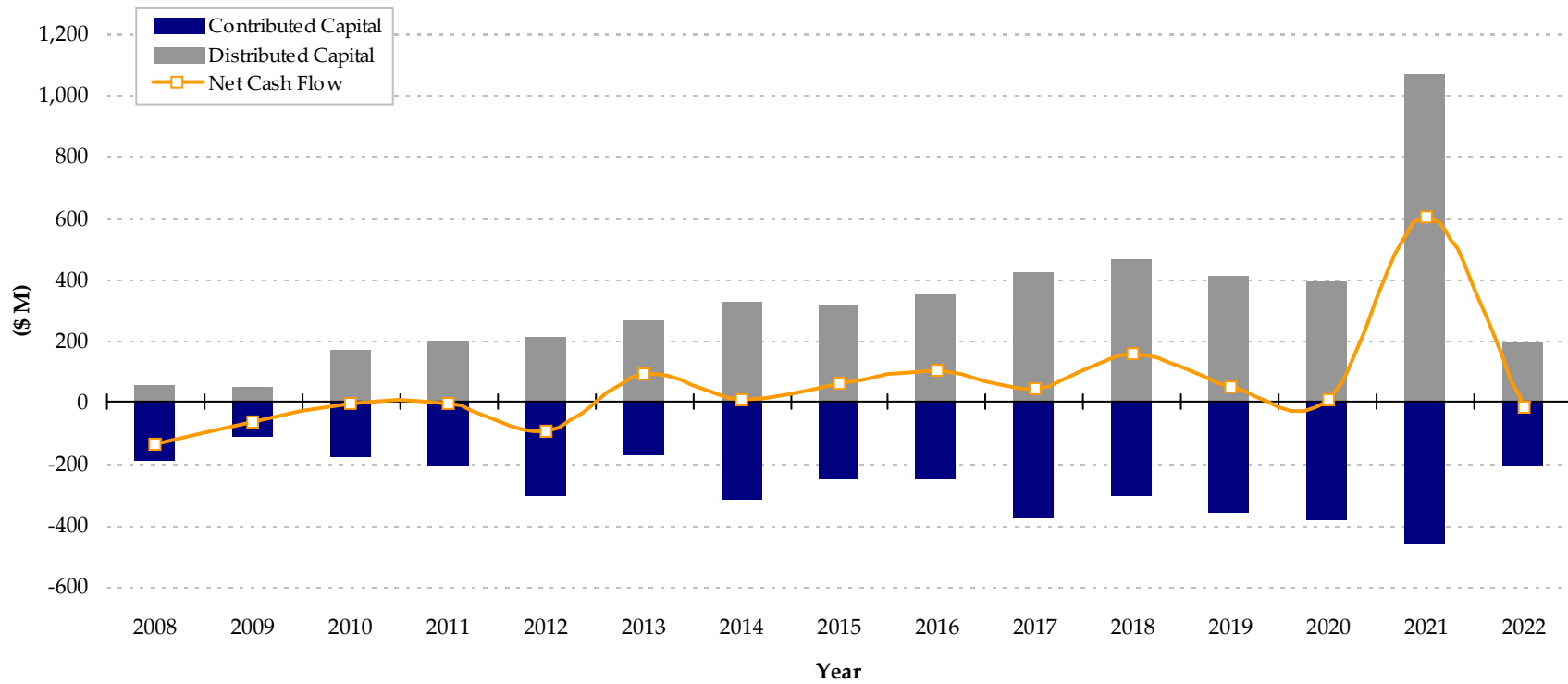
Net IRR vs. PME vs. Cambridge Associates: U.S. All Private Equity

Calculation Set	1-Year	3-Year	5-Year	10-Year	Inception
Aggregate Portfolio	14.5%	19.7%	19.5%	16.7%	11.7%
DJ US TSM TR Index* Public Market Equivalent	-13.9%	11.0%	11.7%	13.4%	7.5%
Cambridge Associates: U.S. All Private Equity	27.5%	27.6%	22.5%	17.3%	N/A
Post 2006 Fund Portfolio	15.1%	26.0%	22.5%	18.5%	17.9%
DJ US TSM TR Index* Public Market Equivalent (Post 2006 Fund Portfolio)	-13.9%	10.7%	11.4%	12.8%	12.3%

\* The Dow Jones U.S. Total Stock Market Total Return Index measures all U.S. equity securities that have readily available prices and is calculated with dividend reinvestment.

- 
- Benchmark TVPI represents vintage year first quartile per Cambridge Associates, as of March 31, 2022. The portfolio is compared to data compiled across multiple strategies including U.S. Buyout, Growth Equity, Venture Capital, Mezzanine, Distressed, Fund-of-funds, and Secondary funds.
  - Net IRR is defined as the annualized, compound rate of return using daily draws, distributions and Remaining Value as of the Report Date, net of fees and expenses, including late closing interest.
  - The public market equivalent (PME) represents the performance of a public market index expressed in terms of an IRR, using the same cash flows and timing as the investor's investment activity in private equity. The PME serves as a proxy for the return the investor could have achieved by investing in the public market. The PME return assumes cash flows are invested at the end of each day.
  - Cambridge Associates: U.S. All Private Equity reflects the pooled net IRR based on data compiled from Cambridge Associates as of March 31, 2022.
  - Benchmark data is not available (N/A).

# Annual Cash Flow



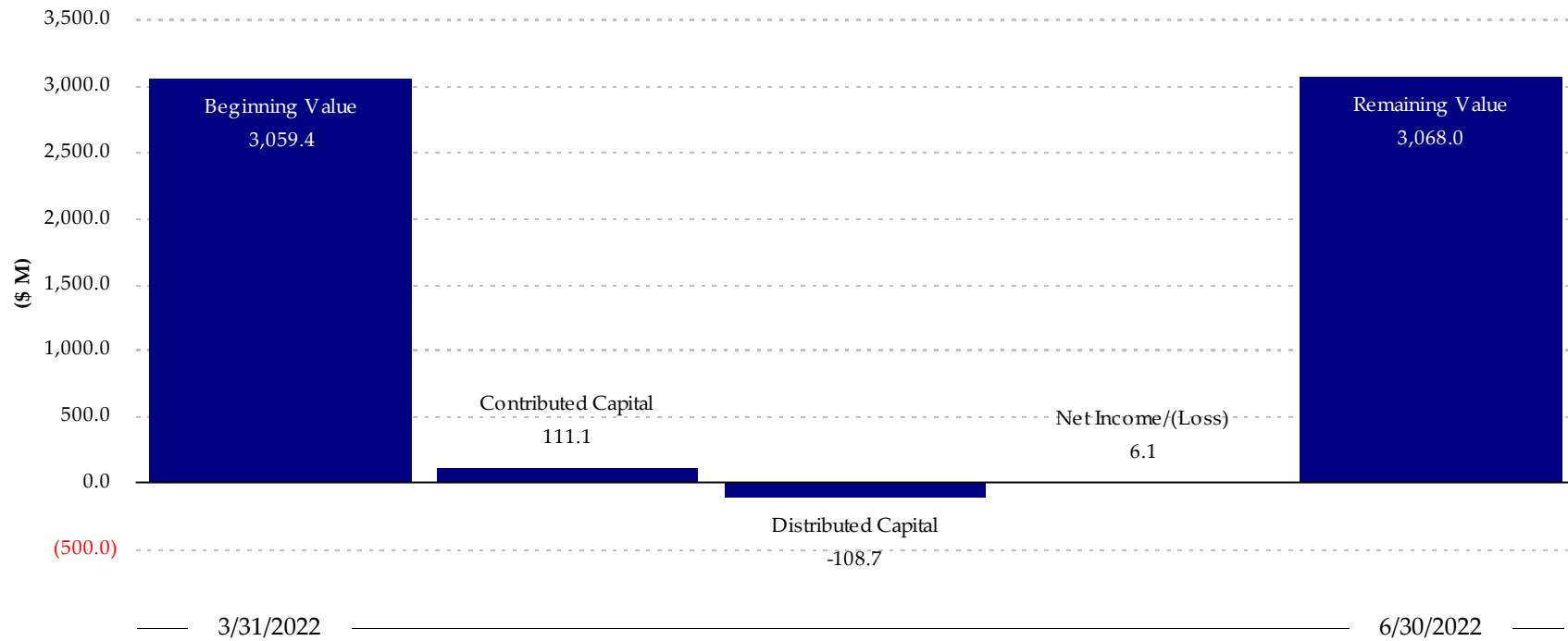
2022 (\$)		
Distributed	Contributed	Net Cash Flow
192,439,572	-209,227,490	-16,787,918

▫ Cash flow data was compiled through the Report Date.



## Capital Account Change Since Prior Quarter

### Quarterly Portfolio Activity



Percent Change in Value	0.2%
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- Beginning Value represents the aggregate Remaining Value of the portfolio as of the prior quarter-end.
- Percent Change in Value is calculated by dividing Net Income / (Loss) by Beginning Value.

## Recent Commitments



### Commitments for Year Ended December 31, 2021

Fund	Strategy	Date	Commitment (\$)
Greenbriar V	Buyout	Feb 2021	30,000,000
Alpine Investors VIII	Buyout	Aug 2021	30,000,000
Revelstoke III	Buyout	Oct 2021	30,000,000
Clearlake VII	Buyout	Oct 2021	30,000,000
Bison VI	Structured Capital	Dec 2021	30,000,000
<b>Total</b>			<b>150,000,000</b>

### Year to Date Commitments as of October 13, 2022

Fund	Strategy	Date	Commitment (\$)
FP Venture Opp	Venture Capital	Jan 2022	30,000,000
FP Venture XIV	Venture Capital	Jan 2022	60,000,000
FP Intrnl XI	Buyout	Jan 2022	30,000,000
FP CF Access II	Buyout	Feb 2022	60,000,000
SK Capital VI	Buyout	Mar 2022	30,000,000
Riverside Value Fund I	Turnaround	Mar 2022	30,000,000
Thoma Bravo Discover IV	Buyout	Apr 2022	15,000,000
Thoma Bravo XV	Buyout	Apr 2022	15,000,000
Arlington VI	Buyout	Apr 2022	30,000,000
Thoma Bravo Explore II	Buyout	May 2022	15,000,000
BV XI	Buyout	Jul 2022	30,000,000
<b>Total</b>			<b>345,000,000</b>

### Approved and Pending Commitments as of October 13, 2022

Fund	Strategy	Date	Target Commitment (\$)
JF Lehman VI	Buyout	N/A	30,000,000
Greenbriar VI	Buyout	N/A	30,000,000

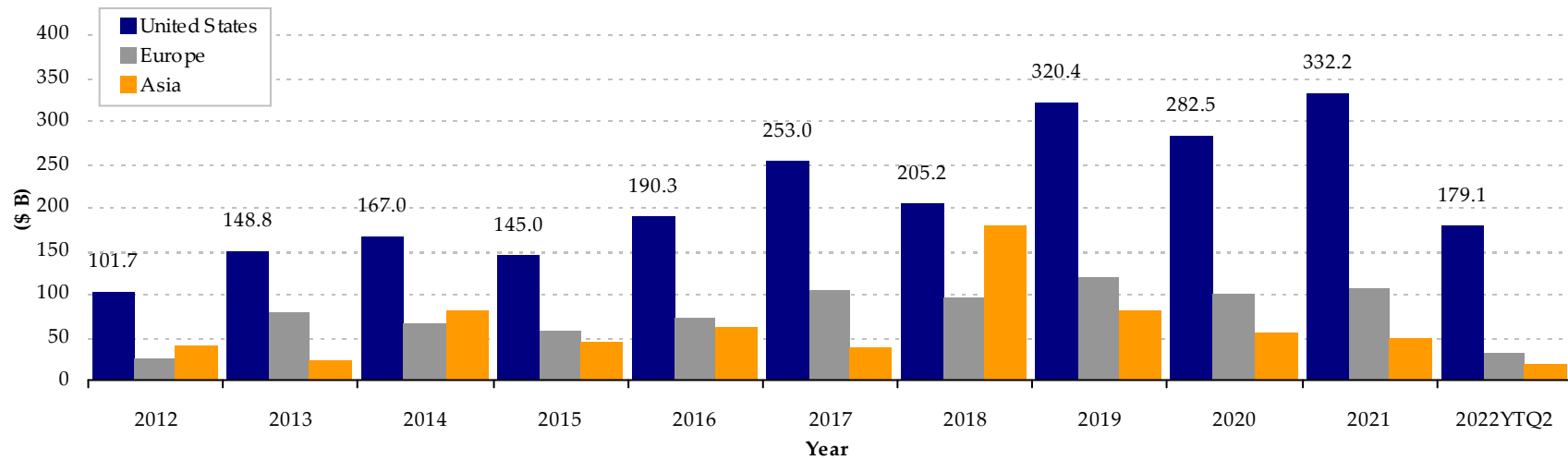
◦ Commitments made in a foreign currency have been converted into U.S. dollars using an exchange rate as of the Report Date, if applicable.

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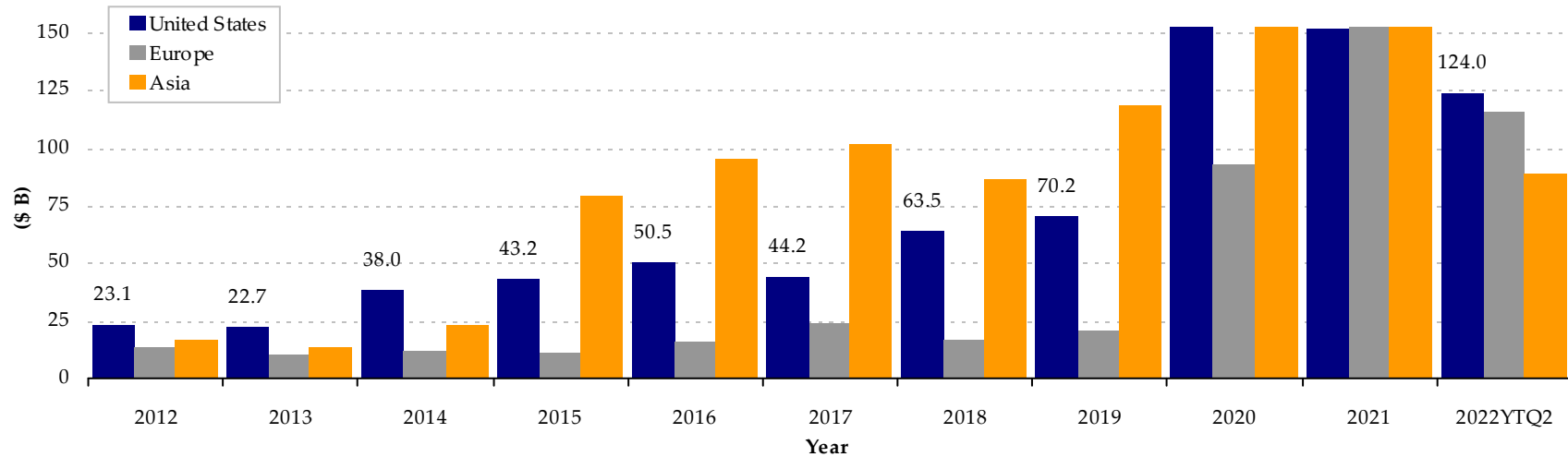
# Market Update

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Buyout Funds

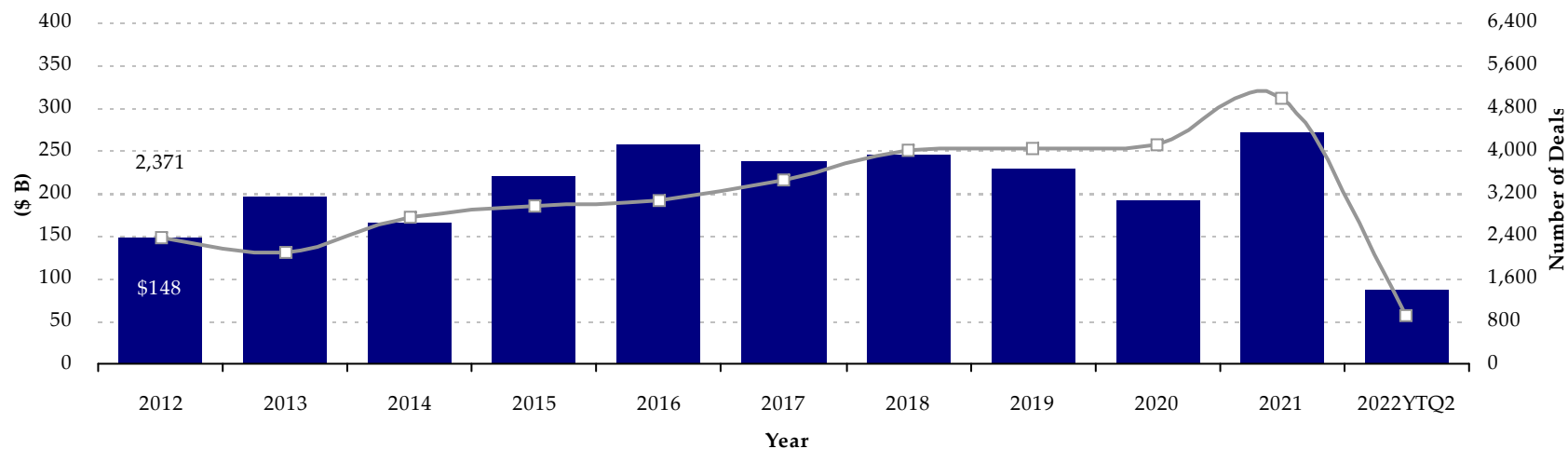


Venture Funds

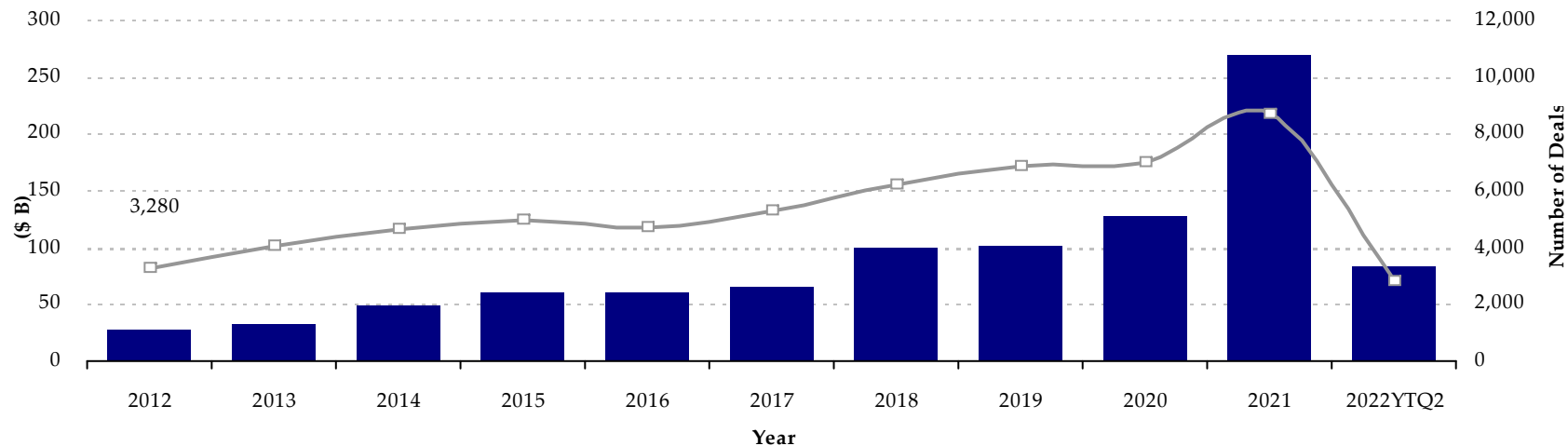


- Source: Pitchbook.
- Data compiled through Q2 2022.

**U.S. Buyout**

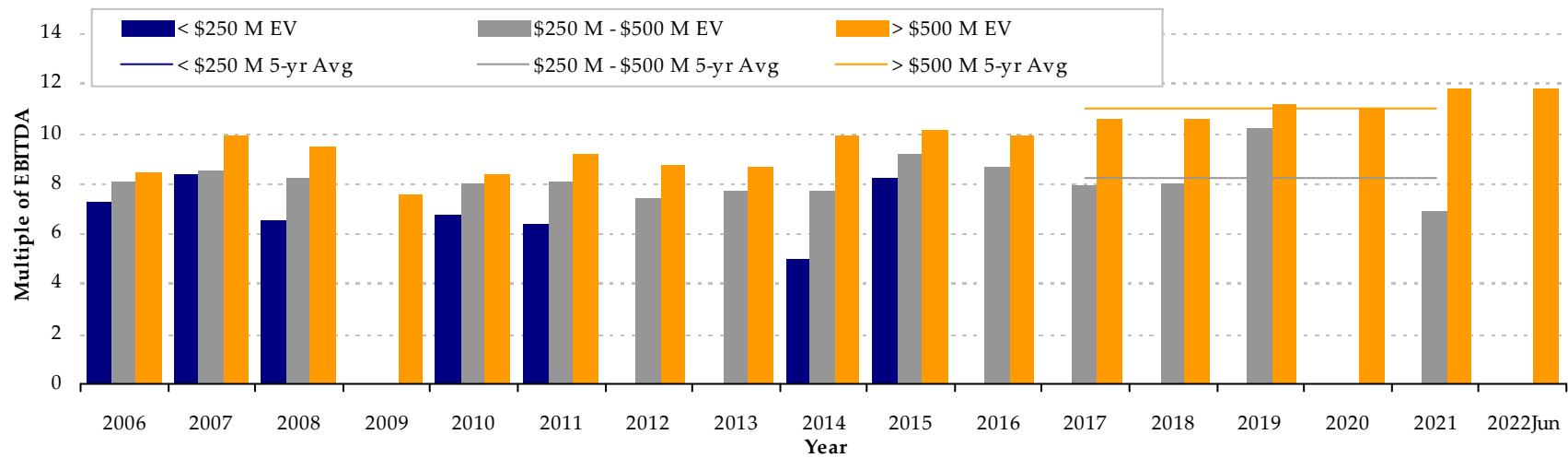


**U.S. Venture**

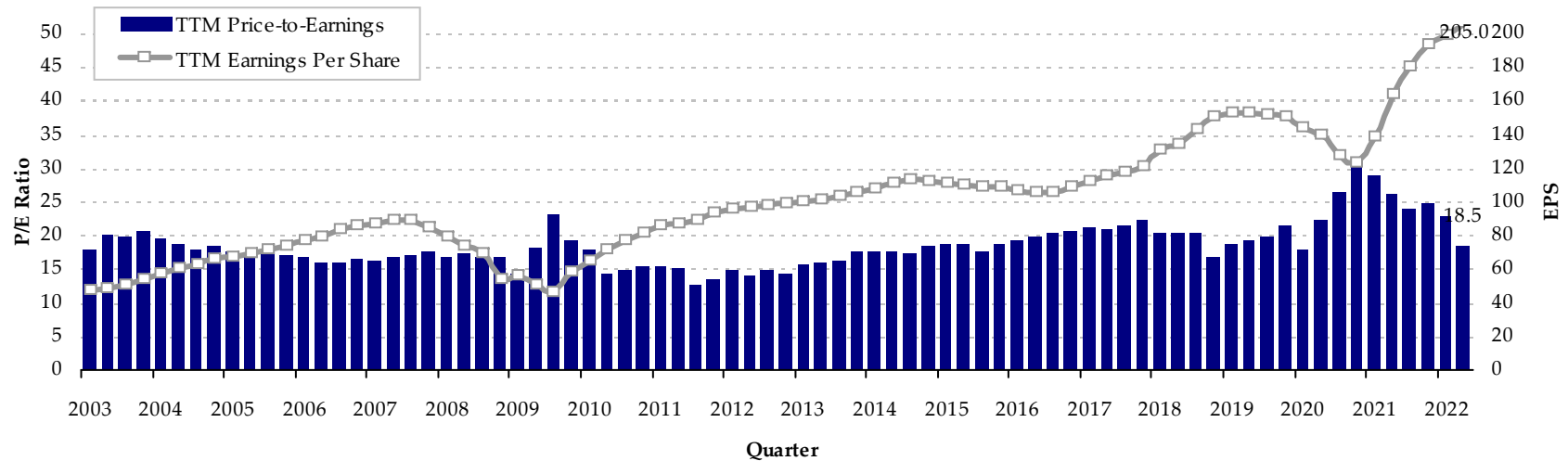


- Source: Pitchbook.
- Data compiled through Q2 2022.

U.S. LBO Pricing Multiples

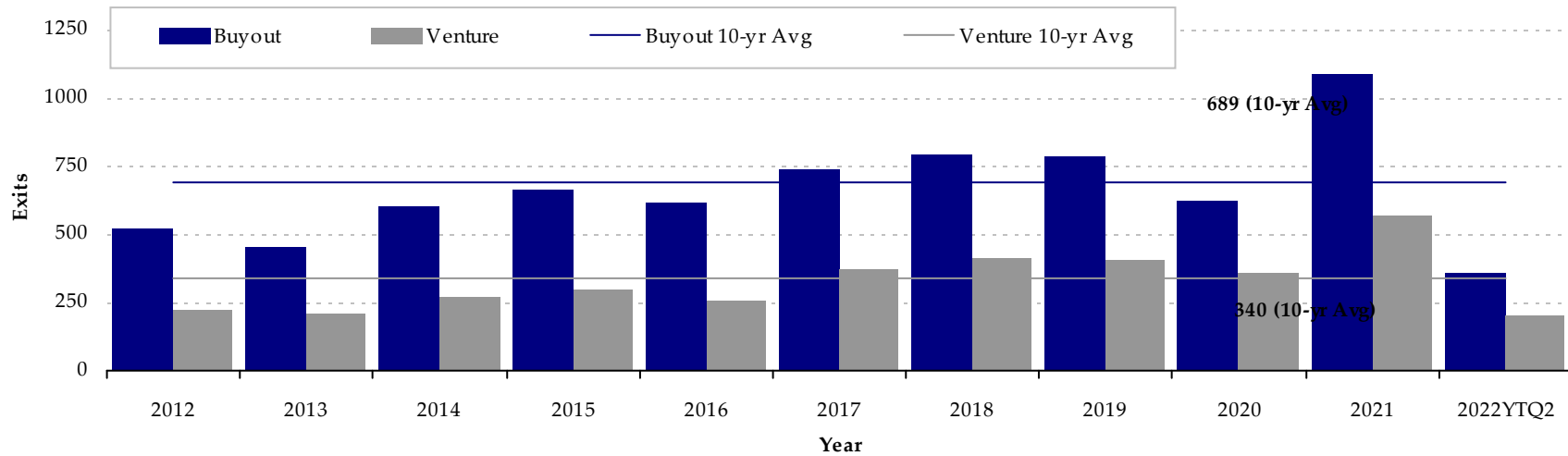


S&P 500 Valuation and Earnings

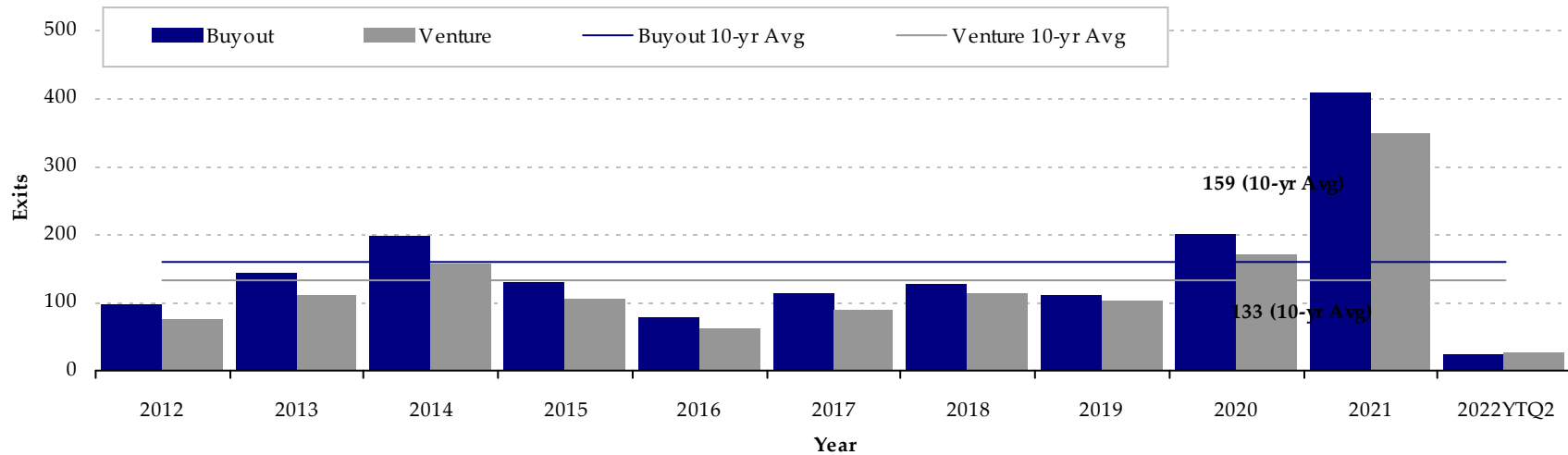


Source: Standard & Poor's Leveraged Commentary.

U.S. Mergers and Acquisitions



U.S. Initial Public Offerings



- Source: Pitchbook.
- Data compiled through Q2 2022.

## Vintage Returns

Group	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
U.S. All PE Median	17.2%	16.5%	16.1%	20.7%	20.8%	24.2%	29.3%	31.5%	33.4%	30.6%
U.S. All PE Top Quartile	23.5%	23.2%	23.6%	27.7%	29.9%	33.2%	42.6%	46.4%	54.7%	53.6%
U.S. Buyout Median	18.8%	16.5%	16.6%	21.8%	20.9%	23.4%	31.9%	24.4%	31.7%	29.9%
U.S. Buyout Top Quartile	23.9%	22.4%	26.2%	26.1%	30.9%	30.6%	40.4%	40.2%	46.5%	48.4%
U.S. Energy Median	0.8%	-1.6%	6.2%	8.2%	9.1%	9.6%	12.4%	8.5%	13.5%	31.4%
U.S. Energy Top Quartile	6.5%	4.0%	13.4%	12.3%	15.9%	12.0%	17.1%	26.7%	37.3%	38.3%
U.S. Real Assets Median	13.1%	10.3%	10.1%	10.3%	11.2%	12.4%	12.7%	18.0%	16.5%	22.6%
U.S. Real Assets Top Quartile	19.2%	14.7%	16.0%	14.3%	15.7%	17.0%	22.3%	26.2%	35.1%	37.8%
U.S. Real Estate Median	15.3%	11.5%	11.0%	11.1%	12.2%	13.1%	15.5%	20.1%	15.0%	20.0%
U.S. Real Estate Top Quartile	21.2%	15.5%	17.7%	15.2%	16.5%	17.2%	23.1%	26.2%	31.0%	37.8%
U.S. Venture Median	18.4%	19.3%	18.1%	22.8%	22.8%	28.7%	33.2%	37.6%	36.6%	31.9%
U.S. Venture Top Quartile	25.2%	25.0%	25.9%	33.9%	32.3%	36.5%	50.1%	53.0%	60.2%	53.7%

▫ Source: Cambridge Associates.

▫ Data compiled through March 31, 2022.



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# Performance Analysis

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## Investment Performance by Strategy



Investment	Vintage	Fund Size	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
<b>Buyout</b>									
21st Century Group I *	2000	\$80,365,451	25,000,000	27,141,173	0	22,841,928	0	0.8 x	-3.8%
Advent GPE VI-A	2008	\$9,000,000,000	40,000,000	40,167,228	0	80,492,730	3,651,819	2.1 x	16.5%
Alpine Investors VIII	2021	\$2,436,551,413	30,000,000	6,168,753	23,831,247	0	6,973,658	1.1 x	NMF
Altaris Constellation	2017	\$165,000,000	20,000,000	16,282,179	5,543,214	22,724,187	19,969,448	2.6 x	26.0%
Altaris IV	2018	\$1,085,000,000	24,000,000	22,597,708	3,056,265	20,907,373	21,605,260	1.9 x	31.7%
Altus Capital II	2010	\$200,000,000	20,000,000	19,796,396	3,222,424	24,125,912	9,141,207	1.7 x	12.8%
American Industrial VI	2016	\$1,845,000,000	20,000,000	24,078,040	3,803,947	20,850,022	29,768,655	2.1 x	22.5%
American Industrial VII	2019	\$3,075,000,000	30,000,000	24,986,800	8,369,997	3,356,797	25,405,837	1.2 x	15.4%
Arlington IV	2016	\$700,000,000	23,000,000	24,072,339	1,419,768	15,398,050	37,835,870	2.2 x	26.5%
Arlington V	2019	\$1,692,000,000	25,000,000	20,826,775	4,173,225	891,984	29,460,595	1.5 x	47.0%
Arlington VI	2022	\$3,500,000,000	30,000,000	0	30,000,000	0	0	N/A	NMF
Boston Ventures VII	2006	\$434,507,010	50,000,000	43,016,769	8,258,947	48,914,085	2,474,808	1.2 x	3.1%
BV IX	2017	\$750,000,000	30,000,000	28,010,908	7,989,093	13,569,710	43,833,968	2.0 x	35.1%
BV VIII	2012	\$486,800,000	30,000,000	27,215,697	3,065,489	42,916,261	21,672,643	2.4 x	48.5%
BV X	2020	\$1,122,000,000	30,000,000	15,648,990	16,136,963	1,785,953	20,017,492	1.4 x	56.1%
Clearlake V	2018	\$3,623,125,000	30,000,000	40,222,322	5,557,908	45,607,453	45,263,550	2.3 x	49.6%
Clearlake VI	2020	\$7,068,000,000	30,000,000	27,917,281	3,276,545	2,473,952	40,968,031	1.6 x	45.7%
Clearlake VII	2022	\$14,125,000,000	30,000,000	9,384,643	20,615,357	730	8,977,299	1.0 x	NMF
Court Square III	2012	\$3,173,449,997	40,000,000	44,316,136	1,905,091	52,941,391	40,077,254	2.1 x	20.8%
Cypress MBP II *	1999	\$2,376,060,606	50,000,000	52,304,562	0	50,840,220	0	1.0 x	-0.5%
DLJ MBP III *	2000	\$5,304,941,647	200,000,000	215,345,711	0	458,746,671	0	2.1 x	19.4%
Doughty Hanson III *	1997	\$2,660,000,000	100,000,000	99,374,207	0	197,482,184	0	2.0 x	13.5%
DW Healthcare III	2012	\$268,147,500	40,000,000	37,138,408	2,861,592	60,592,883	15,578,874	2.1 x	19.0%
DW Healthcare IV	2016	\$294,274,000	30,000,000	29,750,068	1,778,898	28,157,299	26,292,401	1.8 x	24.0%
DW Healthcare V	2019	\$611,000,000	30,000,000	16,176,461	13,823,539	0	17,205,138	1.1 x	3.8%
FP CF Access	2020	\$146,408,500	90,000,000	35,146,545	54,961,050	1,015,434	45,106,100	1.3 x	30.5%
FP CF Access II	2022	\$150,000,000	60,000,000	6,000,000	54,000,000	0	7,211,364	1.2 x	NMF
FP Intl 2011	2011	\$45,000,000	25,000,000	23,027,778	2,385,214	26,182,161	13,301,398	1.7 x	10.0%
FP Intl 2012	2012	\$70,000,000	25,000,000	17,250,000	8,004,190	16,226,579	8,317,827	1.4 x	8.3%
FP Intl 2013	2013	\$97,000,000	20,000,000	13,917,526	6,253,254	4,907,136	15,929,283	1.5 x	7.8%
FP Intl 2014	2014	\$97,000,000	25,000,000	17,654,639	7,513,150	12,634,871	17,625,273	1.7 x	15.2%
FP Intl 2015	2015	\$113,000,000	25,000,000	19,690,266	5,440,795	6,642,147	24,546,668	1.6 x	14.0%
FP Intl 2016	2016	\$97,000,000	25,000,000	19,510,309	5,645,849	4,331,676	23,586,732	1.4 x	11.5%
FP Intl 2017	2017	\$98,000,000	25,000,000	21,301,020	3,860,442	5,034,539	31,027,813	1.7 x	24.2%
FP Intl 2018	2018	\$65,500,000	25,000,000	21,374,046	3,848,372	1,632,316	26,014,715	1.3 x	14.3%
FP Intl 2019	2019	\$70,500,000	30,000,000	17,872,340	12,366,992	1,171,418	20,224,069	1.2 x	17.7%

## Investment Performance by Strategy



Investment	Vintage	Fund Size	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
FP Intl X	2021	\$139,000,000	60,000,000	14,244,604	45,848,781	0	14,319,631	1.0 x	NMF
FP Intl XI	2022	\$124,500,000	30,000,000	481,928	29,523,288	1,176	480,184	1.0 x	NMF
Greenbriar V	2021	\$1,682,930,000	30,000,000	18,762,032	12,362,007	1,126,683	24,523,243	1.4 x	NMF
HMTF III *	1996	\$2,458,754,795	76,743,018	76,799,039	0	87,834,289	0	1.1 x	1.8%
HMTF IV *	1998	\$4,023,532,721	100,000,000	98,010,015	0	67,130,479	0	0.7 x	-6.1%
HMTF V *	2000	\$1,552,965,194	207,366,433	205,198,451	0	378,102,491	0	1.8 x	17.6%
JF Lehman III	2011	\$575,500,000	39,000,000	44,307,479	5,298,068	52,337,761	20,224,261	1.6 x	11.6%
JF Lehman IV	2016	\$833,000,000	30,000,000	30,281,898	728,389	64,421,267	12,833,699	2.6 x	35.6%
JF Lehman V	2020	\$1,350,000,000	30,000,000	22,410,051	7,589,949	0	24,190,285	1.1 x	7.3%
Mason Wells III	2010	\$525,000,000	30,000,000	28,553,580	1,446,420	85,775,993	252,121	3.0 x	20.6%
Oak Hill I *	1999	\$1,600,000,000	50,000,000	50,786,497	0	91,264,962	0	1.8 x	10.6%
One Rock II	2017	\$964,000,000	30,000,000	26,811,775	6,743,446	3,906,746	48,141,568	1.9 x	22.4%
Revelstoke III	2021	\$1,500,000,000	30,000,000	5,104,195	24,895,805	18,688	6,385,677	1.3 x	NMF
Riverside IV	2009	\$406,091,370	40,000,000	31,433,665	0	74,584,420	225,898	2.4 x	21.3%
Riverside V	2013	\$531,833,200	35,000,000	36,828,866	2,148,520	38,851,674	25,342,117	1.7 x	12.3%
Riverside VI	2019	\$327,916,667	30,000,000	19,546,354	10,453,646	184,674	25,260,978	1.3 x	16.4%
Second Cinven *	1998	£904,547,000	65,281,010	65,281,010	0	104,700,661	0	1.6 x	9.3%
Siris III	2015	\$1,810,000,000	25,000,000	31,322,205	3,747,225	24,515,293	20,404,500	1.4 x	13.3%
Siris IV	2019	\$3,452,454,000	30,000,000	24,580,184	7,582,081	3,540,122	33,783,444	1.5 x	23.1%
SK Capital V	2018	\$2,013,000,000	30,000,000	29,077,157	4,675,265	3,992,629	33,190,703	1.3 x	16.4%
SK Capital VI	2022	\$2,750,000,000	30,000,000	0	30,000,000	0	0	N/A	NMF
Thoma Bravo Discover	2016	\$1,074,000,000	10,000,000	11,350,409	1,767,370	29,239,213	5,631,505	3.1 x	36.8%
Thoma Bravo Discover II	2018	\$2,438,485,000	17,000,000	17,689,209	5,034,116	8,731,672	22,936,174	1.8 x	30.9%
Thoma Bravo Discover III	2021	\$3,929,323,000	20,000,000	16,366,299	3,633,701	0	17,542,833	1.1 x	NMF
Thoma Bravo Discover IV	2022	\$5,000,000,000	15,000,000	0	15,000,000	0	0	N/A	NMF
Thoma Bravo Explore I	2020	\$1,127,120,000	20,000,000	13,456,542	7,619,729	1,076,271	16,020,413	1.3 x	33.8%
Thoma Bravo Explore II	2022	\$1,500,000,000	15,000,000	0	15,000,000	0	0	N/A	NMF
Thoma Bravo XI	2014	\$3,662,000,000	20,000,000	20,785,558	2,135,646	40,864,537	27,589,699	3.3 x	27.4%
Thoma Bravo XII	2016	\$7,603,860,000	30,000,000	32,536,127	7,578,122	18,847,457	43,543,263	1.9 x	16.9%
Thoma Bravo XIII	2019	\$12,594,745,000	30,000,000	34,812,896	4,281,536	17,341,682	42,721,560	1.7 x	37.4%
Thoma Bravo XIV	2021	\$17,896,818,000	20,000,000	18,828,847	1,171,153	5	18,221,716	1.0 x	NMF
Thoma Bravo XV	2022	\$24,000,000,000	15,000,000	2,489,892	12,510,108	0	2,454,510	1.0 x	NMF
Vista Equity III	2007	\$1,287,129,725	50,000,000	54,358,135	3,872,093	127,515,699	3,240,781	2.4 x	28.5%
Vista Foundation II	2013	\$1,145,000,000	15,000,000	16,044,617	7,090,019	24,489,180	8,946,416	2.1 x	16.0%
Vista Foundation III	2016	\$2,950,561,226	30,000,000	33,591,741	7,848,892	32,373,268	32,870,063	1.9 x	26.4%
Wellspring V	2011	\$1,194,387,756	40,000,000	46,242,972	14,022,181	64,055,520	12,900,094	1.7 x	16.1%
Wicks IV	2011	\$414,000,000	40,000,000	42,471,961	4,335,715	88,005,325	9,202,079	2.3 x	21.6%

## Investment Performance by Strategy



Investment	Vintage	Fund Size	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
<b>Total Buyout</b>			<b>2,797,390,461</b>	<b>2,345,530,212</b>	<b>638,912,089</b>	<b>2,830,225,888</b>	<b>1,252,444,465</b>	<b>1.7 x</b>	<b>11.8%</b>
<b>Distressed Debt</b>									
Castlelake II	2011	\$996,762,000	35,000,000	32,656,036	2,625,461	31,740,179	12,850,059	1.4 x	5.6%
Castlelake III	2014	\$1,421,000,000	25,000,000	23,149,741	1,864,884	18,956,394	14,809,310	1.5 x	6.9%
Tennenbaum VI	2010	\$530,000,000	40,000,000	38,075,687	30,392,453	51,641,431	2,521,212	1.4 x	7.3%
<b>Total Distressed Debt</b>			<b>100,000,000</b>	<b>93,881,464</b>	<b>34,882,798</b>	<b>102,338,004</b>	<b>30,180,581</b>	<b>1.4 x</b>	<b>6.6%</b>
<b>Growth Equity</b>									
LLR III	2008	\$803,000,000	50,000,000	48,504,590	4,357,033	106,559,357	4,040,381	2.3 x	16.6%
LLR VI	2021	\$1,800,000,000	30,000,000	16,200,000	13,800,000	132,473	15,957,464	1.0 x	NMF
TA XI	2010	\$4,000,100,000	40,000,000	39,400,000	600,000	130,144,591	18,576,472	3.8 x	26.9%
<b>Total Growth Equity</b>			<b>120,000,000</b>	<b>104,104,590</b>	<b>18,757,033</b>	<b>236,836,421</b>	<b>38,574,317</b>	<b>2.6 x</b>	<b>20.9%</b>
<b>Hard Assets</b>									
EnCap IX	2013	\$5,154,639,175	25,000,000	28,752,877	1,005,494	28,113,774	12,024,315	1.4 x	10.0%
EnCap VIII	2010	\$3,608,247,422	47,500,000	54,117,730	0	33,953,237	21,289,770	1.0 x	0.5%
EnCap X	2015	\$6,701,030,928	30,000,000	30,468,264	1,539,969	22,168,458	33,903,167	1.8 x	16.7%
EnCap XI	2017	\$6,961,190,722	35,000,000	24,481,898	11,419,252	2,852,602	31,928,074	1.4 x	18.8%
GTLA Holdings	2018	\$20,000,000	20,000,000	20,000,000	0	0	70,000,000	3.5 x	38.6%
Highland Contingent Note	2018	\$152,244,727	152,244,727	152,244,727	0	15,000,000	163,145,020	1.2 x	8.0%
Highland Equity	2016	\$66,000,000	66,000,000	81,870,000	0	16,674,525	47,346,033	0.8 x	-6.7%
Lime Rock Resources III	2014	\$762,000,000	25,000,000	25,671,809	224,811	8,879,420	22,599,419	1.2 x	3.2%
NGP IX	2007	\$4,000,000,000	50,000,000	54,229,094	201,825	77,618,619	182,374	1.4 x	10.9%
NGP X	2012	\$3,586,000,000	35,000,000	36,445,423	248,307	31,152,552	5,173,912	1.0 x	-0.1%
NGP XI	2014	\$5,325,000,000	30,000,000	30,597,387	1,258,097	16,751,681	28,244,128	1.5 x	10.0%
NGP XII	2017	\$4,304,081,633	30,000,000	20,734,974	9,265,026	3,710,075	26,982,541	1.5 x	14.6%
<b>Total Hard Assets</b>			<b>545,744,727</b>	<b>559,614,185</b>	<b>25,162,781</b>	<b>256,874,942</b>	<b>462,818,752</b>	<b>1.3 x</b>	<b>7.6%</b>

## Investment Performance by Strategy



Investment	Vintage	Fund Size	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
<b>Infrastructure</b>									
Big River - Equity	2014	\$151,090,000	151,090,000	151,090,000	0	296,427,836	1,677,862	2.0 x	15.0%
Big River - Funding *	2017	\$3,750,000	3,750,000	3,750,000	0	3,812,795	0	1.0 x	4.3%
Big River - Holdings Note *	2017	\$12,000,000	12,000,000	12,000,000	0	13,343,726	0	1.1 x	11.0%
Big River - Holdings Note 2023 *	2018	\$12,000,000	12,000,000	12,000,000	0	14,582,469	0	1.2 x	5.6%
Big River - Holdings Note 2023-2 *	2018	\$5,150,000	5,150,000	5,150,000	0	6,245,733	0	1.2 x	6.5%
Big River - Preferred Equity *	2017	\$41,980,449	41,980,449	41,980,449	0	51,702,368	0	1.2 x	12.5%
Big River - Sr Secured Debt *	2015	\$26,910,000	26,910,000	26,966,221	0	35,699,565	0	1.3 x	14.7%
Blue Oak Arkansas *	2014	\$18,000,000	18,000,000	19,740,000	0	5,385,136	0	0.3 x	-34.8%
<b>Total Infrastructure</b>			<b>270,880,449</b>	<b>272,676,670</b>	<b>0</b>	<b>427,199,627</b>	<b>1,677,862</b>	<b>1.6 x</b>	<b>12.3%</b>
<b>Mezzanine</b>									
Audax Mezzanine III	2011	\$1,002,250,000	25,000,000	25,892,496	6,675,000	33,085,160	1,247,768	1.3 x	9.8%
Big River - Mezzanine *	2014	\$5,000,000	5,000,000	5,003,686	0	8,225,290	0	1.6 x	17.3%
Blackstone Mezzanine I *	1999	\$1,141,000,000	100,000,000	73,353,517	0	96,729,026	0	1.3 x	10.2%
DLJ Investment II *	1999	\$1,600,000,000	80,000,000	43,611,022	0	60,468,989	0	1.4 x	10.4%
Greyrock IV	2017	\$275,000,000	30,000,000	28,133,397	3,002,589	22,140,118	15,174,473	1.3 x	10.7%
Greyrock V	2020	\$280,000,000	35,000,000	21,238,895	13,761,106	0	22,284,334	1.0 x	8.2%
Insight Mezzanine I	2009	\$94,678,011	10,000,000	9,971,470	479,507	11,860,178	1,799,824	1.4 x	6.5%
<b>Total Mezzanine</b>			<b>285,000,000</b>	<b>207,204,482</b>	<b>23,918,202</b>	<b>232,508,761</b>	<b>40,506,399</b>	<b>1.3 x</b>	<b>10.2%</b>
<b>Multi-Strategy</b>									
ATRS-FP PE	2012	\$265,516,382	263,823,718	398,906,193	160,184,609	317,760,489	412,492,676	1.8 x	21.4%
CSFB-ATRS 2005-1 Series	2005	\$252,525,253	250,000,000	277,750,644	10,780,725	408,390,816	31,918,716	1.6 x	7.8%
CSFB-ATRS 2006-1 Series	2006	\$406,331,658	404,300,000	410,452,009	54,222,028	618,861,559	74,230,415	1.7 x	10.2%
DH Tech I *	2000	\$236,700,000	50,000,000	61,471,034	0	21,987,447	0	0.4 x	-16.5%
Diamond State *	1999	\$46,000,000	2,000,000	2,000,000	0	3,097,200	0	1.5 x	5.5%
Diamond State II	2007	\$25,361,350	4,000,000	3,517,000	483,000	7,017,000	2,631,926	2.7 x	10.8%
<b>Total Multi-Strategy</b>			<b>974,123,718</b>	<b>1,154,096,880</b>	<b>225,670,362</b>	<b>1,377,114,512</b>	<b>521,273,733</b>	<b>1.6 x</b>	<b>9.3%</b>
<b>Special Assets</b>									
WNG II	2019	\$438,350,000	30,000,000	13,738,498	17,315,022	1,178,625	10,376,767	0.8 x	-9.2%
<b>Total Special Assets</b>			<b>30,000,000</b>	<b>13,738,498</b>	<b>17,315,022</b>	<b>1,178,625</b>	<b>10,376,767</b>	<b>0.8 x</b>	<b>-9.2%</b>

# Investment Performance by Strategy



Investment	Vintage	Fund Size	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
<b>Structured Capital</b>									
Bison V	2017	\$384,132,653	35,000,000	35,060,033	6,980,570	23,275,191	28,504,894	1.5 x	17.5%
Bison VI	2022	\$500,000,000	30,000,000	0	30,000,000	0	0	N/A	NMF
Levine Leichtman V	2013	\$1,644,081,633	20,000,000	27,868,463	2,019,471	38,347,183	15,151,909	1.9 x	17.7%
PineBridge Structured III	2016	\$600,000,000	30,000,000	27,845,159	9,764,976	16,251,862	8,455,498	0.9 x	-4.7%
<b>Total Structured Capital</b>			<b>115,000,000</b>	<b>90,773,654</b>	<b>48,765,017</b>	<b>77,874,237</b>	<b>52,112,301</b>	<b>1.4 x</b>	<b>12.9%</b>
<b>Turnaround</b>									
Atlas Capital II	2014	\$900,000,000	15,000,000	21,366,379	4,122,087	18,353,726	17,445,535	1.7 x	20.2%
Insight Equity II	2009	\$429,735,291	30,000,000	31,028,312	884,343	42,854,623	8,769,097	1.7 x	9.2%
KPS III Supplemental	2009	\$816,326,531	40,000,000	37,777,254	16,117,982	80,212,144	226,463	2.1 x	22.8%
KPS IV	2014	\$3,571,428,571	25,000,000	21,935,840	4,015,029	22,769,231	19,063,024	1.9 x	24.1%
KPS Mid-Market I	2019	\$1,020,408,163	20,000,000	10,839,381	9,395,004	1,452,322	12,962,528	1.3 x	24.0%
KPS V	2020	\$6,122,448,980	30,000,000	16,888,861	12,719,912	622,696	22,737,011	1.4 x	37.4%
Riverside Value Fund I	2021	\$350,000,000	30,000,000	0	19,720,641	0	15,885,935	N/A	NMF
Sycamore Partners II	2014	\$2,700,000,000	25,000,000	22,237,949	3,888,793	13,705,544	11,788,426	1.1 x	4.0%
Sycamore Partners III	2018	\$4,870,000,000	25,000,000	17,426,482	7,573,518	0	20,307,589	1.2 x	11.5%
<b>Total Turnaround</b>			<b>240,000,000</b>	<b>179,500,459</b>	<b>78,437,309</b>	<b>179,970,286</b>	<b>129,185,608</b>	<b>1.7 x</b>	<b>17.1%</b>
<b>Venture Capital</b>									
FP Venture 2008	2008	\$102,000,000	30,000,000	30,000,000	221,471	71,777,548	24,448,288	3.2 x	18.4%
FP Venture 2009	2009	\$58,000,000	25,000,000	24,543,104	729,574	53,336,514	11,134,166	2.6 x	17.5%
FP Venture 2010	2010	\$80,000,000	25,000,000	16,031,250	1,649,769	23,723,232	33,410,819	3.6 x	18.7%
FP Venture 2011	2011	\$70,000,000	25,000,000	24,678,571	575,892	121,252,686	57,842,354	7.3 x	36.4%
FP Venture 2012	2012	\$80,000,000	25,000,000	22,375,000	2,820,585	37,566,631	44,793,926	3.7 x	23.6%
FP Venture 2013	2013	\$87,000,000	20,000,000	18,275,862	1,853,880	22,542,205	46,124,309	3.8 x	27.7%
FP Venture 2014	2014	\$93,000,000	25,000,000	23,844,086	1,301,281	22,252,889	65,936,502	3.7 x	26.1%
FP Venture 2015	2015	\$113,000,000	25,000,000	23,783,186	1,351,578	7,566,348	46,336,652	2.3 x	20.0%
FP Venture 2016	2016	\$82,000,000	25,000,000	21,859,756	3,301,287	7,591,997	47,834,792	2.5 x	30.8%
FP Venture 2017	2017	\$113,000,000	25,000,000	16,814,159	8,288,622	3,147,156	31,125,526	2.0 x	33.3%
FP Venture 2018	2018	\$80,500,000	25,000,000	22,049,689	3,104,017	2,183,049	40,557,057	1.9 x	38.4%
FP Venture 2019	2019	\$80,500,000	30,000,000	17,888,199	12,250,343	661,059	29,421,395	1.7 x	36.0%
FP Venture Opp	2022	\$150,000,000	30,000,000	10,500,000	19,518,112	0	10,271,875	1.0 x	NMF
FP Venture XIII	2020	\$162,000,000	60,000,000	30,586,944	29,599,171	119,991	35,872,568	1.2 x	21.2%
FP Venture XIV	2022	\$153,500,000	60,000,000	3,911,477	56,118,978	10,891	3,697,396	0.9 x	NMF
<b>Total Venture Capital</b>			<b>455,000,000</b>	<b>307,141,283</b>	<b>142,684,560</b>	<b>373,732,196</b>	<b>528,807,625</b>	<b>2.9 x</b>	<b>23.9%</b>

## Investment Performance by Strategy



Investment	Vintage	Fund Size	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
<b>Total Portfolio</b>			5,933,139,355	5,328,262,376	1,254,505,173	6,095,853,498	3,067,958,410	1.7 x	11.7%

- Remaining Value is defined as the investor's value as reported by the fund's manager.
- TVPI is the ratio of Distributed Capital plus Remaining Value to Contributed Capital.
- Net IRR is defined as the annualized, compound rate of return using daily draws, distributions and Remaining Value as of the Report Date, net of fees and expenses, including late closing interest.
- An asterisk indicates an investment that is fully liquidated, if applicable.
- Commitments made in a foreign currency have been converted into U.S. dollars using an exchange rate as of the Report Date, if applicable.
- Returns calculated for funds in the early years of their lives are particularly not meaningful given the J-curve effect. During these early years, due to illiquidity, stagnant valuations, fees and expenses, fund performance tends to be negative (the bottom of the "J").

## Investment Performance by Vintage Year



Investment	Strategy	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
<b>1996</b>								
HMTF III *	Buyout	76,743,018	76,799,039	0	87,834,289	0	1.1 x	1.8%
<b>Total 1996</b>		<b>76,743,018</b>	<b>76,799,039</b>	<b>0</b>	<b>87,834,289</b>	<b>0</b>	<b>1.1 x</b>	<b>1.8%</b>
<b>1997</b>								
Doughty Hanson III *	Buyout	100,000,000	99,374,207	0	197,482,184	0	2.0 x	13.5%
<b>Total 1997</b>		<b>100,000,000</b>	<b>99,374,207</b>	<b>0</b>	<b>197,482,184</b>	<b>0</b>	<b>2.0 x</b>	<b>13.5%</b>
<b>1998</b>								
HMTF IV *	Buyout	100,000,000	98,010,015	0	67,130,479	0	0.7 x	-6.1%
Second Cinven *	Buyout	65,281,010	65,281,010	0	104,700,661	0	1.6 x	9.3%
<b>Total 1998</b>		<b>165,281,010</b>	<b>163,291,025</b>	<b>0</b>	<b>171,831,140</b>	<b>0</b>	<b>1.1 x</b>	<b>0.9%</b>
<b>1999</b>								
Blackstone Mezzanine I *	Mezzanine	100,000,000	73,353,517	0	96,729,026	0	1.3 x	10.2%
Cypress MBP II *	Buyout	50,000,000	52,304,562	0	50,840,220	0	1.0 x	-0.5%
Diamond State *	Multi-Strategy	2,000,000	2,000,000	0	3,097,200	0	1.5 x	5.5%
DLJ Investment II *	Mezzanine	80,000,000	43,611,022	0	60,468,989	0	1.4 x	10.4%
Oak Hill I *	Buyout	50,000,000	50,786,497	0	91,264,962	0	1.8 x	10.6%
<b>Total 1999</b>		<b>282,000,000</b>	<b>222,055,598</b>	<b>0</b>	<b>302,400,397</b>	<b>0</b>	<b>1.4 x</b>	<b>7.7%</b>
<b>2000</b>								
21st Century Group I *	Buyout	25,000,000	27,141,173	0	22,841,928	0	0.8 x	-3.8%
DH Tech I *	Multi-Strategy	50,000,000	61,471,034	0	21,987,447	0	0.4 x	-16.5%
DLJ MBP III *	Buyout	200,000,000	215,345,711	0	458,746,671	0	2.1 x	19.4%
HMTF V *	Buyout	207,366,433	205,198,451	0	378,102,491	0	1.8 x	17.6%
<b>Total 2000</b>		<b>482,366,433</b>	<b>509,156,369</b>	<b>0</b>	<b>881,678,537</b>	<b>0</b>	<b>1.7 x</b>	<b>14.8%</b>
<b>2005</b>								
CSFB-ATRS 2005-1 Series	Multi-Strategy	250,000,000	277,750,644	10,780,725	408,390,816	31,918,716	1.6 x	7.8%
<b>Total 2005</b>		<b>250,000,000</b>	<b>277,750,644</b>	<b>10,780,725</b>	<b>408,390,816</b>	<b>31,918,716</b>	<b>1.6 x</b>	<b>7.8%</b>



## Investment Performance by Vintage Year



Investment	Strategy	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
<b>2006</b>								
Boston Ventures VII	Buyout	50,000,000	43,016,769	8,258,947	48,914,085	2,474,808	1.2 x	3.1%
CSFB-ATRS 2006-1 Series	Multi-Strategy	404,300,000	410,452,009	54,222,028	618,861,559	74,230,415	1.7 x	10.2%
<b>Total 2006</b>		<b>454,300,000</b>	<b>453,468,778</b>	<b>62,480,975</b>	<b>667,775,644</b>	<b>76,705,223</b>	<b>1.6 x</b>	<b>9.6%</b>
<b>2007</b>								
Diamond State II	Multi-Strategy	4,000,000	3,517,000	483,000	7,017,000	2,631,926	2.7 x	10.8%
NGP IX	Hard Assets	50,000,000	54,229,094	201,825	77,618,619	182,374	1.4 x	10.9%
Vista Equity III	Buyout	50,000,000	54,358,135	3,872,093	127,515,699	3,240,781	2.4 x	28.5%
<b>Total 2007</b>		<b>104,000,000</b>	<b>112,104,229</b>	<b>4,556,918</b>	<b>212,151,318</b>	<b>6,055,081</b>	<b>1.9 x</b>	<b>20.3%</b>
<b>2008</b>								
Advent GPE VI-A	Buyout	40,000,000	40,167,228	0	80,492,730	3,651,819	2.1 x	16.5%
FP Venture 2008	Venture Capital	30,000,000	30,000,000	221,471	71,777,548	24,448,288	3.2 x	18.4%
LLR III	Growth Equity	50,000,000	48,504,590	4,357,033	106,559,357	4,040,381	2.3 x	16.6%
<b>Total 2008</b>		<b>120,000,000</b>	<b>118,671,818</b>	<b>4,578,504</b>	<b>258,829,635</b>	<b>32,140,488</b>	<b>2.5 x</b>	<b>17.1%</b>
<b>2009</b>								
FP Venture 2009	Venture Capital	25,000,000	24,543,104	729,574	53,336,514	11,134,166	2.6 x	17.5%
Insight Equity II	Turnaround	30,000,000	31,028,312	884,343	42,854,623	8,769,097	1.7 x	9.2%
Insight Mezzanine I	Mezzanine	10,000,000	9,971,470	479,507	11,860,178	1,799,824	1.4 x	6.5%
KPS III Supplemental	Turnaround	40,000,000	37,777,254	16,117,982	80,212,144	226,463	2.1 x	22.8%
Riverside IV	Buyout	40,000,000	31,433,665	0	74,584,420	225,898	2.4 x	21.3%
<b>Total 2009</b>		<b>145,000,000</b>	<b>134,753,805</b>	<b>18,211,406</b>	<b>262,847,879</b>	<b>22,155,448</b>	<b>2.1 x</b>	<b>17.1%</b>
<b>2010</b>								
Altus Capital II	Buyout	20,000,000	19,796,396	3,222,424	24,125,912	9,141,207	1.7 x	12.8%
EnCap VIII	Hard Assets	47,500,000	54,117,730	0	33,953,237	21,289,770	1.0 x	0.5%
FP Venture 2010	Venture Capital	25,000,000	16,031,250	1,649,769	23,723,232	33,410,819	3.6 x	18.7%
Mason Wells III	Buyout	30,000,000	28,553,580	1,446,420	85,775,993	252,121	3.0 x	20.6%
TA XI	Growth Equity	40,000,000	39,400,000	600,000	130,144,591	18,576,472	3.8 x	26.9%
Tennenbaum VI	Distressed Debt	40,000,000	38,075,687	30,392,453	51,641,431	2,521,212	1.4 x	7.3%
<b>Total 2010</b>		<b>202,500,000</b>	<b>195,974,643</b>	<b>37,311,066</b>	<b>349,364,395</b>	<b>85,191,601</b>	<b>2.2 x</b>	<b>16.0%</b>

## Investment Performance by Vintage Year



Investment	Strategy	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
<b>2011</b>								
Audax Mezzanine III	Mezzanine	25,000,000	25,892,496	6,675,000	33,085,160	1,247,768	1.3 x	9.8%
Castlelake II	Distressed Debt	35,000,000	32,656,036	2,625,461	31,740,179	12,850,059	1.4 x	5.6%
FP Intl 2011	Buyout	25,000,000	23,027,778	2,385,214	26,182,161	13,301,398	1.7 x	10.0%
FP Venture 2011	Venture Capital	25,000,000	24,678,571	575,892	121,252,686	57,842,354	7.3 x	36.4%
JF Lehman III	Buyout	39,000,000	44,307,479	5,298,068	52,337,761	20,224,261	1.6 x	11.6%
Wellspring V	Buyout	40,000,000	46,242,972	14,022,181	64,055,520	12,900,094	1.7 x	16.1%
Wicks IV	Buyout	40,000,000	42,471,961	4,335,715	88,005,325	9,202,079	2.3 x	21.6%
<b>Total 2011</b>		<b>229,000,000</b>	<b>239,277,292</b>	<b>35,917,531</b>	<b>416,658,792</b>	<b>127,568,013</b>	<b>2.3 x</b>	<b>17.9%</b>
<b>2012</b>								
ATRS-FP PE	Multi-Strategy	263,823,718	398,906,193	160,184,609	317,760,489	412,492,676	1.8 x	21.4%
BV VIII	Buyout	30,000,000	27,215,697	3,065,489	42,916,261	21,672,643	2.4 x	48.5%
Court Square III	Buyout	40,000,000	44,316,136	1,905,091	52,941,391	40,077,254	2.1 x	20.8%
DW Healthcare III	Buyout	40,000,000	37,138,408	2,861,592	60,592,883	15,578,874	2.1 x	19.0%
FP Intl 2012	Buyout	25,000,000	17,250,000	8,004,190	16,226,579	8,317,827	1.4 x	8.3%
FP Venture 2012	Venture Capital	25,000,000	22,375,000	2,820,585	37,566,631	44,793,926	3.7 x	23.6%
NGP X	Hard Assets	35,000,000	36,445,423	248,307	31,152,552	5,173,912	1.0 x	-0.1%
<b>Total 2012</b>		<b>458,823,718</b>	<b>583,646,857</b>	<b>179,089,863</b>	<b>559,156,786</b>	<b>548,107,112</b>	<b>1.9 x</b>	<b>19.9%</b>
<b>2013</b>								
EnCap IX	Hard Assets	25,000,000	28,752,877	1,005,494	28,113,774	12,024,315	1.4 x	10.0%
FP Intl 2013	Buyout	20,000,000	13,917,526	6,253,254	4,907,136	15,929,283	1.5 x	7.8%
FP Venture 2013	Venture Capital	20,000,000	18,275,862	1,853,880	22,542,205	46,124,309	3.8 x	27.7%
Levine Leichtman V	Structured Capital	20,000,000	27,868,463	2,019,471	38,347,183	15,151,909	1.9 x	17.7%
Riverside V	Buyout	35,000,000	36,828,866	2,148,520	38,851,674	25,342,117	1.7 x	12.3%
Vista Foundation II	Buyout	15,000,000	16,044,617	7,090,019	24,489,180	8,946,416	2.1 x	16.0%
<b>Total 2013</b>		<b>135,000,000</b>	<b>141,688,211</b>	<b>20,370,639</b>	<b>157,251,152</b>	<b>123,518,349</b>	<b>2.0 x</b>	<b>15.9%</b>

## Investment Performance by Vintage Year



Investment	Strategy	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
<b>2014</b>								
Atlas Capital II	Turnaround	15,000,000	21,366,379	4,122,087	18,353,726	17,445,535	1.7 x	20.2%
Big River - Equity	Infrastructure	151,090,000	151,090,000	0	296,427,836	1,677,862	2.0 x	15.0%
Big River - Mezzanine *	Mezzanine	5,000,000	5,003,686	0	8,225,290	0	1.6 x	17.3%
Blue Oak Arkansas *	Infrastructure	18,000,000	19,740,000	0	5,385,136	0	0.3 x	-34.8%
Castlelake III	Distressed Debt	25,000,000	23,149,741	1,864,884	18,956,394	14,809,310	1.5 x	6.9%
FP Intl 2014	Buyout	25,000,000	17,654,639	7,513,150	12,634,871	17,625,273	1.7 x	15.2%
FP Venture 2014	Venture Capital	25,000,000	23,844,086	1,301,281	22,252,889	65,936,502	3.7 x	26.1%
KPS IV	Turnaround	25,000,000	21,935,840	4,015,029	22,769,231	19,063,024	1.9 x	24.1%
Lime Rock Resources III	Hard Assets	25,000,000	25,671,809	224,811	8,879,420	22,599,419	1.2 x	3.2%
NGP XI	Hard Assets	30,000,000	30,597,387	1,258,097	16,751,681	28,244,128	1.5 x	10.0%
Sycamore Partners II	Turnaround	25,000,000	22,237,949	3,888,793	13,705,544	11,788,426	1.1 x	4.0%
Thoma Bravo XI	Buyout	20,000,000	20,785,558	2,135,646	40,864,537	27,589,699	3.3 x	27.4%
<b>Total 2014</b>		<b>389,090,000</b>	<b>383,077,074</b>	<b>26,323,778</b>	<b>485,206,555</b>	<b>226,779,178</b>	<b>1.9 x</b>	<b>14.0%</b>
<b>2015</b>								
Big River - Sr Secured Debt *	Infrastructure	26,910,000	26,966,221	0	35,699,565	0	1.3 x	14.7%
EnCap X	Hard Assets	30,000,000	30,468,264	1,539,969	22,168,458	33,903,167	1.8 x	16.7%
FP Intl 2015	Buyout	25,000,000	19,690,266	5,440,795	6,642,147	24,546,668	1.6 x	14.0%
FP Venture 2015	Venture Capital	25,000,000	23,783,186	1,351,578	7,566,348	46,336,652	2.3 x	20.0%
Siris III	Buyout	25,000,000	31,322,205	3,747,225	24,515,293	20,404,500	1.4 x	13.3%
<b>Total 2015</b>		<b>131,910,000</b>	<b>132,230,143</b>	<b>12,079,567</b>	<b>96,591,810</b>	<b>125,190,987</b>	<b>1.7 x</b>	<b>16.2%</b>
<b>2016</b>								
American Industrial VI	Buyout	20,000,000	24,078,040	3,803,947	20,850,022	29,768,655	2.1 x	22.5%
Arlington IV	Buyout	23,000,000	24,072,339	1,419,768	15,398,050	37,835,870	2.2 x	26.5%
DW Healthcare IV	Buyout	30,000,000	29,750,068	1,778,898	28,157,299	26,292,401	1.8 x	24.0%
FP Intl 2016	Buyout	25,000,000	19,510,309	5,645,849	4,331,676	23,586,732	1.4 x	11.5%
FP Venture 2016	Venture Capital	25,000,000	21,859,756	3,301,287	7,591,997	47,834,792	2.5 x	30.8%
Highland Equity	Hard Assets	66,000,000	81,870,000	0	16,674,525	47,346,033	0.8 x	-6.7%
JF Lehman IV	Buyout	30,000,000	30,281,898	728,389	64,421,267	12,833,699	2.6 x	35.6%
PineBridge Structured III	Structured Capital	30,000,000	27,845,159	9,764,976	16,251,862	8,455,498	0.9 x	-4.7%
Thoma Bravo Discover	Buyout	10,000,000	11,350,409	1,767,370	29,239,213	5,631,505	3.1 x	36.8%
Thoma Bravo XII	Buyout	30,000,000	32,536,127	7,578,122	18,847,457	43,543,263	1.9 x	16.9%
Vista Foundation III	Buyout	30,000,000	33,591,741	7,848,892	32,373,268	32,870,063	1.9 x	26.4%
<b>Total 2016</b>		<b>319,000,000</b>	<b>336,745,845</b>	<b>43,637,498</b>	<b>254,136,635</b>	<b>315,998,511</b>	<b>1.7 x</b>	<b>17.0%</b>

## Investment Performance by Vintage Year



Investment	Strategy	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
<b>2017</b>								
Altaris Constellation	Buyout	20,000,000	16,282,179	5,543,214	22,724,187	19,969,448	2.6 x	26.0%
Big River - Funding *	Infrastructure	3,750,000	3,750,000	0	3,812,795	0	1.0 x	4.3%
Big River - Holdings Note *	Infrastructure	12,000,000	12,000,000	0	13,343,726	0	1.1 x	11.0%
Big River - Preferred Equity *	Infrastructure	41,980,449	41,980,449	0	51,702,368	0	1.2 x	12.5%
Bison V	Structured Capital	35,000,000	35,060,033	6,980,570	23,275,191	28,504,894	1.5 x	17.5%
BV IX	Buyout	30,000,000	28,010,908	7,989,093	13,569,710	43,833,968	2.0 x	35.1%
EnCap XI	Hard Assets	35,000,000	24,481,898	11,419,252	2,852,602	31,928,074	1.4 x	18.8%
FP Intl 2017	Buyout	25,000,000	21,301,020	3,860,442	5,034,539	31,027,813	1.7 x	24.2%
FP Venture 2017	Venture Capital	25,000,000	16,814,159	8,288,622	3,147,156	31,125,526	2.0 x	33.3%
Greyrock IV	Mezzanine	30,000,000	28,133,397	3,002,589	22,140,118	15,174,473	1.3 x	10.7%
NGP XII	Hard Assets	30,000,000	20,734,974	9,265,026	3,710,075	26,982,541	1.5 x	14.6%
One Rock II	Buyout	30,000,000	26,811,775	6,743,446	3,906,746	48,141,568	1.9 x	22.4%
<b>Total 2017</b>		<b>317,730,449</b>	<b>275,360,792</b>	<b>63,092,254</b>	<b>169,219,214</b>	<b>276,688,305</b>	<b>1.6 x</b>	<b>20.5%</b>
<b>2018</b>								
Altaris IV	Buyout	24,000,000	22,597,708	3,056,265	20,907,373	21,605,260	1.9 x	31.7%
Big River - Holdings Note 2023 *	Infrastructure	12,000,000	12,000,000	0	14,582,469	0	1.2 x	5.6%
Big River - Holdings Note 2023-2 *	Infrastructure	5,150,000	5,150,000	0	6,245,733	0	1.2 x	6.5%
Clearlake V	Buyout	30,000,000	40,222,322	5,557,908	45,607,453	45,263,550	2.3 x	49.6%
FP Intl 2018	Buyout	25,000,000	21,374,046	3,848,372	1,632,316	26,014,715	1.3 x	14.3%
FP Venture 2018	Venture Capital	25,000,000	22,049,689	3,104,017	2,183,049	40,557,057	1.9 x	38.4%
GTLA Holdings	Hard Assets	20,000,000	20,000,000	0	0	70,000,000	3.5 x	38.6%
Highland Contingent Note	Hard Assets	152,244,727	152,244,727	0	15,000,000	163,145,020	1.2 x	8.0%
SK Capital V	Buyout	30,000,000	29,077,157	4,675,265	3,992,629	33,190,703	1.3 x	16.4%
Sycamore Partners III	Turnaround	25,000,000	17,426,482	7,573,518	0	20,307,589	1.2 x	11.5%
Thoma Bravo Discover II	Buyout	17,000,000	17,689,209	5,034,116	8,731,672	22,936,174	1.8 x	30.9%
<b>Total 2018</b>		<b>365,394,727</b>	<b>359,831,340</b>	<b>32,849,461</b>	<b>118,882,693</b>	<b>443,020,068</b>	<b>1.6 x</b>	<b>22.9%</b>

## Investment Performance by Vintage Year



Investment	Strategy	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
<b>2019</b>								
American Industrial VII	Buyout	30,000,000	24,986,800	8,369,997	3,356,797	25,405,837	1.2 x	15.4%
Arlington V	Buyout	25,000,000	20,826,775	4,173,225	891,984	29,460,595	1.5 x	47.0%
DW Healthcare V	Buyout	30,000,000	16,176,461	13,823,539	0	17,205,138	1.1 x	3.8%
FP Intl 2019	Buyout	30,000,000	17,872,340	12,366,992	1,171,418	20,224,069	1.2 x	17.7%
FP Venture 2019	Venture Capital	30,000,000	17,888,199	12,250,343	661,059	29,421,395	1.7 x	36.0%
KPS Mid-Market I	Turnaround	20,000,000	10,839,381	9,395,004	1,452,322	12,962,528	1.3 x	24.0%
Riverside VI	Buyout	30,000,000	19,546,354	10,453,646	184,674	25,260,978	1.3 x	16.4%
Siris IV	Buyout	30,000,000	24,580,184	7,582,081	3,540,122	33,783,444	1.5 x	23.1%
Thoma Bravo XIII	Buyout	30,000,000	34,812,896	4,281,536	17,341,682	42,721,560	1.7 x	37.4%
WNG II	Special Assets	30,000,000	13,738,498	17,315,022	1,178,625	10,376,767	0.8 x	-9.2%
<b>Total 2019</b>		<b>285,000,000</b>	<b>201,267,887</b>	<b>100,011,385</b>	<b>29,778,683</b>	<b>246,822,311</b>	<b>1.4 x</b>	<b>23.3%</b>
<b>2020</b>								
BV X	Buyout	30,000,000	15,648,990	16,136,963	1,785,953	20,017,492	1.4 x	56.1%
Clearlake VI	Buyout	30,000,000	27,917,281	3,276,545	2,473,952	40,968,031	1.6 x	45.7%
FP CF Access	Buyout	90,000,000	35,146,545	54,961,050	1,015,434	45,106,100	1.3 x	30.5%
FP Venture XIII	Venture Capital	60,000,000	30,586,944	29,599,171	119,991	35,872,568	1.2 x	21.2%
Greyrock V	Mezzanine	35,000,000	21,238,895	13,761,106	0	22,284,334	1.0 x	8.2%
JF Lehman V	Buyout	30,000,000	22,410,051	7,589,949	0	24,190,285	1.1 x	7.3%
KPS V	Turnaround	30,000,000	16,888,861	12,719,912	622,696	22,737,011	1.4 x	37.4%
Thoma Bravo Explore I	Buyout	20,000,000	13,456,542	7,619,729	1,076,271	16,020,413	1.3 x	33.8%
<b>Total 2020</b>		<b>325,000,000</b>	<b>183,294,109</b>	<b>145,664,425</b>	<b>7,094,297</b>	<b>227,196,234</b>	<b>1.3 x</b>	<b>29.8%</b>
<b>2021</b>								
Alpine Investors VIII	Buyout	30,000,000	6,168,753	23,831,247	0	6,973,658	1.1 x	NMF
FP Intl X	Buyout	60,000,000	14,244,604	45,848,781	0	14,319,631	1.0 x	NMF
Greenbriar V	Buyout	30,000,000	18,762,032	12,362,007	1,126,683	24,523,243	1.4 x	NMF
LLR VI	Growth Equity	30,000,000	16,200,000	13,800,000	132,473	15,957,464	1.0 x	NMF
Revelstoke III	Buyout	30,000,000	5,104,195	24,895,805	18,688	6,385,677	1.3 x	NMF
Riverside Value Fund I	Turnaround	30,000,000	0	19,720,641	0	15,885,935	N/A	NMF
Thoma Bravo Discover III	Buyout	20,000,000	16,366,299	3,633,701	0	17,542,833	1.1 x	NMF
Thoma Bravo XIV	Buyout	20,000,000	18,828,847	1,171,153	5	18,221,716	1.0 x	NMF
<b>Total 2021</b>		<b>250,000,000</b>	<b>95,674,730</b>	<b>145,263,335</b>	<b>1,277,849</b>	<b>119,810,158</b>	<b>1.3 x</b>	<b>NMF</b>

## Investment Performance by Vintage Year



Investment	Strategy	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
<b>2022</b>								
Arlington VI	Buyout	30,000,000	0	30,000,000	0	0	N/A	NMF
Bison VI	Structured Capital	30,000,000	0	30,000,000	0	0	N/A	NMF
Clearlake VII	Buyout	30,000,000	9,384,643	20,615,357	730	8,977,299	1.0 x	NMF
FP CF Access II	Buyout	60,000,000	6,000,000	54,000,000	0	7,211,364	1.2 x	NMF
FP Intl XI	Buyout	30,000,000	481,928	29,523,288	1,176	480,184	1.0 x	NMF
FP Venture Opp	Venture Capital	30,000,000	10,500,000	19,518,112	0	10,271,875	1.0 x	NMF
FP Venture XIV	Venture Capital	60,000,000	3,911,477	56,118,978	10,891	3,697,396	0.9 x	NMF
SK Capital VI	Buyout	30,000,000	0	30,000,000	0	0	N/A	NMF
Thoma Bravo Discover IV	Buyout	15,000,000	0	15,000,000	0	0	N/A	NMF
Thoma Bravo Explore II	Buyout	15,000,000	0	15,000,000	0	0	N/A	NMF
Thoma Bravo XV	Buyout	15,000,000	2,489,892	12,510,108	0	2,454,510	1.0 x	NMF
<b>Total 2022</b>		<b>345,000,000</b>	<b>32,767,940</b>	<b>312,285,843</b>	<b>12,797</b>	<b>33,092,628</b>	<b>1.0 x</b>	<b>NMF</b>
<b>Total Portfolio</b>		<b>5,933,139,355</b>	<b>5,328,262,376</b>	<b>1,254,505,173</b>	<b>6,095,853,498</b>	<b>3,067,958,410</b>	<b>1.7 x</b>	<b>11.7%</b>

- Remaining Value is defined as the investor's value as reported by the fund's manager.
- TVPI is the ratio of Distributed Capital plus Remaining Value to Contributed Capital.
- Net IRR is defined as the annualized, compound rate of return using daily draws, distributions and Remaining Value as of the Report Date, net of fees and expenses, including late closing interest.
- An asterisk indicates an investment that is fully liquidated, if applicable.
- Commitments made in a foreign currency have been converted into U.S. dollars using an exchange rate as of the Report Date, if applicable.
- Returns calculated for funds in the early years of their lives are particularly not meaningful given the J-curve effect. During these early years, due to illiquidity, stagnant valuations, fees and expenses, fund performance tends to be negative (the bottom of the "J").

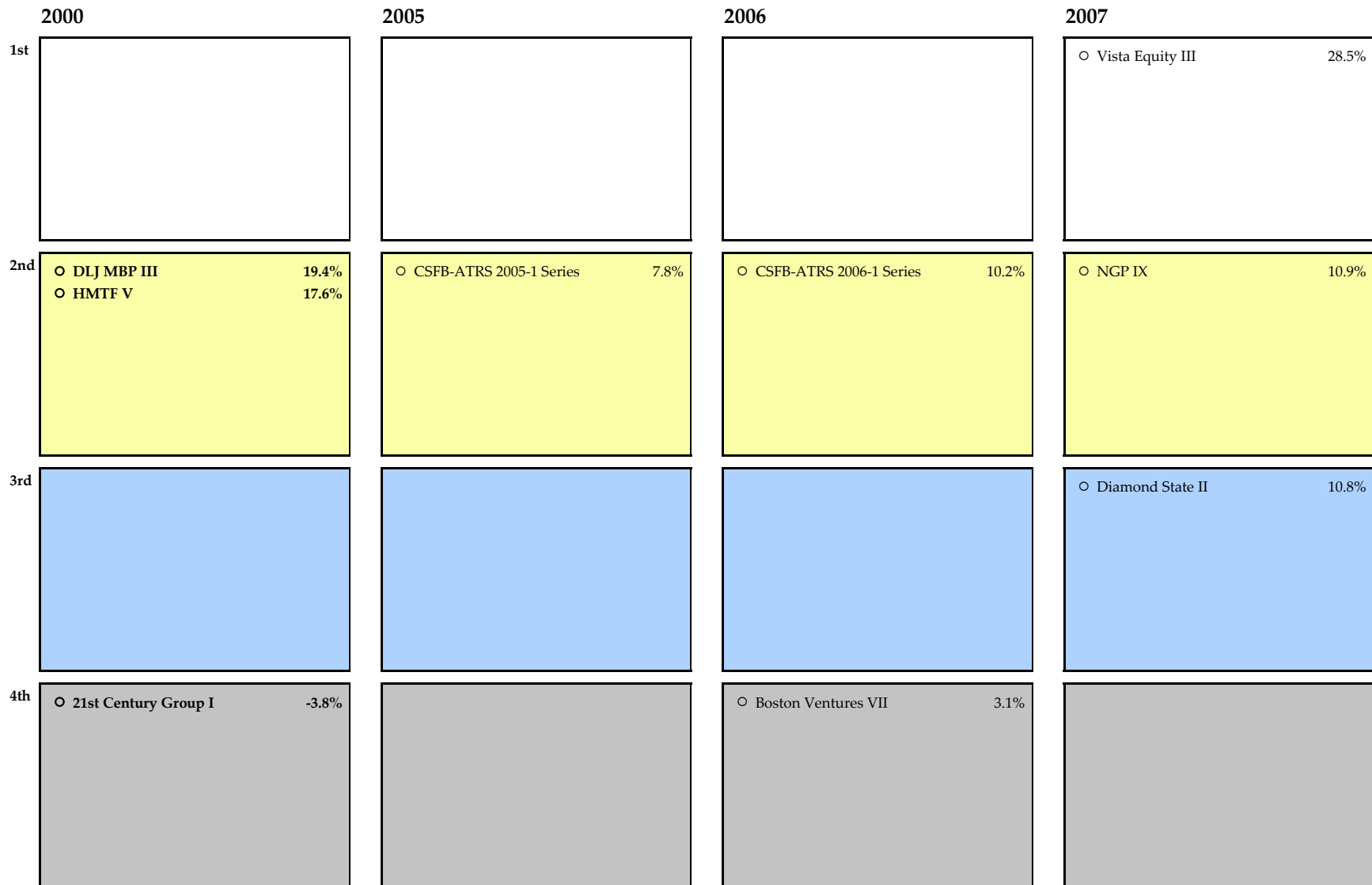
# Performance by Vintage Year and Quartile Group

	1996	1997	1998	1999
1st		○ Doughty Hanson III <b>13.5%</b>		
2nd			○ Second Cinven <b>9.3%</b>	○ Oak Hill I <b>10.6%</b> ○ Diamond State <b>5.5%</b>
3rd	○ HMTF III <b>1.8%</b>			
4th			○ HMTF IV <b>-6.1%</b>	○ Cypress MBP II <b>-0.5%</b>

● Venture ○ Non-venture

**BOLD = Realized**

# Performance by Vintage Year and Quartile Group



● Venture ○ Non-venture

**BOLD = Realized**



# Performance by Vintage Year and Quartile Group

	2008	2009	2010	2011
1st			○ TA XI 26.9%	● FP Venture 2011 36.4%
2nd	<ul style="list-style-type: none"> <li>● FP Venture 2008 18.4%</li> <li>○ LLR III 16.6%</li> <li>○ Advent GPE VI-A 16.5%</li> </ul>	<ul style="list-style-type: none"> <li>○ KPS III Supplemental 22.8%</li> <li>● FP Venture 2009 17.5%</li> </ul>	○ Mason Wells III 20.6%	○ Wicks IV 21.6%
3rd		○ Riverside IV 21.3%	<ul style="list-style-type: none"> <li>● FP Venture 2010 18.7%</li> <li>○ Altus Capital II 12.8%</li> <li>○ EnCap VIII 0.5%</li> </ul>	○ Wellspring V 16.1%
4th		○ Insight Equity II 9.2%		<ul style="list-style-type: none"> <li>○ JF Lehman III 11.6%</li> <li>○ FP Intl 2011 10.0%</li> </ul>

● Venture ○ Non-venture

**BOLD = Realized**

# Performance by Vintage Year and Quartile Group

	2012	2013	2014	2015
1st	<ul style="list-style-type: none"> <li>○ BV VIII 48.5%</li> </ul>	<ul style="list-style-type: none"> <li>● FP Venture 2013 27.7%</li> </ul>	<ul style="list-style-type: none"> <li>○ Thoma Bravo XI 27.4%</li> </ul>	<ul style="list-style-type: none"> <li>○ EnCap X 16.7%</li> </ul>
2nd	<ul style="list-style-type: none"> <li>● FP Venture 2012 23.6%</li> <li>○ ATRS-FP PE 21.4%</li> <li>○ Court Square III 20.8%</li> <li>○ DW Healthcare III 19.0%</li> <li>○ NGP X -0.1%</li> </ul>	<ul style="list-style-type: none"> <li>○ EnCap IX 10.0%</li> </ul>	<ul style="list-style-type: none"> <li>● FP Venture 2014 26.1%</li> <li>○ KPS IV 24.1%</li> <li>○ NGP XI 10.0%</li> </ul>	
3rd		<ul style="list-style-type: none"> <li>○ Vista Foundation II 16.0%</li> <li>○ Riverside V 12.3%</li> </ul>	<ul style="list-style-type: none"> <li>○ Atlas Capital II 20.2%</li> <li>○ FP Intl 2014 15.2%</li> <li>○ Lime Rock Resources III 3.2%</li> </ul>	<ul style="list-style-type: none"> <li>● FP Venture 2015 20.0%</li> </ul>
4th	<ul style="list-style-type: none"> <li>○ FP Intl 2012 8.3%</li> </ul>	<ul style="list-style-type: none"> <li>○ FP Intl 2013 7.8%</li> </ul>	<ul style="list-style-type: none"> <li>○ Sycamore Partners II 4.0%</li> </ul>	<ul style="list-style-type: none"> <li>○ FP Intl 2015 14.0%</li> <li>○ Siris III 13.3%</li> </ul>

● Venture ○ Non-venture

**BOLD = Realized**

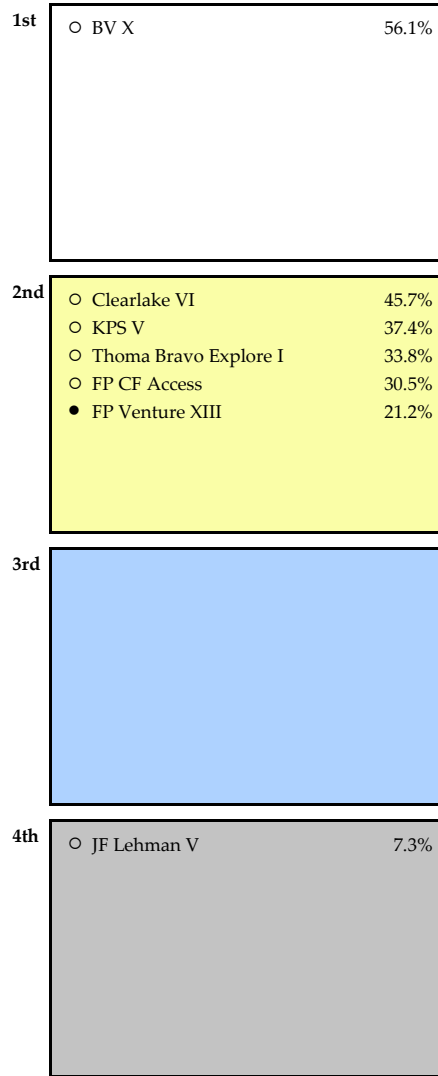
# Performance by Vintage Year and Quartile Group

	2016	2017	2018	2019
1st	<ul style="list-style-type: none"> <li>○ Thoma Bravo Discover 36.8%</li> <li>○ JF Lehman IV 35.6%</li> </ul>	<ul style="list-style-type: none"> <li>○ EnCap XI 18.8%</li> </ul>	<ul style="list-style-type: none"> <li>○ Clearlake V 49.6%</li> </ul>	<ul style="list-style-type: none"> <li>○ Arlington V 47.0%</li> </ul>
2nd	<ul style="list-style-type: none"> <li>● FP Venture 2016 30.8%</li> <li>○ Arlington IV 26.5%</li> <li>○ Vista Foundation III 26.4%</li> <li>○ DW Healthcare IV 24.0%</li> </ul>	<ul style="list-style-type: none"> <li>○ BV IX 35.1%</li> <li>● FP Venture 2017 33.3%</li> <li>○ NGP XII 14.6%</li> </ul>	<ul style="list-style-type: none"> <li>● FP Venture 2018 38.4%</li> <li>○ Altaris IV 31.7%</li> <li>○ Thoma Bravo Discover II 30.9%</li> </ul>	<ul style="list-style-type: none"> <li>○ Thoma Bravo XIII 37.4%</li> </ul>
3rd	<ul style="list-style-type: none"> <li>○ American Industrial VI 22.5%</li> </ul>	<ul style="list-style-type: none"> <li>○ Altaris Constellation 26.0%</li> <li>○ FP Intl 2017 24.2%</li> </ul>		<ul style="list-style-type: none"> <li>● FP Venture 2019 36.0%</li> <li>○ KPS Mid-Market I 24.0%</li> <li>○ Siris IV 23.1%</li> </ul>
4th	<ul style="list-style-type: none"> <li>○ Thoma Bravo XII 16.9%</li> <li>○ FP Intl 2016 11.5%</li> </ul>	<ul style="list-style-type: none"> <li>○ One Rock II 22.4%</li> </ul>	<ul style="list-style-type: none"> <li>○ SK Capital V 16.4%</li> <li>○ FP Intl 2018 14.3%</li> <li>○ Sycamore Partners III 11.5%</li> </ul>	<ul style="list-style-type: none"> <li>○ FP Intl 2019 17.7%</li> <li>○ Riverside VI 16.4%</li> <li>○ American Industrial VII 15.4%</li> <li>○ DW Healthcare V 3.8%</li> </ul>

● Venture ○ Non-venture

BOLD = Realized

2020



● Venture ○ Non-venture

BOLD = Realized

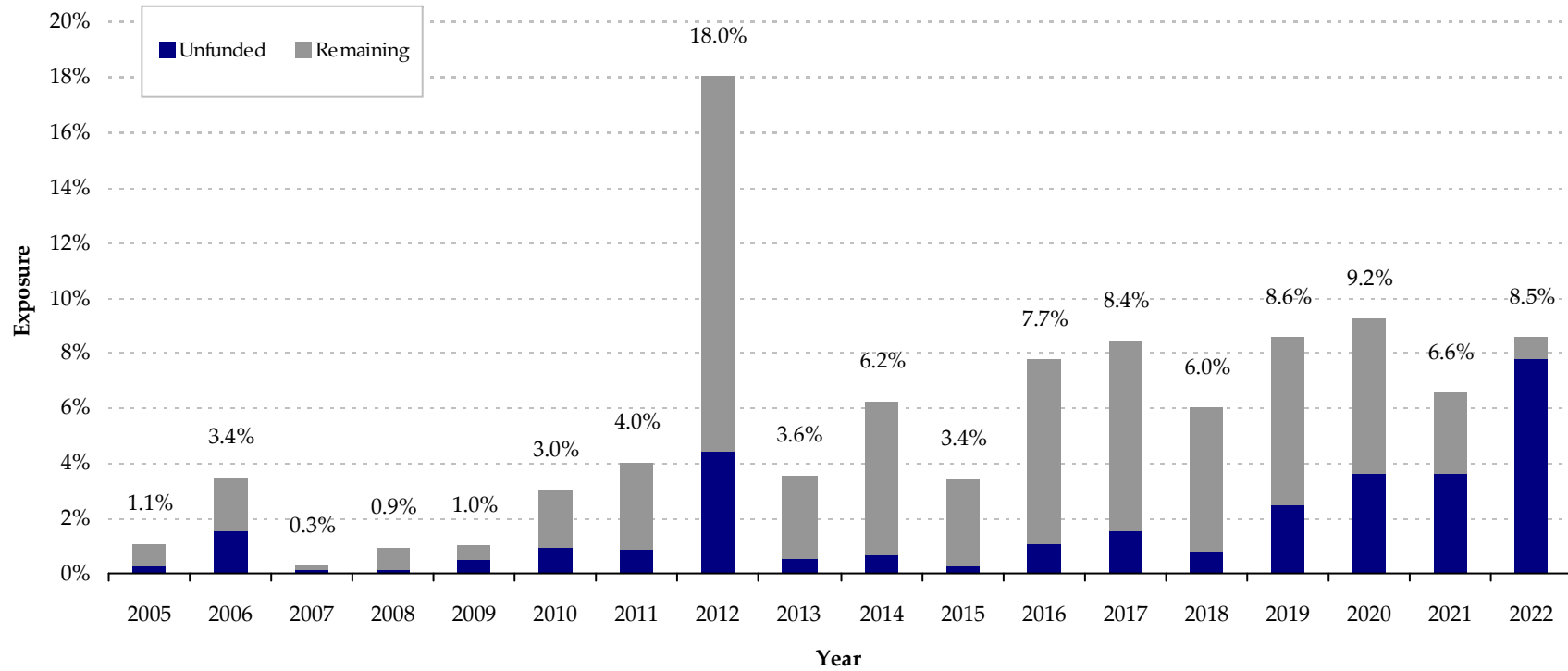
- 
- The analysis compares each fund's Net IRR versus its respective peer group by vintage year and strategy. Funds with a corporate finance strategy, excluding private debt, are compared to Cambridge Associates, U.S. Buyout. Funds with a venture capital strategy are compared to Cambridge Associates, U.S. Venture Capital. Multi-strategy funds are compared to data compiled by Cambridge Associates for funds across multiple strategies including U.S. Buyout, Growth Equity, Venture Capital, Mezzanine, Distressed, Fund-of-Funds, and Secondary Funds. Funds with a hard assets strategy are compared to Cambridge Associates, U.S. Private Equity Energy. Funds with a real estate strategy are compared to Cambridge Associates, U.S. Real Estate. Benchmark data is not available for funds with a private debt strategy.
  - The analysis excludes the two most recent vintage years, as fund performance is deemed not yet meaningful (NMF).
  - Net IRR is defined as the annualized, compound rate of return using daily draws, distributions and Remaining Value as of the Report Date, net of fees and expenses, including late closing interest.
  - Benchmark data was compiled from Cambridge Associates as of March 31, 2022. Hard Assets benchmark data for Vintage Years prior to 2005 is not available.

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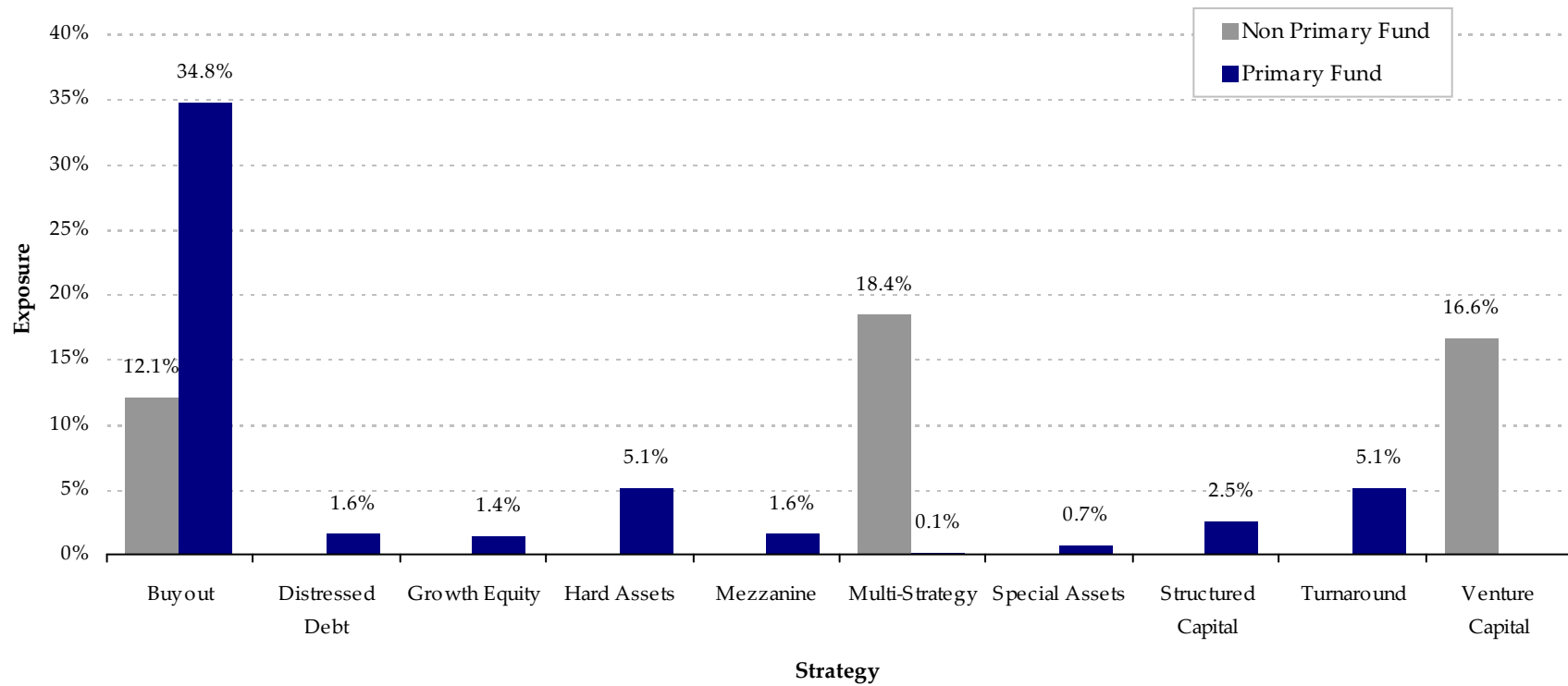
## Diversification Analysis

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## Exposure By Vintage Year



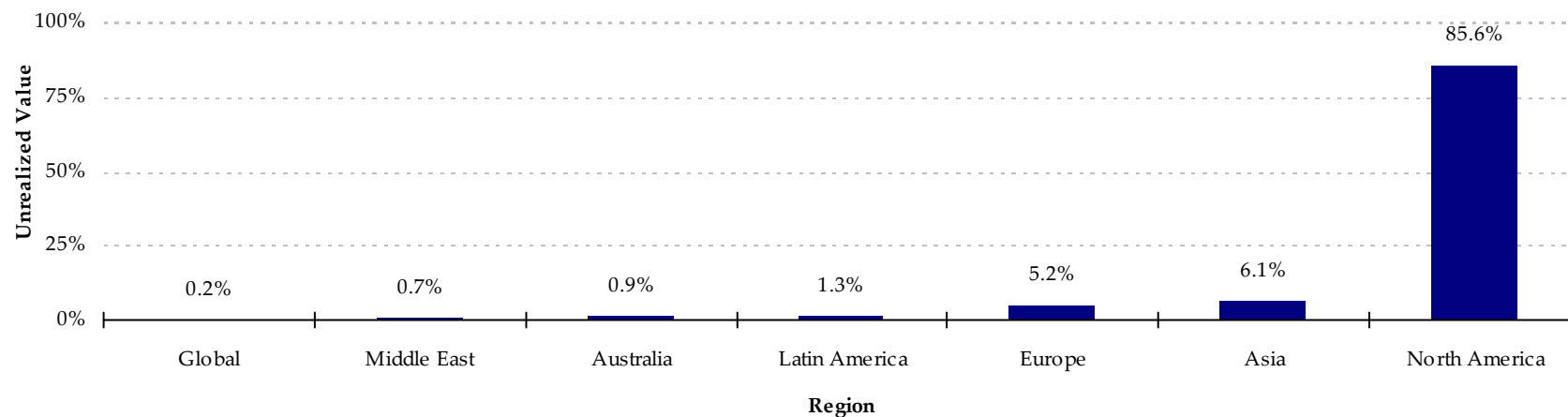
- Exposure is defined as the sum of the investor's Remaining Value plus Unfunded Commitment.
- Data includes commitments through the Report Date.



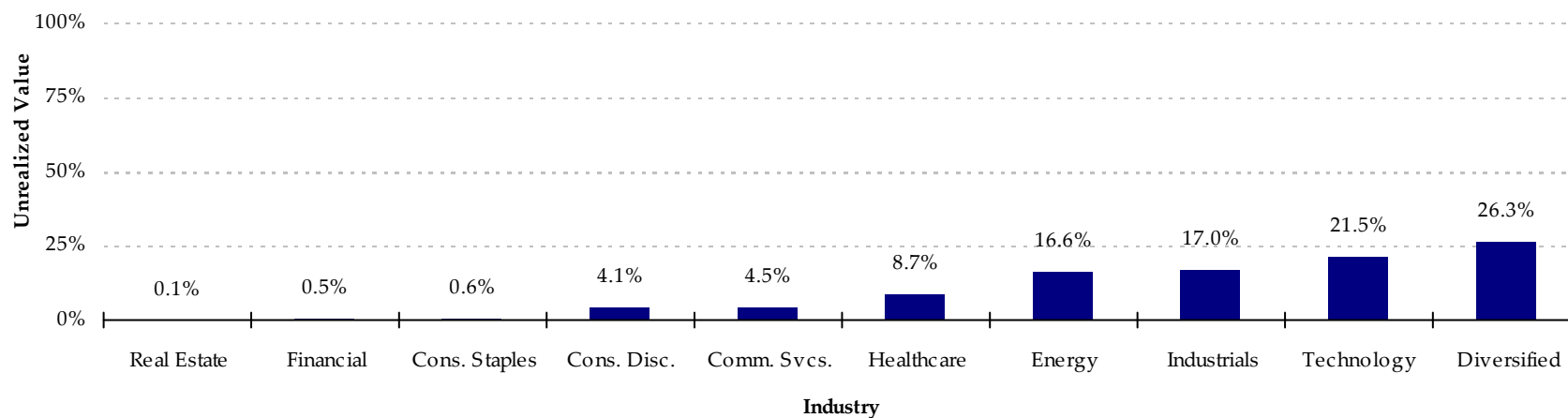
- Exposure is defined as the sum of the investor's Remaining Value plus Unfunded Commitment.
- Primary Fund represents interests in private equity funds acquired directly from the seller (i.e. fund manager). Non Primary Fund represents interests in private equity funds acquired through a commitment to a fund-of-funds or secondary fund-of-funds.



**Region**

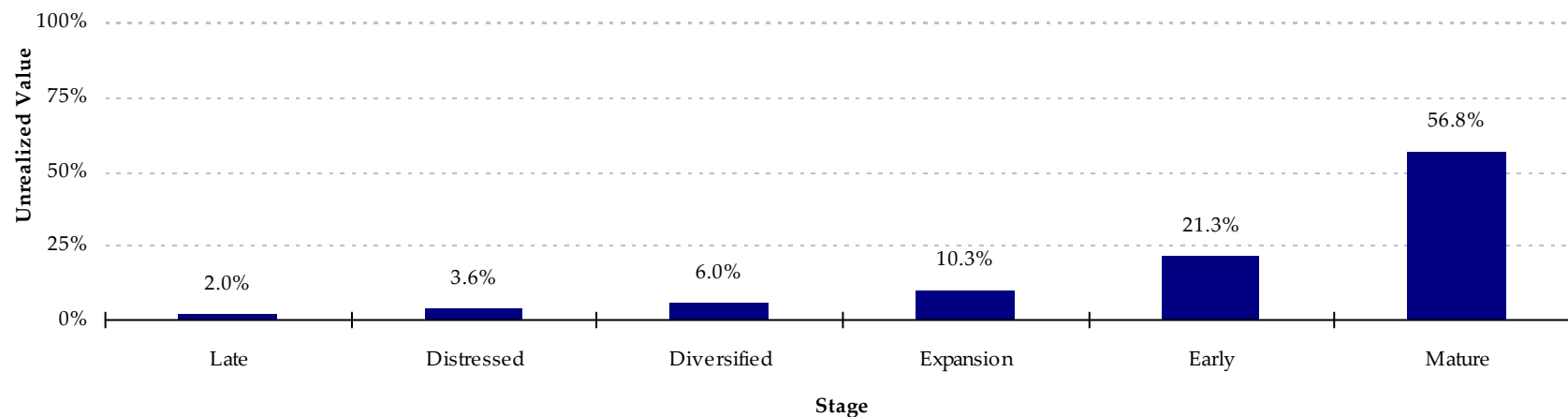


**Industry**

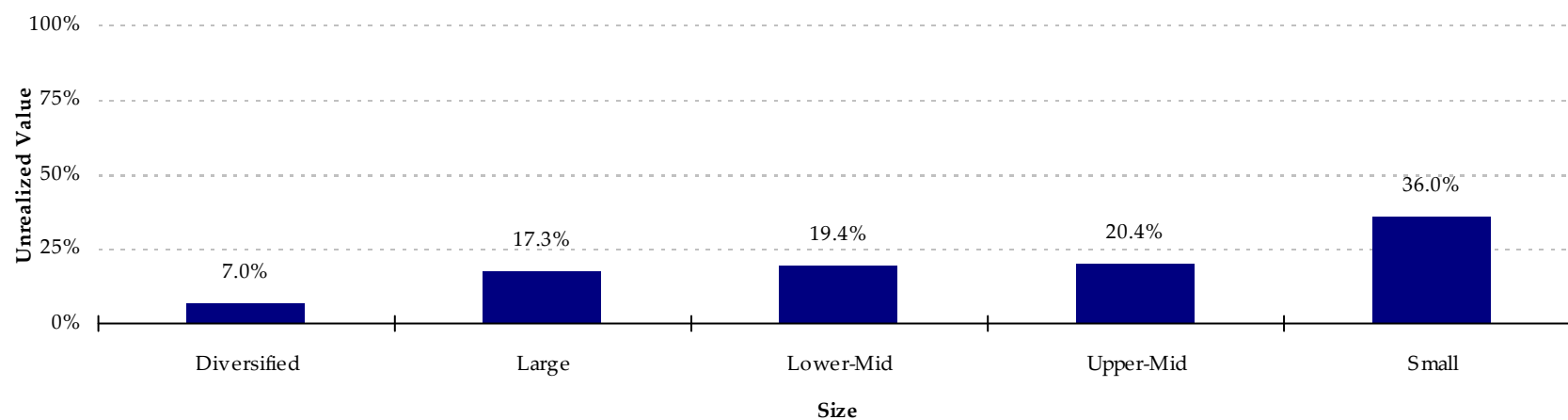


- Unrealized Value represents the value of portfolio holdings as reported by fund managers.
- Values are estimated based on the investor's percent interest in each fund's portfolio holdings.
- Values are converted to the investor's currency, when applicable, as of the Report Date.

Stage



Size

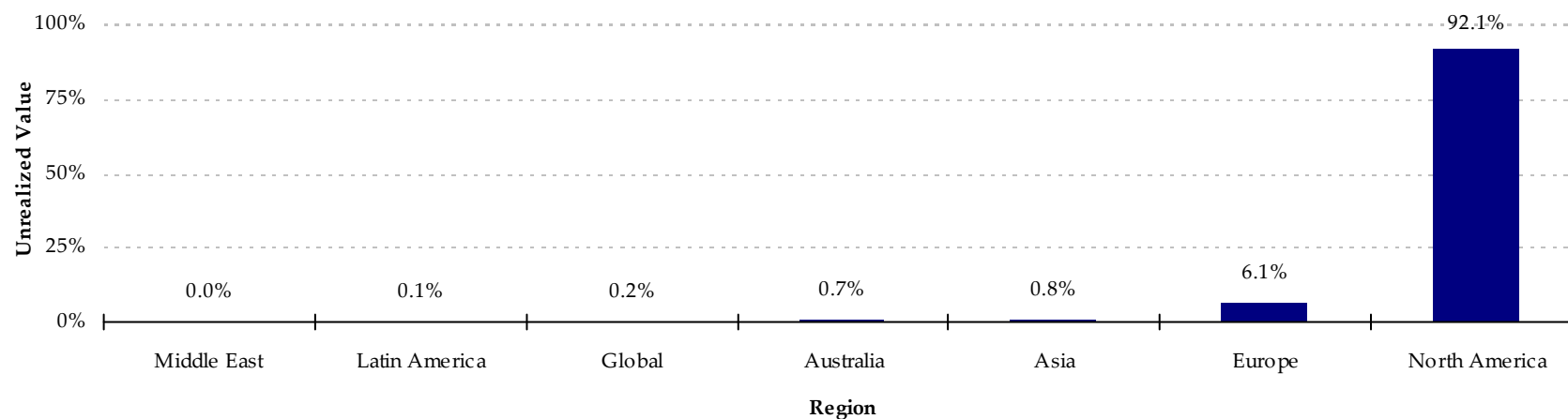


- Unrealized Value is the value of portfolio holdings as reported by the fund manager.
- Values are estimated based on the investor's percent interest in each fund's portfolio holdings.
- Values converted to the investor's currency, when applicable, as of the Report Date.

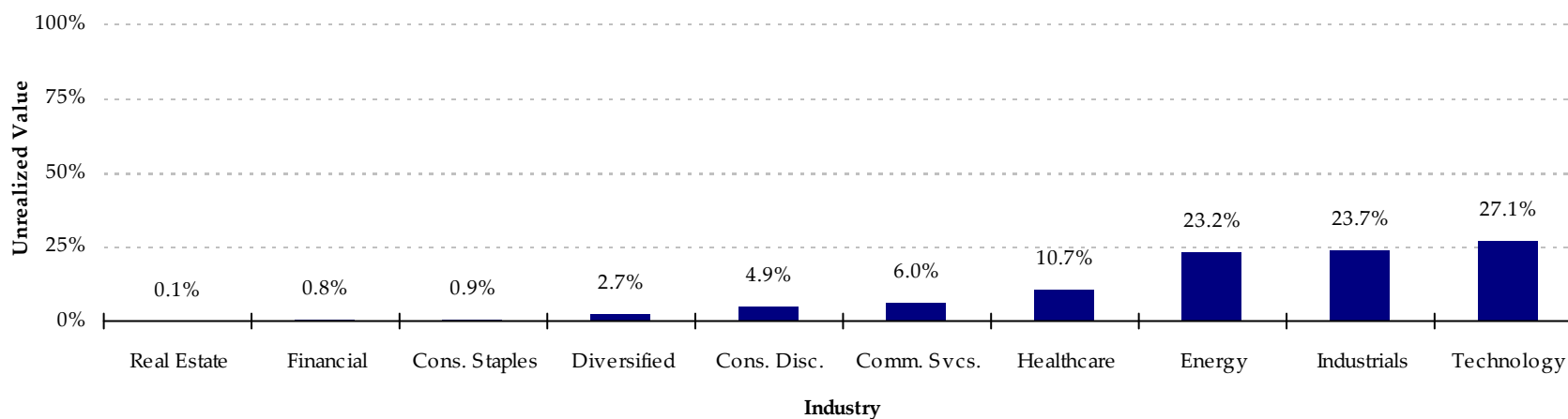
## Holdings by Region and Industry (ex Fund Holdings)



### Region



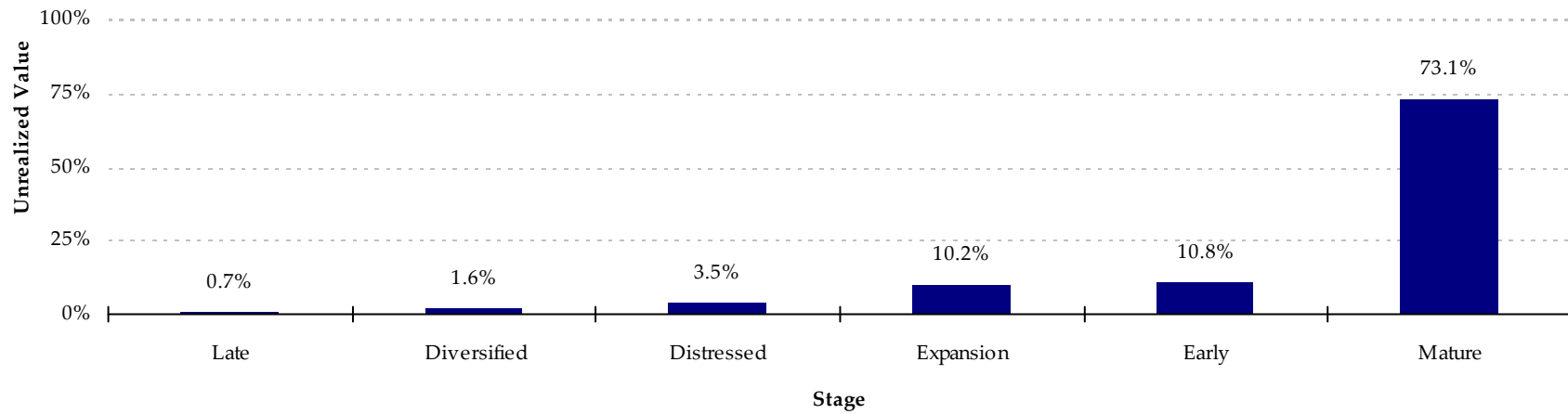
### Industry



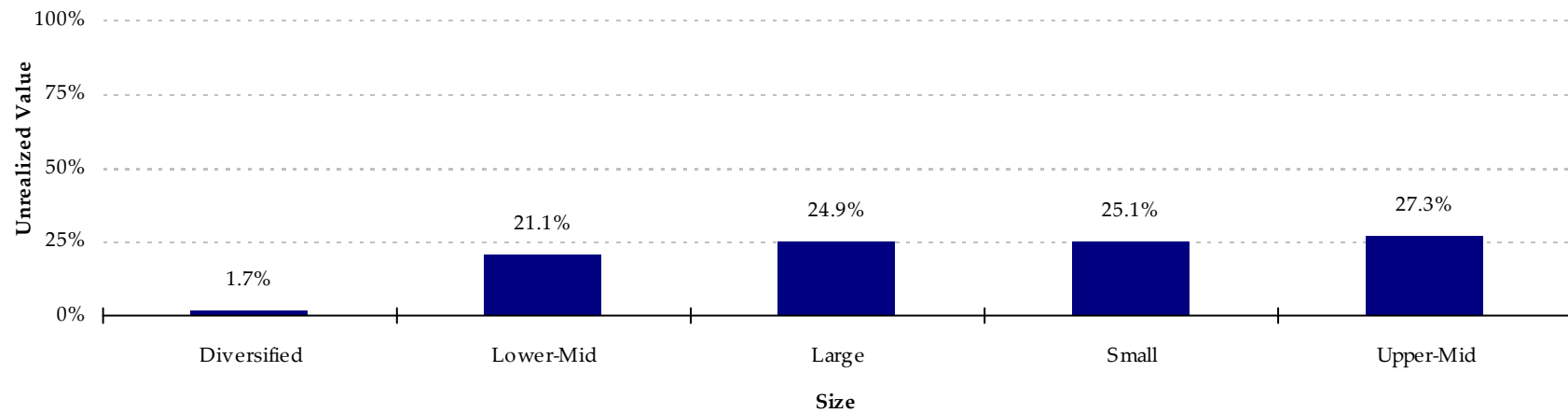
- Fund investments in other funds were excluded from this analysis.
- Unrealized Value represents the value of portfolio holdings as reported by fund managers.
- Values are estimated based on the investor's percent interest in each fund's portfolio holdings.
- Values are converted to the investor's currency, when applicable, as of the Report Date.

## Holdings by Stage and Size (ex Fund Holdings)

### Stage



### Size

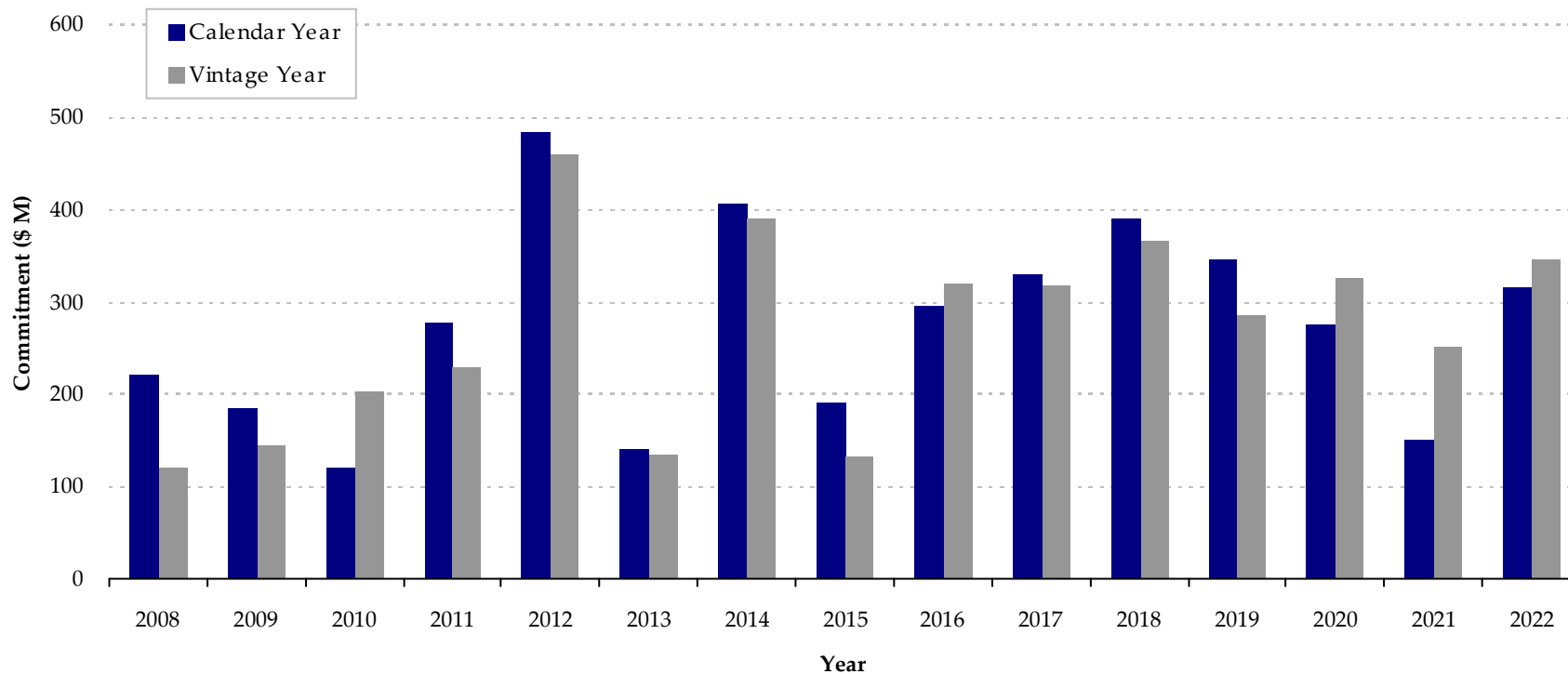


- Fund investments in other funds were excluded from this analysis.
- Unrealized Value represents the value of portfolio holdings as reported by fund managers.
- Values are estimated based on the investor's percent interest in each fund's portfolio holdings.
- Values are converted to the investor's currency, when applicable, as of the Report Date.

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## Recent Activity

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- Vintage Year represents the year in which investors first contribute capital to a fund.
- Calendar Year represents the year in which a commitment to a fund formally closed.
- Commitments made in a foreign currency have been converted into U.S. dollars using an exchange rate as of the Report Date, if applicable.
- Commitments were compiled through the Report Date.

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## Glossary

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Term	Definition	Term	Definition
Barclays US Corporate High Yield Index	The Barclays US Corporate High Yield Bond Index measures the USD-denominated, high yield, fixed-rate corporate bond market. Securities are classified as high yield if the middle rating of Moody's, Fitch and S&P is Ba1/BB+/BB+ or below. Bonds from issuers with an emerging markets country of risk, based on Barclays EM country definition, are excluded.	Dow Jones US Total Stock Market Total Return Index	The Dow Jones US Total Stock Market Total Return Index measures all U.S. equity securities with readily available prices. It is a free float-adjusted market capitalization weighted index and is calculated with dividend reinvestment.
Bridge Financing	Temporary funding that will eventually be replaced by permanent capital from equity investors or debt lenders	DPI	Ratio of Distributed Capital to Contributed Capital
Buyout	Fund whose strategy is to acquire controlling interests in companies	Early Stage	A company's first Stage of development. Company is generally generating modest or no revenues
Co/Direct Investment	Investment made directly into a company, rather than indirectly through a fund	Equity	Security type that signifies ownership of a company (e.g. common stock, preferred stock, warrants, etc.)
Committed Capital	Total dollar amount of capital pledged to a fund	Expansion Stage	A company's third Stage of development. Company is generally experiencing high growth and nearing profitability
Contributed Capital	Total capital contributed to a fund for investments, fees and expenses, including late closing interest paid, less returns of excess capital called	Exposure	Sum of Remaining Value plus Unfunded Commitment
Cost Basis	Remaining amount of invested capital	Fund-of-Funds	Fund whose strategy is to make investments in other funds
Debt	Security type that signifies a repayment obligation by a company (e.g. senior debt, subordinated debt, bridge loan etc.)	Geographic Region	Market location of a company: North America, Western Europe, Africa/Middle East, Latin America, Asia/Pacific Rim
Distressed	A company's final Stage of development. Company is generally experiencing operational or financial distress	Growth Equity	Fund whose strategy is to invest in companies to expand or restructure operations, enter new markets or finance an acquisition without a change of control of the business
Distressed Debt	<ul style="list-style-type: none"> <li>• Distressed Trading – Fund whose strategy is to invest and trade debt of financially stressed companies</li> <li>• Distressed Restructuring – Fund whose strategy is to acquire and restructure debt of financially stressed companies</li> <li>• Opportunistic Credit – Fund whose strategy is to flexibly invest in debt securities and income-producing assets of any kind, where the issuer or holder is financially stressed</li> <li>• Structured Capital – Fund whose strategy is to issue hybrid debt and equity securities to mature companies</li> </ul>	Hard Assets	Fund whose strategy is to invest in natural resources or infrastructure
Distributed Capital	Capital distributed to the limited partners, including late closing interest earned	Infrastructure	Fund whose strategy is to acquire interests in physical structures and networks that provide the essential services for society's economic and social needs (e.g. roads, tunnels, communication networks, etc.)
		Internal Rate of Return (IRR)	The discount rate that results in a net present value of zero of a series of cash flows. The IRR considers both cash flow timing and amount and is the preferred performance measure for private market funds
		Invested Capital	Capital invested by a fund in portfolio holdings
		Investment Type	Classification of an investment vehicle: Primary Fund, Secondary Fund, Fund-of-Funds



Term	Definition	Term	Definition
J-Curve	Refers to the shape of the curve illustrating a fund's performance over time. During the initial years of a fund's life, as a result of illiquidity, stagnant valuations, fees and expenses, a fund's performance tends to be negative (the bottom of the "J"). Eventually, as portfolio companies are realized or increase in value and fees become a smaller percentage of overall contributions, performance improves and investors' returns move up the "J" shaped curve	Net IRR	Annualized effective compound rate of return using daily contributions, distributions and Remaining Value as of the Report Date, net of all fees and expenses, including late closing interest
Large	Company with a Size greater than \$1 billion	Percent Interest	Represents an investor's economic interest in a fund based upon the investor's commitment divided by total fund commitments
Late Stage	A company's second Stage of development. Company is generally generating high revenue growth and high losses	Primary Investment	An interest in a private equity fund acquired directly from the fund manager during the fundraising period
Lower-Mid	Company with a Size greater than \$100 million, but less than \$250 million	Public Market Equivalent (PME)	A private equity benchmark that represents the performance of a public market index expressed in terms of an IRR, using the same cash flows and timing as the investor's investment activity in private equity. The PME serves as a proxy for the return the investor could have achieved by investing in the public market. The PME benchmark return assumes cash flows are invested at the end of each day
Mature	A company's fourth Stage of development. Company is generally generating modest to no growth and operating profitably	Publication Date	Refers to the date this report was created as reflected in the Executive Summary
Mezzanine	<ul style="list-style-type: none"> <li>• Sponsored Mezzanine – Fund whose strategy is to issue subordinated loans to companies owned by private equity fund sponsors</li> <li>• Non-Sponsored Mezzanine – Fund whose strategy is to issue subordinated loans to companies not owned by private equity fund sponsors</li> </ul>	Real Assets	Fund whose strategy is to invest in assets that are tangible or physical in nature such as land, machinery, and livestock
MSCI ACWI Index - Total Return	The MSCI ACWI Total Return is a reflection of the performance of the MSCI ACWI Index, including dividend reinvestment, as calculated by Bloomberg. The MSCI ACWI Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets. The MSCI ACWI consists of 45 country indices comprising 24 developed and 21 emerging market country indices.	Real Estate	Fund whose strategy is to acquire interests in real estate property
Natural Resources	Fund whose strategy is to acquire interests in naturally-occurring, economically valuable raw materials and all physical facilities and capabilities required for the extraction, refinement, and delivery to end users (e.g. oil and gas properties, timberland, etc.)	Realized Capital	Capital distributed to a fund from portfolio holdings
NCREIF Property Index	The NCREIF Property Index is a quarterly, unleveraged composite total return for private commercial real estate properties held for investment purposes only.	Recallable / Recyclable Capital	Capital that has been previously distributed by a fund to investors but may be called again for investment purposes. It is generally associated with realizations that have occurred in the early years of a fund or refers to uninvested capital that has been temporarily returned (i.e. returns of excess capital)
		Recapitalization	The reorganization of a company's capital structure
		Remaining Value	Capital account balance as reported by the General Partner, generally on a fair value basis
		Report Date	Refers to the end date of the reporting period as reflected on the cover page
		Return on Investment (ROI)	Ratio of Realized Capital plus Unrealized Value to Invested Capital

Term	Definition	Term	Definition
Russell 1000® Total Return Index	The Russell 1000® Total Return Index measures the performance, including dividend reinvestment, of the large-cap segment of the U.S. equity universe. It is a subset of the Russell 3000® Index and includes approximately 1000 of the largest securities based on a combination of their market cap and current index membership. The Russell 1000 represents approximately 92% of the U.S. market.	Size	Capitalization size of a company: Large, Upper-Mid, Lower-Mid, Small
Russell 3000® Total Return Index	The Russell 3000® Total Return Index measures the performance, including dividend reinvestment, of the largest 3000 U.S. companies representing approximately 98% of the investable U.S. equity market.	Small	Company with a Size of less than \$100 million
S&P 500 Price Index	The S&P 500 Price Index is a capitalization-weighted index of 500 stocks. The index is designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries.	Small Business Investment Company (SBIC)	Lending and investment firms that are licensed and regulated by the Small Business Administration (SBA). The licensing enables them to borrow from the federal government to supplement the private funds of their investors
S&P 500 Total Return Index	The S&P 500 Total Return Index is a reflection of the performance of the S&P 500 Index, including dividend reinvestment. All regular cash dividends are assumed to be reinvested in the S&P 500 Index on the ex-date. Special cash dividends trigger a price adjustment in the price return index.	Small Buyout	Fund whose strategy is to acquire or recapitalize Small businesses
Secondary Investment	Investments that involve the purchase of private equity fund interests or portfolios of direct investments in privately held companies from existing institutional investors	Special Assets	<ul style="list-style-type: none"> <li>• Healthcare Royalties – Fund whose strategy is to acquire royalty or revenue interests, or issue loans, backed by approved life science products</li> <li>• Music Royalties – Fund whose strategy is to acquire royalty or revenue interests, or issue loans, backed by music copyright assets</li> <li>• Aircraft Leasing – Fund whose strategy is to acquire and lease commercial aircraft</li> <li>• Life Settlement - Fund whose strategy is to acquire life insurance policies</li> <li>• Shipping – Fund whose strategy is to acquire and charter commercial shipping vessels</li> <li>• Asset Backed Securities – Fund whose strategy is to acquire or structure securities that are backed by income-producing assets</li> </ul>
Sector	Industry in which the company operates: technology, telecommunications, healthcare, financial services, diversified, industrial, consumer, energy, etc.	Stage	The course of development through which a company passes from its inception to its termination: Early, Late, Expansion, Mature, Distressed
Senior Debt	<ul style="list-style-type: none"> <li>• Direct Lending – Fund whose strategy is to issue senior loans to mature companies</li> <li>• Unitranche – Fund whose strategy is to issue hybrid senior and subordinated loans to mature companies</li> <li>• Venture Debt – Fund whose strategy is to issue loans to venture stage companies</li> <li>• Asset Based Lending – Fund whose strategy is to issue loans to companies where the amount of allowable borrowing outstanding is based on asset collateral value</li> <li>• Rescue Financing – Fund whose strategy is to issue loans to financially stressed companies</li> </ul>	Sub-Asset Class	Private equity investments are generally classified as Buyout, Venture Capital, Mezzanine, Distressed/Turnaround, and Fund-of-Funds
		TVPI	Ratio of Distributed Capital plus Remaining Value to Contributed Capital
		Unfunded Commitment	Amount of capital that remains to be contributed to a fund as defined in a fund's limited partnership agreement
		Unrealized Value	Holding value of a portfolio company assigned by the General Partner, which generally represents fair value
		Upper-Mid	Company with a Size greater than \$250 million but less than \$1 billion
		Venture Capital	Fund whose strategy is to make investments in Early Stage and/or Late Stage companies

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Term	Definition
Vintage Year	The calendar year in which an investor first contributes capital to a fund

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## End Notes

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The information contained in this report is confidential and may contain proprietary information and trade secret information. The information contained herein is prepared by Franklin Park and is not reviewed or approved by the general partners or affiliates of underlying portfolio fund investments and is strictly for the use of Arkansas Teacher Retirement System and, subject to applicable law, may not be reproduced, transmitted or used in whole or in part for any other purpose without the expressed written consent of Franklin Park. Franklin Park requests that investors maintain this information in confidence and that this report is not disclosed to any person other than affiliates, advisers, and accountants, who agree to maintain this information in similar confidence, without the prior written consent of Franklin Park.

Information regarding the Arkansas Teacher Retirement System portfolio, trends and performance returns are based on or derived from information and data provided by third-party sources, including Arkansas Teacher Retirement System's historical records. Franklin Park assumes that such information is accurate and that the sources from which it has been obtained are reliable. For example, the performance figures contained within this report are calculated by Franklin Park based on information provided by the managers of Arkansas Teacher Retirement System's private equity fund investments (General Partners). The General Partners have not verified the performance figures presented by Franklin Park and such figures may differ from those calculated by General Partners or other investors.

Franklin Park presents Net IRR performance as recommended by the CFA Institute. The IRR calculation is a dollar-weighted return measurement, which considers both cash flow timing and amount, and is net of fees, expenses and carried interest. The total portfolio Net IRR presented herein is net of fees, expenses and carried interest paid by underlying private equity fund investments, but is gross of fees and expenses paid to Franklin Park. The IRR is most commonly used for measuring the performance of private equity funds. Until a fund is liquidated, typically over 10 to 12 years, the IRR is only an interim estimated return. An IRR is particularly not meaningful in the first two years of a fund's life given the J-curve effect (see footnote). The actual IRR of any private equity fund investment is not known until final liquidation.

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▫ The J-curve refers to the shape of the curve that illustrates a private equity fund's performance over time. During the initial years of a fund's life, due to fees and expenses, a fund's performance tends to be negative (the bottom of the "J"). Eventually, as portfolio company investments increase in value, fund performance improves and returns move up the "J" shaped curve.



Arkansas Teacher Retirement System  
ATRS/FP Private Equity Fund, L.P.

December 2022

## Overview

ATRS/FP Private Equity Fund, L.P. (“ATRS/FP”) has historically invested in three investment types

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### Co-Investments

- Direct investments in portfolio companies alongside established PE fund managers
- No new co-investments are expected going forward but periodic follow-on investments to support the existing portfolio
- ATRS to consider direct commitments to FP commingled co-investment funds going forward

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### Funds

- Commitments to corporate finance funds (small/mid market & next generation funds)
- ATRS now gets exposure to these investments through direct commitments to Franklin Park Corporate Finance Access funds

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### Appraisal Rights

- Investments in appraisal rights opportunities
  - All existing investments have been liquidated and no new investments are being made in this strategy
-

## ATRS/FP Portfolio Summary

As of March 31, 2022, ATRS/FP had committed \$446.3 million to 58 investments

SUMMARY	CONTRIBUTED	DISTRIBUTED	REMAINING	TVPI	NET IRR
ATRS	\$392.5	\$311.2	\$409.3	1.8x	22.0%

INVESTMENTS	#	COMMITTED	INVESTED	REALIZED	UNREALIZED	ROI
CO-INVESTMENTS	41	\$219.0	\$213.3	\$253.5	\$227.8	2.3x
FUNDS	15	218.9	175.0	57.7	181.2	1.4x
APPRAISAL RIGHTS	2	8.4	8.4	8.1	0.0	1.0x
<b>Total</b>	<b>58</b>	<b>\$446.3</b>	<b>\$396.7</b>	<b>\$319.4</b>	<b>\$409.1</b>	<b>1.8x</b>



# Proposal

## Request to Use Recallable Distributions to Fund Follow-On Investments

Franklin Park is seeking approval to use up to \$30 million of ATRS/FP previously distributed proceeds from exits to fund follow-on investments in the existing co-investment portfolio (no new commitment is necessary)



**Executive Summary  
Alpine Investors IX, LP.**

## Executive Summary

<b>Fund</b>	Alpine Investors IX, LP (the “Fund”)
<b>General Partner</b>	Alpine Investors (the “General Partner” or “Alpine”)
<b>Report Date</b>	November 2022
<b>Fundraising</b>	The General Partner is targeting limited partner capital commitments of \$3.8 billion, with a cap of ~\$4.8 billion. The General Partner is targeting a first closing on November 21, 2022. The General Partner is targeting a second closing in February 2023.
<b>Source</b>	General Partner
<b>Investment Strategy</b>	The Fund is being formed to make buy-and-build build investments in small and lower-middle market U.S. companies in the software and services sectors. The Fund will target companies where it can install new management teams and scale through a buy-and-build approach. The Fund will seek to acquire approximately 11-12 platform companies, and approximately half of the capital will fund add-on acquisitions.

The General Partner has an in-house CEO recruitment and development program which focuses on i) identifying what the General Partner perceives to be world class CEOs in its target sectors (“CEOs-in-Residence” or “CIRs”) and ii) developing future CEO candidates (“CEOs-in-Training” or “CITs”). CIRs are trained on the General Partner’s playbook and work with the General Partner’s investment team and sourcing team to develop a thesis and identify and diligence potential acquisition targets. CITs are recruited out of business school, trained in the General Partner’s playbook and initially placed in management-level positions with portfolio companies or add-on acquisitions. The goal is for CITs to eventually elevate to become CIRs. Each of the Fund’s portfolio companies will be matched with a CIR and two or more CITs.

Post-acquisition, the Alpine Operations Group, along with the portfolio company management team, implements its operational playbook which focuses on team development, pricing, sales and marketing and add-on acquisitions. The General Partner intends to invest roughly 50% of the Fund’s capital into add-on acquisitions to help drive EBITDA growth and efficiently scale its platforms.

<b>Management Team</b>	Based in San Francisco, the General Partner was founded in 2001 by Graham Weaver. The General Partner’s team consists of 29 professionals, led by five senior professionals (the “Principals”). The investment team is supported by 11 sourcing professionals, 13 corporate development professionals, 21 financial operations & support professionals, 15 operations & talent professionals, and 2 investor relations professionals. The backgrounds of the Principals are summarized in the table below.
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Principals	Yrs. GP	Yrs. PE	Background
Graham Weaver	21	27	Oak Hill, American Securities
Bill Maguy	18	18	Telephia, Swander Pace
Dan Sanner	20	20	Flowerdale Group, Alpine Label Holdings
Mark Strauch	14	14	EDC, Business Engine
Matt Moore	6	6	SPMB

## Track Record

The General Partner has raised eight prior funds. The following chart summarizes the performance of the prior funds, as of June 30, 2022.

Aggregate Performance Summary <sup>1</sup>					(USD 000)	
Fund (Vintage)	Rlzd Deals / # Deals	Invested	Realized	Unrealized	Gross ROI	Gross IRR
Fund I (2001)	7 / 7	59,677	65,450	0	1.1x	2.9%
Fund II (2003)	7 / 7	65,712	158,537	0	2.4x	25.7%
Fund III (2006)	8 / 8	107,732	325,195	20,721	3.2x	17.0%
Fund IV (2010)	14 / 15	286,541	916,197	2,317	3.2x	23.8%
Fund V (2014)	5 / 8	327,878	924,187	432,934	4.1x	40.2%
Fund VI (2017)	2 / 7	594,223	508,873	1,821,176	3.9x	59.0%
Fund VII (2019)	1 / 7	855,367	128,262	2,802,443	3.4x	95.8%
Fund VIII (2021)	0 / 8	539,905	6,432	688,255	1.3x	62.6%
<b>Total</b>	<b>44 / 67</b>	<b>2,837,037</b>	<b>3,033,132</b>	<b>5,767,845</b>	<b>3.1x</b>	<b>26.4%</b>

<sup>1</sup> Gross of fees and carried interest expenses. The unrealized investments were valued by the General Partner.

## Investment Evaluation

- The Fund's strategy is compelling.** The return potential for the Fund's strategy is high given the Fund's focus on small and lower middle market quality companies. Purchase prices for smaller companies are typically lower than larger companies, and smaller companies often have higher growth potential. Moreover, there are significant opportunities for value creation with smaller companies that an experienced private equity investment team can exploit. Further, the Fund's target companies in the software and services sectors have a number of favorable investment traits, including high recurring revenue, high switching costs, and strong secular growth drivers.
- The General Partner is well-positioned in its target market.** The General Partner possesses a number of advantages relative to generalist investment funds that opportunistically invest in its target sectors. The team is highly knowledgeable about the forces shaping the software and services sectors, the value drivers that determine investment potential, what constitutes best operating practices, and how performance can be improved through management initiatives. Further, the General Partner's CEO recruitment and development program positions it to source and win deals that require a new management team.
- The Principals have deep investing experience and tenure working together.** The Principals average 17 years of private equity investment experience. Further, four of the five Principals have been investing together at the General Partner for the last 14 years.

**The Fund will benefit from the General Partner's deep bench of management talent and sourcing professionals.** The General Partner currently works with 53 CEOs-in-Residence and 41 CEOs-in-Training. The General Partner's ability to recruit talented managers to its portfolio companies is enhanced by this program. Additionally, the time spent training CEOs on the Alpine playbook and working together through due diligence on investment opportunities brings familiarity, confidence, and alignment to General Partner's relationships with management teams. Further, the General Partner has 59 total full-time sourcing professionals (including professionals employed by portfolio companies) that will source deals and add-ons within portfolio companies.

**4. The General Partner's track record is attractive.**

- The General Partner's approach of i) focusing on the software and service sectors, ii) hiring an Alpine CEO pre-close and iii) pursuing a buy-and-build strategy through add-on acquisitions was implemented beginning in Fund IV and throughout all of Funds V-VIII. Funds IV-VIII have produced attractive returns to date, each ranking in the first quartile for net IRR and TVPI among their vintage peers.
- The General Partner's 17 prior software investments have produced a 2.4x ROI and 41.5% gross IRR, including nine realized investments for a 2.9x ROI and 40.8% gross IRR.
- The General Partner's 23 prior services investments have produced a 4.0x ROI and 41.6% gross IRR, including nine realized investments for a 5.6x ROI and 37.6% gross IRR.
- The General Partner's 43 prior investments in which it hired an Alpine CEO pre-close have produced a 3.3x ROI and 38.2% gross IRR, including 20 realized investments for a 4.7x ROI and 34.0% gross IRR.
- The General Partner's 33 prior investments in which it has completed two or more add-on acquisitions have produced a 3.7x ROI and 39.8% gross IRR, including 16 realized investments for a 4.8x ROI and 34.7% gross IRR.

**5. The Fund will be significantly larger than the prior funds.** At a cap of ~\$4.8 billion, the Fund would be nearly twice the size of Fund VIII and almost 5x the size of Fund VI. The General Partner's ability to generate attractive returns at a larger fund size is unproven.

However, the General Partner does not intend to change its investment strategy. The General Partner will pursue similar size portfolio companies and investments as the prior fund, but instead will acquire more portfolio companies and add-ons per company. The number of add-on acquisitions per portfolio company has increased significantly over the General Partner's prior three funds.

**Recommendation** Franklin Park recommends a commitment of up to \$30 million to the Fund, subject to completion of operational due diligence and satisfactory negotiation of final documentation, based on the following:

- The General Partner's strategy is compelling;
- The General Partner is well positioned in its target market;
- The Principals have complementary operating and investment experience; and
- The General Partner's track record is attractive.

**ARKANSAS TEACHER RETIREMENT SYSTEM  
1400 West Third Street  
Little Rock, Arkansas 72201**

**RESOLUTION  
No. 2022-55**

**Approving Investment in Alpine Investors IX, L.P.**

**WHEREAS**, the Board of Trustees (Board) of the Arkansas Teacher Retirement System (ATRS) is authorized to invest and manage trust assets for the benefits of its plan participants; and

**WHEREAS**, the ATRS Board has reviewed the recommendation of its private equity consultant, Franklin Park Associates, LLC, along with the recommendation of the Investment Committee and ATRS staff regarding a potential investment in **Alpine Investors IX, L.P.**, a buyout fund that will invest in small and lower middle market software and services companies.

**THEREFORE, BE IT RESOLVED**, that the ATRS Board approves an investment of up to **\$30 million dollars (\$30,000,000.00)** in **Alpine Investors IX, L.P.** The total investment amount is to be determined by the private equity consultant and ATRS staff based upon the allocation available to ATRS and the overall investment objectives set by the ATRS Board; and

**FURTHER, BE IT RESOLVED**, that the ATRS staff is hereby authorized to take all necessary and proper steps to implement this investment, if acceptable terms are reached.

**Adopted this 5th day of December 2022**

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**Mr. Danny Knight, Chair**  
**Arkansas Teacher Retirement System**



# Arkansas Teacher Retirement System 2023 Investment Plan

December 2022

## 2022 Actual Commitments vs. Plan

ATRS committed \$345 million in 2022 (vs. plan of \$350 million)

### ATRS Commitments

<u>Investment</u>	<u>Strategy</u>	<u>Region</u>	<u>ATRS Commitment</u>
SK VI	Mid Market Buyouts (specialty chemicals)	U.S.	\$30m
TB XV	Large Buyouts (software)	U.S.	\$15m
TB Discover IV	Mid Market Buyouts (software)	U.S.	\$15m
TB Explore II	Mid Market Buyouts (software)	U.S.	\$15m
Arlington VI	Mid Market Buyouts (government services)	U.S.	\$30m
BV IX	Mid Market Buyouts (business services)	U.S.	\$30m
JF Lehman VI	Mid Market Buyouts (defense, aerospace)	U.S.	\$30m
Greenbriar VI	Mid Market Buyouts (logistics)	U.S.	\$30m
Alpine IX	Mid Market Buyouts (technology)	U.S.	\$30m
FP International XI	Buyout/Growth/Turnaround	Non-U.S.	\$30m
FP Venture XIV	Early stage VC	U.S./Non-U.S.	\$30m
FP Venture Opps	Late stage VC	U.S./Non-U.S.	\$30m
FP CF Access II	Small/Lower Mid Market	U.S.	\$30m
<b>Total</b>			<b>\$345m</b>

### Due Diligence Activities

<u>Activity</u>	<u># of Funds (3Q21 LTM)</u>	<u># of Funds (3Q22 LTM)</u>	<u>% of Funds Reviewed (3Q22 LTM)</u>
Preliminary Reviews	1,145	1,126	100%
Manager Meetings	484	346	31%
Due Diligence Analyses	179	152	13%
ATRS Funds Closed	6	9	<1%

\*Excludes FP Vehicles





## Policy

ATRS' Objective, Guidelines and Constraints are outlined below

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### Objectives

- Generate a long-term return of 200 bps over the Dow Jones U.S. Total Stock Market index (+420 bps as of 6/30/22)

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### Guidelines

- Achieve a target 12% allocation to private equity (15.5% as of 6/30/22)
- Target 80-100% of PE commitments to Corporate Finance strategies, including buyout, turnaround, growth capital and private debt funds (82.8% as of 6/30/22)
- Target 0-20% of PE commitments to Venture Capital strategies (17.2% as of 6/30/22)

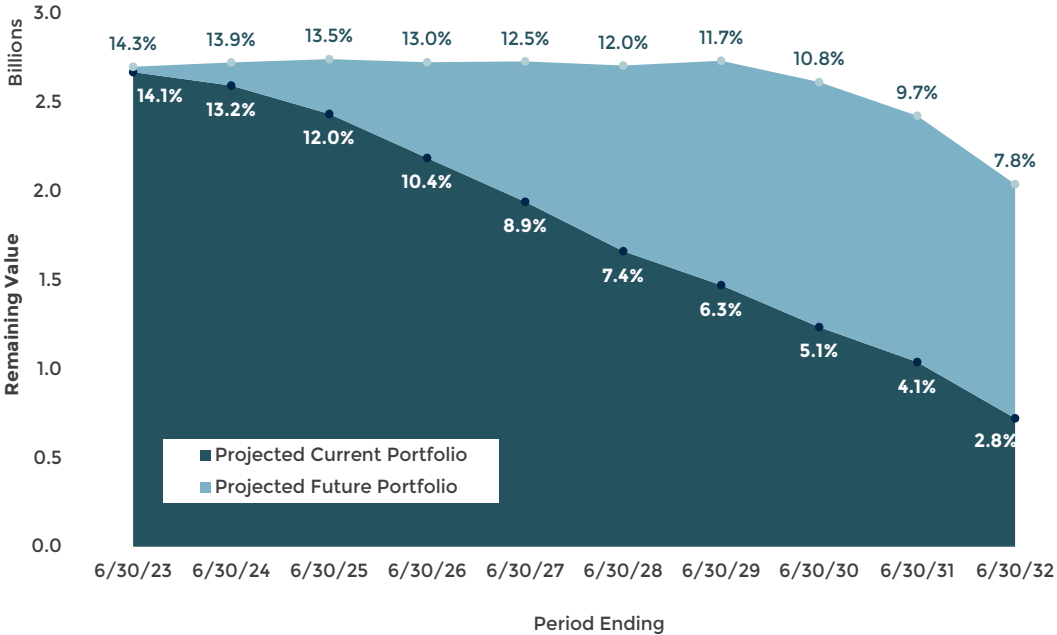
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### Constraints

- Individual commitments should be at least \$10 million
  - A commitment can be no more than 15% of the total amount raised by a primary fund
  - No more than 35% of new private equity commitments can be invested with any one underlying fund manager
-

# Investment Pacing – Results

To maintain a 12% allocation to PE, \$350 million should be committed annually



## Methodology

- Franklin Park’s pacing model approximates the amount of capital that an investor should commit each year to reach its target allocation over a specified horizon
- The model is based on historical industry cash flow rates generated from Thomson One Private Equity’s database

## Assumptions

- Average total assets over the last eight quarters as of 6/30/21 (\$18.2B) was used as the beginning portfolio value (see next page for further discussion)
- 3.6% annual net growth rate for total assets
- 12% target allocation to private equity
- Existing private equity portfolio data as of 6/30/22
- Future commitments allocated 70% to corporate finance equity funds, 10% to private debt funds, and 20% to venture capital funds

# Investment Pacing – Various Scenarios

Given the volatility of the public markets, FP used a conservative methodology to estimate ATRS total assets

	Scenario I	Scenario II	Scenario III	Scenario IV
<b>Start Date</b>	Actual 6/30/21	Ave. last 8 qtrs. 6/30/21	Actual 6/30/22	Ave. last 8 qtrs. 6/30/22
<b>ATRS Total Assets</b>	\$21.2B	\$18.2B	\$19.7B	\$20.3B
<b>Assumed Net Growth Rate</b>	3.6%	3.6%	3.6%	3.6%
<b>Annual Pacing Result</b>	\$480M	\$350M	\$420M	\$445M



Scenario used for both 2022 and 2023 pacing analysis

## Commitment Plan

It is recommended that ATRS allocate the planned 2023 commitments to approximately 11 funds/vehicles

### ATRS Commitments

Investment	Strategy	Region	ATRS Commitment
Direct Fund	Buyout/Growth/Turnaround	U.S.	\$30m
Direct Fund	Buyout/Growth/Turnaround	U.S.	\$30m
Direct Fund	Buyout/Growth/Turnaround	U.S.	\$30m
Direct Fund	Buyout/Growth/Turnaround	U.S.	\$30m
Direct Fund	Buyout/Growth/Turnaround	U.S.	\$25m
Direct Fund	Buyout/Growth/Turnaround	U.S.	\$25m
Direct Fund	Buyout/Growth/Turnaround/Debt	U.S.	\$25m
FP International XI	Buyout/Growth/Turnaround	Non-U.S.	\$30m <sup>1</sup>
FP CF Access II	Buyout/Growth/Turnaround	U.S.	\$30m <sup>1</sup>
FP Venture Opps I	Late Stage VC	U.S./Non-U.S.	\$30m <sup>1</sup>
FP Co-Invest VI <sup>2</sup>	Buyout/Growth/Turnaround	U.S./Non-U.S.	\$65m
<b>Total</b>			<b>\$350m</b>

<sup>1</sup> Proposed commitment to a Franklin Park- managed private fund. See additional information in the included presentation for each respective private fund.

<sup>2</sup> Represents a planned future private fund managed by Franklin Park and is included herein for planning purposes. No assurance can be given that FP Co-Invest VI will be formed by Franklin Park or that it will focus on the strategy and regions indicated.

## Recommendation

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**Maintain current policy targets and investment guidelines**

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**Seek to commit \$350 million in 2023**

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**Allocate the planned commitments to approximately 11 funds/vehicles**

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Arkansas Teacher Retirement System  
Franklin Park  
Venture Capital Opportunity Fund, L.P.

December 2022

## Disclaimer

This Presentation (this “Presentation”) has been prepared by Franklin Park Associates, LLC (“Franklin Park”) solely for informational purposes for the exclusive use of the party to whom Franklin Park delivers this Presentation (the “Recipient”). This Presentation is not to be construed as a solicitation, invitation or an offer by Franklin Park or any of its members, officers, employees or agents to buy or sell any securities or related financial instruments. This Presentation is furnished on a confidential and limited basis for the sole and exclusive purpose of providing general and background information concerning Franklin Park Venture Capital Opportunity Fund, L.P. (the “Fund”) as well as Franklin Park and its activities. This Presentation is not an offer or sale of, or a solicitation to any person to buy, any security or investment product or investment advice. Any such offer, sale or solicitation of interests in the Fund will be made only pursuant to the Fund’s definitive documents, and will be subject to the terms and conditions contained in such documents. This Presentation is qualified in its entirety by reference to the Fund’s definitive documents.

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Past or projected performance information contained in this Presentation is not necessarily indicative of future results. There can be no assurance that the Fund will ultimately achieve comparable performance results.

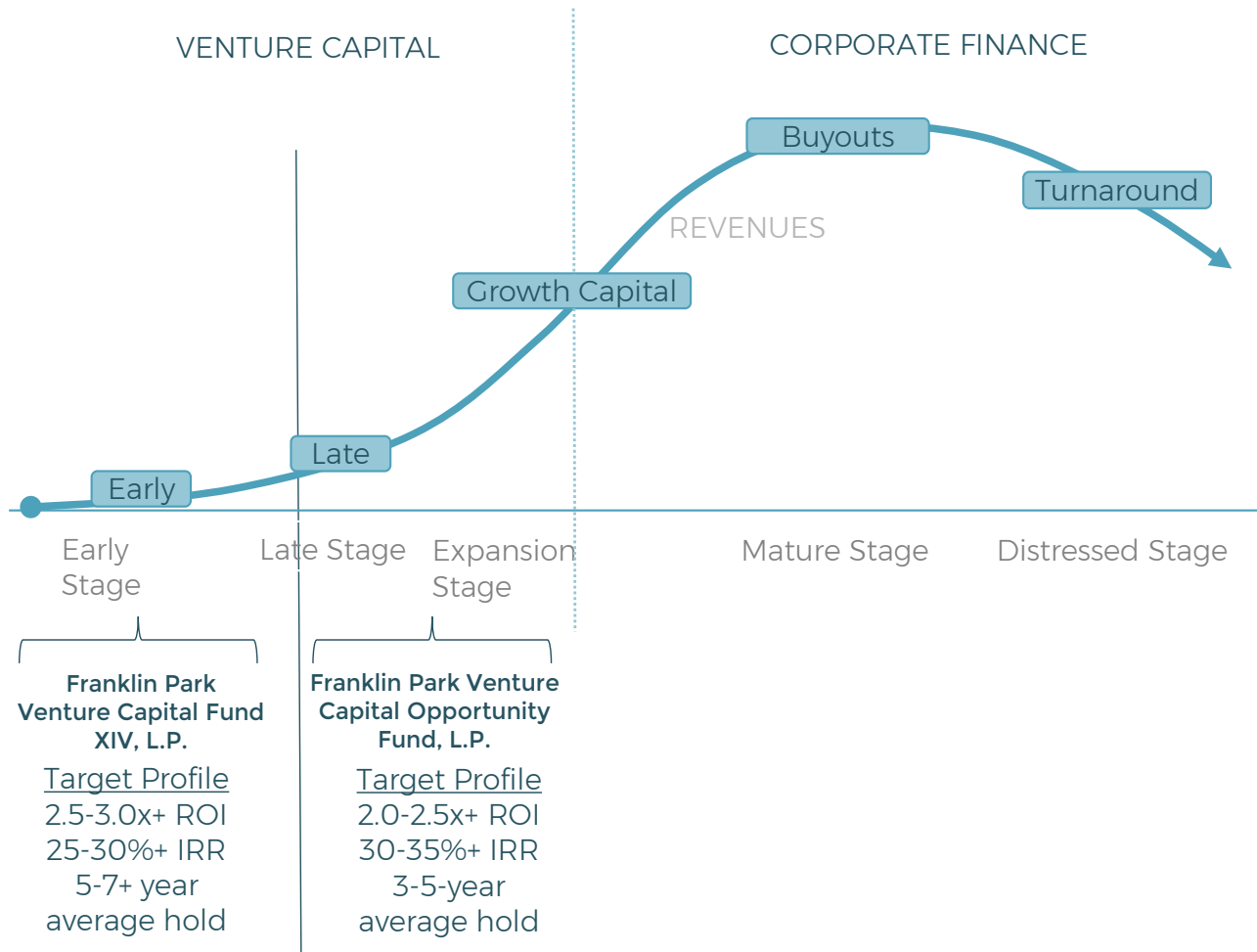
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# Late Stage Venture Capital Overview

Late-stage venture typically has a lower risk/return profile and shorter holding period relative to early-stage venture<sup>1</sup>



<sup>1</sup>Based on Franklin Park's experience and industry knowledge. Other market participants may have differing views. Target Profiles are for illustrative purposes only. Criteria and assumptions were not used in developing the target profile returns, and there can be no assurance that the Fund or Franklin Park Venture Capital Fund XIV, L.P. can achieve the target profile returns. The actual years portfolio investments are held, and portfolio returns cannot be known and may vary from the target profile parameters. No assurance can be given that the Fund will achieve its investment objectives or avoid substantial losses. Investments in private funds, such as the Fund, are illiquid, high-risk investments and involve a substantial risk of loss. See additional discussion of risks and limitations in the Footnotes in the Appendix.



# Strategy

The Fund will provide investors with exposure to later stage venture capital opportunities

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<b>Primary Strategy</b>	<ul style="list-style-type: none"><li>• Commitments to later stage funds raised by early-stage venture firms we have identified as Top-Tier</li><li>• Venture firms have insight into the most promising companies in their existing early-stage portfolios and may have advantaged access to deals at the later stages</li></ul>
<b>Other Potential Opportunities</b>	<ul style="list-style-type: none"><li>• Other later stage funds: firms with a primary focus on making investments in later stage venture or growth companies</li><li>• Co-investments: select opportunities to invest directly (or through an SPV) in later stage venture businesses alongside of fully vetted venture managers</li></ul>

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Investments in private funds, such as the Fund, are illiquid, high-risk investments and involve a substantial risk of loss. No assurance can be given that the Fund will achieve its investment objectives or avoid substantial losses. See additional discussion of risks and limitations in the Footnotes in the Appendix.

## Historical Venture Performance

ATRS has committed \$455 million to 14 Franklin Park venture capital vehicles raised since 2008

VEHICLE	ATRS COMMITMENT	CONTRIBUTED	DISTRIBUTED	REMAINING	TVPI	NET IRR
FPV 2008	\$30.0	\$30.0	\$71.8	\$24.4	3.2x	18.4%
FPV 2009	25.0	24.5	53.3	11.1	2.6x	17.5%
FPV 2010	25.0	16.0	23.7	33.4	3.6x	18.7%
FPV 2011	25.0	24.7	121.3	57.8	7.3x	36.4%
FPV 2012	25.0	22.4	37.6	44.8	3.7x	23.6%
FPV 2013	20.0	18.3	22.5	46.1	3.8x	27.7%
FPV 2014	25.0	23.8	22.3	65.9	3.7x	26.1%
FPV 2015	25.0	23.8	7.6	46.3	2.3x	20.0%
FPV 2016	25.0	21.9	7.6	47.8	2.5x	30.8%
FPV 2017	25.0	16.8	3.1	31.1	2.0x	33.3%
FPV 2018	25.0	22.0	2.2	40.6	1.9x	38.4%
FPV 2019	30.0	17.9	0.7	29.4	1.7x	36.0%
FP Venture Opp	30.0	10.5	0.0	10.3	1.0x	NMF
FPV XIII	60.0	30.6	0.1	35.9	1.2x	21.2%
FPV XIV	60.0	3.9	0.0	3.7	0.9x	NMF
<b>Total</b>	<b>\$455.0</b>	<b>\$307.1</b>	<b>\$373.7</b>	<b>\$528.8</b>	<b>2.9x</b>	<b>23.9%</b>

Data in the table is as of June 30, 2022 and represents only ATRS's interests in each vehicle; \$ in millions. The returns presented are net of underlying private fund manager fees, transaction expenses and carried interest charges, as well as expenses incurred by the Franklin Park Venture Capital Fund vehicles. Past results are not necessarily indicative of future performance. There can be no assurance that investments recommended by Franklin Park will realize the rates of return indicated in this presentation. Wherever there is potential for profit, there is also potential for loss. See additional information in the Footnotes on page 8.

Investments in private funds such as the Fund are illiquid, high-risk investments. No assurance can be given that the Fund will achieve its investment objectives or avoid substantial losses. See additional discussion of risks and limitations in the Footnotes on page 8.

## Track Record- Late Stage

Franklin Park has committed \$70.7 million to 12 later stage venture funds

Fund	Vintage Year	Fund Investments	Committed Capital	Invested Capital	Distributed Capital	Remaining Value	ROI	TVPI	Gross IRR	Net IRR
Late State VC	2014-2020	12	70.7	49.6	13.5	81.2	1.9x	1.6x	26.5%	20.7%

Data in the table is as of June 30, 2022; \$ in millions.

Performance results are presented for a composite portfolio of twelve late-stage venture capital private fund investments made on behalf of discretionary client accounts managed by Franklin Park (the "Late Stage VC Portfolio"). Excludes investments of the Fund. No individual client account received the returns presented.

TVPI and Net IRR are net performance calculations based on the highest expected fee and expense structure of the Fund applied to the Late Stage VC Portfolio investment activity ("Model Performance"). No individual investor received the net performance returns presented. See further details on Model Performance in the Footnotes on pages 8&9. Additional information on the risks and limitations of using model performance calculations in making investment decisions is available upon request.

ROI and Gross IRR performance is presented net of underlying private fund manager fees, transaction expenses and carried interest charges, but exclusive of Franklin Park's investment advisory fees, carried interest and vehicle expenses. See additional important information in the Footnotes.

Investments in private funds such as the Fund are illiquid, high-risk investments and involve substantial risk of loss. Past results are not necessarily indicative of future performance. Wherever there is the potential for profit, there is the potential for loss. No assurance can be given that the Fund will achieve its investment objectives or avoid substantial losses. See additional risks and limitations in the Footnotes.

# Proposal

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**Consider making an additional \$30 million commitment to Franklin Park Venture Capital Opportunity Fund, L.P. as part of the 2023 pacing – an initial \$30 million commitment was made by ATRS as part of the 2022 pacing**

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**Terms (same as Franklin Park Venture Capital Fund XIV, L.P.):**

**1. Management Fees:**

- **No management fee for existing Franklin Park clients (including ATRS)**
- **0.9% of commitment during investment period (for all other investors)**

**2. Carried Interest:**

- **5% carried interest once 8% preferred return is achieved**
  - **4% carried interest for investors committing at least \$60 million (including ATRS)**
- 

Investments in private funds such as the Fund are illiquid, high-risk investments. No assurance can be given that the Fund will achieve its investment objectives or avoid substantial losses. See additional discussion of risks and limitations in the Footnotes. Please refer to the Fund's governing documents for a complete listing of terms..

## Footnotes

Based in Bala Cynwyd, Pennsylvania, Franklin Park was formed in April 2003. Franklin Park is an independent, registered investment adviser with the U.S. Securities and Exchange Commission. Franklin Park assists its clients in building and managing customized investment portfolios of private market investments.

### Liquidity Risk:

Private fund investments such as the Fund are long-term, illiquid investments. Private funds such as the Fund generally have a term of ten years or more, and investors are generally not able to redeem their interests in private funds. Please refer to the Fund's governing documents for complete terms and conditions.

### Valuation Risk:

There can be no assurance that investments with an unrealized value will be realized at the valuations shown, as actual realized returns will largely depend on the realized returns of the private fund investments which in turn will depend on, among other factors, future portfolio company operating results, the value of the assets and market conditions at the time of disposition, any related transaction costs, and the timing and manner of sale, all of which may differ from the assumptions on which the valuations contained herein are based. Accordingly, the actual realized returns may differ materially from the returns indicated herein.

### Risk of Loss:

Past performance is not a guarantee. Investments in private equity funds such as the Fund are speculative and involve a substantial risk of loss. No assurance can be given that the Fund will achieve its investment objectives or avoid substantial losses. Information about other investments made by Franklin Park, including the past performance of other Franklin Park vehicles and investments, is provided solely to illustrate Franklin Park's investment experience, and processes and strategies used by Franklin Park in the past with respect to other Franklin Park vehicles and investments. The performance information relating to Franklin Park's previous investments is not intended to be indicative of the Fund's future results. Past performance is not necessarily indicative, or a guarantee, of future results. There can be no assurance that the Fund will achieve comparable results as those presented or that investors in the Fund will not lose any of their invested capital.

Please refer to the Fund's Private Placement Memorandum and other governing documents for discussion of additional risk factors.

### Historical Venture Performance (p.5):

Contributed represents the amount of capital contributed to the FPI vehicles by ATRS.

Distributed represents the amount of capital distributed from the FPI vehicles to ATRS.

Remaining represents the remaining unrealized value of ATRS's interest in the FPI vehicles.

TVPI is the ratio of Distributed plus Remaining to Contributed capital.

IRR is the discount rate that results in a net present value of zero of a series of cash flows and considers both cash flow timing and amount.

The TVPI and Net IRR returns presented are net of underlying private equity fund manager fees, transaction expenses and carried interest charges, as well as expenses incurred by the Franklin Park International vehicles. No investment advisory fees or carried interest are charged by the Franklin Park International vehicles to any investor; provided that, the calculations exclude investment fees and expenses paid through other Franklin Park accounts and vehicles, including amounts paid to Franklin Park and its affiliates under separate investment management agreements.

### Track Record - Late Stage (p. 6):

Vintage Year represents the year in which a private fund first called capital.

Fund Investments represents the number of underlying portfolio fund investments (the "Portfolio Funds")

Committed Capital represents the aggregate commitments to Portfolio Funds.

Invested Capital represents the amount of capital contributed to Portfolio Funds.

Distributed Capital represents the amount of capital distributed from Portfolio Funds.

Remaining Value represents the remaining unrealized value of Portfolio Funds.

ROI is the ratio of Distributed Capital plus Remaining Value to Invested Capital.

TVPI is the ratio of distributions plus remaining value to contributed capital.

IRR is the discount rate that results in a net present value of zero of a series of cash flows and considers both cash flow timing and amount.

### Model Performance:

In order to approximate the impact on performance utilizing the applicable fee and expense structure of the Fund, had it been charged to other Franklin Park- managed vehicles and client accounts, a model is utilized to calculate performance. The model is based on the investment activity of Franklin Park-managed vehicles and client accounts (the "Gross Activity") to Portfolio Funds. Gross Activity represents the cash flows and capital account balances of the Portfolio Funds as reported by the Portfolio Fund managers, and is net of the Portfolio Fund expenses, management fees and carried interest.

The model applies the anticipated expenses, and management fee and carried interest rates of the Fund to the Gross Activity to produce a resulting stream of cash flows net of anticipated expenses, investment advisory fees and carried interest (the "Net Activity"). The Net Activity is utilized to calculate TVPI and Net IRR performance returns ("Model Performance") approximating the impact of the Fund's fee and

## Footnotes

expense structure to Franklin Park-managed vehicles and client accounts. Model Performance is measured in U.S. dollars on an inception to date basis through June 30, 2022.

Model Performance does not consider such terms as may be applicable to the Fund such as management fee offsets, use of credit facilities, or other terms and conditions which may have an impact on performance results.

Model Performance is hypothetical performance. Hypothetical performance results have inherent limitations and no representation is being made that any Franklin Park investor, fund, or investment portfolio will or is likely to achieve profits similar to those shown. There will be differences between hypothetical performance and actual results achieved. Hypothetical performance is for illustrative purposes only and does not reflect the actual returns of any Franklin Park investor, Fund, or investment portfolio. Additional information on the risks and limitations of using model performance calculations in making investment decisions is available upon request.

“Late Stage VC” (the “Late Stage VC Portfolio”) represents a hypothetical composite portfolio of twelve late stage venture capital focused private equity fund commitments made on behalf of Franklin Park’s discretionary client accounts with Vintage Years 2014-2020. The Late Stage VC Portfolio performance information is provided to illustrate Franklin Park’s experience investing in private funds that are consistent with the Fund’s primary strategy. The hypothetical performance as presented is from more than one portfolio and may not be a meaningful comparison for a single investment fund due to a variety of reasons including vehicle specific investment criteria, diversification, investment allocation, risk, time horizon, leverage, certain commingled fund expenses and market conditions. The performance information is for illustrative purposes only and may not be a meaningful indicator of the Fund’s performance.

ROI and Gross IRR of the Late Stage VC Portfolio are based on the actual Gross Activity of Franklin Park’s discretionary client accounts in U.S. Dollars since inception (February 25, 2014) through March 31, 2022. TVPI and Net IRR of the Late Stage VC Portfolio are calculated using Model Performance as described above using the highest anticipated fee and expense structure of the Fund. No individual investor received the performance results presented. Additional information on the use of hypothetical performance calculations in making investment decisions is available upon request.

## Franklin Park Associates, LLC

251 St. Asaphs Road  
Three Bala Plaza, Suite 500 West  
Bala Cynwyd, PA 19004

For more information, please contact us at [info@franklinparkllc.com](mailto:info@franklinparkllc.com)

Franklin Park Associates, LLC is an SEC registered investment advisor pursuant to the Investment Advisors Act of 1940

**ARKANSAS TEACHER RETIREMENT SYSTEM  
1400 West Third Street  
Little Rock, Arkansas 72201**

**RESOLUTION  
No. 2022-56**

**Approving Additional Investment in Franklin Park  
Venture Capital Opportunity Fund, L.P.**

**WHEREAS**, the Board of Trustees (Board) of the Arkansas Teacher Retirement System (ATRS) is authorized to invest and manage trust assets for the benefits of its plan participants; and

**WHEREAS**, the ATRS Board has reviewed the recommendation of its private equity consultant, Franklin Park Associates, LLC, along with the recommendation of the Investment Committee and ATRS staff regarding a potential additional investment in **Franklin Park Venture Capital Opportunity Fund, L.P.**, a fund of funds managed by Franklin Park investing in later stage venture capital private equity funds.

**THEREFORE, BE IT RESOLVED**, that the ATRS Board approves an additional investment of up to **\$30 million dollars (\$30,000,000.00)** in **Franklin Park Venture Capital Opportunity Fund, L.P.** The total investment amount is to be determined by the private equity consultant and ATRS staff based upon the allocation available to ATRS and the overall investment objectives set by the ATRS Board; and

**FURTHER, BE IT RESOLVED**, that the ATRS staff is hereby authorized to take all necessary and proper steps to implement this investment, if acceptable terms are reached.

**Adopted this 5th day of December 2022**

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**Mr. Danny Knight, *Chair***  
**Arkansas Teacher Retirement System**





Arkansas Teacher Retirement System  
Franklin Park  
International Fund XI, L.P.

December 2022

## Disclaimer

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# International Strategy

Franklin Park targets investable non-U.S. markets and less competitive strategies

---

## Market Criteria

- Acceptable country risk
- Sufficient liquidity – private equity deal volume, active exit market
- Pockets of inefficiency

---

## Strategy Criteria

- Seek to at least double earnings over a 5-year holding period
  - Attractive deal pricing relative to earnings growth
- 

### Underweight

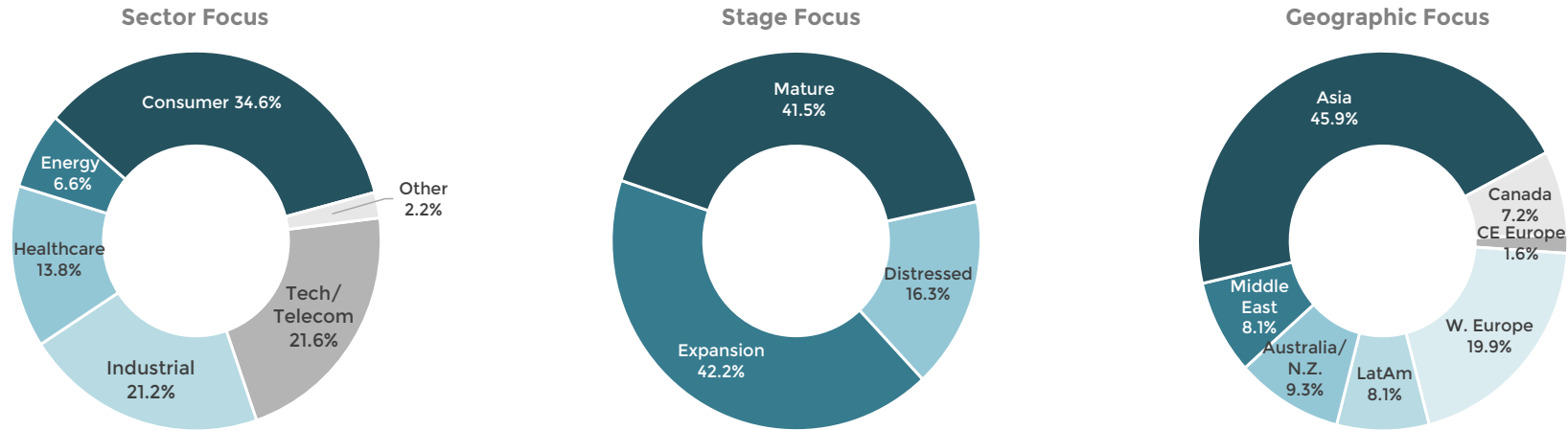
- Pan-European
- Pan-Asian
- India (growth equity)
- Indonesia (growth equity)
- ROW (Africa, Latin America)

### Overweight

- Europe (small/lower mid-market buyout)
- Europe (turnaround)
- Australia (small/lower mid-market buyout)
- Australia (turnaround)
- Canada (small/lower mid-market buyout)
- Japan/S. Korea (small/lower mid-market buyout)
- China (growth equity/buyout)

# Portfolio Diversification

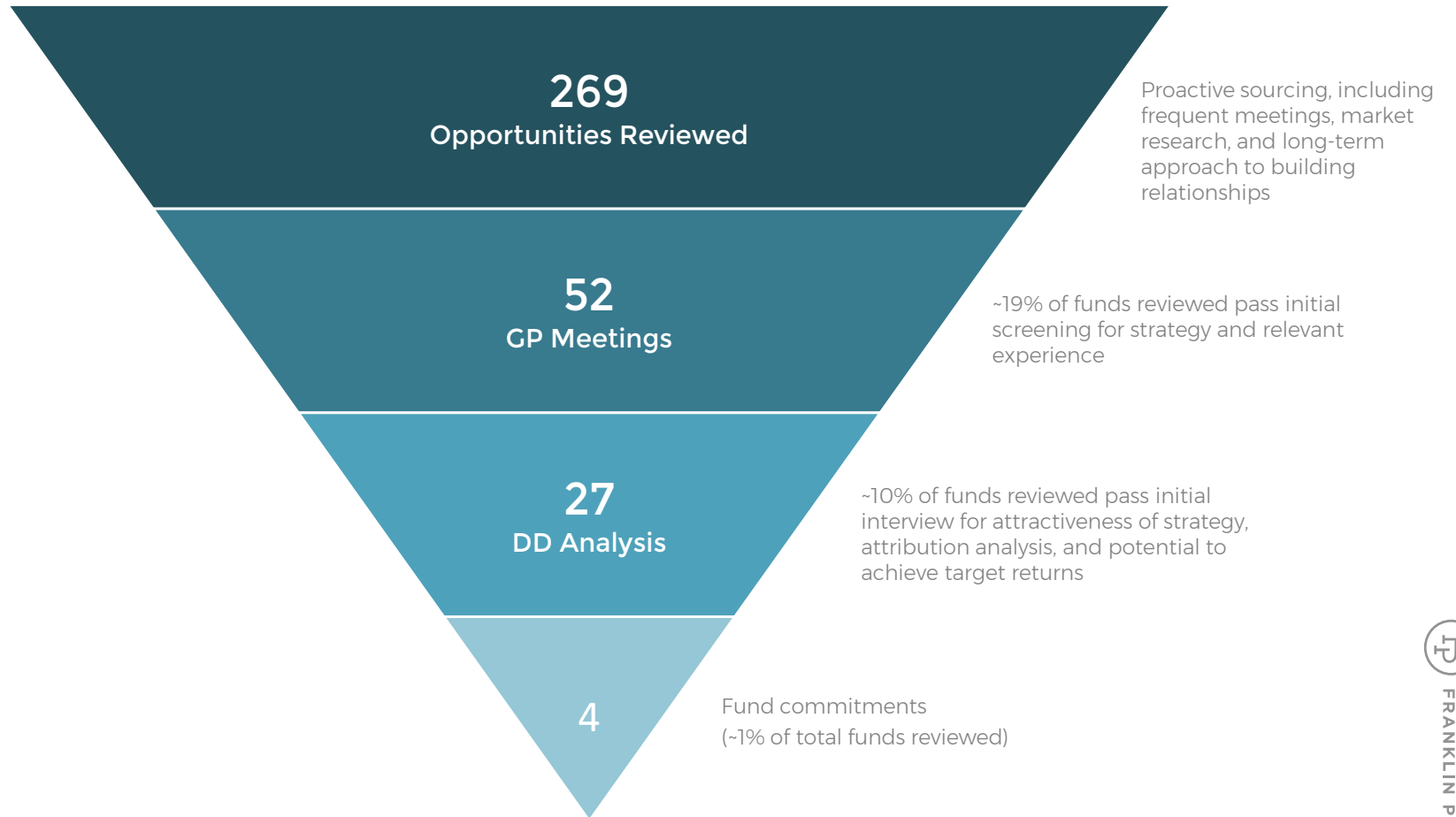
Activity weighted towards expansion and mature consumer companies across Asia and Europe



The analyses above are based on the unrealized values of the underlying portfolio funds' holdings of Franklin Park International Fund Series 2011-2019, Franklin Park International Fund X, L.P. and Franklin Park International Fund XI, L.P. (collectively, "FPI") as of June 30, 2022. The unrealized values of the portfolio fund holdings used in the diversification analyses above represent the values as reported by the fund managers of the underlying portfolio funds, multiplied by the respective FPI vehicle's ownership percentage in the respective portfolio fund. Unrealized values of the portfolio fund holdings reported in currencies other than USD have been converted to USD as of June 30, 2022. Only portfolio fund holdings reported by the underlying portfolio funds within the FPI vehicles as unrealized holdings, and for which unrealized values are provided by the managers of such portfolio funds, are included in the analysis. The above diversification analysis is provided for illustrative purposes only. No assurance can be given that the Fund will achieve its investment and diversification objectives or will have the same diversification by sector, stage or geographic focus as illustrated above.

# Non-U.S. Corporate Finance Deal Flow (LTM 3Q22)

Broad market coverage with highly selective decision making



## Historical Performance

ATRS has committed \$315 million to 11 Franklin Park international vehicles raised since 2011

VEHICLE	ATRS COMMITMENT	CONTRIBUTED	DISTRIBUTED	REMAINING	TVPI	NET IRR
FPI 2011	\$25.0	\$23.0	\$26.2	\$13.3	1.7x	10.0%
FPI 2012	25.0	17.3	16.2	8.3	1.4x	8.3%
FPI 2013	20.0	13.9	4.9	15.9	1.5x	7.8%
FPI 2014	25.0	17.7	12.6	17.6	1.7x	15.2%
FPI 2015	25.0	19.7	6.6	24.5	1.6x	14.0%
FPI 2016	25.0	19.5	4.3	23.6	1.4x	11.5%
FPI 2017	25.0	21.3	5.0	31.0	1.7x	24.2%
FPI 2018	25.0	21.4	1.6	26.0	1.3x	14.3%
FPI 2019	30.0	17.9	1.2	20.2	1.2x	17.7%
FPI X	60.0	14.2	0.0	14.3	1.0x	NMF
FPI XI	30.0	0.5	0.0	0.5	1.0x	NMF
<b>Total</b>	<b>\$315.0</b>	<b>\$186.4</b>	<b>\$78.6</b>	<b>\$195.2</b>	<b>1.5x</b>	<b>12.0%</b>

Data in the table is as of June 30, 2022 and represents only ATRS's interests in each vehicle; \$ in millions. The returns presented are net of underlying private fund manager fees, transaction expenses and carried interest charges, as well as expenses incurred by the Franklin Park International Fund vehicles. Past results are not necessarily indicative of future performance. There can be no assurance that investments recommended by Franklin Park will realize the rates of return indicated in this presentation. Wherever there is potential for profit, there is also potential for loss. See additional information in the Footnotes on page 8.

Investments in private funds such as the Fund are illiquid, high-risk investments. No assurance can be given that the Fund will achieve its investment objectives or avoid substantial losses. See additional discussion of risks and limitations in the Footnotes on page 8.

## Proposal

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**A \$30 million commitment to Franklin Park International Fund XI, L.P. was approved by ATRS as part of the 2022 pacing**

**Consider a final \$30 million commitment to Franklin Park International Fund XI, L.P. as part of the 2023 pacing**

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**No management fees or carried interest charged by Franklin Park**

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Investments in private funds such as the Fund are illiquid, high-risk investments. No assurance can be given that the Fund will achieve its investment objectives or avoid substantial losses. See additional discussion of risks and limitations in the Footnotes.

## Footnotes

Based in Bala Cynwyd, Pennsylvania, Franklin Park was formed in April 2003. Franklin Park is an independent, registered investment adviser with the U.S. Securities and Exchange Commission. Franklin Park assists its clients in building and managing customized investment portfolios of private market investments.

Contributed represents the amount of capital contributed to the FPI vehicles by ATRS.

Distributed represents the amount of capital distributed from the FPI vehicles to ATRS.

Remaining represents the remaining unrealized value of ATRS's interest in the FPI vehicles.

TVPI is the ratio of Distributed plus Remaining to Contributed capital.

IRR is the discount rate that results in a net present value of zero of a series of cash flows and considers both cash flow timing and amount.

The TVPI and Net IRR returns presented are net of underlying private equity fund manager fees, transaction expenses and carried interest charges, as well as expenses incurred by the Franklin Park International vehicles. No investment advisory fees or carried interest are charged by the Franklin Park International vehicles to any investor; provided that, the calculations exclude investment fees and expenses paid through other Franklin Park accounts and vehicles, including amounts paid to Franklin Park and its affiliates under separate investment management agreements.

### Liquidity Risk:

Private fund investments such as the Fund are long-term, illiquid investments. Private funds such as the Fund generally have a term of ten years or more, and investors are generally not able to redeem their interests in private funds. Please refer to the Fund's governing documents for complete terms and conditions.

### Valuation Risk:

There can be no assurance that investments with an unrealized value will be realized at the valuations shown, as actual realized returns will largely depend on the realized returns of the private fund investments which in turn will depend on, among other factors, future portfolio company operating results, the value of the assets and market conditions at the time of disposition, any related transaction costs, and the timing and manner of sale, all of which may differ from the assumptions on which the valuations contained herein are based. Accordingly, the actual realized returns may differ materially from the returns indicated herein.

### Risk of Loss:

Past performance is not a guarantee. Investments in private equity funds such as the Fund are speculative and involve a substantial risk of loss. No assurance can be given that the Fund will achieve its investment objectives or avoid substantial losses. Information about other investments made by Franklin Park, including the past performance of other Franklin Park vehicles and investments, is provided solely to illustrate Franklin Park's investment experience, and processes and strategies used by Franklin Park in the past with respect to other Franklin Park vehicles and investments. The performance information relating to Franklin Park's previous investments is not intended to be indicative of the Fund's future results. Past performance is not necessarily indicative, or a guarantee, of future results. There can be no assurance that the Fund will achieve comparable results as those presented or that investors in the Fund will not lose any of their invested capital.

Please refer to the Fund's Private Placement Memorandum and other governing documents for discussion of additional risk factors.



## Franklin Park Associates, LLC

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Three Bala Plaza, Suite 500 West  
Bala Cynwyd, PA 19004

For more information, please contact us at [info@franklinparkllc.com](mailto:info@franklinparkllc.com)

Franklin Park Associates, LLC is an SEC registered investment advisor pursuant to the Investment Advisors Act of 1940



**ARKANSAS TEACHER RETIREMENT SYSTEM  
1400 West Third Street  
Little Rock, Arkansas 72201**

**RESOLUTION  
No. 2022-57**

**Approving Additional Investment in Franklin Park  
International Fund XI, L.P.**

**WHEREAS**, the Board of Trustees (Board) of the Arkansas Teacher Retirement System (ATRS) is authorized to invest and manage trust assets for the benefits of its plan participants; and

**WHEREAS**, the ATRS Board has reviewed the recommendation of its private equity consultant, Franklin Park Associates, LLC, along with the recommendation of the Investment Committee and ATRS staff regarding a potential additional investment in **Franklin Park International Fund XI, L.P.**, a fund of funds managed by Franklin Park investing in international private equity funds.

**THEREFORE, BE IT RESOLVED**, that the ATRS Board approves an additional investment of up to **\$30 million dollars (\$30,000,000.00)** in **Franklin Park International Fund XI, L.P.** The total investment amount is to be determined by the private equity consultant and ATRS staff based upon the allocation available to ATRS and the overall investment objectives set by the ATRS Board; and

**FURTHER, BE IT RESOLVED**, that the ATRS staff is hereby authorized to take all necessary and proper steps to implement this investment, if acceptable terms are reached.

**Adopted this 5th day of December 2022**

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**Mr. Danny Knight, Chair**  
**Arkansas Teacher Retirement System**



Arkansas Teacher Retirement System  
Franklin Park  
Corporate Finance Access II, L.P.

December 2022

## Disclaimer

This Presentation (this “Presentation”) has been prepared by Franklin Park Associates, LLC (“Franklin Park”) solely for informational purposes for the exclusive use of the party to whom Franklin Park delivers this Presentation (the “Recipient”). This Presentation is not to be construed as a solicitation, invitation or an offer by Franklin Park or any of its members, officers, employees or agents to buy or sell any securities or related financial instruments. This Presentation is furnished on a confidential and limited basis for the sole and exclusive purpose of providing general and background information concerning Franklin Park Corporate Finance Access Fund II, L.P. (the “Fund”) as well as Franklin Park and its activities. This Presentation is not an offer or sale of, or a solicitation to any person to buy, any security or investment product or investment advice. Any such offer, sale or solicitation of interests in the Fund will be made only pursuant to the Fund’s definitive documents, and will be subject to the terms and conditions contained in such documents. This Presentation is qualified in its entirety by reference to the Fund’s definitive documents.

The information in this Presentation has been obtained from Franklin Park’s proprietary research and other publicly available sources and has not been independently verified by Franklin Park or any of its members, officers, employees, agents, representatives or advisers or any other person. Any valuations, projections, estimates, forecasts, targets, prospects, returns and/or opinions contained herein involve elements of subjective judgment and analysis. Any opinions expressed in this material are subject to change without notice. This Presentation may contain forward-looking statements. Any estimates or projections as to events that may occur in the future are based upon the reasonable expectation of Franklin Park. No obligation is undertaken by Franklin Park or any other person to provide the Recipient with additional information or to update, revise or reaffirm the information contained in this Presentation or to correct any inaccuracies therein which may become apparent.

Past or projected performance information contained in this Presentation is not necessarily indicative of future results. There can be no assurance that the Fund will ultimately achieve comparable performance results.

This Presentation is not intended to be relied upon as legal, tax, accounting or investment advice or a recommendation and is not, and should not be assumed to be, complete. The Recipient agrees that Franklin Park and its affiliates, members, partners, stockholders, managers, directors, officers, employees and agents shall have no liability for any misstatement or omission of fact or any opinion expressed herein. The contents herein are not to be construed as legal, business or tax advice, and the Recipient should consult its own attorney, business advisor and tax advisor as to legal, business and tax advice. Recipient is expected to rely on its own due diligence if it wishes to proceed further.

The Recipient further agrees that it will (i) not copy, reproduce or distribute the Presentation, in whole or in part, to any person or party without the prior written consent of Franklin Park, (ii) keep permanently confidential all information contained herein not already public and (iii) use the Presentation solely for the purpose set forth in the first paragraph above.

By accepting this Presentation the Recipient agrees to be bound by the foregoing obligations and limitations.

# Strategy Overview

Focus on inefficient strategies, experienced & aligned teams, and clear competitive advantages

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## Less Efficient Market

- Small and lower mid market funds (generally ≤\$1B in size) pursuing growth capital, buyouts or turnarounds where incentives are aligned
- Smaller companies (typically <\$250M in value) where a financial partner can drive performance
- Conservative entry multiples and use of leverage

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## Experience & Aligned Teams

- Experienced private equity investors, including spin-outs, first institutional capital, re-starts
- Team is aligned and incentivized

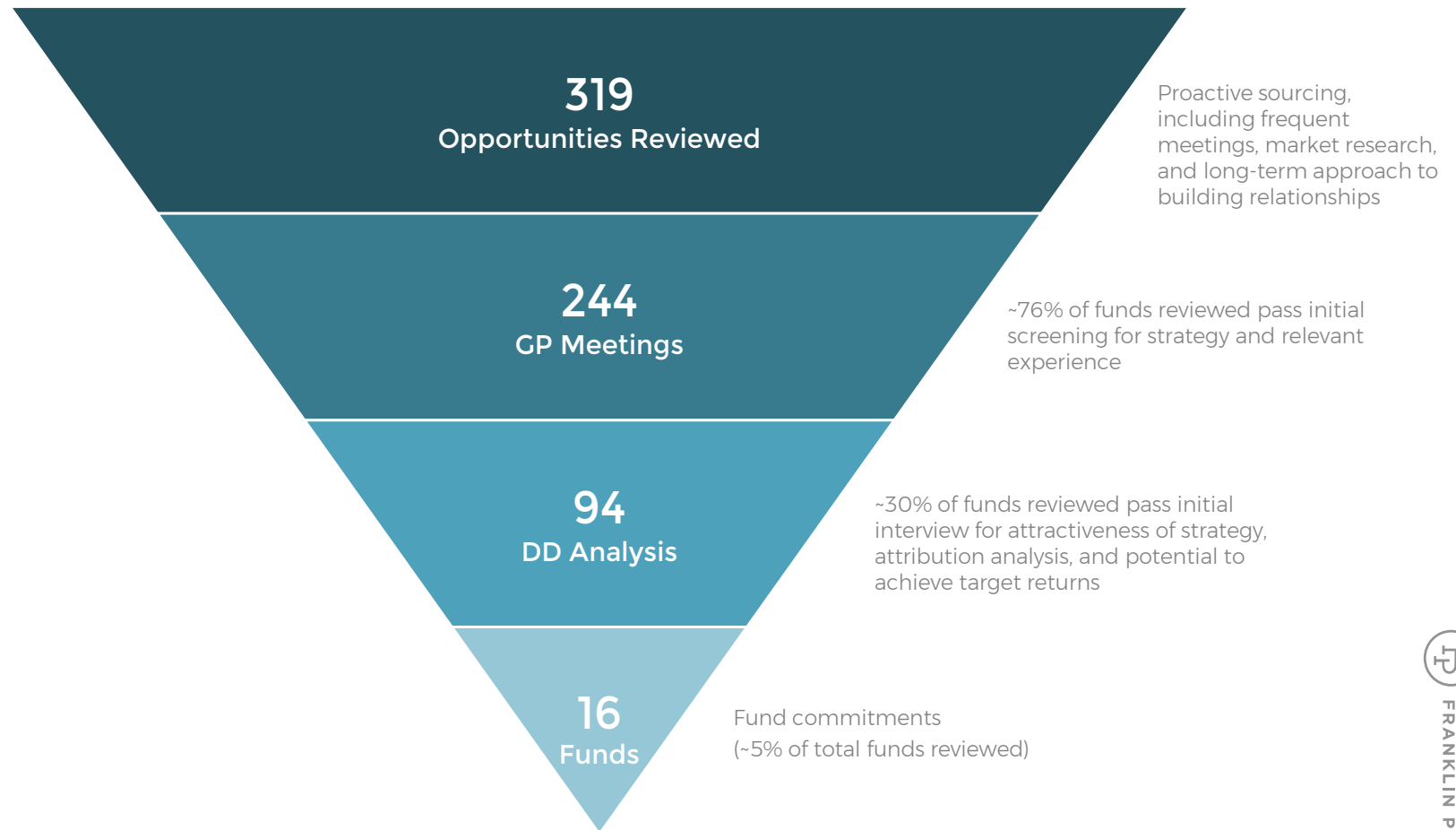
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## Competitive Advantages

- Sector-focused with competitively advantaged domain knowledge and relationships
  - Deep value with operationally intensive value add approach
  - Small buyout with differentiated deal sourcing and growth strategy
-

# Deal Flow

Broad market coverage with highly selective decision making



# Corporate Finance Track Record

Franklin Park's discretionary track record for U.S. focused small and lower middle market corporate finance funds

Fund	Vintage Year	Fund Committed Investments	Committed Capital	Invested Capital	Distributed Capital	Remaining Value	ROI	TVPI	Gross IRR	Net IRR
Other Relevant Portfolio	2010-2022	67	1,626.9	994.4	965.7	941.0	1.9x	1.7x	21.7%	19.1%

Fund	Vintage Year	Fund Committed Investments	Committed Capital	Invested Capital	Distributed Capital	Remaining Value	ROI	ATRS TVPI	Gross IRR	ATRS Net IRR
CF Access Fund I	2019	16	147.0	62.3	8.7	72.2	1.3x	1.3x	34.1%	30.5%

Data in the tables is as of June 30, 2022.. \$ in millions.

Other Relevant Portfolio (the "OR Portfolio") represents a hypothetical composite portfolio of U.S. private fund commitments made on behalf of discretionary client accounts that are consistent with the Fund's strategy. No individual investor received the performance presented. Additional details on the OR Portfolio are provided in the Footnotes on pages 7&8. Additional information on the risks and limitations of using hypothetical performance information in making investment decisions is available upon request. TVPI and Net IRR of the OR Portfolio are net performance calculations based on the highest expected fee and expense structure of the Fund applied to the OR Portfolio investment activity ("Model Performance"). No individual investor received the net performance returns presented. See further details on Model Performance in the Footnotes on page 7. Additional information on the risks and limitations of using model performance calculations in making investment decisions is available upon request.

CF Access Fund I TVPI and Net IRR are actual performance returns reflecting only ATRS's interest in the fund. TVPI and Net IRR performance returns are net of of Franklin Park's investment advisory fees, carried interest and vehicle expenses based on the terms specific to ATRS's interest in the fund. .

ROI and Gross IRR performance is presented net of underlying private fund manager fees, transaction expenses and carried interest charges, but exclusive of Franklin Park's investment advisory fees, carried interest and vehicle expenses. See additional important information in the Footnotes section in the Appendix.

Investments in private funds such as the Fund are illiquid, high-risk investments and involve substantial risk of loss. Past results are not necessarily indicative of future performance. Wherever there is the potential for profit, there is the potential for loss. No assurance can be given that the Fund will achieve its investment objectives or avoid substantial losses. See additional risks and limitations in the Footnotes in the Appendix.

# Proposal

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**ATRS' plan is to consider committing \$30 million per year to Franklin Park Corporate Finance Access Fund II, L.P. over a 3-year period (2021-2023)**

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## **ATRS commitment activity**

- **\$30 million commitment was approved by ATRS as part of the 2021 pacing**
  - **\$30 million commitment was approved by ATRS as part of the 2022 pacing**
  - **Consider final \$30 million commitment as part of the 2023 pacing**
- 

## **Terms:**

- **Management Fees: None for ATRS (0.9% of commitments for all other LPs)**
  - **Carried Interest: 4% for \$60m+ commitment (5% for all other LPs)**
- 

Investments in private funds such as the Fund are illiquid, high-risk investments. No assurance can be given that the Fund will achieve its investment objectives or avoid substantial losses. See additional discussion of risks and limitations in the Footnotes. Please refer to the Fund's governing documents for a complete listing of terms..



## Footnotes

Based in Bala Cynwyd, Pennsylvania, Franklin Park was formed in April 2003. Franklin Park is an independent, registered investment adviser with the U.S. Securities and Exchange Commission. Franklin Park assists its clients in building and managing customized investment portfolios of private market investments.

Vintage Year represents the year in which a private fund first called capital.

Fund Investments represents the number of underlying portfolio fund investments (the "Portfolio Funds")

Committed Capital represents the aggregate commitments to Portfolio Funds.

Invested Capital represents the amount of capital contributed to Portfolio Funds.

Distributed Capital represents the amount of capital distributed from Portfolio Funds.

Remaining Value represents the remaining unrealized value of Portfolio Funds.

ROI is the ratio of Distributed Capital plus Remaining Value to Invested Capital.

TVPI is the ratio of distributions plus remaining value to contributed capital.

IRR is the discount rate that results in a net present value of zero of a series of cash flows and considers both cash flow timing and amount.

### Liquidity Risk:

Private fund investments such as the Fund are long-term, illiquid investments. Private funds such as the Fund generally have a term of ten years or more, and investors are generally not able to redeem their interests in private funds. Please refer to the Fund's governing documents for complete terms and conditions.

### Valuation Risk:

There can be no assurance that investments with an unrealized value will be realized at the valuations shown, as actual realized returns will largely depend on the realized returns of the private fund investments which in turn will depend on, among other factors, future portfolio company operating results, the value of the assets and market conditions at the time of disposition, any related transaction costs, and the timing and manner of sale, all of which may differ from the assumptions on which the valuations contained herein are based. Accordingly, the actual realized returns may differ materially from the returns indicated herein.

### Risk of Loss:

Past performance is not a guarantee. Investments in private equity funds such as the Fund are speculative and involve a substantial risk of loss. No assurance can be given that the Fund will achieve its investment objectives or avoid substantial losses. Information about other investments made by Franklin Park, including the past performance of other Franklin Park vehicles and investments, is provided solely to illustrate Franklin Park's investment experience, and processes and strategies used by

Franklin Park in the past with respect to other Franklin Park vehicles and investments. The performance information relating to Franklin Park's previous investments is not intended to be indicative of the Fund's future results. Past performance is not necessarily indicative, or a guarantee, of future results. There can be no assurance that the Fund will achieve comparable results as those presented or that investors in the Fund will not lose any of their invested capital.

### No Investment Advice:

References to the Portfolio Funds in this Presentation should not be considered a recommendation or solicitation for the Portfolio Funds mentioned, nor should individual Portfolio Fund performance be considered representative of Portfolio Funds held, or to be held, by the Fund.

Please refer to the Fund's Private Placement Memorandum and other governing documents for discussion of additional risk factors.

### Model Performance:

In order to approximate the impact on performance utilizing the applicable fee and expense structure of the Fund, had it been charged to other Franklin Park- managed vehicles and client accounts, a model is utilized to calculate performance. The model is based on the investment activity of Franklin Park-managed vehicles and client accounts (the "Gross Activity") to Portfolio Funds. Gross Activity represents the cash flows and capital account balances of the Portfolio Funds as reported by the Portfolio Fund managers, and is net of the Portfolio Fund expenses, management fees and carried interest.

The model applies the anticipated expenses, and management fee and carried interest rates of the Fund to the Gross Activity to produce a resulting stream of cash flows net of anticipated expenses, investment advisory fees and carried interest (the "Net Activity"). The Net Activity is utilized to calculate TVPI and Net IRR performance returns ("Model Performance") approximating the impact of the Fund's fee and expense structure to Franklin Park-managed vehicles and client accounts. Model Performance is measured in U.S. dollars on an inception to date basis through June 30, 2022.

Model Performance does not consider such terms as may be applicable to the Fund such as management fee offsets, use of credit facilities, or other terms and conditions which may have an impact on performance results.

Model Performance is hypothetical performance. Hypothetical performance results have inherent limitations and no representation is being made that any Franklin Park investor, fund, or investment portfolio will or is likely to achieve profits similar to those shown. There will be differences between hypothetical performance and actual results achieved. Hypothetical performance is for illustrative purposes only and does not reflect the actual returns of any Franklin Park investor, Fund, or investment portfolio. Additional information on the risks and limitations of using model performance calculations in making investment decisions is available upon request.

## Footnotes

Corporate Finance Track Record (p.13):

Other Relevant Portfolio (the "OR Portfolio") represents a hypothetical composite portfolio of U.S. private equity fund commitments made on behalf of Franklin Park's discretionary client accounts (excluding CF Access Fund I), with fund sizes of \$1.0 billion or less in corporate finance strategies with Vintage Years 2010-2022. The OR Portfolio performance information is provided to illustrate Franklin Park's experience investing in funds that are consistent with the Fund's strategy. The hypothetical performance as presented is from more than one portfolio and may not be a meaningful comparison for a single investment fund due to a variety of reasons including vehicle specific investment criteria, diversification, investment allocation, risk, time horizon, leverage, certain commingled fund expenses and market conditions. The performance information is for illustrative purposes only and may not be a meaningful indicator of the Fund's performance.

ROI and Gross IRR of the OR Portfolio are based on the actual Gross Activity of Franklin Park's discretionary client accounts in U.S. Dollars since inception (December 23, 2010) through June 30, 2022. TVPI and Net IRR of the OR Portfolio are calculated using Model Performance as described above based on the highest anticipated fee and expense structure of the Fund. No individual investor received the performance results presented. Additional information on the use of hypothetical performance calculations in making investment decisions is available upon request.

CF Access Fund I invests in U.S. corporate finance focused private funds of about \$1 billion in size or less. ROI and Gross IRR are based on FP CF Access I's Gross Activity in U.S. Dollars since inception (October 15, 2019) through June 30, 2022.

TVPI and Net IRR of CF Access Fund I reflect ATRS's interest only as of June 30, 2022, based on the management fee and carried interest terms specific to ATRS's interest in CF Access Fund I. .

## Franklin Park Associates, LLC

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Bala Cynwyd, PA 19004

For more information, please contact us at [info@franklinparkllc.com](mailto:info@franklinparkllc.com)

Franklin Park Associates, LLC is an SEC registered investment advisor pursuant to the Investment Advisors Act of 1940

**ARKANSAS TEACHER RETIREMENT SYSTEM  
1400 West Third Street  
Little Rock, Arkansas 72201**

**RESOLUTION  
No. 2022-58**

**Approving Additional Investment in Franklin Park Corporate  
Finance Access Fund II, L.P.  
with Imminent Need**

**WHEREAS**, the Board of Trustees (Board) of the Arkansas Teacher Retirement System (ATRS) is authorized to invest and manage trust assets for the benefits of its plan participants; and

**WHEREAS**, the ATRS Board has reviewed the recommendation of its private equity consultant, Franklin Park Associates, LLC, along with the recommendation of the Investment Committee and ATRS staff regarding a potential additional investment in **Franklin Park Corporate Finance Access Fund II, L.P.**, a fund of funds managed by Franklin Park investing in smaller buyout, growth and turnaround private equity funds.

**WHEREAS**, the ATRS Board approves an additional investment of up to **\$30 million dollars (\$30,000,000.00)** in **Franklin Park Corporate Finance Access Fund II, L.P.**, and the Board, after its review of the timing in which the closing of the investment in **Franklin Park Corporate Finance Access Fund II, L.P.** may need to occur, has determined that there is an imminent need to immediately enter into the partial equity ownership agreement prior to the next scheduled meeting of the Arkansas Legislative Council. The Board also deems it financially appropriate to enter into the partial equity ownership agreement and concludes that to forego the opportunity to promptly implement its investment directives under the prudent investor rule would be inconsistent with its fiduciary duty of care to the members and annuitants;

**NOW, THEREFORE, BE IT RESOLVED**, that the ATRS Board approves an additional investment of up to **\$30 million dollars (\$30,000,000.00)** in **Franklin Park Corporate Finance Access Fund II, L.P.** and agrees to immediately move to close and subscribe the approved ATRS limited partnership interest in **Franklin Park Corporate Finance Access Fund II, L.P.** The total investment amount is to be determined by the private equity consultant and

ATRS staff based upon the allocation available to ATRS and the overall investment objectives set by the Board; and

***FURTHER, BE IT RESOLVED***, that the ATRS staff is hereby authorized to take all necessary and proper steps to implement this investment using the Imminent Need process, if acceptable terms are reached.

**Adopted this 5th day of December 2022**

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**Mr. Danny Knight, *Chair***  
**Arkansas Teacher Retirement System**

# **ATRS Board Policy 3 EXECUTIVE DIRECTOR**

A.C.A. § 24-7-303

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## **I. Board - Executive Director Relationship A. Employment of Executive Director**

Employment of the Executive Director will be by the Board.

1. Employment will be based on the Board's judgment that a candidate's knowledge, skill, and character would indicate reasonable assurance of excellent performance.
2. Criteria will be based on:
  - a. General characteristics set forth by the Board to predict successful Executive Director performance, and
  - b. Specific characteristics set forth by the Board to predict successful Executive Director performance in view of the Retirement System's strategic challenges in the future.
3. Prior to selecting an Executive Director, the Board will make explicit provisions for:
  - a. Providing notice of the vacancy,
  - b. Screening nominations or applications, and
  - c. The selection process.

## **B. Executive Director's Job Description**

1. The Executive Director is the Board's official link to the operation of the Retirement System. The Executive Director is accountable for all organizational performance and entitled to exercise all authority delegated by official Board action.
2. The Executive Director's job description may be stated as performance in these areas:
  - a. Organizational accomplishment of the provisions of ATRS Board Policy 2 - Board Objectives.
  - b. Organizational operation within the boundaries of prudence and ethics established in Board policies on Executive Director Limitations.
  - c. Serving as secretary to the Retirement Board and an ex officio

nonvoting member of its committees and maintaining an accurate record of the proceedings.

- d. Serving as liaison between the (a) Actuary, (b) Investment Consultants, and (c) Investment Managers and the Retirement Board, helping to interpret the intent of the Board to the consultants, and coordinating their reports and recommendations to the Board.

### C. Delegation to the Executive Director

Authority for implementing policy and the development of supporting procedures is delegated to the Executive Director.

1. The waiver of a deadline is an exclusive remedy of the Board. However, the authority to extend a deadline before the deadline has passed is delegated to the Executive Director when an extension by the system is permitted under the Arkansas Code.

4.2. All Board authority delegated to staff is delegated through the Executive Director, so that all authority and accountability of staff is considered to be within the authority and accountability of the Executive Director.

2.3. Board Objectives policies direct the Executive Director to achieve certain results; Executive Director Limitations policies constrain the Executive Director to act within Board adopted policies, legal requirements, and acceptable boundaries of prudence and ethics. With respect to Board Objectives and Executive Director Limitations, the Executive Director is authorized to establish further procedures, make decisions, and take actions provided they are consistent with Board policies.

3.4. The Board may change its policies, thereby shifting the boundary between the Board and the Executive Director domains. The Board and Executive Director will respect and support the parameters of delegation as they exist and as they may be changed in the future.

### D. Monitoring Executive Performance

Monitoring executive performance is synonymous with monitoring organizational performance against policies on Board Objectives and Executive Director Limitations. Any evaluation of Executive Director performance, formal or informal, may be derived only from these monitoring data.

1. The purpose of monitoring is simply to determine the degree to which Board policies are being fulfilled. Information that does not meet this purpose will not be considered to be monitoring. Monitoring will be as

automatic as possible, using a minimum of Board time so that meetings can be used to create the future rather than to review the past.

2. A given policy may be monitored in one or more of three ways:
  - a. Internal Report: Compliance information prepared by the Executive Director for the Board.
  - b. External Report: Compliance information prepared by a disinterested, external auditor, inspector, or consultant who is selected by and reports directly to the Board. Such reports must assess executive performance only against policies of the Board, not those of the external party unless the Board has previously indicated that party's opinion to be the standard.
  - c. Direct Board Inspection: Compliance information prepared by a Board member, a committee, or the Board as a whole. This is a Board inspection of documents, activities, or circumstances directed by the Board that allows a "prudent person" test of policy compliance.
  
3. Upon the choice of the Board, any policy may be monitored by any method at any time. For regular monitoring, however, each Board Objectives and Executive Director Limitations policy will be classified by the Board according to the following frequency and method:

**Ends Policies - Financial Perspective**

<i><b>Policy</b></i>	<i><b>Method</b></i>	<i><b>Responsibility</b></i>	<i><b>Frequency</b></i>	<i><b>Month Expected</b></i>
Sustain actuarial soundness	External Report	Actuary	Annual	Dec.
Manage contributions effectively	Internal Report	Executive Director	Annual	June
Maximize investment returns	External Report	Investment Consultant	Quarterly	Apr., July, Oct., Jan.
Ensure budget credibility	Internal Report	Executive Director	Annual	June

**Ends Policies - Customer Perspective**

<i><b>Policy</b></i>	<i><b>Method</b></i>	<i><b>Responsibility</b></i>	<i><b>Frequency</b></i>	<i><b>Month Expected</b></i>
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Promote comparable contribution rates, benefits and services	Internal Report	Executive Director	Annual	June
Increase awareness of trust fund stewardship	Internal Report/ External Audit Report	Executive Director/ Independent Auditor	Annual	June
Promote retirement education and communications	Internal Report	Executive Director	Annual	June
Improve overall service level	Internal Report	Executive Director	Annual	June

**Ends Policies - Internal-Business Process Perspective**

<b><i>Policy</i></b>	<b><i>Method</i></b>	<b><i>Responsibility</i></b>	<b><i>Frequency</i></b>	<b><i>Month Expected</i></b>
Administer retirement laws timely, accurately and consistently	Internal Audit Report	Internal Auditor	Annual	June
Provide member benefits and services (1) at a level that promote member satisfaction and (2) in a cost effective manner	Internal Report	Executive Director	Annual	June
Process improvement	Internal Report	Executive Director	Annual	June
Effectively manage new projects and initiatives	Internal Report	Executive Director	Annual	June
Promote effective communication	Internal Report	Executive Director	Annual	June

**Ends Policies - Learning and Growth Perspective**

<b><i>Policy</i></b>	<b><i>Method</i></b>	<b><i>Responsibility</i></b>	<b><i>Frequency</i></b>	<b><i>Month Expected</i></b>
Foster a positive, innovative work environment	Internal Report	Executive Director	Annual	June

Employ and retain highly capable employees	Internal Report	Executive Director	Annual	June
Recruit and retain a diverse work force	Internal Report	Executive Director	Annual	June
Enhance training and development opportunities	Internal Report	Executive Director	Annual	June

**Ends Policies - Executive Director Limitations**

<i><b>Policy</b></i>	<i><b>Method</b></i>	<i><b>Responsibility</b></i>	<i><b>Frequency</b></i>	<i><b>Month Expected</b></i>
General Executive Constraints	Internal Report	Executive Director	Annual	June
Communication and Counsel to the Board	Direct Board Inspection	Board	Annual	June
Code of Ethics	Internal Report	Executive Director	Annual	June
Compensation and Benefits	Internal Audit Report	Internal Auditor	Annual	June
Staff Treatment	Internal Report	Executive Director	Annual	June
Operations	Internal Report	Executive Director	Annual	June
Risk Management	Internal Report	Executive Director	Annual	June

\* Each Regular Session of the Arkansas General Assembly, all actuarial census data is sent to an independent actuary hired by the State Legislature for use in reviewing the system and preparing cost analysis reports for legislation affecting ATRS.

**II. Executive Director Limitations A. General Executive Constraints**

The Executive Director shall not cause or allow any acts, decisions, activities, or circumstances that are imprudent, in violation of commonly accepted business and professional ethics, or a breach of fiduciary responsibility.

**1. Communication and Counsel to the Board**

With respect to providing information and counsel to the Board, the Executive Director may not permit the Board to be uninformed. Accordingly, the Executive Director may not:

- a. Let the Board be unaware of relevant trends, anticipated adverse media coverage, and material external or internal changes, particularly changes in the assumptions upon which any Board policy has previously been established.
- b. Fail to submit the required monitoring data in a timely, accurate, and understandable fashion, directly addressing provisions of the Board policies being monitored. See ATRS Board Policy 3 - Monitoring Executive Performance.
- c. Fail to marshal as many alternatives as needed for fully informed Board choices.
- d. Fail to provide requested information that would assist the Actuary, Investment Consultant, and Real Estate Manager in their efforts to make reports and recommendations directly to the Board without modification.
- e. Present information in unnecessarily complex or lengthy form.
- f. Fail to provide a mechanism for official Board, officer, or committee communications.
- g. Fail to deal with the Board as a whole, except for fulfilling individual requests for information.
- h. Fail to report actual or anticipated noncompliance with any policy of the Board.

**B. Code of Ethics**

The Executive Director may not fail to require employees of the Retirement System to adhere to an appropriate code of ethics that will assure:

- 1. Confidentiality of member records.
- 2. No conflict of interest, or appearance thereof, with respect to their fiduciary responsibilities.
- 3. Adherence to applicable professional codes of ethics and standards of professional conduct.
- 4. No solicitation or acceptance of gifts, favors, or other items of value as defined by the Arkansas Ethics Commission.
- 5. No ATRS associate shall participate in any activities regarding the candidacy of any person for a position as a Board member or officer of the Board.

### **C. Compensation and Benefits**

With respect to employment, compensation, and benefits to employees, consultants, contract workers, and volunteers, the Executive Director may not cause or allow jeopardy to fiscal integrity or public image.

Accordingly, the Executive Director may not:

1. Change their own compensation and benefits.
2. Promise or imply permanent or guaranteed employment within ATRS or through its investments or contractors.
3. Establish compensation or benefits for ATRS employees that are not within state-approved salary schedules or benefit provisions.
4. Promote, hire, terminate, or change the assignment of regular, full-time personnel for positions classified under the Arkansas Uniform Classification and Compensation Act (A.C.A. § 21-5-201 et seq.) as SE1, IT5, GS9, or higher, or persons designated as a part of the senior management team, without prior notification to the Board Chair.

### **D. Operations**

Budgeting for any fiscal period shall not deviate materially from priorities in the Board Objectives policies, risk fiscal jeopardy, or fail to show a generally acceptable level of foresight. The proposed biennial budget shall be presented to the Board for review and approval prior to its submission to the General Assembly for adoption.

1. Accordingly, the Executive Director may not cause or allow budgeting that:
  - a. Contains too little detail to enable accurate projection of revenues and expenses, separation of capital and operational items, cash flow and subsequent audit trails, and disclosure of planning assumptions.
  - b. Does not provide for Board prerogatives and Board development.
  - c. With respect to the actual, ongoing condition of the Retirement System's operating budget, the Executive Director may not cause or allow the development of financial jeopardy.
2. Accordingly, the Executive Director may not:
  - a. Allow tax payments or other government-ordered payments or filings to be overdue or inaccurately filed.
  - b. Allow actual operating budget allocations to deviate materially from Board priorities in Ends policies.

- c. Fail to promulgate procedures to assure an equitable and open system of awarding contracts to providers of contractual and consultant services.
- d. Fail to establish and maintain a System of internal controls designed to assure that the policies and procedures of the Retirement System are being followed and that assets belonging to ATRS are properly received, are protected while in the custody of ATRS, are used only for appropriate purposes, and reduce the opportunity for errors and dishonesty.

#### **E. Staff Treatment**

The Executive Director may not cause or allow conditions that are inhumane, unfair, or undignified. Accordingly, the Executive Director may not:

1. Discriminate among employees on other than clearly job-related individual performance or qualifications.
2. Employ or promote a family member.
3. Adversely affect the stability of the staff or terminate senior executives without previous discussion with the Board.
4. Fail to take reasonable steps to protect employees from unsafe or unhealthy conditions.

#### **F. Risk Management 1. Emergency Executive Succession**

To protect the Board from sudden loss of Executive Director services, the Executive Director shall assure that at least one other senior executive is familiar with Board and Executive Director issues and processes.

##### **2. Business Continuity Planning**

The Executive Director may not fail to have a Business Continuity Plan, in place and tested, to assure that the critical business processes of the Retirement System (i.e., the payment of monthly benefits and the investment and protection of assets) can continue notwithstanding the loss of use of all or part of the home office or computer facilities.

##### **3. Asset Protection**

The Executive Director may not allow assets to be unprotected, inadequately maintained, or unnecessarily risked as would be determined by a prudent person.

Accordingly, the Executive Director may not:

- a. Allow uninsured personnel access to material amounts of funds.
- b. Subject physical plant and equipment to improper wear and tear or insufficient maintenance.
- c. Unnecessarily expose the Board, employees, or the Retirement System to claims of liability.
- d. Receive, process, or disburse funds under controls insufficient to meet the Board-appointed auditor's standards.
- e. Acquire, encumber, or dispose of real property without Board authorization.
- f. May not allow investment assets to be unprotected. Such protection shall include:
  - i. Timely deposit of cash as provided for by law and Board policy.
  - ii. Transfer of securities to the State Treasurer or the Treasurer's designated subcustodian for safekeeping.
- g. Allow investment assets to be unprotected through the failure to have a well-qualified and trained staff.

#### 4. **Insurance**

The Executive Director may not allow the Retirement System to be uninsured against known perils. Accordingly, insurance policies will be maintained with coverages that would be considered prudent in the following areas:

- a. Facility Liabilities
- b. Crime
- c. Difference in Conditions
- d. Directors and Officers
- e. Fiduciary
- f. General Liability
- g. Kidnap, Ransom, and Extortion
- h. Pollution Legal Liability
- i. Property
- j. Surety Bonds
- k. Travel Accident

## HISTORY

Adopted: April 26, 2007 as Rule 3-1 through 3-11

Amended: June 19, 2007

Amended: December 18, 2009

Amended: October 4, 2010

Amended: April 12, 2012

Amended: June 3, 2019 as Board Policy 3

Amended: December 6, 2021

Amended: December 5, 2022



November 18, 2022

Mr. Curtis Carter  
Chief Fiscal Officer  
Arkansas Teacher Retirement System  
1400 West Third Street  
Little Rock, Arkansas 72201

**Re: Potential Repeal of Outsourcing Surcharge**

Dear Mr. Carter:

A.C.A. §24-7-506 describes provisions related to outsourcing and, in particular, the outsourcing surcharge which has now reached its maximum statutory level of 4% of outsourced payroll for surcharge employers. You have asked us for an actuarial analysis of the effect of repealing this provision. In preparing our analysis, we have assumed that the repeal would apply to the surcharge only and that all other provisions of A.C.A. §24-7-506 would remain in place.

You have indicated that surcharge revenue in Fiscal 2022 was \$3,545,453.81 and that surcharge revenue at that level would correspond to payroll of \$88,636,345, which is approximately 3% of total covered payroll. You have asked us to prepare our analysis assuming that surcharge revenue would otherwise remain at that approximate level going forward.

Based on the current (June 30, 2022) amortization period of 26 years and the current actuarial assumptions of 7.25% return and 2.75% payroll increases, the surcharge revenue would have a present value of approximately \$55 Million over the 26-year amortization period. Loss of this revenue would result in an approximate half-year increase in the amortization period. The effect would not be seen all at once. The effect would emerge very slowly over time and may not be noticeable in any particular year.

In a system such as ATRS that has both an unfunded liability and a statutory fixed contribution rate, outsourcing can have a detrimental effect on the operation of the system. Outsourcing reduces the covered payroll and, since the contribution rate is fixed, it also reduces the contributions that are available to fund the unfunded accrued liabilities of the system.

Repeal of the surcharge will make outsourcing more attractive than it otherwise would be. In addition to losing the \$3.5 Million in annual revenue, it is possible that the amount of outsourcing currently occurring will increase, which would lead to a decrease in covered payroll. As discussed above, this would reduce the contributions available to fund the unfunded liability. There is no data with which to estimate the potential amount, if any, of such a covered payroll decrease. By way of example, though, based upon the June 30, 2022 results, a 5% reduction in covered payroll would lead to an approximate 3-year increase in the amortization period.

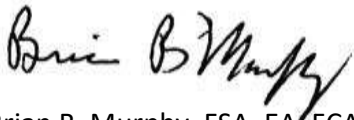


Mr. Curtis Carter  
Arkansas Teacher Retirement System  
November 18, 2022  
Page 2

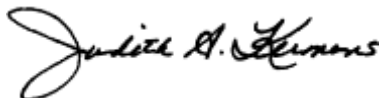
This communication shall not be construed to provide tax advice, legal advice or investment advice. The signing actuaries are independent of the plan sponsor. All of the undersigned are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

If you have any questions regarding this information, please call.

Sincerely,  
Gabriel, Roeder, Smith & Company



Brian B. Murphy, FSA, EA, FCA, MAAA, PhD



Judith A. Kermans, EA, FCA, MAAA



Heidi G. Barry, ASA, FCA, MAAA

BBM/JAK/HGB:dj

cc: Clint Rhoden, ATRS  
Derek Henning, GRS



1 State of Arkansas  
2 91st General Assembly  
3 Regular Session, 2017  
4  
5 By: Representative Rye  
6

As Engrossed: H3/2/17  
**A Bill**

HOUSE BILL 1287

7  
8 **For An Act To Be Entitled**

9 AN ACT TO PROVIDE CERTAIN EMPLOYERS WITH THE OPTION  
10 TO PAY A SURCHARGE FOR *EMBEDDED* EMPLOYEES IN LIEU OF  
11 MEMBERSHIP IN THE ARKANSAS TEACHER RETIREMENT SYSTEM;  
12 TO DECLARE AN EMERGENCY; AND FOR OTHER PURPOSES.  
13

14 **Subtitle**

15 TO PROVIDE CERTAIN EMPLOYERS WITH THE  
16 OPTION TO PAY A SURCHARGE FOR *EMBEDDED*  
17 EMPLOYEES IN LIEU OF MEMBERSHIP IN THE  
18 ARKANSAS TEACHER RETIREMENT SYSTEM; AND  
19 TO DECLARE AN EMERGENCY.  
20

21  
22 BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:  
23

24 *SECTION 1. Arkansas Code § 24-7-202(17), concerning the definition of*  
25 *"employment in a school" under the Arkansas Teacher Retirement System Act, is*  
26 *amended to add an additional subdivision to read as follows:*

27 *(G) Employment with a covered employer that elects to*  
28 *treat embedded employees of a contractor as members of the system;*  
29

30 *SECTION 2. Arkansas Code Title 24, Chapter 7, Subchapter 5, is amended*  
31 *to add an additional section to read as follows:*

32 *24-7-506. Outsourcing – Election to participate – Definitions.*

33 *(a) As used in this section:*

34 *(1)(A) "Covered employer" means any public school, public*  
35 *educational agency, or other eligible employer participating in the Arkansas*  
36 *Teacher Retirement System;.*



1 (B) "Covered employer" does not include a nonmandatory  
2 employer or a PSHE employer as defined under § 24-7-1602;

3 (2)(A) "Embedded employee" means a person who:

4 (i) Provides an outsourced service on the premises  
5 of a covered employer; and

6 (ii) Is employed and paid by an outsource  
7 contractor.

8 (B) "Embedded employee" does not include a person who is  
9 employed by:

10 (i) A covered employer listed under § 24-7-202; or

11 (ii) An employer that offers the Arkansas Teacher  
12 Retirement System as an optional retirement plan as of the date of  
13 outsourcing;

14 (3) "Outsource" or "outsourcing" means the use of a contractor  
15 by a covered employer for the performance of a service common to the normal  
16 daily operation on the premises of the covered employer;

17 (4) "Outsource contractor" means a person who is contractually  
18 obligated under an outsourcing agreement to provide a covered employer with a  
19 service common to the normal daily operation of the covered employer;

20 (5) "Participating employer" means a covered employer that  
21 outsources and opts for the embedded employees of all of its outsource  
22 contractors to become members of the Arkansas Teacher Retirement System;

23 (6)(A) "School nursing" means a nursing service that is required  
24 to be offered in a public school under § 6-18-706 or the Standards for  
25 Accreditation of Arkansas Public Schools and School Districts.

26 (B) "School nursing" does not include nursing services  
27 provided by a:

28 (i) School-based health clinic under § 6-18-703;

29 (ii) Medical clinic operated on a public school  
30 campus by a hospital or physician's office that is under contract with the  
31 public school;

32 (iii) Healthcare provider other than a nurse; or

33 (iv) Healthcare service reimbursed or paid for by  
34 Medicaid, Medicare, health insurance, or any other third-party payer;

35 (7) "Service common to the normal daily operation" means and is  
36 limited to a service that:

1 (A) Is provided by an outsource contractor or embedded  
2 employee to a covered employer;

3 (B) Is physically provided or based on the premises of a  
4 covered employer;

5 (C) Is paid for with public funds and not with private  
6 grant funds; and

7 (D) Consists of one (1) or more of the following:

8 (i) The maintenance and operation of:

9 (a) One (1) or more vehicles used for the  
10 regular and daily transport of passengers; and

11 (b) A facility that provides support for the  
12 maintenance and operation of one (1) or more vehicles described under  
13 subdivision (a)(7)(D)(i)(a) of this section;

14 (ii) The maintenance and operation of a cafeteria or  
15 other food service operation;

16 (iii) Custodial or maintenance services for the  
17 regular and continuous maintenance, repair, and upkeep of grounds or  
18 facilities;

19 (iv) Security services that are not covered by  
20 another retirement system;

21 (v) School nursing;

22 (vi) Substitute teaching; or

23 (vii) Service as a teacher's aide; and

24 (8) "Surcharge employer" means a covered employer that  
25 outsources and pays a surcharge to the Arkansas Teacher Retirement System in  
26 lieu of opting for the embedded employees of outsource contractors to accrue  
27 service credit in the Arkansas Teacher Retirement System.

28 (b) A covered employer that enters into an agreement to outsource a  
29 service common to the normal daily operation shall make an irrevocable  
30 election to be either a participating employer or a surcharge employer within  
31 sixty (60) days of the outsourcing agreement on a form provided by or in a  
32 manner established by the Arkansas Teacher Retirement System.

33 (c)(1) If a covered employer elects to become a surcharge employer  
34 under this section, then the covered employer shall account for and remit to  
35 the Arkansas Teacher Retirement System a monthly surcharge on the total  
36 salaries paid to all the embedded employees on an aggregate basis as follows:

1 (A) Five-tenths of one percent (0.5%) during the 2018  
2 fiscal year;

3 (B) One percent (1%) during the 2019 fiscal year;

4 (C) Two percent (2%) during the 2020 fiscal year;

5 (D) Three percent (3%) during the 2021 fiscal year; and

6 (E) An amount not to exceed four percent (4%) during the  
7 2022 fiscal year and succeeding fiscal years as established by a resolution  
8 of the Board of Trustees of the Arkansas Teacher Retirement System at a  
9 meeting of the board.

10 (2) If the covered employer is outsourcing on the effective date  
11 of this act, the surcharge shall be payable beginning in the 2018 fiscal  
12 year.

13 (3) A surcharge adopted by the board applies to an entire fiscal  
14 year and shall be adopted prior to the beginning of the fiscal year.

15 (d) If a covered employer elects to become a participating employer as  
16 provided under this section, then the covered employer shall account for and  
17 remit each of the covered employer's contributions in the same amount and in  
18 the same manner as required for covered employer contributions under § 24-7-  
19 401 and member contributions under § 24-7-406.

20 (e)(1)(A) A covered employer that begins outsourcing after the  
21 effective date of this act and elects to become a participating employer may  
22 phase-in the election by selecting an effective date that is no later than  
23 the beginning of the third fiscal year after the effective date of the  
24 outsourcing agreement.

25 (B) During the phase-in of becoming a participating  
26 employer, the covered employer shall account for and remit a phase-in  
27 surcharge in the same amount and manner required of a surcharge employer  
28 under subsection (c) of this section.

29 (2)(A) If a covered employer is outsourcing on the effective  
30 date of this act and the covered employer elects to become a participating  
31 employer, then the covered employer may phase-in the election by selecting an  
32 effective date that is no later than the beginning of the fourth fiscal year  
33 after the effective date of this act.

34 (B) During the phase-in of becoming a participating  
35 employer, the covered employer shall account for and remit a phase-in  
36 surcharge in the same amount and manner as required of a surcharge employer

1 under subsection (c) of this section.

2 (f)(1) The Arkansas Teacher Retirement System may require a covered  
3 employer that makes an election under this section to provide any  
4 documentation necessary to collect and account for the surcharge or  
5 contributions as is consistent with the covered employer's election.

6 (2) The Arkansas Teacher Retirement System may collect an  
7 unremitted surcharge amount due, including interest, from a surcharge  
8 employer under § 24-7-401 or contribution due from a participating employer  
9 under § 24-7-406 in any manner allowed by law.

10 (3) If a covered employer reasonably accepts a written statement  
11 from an outsource contractor reporting the salaries paid by the outsource  
12 contractor to embedded employees for services common to the normal daily  
13 operation of the covered employer, it shall be conclusively presumed that the  
14 written statement accurately reflects the salaries subject to surcharge under  
15 this section.

16 (g)(1) A covered employer or an outsource contractor may request a  
17 determination from the Arkansas Teacher Retirement System as to whether an  
18 embedded employee performs or will perform a service common to the normal  
19 daily operation of a covered employer.

20 (2) A request made under subdivision (g)(1) of this section  
21 shall include:

22 (A) Information about the employment relationship and  
23 contract provisions that are necessary for the Arkansas Teacher Retirement  
24 System to evaluate the service provided to the covered employer; and

25 (B) Any additional information requested by the Arkansas  
26 Teacher Retirement System to make the determination.

27 (3) The board may promulgate rules necessary to administer this  
28 section.

29 (h)(1) The Division of Youth Services Education System shall be a  
30 participating employer and may designate any or all of its embedded employees  
31 as eligible for membership in the Arkansas Teacher Retirement System.

32 (2) An embedded employee of a contractor for the Division of  
33 Youth Services Education System who becomes a member of the Arkansas Teacher  
34 Retirement System shall remain a member of the Arkansas Teacher Retirement  
35 System as long as the member remains an embedded employee of a contractor for  
36 the Division of Youth Services Education System.



## Outsourcing Discussion (Act 575 of 2017)

### Background

Act 575 of 2017 instituted a surcharge on outsourced services utilized by ATRS employers. This legislation was proposed by staff and approved by the ATRS Board of Trustees in response to a trend within public schools of outsourcing support employee jobs to third party contractors (i.e. substitute teachers, custodial, food service, etc.). Once enacted, the legislation provided for the following surcharge rates:

FY2018	0.5%
FY2019	1.0%
FY2020	2.0%
FY2021	3.0%
FY2022 and beyond (established by Board resolution)	4.0%

Cost studies were conducted by both Gabriel Roeder Smith (ATRS actuary) and Osborn, Carreiro & Associates (Actuary for the Arkansas General Assembly). Based upon assumptions that approximately \$60 million in covered payroll was being lost to outsourcing, GRS estimated that a surcharge of up to 4% would reduce the amortization period by about 5 to 7 months. Act 575 of 2017 became effective August 1, 2017 whereupon employers began remitting surcharges to ATRS.

### Financial Overview

A financial overview of the impact Act 575 has had over the last 5 fiscal years is presented below

Fiscal Year	Revenue	Surcharge %	Estimated Covered Payroll
FY2018	\$331,602	0.5%	\$66.3 million
FY2019	\$783,226	1.0%	\$78.3 million
FY2020	\$1,331,406	2.0%	\$66.5 million
FY2021	\$2,208,457	3.0%	\$73.6 million
FY2022	\$3,545,454	4.0%	\$88.6 million
<b>Total</b>	<b>\$8,200,145</b>		<b>\$373.3 million</b>

As observed in the table above, the past 5 fiscal years have shown an increase in outsourced activity with the exception of FY2020 which was most certainly affected by the COVID 19 pandemic. Even with the increases noted, it would be difficult to definitively project any trends given the pandemic's effect on not only FY2020 but subsequent fiscal years.

For FY2022, ATRS collected surcharge payments from 217 employers ranging from \$8.91 to \$366,521.76. The law as written does not give ATRS nor employers the option of not remitting nominal surcharge amounts.



## **Feedback**

To better serve employers ATRS asked for feedback concerning both thoughts on surcharge in general and the actual reporting process.

All responding employers indicated no issues with the reporting process. However, districts indicated an issue with information provided by their food service vendor. The law only requires surcharge be remitted on outsourced salary. Billings from food service vendors will contain charges for salaries, food, administrative costs, etc. The employer indicated their vendor was no longer providing charges itemized by category leaving the employer to use an estimate for salary.

As for the surcharge in general, some indicated the surcharge amounts were not a hardship while others noted the amounts could be spent elsewhere such as additional positions or in the classroom.

## **Questions/Points for the Board to Consider**

1. Does the surcharge act as a true deterrent to outsourced services?
2. Does the current surcharge rate adequately offset the negative impact of outsourcing?
3. Would the funds being remitted to ATRS in the form of surcharges be better utilized at the employer level?
4. GRS has estimated an increase of approximately 6 months to the amortization period if surcharge is repealed. The GRS analysis is included.
5. In lieu of repeal, the Board has the option to set any rate up to 4%. Therefore, the Board could set a rate of 0% and keep the law in tact for the future.
6. Potential audit issues exist with surcharge (Both Legislative Audit and Internal Audit have informally inquired about how ATRS monitors the amounts being remitted). As written, the law states ATRS “may require a covered employer... to provide any documentation necessary to collect and account for the surcharge contributions.” ATRS does not required the submission of detailed documentation and to do so would be administratively burdensome for both ATRS and the district and would likely necessitate the need for additional staff.
7. Potential issues going forward if districts have difficulty getting accurate data from vendors to support surcharge remittances (over/under reporting)
8. Has the Board received any feedback concerning the surcharge?

State of Arkansas  
94th General Assembly  
Regular Session, 2023  
By: Senator/Representative

A Bill

SENATE/HOUSE BILL

**For An Act To Be Entitled**

AN ACT CONCERNING OUTSOURCING UNDER THE ARKANSAS  
TEACHER RETIREMENT SYSTEM; TO DECLARE AN EMERGENCY;  
AND FOR OTHER PURPOSES.

**Subtitle**

CONCERNING OUTSOURCING UNDER THE ARKANSAS  
TEACHER RETIREMENT SYSTEM; AND TO DECLARE  
AN EMERGENCY.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Arkansas Code § 24-7-506 is amended to read as follows:

24-7-506. Outsourcing — Election to participate — Definitions.

(a) As used in this section:

(1)(A) “Covered employer” means any public school, public educational agency, or other eligible employer participating in the Arkansas Teacher Retirement System.

(B) “Covered employer” does not include a nonmandatory employer or a PSHE employer as defined under § 24-7-1602;

(2)(A) “Embedded employee” means a person who:

- (i) Provides an outsourced service on the premises of a covered employer; and
- (ii) Is employed and paid by an outsource contractor.

(B) “Embedded employee” does not include a person who is employed by:

- (i) A covered employer listed under § 24-7-202; or
- (ii) An employer that offers the Arkansas Teacher Retirement System as an

optional retirement plan as of the date of outsourcing;

(3) “Outsource” or “outsourcing” means the use of a contractor by a covered employer for the performance of a service common to the normal daily operation on the premises of the covered employer;

(4) “Outsource contractor” means a person who is contractually obligated under an outsourcing agreement to provide a covered employer with a service common to the normal daily operation of the covered employer;

(5) “Participating employer” means a covered employer that outsources and opts for the embedded employees of all ~~of its~~ the covered employer’s outsource contractors to become members of the Arkansas Teacher Retirement System;

(6)(A) “School nursing” means a nursing service that is required to be offered in a public school under § 6-18-706 or the Standards for Accreditation of Arkansas Public Schools and School Districts.

(B) “School nursing” does not include nursing services provided by a:

- (i) School-based health clinic under § 6-18-703;
- (ii) Medical clinic operated on a public school campus by a hospital or

physician's office that is under contract with the public school;

- (iii) Healthcare provider other than a nurse; or

(iv) Healthcare service reimbursed or paid for by Medicaid, Medicare, health insurance, or any other third-party payer;

(7) "Service common to the normal daily operation" means and is limited to a service that:

(A) Is provided by an outsource contractor or embedded employee to a covered employer;

(B) Is physically provided or based on the premises of a covered employer;

(C) Is paid for with public funds and not with private grant funds; and

(D) Consists of one (1) or more of the following:

(i) The maintenance and operation of:

(a) One (1) or more vehicles used for the regular and daily transport of passengers; and

(b) A facility that provides support for the maintenance and operation of one (1) or more vehicles described under subdivision (a)(7)(D)(i)(a) of this section;

(ii) The maintenance and operation of a cafeteria or other food service operation;

(iii) Custodial or maintenance services for the regular and continuous maintenance, repair, and upkeep of grounds or facilities;

(iv) Security services that are not covered by another retirement system;

(v) School nursing;

(vi) Substitute teaching; or

(vii) Service as a teacher's aide; and

(8) "Surcharge employer" means a covered employer that outsources and pays a surcharge to the Arkansas Teacher Retirement System ~~in lieu of opting for the embedded employees of outsource contractors to accrue service credit in the Arkansas Teacher Retirement System.~~

(b) A covered employer that enters into an agreement to outsource a service common to the normal daily operation shall ~~make an irrevocable election to be either a participating employer or become~~ a surcharge employer within sixty (60) days of the outsourcing agreement ~~on a form provided by or in a manner established by the Arkansas Teacher Retirement System.~~

(c)(1) ~~If a covered employer elects to become a surcharge employer under this section, then the covered employer~~ A surcharge employer shall account for and remit to the Arkansas Teacher Retirement System a monthly surcharge of four percent (4%) on the total salaries paid to all the embedded employees on an aggregate basis as follows:

(A) Five tenths of one percent (0.5%) during the 2018 fiscal year;

(B) One percent (1%) during the 2019 fiscal year;

(C) Two percent (2%) during the 2020 fiscal year;

(D) Three percent (3%) during the 2021 fiscal year; and

(E) An amount not to exceed four percent (4%) during the 2022 fiscal year and succeeding fiscal years as established by a resolution of the Board of Trustees of the Arkansas Teacher Retirement System at a meeting of the board.

(2) ~~If the covered employer is outsourcing on August 1, 2017, the surcharge shall be payable beginning in the 2018 fiscal year. The Board of Trustees of the Arkansas Teacher Retirement System may establish by resolution the surcharge rate for any fiscal year succeeding the 2022 fiscal year.~~

(3) A surcharge adopted by the board applies to an entire fiscal year and shall be adopted ~~prior to~~ before the beginning of the fiscal year.

(d) ~~If a covered employer elects to become a participating employer as provided under this section, then the covered employer shall account for and remit each of the covered employer's contributions in the same amount and in the same manner as required for covered employer contributions under § 24-7-401 and member contributions under § 24-7-406.~~

(e)(1)(A) ~~A covered employer that begins outsourcing after August 1, 2017, and elects to become a participating employer may phase in the election by selecting an effective date that is no later than the beginning of the third fiscal year after the effective date of the outsourcing agreement.~~

~~(B) During the phase in of becoming a participating employer, the covered employer shall account for and remit a phase in surcharge in the same amount and manner required of a surcharge employer under subsection (c) of this section.~~

~~(2)(A) If a covered employer is outsourcing on August 1, 2017, and the covered employer elects to become a participating employer, then the covered employer may phase in the election by selecting an effective date that is no later than the beginning of the fourth fiscal year after August 1, 2017.~~

~~(B) During the phase in of becoming a participating employer, the covered employer shall account for and remit a phase in surcharge in the same amount and manner as required of a surcharge employer under subsection (c) of this section.~~

~~(f)(1) The Arkansas Teacher Retirement System may require a covered employer that makes an election under this section surcharge employer to provide any documentation necessary to collect and account for the surcharge or contributions as is consistent with the covered employer's election.~~

~~(2) The Arkansas Teacher Retirement System may shall collect an unremitted surcharge amount due, including interest, from a surcharge employer under § 24-7-401 or contribution due from a participating employer under § 24-7-406 in any manner allowed by law.~~

~~(3) If a covered employer surcharge employer reasonably accepts a written statement from an outsource contractor reporting the salaries paid by the outsource contractor to embedded employees for services common to the normal daily operation of the covered employer surcharge employer, it shall be conclusively presumed that the written statement accurately reflects the salaries subject to surcharge under this section.~~

~~(g)(1) A covered employer or an outsource contractor may request a determination from the Arkansas Teacher Retirement System as to whether an embedded employee performs or will perform a service common to the normal daily operation of a covered employer.~~

~~(2) A request made under subdivision (g)(1) of this section shall include:~~

~~(A) Information about the employment relationship and contract provisions that are necessary for the Arkansas Teacher Retirement System to evaluate the service provided to the covered employer; and~~

~~(B) Any additional information requested by the Arkansas Teacher Retirement System to make the determination.~~

~~(3) The board may promulgate rules necessary to administer this section.~~

~~(h)(1)(g)(1) The Division of Youth Services Education System shall be a participating employer and may designate any or all of its embedded employees as eligible for membership in the Arkansas Teacher Retirement System.~~

~~(2) An embedded employee of a contractor for the Division of Youth Services Education System who becomes a member of the Arkansas Teacher Retirement System shall remain a member of the Arkansas Teacher Retirement System as long as the member remains an embedded employee of a contractor for the Division of Youth Services Education System.~~

~~(i)(h) The use of the terms “employee” and “employer” in this section does not:~~

~~(1) Create or modify an employment relationship between an embedded employee and a covered employer;~~

~~(2) Create, permit, expand, or modify any liability or obligation by a covered employer to an embedded employee; or~~

~~(3) Create, permit, expand, or modify any cause of action by an embedded employee against a covered employer under any employment, labor, civil rights, or other law.~~

SECTION 2. EMERGENCY CLAUSE. It is found and determined by the General Assembly of the State of Arkansas that the operations of a state public retirement system are complex; that the Arkansas Teacher Retirement System must be able to meet the needs of its members as anticipated by the General Assembly; that certain provisions of the Arkansas Teacher Retirement System Act, § 24-7-201 et seq., need immediate revision and updating to address reporting, contribution, and other administrative complexities caused by these provisions and to bring these provisions into conformance with sound public pension policy and actuarial requirements; that the revisions and updates are of great importance to members and covered employers of the Arkansas Teacher Retirement System and to other citizens of the State of Arkansas; that as the Arkansas Teacher Retirement

*This draft is a working document. All information contained herein is subject to change and may differ substantially from the final document. The information contained in this document should not be considered the position or the view of the Board of Trustees of the Arkansas Teacher Retirement System, the staff of the Arkansas Teacher Retirement System, or the Governor.*

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System operates on a fiscal year of July 1 to June 30, a July 1, 2023, effective date is necessary in order to allow the provisions within this act to begin on the first day of the fiscal year and to allow for a structured and proper administration of the procedures referenced in this act; that the updates and revisions to the Arkansas Teacher Retirement System Act are of great importance and necessary for protecting member benefits and clarifying the reporting and contribution requirements of employers participating in the Arkansas Teacher Retirement System; and that this act is necessary in order to maintain an orderly system of benefits for the members of the Arkansas Teacher Retirement System. Therefore, an emergency is declared to exist and this act being immediately necessary for the preservation of the public peace, health, and safety shall become effective on July 1, 2023.

State of Arkansas  
94th General Assembly  
Regular Session, 2023  
By: Senator/Representative

A Bill

SENATE/HOUSE BILL

**For An Act To Be Entitled**

AN ACT TO REPEAL THE LAW CONCERNING OUTSOURCING UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM; TO INCLUDE THE DIVISION OF YOUTH SERVICES EDUCATION SYSTEM AS A COVERED EMPLOYER; TO DECLARE AN EMERGENCY; AND FOR OTHER PURPOSES.

**Subtitle**

TO REPEAL THE LAW CONCERNING OUTSOURCING UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM; TO INCLUDE THE DIVISION OF YOUTH SERVICES EDUCATION SYSTEM AS A COVERED EMPLOYER; AND TO DECLARE AN EMERGENCY.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Arkansas Code § 24-7-202(19)(G), concerning definitions applicable to the Arkansas Teacher Retirement System, is amended to read as follows:

~~(G)(i) Employment with a covered employer that elects to treat embedded employees of a contractor as members of the system; Employment in a position as an embedded employee of an outsource contractor for the Division of Youth Services Education System if:~~

(a) The Division of Youth Services Education System elects to participate in the Arkansas Teacher Retirement System;

(b) The board determines pursuant to rules adopted by the board that the participation of the Division of Youth Services Education System will not impair in any way:

(1) Impair in any way any legal status of the Arkansas Teacher Retirement System, including without limitation the Arkansas Teacher Retirement System's status as a governmental plan under the Internal Revenue Code of 1986 and the Employee Retirement Income Security Act of 1974; or

(2) Have a substantial adverse impact on the actuarial soundness of the Arkansas Teacher Retirement System;

(c) The Division of Youth Services Education System designates one (1) or more embedded employees as eligible to participate in the Arkansas Teacher Retirement System; and

(d) The embedded employee designated by the Division of Youth Services Education System as eligible to participate in the Arkansas Teacher Retirement System elects to become a member of the Arkansas Teacher Retirement System.

(ii) The Division of Youth Services shall be:

(a) Approved according to rules established by the board;

(b) Considered a covered employer under subdivision (18) of this

section; and

(c) Responsible for all required employer contributions and any fees for obtaining Internal Revenue Service rulings or Employee Retirement Income Security Act of 1974 opinions.

(iii) An embedded employee of an outsource contractor for the Division of Youth Services Education System who becomes a member of the Arkansas Teacher Retirement System shall remain a member of the Arkansas Teacher Retirement System as long as the member remains an embedded employee of an outsource contractor for the Division of Youth Services Education System.

(iv) Subdivision (19)(G) of this section:

(a) Create or modify an employment relationship between an embedded employee and the Division of Youth Services Education System;

(b) Create, permit, expand, or modify any liability or obligation by the Division of Youth Services Education System to and embedded employee; or

(c) Create, permit, expand, or modify any cause of action by an embedded employee against the Division of Youth Services Education System under any employment, labor, civil rights, or other law.

SECTION 2. Arkansas Code § 24-7-202, concerning definitions applicable to the Arkansas Teacher Retirement System, is amended to add an additional subdivision to read as follows:

(46) “Embedded employee” means a person who:

(i) Through his or her employment with an outsource contractor, provides an outsourced service on the premises of the Division of Youth Services Education System; and

(ii) Is employed and paid by an outsource contractor.

(47) “Outsource” or “outsourcing” means the Division of Youth Services Education System’s use of a contractor to perform a service common to the normal daily operation of the Division of Youth Services Education System on the premises of the Division of Youth Services Education System;

(48) “Outsource contractor” means a person who is contractually obligated under an outsourcing agreement to provide the Division of Youth Services Education System with a service common to the normal daily operation of the Division of Youth Services Education System; and

(49) “Service common to the normal daily operation” means and is limited to a service that:

(A) Is provided by an outsource contractor or embedded employee to a covered employer;

(B) Is physically provided or based on the premises of a covered employer;

(C) Is paid for with public funds and not with private grant funds; and

(D) Consists of one (1) or more of the following:

(i) The maintenance and operation of:

(a) One (1) or more vehicles used for the regular and daily transport of passengers; and

(b) A facility that provides support for the maintenance and operation of one (1) or more vehicles described under subdivision (49)(D)(i)(a) of this section;

(ii) The maintenance and operation of a cafeteria or other food service operation;

(iii) Custodial or maintenance services for the regular and continuous maintenance, repair, and upkeep of grounds or facilities;

(iv) Security services that are not covered by another retirement system;

(v) School nursing;

(vi) Substitute teaching; or

(vii) Service as a teacher's aide.

SECTION 3. Arkansas Code § 24-7-506 is repealed.

~~24-7-506. Outsourcing — Election to participate — Definitions.~~

~~(a) As used in this section:~~



(1)(A) ~~“Covered employer” means any public school, public educational agency, or other eligible employer participating in the Arkansas Teacher Retirement System.~~

~~(B) “Covered employer” does not include a nonmandatory employer or a PSHE employer as defined under § 24-7-1602;~~

(2)(A) ~~“Embedded employee” means a person who:~~

~~(i) Provides an outsourced service on the premises of a covered employer; and~~

~~(ii) Is employed and paid by an outsource contractor.~~

~~(B) “Embedded employee” does not include a person who is employed by:~~

~~(i) A covered employer listed under § 24-7-202; or~~

~~(ii) An employer that offers the Arkansas Teacher Retirement System as an optional retirement plan as of the date of outsourcing;~~

~~(3) “Outsource” or “outsourcing” means the use of a contractor by a covered employer for the performance of a service common to the normal daily operation on the premises of the covered employer;~~

~~(4) “Outsource contractor” means a person who is contractually obligated under an outsourcing agreement to provide a covered employer with a service common to the normal daily operation of the covered employer;~~

~~(5) “Participating employer” means a covered employer that outsources and opts for the embedded employees of all of its employer’s outsource contractors to become members of the Arkansas Teacher Retirement System;~~

~~(6)(A) “School nursing” means a nursing service that is required to be offered in a public school under § 6-18-706 or the Standards for Accreditation of Arkansas Public Schools and School Districts.~~

~~(B) “School nursing” does not include nursing services provided by a:~~

~~(i) School-based health clinic under § 6-18-703;~~

~~(ii) Medical clinic operated on a public school campus by a hospital or physician's office that is under contract with the public school;~~

~~(iii) Healthcare provider other than a nurse; or~~

~~(iv) Healthcare service reimbursed or paid for by Medicaid, Medicare, health insurance, or any other third party payer;~~

~~(7) “Service common to the normal daily operation” means and is limited to a service that:~~

~~(A) Is provided by an outsource contractor or embedded employee to a covered employer;~~

~~(B) Is physically provided or based on the premises of a covered employer;~~

~~(C) Is paid for with public funds and not with private grant funds; and~~

~~(D) Consists of one (1) or more of the following:~~

~~(i) The maintenance and operation of:~~

~~(a) One (1) or more vehicles used for the regular and daily transport of passengers; and~~

~~(b) A facility that provides support for the maintenance and operation of one (1) or more vehicles described under subdivision (a)(7)(D)(i)(a) of this section;~~

~~(ii) The maintenance and operation of a cafeteria or other food service operation;~~

~~(iii) Custodial or maintenance services for the regular and continuous maintenance, repair, and upkeep of grounds or facilities;~~

~~(iv) Security services that are not covered by another retirement system;~~

~~(v) School nursing;~~

~~(vi) Substitute teaching; or~~

~~(vii) Service as a teacher's aide; and~~

~~(8) “Surcharge employer” means a covered employer that outsources and pays a surcharge to the Arkansas Teacher Retirement System in lieu of opting for the embedded employees of outsource contractors to accrue service credit in the Arkansas Teacher Retirement System.~~

~~(b) A covered employer that enters into an agreement to outsource a service common to the normal daily operation shall make an irrevocable election to be either a participating employer or a surcharge employer within~~



sixty (60) days of the outsourcing agreement on a form provided by or in a manner established by the Arkansas Teacher Retirement System.

(c)(1) If a covered employer elects to become a surcharge employer under this section, then the covered employer shall account for and remit to the Arkansas Teacher Retirement System a monthly surcharge on the total salaries paid to all the embedded employees on an aggregate basis as follows:

(A) Five tenths of one percent (0.5%) during the 2018 fiscal year;

(B) One percent (1%) during the 2019 fiscal year;

(C) Two percent (2%) during the 2020 fiscal year;

(D) Three percent (3%) during the 2021 fiscal year; and

(E) An amount not to exceed four percent (4%) during the 2022 fiscal year and succeeding fiscal years as established by a resolution of the Board of Trustees of the Arkansas Teacher Retirement System at a meeting of the board.

(2) If the covered employer is outsourcing on August 1, 2017, the surcharge shall be payable beginning in the 2018 fiscal year.

(3) A surcharge adopted by the board applies to an entire fiscal year and shall be adopted prior to the beginning of the fiscal year.

(d) If a covered employer elects to become a participating employer as provided under this section, then the covered employer shall account for and remit each of the covered employer's contributions in the same amount and in the same manner as required for covered employer contributions under § 24-7-401 and member contributions under § 24-7-406.

(e)(1)(A) A covered employer that begins outsourcing after August 1, 2017, and elects to become a participating employer may phase in the election by selecting an effective date that is no later than the beginning of the third fiscal year after the effective date of the outsourcing agreement.

(B) During the phase in of becoming a participating employer, the covered employer shall account for and remit a phase in surcharge in the same amount and manner required of a surcharge employer under subsection (c) of this section.

(2)(A) If a covered employer is outsourcing on August 1, 2017, and the covered employer elects to become a participating employer, then the covered employer may phase in the election by selecting an effective date that is no later than the beginning of the fourth fiscal year after August 1, 2017.

(B) During the phase in of becoming a participating employer, the covered employer shall account for and remit a phase in surcharge in the same amount and manner as required of a surcharge employer under subsection (c) of this section.

(f)(1) The Arkansas Teacher Retirement System may require a covered employer that makes an election under this section to provide any documentation necessary to collect and account for the surcharge or contributions as is consistent with the covered employer's election.

(2) The Arkansas Teacher Retirement System may shall collect an unremitted surcharge amount due, including interest, from a surcharge employer under § 24-7-401 or contribution due from a participating employer under § 24-7-406 in any manner allowed by law.

(3) If a covered employer reasonably accepts a written statement from an outsource contractor reporting the salaries paid by the outsource contractor to embedded employees for services common to the normal daily operation of the covered employer, it shall be conclusively presumed that the written statement accurately reflects the salaries subject to surcharge under this section.

(g)(1) A covered employer or an outsource contractor may request a determination from the Arkansas Teacher Retirement System as to whether an embedded employee performs or will perform a service common to the normal daily operation of a covered employer.

(2) A request made under subdivision (g)(1) of this section shall include:

(A) Information about the employment relationship and contract provisions that are necessary for the Arkansas Teacher Retirement System to evaluate the service provided to the covered employer; and

(B) Any additional information requested by the Arkansas Teacher Retirement System to make the determination.

(3) The board may promulgate rules necessary to administer this section.

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~~(h)(1) The Division of Youth Services Education System shall be a participating employer and may designate any or all of its embedded employees as eligible for membership in the Arkansas Teacher Retirement System.~~

~~(2) An embedded employee of a contractor for the Division of Youth Services Education System who becomes a member of the Arkansas Teacher Retirement System shall remain a member of the Arkansas Teacher Retirement System as long as the member remains an embedded employee of a contractor for the Division of Youth Services Education System.~~

~~(i) The use of the terms “employee” and “employer” in this section does not:~~

~~(1) Create or modify an employment relationship between an embedded employee and a covered employer;~~

~~(2) Create, permit, expand, or modify any liability or obligation by a covered employer to an embedded employee; or~~

~~(3) Create, permit, expand, or modify any cause of action by an embedded employee against a covered employer under any employment, labor, civil rights, or other law.~~

SECTION 4. EMERGENCY CLAUSE. It is found and determined by the General Assembly of the State of Arkansas that the operations of a state public retirement system are complex; that the Arkansas Teacher Retirement System must be able to meet the needs of its members as anticipated by the General Assembly; that certain provisions of the Arkansas Teacher Retirement System Act, § 24-7-201 et seq., need immediate revision and updating to address reporting, contribution, and other administrative complexities caused by these provisions and to bring these provisions into conformance with sound public pension policy and actuarial requirements; that the revisions and updates are of great importance to members and covered employers of the Arkansas Teacher Retirement System and to other citizens of the State of Arkansas; that as the Arkansas Teacher Retirement System operates on a fiscal year of July 1 to June 30, a July 1, 2023, effective date is necessary in order to allow the provisions within this act to begin on the first day of the fiscal year and to allow for a structured and proper administration of the procedures referenced in this act; that the updates and revisions to the Arkansas Teacher Retirement System Act are of great importance and necessary for protecting member benefits and clarifying the reporting and contribution requirements of employers participating in the Arkansas Teacher Retirement System; and that this act is necessary in order to maintain an orderly system of benefits for the members of the Arkansas Teacher Retirement System. Therefore, an emergency is declared to exist and this act being immediately necessary for the preservation of the public peace, health, and safety shall become effective on July 1, 2023.

State of Arkansas  
94th General Assembly  
Regular Session, 2023  
By: Senator/Representative

A Bill

SENATE/HOUSE BILL

**For An Act To Be Entitled**

AN ACT TO AMEND THE LAW CONCERNING SURVIVOR ANNUITY BENEFITS UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM; TO DECLARE AN EMERGENCY; AND FOR OTHER PURPOSES.

**Subtitle**

TO AMEND THE LAW CONCERNING SURVIVOR ANNUITY BENEFITS UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM; AND TO DECLARE AN EMERGENCY.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Arkansas Code § 24-7-710 is amended to read as follows:

24-7-710. Survivor annuity benefits.

(a)(1) If an active member with five (5) or more years of actual and reciprocal service, including credited service for the year immediately preceding his or her death, dies before the receipt of retirement benefits from the Arkansas Teacher Retirement System, then the benefits provided in this section shall be paid to eligible survivors.

(2)(A) An immediately eligible survivor is entitled to receive monthly benefits beginning the month after the death of the active member if the survivor application is filed with the system ~~within three (3) months of the death of the member~~ by the end of the sixth full calendar month following the date of the member's death, otherwise the monthly benefits shall begin the month that the survivor application is filed with the system.

(B) If an immediately eligible survivor or the minor survivor's guardian or legal representative fails to complete the application process ~~within six (6) calendar months after~~ by the end of the sixth full calendar month following the date on which the application required under subdivision (a)(2)(A) of this section is filed, including the submission of any additional documentation required by the system, the application shall be void unless an extension is granted by the ~~system~~ Executive Director of the Arkansas Teacher Retirement System.

(b)(1)(A)(i) Unless the active member otherwise directs an alternative beneficiary to receive a residue with a payable balance by using a beneficiary form approved by the system, ~~a~~ the active member's surviving spouse, who was married to the active member for at least the two (2) years immediately preceding the active member's death, shall receive an annuity computed in the same manner in all respects as if the active member had retired on the date of the active member's death and elected Option A under § 24-7-706 to provide one hundred percent (100%) survivor annuity benefits, including benefits applicable under § 24-7-713, for his or her surviving spouse.

(ii)(a) Unless otherwise provided by this section, a surviving spouse who is ineligible for an annuity under this section solely as a result of the active member designating an alternative beneficiary shall be eligible for annuity under this section if the alternative beneficiary waives his or her right to the residue.

(b) A waiver of an alternative beneficiary's right to a residue shall not be required if the active member does not have a residue with a payable balance.

~~(ii)(iii)~~ (iii) The system shall continue to pay any benefits applicable under § 24-7-713 for an eligible surviving spouse, including a spouse who began receiving benefits on or after July 1, 2009.

(B)(i) If a surviving spouse is immediately eligible to receive a monthly benefit immediately after the death of ~~a~~ an active member, the immediately eligible surviving spouse is entitled to receive monthly benefits beginning the month after the death of the active member if the survivor application and all other required additional documentation is filed with the system ~~within three (3) months of the death of the member~~ by the end of the sixth full calendar month following the date of the active member's death, otherwise the monthly benefits shall begin the month that the survivor application is filed with the system if at the time of the active member's death the active member had:

(a) Accumulated twenty-five (25) years or more of credited service and qualified as eligible to receive a retirement annuity under §§ 24-7-701 and 24-7-702; or

(b) Reached sixty (60) years of age and qualified as eligible to receive a retirement annuity under § 24-7-707.

(ii) If an immediately eligible spouse fails to complete the application process ~~within six (6) calendar months after~~ by the end of the sixth full calendar month following the date on which the application survivor application and additional documentation required under subdivision (b)(1)(B)(i) of this section is filed, ~~including the submission of all additional documentation required by the system~~, the survivor application shall be void unless an extension is granted by the system executive director.

(C)(i) If the surviving spouse is not immediately eligible to receive monthly benefits under subdivision (b)(1)(B) of this section, the surviving spouse's benefits shall begin the later of either the month following the date the active member would have been eligible to receive benefits had the active member survived or the date that ~~an application for a surviving spouse's benefits~~ a survivor application is filed with the system.

(ii) If a surviving spouse becomes eligible for surviving spouse benefits and fails to complete the application process ~~within six (6) calendar months after~~ by the end of the sixth full calendar month following the date on which the application survivor application and additional documentation required under subdivision (b)(1)(B)(i) of this section is filed, ~~including the submission of any additional documentation required by the system~~, the survivor application shall be void unless an extension is granted by the system executive director.

(D) If the surviving spouse is eligible to receive the survivor annuity and the active member had not reached sixty (60) years of age at the time of the active member's death, the surviving spouse may elect to defer receipt of the annuity until the active member would have reached sixty (60) years of age, and the surviving spouse's benefits shall not be reduced under the early retirement provisions of § 24-7-702.

(E) The surviving spouse's benefits under this section are payable for the surviving spouse's lifetime.

(F) If the active member directs an alternative beneficiary by using a beneficiary form approved by the system, the active member may designate one or more residual beneficiaries to receive a lump-sum payment of the active member's residue amount under § 24-7-709 in lieu of the active member's surviving spouse.

(2) If at the time of the active member's death there are no dependent children and the surviving spouse who is eligible to receive the annuity under this subsection files with the system a written waiver of his or her right to the spousal annuity, a lump-sum distribution of the deceased active member's accumulated contributions plus regular interest may be made to the surviving spouse.

(3) The Board of Trustees of the Arkansas Teacher Retirement System may adopt rules to carry out the provisions of this section.

~~(c)(1)(A)(i) A surviving dependent child of the member~~ An active member's surviving dependent child shall receive an annuity in an amount equal to one percent (1%) of the member's highest salary year for each quarter of a year credited as actual service in the system but not to exceed twenty (20) quarters of a year that are credited as actual service in the system for up to a maximum of twenty thousand dollars (\$20,000).

(ii) If the member's highest salary year occurs in the year that the active

member died, the system shall calculate the surviving dependent child's annuity on the basis of a full year of salary by the member.

(B) If ~~a~~ an active member has more than three (3) surviving dependent children, the aggregate amount of the surviving dependent children's annuity shall not exceed the lesser of sixty percent (60%) of the active member's highest salary year or sixty thousand dollars (\$60,000) per year and shall be divided equally among the surviving dependent children.

(2)(A) A deceased active member's child shall be considered a dependent child and eligible for the dependent child annuity until he or she reaches eighteen (18) years of age.

~~(B)(i) The child of a deceased member is considered a dependent child and is eligible for the dependent child annuity at eighteen (18) years of age or older, but not older than twenty three (23) years of age, if the dependent child stays continuously enrolled as a full-time student at an accredited secondary school, college, or university. A deceased active member's child shall be considered a dependent child who is eligible for dependent child annuity if the child:~~

(a) Is at least eighteen (18) years of age and not older than twenty-two (22) years of age; and

(b) Stays continuously enrolled as a full-time student at an accredited secondary school, college, university, or vocational-technical school.

(ii) Regardless of age, a deceased active member's child who has been deemed physically or mentally incapacitated by a court of competent jurisdiction is eligible to receive a dependent child annuity for as long as the incapacity exists.

(C)(i) A dependent child may have his or her dependent child annuity temporarily suspended if the dependent child:

(a) Is called to active military duty or active military training; and

(b) Submits a copy of his or her military orders to the system.

(ii) The dependent child's dependent child annuity shall be temporarily suspended for the duration of the dependent child's participation in active military duty or active military training.

(iii) The dependent child's dependent child annuity shall be reinstated if the dependent child:

(a) Is at least eighteen (18) years of age and not older than twenty-two (22) years of age;

(b) Immediately enrolls as a full-time student at an accredited secondary school, college, university, or vocational-technical school after returning from active military duty or active military training; and

(c) Submits documentation of his or her enrollment at an accredited secondary school, college, university, or vocational-technical school to the system.

(3) When a dependent child ceases to ~~be a dependent~~ qualify as a dependent child or dies, the dependent child shall not be eligible to qualify as dependent child of the deceased active member again and his or her share of the dependent child annuity shall terminate.

(d) For the purposes of ~~§ 24-7-709 §§ 24-7-709 and 24-7-711~~ related to the disposition of a member's residue amount, a survivor annuity received from ~~the~~ an active member's deposit account under this section shall be considered annuity payments received by the active member or his or her designated beneficiary and shall offset any disposition of residue payable under ~~§ 24-7-709 §§ 24-7-709 and 24-7-711~~ to the estate of the active member or to an alternate payee.

(e) If ~~the~~ an active member ~~had~~ previously received benefits from the system and has not repaid in full all amounts payable by him or her to the system, the annuity amounts otherwise provided by this section shall be withheld until the total amount owed to the system is repaid.

(f)(1) For eligibility under this section, a member is considered active for an additional fiscal year following the last fiscal year that the member renders actual service to a covered employer and obtains at least one-fourth (1/4) of a year of service credit.

(2) In addition, a member is considered active for eligibility under this section if in the fiscal year of a member's death, the member earned at least ten (10) days of service credit in each quarter before and

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including the quarter of the member's death.

(3) Service credit used in calculating any benefits paid under this section ~~means~~ includes days of service, ~~including and any~~ paid sick leave covered by the covered employer.

(g) A dependent child annuity shall be payable to each surviving child of a retiree who dies after returning to work if the child qualifies as a dependent child and is eligible for a dependent child annuity according to the provisions of this section and the rules and resolutions of the system.

(h) The law in effect at the time of a member's death shall be used to determine the member's effective retirement date and when survivor benefits under this section are payable.

SECTION 2. EMERGENCY CLAUSE. It is found and determined by the General Assembly of the State of Arkansas that the operations of a state public retirement system are complex; that the Arkansas Teacher Retirement System must be able to meet the needs of its members as anticipated by the General Assembly; that certain provisions of the Arkansas Teacher Retirement System Act, § 24-7-201 et seq., need immediate revision and updating to bring these provisions into conformance with sound public pension policy and actuarial requirements; that the current provisions of the Arkansas Teacher Retirement System Act are unclear with regard to application deadlines, a dependent child's ability to continue receiving a dependent child annuity when the dependent child is called to active military duty or training, and the eligibility of a child of a retiree who returns to work to receive a dependent child annuity; that the revisions and updates are of great importance to members of the Arkansas Teacher Retirement System and to other citizens of the State of Arkansas; that as the Arkansas Teacher Retirement System operates on a fiscal year of July 1 to June 30, a July 1, 2023, effective date is necessary in order to allow the provisions within this act to begin on the first day of the fiscal year and to allow for a structured and proper administration of the procedures referenced in this act; that the updates and revisions to the Arkansas Teacher Retirement System Act are of great importance and necessary for improving and protecting member benefits; and that this act is necessary in order to maintain an orderly system of benefits for the members of the Arkansas Teacher Retirement System. Therefore, an emergency is declared to exist and this act being immediately necessary for the preservation of the public peace, health, and safety shall become effective on July 1, 2023.



State of Arkansas  
94th General Assembly  
Regular Session, 2023  
By: Senator/Representative

A Bill

SENATE/HOUSE BILL

**For An Act To Be Entitled**

AN ACT CONCERNING AN INACTIVE MEMBER'S ELIGIBILITY FOR FREE MILITARY SERVICE CREDIT AND ABILITY TO PURCHASE MILITARY, CONTRIBUTORY, AND FEDERAL SERVICE CREDIT IN THE ARKANSAS TEACHER RETIREMENT SYSTEM; TO DECLARE AN EMERGENCY; AND FOR OTHER PURPOSES.

**Subtitle**

CONCERNING AN INACTIVE MEMBER'S ELIGIBILITY FOR FREE MILITARY SERVICE CREDIT AND ABILITY TO PURCHASE MILITARY, CONTRIBUTORY, AND FEDERAL SERVICE CREDIT IN THE ARKANSAS TEACHER RETIREMENT SYSTEM; AND TO DECLARE AN EMERGENCY.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Arkansas Code § 24-1-107(b)(1)(B), concerning recognition of federal retirement programs, is amended to read as follows:

(B) ~~An active~~ A member of the Arkansas Teacher Retirement System shall receive credit for the member's federal service upon the payment of the cost of service under § 24-7-502(b) and as prescribed by the Board of Trustees of the Arkansas Teacher Retirement System.

SECTION 2. Arkansas Code § 24-7-406(e)(1)(B)(iv), concerning retirement fund assets accounts, members' deposit accounts, and contributions under the Arkansas Teacher Retirement System, is amended to read as follows:

(iv) ~~An active~~ A member who has previous noncontributory credited service may change credited service on which a member contribution has not been paid to contributory credited service by paying the system the actuarial equivalent of the member benefits.

SECTION 3. Arkansas Code § 24-7-602(a)(1) and (2), concerning military service credit under the Arkansas Teacher Retirement System, are amended to read as follows:

(a)(1) If ~~An active~~ a member of the Arkansas Teacher Retirement System enters the United States Armed Forces during a period that a federal military draft was in effect and obtains a refund of member contributions from the system, the compulsory military service required of the member may be established as free credited service under this subchapter, if after an honorable discharge from the United States Armed Forces and before retirement the member repays to the system the actuarial equivalent of the member's refunded service.

~~(2)(A) In addition, an active member who entered the United States Armed Forces during any period that a federal military draft was in effect and who becomes an active member after an honorable discharge from the United States Armed Forces is eligible to receive free military service credit under this section, whether~~

or not the member has five (5) or more years of credited service at the time of the reemployment. In addition, a member is eligible to receive free military service credit under this section if the member:

(i) Entered the United States Armed Forces during any period that a federal military draft was in effect; and

(ii) Becomes an active member after an honorable discharge from the United States Armed Forces.

(B) Subdivision (a)(2)(A) of this section applies to a member irrespective of whether or not the member has five (5) or more years of credited service at the time of the member's reemployment.

SECTION 4. EMERGENCY CLAUSE. It is found and determined by the General Assembly of the State of Arkansas that the operations of a state public retirement system are complex; that the Arkansas Teacher Retirement System must be able to meet the needs of its members as anticipated by the General Assembly; that certain provisions of the Arkansas Teacher Retirement System Act, § 24-7-201 et seq., need immediate revision and updating to bring these provisions into conformance with sound public pension policy and actuarial requirements; that under the current provisions of the Arkansas Teacher Retirement System Act, inactive members are ineligible for free military service credit and cannot purchase military, contributory, and federal service credit; that the revisions and updates are of great importance to members of the Arkansas Teacher Retirement System and to other citizens of the State of Arkansas; that the Arkansas Teacher Retirement System operates on a fiscal year of July 1 to June 30; that as the Arkansas Teacher Retirement System operates on a fiscal year of July 1 to June 30, a July 1, 2023, effective date is necessary in order to allow the provisions within this act to begin on the first day of the fiscal year and to allow for a structured and proper administration of the procedures referenced in this act; that the updates and revisions to the Arkansas Teacher Retirement System Act are of great importance and necessary for improving and protecting member benefits; and that this act is necessary in order to maintain an orderly system of benefits for the members of the Arkansas Teacher Retirement System. Therefore, an emergency is declared to exist and this act being immediately necessary for the preservation of the public peace, health, and safety shall become effective on July 1, 2023.



State of Arkansas  
94th General Assembly  
Regular Session, 2023  
By: Senator/Representative

A Bill

SENATE/HOUSE BILL

**For An Act To Be Entitled**

AN ACT TO AMEND THE LAW CONCERNING THE MULTIPLIER USED TO CALCULATE A LIFE ANNUITY UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM; TO DECLARE AN EMERGENCY; AND FOR OTHER PURPOSES.

**Subtitle**

TO AMEND THE LAW CONCERNING THE MULTIPLIER USED TO CALCULATE A LIFE ANNUITY UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM; AND TO DECLARE AN EMERGENCY.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Arkansas Code § 24-7-705(b)(2)(G)(i) - (iii), concerning the life annuity under the Arkansas Teacher Retirement System, are amended to read as follows:

- ~~(i) The multiplier rate for contributory service shall not be less than one and seventy-five hundredths percent (1.75%) or higher than two and fifteen hundredths percent (2.15%);~~  
~~(ii)(i) The multiplier rate for contributory service used for the first ten (10) years of service shall not be higher than the multiplier rate for subsequent years of service less than one and seventy-five hundredths percent (1.75%) or more than two and fifteen hundredths percent (2.15%); and~~  
~~(ii)(ii) After a member earns ten (10) years of credited service, the board may increase the multiplier rate earned in the first ten (10) years to the standard multiplier rate for contributory service for all or part of the first ten (10) years of service.~~

SECTION 2. Arkansas Code § 24-7-705(b)(3)(G)(i), concerning the life annuity under the Arkansas Teacher Retirement System, is amended to read as follows:

- (i) The multiplier rate for noncontributory service used for the first ten (10) years of service shall not be ~~higher than the multiplier rate for subsequent years of service~~ less than five-tenths of one percent (0.5%) or more than one and twenty-five hundredths percent (1.25%); and

SECTION 3. EMERGENCY CLAUSE. It is found and determined by the General Assembly of the State of Arkansas that the operations of a state public retirement system are complex; that the Arkansas Teacher Retirement System must be able to meet the needs of its members as anticipated by the General Assembly; that certain provisions of the Arkansas Teacher Retirement System Act, § 24-7-201 et seq., need immediate revision and updating to bring them into conformance with sound public pension policy and actuarial requirements; that the revisions and updates are of great importance to members of the Arkansas Teacher Retirement System and to other citizens of the State of Arkansas; that as the Arkansas Teacher Retirement System operates on a fiscal year of July 1 to June 30, a July 1, 2023, effective date is necessary in order to allow the provisions within this act to begin on the first day of the fiscal year and to allow for a structured and proper administration of the procedures referenced in this act; that the updates and revisions to the Arkansas Teacher Retirement System Act are of great

*This draft is a working document. All information contained herein is subject to change and may differ substantially from the final document. The information contained in this document should not be considered the position or the view of the Board of Trustees of the Arkansas Teacher Retirement System, the staff of the Arkansas Teacher Retirement System, or the Governor.*

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importance for actuarial purposes and for the improvement and protection of member benefits under the Arkansas Teacher Retirement System; and that this act is necessary in order to maintain an orderly system of benefits for the members of the Arkansas Teacher Retirement System. Therefore, an emergency is declared to exist and this act being immediately necessary for the preservation of the public peace, health, and safety shall become effective on July 1, 2023.

State of Arkansas  
94th General Assembly  
Regular Session, 2023  
By: Senator/Representative

A Bill

SENATE/HOUSE BILL

**For An Act To Be Entitled**

AN ACT TO CORRECT CERTAIN REFERENCES TO “ALTERNATE RETIREMENT PLAN”, “COVERED EMPLOYER”, “CREDITED SERVICE”, “RETIRANT”, “SERVICE CREDIT”, AND “THE SYSTEM”; TO AMEND AND ADD CERTAIN DEFINITIONS APPLICABLE TO THE ARKANSAS TEACHER RETIREMENT SYSTEM; TO CLARIFY THE LAW CONCERNING BENEFIT INCREASES AND COMPUTATION, DEADLINES, SYSTEM ASSETS, TERMINATION SEPARATION PERIOD, SERVICE CREDIT, SECOND REVIEWS OF DISABILITY RETIREMENT APPLICATIONS, A MEMBER’S RESIDUE, CONTRACT BUYOUT SETTLEMENT AGREEMENTS, THE DE MINIMIS AMOUNT, AND OTHER VARIOUS PROVISIONS APPLICABLE TO THE ARKANSAS TEACHER RETIREMENT SYSTEM; TO DECLARE AN EMERGENCY; AND FOR OTHER PURPOSES.

**Subtitle**

TO ENACT THE ARKANSAS TEACHER RETIREMENT SYSTEM’S GENERAL OMNIBUS; AND TO DECLARE AN EMERGENCY.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Arkansas Code § 21-5-411(a)(1)(A)(v), concerning the eligibility of certain retired employees to participate in the State and Public School Life and Health Insurance Program, is amended to read as follows:

(v) An alternate retirement plan of a ~~qualifying institution~~ as defined under § 24-7-801 in § 24-7-202; and

SECTION 2. Arkansas Code § 24-2-302(3)(D), concerning the classification of members of public employee retirement plans generally, is amended to read as follows:

(D) Any person employed in a position requiring professional training or certification with an area vocational-technical school or employed by the Arkansas Educational Television Commission, except that employees of area vocational-technical schools and the Division of Career and Technical Education, the Adult Education Section, and the Office of Skills Development, who have elected to participate in an alternate retirement plan established by ~~§§ 24-7-901 and 24-7-903~~ 24-7-908 § 24-7-901 et seq. shall be active members of the alternate retirement plan; and

SECTION 3. Arkansas Code § 24-2-401(3)(F), concerning definitions applicable to public employee retirement plans generally, is amended to read as follows:

(F) An alternate retirement plan ~~for:~~

(i) ~~A college, university, or the Division of Higher Education provided for under~~

~~§ 24-7-801 et seq.; or~~

~~(ii) A vocational technical school or the Division of Career and Technical Education, the Adult Education Section of the Division of Workforce Services, the Division of Higher Education, and the Office of Skills Development, with respect to plans provided for under § 24-7-901 et seq. as defined in § 24-7-202; or~~

SECTION 4. Arkansas Code § 24-2-401(4)(D), concerning definitions applicable to public employee retirement plans generally, is amended to read as follows:

(D) A public employer ~~who is:~~ that is an alternate retirement plan as defined in § 24-7-202;

~~(i) A college, university, or the Division of Higher Education whose employees are covered by an alternate retirement plan provided for under § 24-7-801 et seq.; or~~

~~(ii) A vocational technical school or the Division of Career and Technical Education, the Adult Education Section, and the Office of Skills Development, whose employees are covered by an alternate retirement plan provided for under § 24-7-901 et seq.;~~

SECTION 5. Arkansas Code § 24-2-402(g)(6), concerning retirement eligibility and the calculation of reciprocal service using deferred service credit, is amended to read as follows:

(6) If the reciprocal system is an alternate retirement plan ~~under § 24-7-801 et seq. or § 24-7-901 et seq. as defined in § 24-7-202,~~ death-in-service benefits shall be contingent on death-in-service benefits having been provided by the alternate retirement plan and having been selected by the member as a benefit.

SECTION 6. Arkansas Code § 24-2-402(k), concerning retirement eligibility and the calculation of reciprocal service using deferred service credit, is amended to read as follows:

(k) If the reciprocal system is an alternate retirement plan ~~for a college, a university, or the Division of Higher Education provided for under § 24-7-801 et seq., or for a vocational technical school or the Department of Career Education provided for under § 24-7-901 et seq. as defined in § 24-7-202,~~ the benefits payable shall be in accordance with terms specified in the written alternate retirement plan document for purchasing the insurance policies or annuity contracts, both fixed and variable in nature, for the participants.

SECTION 7. Arkansas Code § 24-4-901(a)(1)(F), concerning credited service and reciprocity under the Arkansas Public Employees' Retirement System, is amended to read as follows:

(F) An alternate retirement plan ~~under § 24-8-101 et seq. or § 24-9-201 et seq. as~~ defined in § 24-7-202; or

SECTION 8. Arkansas Code § 24-4-901(a)(3)(B), concerning credited service and reciprocity under the Arkansas Public Employees' Retirement System, is amended to read as follows:

(B) Compensation for credited service in the Arkansas Judicial Retirement System or an alternate retirement plan ~~under § 24-8-101 et seq. or § 24-9-201 et seq. as defined in § 24-7-202~~ shall not be used to determine final average compensation.

SECTION 9. Arkansas Code § 24-4-901(b)(1)(F), concerning credited service and reciprocity under the Arkansas Public Employees' Retirement System, is amended to read as follows:

(F) An alternate retirement plan ~~under § 24-8-101 et seq. or § 24-9-201 et seq. as~~ defined in § 24-7-202; or

SECTION 10. Arkansas Code § 24-4-901(b)(4), concerning credited service and reciprocity under the Arkansas Public Employees' Retirement System, is amended to read as follows:

(4) If a member has service credit in an alternate retirement plan ~~under § 24-8-101 et seq. or § 24-9-201 et seq., as defined in § 24-7-202,~~ disability and death-in-service benefits shall be contingent on

provisions of those benefits having been provided by the alternate retirement plan and having been selected by the member as a benefit.

SECTION 11. Arkansas Code § 24-4-901(d)(6), concerning credited service and reciprocity under the Arkansas Public Employees' Retirement System, is amended to read as follows:

(6) An alternate retirement plan for a college, university, or the Division of Higher Education provided for under § 24-8-101 et seq. or for a vocational technical school or the Division of Career and Technical Education, the Adult Education Section, and the Office of Skills Development, provided for under § 24-9-201 et seq. as defined in § 24-7-202; and

SECTION 12. Arkansas Code § 24-7-202(7), concerning the definitions applicable to the Arkansas Teacher Retirement System, is amended to read as follows:

(42) "Annuity" means an amount payable to a ~~retirant~~ retiree each fiscal year by the Arkansas Teacher Retirement System in equal monthly installments;

SECTION 13. Arkansas Code § 24-7-202(14), concerning the definitions applicable to the Arkansas Teacher Retirement System, is amended to read as follows:

(42) "T-DROP" means the Teacher ~~or rates~~ Deferred Retirement Option Plan established by the Arkansas Teacher Retirement System;

SECTION 14. Arkansas Code § 24-7-202(19)(D)(iii), concerning the definitions applicable to the Arkansas Teacher Retirement System, is amended to read as follows:

(iii) Each education-related agency or organization shall ~~be~~:

(a) ~~Approved~~ Be approved according to rules established by the board;

(b) ~~Considered an employer under subdivision (18) of this section~~

Become a covered employer at the time that an employee elects to become or remain a member of the Arkansas Teacher Retirement System;

(c) Be considered a covered employer only for each employee who elects to become or remain a member of the Arkansas Teacher Retirement System; and

~~(e)~~ (d) Responsible Be responsible for all required employer

contributions;

SECTION 15. Arkansas Code § 24-7-202(21)(B), concerning the definition of "inactive member" and other definitions applicable to the Arkansas Teacher Retirement System, is amended to read as follows:

(B) Not a ~~retirant~~ retiree;

SECTION 16. Arkansas Code § 24-7-202(28) and (29), concerning definitions applicable to the Arkansas Teacher Retirement System, is amended to read as follows:

(28) "Normal retirement age" means:

(A) Sixty-five (65) years of age if the member has at least five (5) years of actual service or reciprocal service; or

~~(B) At least sixty (60) years of age if the member has a combined total of thirty-eight (38) years or more of credited service in the Arkansas Teacher Retirement System, Teacher Deferred Retirement Option Plan, or reciprocal service in another eligible state retirement system; Sixty (60) years of age or older if the member's age and the member's combined years of credited service in the Arkansas Teacher Retirement System, Teacher Deferred Retirement Option Plan, or reciprocal service in another eligible state retirement system total ninety-eight (98);~~

~~(29) "Normal retirement age" means sixty five (65) years of age;~~

SECTION 17. Arkansas Code § 24-7-202(32), concerning definitions applicable to the Arkansas Teacher Retirement System, is amended to read as follows:

(42) “Retiree” ~~or “retirant”~~ means a member receiving an Arkansas Teacher Retirement System annuity;

SECTION 18. Arkansas Code § 24-7-202(42), concerning definitions applicable to the Arkansas Teacher Retirement System, is amended to read as follows:

(42) “Credited service” means service which is ~~creditable~~ credited as service by the Arkansas Teacher Retirement System;

SECTION 19. Arkansas Code § 24-7-202, concerning definitions applicable to the Arkansas Teacher Retirement System, is amended to add additional subdivisions to read as follows:

(46) “Benefit enhancement” means any change to the current benefit policy for retired, active, vested, and non-vested members of the system that increases the actuarially determined contribution rate, increases the amortization period, or decreases the funded ratio of the system; and

(47) “Employment with a covered employer” means the employment of an employee that would require a covered employer to pay employer contributions to the system.

SECTION 20. Arkansas Code § 24-7-207 is amended to read as follows:

24-7-207. Increase in benefit amount.

(a)(1) ~~The Board of Trustees of the Arkansas Teacher Retirement System is authorized by this act to raise the level of benefits provided to the current retirants retirees and other beneficiaries of the Arkansas Teacher Retirement System to a comparable level increase to match the increase in benefits that would accrue to active members as a result of any reduction of the calculation of “final average salary” to not less than a three-year period nor more than the five year period in accordance with any rules the board might promulgate.~~

(2) The board may raise the level of benefits to a comparable level increase that matches the increase in benefits that would accrue to active members as a result of any reduction caused by setting the applicable number of years used in computing final average salary for retirement benefits at not less than three (3) years and not more than five (5) years in accordance with any rules that the board may promulgate.

(b) The amount of any increase for ~~retirants retirees~~ and other beneficiaries shall also be determined in accordance with the rules of the board as is actuarially appropriate for the system.

SECTION 21. Arkansas Code § 24-7-301(4) and (5), concerning the membership of the Board of Trustees of the Arkansas Teacher Retirement System, is amended to read as follows:

(4)(A) Three (3) ~~retirants retirees~~ shall be elected ~~retirant retiree~~ trustees by the retirees of the system.

(B) Each ~~retirant retiree~~ trustee shall be a ~~retirant retiree~~ with an annuity being paid by the system at the beginning of his or her term of office;

(5) The member and ~~retirant retiree~~ trustees shall be elected in accordance with rules as have been adopted by the board to govern the elections; and

SECTION 22. Arkansas Code § 24-7-302(a)(2)(B), concerning the term of office and vacancies of the Board of Trustees of the Arkansas Teacher Retirement System, is amended to read as follows:

(B) A ~~retirant retiree~~ trustee is ineligible to serve after becoming active.

SECTION 23. Arkansas Code § 24-7-305(b)(5), concerning the duties and responsibilities of the Board of Trustees of the Arkansas Teacher Retirement System, is amended to read as follows:

(5) The board may set or amend by a motion or resolution at any board meeting a de minimis amount of ~~twenty five dollars (\$25.00) or less~~ concerning the system’s obligation to distribute or collect payments, penalties, interest, funds, or moneys.



SECTION 24. Arkansas Code § 24-7-403(b), concerning restrictions on the use of the assets of the Arkansas Teacher Retirement System, is amended to read as follows:

(b)(1) Except as to the rights of a member, ~~retirant retiree~~, or beneficiary, ~~no trustee and no officer or employee~~ a trustee, an officer, or an employee of the board shall not have any direct or indirect interest, ~~direct or indirect~~, in the gains or profits of any investment made by the board.

(2) ~~Nor shall any of them, directly or indirectly, for himself or herself or as an agent, in any manner use the assets of the system except to make such current and necessary payments as are authorized by the board; nor shall any of them become an endorser or surety or become in any manner an obligor for moneys loaned by or borrowed from the board. A trustee, an officer, or an employee of the board shall not directly or indirectly use the assets of the system in any manner for himself or herself or as an agent.~~

(3) A trustee, an officer, or an employee of the board shall not in any manner become an endorser, a surety, or an obligor for moneys loaned by or borrowed from the board.

(4) A trustee, an officer, or an employee of the board may make such current and necessary payments as are authorized by the board.

SECTION 25. Arkansas Code § 24-7-408 is amended to read as follows:

24-7-408. Retirement fund assets accounts — Retirement reserve account.

(a) The retirement reserve account shall be the account from which shall be paid all annuities and benefits in lieu of annuities payable as provided in this act to ~~retirants retiree~~ who retired on account of superannuation or disability and to beneficiaries of such ~~retirants retiree~~.

(b) If a disability ~~retirant~~ retiree returns to teaching service:

(1) The amount of his or her accumulated contributions at the time of his or her disability retirement shall be transferred from the retirement reserve account to the members' deposit account; and

(2) The remainder of his or her annuity reserve at the time of return shall be transferred from the retirement reserve account to the employer accumulation account.

SECTION 26. Arkansas Code § 24-7-501(a)(2)(B)(iii), concerning membership generally in the Arkansas Teacher Retirement System, is amended to read as follows:

(iii) The employer contribution rate for this closed system shall be established at a rate necessary to fund all present and future liabilities until such time as there are no longer members, ~~retirants retirees~~, or deferred annuitants.

SECTION 27. Arkansas Code § 24-7-502(a)(2), concerning termination of active membership under the Arkansas Teacher Retirement System, is amended to read as follows:

(2) Effective September 1, 2021, a member shall not be terminated from employment for purposes of retirement eligibility if within ~~six (6) calendar months~~ the sixth full calendar month of the member's effective date of retirement the member:

(A) Becomes employed with a covered employer; and

(B) Has not attained the system's normal retirement age.

SECTION 28. Arkansas Code § 24-7-502(a)(6)(A), concerning termination of active membership under the Arkansas Teacher Retirement System, is amended to read as follows:

(A) Form an employment relationship with ~~any system-covered employer~~ a covered employer;

(B) Render any compensable services to or on behalf of ~~any system-covered employer~~ a covered employer, except that a member may provide volunteer activities ~~at a system-covered employer~~ for a covered employer that ~~does do~~ not have the effect of holding a position open for the member during a termination separation period; ~~and~~

(C) Exercise any authority to act as a representative of ~~any system-covered employer~~ a covered employer or exercise any authority over employees of ~~any system-covered employer~~ a covered employer; and

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(D) Be indirectly employed by or through an independent contractor, limited liability company, partnership, corporation, or legal entity that is employed by a covered employer if the member has substantial control of the employer-employee relationship, including without limitation the ability to negotiate rates of pay with the covered employer or assign work and work hours to the member.

SECTION 29. Arkansas Code § 24-7-601(e)(5), concerning credited service under the Arkansas Teacher Retirement System, is amended to read as follows:

(5) When the Arkansas Teacher Retirement System provides a benefit amount that is not dependent on length of credited service, the benefit amount shall be reduced to the proportion that actual system service bears to total ~~reciprocal system credited~~ service credited by a reciprocal system.

SECTION 30. Arkansas Code § 24-7-601(g)(1), concerning credited service generally under the Arkansas Teacher Retirement System, is amended to add an additional subdivision to read as follows:

(C) A member's part-time employment with a PSHE employer or an employer covered by the Arkansas Public Employees' Retirement System shall not prevent the member from earning service credit under the Arkansas Teacher Retirement System if the member does not earn service credit in an alternate retirement plan or the Arkansas Public Employees' Retirement System.

SECTION 31. Arkansas Code § 24-7-602(c)(1), concerning military service credit under the Arkansas Teacher Retirement System, is amended to read as follows:

(c)(1)(A) Effective December 12, 1994, a member who leaves employment with a school or employment with a covered employer to serve, on a voluntary or involuntary basis, in the uniformed services of the United States and returns to employment with a school or employment with a covered employer shall be treated as not having incurred a break in service with the employer.

(B) The employer shall certify to the system that reemployment was in accordance with the requirements set forth in section 4312 of the Uniformed Services Employment and Reemployment Rights Act of 1994, Pub. L. No. 103-353.

SECTION 32. Arkansas Code § 24-7-610(f), concerning credit for service in the National Guard and armed forces reserve under the Arkansas Teacher Retirement System, is amended to read as follows:

~~(f) If a member ceases to be an active member before the service in the National Guard or the armed forces reserve has been established as system credited service, the member payments contributed as specified in subdivision (b)(1)(C) of this section shall be refundable.~~ At the member's request, a member's payment under this section shall be refundable if the:

(1) Member ceases to be an active member before the service in the National Guard or the armed forces reserve is established as credited service in the system; or

(2) Service in the National Guard or the armed forces reserve is not otherwise used to establish the member's eligibility for retirement under the system.

SECTION 33. Arkansas Code § 24-7-701(a)(1)(B), concerning voluntary retirement under the Arkansas Teacher Retirement System, is amended to read as follows:

~~(B) If a member fails to submit a complete retirement application within six (6) calendar months after~~ by the end of the sixth full calendar month immediately following the effective date of benefits, including all additional documentation required by the system, the application shall be void unless an extension is granted by the ~~system~~ Executive Director of the Arkansas Teacher Retirement System.

SECTION 34. Arkansas Code § 24-7-701(e)(1), concerning voluntary retirement under the Arkansas Teacher Retirement System, is amended to read as follows:

~~(1) A member may cancel an application for voluntary retirement benefits up to two (2) calendar months after~~ any time before the end of the second full calendar month immediately following the effective date of benefits.



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SECTION 35. Arkansas Code § 24-7-702(a)(1)(A) and (B), concerning early voluntary retirement under the Arkansas Teacher Retirement System, is amended to read as follows:

(a)(1)(A) Except as provided under subdivision (a)(2) of this section, an active or inactive member who has a combined total of twenty-five (25) or more years of actual and reciprocal service, including purchased or free credited service, but has not attained sixty (60) years of age and is not eligible for retirement under § 24-7-701 may voluntarily retire early by filing a written application with the ~~Board of Trustees of the Arkansas Teacher Retirement System~~ Arkansas Teacher Retirement System.

(B) If a member fails to submit a complete retirement application ~~within six (6) calendar months after~~ by the end of the sixth full calendar month immediately following the effective date of benefits, including all additional documentation required by the Arkansas Teacher Retirement System, the application shall be void unless an extension is granted by the ~~system~~ Executive Director of the Arkansas Teacher Retirement System.

SECTION 36. Arkansas Code § 24-7-702(f)(1), concerning early voluntary retirement under the Arkansas Teacher Retirement System, is amended to read as follows:

(1) A member may cancel an application for early voluntary retirement benefits up to two (2) full calendar months after the effective date of benefits.

SECTION 37. Arkansas Code § 24-7-704(a)(1)(D)(i), concerning disability retirement under the Arkansas Teacher Retirement System, is amended to read as follows:

(D)(i) A member has ~~six (6) calendar months from~~ until the end of the sixth full calendar month immediately following the date of his or her application for disability retirement to submit a completed application and accompanying documentation.

SECTION 38. Arkansas Code § 24-7-704(a)(1)(D)(ii), concerning disability retirement under the Arkansas Teacher Retirement System, is amended to read as follows:

(ii) If a member does not provide all accompanying documentation requested by the system ~~within the six (6) calendar months~~ by the end of the sixth full calendar month immediately following the date of his or her application for disability retirement, the system shall:

(a) Submit the application to the medical committee for review as complete; or

(b) Withdraw the application at the request of the member unless an extension is granted by the ~~system~~ Executive Director of the Arkansas Teacher Retirement System.

SECTION 39. Arkansas Code § 24-7-704(a)(1)(G), concerning disability retirement under the Arkansas Teacher Retirement System, is amended to read as follows:

(G) If the medical committee requests additional documentation upon initial review, a member has ~~six (6) calendar months from~~ until the end of the sixth full calendar month immediately following the date of a medical committee request to submit any additional accompanying documentation unless an extension is granted by the ~~system~~ executive director.

SECTION 40. Arkansas Code § 24-7-704(a)(1)(H), concerning disability retirement under the Arkansas Teacher Retirement System, is amended to read as follows:

(H)(i) If the medical committee finds that a member is not qualified to receive disability benefits, written notice of the medical committee's finding shall be sent to the member and the member may request a second review provided the member submits additional medical documentation.

(ii)(a) ~~A second review may be requested one (1) time.~~ A member may request a second review one (1) time for each application for disability retirement filed by the member.

(b) A member's option to request a second review does not apply to a disability retiree who applies for a review under subsection (b) of this section.

(iii) The member has ~~six (6) calendar months~~ until the end of the sixth full calendar month immediately following the date of the written notice to submit additional medical documentation unless an extension is granted by the ~~system executive director~~.

SECTION 41. Arkansas Code § 24-7-704(a)(3)(B), concerning disability retirement under the Arkansas Teacher Retirement System, is amended to read as follows:

(B) If a member does not submit the required documents ~~within six (6) calendar month~~ after by the end of the sixth full calendar month immediately following the date on which the medical committee finds that the member qualifies to receive disability benefits, the member's application shall be void unless an extension is granted by the system executive director.

SECTION 42. Arkansas Code § 24-7-704(a)(4), concerning disability retirement under the Arkansas Teacher Retirement System, is amended to read as follows:

(4) To begin receiving disability retirement, a member shall not:

(A) Be employed by a ~~system covered employer~~ covered employer; or

(B) ~~Be indirectly employed by or through an independent contractor, limited liability company, partnership, corporation, or legal entity that is employed by a system covered employer if the member has substantial control of the employer-employee relationship, including without limitation the ability to negotiate rates of pay with the system covered employer or assign work and work hours to the member~~ Perform any action described in § 24-7-502(a)(6).

SECTION 43. Arkansas Code § 24-7-704(b)(3)(C)(iii), concerning disability retirement under the Arkansas Teacher Retirement System, is amended to read as follows:

(iii) Apply for a review by the system's medical committee ~~within three (3) months of disability benefits ceasing~~ by the end of the third full calendar month immediately following the cessation of disability benefits due to the lack of a Social Security Administration determination letter finding that the disability retiree is unable to perform his or her former work duties as described in subdivision (a)(1)(E)(iii) of this section.

SECTION 44. Arkansas Code § 24-7-704(b)(3)(D)(i), concerning disability retirement under the Arkansas Teacher Retirement System, is amended to read as follows:

(D)(i) A disability retiree who seeks and fails to receive a determination letter finding the disability retiree is unable to perform his or her former work duties as described in subdivision (a)(1)(E)(iii) of this section by the Social Security Administration may seek a review permitted under subdivision (b)(3)(C)(iii) of this section no earlier than three (3) full calendar months before the date on which the member's disability retirement would otherwise end and no later than ~~three (3) months after~~ the end of the third full calendar month immediately following the termination of disability retirement.

SECTION 45. Arkansas Code § 24-7-707(a)-(e), concerning annuity options under the Arkansas Teacher Retirement System, are amended to read as follows:

(a)(1) Before the date the first payment of his or her annuity becomes due, a member may elect to receive the actuarial equivalent, at that time, of his or her straight life annuity in a reduced annuity payable throughout his or her life.

(2) The member may nominate a beneficiary, in accordance with one(1) of the following options:

(A) Option A — 100% Survivor Annuity.

(i) Under Option A, upon the death of a ~~retirant~~ retiree, his or her reduced annuity shall be continued throughout the life of and paid to such person as he or she shall have nominated by written designation executed and filed with the Board of Trustees of the Arkansas Teacher Retirement System before the date the first payment of his or her annuity becomes due.

(ii) The person designated as a beneficiary by the ~~retirant~~ retiree shall be:

(a) The ~~retirant's~~ retiree's spouse for not less than one (1) year immediately preceding the first payment due date; or

(b) A dependent child of the ~~retirant~~ retiree who has been adjudged physically or mentally incapacitated by a court of competent jurisdiction;

(B) Option B — 50% Survivor Annuity.

(i) Under Option B, upon the death of a ~~retirant~~ retiree, one-half (½) of his or her reduced annuity shall be continued throughout the life of and paid to such person as he or she has nominated by written designation executed and filed with the board before the date the first payment of his or her annuity becomes due.

(ii) The person designated as a beneficiary by the retirant shall be:

(a) The ~~retirant's~~ retiree's spouse for not less than one (1) year immediately preceding the first payment due date; or

(b) A dependent child of the ~~retirant~~ retiree who has been adjudged physically or mentally incapacitated by a court of competent jurisdiction; or

(C) Option C — Annuity for Ten (10) Years Certain and Life Thereafter.

(i) Under Option C, a ~~retirant~~ retiree shall receive a reduced annuity payable throughout his or her life with the provision that if he or she dies before he or she has received one hundred twenty (120) monthly annuity payments, the payments shall be continued for the remainder of the period of one hundred twenty (120) months and paid to such persons in equal shares as the ~~retirant~~ retiree has nominated by written designation executed and filed with the board.

(ii) If the designated beneficiaries predecease the ~~retirant~~ retiree, the ~~retirant~~ retiree may nominate successor beneficiaries or may elect to return to his or her single lifetime benefit equivalent by written designation executed and filed with the board, to be effective the month following receipt of his or her election by the Arkansas Teacher Retirement System.

(iii)(a) If the designated beneficiary is the spouse of the ~~retirant~~ retiree and the marriage ends in divorce or other marriage dissolution, the ~~retirant~~ retiree may:

(1) Nominate a successor beneficiary; or

(2) Elect to return to his or her single lifetime benefit

equivalent.

(b) The nomination or election made under subdivision (a)(2)(C)

(iii)(a) of this section shall be in writing, executed by the ~~retirant~~ retiree, and filed with the board, to be effective the month following receipt of his or her election by the system.

(iv) If no designated beneficiary survives the ~~retirant~~ retiree, the annuity reserve for the remainder of the annuity payments shall be paid to the ~~retirant's~~ retiree's estate.

(v) If the last designated beneficiary receiving annuity payments dies before all annuity payments are made, the annuity reserve for the remainder of the annuity payments shall be paid to the beneficiary's estate.

(vi) Effective the month following completion of the one hundred-twenty-month period, the ~~retirant's~~ retiree's annuity shall return to his or her single lifetime benefit equivalent.

(3) In addition to the persons eligible to be designated as a beneficiary under either Option A or Option B in subdivision (a)(2) of this section, the board may promulgate rules concerning the addition of classes of eligible persons to be designated as a beneficiary under this section and for the rights of option beneficiaries of deceased disability retirees under § 24-7-704.

(b)(1)(A) If a member's marital status changes after retirement due to the death of the member's spouse, or a divorce or marriage dissolution from the member's spouse who is also the member's designated beneficiary, then the member may elect to cancel any optional plan designating the former spouse as a beneficiary.

(B) A member's election under subdivision (b)(1)(A) of this section shall cause the member to return to his or her lifetime benefit equivalent, to be effective the month following the system's

receipt of the approved form.

(2) A ~~retirant~~ retiree who is receiving a single lifetime benefit and who marries after retirement may elect to cancel his or her single lifetime benefit and may elect an annuity providing continuing lifetime benefits to his or her spouse under rules promulgated by the board.

(c) If a member fails to elect an option, his or her annuity shall be paid to him or her as a straight life annuity.

(d)(1) Notwithstanding anything contained in this section to the contrary, the residue beneficiary under § 24-7-709 may elect to cancel the form of annuity in effect and elect Option A — 100% Survivor Annuity upon the death of a ~~retirant~~ retiree on or after July 1, 1989, if:

(A) The ~~retirant~~ retiree died within one (1) year following the effective date of retirement;

(B) The ~~retirant~~ retiree was receiving a straight life annuity; and

(C) The residue beneficiary otherwise qualifies for an Option A —100% Survivor Annuity.

(2) The election to change may be made only one (1) time and shall be on a form approved by the system.

(3) The election form must be received by the system within one hundred twenty (120) days of the death of the retiree.

(e)(1) Notwithstanding anything in this section to the contrary, a ~~retirant~~ retiree who retired on or after July 1, 1994, may elect to cancel his or her election made at retirement for receiving an annuity and elect another option, provided that he or she:

(A) Does so within one (1) year after July 1, 1995, or within one (1) year of retirement;

(B) Files with the system a new election form approved by the system; and

(C)(i) Repays to the system the difference between the amount of the annuity received when he or she retired and the new annuity due as a result of the election change, plus interest from July 1, 1994, or his or her retirement date, whichever is later, to the date of payment in full.

(ii) The difference shall be calculated retroactively to July 1, 1994, or his or her retirement date, whichever is later.

(2) The election to change shall be made only one (1) time.

(3) The election change shall be effective retroactively to the effective date of his or her annuity.

SECTION 46. Arkansas Code § 24-7-707(d), concerning deferred retirement under the Arkansas Teacher Retirement System, is amended to read as follows:

(d) If a member fails to submit a complete deferred retirement application ~~within six (6) calendar months of the~~ by the end of the sixth full calendar month immediately following the effective date of benefits, including all additional documentation required by the system, the application shall be void unless an extension is granted by the ~~system~~ Executive Director of the Arkansas Teacher Retirement System.

SECTION 47. Arkansas Code § 24-7-707(e)(1), concerning deferred retirement under the Arkansas Teacher Retirement System, is amended to read as follows:

(1) A member may cancel an application for deferred retirement benefits any time before ~~two (2) calendar months from~~ any time before the end of the second full calendar month immediately following the effective date of benefits.

SECTION 48. Arkansas Code § 24-7-709 is amended to read as follows:

24-7-709. Disposition of ~~member~~ retiree contributions — Residue

(a) As used in this subchapter, “residue” means the difference between the accumulated contributions and regular interest credited to the retirement reserve account as of the member’s retirement effective date and the total amount of retirement annuities paid.

~~(a)(1)(A)~~(b)(1) If a retiree and his or her option annuitants, if any, die before receiving annuity payments equal to the ~~member's retiree's residue amount~~, then the residue amount shall be paid to ~~such persons as the retiree shall have nominated by written designation~~ duly one (1) or more beneficiaries nominated by the retiree in a written designation that is executed and filed with the Arkansas Teacher Retirement System.

~~(B) As used in this subchapter, "residue" means the difference between the accumulated contributions and regular interest credited to the retirement reserve account as of the member's retirement effective date and the total amount of retirement annuities paid.~~

(2) If a retiree designates more than one (1) beneficiary, the residue shall be divided equally amongst each designated beneficiary.

~~(2)(3)~~ If a retiree and his or her option annuitants die and the member has failed to designate a beneficiary or if all designated beneficiaries have predeceased the retiree, the residue shall be paid to the retiree's estate.

(4) If all designated beneficiaries predecease the retiree, the residue shall be paid to the estate of the most recently deceased designated beneficiary.

~~(b)(c)~~ If upon the termination of the option annuity no surviving beneficiary designated by the ~~member retiree~~ survives and it is impracticable to make payment to the ~~member's retiree's~~ estate, the residue shall be forfeited to the trust assets of the system subject to any valid claim of the ~~member's retiree's~~ estate under § 24-7-734.

SECTION 49. Arkansas Code § 24-7-710(a)(2)(B), concerning survivor annuity benefits under the Arkansas Teacher Retirement System, is amended to read as follows:

(B) If an immediately eligible survivor or the minor survivor's guardian or legal representative fails to complete the application process ~~within six (6) calendar months after~~ by the end of the sixth full calendar month following the date on which the application required under subdivision (a)(2)(A) of this section is filed, including the submission of any additional documentation required by the system, the application shall be void unless an extension is granted by the ~~system~~ Executive Director of the Arkansas Teacher Retirement System.

SECTION 50. Arkansas Code § 24-7-710(b)(1)(A)(i), concerning survivor annuity benefits under the Arkansas Teacher Retirement System, is amended to read as follows:

(ii) Unless the member otherwise directs an alternative beneficiary to receive the member's residue amount by using a beneficiary form approved by the system, a member's surviving spouse, who was married to the member for at least the two (2) years immediately preceding the member's death, shall receive an annuity computed in the same manner in all respects as if the member had retired on the date of the member's death and elected Option A under § 24-7-706 to provide one hundred percent (100%) survivor annuity benefits, including benefits applicable under § 24-7-713, for his or her spouse.

SECTION 51. Arkansas Code § 24-7-710(b)(1)(B)(ii), concerning survivor annuity benefits under the Arkansas Teacher Retirement System, is amended to read as follows:

(ii) If an immediately eligible spouse fails to complete the application process ~~within six (6) calendar months after~~ by the end of the sixth full calendar month following the date on which the application required under subdivision (b)(1)(B)(i) of this section is filed, including the submission of all additional documentation required by the system, the application shall be void unless an extension is granted by the ~~system~~ executive director.

SECTION 52. Arkansas Code § 24-7-710(b)(1)(C)(ii), concerning survivor annuity benefits under the Arkansas Teacher Retirement System, is amended to read as follows:

(ii) If a surviving spouse becomes eligible for surviving spouse benefits and fails to complete the application process ~~within six (6) calendar months after~~ by the end of the sixth full calendar month following the date on which the application required under subdivision (b)(1)(B)(i) of this section is filed, including the submission of any additional documentation required by the system, the application shall be void unless an extension is granted by the ~~system~~ executive director.



SECTION 53. Arkansas Code § 24-7-713(a)(1), concerning retirement annuities and the simple cost of living adjustment and monthly benefit stipend under the Arkansas Teacher Retirement System, is amended to read as follows:

(a)(1) July 1 of each year, ~~retirants~~ retirees, survivors, participants in the Teacher Deferred Retirement Option Plan, and annuity beneficiaries who have been receiving monthly benefits for the previous twelve (12) months shall receive a simple cost of living adjustment.

SECTION 54. Arkansas Code § 24-7-713(d), concerning retirement annuities and the simple cost of living adjustment and monthly benefit stipend under the Arkansas Teacher Retirement System, is amended to read as follows:

(d)(1) The board may remove by board resolution the benefit stipend from the base amount of current ~~retirants~~ retirees and option beneficiaries if the board determines that the removal of the benefit stipend from the base amount is prudent in order to maintain actuarial soundness.

(2) The board may phase in the removal of the benefit stipend from the base amount of current ~~retirant~~ retiree and option beneficiaries by board resolution.

SECTION 55. Arkansas Code § 24-7-714 is amended to read as follows:

24-7-714. Increase in monthly benefits — Acts 1979, No. 655, and Acts 1981, No. 885.

(a) The monthly retirement benefit payable to ~~retirants~~ retirees and beneficiaries of the Arkansas Teacher Retirement System who were retired on or before July 1, 1978, and who were receiving benefits on July 1, 1979, shall be increased as follows:

(1) For all benefits to ~~retirants~~ retirees and beneficiaries of the system whose total credited service is before July 1, 1961, a monthly benefit increase equal to one dollar (\$1.00) per each year of credited service;

(2) For all benefits to ~~retirants~~ retirees and beneficiaries of the system which are based in whole or in part upon credited service rendered after July 1, 1961, a monthly benefit increase equal to seventy-five cents (75¢) per each year of credited service;

(3) For benefit increases authorized by subdivisions (a)(1) and (2) of this section, fractional years of service shall be disregarded, and the increase shall be added to the monthly annuity after the annual postretirement increase based on the consumer price index has been applied to the ~~retirant's~~ retiree's base annuity; and

(4) In the event that there is more than one (1) beneficiary or survivor of a member or ~~retirant~~ retiree receiving benefits, the increases in subdivisions (a)(1) and (2) of this section shall be based upon the member's total credited service. The benefit increase so determined shall be divided between the survivors or beneficiaries in proportion to their base annuities.

(b) For retirements effective after July 1, 1978, for which a monthly benefit is payable for the month of July 1981 or later, calculations shall be made as provided in subdivisions (b)(1) and (2) of this section. If the monthly benefit calculated using subdivision (b)(1) of this section is more than the monthly benefit calculated using subdivision (b)(2) of this section, then the difference shall be paid to the ~~retirant~~ retiree as a monthly benefit increase, subject to the provisions of subdivisions (b)(3)-(6) of this section, as follows:

(1) Calculate the monthly annuity payable to the member under § 24-7-705, based on the provisions of § 24-7-705, his or her salary record, and his or her service record, all as of July 1, 1978, and add seventy-five cents (75¢) for each year of the member's credited service rendered before July 1, 1978;

(2) Calculate the monthly annuity payable to the member under the provisions of § 24-7-705 in effect at the time of the member's retirement;

(3) For benefit increases authorized by this subsection, fractional years of service shall be disregarded. The increase shall be added to the monthly annuity after the annual postretirement increase based on the consumer price index has been applied to the ~~retirant's~~ retiree's base annuity;

(4) In the event that there is more than one (1) beneficiary or survivor of a member or ~~retirant~~

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retiree receiving benefits, the increases in this subsection shall be based upon the member's total credited service, and the benefit increase so determined shall be divided between the survivors or beneficiaries in proportion to their base annuities;

(5) Any benefit increase created by this subsection shall be effective at retirement but not for any month before July 1981; and

(6) If there is any change in § 24-7-705 after the member's retirement, the amount under subdivision (b)(2) of this section shall be recalculated using the changed provisions, and the benefit increase provided by this subsection shall be changed correspondingly.

SECTION 56. Arkansas Code § 24-7-727(a)(1), concerning compounded cost of living adjustments under the Arkansas Teacher Retirement System, is amended to read as follows:

(a)(1) After July 1, 1999, the Board of Trustees of the Arkansas Teacher Retirement System may compound the cost of living adjustment for all ~~retirants~~ retirees and participants in the Teacher Deferred Retirement Option Plan who have received a monthly retirement benefit for the prior twelve-month period.

SECTION 57. Arkansas Code § 24-7-727(b)(3)(A), concerning compounded cost of living adjustments under the Arkansas Teacher Retirement System, is amended to read as follows:

(3)(A) The board may reverse a compounding of the cost of living adjustment for all ~~retirants~~ retirees and participants in the Teacher Deferred Retirement Option Plan who benefit from the compounding.

SECTION 58. Arkansas Code § 24-7-728 is amended to read as follows:

24-7-728. Computation of benefits based on life annuity.

(a)(1) ~~The Board of Trustees of the Arkansas Teacher Retirement System is authorized by this section to raise the level of benefit to the current retirants retirees and other beneficiaries of the Arkansas Teacher Retirement System, to a comparable level increase to match the increase in benefits that would accrue to active members as a result of any increase in the calculation of a life annuity as provided in § 24-7-705(a)(1) in accordance with any rules the board might promulgate.~~

(2) The board may raise the level of benefit to a comparable level increase that matches the increase in benefits that would accrue to active members as a result of any increase in the calculation of a life annuity as provided in § 24-7-705(a)(1) in accordance with any rules the board might promulgate.

(b)(1) The amount of any increase for ~~retirants~~ retirees and other beneficiaries shall also be determined in accordance with the rules of the board as is actuarially appropriate for the system.

(2) ~~Prior to~~ Before increasing a benefit as provided in this section, the board shall file relevant information concerning the actuarial appropriateness of the action with the Joint Committee on Public Retirement and Social Security Programs, and the action shall be reviewed by the Joint Committee on Public Retirement and Social Security Programs.

SECTION 59. Arkansas Code § 24-7-733(a)(2), concerning the limitation on benefits under the Arkansas Teacher Retirement System, is amended to read as follows:

(2) The annual benefits, as may be increased in subsequent years, that are paid to ~~retirants~~ retirees by the system shall not violate the limitations under the Internal Revenue Code, 26 U.S.C. 415(b), applicable to the annuity effective date under the Internal Revenue Code, 26 U.S.C. 415(d), and benefits shall be paid in a manner that protects the tax-qualified status of the system.

SECTION 60. Arkansas Code § 24-7-735(c), concerning contract buyout agreements, settlements, judgments, and calculation of benefits under the Arkansas Teacher Retirement System, is amended to add an additional subdivision to read as follows:

(4)(i) Service credit purchased under a settlement agreement or court order shall off-set service credit that is earned by the member as an employee of another covered employer during the same period of time covered by the service credit purchased under the settlement agreement or court order.

(ii) Service credit purchased under a settlement agreement or court order shall not be applied by the system in a manner that allows the member to earn more than one (1) year of service credit in a fiscal year.

SECTION 61. Arkansas Code § 24-7-738(b)(2), concerning the return to regular covered employment for service credit after disability retirement, the alternate option to return to disability retirement, and incentives to work under the Arkansas Teacher Retirement System, is amended to read as follows:

(2) Any disability retirement benefit erroneously paid to the member or ~~retirant~~ retiree for a month in which the member receives salary from a covered employer may be recovered by the system as an overpayment as allowed by law.

SECTION 62. Arkansas Code § 24-7-1302(c), concerning applications to participate and the review of applications to participate in the Teacher Deferred Retirement Option Plan, is amended to add an additional subsection to read as follows:

(c) The member may withdraw his or her plan application if notice to withdraw is received by the system ~~no later than two (2) calendar months after~~ by the end of the second full calendar month immediately following the member's plan date.

SECTION 63. Arkansas Code Title 24, Chapter 7, Subchapter 15 is amended to read as follows:  
Subchapter 15 — ~~Retirants'~~ Retirees' Ad Hoc Increase Act

24-7-1501. Title.

This subchapter shall be known and may be cited as the "~~Retirants'~~ Retirees' Ad Hoc Increase Act".

24-7-1502. Benefit generally.

(a)(1) The annual benefit payable to eligible retirees, survivors, and beneficiaries of ~~retirants~~ retirees of the Arkansas Teacher Retirement System shall be subject to a one-time ad hoc increase based on the ~~retirant's~~ retiree's years of credited service that is grouped within descending decades as calculated by subtracting the total years of credited service from the date of retirement.

(2) A break in credited service is not considered under this subchapter.

(3) Teacher Deferred Retirement Option Plan participants shall have the total years of credited service subtracted from the date of entry into the plan.

(b)(1) One-half (½) of the annual dollar increase per year of credited service shall be calculated and provided to all retirees, survivors, and beneficiaries of ~~retirants~~ retirees that are eligible to receive this increase.

(2) One-half (½) of the annual dollar increase per year of credited service shall be calculated then prorated based on the amount of contributory service credit to total service on the ~~retirant's~~ retiree's:

(A) Retirement date; or

(B) Plan entry date.

(3) The amounts under this subsection shall be calculated and provided to all retirees, survivors, and beneficiaries of ~~retirants~~ retirees.

(c) The ad hoc benefit is payable to the retirees, survivors, and beneficiaries of ~~retirants~~ retirees of the system beginning on a July 1 that is at least twelve (12) full months after the effective date of a monthly benefit.

(d) The ad hoc benefit for a ~~retirant~~ retiree, survivor, and beneficiary of a ~~retirant~~ retiree shall not increase the ~~retirant's~~ retiree's current benefit by more than twenty-five percent (25%) of the annuity benefit payable as of the prior June 30.

24-7-1503. Ad hoc benefit formula.

The schedule of decade dollar amounts per year of credited service is:

Formula Decades in Which Credited  
Service Was Accrued Service

Annual \$ Increase Per Year of  
Credited Service



2000 – and later	\$5
1990–1999	\$10
1980–1989	\$20
1970–1979	\$30
1960–1969	\$40
1950–1959	\$50
1940–1949	\$60
1930–1939	\$70
1920–1929	\$80
1910–1919	\$90

24-7-1504. Promulgation of rules — Duty of board.

(a) The Board of Trustees of the Arkansas Teacher Retirement System shall promulgate rules for the ad hoc benefit under this subchapter.

(b) An ad hoc benefit under this subchapter shall not be implemented if the ad hoc benefit would cause the Arkansas Teacher Retirement System’s unfunded actuarial accrued liabilities to exceed an eighteen-year amortization.

(c) The board shall only authorize an ad hoc benefit that is actuarially appropriate for the system.

(d) Before an increase of retirement benefit through an ad hoc benefit is authorized, the board shall file relevant information with the Joint Interim Committee on Public Retirement and Social Security Programs regarding the actuarial appropriateness of the increase.

(e) The board may reduce the decade increase formula under § 24-7-1503 proportionately on a one-to-one formula basis for each decade when the reduction is actuarially feasible to implement.

(f) The ad hoc benefit increase is a one-time adjustment and shall also be used to increase the base amount of a ~~retirant’s~~ retiree’s benefits when calculating any future additional benefit increases.

SECTION 64. EMERGENCY CLAUSE. It is found and determined by the General Assembly of the State of Arkansas that the operations of a state public retirement system are complex; that the Arkansas Teacher Retirement System must be able to meet the needs of its members as anticipated by the General Assembly; that certain provisions of the Arkansas Teacher Retirement System Act, § 24-7-201 et seq., need immediate revision and updating to bring them into conformance with sound public pension policy and actuarial requirements; that the revisions and updates are of great importance to members of the Arkansas Teacher Retirement System and to other citizens of the State of Arkansas; that as the Arkansas Teacher Retirement System operates on a fiscal year of July 1 to June 30, a July 1, 2023, effective date is necessary in order to allow the provisions within this act to begin on the first day of the fiscal year and to allow for a structured and proper administration of the procedures referenced in this act; that the updates and revisions to the Arkansas Teacher Retirement System Act are of great importance for actuarial purposes and for the improvement and protection of member benefits under the Arkansas Teacher Retirement System; and that this act is necessary in order to maintain an orderly system of benefits for the members of the Arkansas Teacher Retirement System. Therefore, an emergency is declared to exist and this act being immediately necessary for the preservation of the public peace, health, and safety shall become effective on July 1, 2023.

State of Arkansas  
94th General Assembly  
Regular Session, 2023  
By: Senator/Representative

A Bill

SENATE/HOUSE BILL

**For An Act To Be Entitled**

AN ACT TO PERMIT A REFUND OF UNUSED PURCHASED SERVICE CREDIT UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM; TO DECLARE AN EMERGENCY; AND FOR OTHER PURPOSES.

**Subtitle**

TO PERMIT A REFUND OF UNUSED PURCHASED SERVICE CREDIT UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM; AND TO DECLARE AN EMERGENCY.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Arkansas Code § 24-1-107(b)(1)(B), concerning recognition of federal retirement programs, is amended to read as follows:

(B)(i) An active member of the Arkansas Teacher Retirement System shall receive credit for the member's federal service upon the payment of the cost of service under § 24-7-502(b) and as prescribed by the Board of Trustees of the Arkansas Teacher Retirement System.

(ii) At the member's request, a member's payment for federal service credit under this section shall be refundable if the:

(a) Member ceases to be an active member before the federal service credit is established as credited service in the system; or

(b) Federal service credit is not otherwise used to establish the member's eligibility for retirement under the system.

SECTION 2. Arkansas Code § 24-7-602(b), concerning military service credit under the Arkansas Teacher Retirement System, is amended to read as follows:

(b)(1) All United States Armed Forces service not otherwise creditable under this section shall be creditable, ~~provided if~~ the member pays to the system the actuarial equivalent for the service credit.

(2) At the member's request, a member's payment for United States Armed Forces service credit under this subsection shall be refundable if the:

(A) Member ceases to be an active member before the United States Armed Forces service credit is established as credited service in the system; or

(B) United States Armed Forces service credit is not otherwise used to establish the member's eligibility for retirement under the system.

SECTION 3. Arkansas Code § 24-7-603, concerning out-of-state service under the Arkansas Teacher Retirement System, is amended to add an additional subsection to read as follows:

(f) At the member's request, a member's payment under this section shall be refundable if the:

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(1) Member ceases to be an active member before the out-of-state service is established as credited service in the system; or

(2) Out-of-state service is not otherwise used to establish the member's eligibility for retirement under the system.

SECTION 4. Arkansas Code § 24-7-604, concerning overseas service under the Arkansas Teacher Retirement System, is amended to add an additional subsection to read as follows:

(f) At the member's request, a member's payment under this section shall be refundable if the:

(1) Member ceases to be an active member before the overseas service is established as credited service in the system; or

(2) Overseas service is not otherwise used to establish the member's eligibility for retirement under the system.

SECTION 5. Arkansas Code § 24-7-605, concerning service in the General Assembly under the Arkansas Teacher Retirement System, is amended to add an additional subsection to read as follows:

(c) At the member's request, member's payment under this section shall be refundable if the:

(1) Member ceases to be an active member before the General Assembly service is established as credited service in the system; or

(2) General Assembly service is not otherwise used to establish the member's eligibility for retirement under the system.

SECTION 6. Arkansas Code § 24-7-606, concerning service for leave of absence to obtain advanced degree under the Arkansas Teacher Retirement System, is amended to add an additional subsection to read as follows:

(d) At the member's request, a member's payment under this section shall be refundable if the:

(1) Member ceases to be an active member before the service for leave of absence to obtain an advanced degree is established as credited service in the system; or

(2) Service for leave of absence to obtain an advanced degree is not otherwise used to establish the member's eligibility for retirement under the system.

SECTION 7. Arkansas Code § 24-7-607(b)(3)(B)(ii), concerning private school service under the Arkansas Teacher Retirement System, is amended to add an additional subsection to read as follows:

~~(ii) If a member ceases to be an active member before the private school service has been established as system credited service, the member payments contributed under this section shall be refunded to the member upon request;~~ At the member's request, a member's payment for certified private school service credit shall be refundable if the:

(a) Member ceases to be an active member before the certified private school service is established as credited service in the system; or

(b) Certified private school service is not otherwise used to establish the member's eligibility for retirement under the system.

SECTION 8. Arkansas Code § 24-7-607(c)(2)(B)(ii), concerning private school service under the Arkansas Teacher Retirement System, is amended to add an additional subsection to read as follows:

~~(ii) If a member ceases to be an active member before the noncertified service has been established as system credited service, the member payments contributed under this section shall be refunded to the member upon request;~~ At the member's request, a member's payment for noncertified private school service credit or noncertified private education-related entity private school service shall be refundable if the:

(a) Member ceases to be an active member before the noncertified private school service or private education-related entity private school service is established as credited service in the system; or

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(b) Noncertified private school service or private education-related entity private school service is not otherwise used to establish the member's eligibility for retirement under the system.

SECTION 9. Arkansas Code § 24-7-610(f), concerning service in the National Guard and armed forces reserve under the Arkansas Teacher Retirement System, is amended to read as follows:

(f) If a member ceases to be an active member before the service in the National Guard or the armed forces reserve has been established as system credited service, the member payments contributed as specified in subdivision (b)(1)(C) of this section shall be refundable. At the member's request, a member's payment under this section shall be refundable if the:

(1) Member ceases to be an active member before the service in the National Guard or the armed forces reserve is established as credited service in the system; or

(2) Service in the National Guard or the armed forces reserve is not otherwise used to establish the member's eligibility for retirement under the system.

SECTION 10. Arkansas Code § 24-7-611, concerning private school service under the Arkansas Teacher Retirement System, is amended to add an additional subsection to read as follows:

(e) At the member's request, a member's payment under this section shall be refundable if the:

(1) Member ceases to be an active member before the domestic federal service is established as credited service in the system; or

(2) Domestic federal service is not otherwise used to establish the member's eligibility for retirement under the system.

SECTION 11. EMERGENCY CLAUSE. It is found and determined by the General Assembly of the State of Arkansas that the operations of a state public retirement system are complex; that the Arkansas Teacher Retirement System must be able to meet the needs of its members as anticipated by the General Assembly; that certain provisions of the Arkansas Teacher Retirement System Act, § 24-7-201 et seq., need immediate revision and updating to bring them into conformance with sound public pension policy and actuarial requirements; that under the current provisions of the Arkansas Teacher Retirement System Act, a member is unable to receive a refund of certain types of purchased service credit when the member becomes inactive or the purchased service is not otherwise used to establish the member's retirement eligibility; that this act would allow members to receive a refund of purchased service credit when the member becomes inactive or the purchased service is not otherwise used to establish the member's retirement eligibility; that the revisions and updates are of great importance to members of the Arkansas Teacher Retirement System and to other citizens of the State of Arkansas; that as the Arkansas Teacher Retirement System operates on a fiscal year of July 1 to June 30, a July 1, 2023, effective date is necessary in order to allow the provisions within this act to begin on the first day of the fiscal year and to allow for a structured and proper administration of the procedures referenced in this act; that the updates and revisions to the Arkansas Teacher Retirement System Act are of great importance for actuarial purposes and for the improvement and protection of member benefits under the Arkansas Teacher Retirement System; and that this act is necessary in order to maintain an orderly system of benefits for the members of the Arkansas Teacher Retirement System. Therefore, an emergency is declared to exist and this act being immediately necessary for the preservation of the public peace, health, and safety shall become effective on July 1, 2023.

State of Arkansas  
94th General Assembly  
Regular Session, 2023  
By: Senator/Representative

A Bill

SENATE/HOUSE BILL

**For An Act To Be Entitled**

AN ACT TO AMEND THE LAW CONCERNING ANNUITY OPTIONS UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM; TO DECLARE AN EMERGENCY; AND FOR OTHER PURPOSES.

**Subtitle**

TO AMEND THE LAW CONCERNING ANNUITY OPTIONS UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM; AND TO DECLARE AN EMERGENCY.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Arkansas Code § 24-7-706(a)(2)((A)(ii), concerning annuity options under the Arkansas Teacher Retirement System, is amended to read as follows:

(ii) A retirant may designate more than one (1) person as his or her beneficiary.

~~(ii)(iii)(a) The A~~ person designated as a beneficiary by the retirant shall be the spouse or a dependent child of the retirant.

~~(a)(b) The retirant's spouse for not less than one (1) year immediately preceding the first payment due date; or~~ A retirant may designate his or her spouse as his or her beneficiary if the retirant has been married to the spouse for at least one (1) year immediately preceding the first payment due date.

~~(b)(c) A dependent child of the retirant who has been adjudged physically or mentally incapacitated by a court of competent jurisdiction; A~~ retirant may designate his or her dependent child as his or her beneficiary if the dependent child has:

~~(1) Been adjudged physically or mentally incapacitated by a court of competent jurisdiction; or~~

~~(2) A Social Security Administration determination letter finding him or her disabled;~~

SECTION 2. Arkansas Code § 24-7-706(a)(2)((B)(ii), concerning annuity options under the Arkansas Teacher Retirement System, is amended to read as follows:

(ii) A retirant may designate more than one (1) person as his or her beneficiary.

~~(ii)(iii)(a) The A~~ person designated as a beneficiary by the retirant shall be the spouse or a dependent child of the retirant.

~~(a)(b) The retirant's spouse for not less than one (1) year immediately preceding the first payment due date; or~~ A retirant may designate his or her spouse as his or her beneficiary if the retirant has been married to the spouse for at least one (1) year immediately preceding the first payment due date.

~~(b)(c) A dependent child of the retirant who has been adjudged~~

physically or mentally incapacitated by a court of competent jurisdiction; A retirant may designate his or her dependent child as his or her beneficiary if the dependent child has:

- (1) Been adjudged physically or mentally incapacitated by a court of competent jurisdiction; or  
(2) A Social Security Administration determination letter finding him or her disabled;

SECTION 3. Arkansas Code § 24-7-706(d), concerning annuity options under the Arkansas Teacher Retirement System, is amended to add additional subdivisions to read as follows:

(4) A surviving spouse who is eligible to receive an annuity under this section may elect to receive a lump-sum distribution of the retirant's residue in lieu of the spousal annuity if:

(A) The retirant did not designate a dependent child as a beneficiary; and

(B) The surviving spouse files a written waiver of his or her right to the spousal annuity with the system.

(5) If the residue beneficiary who elects an Option A — 100% Survivor Annuity under this subsection is the surviving spouse of a disability retirant, the same procedures used under § 24-7-710 to determine when an active member's surviving spouse is entitled to begin receiving benefit payments shall be used to determine when the residue beneficiary is entitled to begin receiving benefit payments.

SECTION 4. Arkansas Code § 24-7-706, concerning annuity options under the Arkansas Teacher Retirement System, is amended to add an additional subsection to read as follows:

(g) The law in effect at the time of a retirant's death shall be used to determine the retirant's effective retirement date and when survivor benefits under this section are payable.

SECTION 5. EMERGENCY CLAUSE. It is found and determined by the General Assembly of the State of Arkansas that the operations of a state public retirement system are complex; that the Arkansas Teacher Retirement System must be able to meet the needs of its members as anticipated by the General Assembly; that certain provisions of the Arkansas Teacher Retirement System Act, § 24-7-201 et seq., need immediate revision and updating to bring them into conformance with sound public pension policy and actuarial requirements; that the current provisions of the Arkansas Teacher Retirement System Act do not allow a retirant to provide for both his or her surviving spouse and dependent children in the event of the retirant's death by designating both his or her surviving spouse and dependent children as option beneficiaries; that the current provisions of the Arkansas Teacher Retirement System Act do not clearly address when the surviving spouse of a disability retirant is entitled to begin receiving benefit payments; that the revisions and updates are of great importance to members of the Arkansas Teacher Retirement System and to other citizens of the State of Arkansas; that the Arkansas Teacher Retirement System operates on a fiscal year of July 1 to June 30; that a July 1, 2019 effective date is necessary to allow the provisions within this act to begin on the first day of the fiscal year to provide for the proper administration of the procedures referenced in this act; that the updates and revisions to the Arkansas Teacher Retirement System Act are of great importance for actuarial purposes and for the improvement and protection of member benefits under the Arkansas Teacher Retirement System; and that this act is necessary in order to maintain an orderly system of benefits for the members of the Arkansas Teacher Retirement System. Therefore, an emergency is declared to exist and this act being immediately necessary for the preservation of the public peace, health, and safety shall become effective on July 1, 2023.



State of Arkansas  
94th General Assembly  
Regular Session, 2023  
By: Senator/Representative

A Bill

SENATE/HOUSE BILL

**For An Act To Be Entitled**

AN ACT TO AMEND THE LAW CONCERNING THE MEMBERSHIP STATUS OF CERTAIN MEMBERS OF THE ARKANSAS TEACHER RETIREMENT SYSTEM; TO DECLARE AN EMERGENCY; AND FOR OTHER PURPOSES.

**Subtitle**

TO AMEND THE LAW CONCERNING THE MEMBERSHIP STATUS OF CERTAIN MEMBERS OF THE ARKANSAS TEACHER RETIREMENT SYSTEM; AND TO DECLARE AN EMERGENCY.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Arkansas Code § 24-7-406(e)(3)(E), concerning retirement fund asset accounts, member deposits, and contributions under the Arkansas Teacher Retirement System, is amended to read as follows:

(iii) If a member enters into a contract with a covered employer after the start of the fiscal year, the system may prorate the number of contracted days in order to determine whether the member should be classified as a contributory member or a noncontributory member who may make an election under subdivision (e)(3)(E)(ii) of this section.

SECTION 2. EMERGENCY CLAUSE. It is found and determined by the General Assembly of the State of Arkansas that the operations of a state public retirement system are complex; that the Arkansas Teacher Retirement System must be able to meet the needs of its members as anticipated by the General Assembly; that certain provisions of the Arkansas Teacher Retirement System Act, § 24-7-201 et seq., need immediate revision and updating to bring them into conformance with sound public pension policy and actuarial requirements; that additional clarity is necessary concerning the contributory or noncontributory membership status of certain members who enter into an employment contract with a covered employer after the start of the fiscal year; that the revisions and updates are of great importance to members of the Arkansas Teacher Retirement System and to other citizens of the State of Arkansas; that as the Arkansas Teacher Retirement System operates on a fiscal year of July 1 to June 30, a July 1, 2023, effective date is necessary in order to allow the provisions within this act to begin on the first day of the fiscal year and to allow for a structured and proper administration of the procedures referenced in this act; that the updates and revisions to the Arkansas Teacher Retirement System Act are of great importance for actuarial purposes and for the improvement and protection of member benefits under the Arkansas Teacher Retirement System; and that this act is necessary in order to maintain an orderly system of benefits for the members of the Arkansas Teacher Retirement System. Therefore, an emergency is declared to exist and this act being immediately necessary for the preservation of the public peace, health, and safety shall become effective on July 1, 2023.

State of Arkansas  
94th General Assembly  
Regular Session, 2023  
By: Senator/Representative

A Bill

SENATE/HOUSE BILL

**For An Act To Be Entitled**

AN ACT TO AMEND THE LAW CONCERNING THE LUMP-SUM  
BENEFIT UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM;  
TO DECLARE AN EMERGENCY; AND FOR OTHER PURPOSES.

**Subtitle**

TO AMEND THE LAW CONCERNING THE LUMP-SUM  
BENEFIT UNDER THE ARKANSAS TEACHER  
RETIREMENT SYSTEM; AND TO DECLARE AN  
EMERGENCY.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Arkansas Code § 24-7-720 is amended to read as follows:

27-7-720. Lump-sum death benefit — Definitions.

~~(a)(1)(A) If prior to July 1, 2007, an active member of the Arkansas Teacher Retirement System with five (5) or more years of actual service, including actual service for the year immediately preceding the member's death, dies in employer service before retirement, then a lump sum of up to ten thousand dollars (\$10,000) shall be paid to such persons as he or she shall have nominated by written designation duly executed and filed with the Board of Trustees of the Arkansas Teacher Retirement System. If an active member, a T-DROP participant, or a retiree with five (5) years of actual service, including actual service for the year immediately preceding the member's death, dies before July 1, 2007, then a lump-sum death benefit of up to ten thousand dollars (\$10,000) shall be paid to each person designated by the member as a beneficiary in the manner required by the Arkansas Teacher Retirement System.~~

~~(B) Effective July 1, 2009, if a member who retired or became a T-DROP participant on or before July 1, 2007, with five (5) or more years of actual service dies, then a lump-sum death benefit of up to ten thousand dollars (\$10,000) shall be paid to each person designated by the member as a beneficiary in the manner required by the system.~~

~~(B)(C) If on or after July 1, 2007, an active member of the Arkansas Teacher Retirement System with ten (10) or more years of actual service dies in employer service before retirement, then a lump sum of up to ten thousand dollars (\$10,000) shall be paid to the persons he or she has nominated by written designation executed and filed with the board. If an active member, a T-DROP participant, or a retiree with ten (10) or more years of actual service dies on or after July 1, 2007, then a lump-sum death benefit of up to ten thousand dollars (\$10,000) shall be paid to each person designated by the member as a beneficiary in the manner required by the system.~~

~~(D)(i) If a member accrues a minimum of ten (10) years of actual, contributory service, regardless of noncontributory service accrued in combination with the contributory service, the member shall receive the maximum lump-sum death benefit as determined by the board under this section.~~

~~(ii) Upon the member's death, the lump-sum death benefit shall be paid to each person designated by the member as a beneficiary in the manner required by the system.~~



(iii) The board may set a lump-sum death benefit for noncontributory service as the board deems appropriate.

~~(2) If there are no designated persons who survive the member, the lump sum shall be paid to the member's estate. If a member designates more than one (1) beneficiary, the lump-sum death benefit shall be divided equally amongst each designated beneficiary.~~

~~(3) If all the member's designated beneficiaries do not survive the member, the lump-sum death benefit shall be paid to the member's estate.~~

~~(b)(1) If a retired member of the system dies prior to July 1, 2007, and the retired member accrued five (5) or more years of actual service, including actual service for the year immediately preceding the member's death, then a lump sum of up to ten thousand dollars (\$10,000) shall be paid to such persons as he or she shall have nominated by written designation duly executed and filed with the board.~~

~~(2) If a retired member of the system dies on or after July 1, 2007, and the retired member accrued ten (10) or more years of actual service, including actual service for the year immediately preceding the member's death, then a lump sum of up to ten thousand dollars (\$10,000) shall be paid to such persons as he or she shall have nominated by written designation duly executed and filed with the board.~~

~~(3) If there are no designated persons who survive the member, the lump sum shall be paid to the member's estate.~~

~~(e)(b) The amount of the lump-sum death benefit payments under this section shall be set periodically and not more often than annually by rules and resolutions of the board as the board determines is actuarially appropriate for the system.~~

~~(d)(1) For determining eligibility for the lump sum death benefit under this section, "actual service" means service rendered in a position covered by the system.~~

~~(2) "Actual service" does not include purchased or free credited service or reciprocal service.~~

~~(e)(1)(c)(1) A benefit enhancement provided for under this section shall not be implemented if it would cause the system's unfunded actuarial accrued liabilities to exceed an eighteen-year amortization.~~

~~(2) If the system's unfunded actuarial accrued liabilities exceed an eighteen-year amortization, a benefit enhancement provided for under this section shall not be implemented until the unfunded actuarial accrued liability is reduced to a level less than the standards prescribed by § 24-1-101 et seq.~~

~~(f)(1)(d) Pursuant to the board's fiduciary duty, the board shall implement this benefit provision for lump-sum payments by either making the lump-sum death benefit payments directly from the system or by purchasing a group life insurance policy for the benefit of system members.~~

~~(2) A lump sum payment under this subsection is intended to be exempt from income tax.~~

~~(g) Effective July 1, 2009, a retired member of the system who retired on or before July 1, 2007, and had five (5) or more years of actual service credited in his or her account at retirement shall have the lump sum death benefit paid upon the retired member's death under subsection (b) of this section.~~

~~(h)(e) A lump-sum death benefit payment under this section is intended to be exempt from income tax.~~

~~(i)(f) For eligibility under this section, a member is considered active for an additional fiscal year following the last fiscal year that the member renders actual service in a position reported to the system by a covered employer and the member obtains at least one-fourth (1/4) year of service credit.~~

~~(j)(1)(A) If a member accrues a minimum of ten (10) years of actual, contributory service, regardless of noncontributory service accrued in combination with the contributory service, the member shall receive the maximum lump sum death benefit as determined by the board under this section.~~

~~(B) Upon the member's death, the lump sum death benefit shall be paid to persons the member selects by written designation executed and filed with the board .~~

~~(2) The board may set a lump sum benefit for noncontributory service as the board deems appropriate.~~

SECTION 2. EMERGENCY CLAUSE. It is found and determined by the General Assembly of the State of Arkansas that the operations of a state public retirement system are complex; that the Arkansas Teacher Retirement System must be able to meet the needs of its members as anticipated by the General Assembly; that certain provisions of the Arkansas Teacher Retirement System Act, § 24-7-201 et seq., need immediate revision and updating to bring them into conformance with sound public pension policy and actuarial requirements; that

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the current provisions of the Arkansas Teacher Retirement Act create ambiguity as to the proper administration of the lump-sum death benefit and the eligibility of a retiree and T-DROP participant to receive a lump-sum death benefit; that the revisions and updates are of great importance to members of the Arkansas Teacher Retirement System and to other citizens of the State of Arkansas; that as the Arkansas Teacher Retirement System operates on a fiscal year of July 1 to June 30, a July 1, 2023, effective date is necessary in order to allow the provisions within this act to begin on the first day of the fiscal year and to allow for a structured and proper administration of the procedures referenced in this act; that the updates and revisions to the Arkansas Teacher Retirement System Act are of great importance for actuarial purposes and for the improvement and protection of member benefits under the Arkansas Teacher Retirement System; and that this act is necessary in order to maintain an orderly system of benefits for the members of the Arkansas Teacher Retirement System. Therefore, an emergency is declared to exist and this act being immediately necessary for the preservation of the public peace, health, and safety shall become effective on July 1, 2023.

State of Arkansas  
94th General Assembly  
Regular Session, 2023  
By: Senator/Representative

A Bill

SENATE/HOUSE BILL

**For An Act To Be Entitled**

AN ACT TO AMEND THE LAW CONCERNING THE FINAL AVERAGE SALARY UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM; TO DECLARE AN EMERGENCY; AND FOR OTHER PURPOSES.

**Subtitle**

TO AMEND THE LAW CONCERNING THE FINAL AVERAGE SALARY UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM; AND TO DECLARE AN EMERGENCY.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Arkansas Code § 24-7-736(c)(2), concerning the calculation of the final average salary under the Arkansas Teacher Retirement System, is amended to add an additional subdivision to read as follows:

(C) A partial service year shall not be used in the calculation of the final average salary if the:

(i) Partial service year is higher than a full service year; or

(ii) Member has less than the number of years required to calculate the final average salary.

SECTION 2. Arkansas Code § 24-7-736(c)(4)(D), concerning the calculation of the final average salary under the Arkansas Teacher Retirement System, is amended to read as follows:

(D)(i) The next-highest service year salary in the calculation of final average salary that is less than eight (8) years from the base salary year shall not exceed the base salary value plus the ~~salary differential~~ anti-spiking amount unless the next-highest year's value is less than or equal to the ~~percentage increase~~ anti-spiking percentage of the base salary.

(ii) Subdivision (c)(4)(D)(i) of this section shall not apply to a partial service year or a fiscal year immediately following a partial service year.

SECTION 3. Arkansas Code § 24-7-736(e), concerning the calculation of the final average salary under the Arkansas Teacher Retirement System, is amended to read as follows:

(e) The board may adjust the final average salary calculated in accordance with subsection (c) of this section by board resolution provided that:

(1) The ~~percentage increase~~ anti-spiking percentage under subdivision (c)(4)(D) of this section is set no lower than one hundred five percent (105%) per year and no higher than one hundred twenty percent (120%) per year; and

(2) The ~~salary differential~~ anti-spiking amount permitted under subdivision (c)(4)(D) of this section is set no lower than one thousand two hundred fifty dollars (\$1,250) per year and no higher than five thousand dollars (\$5,000) per year.

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SECTION 4. EMERGENCY CLAUSE. It is found and determined by the General Assembly of the State of Arkansas that the operations of a state public retirement system are complex; that the Arkansas Teacher Retirement System must be able to meet the needs of its members as anticipated by the General Assembly; that certain provisions of the Arkansas Teacher Retirement System Act, § 24-7-201 et seq., need immediate revision and updating to bring them into conformance with sound public pension policy and actuarial requirements; that the revisions and updates are of great importance to members of the Arkansas Teacher Retirement System and to other citizens of the State of Arkansas; that as the Arkansas Teacher Retirement System operates on a fiscal year of July 1 to June 30, a July 1, 2023, effective date is necessary in order to allow the provisions within this act to begin on the first day of the fiscal year and to allow for a structured and proper administration of the procedures referenced in this act; that the updates and revisions to the Arkansas Teacher Retirement System Act are of great importance for actuarial purposes and for the improvement and protection of member benefits under the Arkansas Teacher Retirement System; and that this act is necessary in order to maintain an orderly system of benefits for the members of the Arkansas Teacher Retirement System. Therefore, an emergency is declared to exist and this act being immediately necessary for the preservation of the public peace, health, and safety shall become effective on July 1, 2023.

State of Arkansas  
94th General Assembly  
Regular Session, 2023  
By: Senator/Representative

A Bill

SENATE/HOUSE BILL

**For An Act To Be Entitled**

AN ACT CONCERNING THE PURCHASE OF PERMISSIVE SERVICE CREDIT UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM; TO DECLARE AN EMERGENCY; AND FOR OTHER PURPOSES.

**Subtitle**

CONCERNING THE PURCHASE OF PERMISSIVE SERVICE CREDIT UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM; AND TO DECLARE AN EMERGENCY.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Arkansas Code § 24-7-202, concerning definitions applicable to the Arkansas Teacher Retirement System Act, is amended to add additional subdivisions to read as follows:

(45) “Gap-year” means a period of time:

(A) In which a member:

(i) Was an inactive member;

(ii) Was either:

(a) Unemployed; or

(b) Did not provide qualified service; and

(B) For which the system may grant the member permissive service credit.

(46) “Permissive service credit” means service:

(A) That is credited under the system for the purpose of calculating a member’s benefit;

(B) That has not previously been credited under the system; and

(C) For which a member contributes or pays the amount necessary to fund the benefit attributable to the service as required by the system; and

(47) “Qualified service” means the service described in 26 U.S.C. § 415(n)(3)(C)(i)-(iv),

as in effect on January 1, 2023.

SECTION 2. Arkansas Code Title 24, Chapter 7, Subchapter, 6, is amended to add a new section to read as follows:

24-7-613. Permissive Service Credit — Gap-year service.

(a) A member of the Arkansas Teacher Retirement System may purchase permissive service credit for one (1) or more gap-years if:

(1) The member has five (5) years of actual service in the system;

(2) The member left his or her position as a classroom teacher immediately before the gap-year;

(3) The member returns to his or her position as a classroom teacher after one (1) or more gap-

years;

(4) The member accrues at least one-half (1/2) year of service credit after returning to his or her position as a classroom teacher;

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(5) The member was inactive during the gap-year;

(6) The member's gap-year was for an entire fiscal year; and

(7) Under another provision of the law applicable to the system, the member is ineligible to receive free service credit or purchase service credit for the gap-year.

(b)(1) A member may purchase one (1) year of permissive service credit for each one (1) gap-year.

(2) A member shall not purchase more than five (5) years of permissive service credit.

(c) Permissive service credit for one (1) or more gap-years shall not be purchasable after a member retires from the system.

(d) Permissive service credit shall be credited in accordance with § 24-7-601.

(e)(1) The member shall pay the actuarial equivalent of the member's benefits to the system for each year of permissive service credit purchased.

(2) A year of permissive service credit that is being purchased by a member shall not become credited service under the system until the actuarial equivalent of the member's benefits is paid in full.

(f) At the member's request, a member's payment for permissive service credit under this section shall be refundable if the:

(1) Member ceases to be an active member before the permissive service credit is established as credited service in the system; or

(2) Permissive service credit is not otherwise used to establish the member's eligibility for retirement under the system.

SECTION 3. EMERGENCY CLAUSE. It is found and determined by the General Assembly of the State of Arkansas that the operations of a state public retirement system are complex; that the Arkansas Teacher Retirement System must be able to meet the needs of its members as anticipated by the General Assembly; that certain provisions of the Arkansas Teacher Retirement System Act, § 24-7-201 et seq., need immediate revision and updating to bring them into conformance with sound public pension policy and actuarial requirements; that the revisions and updates are of great importance to members of the Arkansas Teacher Retirement System and to other citizens of the State of Arkansas; that as the Arkansas Teacher Retirement System operates on a fiscal year of July 1 to June 30, a July 1, 2023, effective date is necessary in order to allow the provisions within this act to begin on the first day of the fiscal year and to allow for a structured and proper administration of the procedures referenced in this act; that the updates and revisions to the Arkansas Teacher Retirement System Act are of great importance for actuarial purposes and for the improvement and protection of member benefits under the Arkansas Teacher Retirement System; and that this act is necessary in order to maintain an orderly system of benefits for the members of the Arkansas Teacher Retirement System. Therefore, an emergency is declared to exist and this act being immediately necessary for the preservation of the public peace, health, and safety shall become effective on July 1, 2023.

State of Arkansas  
94th General Assembly  
Regular Session, 2023  
By: Senator/Representative

A Bill

SENATE/HOUSE BILL

**For An Act To Be Entitled**

AN ACT TO AMEND THE LAW CONCERNING THE TERMINATION SEPARATION PERIOD UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM; TO DECLARE AN EMERGENCY; AND FOR OTHER PURPOSES.

**Subtitle**

TO AMEND THE LAW CONCERNING THE TERMINATION SEPARATION PERIOD UNDER THE ARKANSAS TEACHER RETIREMENT SYSTEM; AND TO DECLARE AN EMERGENCY.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Arkansas Code § 24-7-502(a)(2), concerning termination of active membership under the Arkansas Teacher Retirement System, is amended to read as follows:

(2) Effective ~~September 1, 2021~~, July 1, 2023, a member shall not be terminated from employment for purposes of retirement eligibility if within ~~six (6) calendar months~~ the third full calendar month of the member's effective date of retirement the member:

- (A) Becomes employed with a covered employer; and
- (B) Has not attained the system's normal retirement age.

SECTION 2. EMERGENCY CLAUSE. It is found and determined by the General Assembly of the State of Arkansas that the operations of a state public retirement system are complex; that the Arkansas Teacher Retirement System must be able to meet the needs of its members as anticipated by the General Assembly; that certain provisions of the Arkansas Teacher Retirement System Act, § 24-7-201 et seq., need immediate revision and updating to bring them into conformance with sound public pension policy and actuarial requirements; that the provisions of this act assist in addressing the shortage of teachers in Arkansas and will enable retired teachers to return to employment with public schools and public charter schools sooner; that the revisions and updates are of great importance to members of the Arkansas Teacher Retirement System and to other citizens of the State of Arkansas; that as the Arkansas Teacher Retirement System operates on a fiscal year of July 1 to June 30, a July 1, 2023, effective date is necessary in order to allow the provisions within this act to begin on the first day of the fiscal year and to allow for a structured and proper administration of the procedures referenced in this act; that the updates and revisions to the Arkansas Teacher Retirement System Act are of great importance for actuarial purposes and for the improvement and protection of member benefits under the Arkansas Teacher Retirement System; and that this act is necessary in order to maintain an orderly system of benefits for the members of the Arkansas Teacher Retirement System. Therefore, an emergency is declared to exist and this act being immediately necessary for the preservation of the public peace, health, and safety shall become effective on July 1, 2023.

SUMMARY OF DISABILITY APPLICATIONS SUBMITTED  
FOR CONSIDERATION BY THE MEDICAL COMMITTEE

The Medical Committee met in executive session in the first floor conference room at 10:00 a.m. on October 4th, 2022. Those members present were Dr. Eddie Phillips, Dr. Hoyte Pyle, and Dr. Jim Morse. Anne Marie Lehman Berardi of the Teacher Retirement System was also in attendance.

A total of fifteen disability applications were considered. Of the fifteen applicants, nine were approved. Five applicants had more information requested. One applicant was denied.

Respectfully Submitted,



Eddie Phillips, CMO  
Medical Committee Chairman

Respectfully Submitted,



Anne Marie Lehman Berardi  
Retirement Benefits Counselor



SUMMARY OF DISABILITY APPLICATIONS SUBMITTED  
FOR CONSIDERATION BY THE MEDICAL COMMITTEE

The Medical Committee met in executive session in the first floor conference room at 10:30 a.m. on October 31st, 2022. Those members present were Dr. Eddie Phillips, Dr. Hoyte Pyle, and Dr. Jim Morse. Anne Marie Lehman Berardi of the Teacher Retirement System was also in attendance.

A total of fifteen disability applications were considered. Of the fifteen applicants, thirteen were approved. Two applicants had more information requested.

Respectfully Submitted,



Eddie Phillips, CMO  
Medical Committee Chairman

Respectfully Submitted,



Anne Marie Lehman Berardi  
Retirement Benefits Counselor

ARKANSAS TEACHER RETIREMENT SYSTEM  
FINANCIAL COMPARISON

PLAN NET POSITION			
	June 30, 2022	June 30, 2021	Percentage Change
<b>ASSETS</b>			
Cash and cash equivalents	367,097,595	333,682,820	
Accounts receivable	94,804,490	99,532,369	
Investments	19,268,876,123	21,092,661,353	
Invested securities lending	770,276,668	479,988,268	
Equipment (net of accumulated depreciation)	89,714	106,240	
Deferred Outflows Related to OPEB	685,899	1,034,149	
Other assets	101,973	94,100	
<b>TOTAL ASSETS</b>	<b>20,501,932,462</b>	<b>22,007,099,299</b>	-6.84%
<b>LIABILITIES</b>			
Deferred Inflows Related to OPEB	2,070,062	139,784	
Securities lending collateral	770,276,668	479,988,268	
Investment principal payable	43,265,338	47,771,989	
Survivor benefits for minors	14,149	80,911	
Other payables	6,838,994	10,345,476	
<b>TOTAL LIABILITIES</b>	<b>822,465,211</b>	<b>538,326,428</b>	52.78%
<b>NET POSITION HELD IN TRUST FOR PENSION BENEFITS</b>	<b>19,679,467,251</b>	<b>21,468,772,871</b>	-8.33%

CHANGES IN PLAN NET POSITION			
	For the Year Ended		Percentage Change
	June 30, 2022	June 30, 2021	
<b>ADDITIONS</b>			
Contributions	684,837,856	640,697,119	6.89%
Investment income			
Interest and dividends	181,668,556	122,262,275	
Gain / (loss) on investments	(1,729,497,002)	5,166,017,302	
Real estate operating income	6,387,875	6,321,144	
Securities lending activity	3,527,825	2,678,677	
Other investment income	508,754,833 (1)	1,769,200	
Total investment income	(1,029,157,913)	5,299,048,598	
Less investment expense	53,687,251	48,095,147	
Net income from investing activities	(1,082,845,164)	5,250,953,451	
<b>TOTAL ADDITIONS</b>	<b>(398,007,308)</b>	<b>5,891,650,570</b>	-106.76%
<b>DEDUCTIONS</b>			
Benefits	1,374,220,915	1,308,163,750	
Refunds	10,426,792	9,463,375	
Administrative expenses	6,650,604	7,326,798	
<b>TOTAL DEDUCTIONS</b>	<b>1,391,298,311</b>	<b>1,324,953,923</b>	5.01%
<b>CHANGE IN NET PLAN POSITION</b>	<b>(1,789,305,619)</b>	<b>4,566,696,647</b>	
<b>NET POSITION - BEGINNING OF YEAR</b>	<b>21,468,772,871</b>	<b>16,902,076,224</b>	
<b>NET POSITION - END OF YEAR</b>	<b>19,679,467,252</b>	<b>21,468,772,871</b>	-8.33%

(1) Includes \$507 million settlement

**Fiscal Year 2022 Board and Staff Travel Report**

ATRS staff is presenting travel expenditure reports in total in two categories (Board and Staff). More detail is available upon request. Overall, travel increased but not to historical amounts due to new ATRS policies and procedures that allow for more online interaction with members and more online training opportunities for staff.

	<b>FY2022</b>	<b>FY2021</b>	<b>Difference</b>
Board	\$7,962	\$4,738	\$3,224
Staff	\$22,103	\$212	\$21,891
<b>Total</b>	<b>\$30,065</b>	<b>\$4,950</b>	<b>\$25,115</b>

VENDOR	OUTLINE AGREEMENT #	START DATES	FY 22 CONTRACT EXPIRATION DATE	TOTAL POSSIBLE EXTENSIONS	STATUS - ORIGINAL OR AMENDMENT	TOTAL EXTENSION AMOUNT	CURRENT PCS TOTAL	TO DATE (as of 11/22/2022 except as noted)	REQUESTED RENEWAL AMOUNT FOR FISCAL YEARS 2023 AND 2024
<b>INVESTMENT CONTRACTS</b>									
T ROWE PRICE	4600012350	7/1/2007	6/30/2023	Act 304	AMENDMENT #12	\$ 50,000,000.00	\$ 45,200,000.00	\$ 39,367,038.58	\$ 15,000,000.00
KENNEDY CAPITAL MANAGEMENT	4600012617/4600036995	7/1/2007	6/30/2023	Act 304	AMENDMENT #10	\$ 50,000,000.00	\$ 42,800,000.00	\$ 37,957,635.00	\$ 12,000,000.00
STEPHENS	4600012349	7/1/2007	6/30/2023	Act 304	AMENDMENT #9	\$ 40,000,000.00	\$ 35,700,000.00	\$ 30,966,266.30	\$ 12,000,000.00
Voya (FORMERLY NICHOLAS APPLGATE) <sup>1</sup>	4600019519/4600051219	7/1/2010	6/30/2023	Act 304	AMENDMENT #8	\$ 25,000,000.00	\$ 20,500,000.00	\$ 17,844,724.74	\$ 10,000,000.00
BLACKROCK INSTITUTIONAL TRUST	4600028186	11/26/2012	6/30/2023	Act 304	AMENDMENT #5	\$ 12,800,000.00	\$ 3,200,000.00	\$ -	\$ -
LOOMIS SAYLES	4600015081/4600037041	7/1/2008	6/30/2023	Act 304	AMENDMENT #10	\$ 20,000,000.00	\$ 19,300,000.00	\$ 16,265,088.61	\$ 5,000,000.00
LAZARD	4600016862	7/1/2009	6/30/2023	Act 304	AMENDMENT #7	\$ 50,000,000.00	\$ 46,000,000.00	\$ 39,259,491.82	\$ 12,000,000.00
AON HEWITT INVESTMENT CONSULTING (FORMERLY HEWITT ENNIS KNUPP) <sup>2*</sup>	4600014421	11/25/2007	6/30/2023	Act 304	AMENDMENT #12	\$ 9,000,000.00	\$ 6,680,000.00	\$ 6,153,768.01	\$ 900,000.00
AON HEWITT INVESTMENT CONSULTING (FORMERLY HEWITT ENNIS KNUPP) <sup>2*</sup>	4600015870	10/1/2008	6/30/2023	Act 304	AMENDMENT #11	\$ 12,000,000.00	\$ 11,720,000.00	\$ 10,828,849.05	\$ 1,650,000.00
FRANKLIN PARK <sup>2*</sup>	4600014424	11/25/2007	6/30/2023	Act 304	AMENDMENT #11	\$ 20,000,000.00	\$ 18,275,000.00	\$ 17,254,201.72	\$ 2,750,000.00
WELLINGTON	4600012581/4600034016	7/1/2007	6/30/2023	Act 304	AMENDMENT #11	\$ 60,000,000.00	\$ 53,900,000.00	\$ 49,764,772.98	\$ 14,000,000.00
STATE STREET BANK <sup>3</sup>	4600016738	7/1/2009	6/30/2023	Act 304	AMENDMENT #8	\$ 490,000,000.00	\$ 70,000,000.00	\$ 57,743,635.86	\$ 7,000,000.00
HARRIS ASSOCIATES	4600031567	5/1/2014	6/30/2023	Act 304	AMENDMENT #4	\$ 25,000,000.00	\$ 20,900,000.00	\$ 17,793,330.00	\$ 10,000,000.00
RUSSELL IMPLEMENTATION SERVICES	4600031854	7/1/2014	6/30/2023	Act 304	AMENDMENT #4	\$ 3,200,000.00	\$ 3,200,000.00	\$ -	\$ -
<b>ADMINISTRATIVE PROFESSIONAL SERVICES CONTRACTS</b>									
Gill Elrod Owen & Sherman PA <sup>2</sup>	4600019605/4600030541	7/1/2010	6/30/2023	Act 304	AMENDMENT #9	\$ 1,500,000.00	\$ 1,050,000.00	\$ 1,024,654.78	\$ 200,000.00
Kutak Rock LLP <sup>2</sup>	4600016199	11/15/2008	6/30/2023	Act 304	AMENDMENT #8	\$ 540,000.00	\$ 540,000.00	\$ 227,150.80	\$ -
Rose Law Firm <sup>2</sup>	4600019607/4600030539	7/1/2010	6/30/2023	Act 304	AMENDMENT #8	\$ 300,000.00	\$ 300,000.00	\$ 129,955.11	\$ -
<b>ADMINISTRATIVE TECHNICAL SERVICES CONTRACTS</b>									
BXS dba Cadence Insurance (Formerly BancorpSouth Insurance Services) <sup>2</sup>	4600039655	7/1/2017	6/30/2023	6/30/2024	AMENDMENT #8	NA	\$ 40,500.00	\$ 40,500.00	\$ 6,750.00
First Security	4600018594/4600029415	10/20/2010	6/30/2115	Act 304	RENEWAL #8	\$ 1.00	\$ -	\$ -	\$ -
Gabriel, Roeder, Smith & Co. Special <sup>2</sup>	4600015685/4600023873	7/1/2008	6/30/2023	Act 304	AMENDMENT #14	\$ 2,250,000.00	\$ 2,250,000.00	\$ 1,175,905.50	\$ 300,000.00
Gabriel, Roeder, Smith & Co. Regular <sup>2</sup>	4600015684/4600023872	7/1/2008	6/30/2023	Act 304	AMENDMENT #14	\$ 3,000,000.00	\$ 3,000,000.00	\$ 2,366,262.00	\$ 500,000.00
<b>SECURITIES MONITORING FIRMS</b>									
Bernstein Litowitz Berger & Grossman LLP	4600046424	5/18/2020	6/30/2023	Act 304	AMENDMENT #1	\$ -	\$ -	\$ -	\$ -
Bleichmar Fonti & Auld	4600046425	5/18/2020	6/30/2023	Act 304	AMENDMENT #1	\$ -	\$ -	\$ -	\$ -
Cohen Milstein Sellers & Toll	4600046426	5/18/2020	6/30/2023	Act 304	AMENDMENT #1	\$ -	\$ -	\$ -	\$ -
Kaplan Fox and Kilsheimer	4600046427	5/18/2020	6/30/2023	Act 304	AMENDMENT #1	\$ -	\$ -	\$ -	\$ -
Kessler Topaz Meltzer & Check LLP	4600046428	5/18/2020	6/30/2023	Act 304	AMENDMENT #1	\$ -	\$ -	\$ -	\$ -
Labaton Sucharow	4600046429	5/18/2020	6/30/2023	Act 304	AMENDMENT #1	\$ -	\$ -	\$ -	\$ -
<sup>1</sup> As of 6/30/2022 <sup>2</sup> As of 11/22/2022 <sup>3</sup> As of 11/28/2022 *Based on current fee schedule									

TO: ATRS Board of Trustees  
Mr. Clint Rhoden, Executive Director

FROM: Vicky Fowler, Human Resources Manager

Date: December 5, 2022

RE: Personnel Report

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ATRS currently has a total of 87 appropriated positions with 69 positions filled, and 18 vacant.

#### Breakdown of current vacancies

- 10 due to Internal Promotion
- 3 due to Voluntary Termination
- 1 due to Involuntary Termination
- 1 due to Lateral Transfer
- 2 due to Retirement
- 1 due to Death of Employee

#### Position Activity from January 5, 2022 to November 23, 2022.

- 23 Positions advertised
- 254 Applications received
- 64 Applicants interviewed
- 18 Positions filled
- 3 Positions not filled
- 2 Pending interviews

The ATRS Human Resources Manager will be available to answer any questions regarding this report.