

ARKANSAS TEACHER RETIREMENT SYSTEM

June 3, 2019

1400 West Third Street

BOARD ROOM

Little Rock, AR 72201

Board of Trustees Meeting

11:00 a.m.

Trustees

Jeff Stubblefield, Chair

Danny Knight, Vice Chair

Dr. Richard Abernathy

Anita Bell

Lloyd Black

Kathy Clayton

Kelly Davis

Bobby G. Lester

Robin Nichols

Deborah Thompson

Janet Watson

Ex Officio Trustees

Candace A. Franks, State Bank Commissioner

Johnny Key, Education Commissioner

Honorable Andrea Lea, State Auditor

Honorable Dennis Milligan, State Treasurer

AGENDA
ARKANSAS TEACHER RETIREMENT SYSTEM
BOARD OF TRUSTEES

June 3, 2019
11:00 a.m.
1400 West Third Street
Little Rock, AR 72201

- I. ***Call to Order/Roll Call.** page 1.
- II. ***Motion for Excused Absences.**
- III. ***Adoption of Agenda.** page 2.
- IV. Executive Summary. *Clint Rhoden, Executive Director* (Attachment No. 1) page 6.
- V. ***Approval of Prior Meeting Minutes.**
 - A. ***June 6, 2016 - Corrected Minutes: Scrivener's Error.** (Attachment No. 2) page 15.
 - B. ***April 1, 2019 Minutes.** (Attachment No. 3) page 37.
 - C. ***April 29, 2019 Minutes - Called Meeting.** (Attachment No. 4) page 53.
- VI. Report of Member Interest Waived Under A.C.A. Sec. 24-7-205. No interest waived this reporting period.
- VII. Report of Employer Interest and Penalties Waived Under A.C.A. Sec. 24-7-411. No employer penalties and interest was waived this reporting period.
- VIII. ***Compensation for Unused Sick Leave.** *Clint Rhoden, Executive Director*
 - A. ***Resolution 2019-31.** (Attachment No. 5) page 56.
- IX. Audit Committee Report. *Kelly Davis, Audit Committee Chair*
 - A. ***Internal Audit Department Charter.** (Attachment No. 6) page 57.
 - B. ***Audit Committee Charter.** (Attachment No. 7) page 61.
 - C. ***Reappointment of Audit Committee At-Large Member.**

* Action Item

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- D. Internal Audit Report: Disability Benefits. (Attachment No. 8) page 64.
- E. ***2019-2020 Internal Audit Plan.**
 - 1. ***Audit Plan for FY 2020.** (Attachment No. 9) page 70.
 - 2. ***FY2019 Summary of Work Completed.** (Attachment No. 10) page 76.
 - 3. ***Conflict of Interest Statement.** (Attachment No. 11) page 80.
 - 4. ***Code of Ethics Statement.** (Attachment No. 12) page 82.

- X. Investment Committee Report. *Robin Nichols, Investment Committee Chair*
 - A. Arkansas Related Investment Update.
 - 1. ***Recommendation to Provide Staff Authority to Negotiate Refinancing of American Center in Nashville, TN.** (Attachment No. 3) page 84.
 - a. ***Resolution 2019-26.** page 85.
 - 2. List of Fund Closings.
 - a. American Industrial Partners Capital Fund VII, L.P., a Private Equity Buyout, Turnaround and Distressed Debt Fund that will Target Middle Market Underperforming Companies in the Industrial Sector, the Board Authorized Commitment of up to \$30 Million Dollars on February 4, 2019 was Accepted and Closed on March 29, 2019.
 - b. Arlington Capital Partners V, LP, a Private Equity Buyout Fund Specializing in Small to Lower Mid-Market Companies in the U.S. with Imminent Need, the Board Authorized Commitment of up to \$30 Million Dollars on April 1, 2019 was Accepted and Closed on May 3, 2019.
 - c. Blackstone Real Estate Partners Europe VI, SCSp , a Closed End Opportunistic Real Estate Fund that Acquires Distressed and Undermanaged European Properties at Below Market Prices and Executes Business Plans that Seek to Creating Core Real Estate Assets with Imminent Need, the Board Authorized Commitment of up to €44 Million Euros (Approximately the Equivalent of \$50 Million Dollars) on April 1, 2019 was Accepted and Closed on April 30, 2019.
 - 3. Total Equity Rebalancing Update and Recap.
 - a. The Board Authorized Redeployment of the Assets Formerly Managed by Daruma Capital Management to the Existing AllianzGI Structured Alpha Global Equity 350 L.L.C. Fund and the Existing BlackRock MSCI ACWI IMI Index Fund A on April 1, 2019 was Successfully Completed on May 13, 2019.

* Action Item

- b. The Board Authorized Redeployment of Assets Managed by Pershing Square Capital Management, L.P., by Closing the Pershing Square International Ltd Fund and Redeploying the Assets to the Existing BlackRock MSCI ACWI IMI Index Fund A on April 1, 2019 was Initiated April 9, 2019.

B. General Investment Consultant Report.

1. Preliminary Performance Report for the Quarter Ended March 31, 2019. (Attachment No. 4) page 86.
2. Preliminary Performance Report for the Month Ended April 30, 2019. (Attachment No. 5) page 241.

C. Real Assets Investment Consultant Report.

1. Performance Report for Fourth Quarter ending December 31, 2018. (Attachment No. 6) page 265.

D. Private Equity Consultant Report.

1. Private Equity Portfolio Review for the Quarter Ended December 31, 2018. (Attachment No. 7) page 316.
2. ***Recommendation to Commit up to \$30 Million Dollars in JFL Equity Investors V, L.P., a Private Equity Buyout Fund that Invests in the Defense, Aerospace and Maritime Industries and Related Businesses.** (Attachment No. 8) page 368.
 - a. ***Resolution 2019-27.** page 372.
3. ***Recommendation to Transfer the Commitment of up to \$30 Million Dollars to the Franklin Park Venture Capital Access Fund, L.P. that was Authorized by the Board on December 3, 2018 to the Franklin Park Venture Fund Series 2019, L.P. a Fund of Funds Managed by Franklin Park Investing in Venture Capital Private Equity Funds.** (Attachment No. 9) page 373.
 - a. ***Resolution 2019-28.** page 376.
4. ***Recommendation to Transfer the Commitment of up to \$30 Million Dollars to the ATRS/FP Private Equity Fund that was Authorized by the Board on December 3, 2018 and Closed on March 1, 2019 to the Franklin Park Corporate Finance Access Fund, L.P., a Fund of Funds Managed by Franklin Park Investing in Smaller Buyout, Growth, and Turnaround Private Equity Funds.** (Attachment No. 10) page 378.
 - a. ***Resolution 2019-29.** page 381.

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

- A. Open Forum for Potential Rule or Law Changes by Committee Members and Board Members Present.
 1. Open Forum.

* Action Item

- B. ***CASH Program: Extend for FY2020.**
 - 1. ***Resolution 2019-30.** (Attachment No. 13) page 383.
- C. Update on Rules: No Public Comments.
 - 1. Rule 4: Board of Trustees Composition and Elections.
 - 3. Rule 8: Purchase and Refunds.
 - 4. Rule 10: Teacher Deferred Retirement Option Plan (TDROP) and Return to Service.
 - 5. Rule 16: Cash and Savings Help Program.
- D. ***Potential Rule Changes from Rule to Board Policy.**
 - 1. ***Rule 1 - Governance.** (Attachment No. 3) page 387.
 - 2. ***Rule 2 - Board Objectives.** (Attachment No. 4) page 399.
 - 3. ***Rule 3 - Executive Director.** (Attachment No. 5) page 404.

XII. ***Staff Reports.** *Willie Kincade, Director of Operations*

- A. ***Medical Committee Report.** *Willie Kincade, Director of Operations*
(Attachment No. 14) page 414.
- B. Securities Monitoring RFQ Update. *Clint Rhoden, Executive Director and Rod Graves, Deputy Director*

XIII. Mr. Bernard Sulliban to Discuss Proposed Legislation for Board Consideration.

XIV. Other Business.

- A. Recognition of Retiring Trustees.

XV. ***Adjourn.**

EXECUTIVE SUMMARY

TO: Board of Trustees
FROM: ATRS Staff
RE: Executive Summary
DATE: June 3, 2019

- VI. Report of Member Interest Amount Waived Under A.C.A. Sec. 24-7-205.** 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. Since ATRS has implemented the actuarial cost method for the purchase of service credit, interest waived is slowly disappearing, as well as the number of members who purchase service credit. No member interest was waived for this reporting period. This is a standard report for information and is not an action item.
- VII. Report of Employer Interest and Penalties Waived Under A.C.A. Sec. 24-7-411.** 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. No employer interest and penalties were waived for this reporting period. This is a standard report for information and is not an action item.
- VIII. Compensation for Unused Sick Leave.** Clint Rhoden will present how ATRS uses payments for unused sick leave in the calculation of the final average salary and discuss any changes the board decides to implement. **This is an action item.**
- A. Resolution No. 2019-31**
- IX. Audit Committee Report. *Kelly Davis, Chair***
- A. Internal Audit Charter.** The International Standards for the Professional Practice of Internal Auditing (Standards) require audit organizations to establish an audit charter that formally defines the organization's purpose, authority, and responsibility. The ATRS Internal Audit Charter presented for approval establishes the Internal Audit position within ATRS, including the Internal Audit Director's functional reporting relationship with the Board of Trustees; authorizes access to records, personnel, and physical properties relevant to the performance of engagements; and defines the scope of internal audit activities.

The Internal Audit Charter was approved by the Audit Committee and the Board of Trustees on June 6, 2016. However, the approval was not recorded in the minutes of the June 6, 2016 meeting minutes. The minutes have been corrected and a signed copy of the minutes is needed for the records of the Internal Audit Department.

- B. Audit Committee Charter.** Act 127 of 2017 gives the Audit Committee of the ATRS Board of Trustees the authority to perform an annual employee evaluation of the Internal Auditor of ATRS, so long as the Board has an Audit Committee. The legislation is considered to be a best practice in that it allows the Internal Auditor to perform their duties without any outside influence. In response to questions in the April 1, 2019 Board meeting, the Legal Department and Internal Audit are proposing some changes in the Audit Committee Charter regarding the appointment and removal of the Internal Auditor. Changes to the Audit Committee Charter require Board of Trustees approval.
- C. Reappointment of Audit Committee At-Large Member.** In the April 1, 2019 Board of Trustees meeting, the Board approved extending the service term of At-Large members to include two (2) full four (4) year terms. Ricky Quattlebaum, who is at the end of his first 4-year term, is now eligible to serve an additional full 4-year term. Mr. Quattlebaum's knowledge and experience in accounting and internal auditing have made him invaluable to the Audit Committee and the Internal Audit Department. Therefore, it is requested that his services be retained. Appointment of at-large members must be approved by the ATRS Board.
- D. Internal Audit Report: Disability Benefits.**
- E. 2019–2020 Internal Audit Plan.** As required by the International Standards for the Professional Practice of Internal Auditing issued by the Institute of Internal Auditors (IIA), and by Arkansas Teacher Retirement Systems (ATRS) Internal

Audit Charter, we submit the following Internal Audit Plan for the Internal Audit Fiscal Year 2020. Projects were identified for this audit plan by using the ATRS risk assessment. As ATRS continues to grow in terms of responsibilities, assets, and membership, there are areas that require regular reviews to ascertain whether the system continues to operate in an effective and efficient, risk-controlled manner. Choices were made in determining which audits to perform first by determining which areas posed greater risks for the system. We have selected areas of processes for review where failure of the system to adequately perform could have serious consequences for ATRS, its members and stakeholders, and the Board.

The proposed audit plan can be viewed at Attachment 6. Conflict of Interest Statements and Code of Ethics Acknowledgement Statements for Internal Audit staff are included as attachments 7 and 8. Also attached is the FY2019 Summary of Work Completed.

X. Investment Committee Report. *Robin Nichols, Chair.*

A. Arkansas Related and Investment Update

- 1. Recommendation to Provide Staff Authority to Negotiate Refinancing of American Center in Nashville, TN.** In December of 2000 ATRS partnered with Cooper Communities, Inc. (Cooper) for the purpose of purchasing American Towers located at 3100 West End, Nashville, TN, for \$71 million dollars. ATRS contributed approximately \$17 million dollars for 80% ownership and Cooper contributed approximately \$4 million dollars for 20% ownership with the balance being debt of approximately \$50 million dollars.

The approximate \$50 million dollar debt at the time of purchase in 2000 was refinanced with AIG in 2006. The terms of the 2006 refinancing included a 15 year loan of \$66 million dollars with a 25 year amortization period and an interest rate of 7.04%. The additional loan amount in 2006 of approximately \$16 million dollars was used for a stream of payments to ATRS totaling approximately \$10 million dollars over time with the remainder being used for tenant improvements and upgrades intended to increase the value of the property.

The 2006 refinancing debt is coming due in the near future and current favorable interest rates make another refinancing economically attractive. The 7.04% interest rate obtained from the refinancing in 2006 was considered to be a good rate at the time but current rates are lower and another refinancing could produce significant savings and another cash payout to ATRS. The 2006 refinancing also contained prepayment penalties which effectively economically prevented refinancing for a period of time. Now that the loan is closer to maturity the prepayment penalty has been reduced and the potential savings from available lower interest rates should help offset any remaining prepayment penalties over time.

The proposed refinancing would result in a payout to ATRS of approximate \$17.6 million dollar as well as an approximate 9% IRR from the 2000 purchase date to the 2019 refinancing. ATRS will realize another 9% IRR from the 2019 refinancing date to the 2029

maturity date assuming historical occupancy and rent growth. Both Aon Hewitt Investment Consulting and ATRS staff recommend providing staff authority to negotiate and execute the refinancing of American Center.

2. List of Fund Closings

- a. American Industrial Partners Capital Fund VII, L.P., a Private Equity Buyout, Turnaround and Distressed Debt Fund that will Target Middle Market Underperforming Companies in the Industrial Sector, the Board Authorized Commitment of up to \$30 Million Dollars on February 4, 2019 was Accepted and Closed on March 29, 2019.** The ATRS full commitment of \$30 million dollars was negotiated, accepted, and closed on March 29, 2019.
- b. Arlington Capital Partners V, LP, a Private Equity Buyout Fund Specializing in Small to Lower Mid-Market Companies in the U.S. with Imminent Need, the Board Authorized Commitment of up to \$30 Million Dollars on April 1, 2019 was Accepted and Closed on May 3, 2019.** Due to high demand for this fund, ATRS received a smaller allocation by the General Partner than requested. A commitment of \$25 million dollars was negotiated, accepted, and closed on May 3, 2019.
- c. Blackstone Real Estate Partners Europe VI, SCSp , a Closed End Opportunistic Real Estate Fund that Acquires Distressed and Undermanaged European Properties at Below Market Prices and Executes Business Plans that Seek to Creating Core Real Estate Assets with Imminent Need, the Board Authorized Commitment of up to €44 Million Euros (Approximately the Equivalent of \$50 Million Dollars) on April 1, 2019 was Accepted and Closed on April 30, 2019.** The ATRS full commitment of €44 million euros (approximately the equivalent of \$50 million dollars) was negotiated, accepted, and closed on April 30, 2019.

3. Total Equity Rebalancing Update and Recap.

- a. The Board Authorized Redeployment of the Assets Formerly Managed by Daruma Capital Management to the Existing AllianzGI Structured Alpha Global Equity 350 L.L.C. Fund and the Existing BlackRock MSCI ACWI IMI Index Fund A on April 1, 2019 was Successfully**

Completed on May 13, 2019. The Board authorized redeployment of assets formerly managed by Daruma to the existing Allianz GI Structured Alpha Global Equity 350 fund and the existing BlackRock MSCI ACWI IMI fund was successfully completed on May 13, 2019.

- b. The Board Authorized Redeployment of Assets Managed by Pershing Square Capital Management, L.P., by Closing the Pershing Square International Ltd Fund and Redeploying the Assets to the Existing BlackRock MSCI ACWI IMI Index Fund A on April 1, 2019 was Initiated April 9, 2019.** Due to fund guidelines and redemption notification requirements, the Board authorized redeployment of assets managed by Pershing Square Capital Management in the Pershing Square International fund is expected to be completed by mid-2021.

B. General Investment Consultant Report.

- 1. Preliminary Performance Report for the Quarter Ended March 31, 2019.** P. J. Kelly and Katie Comstock of Aon Hewitt Investment Consulting will provide the Board with a preliminary portfolio update for the quarter ending March 31, 2019.
- 2. Preliminary Performance Report for the Month Ended April 30, 2019.** P. J. Kelly and Katie Comstock of Aon Hewitt Investment Consulting will provide the Board with a preliminary portfolio update for the month ending April 30, 2019.

C. Real Assets Consultant Report.

- 1. Performance Report for the Quarter Ended December 31, 2018.** Chae Hong of Aon Hewitt Investment Consulting will provide the Board with a performance report for the quarter ending December 31, 2018.

D. Private Equity Consultant Report.

- 1. Private Equity Portfolio Review for the Quarter Ended December 31, 2018.** Michael Bacine of Franklin Park will provide the Board with a portfolio review for the quarter ending December 31, 2018.
- 2. Recommendation to Commit up to \$30 Million Dollars in JFL Equity Investors V, L.P., a Private Equity Buyout Fund that Invests in the Defense, Aerospace and Maritime Industries and Related Businesses.** J.F. Lehman & Company, the general

partner of JFL Equity Investors IV, was founded in 1992 to provide financial advisory services to companies in the defense and aerospace sectors. The advisory business ended in 1997 when the firm formed its first institutional private equity partnership. The firm has a history of successful investments in the defense, aerospace and maritime industries primarily in the United States. Based in New York, with satellite offices in Washington, D.C. and London, the firm is led by John Lehman, Louis Mintz, Stephen Brooks and Alexander Harman who average 19 years of experience together. ATRS is currently invested in the firm's third and fourth fund. Similar to the previous four funds, this fund will make control investments in small to lower middle market companies that are either founder-owned or part of a corporate divestiture. The types of companies targeted for acquisition will generally be suppliers to the government or commercial markets and will typically be under-managed, carry excess costs or suffer from insufficient resources.

The general partner's experienced and cohesive management team with its specialized knowledge and relationships in the defense, aerospace and maritime industries as well as its overall solid track record make JFL Equity Investors V an attractive investment. The average performance of the previous three funds is approximately 30% gross IRR. There are some risks in the focus sectors of the fund such as government regulation and dependency on federal and state budgets; however, the team will seek to mitigate those risks by targeting businesses with diverse revenue sources and those in high priority areas of government spending. Both Franklin Park and ATRS staff recommend an investment in JFL Equity Investors V, L.P. with a commitment of up to \$30 million dollars.

- 3. Recommendation to Transfer the Commitment of up to \$30 Million Dollars to the Franklin Park Venture Capital Access Fund, L.P. that was Authorized by the Board on December 3, 2018 to the Franklin Park Venture Fund Series 2019, L.P. a Fund of Funds Managed by Franklin Park Investing in Venture Capital Private Equity Funds.** In December, the Board approved a commitment of up to \$30 million in the Franklin Park Venture Access Fund, L.P., a new vehicle designed to provide more flexibility to invest in high quality venture funds over a multi-year period. ATRS would serve as an anchor in this new fund with special economic terms (no fees or carried interest). At this time, however, it appears that the new fund will not be able to close until much later in the year. In order to take advantage of ongoing opportunities in the venture space this year, ATRS would need to commit to the Franklin Park Venture Fund Series 2019 instead of the Franklin Park Venture Access Fund that was previously

approved. Both Franklin Park and ATRS staff agree with the recommendation to transfer the \$30 million allocation approved by the Board in December to the Franklin Park Venture Capital Access Fund to the Franklin Park Venture Fund Series 2019, L.P.

4. **Recommendation to Transfer the Commitment of up to \$30 Million Dollars to the ATRS/FP Private Equity Fund that was Authorized by the Board on December 3, 2018 and Closed on March 1, 2019 to the Franklin Park Corporate Finance Access Fund, L.P., a Fund of Funds Managed by Franklin Park Investing in Smaller Buyout, Growth, and Turnaround Private Equity Funds.** In December, the Board approved a commitment of up to \$30 million to the ATRS/FP Private Equity Fund. This fund typically makes co-investments, investments in smaller buyout, growth, and turnaround funds as well as in appraisal rights. The Franklin Park Corporate Finance Access Fund (a fund of funds) was formed recently to allow other small investors to invest in smaller buyout, growth, and turnaround funds going forward. Like the Franklin Park Venture Access Fund, ATRS would essentially be the anchor investor in this fund (with no fees or carried interest) in that we would invest \$30 million through the ATRS/FP Private Equity Fund. Over the years, the ATRS/FP Private Equity Fund has become fairly complicated with the different types of investments and would become more complicated by adding a fund of funds. In order to simplify accounting and monitoring for the ATRS/FP Private Equity Fund, it was recommended that ATRS invest the previously approved \$30 million directly in the Franklin Park Corporate Finance Access Fund. Both Franklin Park and ATRS staff agree with the recommendation to transfer the \$30 million allocation approved by the Board in December to the ATRS/FP Private Equity Fund to the Franklin Park Corporate Finance Access Fund.

XI. Operation Committee Report. *Bobby Lester, Chair.*

- A. **Open Forum for Potential Rule or Law Changes by Committee Members and Board Members Present.**
 1. **Open Forum.**
- B. **CASH Program: Extend for FY2020.** The CASH Program expires on June 30, 2019. ATRS staff recommends that the CASH program for fiscal year 2020 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, 2019. **This is an action item.**

C Approval of Rules After Public Comment Period. The public comment period ended May 20, 2019 for the current batch of Rules submitted to promulgation. There were no public comments. These Rules have also been reviewed by the Joint Retirement Committee and are on the July calendar for the Arkansas Legislative Committee. No action is needed.

1. **Rule 4:** Election of Board of Trustees.
2. **Rule 7:** Reporting and Eligibility.
3. **Rule 8:** Purchase and Refunds.
4. **Rule 10:** T-DROP and Return to Service.
5. **Rule 16:** Cash and Savings Help (CASH) Program.

D. Potential Rule Changes from Rule to Board Policy. Rules 1-1 through 3-11 have been removed for the Administrative Procedures Act (APA) in 2005. These Rules have been reformatted and consolidated into Board Policies. There are a few minor changes to the policies that need to be reviewed and approved. **This is an action item.**

1. **Board Policy 1: Board Governance.**
2. **Board Policy 2: Board Objectives.**
3. **Board Policy 3: Executive Director.**

XII. Staff Reports.

A. Medical Committee Reports. A Total of 31 Disability Retirement Applications Approved. The Medical Committee Report is a standard report made by staff on behalf of the Medical Committee approving disability cases. A total of 43 disability applications were received, 31 were approved, 4 were denied, and 8 needed more information. **This is an action item.**

B. Securities Monitoring RFQ Update. Clint Rhoden and Rod Graves will give an update on the status of Securities Monitoring RFQs.

XIII. Mr. Bernard Sulliban will discuss Proposed Legislation for Board Consideration.

XIV. Other Business.

A. Recognition of Retiring Trustees.

XV. Adjourn.

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

Monday, June 6, 2016

11:30 a.m.

**1400 West Third Street
Little Rock, AR 72201**

ATTENDEES

Board Members Present

Jeff Stubblefield, Chair
Danny Knight, Vice Chair
Dr. Richard Abernathy
Anita Bell
Lloyd Black
Kelly Davis
Susannah Marshall, designee for Candace Franks
John Ahlen, designee for Andrea Lea
Jim Harris, designee for Dennis Milligan
Robin Nichols
Janet Watson*

Board Members Absent

Kathy Clayton
Johnny Key
Bobby Lester
Deborah Thompson

Reporters Present

Mike Wickline, Arkansas Democrat Gazette

**via teleconference*

ATRS Staff Present

George Hopkins, Executive Director
Gail Bolden, Deputy Director
Shane Benbrook, Internal Audit/Risk Mgmt.
Curtis Carter, Chief Fiscal Officer
Laura Gilson, General Counsel
Rod Graves, Assoc. Dir. of Operations
Wayne Greathouse, Assoc. Dir of investments
Jerry Meyer, Manager, Real Assets
Martha Miller, Staff Attorney
Manju, Manager, Data Processing
Tammy Porter, Executive Assistant
Michael Ray, Dir., Member Services
Clint Rhoden, Director of Operations
Joe Sithong, Software Support Analyst

Guest Present

Donna Morey, ARTA.
David Kizzia, AEA

Consultants Present

Michael Bacine, Franklin Park
PJ Kelly, AHIC (Aon Hewitt)
Chae Hong, AHIC (Aon Hewitt)

- I. **Call to Order/Roll Call.** Mr. Jeff Stubblefield, Chair, called the Board of Trustee meeting to order at 11:35 a.m. Roll call was taken. Ms. Clayton, Mr. Lester, Ms. Thompson and Mr. Key were absent.
- II. **Motion to Excuse Absences.**

Mr. Knight *moved to excuse Ms. Clayton, Mr. Lester, Ms. Thompson, and Mr. Key from the June 6, 2016 Board of Trustees meeting. Mr. Black seconded the motion, and the Board unanimously approved the motion.*

III. Adoption of Agenda

Ms. Nichols *moved for adoption of the Agenda. Mr. Ahlen 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 Minutes.

A. Approval of April 4, 2016 Minutes.

Dr. Abernathy *moved for approval of the Minutes of the Board of Trustees meeting of April 4, 2016 2016. Mr. Black seconded the motion, and the Board unanimously approved the motion.*

B. Approval of April 21, 2016 Minutes.

Mr. Black *moved for approval of the Minutes of the Board of Trustees meeting of April 21, 2016 2016. Mr. Knight seconded the motion, and the Board unanimously approved the motion.*

VI. Adoption of Interest Rate for T-DROP Accounts for 2016-2017 (June 30, 2017). The ATRS rules state that the Board sets interest rates for active T-DROP accounts for the July 1, 2017, interest accrual on accounts. The rules state that the interest rate shall be 2% less than the ATRS investment rate of return with a maximum of 6% and a minimum of 2%. The investment rate of return for the 12-month period ending March 31, 2016, is used as a gauge. It appears a 2% interest rate on active T-DROP accounts is in order based upon our consultant's evaluation of the ATRS portfolio having an investment return of less than 4% for the 12-month period ending March 31, 2016. However, the Board officially adopts the rate at the June ATRS Board meeting.

Dr. Abernathy *moved to adopt Resolution 2016-19, Adoption of the Interest Rate for T-DROP Accounts for 2016-2017 at 2%. Ms. Bell seconded the motion, and the Board unanimously adopted the resolution.*

- VII. Adoption of Interest Rate for Post 10-Year T-DROP Accounts for 2016-2017 (June 30, 2017).** Like the interest rate for active T-DROP participants, the Board separately sets the interest rate for post 10-year T-DROP accounts of between 4% and 6%. Again, this is the interest rate for the interest applied to post 10-year T-DROP accounts on July 1, 2017. Based upon the investment returns of the ATRS trust fund for the 12-month period ending March 31, 2016, it appears that a post 10-year interest rate of 4% is in order. However, the Board officially adopts the rate at the June ATRS Board meeting.

Mr. Knight *moved to adopt* Resolution 2016-20, Adoption of the Interest Rate for Post 10-Year T-DROP Accounts for 2016-2017 at 4%. Ms. Bell *seconded the motion*, and the Board *unanimously adopted the resolution*.

- VIII. 2016 Board of Trustees Election Results.** ATRS Board and staff, along with the ATRS members congratulated the re-elected Position 2 Trustee, Ms. Janet Watson, and the re-elected Position 9 Trustee, Mr. Lloyd Black. A copy of the certified election results were presented to the Board. The time has passed for any objections or appeals. The final step is that ATRS Board approves a resolution to accept the election results for the results to become official

Dr. Abernathy *moved to adopt* Resolution 2016-21, 2016 Board of Trustee Election Results. Ms. Davis *seconded the motion*, and the Board *unanimously adopted the resolution*.

- IX. Report of Member Interest Waived Under A. C. A. Section 24-7-205.** Mr. Hopkins 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. Since ATRS has implemented the actuarial cost method for the purchase of service credit, interest waived is slowly disappearing, as well as the number of members who purchase service credit. **No member interest was waived** this reporting period.
- X. Report of Employer Interest and Penalties Waived Under A. C. A. Sec. 24-7-411.** Mr. Hopkins 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. Two (2) employer penalties and interest was waived for this reporting period for a total amount of **\$900.00**.
- XI. GASB Reports.** The ATRS actuaries and the Division of Legislative Audit have begun in 2015 preparing annual reports required by the Governmental

Accounting Standards Board (GASB) Statement No. 68 "Accounting and Financial Reporting for Pensions." These reports allocate certain pension amounts to participating employers based on the employers' proportionate share of contributions received for the previous fiscal year. Employers use this information as a footnote in their financial statements as required by GASB 68. ATRS would like a motion from the Board to review and file the reports.

Mr. Harris moved to approve the GASB Report After Legislative Audit Review. Ms. Nichols seconded the motion, and the Board unanimously approved the motion.

XII. Manifest Injustice Report. The Manifest Injustice Committee reviewed three cases. One claim was not found to be a manifest injustice. The second claim was where a cafeteria worker was given erroneous information by the school district that she had complete termination separation period and was called back to work by the school. A \$9,000 adjustment was made to her account after consultation with the Board chairman. The final claim is an action item **in Item XII below**. A report has been provided to you in the Board packet on the two claims. The rule on Manifest Injustice requires executive director to report to the ATRS Board on Manifest Injustice claims at least two times per year. This is the first report of 2016. If the ATRS Trustees would like a different format or reporting process, just let ATRS staff know.

XIII. Board Review of Manifest Injustice Finding.

A. Yolanda Collins. The manifest injustice claim for this member was submitted by the executive director to the Manifest Injustice Committee. The basis for the claim was discovered by executive staff during her appeal of a staff determination that found her ineligible for ATRS disability due to being inactive at the time she sought to file a disability application. During the appeal research, unique circumstances surrounding her member appeal were discovered by executive staff. Ms. Collins worked for an ATRS covered employer during a time period of 1995 to 2001. During that time, Ms. Collins earned 5.00 years of service credit. Beginning in 2007, Ms. Collins was employed by the Arkansas Department of Health, and became a member of the Arkansas Public Employees Retirement System (APERS), a reciprocal system to ATRS. Ms. Collins worked in that position until the latter months of 2013.

Ms Collins had an major injury due to an automobile accident in 2013, and began seeking disability relief from ATRS, APERS, and the Social Security Administration. As part of Ms. Collins' inquiry to seek disability retirement, she contacted ATRS in **April 2014** to inquire about the possibility of applying for disability retirement. There is a note in the ATRS membership file documenting the telephone call, and the staff member's response to Ms. Collins. The ATRS staff member that took the telephone call incorrectly informed Ms. Collins that she was not eligible to apply for ATRS disability retirement since she last worked for an ATRS employer in **2001**. In actuality, Ms. Collins had five actual years of ATRS service credit, was considered active due to being active in **APERS**, a reciprocal retirement system, and was eligible to apply for ATRS disability retirement in April of 2014, when she called.

If a reciprocal member, like Ms. Collins, is "active" in the reciprocal system, then ATRS also treats the member as "active" in ATRS through reciprocity. This application of active treatment extends to all types of ATRS benefits. The ATRS staff member failed to consider this reciprocal application of active status when informing Ms. Collins that she was not eligible to apply for ATRS disability benefits because she was not active in ATRS.

In February 2016, Ms. Collins contacted ATRS again to inquire about disability retirement. She had been awarded Social Security Disability status in February 2016, and APERS had begun paying her disability benefits in May 2016. In a staff determination letter to Ms. Collins, she was informed that although ATRS applies APERS active status to the active status requirements for ATRS disability retirement, she was no longer considered active at APERS because she last earned service credit during the 2013-2014 year. The reciprocal service extended her active status to June 30, 2015. Upon receiving the staff determination letter, Ms. Collins appealed the staff determination to the executive director for review.

During the executive staff review process (Gail Bolden assists in an extensive review of the file in every appeal), ATRS executive staff discovered the erroneous information (the erroneous position that the member was not active for ATRS disability purposes) given to Ms. Collins in April 2014. Under the ATRS Rules, only the ATRS Board can extend a filing deadline, such as the deadline to file for disability. The executive director is not allowed to waive a deadline, but can request the ATRS Board to consider extending the filing deadline. I submitted a manifest injustice claim on behalf of the member to the

ATRS Manifest Injustice Committee for consideration. The committee found that the facts within the claim constituted a manifest injustice, The proposed remedy by the committee was that the member should be allowed to apply for disability retirement. The committee also recommended that, if eligible for disability, the disability benefits should begin as if Ms. Collins had filed for benefits immediately after her initial inquiry to ATRS about disability retirement in April 2014.

The ATRS Manifest Injustice Committee and ATRS executive staff recommend that the Board extend the deadline for Ms. Collins to file for disability retirement. I also recommend that ATRS allow her to file for disability through July 31, 2016. If she files and is found to be disabled, executive staff recommends that the ATRS Board allow benefit payments to be paid retroactively as if the application had been filed on the date of her inquiry in April 2014

Mr. Knight *moved* to *approve* the Recommendation of the Manifest Injustice Committee to extend the deadline for Ms. Collins to file for disability retirement. Mr. Black *seconded* the *motion*, and the Board *unanimously approved the motion*.

XIV. Member Appeal Update

- A. Tamara Gullett.** This appeal was before the Board of Trustees for consideration. Mr. Hopkins reported that the member has withdrawn her appeal at this time.

XV. Audit Committee Report. Ms. Kelly Davis, Chair, gave a report on the Audit Committee meeting.

- A. Internal Audit Report – Implementation of Legislation Enacted by the 90th General Assembly.** Mr. Shane Benbrook presented the Audit Report on Implementation of Legislation by the 90th General Assembly. The objective of the audit was to assess ATRS implementation of the new laws enacted by the 90th General Assembly by reviewing policies and procedures to verify they were properly updated to conform to the new provisions of law. Internal Auditors reviewed the new laws, met with ATRS staff responsible for implementing necessary changes, performed tests of member and

employer records, and reviewed documentation to determine the following:

- If a policy change was required, the updated policy was approved and corresponding procedures were also updated;
- If changes to computer programming were required, a ticket was created and completed for the change;
- Necessary changes to forms or form letters were completed; and
- Employers and members were notified of changes as appropriate.

Based upon Internal Audit's review, it is the opinion of the Internal Audit Department that ATRS staff properly implemented legislation enacted by the 90th General Assembly.

Executive Director Hopkins informed the Committee that Ms. Brenda West was on temporary leave.

- B. FY2016 Internal Audit Follow Up Report: Membership Data.** Mr. Shane Benbrook presented the follow up report to the audit of ATRS Membership Data. The audit revealed two members were missing a quarter of a year on their contributory service credit due to timing of the system's calculations. Also, it was discovered that current year interest on active and inactive member contributions were not included in the information sent to the actuary. Both issues were addressed by the Data Processing Department and have been resolved.
- C 2016 Risk Assessment.** Mr. Shane Benbrook presented the 2016 Risk Assessment. DF&A requires each state agency to perform a risk assessment every 2 years. Managers and supervisors identify areas of risk in their departments and determine what controls are in place to mitigate the risk. This information is reviewed and compiled by the Internal Audit Department. Internal Audit then enters the information into the DFA reporting and tracking tool. The risk assessment allows DFA to address areas where assets may be at risk statewide. It also serves as a valuable tool for ATRS Administration and the Internal Audit Department in identifying areas within ATRS where the system of internal control needs review.
- D. Internal Audit Charter.** The International Standards for the Professional Practice of Internal Auditing (Standards) require audit

organizations to establish an audit charter that formally defines the organization's purpose, authority, and responsibility. The ATRS Internal Audit Charter presented for approval establishes the Internal Audit position within ATRS, including the Internal Audit Director's functional reporting relationship with the Board of Trustees; authorizes access to records, personnel, and physical properties relevant to the performance of engagements; and defines the scope of internal audit activities. Mr. Hopkins reported that the Internal Audit works separately from him, but he occasionally calls them in to work on projects. Mr. Hopkins only approves leave and he does not oversee their work. Currently, Mr. Hopkins handles the evaluation of Ms. West. Mr. Hopkins did ask the Committee if the Committee should be doing Ms. West evaluation. Mr. Quattlebaum reported that Mr. Hopkins could handle the evaluation, but the Committee needs to give approval.

Ms. Davis moved to approve the Internal Audit Charter as presented. The Board unanimously approved the Motion.

The Standards and the Charter also require Internal Audit staff members to submit Conflict of Interest Statements and Code of Ethics Acknowledgments annually. Those signed documents are included with the Charter for approval by the Audit Committee.

Ms. Davis moved to approve the Conflict of Interest Statements. The Board unanimously approved the Motion.

Ms. Davis moved to approve the Code of Ethics Acknowledgement Statements. The Board unanimously approved the Motion.

- E. 2017 Internal Audit Plan.** Ms. Mitzi Ferguson presented the 2017 Internal Audit Plan. As required by the International Standards for the Professional Practice of Internal Auditing issued by the Institute of Internal Auditors (IIA), and by Arkansas Teacher Retirement Systems (ATRS) Internal Audit Charter, the Internal Audit Plan for the Internal Audit Fiscal Year 2017 was presented to the Committee. Projects were identified for this audit plan by using the ATRS risk assessment. As ATRS continues to grow in terms of responsibilities, assets, and membership, there are areas that require regular reviews to ascertain whether the system continues to operate in an effective and efficient,

risk-controlled manner. Choices were made in determining which audits to perform first by determining which areas posed greater risks for the system. We have selected areas of processes for review where failure of the system to adequately perform could have serious consequences for ATRS, its members and stakeholders, and the Board.

FY2016 Summary of Work Completed was also presented.

Ms. Davis moved to approve the FY2016 Summary of Work Completed. The Board unanimously approved the Motion.

- F. Other Business.** Mr. Shane Benbrook reported that ATRS Internal Audit will be hosting the APPFA conference in Little Rock for the first time. The conference will be near the first part of May 2017. Anywhere from 55-75 internal auditors from around the United States and Canada will be attending. Some of the speakers expected at the conference are: George Hopkins, ATRS Executive Director; Gail Stone, APERS Director; Arkansas Hall of Fame member and NFL referee, Walt Coleman; P.J. Kelly from Aon Hewitt; and Ricky Quattlebaum from the Department of Finance and Administration – Internal Audit.
- XVI. Investment Committee Report.** Ms. Nichols, Chair, gave a report on the Investment Committee meeting.

A. Private Equity Consultant Report – Franklin Park

- 1. Private Equity Portfolio Review for the Quarter Ended December 31, 2015.** Michael Bacine of Franklin Park presented the private equity report for the quarter ended December 31, 2015. ATRS Legacy Portfolio is still in liquidating stage and has a remaining value of 2.7% with a total IRR of 9.2%. CSFB Portfolio is also liquidating and will continue to see distributions. CSFB has a remaining value of 22.4% with a net IRR of 8.6%. The Post 2006 Portfolio represents two-thirds of ATRS portfolio and will continue to grow as more commitments are made to capital. The Post 2006 Portfolio has a net IRR of 15.0%. The total fund had a net IRR of 9.9% for the quarter ended December 31, 2015.

2. **Recommendation to Commit up to \$20 Million Dollars in Altaris Constellation Partners, LP, a Private Equity Buyout Fund Specializing in Small to Middle Market Health Care Companies.** Michael Bacine presented the recommendation of Altaris to the Committee. Altaris was formed in 2002 with sponsorship from AIG. Altaris is located in New York. The firm is owned by Michael Kluger, Daniel Tully and George Aitken-Davies (principals) who have an average of over 20 years of experience in the private equity industry and 13 years with Altaris. This fund's investment plan is to invest in transactions that require equity in excess of what the general partner deems appropriate for the current fund (Fund III or the "Core Fund"). The principals view the general partner's ability to win larger deals as a natural progression of their level of activity and the extensive sub-sector networks they have built since 2002. Making larger commitments would broaden the potential investment universe and would also allow the general partner to acquire all of the equity in certain transactions and avoid syndicating equity to third parties (co-investments) and other private equity managers. Said another way, the fund sees the success that ATRS and others have had with making co-investments and want to have a fund that benefits from this same space for their own funds.

The fund will primarily target U.S. and European healthcare companies with attributes such as intellectual property, defensible market positions, limited government reimbursement and transformational business models. In particular, the fund will focus on corporate carve-outs, leveraged buyouts and growth equity investments in pharmaceutical, medical device, and information and technology companies. The firm has generated attractive returns with an average net IRR greater than 20% in its previous three funds. Both Franklin Park and ATRS staff recommend a commitment of up to \$20 million dollars in Altaris Constellation Partners, L.P.

Mr. Hopkins confirmed staff supports recommendation.

Ms. Nichols *moved to adopt* Resolution 2016-22, to Commit up to \$20 Million Dollars in Altaris Constellation Partners, LP, a Private Equity Buyout Fund Specializing in Small to Middle Market Health Care Companies. The Board *unanimously adopted the Resolution.*

3. **Recommendation to Commit up to \$35 Million Dollars in Bison Capital Partners V, L.P., a Private Equity Debt and Equity Fund Focused on Hybrid Debt and Equity Investments in Small to Middle Market Companies.** Michael Bacine presented the recommendation to the Committee. Bison Capital Partners V, L.P. is a Private Equity Debt and Equity Fund. The fund will focus on making hybrid debt/equity investments in small and lower middle market U.S. companies primarily in the business services, healthcare services, technology-enabled businesses, and logistics and distribution sectors. Investments will typically be non-control junior capital and structured as a combination of senior and subordinated debt and preferred equity securities, with existing owners retaining a control stake. Investments will generally be structured with a yield of 8-15%, including cash interest and payment-in-kind (PIK) interest. Capital will be used to support growth initiatives, acquisitions and/or recapitalization of non-active shareholders. This type of investment has a slightly lower risk/return profile than other types of private equity due to the debt component. This type of fund is a great diversifier. The firm has generated strong returns in its previous four funds with an average net IRR of approximately 13%. Both Franklin Park and ATRS staff recommend a commitment of up to \$35 million in Bison Capital Partners V, L.P.

Mr. Hopkins confirmed staff supports recommendation.

Ms. Nichols *moved to adopt Resolution 2016-23, to Commit up to \$35 Million Dollars in Bison Capital Partners V, L.P., a Private Equity Debt and Equity Fund Focused on Hybrid Debt and Equity Investments in Small to Middle Market Companies. The Board *unanimously adopted the Resolution.**

B. Investment Update and Arkansas Related Update.

1. List of Fund Closings.
 - a. **Global Infrastructure Partners III, LLC, a Real Assets Infrastructure Fund Specializing in Core Plus Energy, Transport, and Water/Waste Sectors, the Board Authorized Commitment of up to \$50 Million Dollars on February 1, 2016, was Accepted and Closed on April 15,**

2016. The ATRS full commitment of \$50 million dollars was negotiated, accepted, and closed on April 15, 2016.

- b. **Aeolus Catastrophe Keystone PF Fund, LP**, an Opportunistic/Alternative Reinsurance Fund Specializing in Property Catastrophe Insurance Coverage, the Board Authorized Commitment of up to an Additional \$37 Million Dollars on April 4, 2016, was Accepted and Closed on May 24, 2016. The ATRS full commitment of an additional \$37 million dollars was negotiated, accepted, and closed on May 24, 2016.
- c. **Thoma Bravo XII, L.P.**, a Private Equity Buyout Fund that Invests in Middle to Large Market Software Companies, the Board Authorized Commitment of up to \$30 Million Dollars on April 4, 2016, with Imminent Need was Accepted and Closed on April 27, 2016. The ATRS full commitment of \$30 million dollars was negotiated, accepted, and closed on April 27, 2016.

2. Transitions.

- a. **BlackRock U.S. Equity Market Fund A**, a Passive U. S. Equity Index Fund, the Board Authorized Transition out of the BlackRock U.S. Equity Market Fund A on April 4, 2016, was Completed on April 13, 2016. The Board approved transition of approximately \$2 million dollars out of the BlackRock U.S. Equity Market Fund A was completed on April 13, 2016.
- b. **Intra-Allocation Rebalancing of the Equity Portfolio** was Completed on May 6, 2016, by Purchasing an Additional Amount of Approximately \$25.3 Million Dollars of Pershing Square Holdings, the Publicly Traded Stock Based on the ATRS Activist Manager, Pershing Square International, LTD at a Net Cost of \$30 Dollars. ATRS has had a successful allocation to activist managers since 2008. Activist managers try to purchase large enough numbers of a public company's shares to obtain seats on the company's board with the goal of making changes designed to increase the value of the company. The ATRS allocation to activist managers has declined in recent years due to the unwinding of several activist

manager funds such as Lincoln Vale and Relational Investors. Based on recommendation from Aon Hewitt Investment Consulting and after positive notice to the Board Chair, the equity allocation was recently rebalanced by purchasing approximately \$25.3 million dollars of additional Pershing Square Holdings (PSH) stock in order to take advantage of market conditions of the stock in Pershing Square and to rebalance the activist manager allocation.

ATRS invested with Pershing Square in July 2008. Pershing Square invests in large US companies that are underperforming and provides advice to improve earnings and status. In October 2012 the Board approved restructuring this investment into two investments both managed by Pershing Square. One of these approved investments, Pershing Square International LTD (PSI), is a closed end fund with limited rights of withdrawal. The limitations provide the fund manager with greater opportunity for longer and more specialized investments due to reduced liquidity concerns in the fund. The other investment approved in October 2012, PSH, was a fund designed to provide liquidity by being converted to a closed end fund that is publicly traded through an Initial Public Offering (IPO). The IPO occurred in October 2014 and shares are now publicly traded. Essentially PSH is the publicly traded version of PSI with PSH providing more flexibility to ATRS when rebalancing, making additional contributions, or redemptions.

The net asset value (NAV) or price of PSH shares is composed of the price of the underlying stocks that the fund owns. These underlying stocks have their own values that determine the overall NAV or calculated value of PSH. Since PSH is publicly traded the value at which the shares of PSH trade fluctuates on the open market like other publicly traded stocks and bonds and may be more or less than the NAV or calculated value of the underlying assets. At times the difference between the NAV of the underlying assets and the price which PSH is publicly traded may offer either a discount or premium to NAV. This means that ATRS can see, on a daily basis, if

the price of Pershing Square is cheaper than the underlying stocks that make up Pershing Square.

When the publicly traded shares of PSH are trading at a price below the calculated value of the underlying investments, the shares are trading at a discount to NAV. When the publicly traded value is above the underlying NAV, the shares are trading at a premium to NAV. Sometimes these differences can be significant and offer ATRS an opportunity to benefit from the pricing difference by buying more shares of PSH or selling shares of PSH depending on the discount or premium to NAV. For example if the NAV of the underlying assets is valued at \$100 dollars and shares of PSH are trading at \$90 dollars, the shares are trading at a 10% discount.

In April 2016 PSH stock was trading at a significant discount to the underlying investments held by the fund and offered ATRS an opportunity to increase the allocation to Pershing Square and the activist manager category through the publicly traded PSH. As with other publicly traded investments, investors must be aware of trading volumes and news that can inflate a stock's price prior to the investor making a purchase. The amount of stock to be traded, daily trading volume, and other factors can sometimes produce millions of dollars in costs to execute a transaction. One way to avoid these potential costs is to enlist a transition manager that can help with the timely execution of the transaction. Transition managers may also know of a potential seller that can be paired with a potential buyer to execute the trade in an efficient manner. Both the buyer and seller want to avoid transactions costs and commissions. Sometimes the ability to pair a buyer and seller is like hitting 4 grand slams in one game.

Aon Hewitt Investment Consulting (AHIC) identified BlackRock Institutional Trust (BlackRock), a Board approved transition manager, as having a potential seller of PSH and recommended ATRS use BlackRock to facilitate the rebalancing. By using the existing seller ATRS was able to complete the rebalancing purchase of approximately \$25.3 million dollars over two equal phases with half the position purchased on April 29,

2016, and the rest on May 6, 2016. Without the benefits of this existing seller, BlackRock estimates the rebalancing **may have cost between \$1.25 and \$2.5 million dollars** and taken several weeks. The result using the existing seller was a rebalancing purchase of approximately \$25.3 million dollars of PSH at a net cost of \$30 dollars.

C. General Investment Consultant Update – Aon Hewitt Investment Consulting.

- 1. Performance Report for the Month Ended April 30, 2016.** P.J. Kelly of Aon Hewitt Investment Consulting presented the performance report for the month ended April 30, 2016. The ATRS fund had a market value of approximately \$14.4 billion dollars. The total fund had a return of 8.3% since inception, underperforming its benchmark of 8.4%.

D. Real Assets Investment Consultant Report – AON Hewitt Investment Consulting.

- 1. Performance Report for Quarter Ended December 31, 2015.** Chae Hong, of Aon Hewitt Investment Consulting presented the performance report for the quarter ended December 31, 2015. Through the fourth quarter of 2015, NCREIF's NPI registered at 2.9% and NFI-ODCE (net) returned 3.1%. The NPI returned showed a 20 bps decrease quarter over quarter while the NFI-ODCE showed a 30 bps decrease. NCREIF Timberland Index returned 1.9% for the quarter and 5.0% for trailing one year. NCREIF Farm Index gained 4.3% for the fourth quarter, an increase of 180 bps, while posting a 10.4% return for the trailing one year, a decrease of 230 bps over the third quarter.
- 2. Recommendation to Commit up to \$50 Million Dollars in UBS Trumbull Property Income Fund, LP, a Core Real Estate Debt Fund Focused on Hybrid Debt and Equity Investments in Income Generating Properties.** Chae Hong of Aon Hewitt Investment Consulting presented the Recommendation of USB Trumbull Property Income Fund, LP to the Committee. UBS Trumbull Property Income Fund, LP (TPI) was formed in March 1981 to invest in commercial real estate debt. TPI is an open end, diversified core real estate debt fund that targets participating mortgages. The fund's strategy is to build an actively managed portfolio of income-oriented real estate investments that have hybrid debt and equity return

characteristics. It seeks to provide attractive returns while limiting downside risks through a combination of fixed income, participation in cash flow, and equity upside. TPI's investment objective is to provide a 5% real return on a three and five-year basis. ATRS invested in the UBS Trumbull Property Fund in 2006. This is an open end core real estate fund with a net IRR of 6.2% since inception. ATRS is also invested in the UBS Agrivest Core Farmland Fund. ATRS began funding this investment in April 2015 and completed the commitment in January 2016. The net IRR for the short time that ATRS has been in the fund is 2.6%.

The two-person portfolio management team is led by Gary Gowdy, Managing Director, who has 38 years of real estate industry experience, of which more than 20 have been with UBS Realty Investors and the predecessor firm. The TPI team has demonstrated a successful history by producing a net 10 year IRR of 7.4% and a net IRR of 8.8% since inception. Both Aon Hewitt Investment Consulting and ATRS staff recommend an investment in UBS Trumbull Property Income Fund, LP with a commitment of up to \$50 million dollars.

Mr. Hopkins confirmed staff supports the recommendation.

Ms. Nichols moved to adopt Resolution 2016-24, to Commit up to \$50 Million Dollars in UBS Trumbull Property Income Fund, LP, a Core Real Estate Debt Fund Focused on Hybrid Debt and Equity Investments in Income Generating Properties. The Board unanimously adopted the Resolution.

3. **Recommendation to Commit up to \$30 Million Dollars in LaSalle Asia Opportunity Fund V, L.P., an Opportunistic Real Estate Fund Focused on Both Debt and Equity Investments in Asia.** Chae Hong of Aon Hewitt Investment Consulting presented the Recommendation of LaSalle Asia Opportunity Fund V, L.P. to the committee. LaSalle Investment Management was formed in 1996 to focus on commercial real estate investments. The LaSalle Asia Opportunity real estate series platform began in 2001. LaSalle Asia Opportunity Fund V, L.P. is a closed end fund. ATRS invested in the LaSalle Asia Opportunity Fund IV in June 2014 and to date has earned a net IRR of 64% so far. The objective of the LaSalle Asia Opportunity Fund V, L.P. (LAOF V) is to provide a net IRR of

18% by making debt or equity investments in office, retail, residential, warehousing, hotels, and other commercial properties primarily in Asia. Assets located Japan, Australia and China are expected to comprise the bulk of the portfolio. Mark Montanus and Mark Gabbay return as Fund Manager & CEO respectively and the same strong support team remains intact for Fund V. Both Aon Hewitt Investment Consulting and ATRS staff recommend an investment in LaSalle Asia Opportunity Fund V, L.P. with a commitment of up to \$30 million dollars.

Mr. Hopkins confirmed staff supports the recommendation.

Ms. Nichols *moved to adopt Resolution 2016-25, to Commit up to \$30 Million Dollars in LaSalle Asia Opportunity Fund V, L.P., an Opportunistic Real Estate Fund Focused on Both Debt and Equity Investments in Asia. The Board *unanimously adopted the Resolution.**

XVII. Operations Committee Report. Dr. Richard Abernathy, Vice Chair, gave a report on the Operations Committee meeting.

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

1. **Open Forum.** The Committee discussed potential Outsourcing legislation for the 2017 Legislative Session. Dr. Abernathy suggested that the Committee move forward with this issue for the next session. Mr. Hopkins told the Committee there were three (3) options to do. The first option is to ban outsourcing, which the Committee agrees is not an option at this point. The second option is the concept that people would still be part of our system and potential employees of contractor would still participate in our system, causing a shift in responsibility from school districts to employers. The third option is to implement over time some type of surcharge that would apply to imbedded employees at school district in terms of their salary, not contract, that would help offset losses that are incurred by retirement systems due to outsourcing.

B. Potential 2017 Legislation.

1. **For Committee Input.**

- a. **Marriage Option Eligibility for Survivor Benefits.** ATRS survivor benefits law provides a lifetime benefit to a surviving spouse of a deceased active or T-DROP member if the marriage occurred two-years prior to the member's death. At the last Operations Committee meeting, the committee discussed the fact that all other marriage option beneficiary selections have a one year marriage requirement such as at the time of retirement or marriage after retirement. A suggestion was made to leave the two-year marriage requirement in place. The Operations Committee took no action at this time.

- b. **Spousal Benefit Rights Waived for Survivor Benefits.** If active or T-DROP members are married for two years preceding the member's death, the surviving spouse is **automatically** entitled to a lifetime benefit, even if the member has chosen a different person as the member's residual beneficiary (for instance a child or parent). Current law supersedes the member's designation and the spouse receives the lifetime benefit. The discussion at the last Operations Committee meeting indicated a potential change to leave the member in control of designating a residual beneficiary without an automatic override for spousal benefits. As a reminder of the discussion, if a survivor of an active or T-DROP participant has been married for 2 years, the right of the surviving spouse supersedes the beneficiary designation that may be to the deceased member's children from a prior marriage and would provide the surviving spouse with a lifetime Option A benefit. One potential change would be to allow the member to override the law on spousal priority by having the form allow the override to the beneficiaries if chosen very specifically by the member to do so. The Operations Committee asked staff to begin working on potential legislation concerning this matter.

- c. **Settlement Agreements Designed to Address Previous Benefit Underpayments in Claims of Wrongful Termination.** ATRS staff has been consulted recently in structuring two very substantial settlement agreements between covered employers and employee-members. One attorney wanted to purchase the time

value of lost additional salary due to a wrongful termination. For example, the member was passed over for a \$20,000 promotion but continued working at the lower salary. Later, the employer recognizes that a problem exists with the promotion decision due to litigation. ATRS law does not allow for a calculation to add salary to credited service, but it would be very easy to do so using actuarial factor tables for the cost of an annual annuity. ATRS can use T-DROP annuity factors to "back into" the cost. This would give employers and members the benefit of having this choice available, as well as the current collection of employer contributions on a settlement payout. ATRS staff would like to have the input of the Operations Committee to see if this is an option we would consider providing. An example: A member sues for failure to promote. The parties agree that the member should have been paid \$20,000 extra for the last 3 years. ATRS can calculate the amount the member's monthly annuity would increase with current service and then see how much money would be needed to "buy" that amount of additional benefit using the T-DROP annuity factors. In this example, the member is 52 years old. If the calculation shows the member would have a \$500 per month higher benefit, ATRS can easily calculate the benefit. The amount required to provide a \$500 monthly annuity to an age 52 member is \$86,844. Instead of collecting employer contributions on a settlement amount of \$100,000 ($\$100,000 * 14\% = \$14,000$) or \$200,000 ($\$28,000$), ATRS could collect the \$86,844 and pay the member an additional \$500 monthly benefit upon retirement. The cost is neutral (perhaps a small gain to ATRS) on this potential change and may help both members and employers. The Operations Committee asked staff to begin working on potential legislation concerning this matter.

- d. **Clarification of Act 1211 of 2009 – Partial Equity Ownership Investment to Include a Loan or Similar Investment.** The 2009 Act allowed partial equity ownership agreements to have a special review process by the Office of State Procurement (OSP) and the Legislative Council. Prior to that time, there was no clear review process for long term closed end investments that had a 10 to 15 year holding period. Because only

retirement trust funds are utilized, the partial equity ownership agreements are not subject to a limitation on duration (usually a maximum of 7 years) of the agreement or an annual renewal clause like most state contracts. Additionally, this Act created the imminent need review of agreements that must close quickly due to the nature of some private equity investments and quick closing periods. The highest performing private equity deals tend to move quickly from creation to close, and the traditional review process precluded ATRS from participating in many investments because the agreements were not approved quickly enough by OSP and Legislative Council. The clarification of this section of the law would include a direct purchase of an investment, or a loan such as the recent Arkansas Development Finance Authority loans. This would not be a material change to this section of the law. Staff recommended this potential change in order to take advantage of investment proposals that are not compatible with the regular state contract review process while continuing to have transparency with the General Assembly. The Operations Committee asked staff to begin working on potential legislation concerning this matter.

- e. **Potential T-DROP/DROP Changes to Encourage ATRS Members to Postpone Retirement if the Member enters T-DROP and DROP while employed at an ATRS Employer and can remain in T-DROP 10 years.** Currently, an ATRS member can participate in T-DROP a full 10 years by beginning T-DROP at an ATRS employer, even if the member participates in a shorter DROP plan of another system. The member faces a big disincentive to remain in T-DROP and continue working at the ATRS employer after the end of year seven (7). After seven (7) years, the DROP balance at the reciprocal system is frozen, without interest, until the member retires from ATRS. Plus, at APERS, if the member does not retire at the end of year ten (10), the DROP account is forfeited. This means many will retire and draw a benefit three (3) or more years earlier than intended, thus removing talent from the public schools and costing money to the systems. Alternatives to this early out incentive can be developed but would require

cooperation from other systems. The Operations Committee asked staff to begin working on potential legislation concerning this matter.

2. Pending Committee Approval

a. Disability Retirement to Return to Work Options. ATRS staff presented three (3) proposed draft legislations for disability return to work options for consideration by the Operations Committee.

1. **Return to Active Covered Employment;**
2. **Return to Limited Covered Employment; and**
3. **Return to Covered Employment Using a Disability Exemption.**

Dr. Abernathy *moved to approve* draft legislation for Disability Retirement to Return To Active Covered Employment. Mr. Stubblefield *seconded the motion* and the Committee *unanimously approved the motion.*

C. Reduction in Paper Checks produced by State Auditor's Office. No action was taken on this matter at this time.

D. Mailing of Educational Association Materials with Final Retirement Correspondence. ATRS had a practice of including ARTA and AEA membership enrollment packets to members, upon retirement, with mailing packets of final ATRS retirement documents. This has been done over many years as a courtesy to the organizations since both can have legislatively approved membership deductions from the monthly ATRS benefit payments. Over the years, the ARTA organization stopped supplying enrollment packets to ATRS, and instead began contacting retirees directly. The AEA membership enrollment packets are still included with the final mailing of ATRS retirement documents. There was never a policy in place, just an informal arrangement.

ATRS has recently been contacted by another Arkansas educational organization asking to include their membership enrollment packets with the ATRS final retirement documents. The Operations Committee

instructed staff to decline for mailing additional educational materials from private sources with ATRS retirement applications.

XVIII. Staff Reports.

- A. Medical Committee Reports.** Michael Ray presented the Medical Committee reports. A total of twenty seven (27) disability applications were received, twenty six (26) were approved for disability benefits, and one (1) needed more information.

Ms. Nichols moved to approve the Medical Committee Reports. Dr. Abernathy seconded the motion, and the Board unanimously approved the motion.

XV. Other Business: None

XVII. Adjourn.

Dr. Abernathy moved to adjourn the Board Meeting. Ms. Nichols seconded the motion, and the board unanimously approved the motion.

Meeting adjourned at 12:06 p.m.

Clint Rhoden,
Executive Director

Mr. Jeff Stubblefield, Chair
Board of Trustees

Tammy Porter,
Recorder

Date Approved

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

**Monday April 1, 2019
1:00 p.m.
1400 West Third Street
Little Rock, AR 72201**

ATTENDEES

Board Members Present

Jeff Stubblefield, Chair
Danny Knight, Vice Chair*
Dr. Richard Abernathy
Anita Bell
Lloyd Black
Kathy Clayton
Kelly Davis
Skot Covert, designee for Andrea Lea
Bobby Lester*
Jason Brady, designee for Dennis Milligan
Robin Nichols
Deborah Thompson

Board Members Absent

Candace Franks
Johnny Key
Janet Watson

ATRS Staff Present

Clint Rhoden, Executive Director
Rod Graves, Deputy Director
Tammy Porter, Ex. Assistant/Board Secretary
Curtis Carter, Chief Fiscal Officer
Dena Dixson, Internal Audit/Risk Mgmt.
Mitzi Ferguson, Internal Audit/Risk Mgmt.
Vicky Fowler, HR Manager
Laura Gilson, General Counsel
Wayne Greathouse, Investments
Mike Lauro, Information Systems Manager
Jerry Meyer, Manager, Real Assets
Martha Miller, Staff Attorney
Joseph Sithong, Software Support Analyst
Leslie Ward, Manager, Private Equity
Brenda West, Internal Audit/Risk Mgmt.

Guest Present

Donna Morey, ARTA
Lura Campbell, ARTA
Bob Thompson, ARTA
Charles Tadlock, ARTA
Michael Lameroux
PJ Kelley, AHIC (Aon Hewitt)
Tim Pflugardt, AHIC (Aon Hewitt)
Chae Hong, AHIC (Aon Hewitt)

**via telephone*

- I. **Call to Order/Roll Call.** Mr. Jeff Stubblefield, Chair, called the Board of Trustee meeting to order at 1:00 p.m. Roll call was taken. Ms. Franks, Mr. Key and Ms. Watson were absent.
- II. **Motion to Excuse Absences.**

Ms. Nichols moved to excuse Ms. Franks, Mr. Key and Ms. Watson from the April 1, 2019, Board of Trustees meeting. Mr. Brady seconded the motion, and the Board unanimously approved the motion.

III. Adoption of Agenda.

Mr. Black moved for adoption of the Agenda. Ms. Davis 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 February 4, 2019 Minutes.

Ms. Davis moved for approval of the Minutes of the Board of Trustees meeting of February 4, 2019. Ms. Clayton seconded the motion, and the Board unanimously approved the motion.

VI. 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. Since ATRS has implemented the actuarial cost method for the purchase of service credit, interest waived is slowly disappearing, as well as the number of members who purchase service credit. No member interest was waived for this reporting period. This is a standard report for information and is not an action item.

VII. 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 were waived for this reporting period in the amount of \$2,883.04. This is a standard report for information and is not an action item.

VIII. Board Waiver of Penalties and Interest Greater than \$1,000 in a Fiscal Year. Pulaski County Special School District (PCSSD) incurred interest in the amount of \$6,878.26 for failure to report member service and pay contributions to ATRS in December 2017. Since executive staff only has authority to waive up to \$1,000, ATRS staff has placed this item on the agenda. Multiple attempts were made by ATRS staff to work with the Employer to resolve issues and collect contributions and interest due. A year

after initial billing, PCSSD paid all contributions and partial interest. Of the remaining interest not paid, \$2,217.65 was avoidable by PCSSD. Therefore, staff recommended waiving \$4,660.61 and have PCSSD pay the 2018 interest due of \$2,217.65. This is the first penalty for PCSSD in this fiscal year.

Executive Staff recommends the waiver of interest in the amount of \$4,660.61.

Dr. Abernathy moved to approve to waive \$4,660.61 in penalties and interest due from Pulaski County Special School District for failure to report member service and pay contribution to ATRS. Ms. Bell seconded the motion, and the Board unanimously approved the motion.

- IX. Legislative Audit Report, June 30, 2018 – Official Review.** The Division of Legislative Audit provided ATRS staff with the 2018 fiscal year audit report for the fiscal year that ended on June 30, 2018. The audit report has been shared with the Board via email and also in the Board documents for this meeting. The law requires that the ATRS Board have the Legislative Audit report on the ATRS Board agenda and that the ATRS Board pass a motion reflecting that the audit report was received and reviewed by the Board in the event issues arise in the future related to the audit.

Mr. Knight moved to approve the Legislative Audit Report, June 30, 2018. Mr. Brady seconded the motion, and the Board unanimously approved the motion.

- X. GASB Report after Legislative Audit Review.** The Division of Legislative Audit and GRS Actuaries have completed their annual report required by the Governmental Accounting Standards Board (GASB) Statement No. 68 "Accounting and Financial Reporting for Pensions." This report allocates certain pension amounts to participating employers based on the employers' proportionate share of contributions received for the previous fiscal year. Employers use this information as a footnote in their financial statements as required by GASB 68. ATRS would like a motion from the Board to review and file the reports.

Ms. Nichols moved to approve GASB Report after Legislative Audit Review. Dr. Abernathy seconded the motion, and the Board unanimously approved the motion.

XI. Audit Committee Report. Kelly Davis, Chair, gave a report on the Audit Committee Meeting.

- A. Internal Audit Follow-up Report: Membership.** The objective of the follow-up audit was to assess if corrective measures implemented by the Agency had adequately addressed the issues noted in the finding of the original report.

In conclusion, the ATRS Membership Department has a very heavy work load as evidenced by the 76,231 documents processed during our follow-up period. Their work affects many other departments within ATRS and is essential in maintenance of data used for our actuarial evaluation. Many membership enrollment and maintenance processes are manual and require data entry from handwritten documents. The handwritten documents are often difficult to read, which can lead to errors in recording member data or assigning a contributory status.

The original audit recommended automation of these manual processes to yield greater efficiencies resulting in a more timely process with fewer errors. While some processes and internal control weaknesses have been addressed, there has been no meaningful progress in automation.

- B. Extending the Terms of Service for At-Large Members of the Audit Committee.** Currently the At-Large Members serve four-year terms on the Audit Committee. If their initial term on the Committee is for less than four years they may serve an additional four-year term.

Internal Audit is seeking approval to extend the service terms of the At-Large Members. Audit Committee members have a vast knowledge of governmental accounting, auditing, and internal audit procedures and Internal Audit would like to retain their services.

Ms. Davis moved to approve to extend the service terms of the AT-Large members to include two (2) full four (4) year terms, and the Board unanimously approved the motion.

- C. Executive Session: Evaluation of Internal Auditor Brenda West.** Ms. Davis, Chair, called the Executive Session of the Audit Committee to order at 9:47 a.m. Ms. Davis, Chair, reconvened the Audit Committee at 9:56 a.m. The Committee approved to submit the Evaluation of Ms. Brenda West to the appropriate agency for approval.

XII Investment Committee Report. Robin Nichols, Chair, gave a report on the Investment Committee meeting.

A. Arkansas Related Investment Update.

1. List of Fund Closings.

- a. **Franklin Park International Fund 2019, L. P., a Fund of Funds Managed by Franklin Park Investing in International Private Equity Funds, the Board Authorized Commitment of up to \$30 Million Dollars on December 3, 2018 was Accepted and Closed on March 27, 2019.** The ATRS full commitment of \$30 million dollars was negotiated, accepted, and closed on March 27, 2019.
- b. **ATRS/FP Private Equity Fund, L. P., a Multi-Strategy Fund Focused on Co-Investments, Next Generation Manager Funds and Appraisal Right Opportunities Managed by Highly Skilled Teams, the Board Authorized Commitment of up to an Additional \$30 Million Dollars on December 3, 2018 was Accepted and Closed on March 1, 2019.** The ATRS full commitment of an additional \$30 million dollars was negotiated, accepted, and closed on March 1, 2019.

B. Private Equity Consultant Report. *Franklin Park*

1. **Recommendation to Commit up to \$30 Million Dollars to Arlington Capital Partners V, LP, a Private Equity Buyout Fund Specializing in Small to Lower Mid-Market Companies in the U.S., with Imminent Need.** Michael Bacine presented the recommendation to commit up to \$30 million dollars to Arlington Capital Partners, V, LP, with imminent need. Based in Chevy Chase, Maryland, Arlington was founded in 1999 and has raised four prior funds. The firm is led by Jeffrey Freed, Matthew Altman, Michael Lustbader and Peter Manos (principals) who have an average of 21 years of experience each in the private equity industry and over 15 years with Arlington. The fund is being raised to make "buy and build" investments in four government-related areas: (1) defense and aerospace (2) government services (3) healthcare and (4)

business services and software. Arlington employs a top-down approach to identify market segments with tailwinds and to develop investment themes. The team focuses on core areas and themes in which it can add value and benefit from experience through repeat deals. ATRS invested in the firm's fourth fund in 2016 and this fund currently has a net IRR of 15.6%.

Since there are no scheduled ALC meetings while the General Assembly is in session, Imminent Need is requested in order for ATRS to participate in the closing.

Both Franklin Park and ATRS staff recommend an investment of up to \$30 million dollars in Arlington Capital Partners IV, L.P. with Imminent Need, subject to final due diligence.

Ms. Nichols *moved to adopt Resolution 2019-16, to Commit up to \$30 Million Dollars to Arlington Capital Partners V, LP, a Private Equity Buyout Fund Specializing in Small to Lower Mid-Market Companies in the U.S., with Imminent Need. The Board unanimously adopted the Resolution.*

2. **Recommendation to Commit up to \$30 Million Dollars to DW Healthcare Partners V, LP, a Private Equity Buyout Fund that Invests in Expansion Stage Companies in the Healthcare Sector, with Imminent Need.** DW Healthcare Partners was formed in 2002 and is based in Salt Lake City and Toronto. The current team is comprised of Andrew Carragher, Jay Benear, Lance Rudd, Doug Schillinger and Rod Boone who average over eleven years each with the general partner. The firm has a history of successful investments in small healthcare companies and the team has substantial healthcare industry experience including executive roles, consulting and financial operations. In 2012 ATRS invested in the firm's third fund which has generated a net IRR of 19%. In 2016 ATRS invested in the firm's fourth fund which has a net IRR of over 55%.

The fund will target control oriented investments in the healthcare sector and will focus on growth buyouts of specialty device manufacturers, product manufacturers, as well as distributors and services businesses. Typically, the fund will target companies seeking institutional capital for the first time and will purchase at conservative prices and leverage multiples.

Most companies will provide essential patient care or treatment and will have opportunities for operational improvement and organic or add-on growth. The general partner's dedicated deal sourcing resources include a database of over 24,000 healthcare companies. This and other resources have led to significant deal flow for the firm over the course of the last three funds.

Since there are no scheduled ALC meetings while the General Assembly is in session, Imminent Need is requested in order for ATRS to participate in the closing.

Both Franklin Park and ATRS staff recommend an investment of up to \$30 million dollars in DW Healthcare Partners V, LP with Imminent Need, subject to final due diligence.

Ms. Nichols *moved to adopt Resolution 2019-17, to Commit up to \$30 Million Dollars to DW Healthcare Partners V, LP, a Private Equity Buyout Fund that Invests in Expansion Stage Companies in the Healthcare Sector, with Imminent Need. The Board unanimously adopted the Resolution.*

C. General Investment Consultant Report *Aon Hewitt*

- 1. Preliminary Performance Report for the Month Ending February 28, 2019.** PJ Kelly and Tim Pflugradt of Aon Hewitt Investment Consulting provided the preliminary performance report for the month ending February 28, 2019. The ATRS fund had a market value of approximately \$17.1 billion dollars. The total fund had a return of 8.5% since inception, performing at its benchmark of 8.5%. Total equity had a market value of approximately \$9.1 billion dollars. Total equity had a return of 7.9% since inception, underperforming its benchmark of 8.1%.
- 2. Recommendation to Adjust the Target Ranges of the Private Equity and Total Equity Allocations in the Investment Policy Statement (IPS) and to Make Several Minor Edits to the IPS.** PJ Kelly and Tim Pflugradt of Aon Hewitt Investment Consulting (AHIC) provided information concerning the asset allocation mix of private equity and total equity. The current target allocations as stated in the ATRS

Investment Policy Statement (IPS) are 10% for private equity and 55% for total equity.

AHIC recommends increasing the target allocation to private equity to be more in line with the actual allocation to private equity. The adjustment of the target ranges to private equity and total equity should improve the expected rate of return of the ATRS investment portfolio. Both AHIC and ATRS staff recommend updating the IPS to adjust the current allocation targets of private equity (10%) and total equity (55%) by raising the private equity target allocation to 12% and lowering the total equity target allocation to 53%. Other recommended edits include updating the ATRS total equity benchmark description to more accurately reflect the Board's objective to continue to add global diversification to the total equity portfolio.

ATRS staff concurs with the recommendation.

Ms. Nichols *moved to approve to Adjust the Target Ranges of the Private Equity and Total Equity Allocations in the Investment Policy Statement (IPS) and to Make Several Minor Edits to the IPS. The Board unanimously approved the Motion.*

3. **Total Equity Review: Recommendations and Rebalancing Update and Recap.** PJ Kelly and Tim Pflugradt of Aon Hewitt Investment Consulting (AHIC) provided the Board with a review of the ATRS total equity portfolio and provided rebalancing updates and two recommendations. The annual review of the total equity portfolio by AHIC is designed to ensure the total equity portfolio is following the Board's objectives and long term goals. The results of this year's review provided opportunities to efficiently modify the current total equity allocations to continue the Board's objective of making the total equity portfolio more global and reducing the portfolio's current investments in small cap stocks.
 - a. **Recommendation to Terminate Daruma Capital Management, LLC, and Redeploy the Assets to the Existing AllianzGI Structured Alpha Global Equity 350 L.L.C. Fund and the Existing BlackRock MSCI ACWI IMI Index Fund A.** Daruma was hired by the Board in 2000 to manage a domestic small cap equity

portfolio and currently has approximately \$385 million of ATRS assets under management. The Daruma strategy is focused on domestic small cap stocks and as such AHIC and ATRS staff recommend terminating Daruma and transitioning the assets to the existing AllianzGI Structured Alpha Global Equity 350 fund (Allianz 350) and the existing BlackRock BlackRock MSCI ACWI IMI Index Fund A using a Board approved transition manager. The essential reason for the termination recommendation is to continue the Board's objective of making the total equity portfolio more global and reducing the portfolio's current investments in small cap stocks.

The Board approved the BlackRock MSCI ACWI IMI fund in 2011. This fund is a passive index fund that provides ATRS global market participation with management fees that are typically lower than actively managed accounts. The fund is designed to mirror the returns of the MSCI All Country World Index (ACWI) IMI index. This index is the broadest measure of the global stock market, covering approximately 99% of global equity opportunities.

The Board approved the Allianz 350 fund in 2016. The 350 in the global fund's name represents 350 basis points of tracking around the MSCI ACWI. The strategy uses put and call options on a variety of indices to create "profit zones". If the value of the index falls within those zones at expiration, the strategy profits from the structure of the options strategy. The strategy is designed to mirror global markets with the added benefit of potentially higher returns due to the fund's option strategy.

The redeployment of the domestic small cap asset allocation currently managed by Daruma should increase the value of the global Allianz 350 fund by approximately \$167 million dollars from approximately \$261 million dollars to approximately \$428 million dollars. The redeployment would also increase the BlackRock ACWI Index fund by approximately \$218 million dollars from approximately \$103 million dollars to approximately \$321 million dollars. The recommendation is based on the results of the annual total equity review and should help increase ATRS global investment opportunities while at the same time reducing the small cap bias in the portfolio.

ATRS staff concurs with the recommendation.

Ms. Nichols *moved to adopt* Resolution 2019-18, to Terminate Daruma Capital Management, LLC, and Redeploy the Assets to the Existing AllianzGI Structured Alpha Global Equity 350 L.L.C. Fund and the Existing BlackRock MSCI ACWI IMI Index Fund A. The Board *unanimously adopted the Resolution.*

- b. **Recommendation to Consolidate Assets Managed by Pershing Square Capital Management, L.P., by Closing the Pershing Square International Ltd Fund and Redeploying the Assets to the Existing BlackRock MSCI ACWI IMI Index Fund A.** ATRS has a long and great relationship with Pershing Square. The Board hired Pershing Square in 2008 to manage the Pershing Square, LP fund. Pershing Square is an activist manager that invests in large US companies that are underperforming and provides advice to potentially improve a company's earnings and stock price. In 2012 the Board authorized the conversion of ATRS holdings from the Pershing Square LP fund to two funds both managed by Pershing Square, Pershing Square International (a private closed end fund) and Pershing Square Holdings (a publicly traded open end fund). The transfer allowed ATRS to continue participation in Pershing Square's investment strategy with the added benefit of additional liquidity provided by the publicly traded fund. Currently ATRS has approximately \$109 million dollars invested in Pershing Square International, the private fund being considered by this recommendation.

The recommendation includes continued participation in the publicly traded Pershing Square Holdings fund to maintain ATRS investment opportunities with this manager along with the benefit of this fund's added liquidity. Similar to the recommendation for Daruma described above, the liquidation and transfer of the Pershing Square International assets to the existing BlackRock MSCI ACWI IMI Index will continue the Board's long term objective to increase the global

allocation of the ATRS portfolio. Since the closed end Pershing Square International fund is subject to certain liquidity provisions, the reallocation of the assets will be over a period of time.

ATRS staff concurs with the recommendation.

Ms. Nichols moved to adopt Resolution 2019-19, to Consolidate Assets Managed by Pershing Square Capital Management, L.P., by Closing the Pershing Square International Ltd Fund and Redeploying the Assets to the Existing BlackRock MSCI ACWI IMI Index Fund A. The Board unanimously adopted the Resolution.

D. Real Asset Consultant Report. Aon Hewitt

- 1. Recommendation to Commit up to €44 Million Euros (Approximately the Equivalent of \$50 Million Dollars) in Blackstone Real Estate Partners Europe VI, SCSp , a Closed End Opportunistic Real Estate Fund that Acquires Distressed and Undermanaged European Properties at Below Market Prices and Executes Business Plans that Seek to Creating Core Real Estate Assets, with Imminent Need.** Chae Hong presented the recommendation to Commit up to €44 Million Euros (Approximately the Equivalent of \$50 Million Dollars) in Blackstone Real Estate Partners Europe VI, SCSp, with Imminent Need. Blackstone was founded in 1985 by Stephen A. Schwarzman and currently has \$457 billion under management. The fund is a continuation of Blackstone's historical focus on acquiring high quality assets through large, complicated transactions, where competition is often limited and its ability to move quickly and with scale provides an advantage. The fund will invest solely in Europe. ATRS has previously invested in Blackstone Real Estate Partners VII which invests in a similar US strategy and currently has a 17.3% net IRR. The fund is targeting a 15% net IRR which is what the previous funds have returned on average.

Since there are no scheduled ALC meetings while the General Assembly is in session, Imminent Need is requested in order for ATRS to participate in the closing. Both Aon Hewitt Investment Consulting and ATRS staff recommend an investment of up to €44 million euros (approximately the equivalent of \$50 million

dollars) in Blackstone Real Estate Partners Europe VI, SCSp. with Imminent Need.

ATRS staff concurs with the recommendation.

Ms. Nichols *moved to adopt* Resolution 2019-20 to Commit up to €44 Million Euros (Approximately the Equivalent of \$50 Million Dollars) in Blackstone Real Estate Partners Europe VI, SCSp , a Closed End Opportunistic Real Estate Fund that Acquires Distressed and Undermanaged European Properties at Below Market Prices and Executes Business Plans that Seek to Creating Core Real Estate Assets, with Imminent Need The Board *unanimously adopted the Resolution.*

2. **Recommendation to Commit up to \$40 Million Dollars in Rockwood Capital Real Estate Partners Fund XI, L.P., a Closed End Value Added Real Estate Fund that Invests in Value Added Office, Apartment, Retail, and Hotel Properties Across Multiple Regions in the US.** Chae Hong presented the recommendation to Commit up to \$40 Million Dollars in Rockwood Capital Real Estate Partners Fund XI, L.P. The fund was founded in 1995 by Walter Schmidt and Robert Gray, Jr and has \$7.1 billion in assets under management. The fund will acquire value-add office and apartment properties within high barrier to entry urban and evolving near-urban centers of primary cities. Targeted neighborhoods are those benefitting from urbanization trends, experiencing increased/ongoing tenant demand from above-average employment growth, and above-average population growth of the broad MSA. ATRS previously invested in Fund IX of the series which currently has a 14.2% return. The fund will target a 12-14% net IRR with previous funds in the series averaging a 16% net return. Both Aon Hewitt Investment Consulting and ATRS staff recommend an investment of up to \$40 million dollars in Rockwood Capital Real Estate Partners Fund XI, L.P.

ATRS staff concurs with the recommendation.

Ms. Nichols *moved to adopt* Resolution 2019-21, to Commit up to \$40 Million Dollars in Rockwood Capital Real Estate Partners Fund XI, L.P., a Closed End Value Added Real Estate Fund that Invests in Value Added Office, Apartment, Retail, and Hotel

Properties Across Multiple Regions in the US. The Board *unanimously adopted the Resolution.*

3. **Recommendation to Commit up to \$40 Million Dollars in Walton Street Real Estate Debt Fund II, L.P., a Closed End Value Added Real Estate Debt Fund that Invests in a Diversified Portfolio of Higher Yielding Commercial Real Estate Debt Investments.** The four founding Managing Principals have worked together for 28 years and average 38 years of real estate industry experience. The fund will look to structure junior loans by originating whole loans and partnering with cost effective senior lenders to achieve the fund target returns of approximately 9% net. Loans will be secured by high-quality, cash-flowing assets in U.S. markets where Walton Street has invested for over two decades. The strategy will seek to provide current return, meaningful downside protection, as well as the added benefit of a natural hedge in a rising interest rate environment. The previous fund of this series is on track to deliver a 10% net IRR. Both Aon Hewitt Investment Consulting and ATRS staff recommend an investment of up to \$40 million dollars in Walton Street Real Estate Debt Fund II, L.P.

ATRS staff concurs with the recommendation.

Ms. Nichols *moved to adopt Resolution 2019-22, to Commit up to \$40 Million Dollars in Walton Street Real Estate Debt Fund II, L.P., a Closed End Value Added Real Estate Debt Fund that Invests in a Diversified Portfolio of Higher Yielding Commercial Real Estate Debt Investments. The Board *unanimously adopted the Resolution.**

XIII Operations Committee Report. Dr. Abernathy, Vice Chair gave a report on the Operations Committee meeting.

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

1. Open Forum. None.

B. Legislative Update. Executive Director Clint Rhoden gave an update on the Legislative Session and the ATRS Legislative Package. Mr. Rhoden stated that no legislation that adjusted member benefits got out of Committee. It was a great Session and the leadership was awesome.

ATRS' Legislative Package are now all Acts effective 7/1/2019:

1. HB1308 - Rehiring Disability Retirees. Now ACT 209 Effective 7/1/2019.
2. HB1310 - Employer Contributions over 14%. Now ACT 594 Effective 7/1/2019.
3. HB1316 - Dependent Child Survivor. Now ACT 210 Effective 7/1/2019.
4. HB1320 - Technical Corrections. Now ACT 427 Effective 7/1/2019.
5. HB1335 - Retention of Teachers. Now ACT 595 Effective 7/1/2019.
6. SB218 - T-DROP Deposit Clarification. Now ACT 296 Effective 7/1/2019.
7. SB222 - Noncontributory Eligibility. Now Act 297 Effective 7/1/2019

C. Potential Rule Change.

1. **Rule 1-18: Audit Committee Charter.** Staff suggested that the Audit Committee Charter include Act 127 of 2017, which provides for an annual employee evaluation of the Internal Auditor by the ATRS Audit Committee. The rationale for the addition of this language to the Audit Committee Charter is to provide a comprehensive charter that outlines the committee's responsibilities. The addition of Act 127 of 2017 language accomplishes that objective.

After discussion by the Committee members, the Committee tabled this matter for further review.

XIV Staff Reports.

- A. **Medical Committee Reports.** Willie Kincade presented the Medical Committee reports. A total of sixteen (16) disability applications were received, Fourteen (14) were approved, and two (2) needed more information.

Ms. Nichols moved to approve the Medical Committee Reports. Ms. Bell seconded the motion, and the Board unanimously approved the motion.

- XV. **Use of Sick Leave in the Calculation of Final Average Salary.** Clint Rhoden explained how ATRS uses payments for unused sick leave in the

calculation of the final average salary and discuss any changes the board decides to implement. **This is an action item.**

A. Resolution No. 2019-23

Mr. Stubblefield moved to adopt Resolution 2019-23, Use of Sick Leave in the Calculation of Final Average Salary. Dr. Abernathy seconded the motion, and the Board unanimously approved the motion.

XVI. Remodeling Project of ATRS Office. Clint Rhoden gave the Board an update on the upcoming remodeling to the ATRS offices.

XVII. Security Monitoring Contract RFQ. Clint Rhoden gave the Board a status report on the process of submitting a Security Monitoring Contract RFQ to OSP for approval.

XVIII. Executive Session to Discuss Executive Director's Performance Evaluation. Mr. Stubblefield, Chair, called the Executive Session of the Board of Trustees to order at 1:53 p.m. Mr. Stubblefield, Chair, reconvened the Board of Trustees meeting at 2:10 p.m.

The Board expressed their satisfaction and appreciation to Mr. Rhoden for hard work and service to ATRS. The Board will pass the evaluation to HR for processing.

XIX. Other Business. The Board discussed having a workshop in July with GRS and Aon Hewitt. The Board Secretary will get with Trustees on a day that will work for everyone in July and schedule the workshop.

XX. Adjourn.

Mr. Lester moved to adjourn the Board Meeting. Mr. Covert seconded the motion, and the Board unanimously approved the motion.

Meeting adjourned at 2:16 p.m.

Clint Rhoden,
Executive Director

Mr. Jeff Stubblefield, Chair
Board of Trustees

Tammy Porter,
Recorder

Date Approved

**MINUTES
ARKANSAS TEACHER RETIREMENT SYSTEM
BOARD OF TRUSTEES-CALLED TELEPHONIC**

**Monday, April 29, 2019
3:45 p.m.
1400 West Third Street
Little Rock, AR 72201**

ATTENDEES

Board Members Present

Jeff Stubblefield, Chair*
Danny Knight, Vice Chair*
Jason Brady, designee for Hon. Dennis Milligan*
Lloyd Black*
Kathy Clayton*
Kelly Davis*
Andrea Lea, State Auditor*
Bobby Lester*
Robin Nichols*
Deborah Thompson*

ATRS Staff Present

Clint Rhoden, Executive Director
Rod Graves, Deputy Director
Tammy Porter, Executive Assistant/Board Sec.
Mike Lauro, Information Systems Manager
Martha Miller, Staff Attorney
Willie Kincade, Assoc. Dir. of Operations

Reporters Present

Mike Wickline, AR DemGaz

Board Members Absent

Dr. Richard Abernathy
Anita Bell
Candace Franks
Johnny Key
Janet Watson

* *via telephone*

- I. Call to Order/Roll Call.** Mr. Jeff Stubblefield, Chair, called the Board of Trustee meeting to order at 3:45 p.m. Voice roll call was taken. Dr. Abernathy, Ms. Bell, Ms. Franks, Mr. Key and Ms. Watson were absent.

- II. Motion for Excused Absences.**

Mr. Knight *moved to excuse* Dr. Abernathy, Ms. Bell, Ms. Franks, Mr. Key and Ms. Watson from the April 29, 2019, Board of Trustees Special Telephonic meeting. Ms. Davis *seconded the motion*, and the Board *unanimously approved the motion*.

III. Adoption of Agenda

Ms. Nichols moved for adoption of the Agenda. Mr. Knight 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. Appointment of Physicians for Medical Committee to review Applications for Disability Retirement. Mr. Rhoden presented recommendations for two (2) physicians to be appointed to the Medical Committee. Pursuant to A.C.A. §24-7-303(f), the ATRS Board shall appoint physicians to the ATRS Medical Committee to review disability retirement applications. ATRS staff has worked diligently to locate potential physicians to fill the vacant positions we currently have on the Medical Committee due to retirements of former physicians.

The first recommendation was Dr. Hoyte Pyle. Mr. Pyle received his doctorate in 1963 from UAMS. He is currently the Assoc. Physician at UAMS.

Mr. Rhoden stated that staff concurs with the recommendation of Dr. Pyle.

Ms. Davis moved to adopt Resolution 2019-24, to appoint Dr. Hoyte to serve as a member of the ATRS Medical Committee. Ms. Clayton seconded the motion and the Board unanimously adopted the Resolution.

The second recommendation was Dr. Charles Phillips. Mr. Phillips received his doctorate from UAMS. He has over 38 years of experience as a medical doctor. He is currently the CMO at Baptist Health in Little Rock.

Mr. Rhoden stated that staff concurs with the recommendation of Dr. Phillips.

Mr. Lester moved to adopt Resolution 2019-25, to appoint Dr. Charles Phillips to serve as a member of the ATRS Medical Committee. Mr. Knight seconded the motion and the Board unanimously adopted the Resolution.

VI. Adjourn.

Mr. Black moved to adjourn the Board Meeting. Auditor Lea seconded the motion, and the Board unanimously approved the motion.

Meeting adjourned at 4:01 p.m.

Clint Rhoden,
Executive Director

Mr. Jeff Stubblefield, Chair
Board of Trustees

Tammy Porter,
Board Secretary

Date Approved

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

R E S O L U T I O N
No. 2019-31

Compensation for Unused Sick Leave in the Calculation of Final Average Salary

WHEREAS, A.C.A. §§ 24-7-202 (18) and 24-7-736 authorize the Board of Trustees (Board) of the Arkansas Teacher Retirement System (ATRS) to make adjustments to the final average salary calculation by resolution; and

WHEREAS, the school districts support quality education by encouraging members to bank their time so that they can be available in the classroom; and

WHEREAS, it is important to allow members the opportunity to benefit from being compensated for accumulated unused sick days that would otherwise be lost due to the school district's maximum number of sick days that can be carried over to the next year; and

WHEREAS, the ability of a member to have a one-time payment of all accumulated unused leave according to the school district's separation from employment policy should not be impaired; and

WHEREAS, the calculation of final average salary should not include discretionary periodic or occasional compensation for accumulated unused leave because it could skew the application of the anti-spiking limitation on final average salary, and it should be prohibited.

NOW, THEREFORE, BE IT RESOLVED, that effective _____, 20____, the calculation of final average salary shall include compensation for accumulated unused sick leave only if received in the year a member applies for retirement or T-DROP, or if received during other years and it is compensation for accumulated unused sick leave that would be lost due to the school district's policy for the maximum amount of leave that can be carried over to the next year; and

FURTHER, BE IT RESOLVED, that this resolution is intended to supersede the resolutions set forth in Resolution 2019-23 adopted by the Board on April 1, 2019.

Adopted this 3rd day of June, 2019.

Mr. Jeff Stubblefield, Chair
Arkansas Teacher Retirement System

I. INTERNAL AUDIT DEPARTMENT CHARTER

INTRODUCTION:

Internal Auditing is an independent and objective assurance and consulting activity that is guided by a philosophy of adding value to improve the operations of the Arkansas Teacher Retirement System (ATRS). It assists ATRS in accomplishing its objectives by bringing a systematic and disciplined approach to evaluate and improve the effectiveness of the organization's governance, risk management, and internal control.

ROLE:

The Internal Audit Department (IA Department) is established by the Audit Committee of the Board of Trustees (the Committee). The IA Department's responsibilities are defined by the Committee as part of their oversight role.

PROFESSIONALISM:

The IA Department will govern itself by adherence to The Institute of Internal Auditors' mandatory guidance including the Definition of Internal Auditing, the Code of Ethics, and the *International Standards for the Professional Practice of Internal Auditing (Standards)*. This mandatory guidance constitutes principles of the fundamental requirements for the professional practice of internal auditing and for evaluating the effectiveness of the IA Department's performance.

The Institute of Internal Auditors' Practice Advisories, Practice Guides, and Position Papers will also be adhered to as applicable to guide operations. In addition, the IA Department will adhere to ATRS's relevant policies and procedures and the IA Department's standard operating procedures manual.

AUTHORITY:

The IA Department, with strict accountability for confidentiality and safeguarding records and information, is authorized full, free, and unrestricted access to any and all of ATRS records, physical properties, and personnel pertinent to carrying out any engagement. All employees are requested to assist the IA Department in fulfilling its roles and responsibilities. The IA Department will also have free and unrestricted access to the Committee and the Board of Trustees.

ORGANIZATION:

The Internal Audit Director (IA Director) will report functionally to the Committee and administratively (i.e. day to day operations) to the ATRS Executive Director.

The Committee will

- Approve the Internal Audit Charter.
- Approve the risk based Internal Audit Plan.
- Approve the internal audit budget and resource plan.
- Receive communications from the IA Director on the IA Department's performance relative to its plan and other matters.
- Approve decisions regarding the appointment and removal of the IA Director. (Per ATRS Rule 3-8, the ATRS Executive Director will notify the Board of Trustees Chair of changes in the IA Director position prior to requesting Committee approval.)

I. INTERNAL AUDIT DEPARTMENT CHARTER (Continued)

- Approve the remuneration of the IA Director in accordance with ATRS appropriations by the Arkansas General Assembly.
- Make appropriate inquiries of management and the IA Director to determine whether there is inappropriate scope or resource limitations.

The IA Director will communicate and interact directly with the Committee, including in executive sessions and between Committee meetings as appropriate.

INDEPENDENCE AND OBJECTIVITY:

The IA Department will remain free from interference by any element in the organization, including matters of audit selection, scope, procedures, frequency, timing, or report content to permit maintenance of a necessary independent and objective mental attitude.

Internal auditors will have no direct operational responsibility or authority over any of the activities audited. Accordingly, they will not implement internal controls, develop procedures, install systems, prepare records, or engage in any other activity that may impair an internal auditor's judgment.

Internal auditors will exhibit the highest level of professional objectivity in gathering, evaluating, and communicating information about the activity or process being examined. Internal auditors will make a balanced assessment of all the relevant circumstances and not be unduly influenced by their own interests or by others in forming judgments.

The IA Director will confirm to the Committee, at least annually, the organizational independence of the IA Department.

RESPONSIBILITY:

The scope of internal auditing encompasses, but is not limited to, the examination and evaluation of the adequacy and effectiveness of ATRS governance, risk management, and internal controls as well as the quality of performance in carrying out assigned responsibilities to achieve ATRS stated goals and objectives. This includes:

- Evaluating risk exposure relating to achievement of ATRS strategic objectives.
- Evaluating the reliability and integrity of information and the means used to identify, measure, classify, and report such information.
- Evaluating the systems established to ensure compliance with those policies, plans, procedures, laws, and regulations which could have a significant impact on ATRS.
- Evaluating the means of safeguarding assets and, as appropriate, verifying the existence of such assets.
- Evaluating the effectiveness and efficiency with which resources are employed.
- Evaluating operations or programs to ascertain whether results are consistent with established objectives and goals and whether the operations or programs are being carried out as planned.
- Monitoring and evaluating governance processes.
- Monitoring and evaluating the effectiveness of ATRS risk management processes.
- Evaluating the quality of performance of external auditors and the degree of coordination with internal audit.

I. INTERNAL AUDIT DEPARTMENT CHARTER (Continued)

- Performing consulting and advisory services related to governance, risk management, and control as appropriate for ATRS.
- Reporting periodically on the IA Department's purpose, authority, responsibility, and performance relative to its plan.
- Reporting significant risk exposures and control issues, including fraud risks, governance issues, and other matters needed or requested by the Committee.
- Evaluating specific operations at the request of the Committee or management, as appropriate.

INTERNAL AUDIT PLAN:

At least annually, the IA Director will submit to senior management and the Committee an internal audit plan for review and approval. The internal audit plan will consist of a work schedule as well as budget and resource requirements for the next fiscal year. The IA Director will communicate the impact of resource limitations and significant interim changes to senior management and the Committee.

The internal audit plan will be developed based on a prioritization of the audit universe using a risk-based methodology, including input of senior management and the Committee. The IA Director will review and adjust the plan, as necessary, in response to changes in ATRS business, risks, operations, programs, systems, and controls. Any significant deviation from the approved internal audit plan will be communicated to senior management and the Committee through periodic activity reports.

REPORTING AND MONITORING:

A written report will be prepared and issued by the IA Director or designee following the conclusion of each internal audit engagement and will be distributed as appropriate. Internal audit results will also be communicated to the Committee.

The internal audit report may include management's response and corrective action taken or to be taken in regard to the specific findings and recommendations. Management's response, whether included within the original audit report or provided thereafter (i.e. within thirty days) by management of the audited area should include a timetable for anticipated completion of action to be taken and an explanation for any corrective action that will not be implemented.

The IA Department will be responsible for appropriate follow-up on engagement findings and recommendations. All significant findings will remain in an open issues file until cleared.

The IA Director will periodically report to senior management and the Committee on the IA Department's purpose, authority, and responsibility, as well as performance relative to its plan. Reporting will also include significant risk exposures and control issues, including fraud risks, governance issues, and other matters needed or requested by senior management and the Committee.

I. INTERNAL AUDIT DEPARTMENT CHARTER (Continued)

QUALITY ASSURANCE AND IMPROVEMENT PROGRAM:

The IA Department will maintain a quality assurance and improvement program that covers all aspects of the internal audit activity. The program will include an evaluation of the IA Department's conformance with the Definition of Internal Auditing and the *Standards* and an evaluation of whether internal auditors apply the Code of Ethics. The program also assesses the efficiency and effectiveness of the IA Department and identifies opportunities for improvement.

The IA Director will communicate to senior management and the Committee on the IA Department's quality assurance and improvement program, including results of ongoing internal assessments and external assessments conducted at least every five years.

Internal Audit Department Charter

Approved this _____ day of _____, _____.

Chief Audit Executive

Chairman of the Audit Committee

ATRS Executive Director

AUDIT COMMITTEE CHARTER

A.C.A. § 24-7-303

1. There shall be an Audit Committee composed of three members of the ATRS Board of Trustees appointed by the Board Chair and two at-large members from the public with extensive auditing experience approved by the Board. The at-large members must be independent and have no affiliation with the system.
2. The committee shall meet as needed on call by either the committee chair or the ATRS Internal Auditor. Actions taken by the committee shall be reported to the ATRS Board of Trustees.
3. The committee has authority to conduct or authorize investigations into any matters within its scope of responsibility and to seek any information it requires from employees, all of who are directed to cooperate with the committee's request. In the event the committee has difficulty obtaining the necessary information from an employee or employees, the committee may seek assistance from the Executive Director or the Board of Trustees as the circumstances dictate.
4. The committee may invite members of management, auditors, employees, or others to attend meetings and provide pertinent information as necessary.
5. The committee will assist the Board of Trustees in fulfilling the Board's oversight responsibility relating to:
 - A. The financial reporting processes
 - B. The system of internal controls
 - C. The internal process
 - D. The System's compliance with laws and regulatory requirements and ethics policies
6. Meeting agendas will be prepared and provided in advance to committee members, along with appropriate briefing material when practical.
7. The committee may act by majority consent of all the members of the committee.
8. Minutes of the meeting will be prepared and presented at the next scheduled Audit Committee meeting for review and approval.
9. The committee will carry out the following responsibilities:
 - A. Financial Statements.
 - i. Review with management and auditor the results of audits which have significant findings and recommendations, together with management's responses to findings and follow up on corrective actions.

B. Internal Control.

- i. Review the risk assessment to consider the effectiveness of the system's internal controls.
- ii. Review with management and auditors any significant findings and recommendations on internal controls over financial reporting, together with management's responses.

C. Internal Audit.

- i. Review with management and the Internal Auditor the charter, activities, staffing, and organizational structure of the internal audit function.
- ii. Review and approve the audit plan and all major changes to the plan.
- iii. Review Internal Audit's reports and follow up on findings and recommendations.

D. Compliance.

- i. Review the findings of any examinations by regulatory agencies, and any auditor observations.

E. Reporting Responsibilities.

- i. Regularly report to the Board of Trustees on the committee's activities and issues that arise with respect to the quality of integrity of the system's financial statement, compliance with legal or regulatory requirements, and the performance of the internal audit function.

F. Other Responsibilities.

- i. Perform other activities related to this charter or the audit functions as requested by the Board of Trustees.
- ii. Resolve any disagreements between management and the Internal Auditor regarding financial reporting.
- iii. Review and assess the adequacy of the committee charter, and propose recommended changes as needed, and request Board of Trustees approval of recommended changes.
- iv. Approve decisions regarding the appointment and removal of the Internal Auditor. (Per ATRS Rule 3-8, the ATRS Executive Director will notify the Board of Trustees Chair of changes in the Internal Auditor position prior to requesting Committee approval.)
- v. Perform an annual employee evaluation of the Internal Auditor of ATRS. The audit committee ~~may~~ shall:

- (a) Meet in executive session, with or without the Internal Auditor, for the purpose of conducting, reviewing, and discussing an employee evaluation of the internal auditor; and
- (b) ~~Gather information necessary to conduct a fair review of the Internal Auditor for their annual employee evaluation.~~ Gather information as it deems necessary, including input from the Executive director or other persons with direct knowledge of the Internal Auditor's performance, for the purpose of conducting a fair and thorough annual employee evaluation of the Internal Auditor;
- (c) Report to the Board of Trustees when the Committee has completed the annual evaluation that the evaluation has been completed. If a Trustee requests by motion and second to learn the specific results of the Internal Auditor evaluation, and the majority of the Board votes in favor of such motion, the Board of Trustees may meet in executive session to hear the Committee's findings and recommendation on the employee evaluation.

10. The committee may periodically evaluate itself and report the results to the Board of Trustees. The effective date for the start of any evaluation process and frequency of evaluations may be determined by the committee.

Adopted: December 3, 2007
Adopted by Board: April 2, 2012
Amended: May 2, 2012
Effective: September 4, 2012
Amended: May 10, 2017
Amended: June 3, 2019



Internal Audit Department

INTERNAL AUDIT REPORT:

Disability Benefits

July 1, 2017 – June 30, 2018

June 3, 2019

Introduction

Disability retirement provides benefits for members who demonstrate total and permanent physical or mental incapacity to perform the duties of his or her position while employed as a member by an Arkansas Teacher Retirement System (ATRS) employer. To be eligible for disability benefits, a member must be active and have 5 or more years of actual and reciprocal service. Actual service does not include purchased or free credited service. Members eligible for voluntary retirement under A.C.A. § 24-7-701 are not eligible for disability retirement.

Applications for disability retirement are reviewed and approved or disapproved by the ATRS Medical Committee and actions taken by the Medical Committee are reported to the Board of Trustees. Members applying for disability benefits must submit an Application for Arkansas Teacher Retirement Disability Retirement to ATRS along with physician medical reports documenting the member's disability. If medical reports are not received with the application, the member has 6 months from the date of application to submit the applicable medical reports. If after 6 months all medical reports have not been received, the incomplete application is considered by the ATRS Medical Committee.

A member has 2 full calendar months after the Medical Committee approves disability benefits to terminate employment with a covered employer. For a member to begin receiving disability benefits, the member shall not be employed directly or indirectly by an ATRS covered employer. Disability benefits are calculated in accordance with A.C.A. § 24-7-705 and the member may elect an option provided for in A.C.A. § 24-4-706. Termination requirements are provided by A.C.A. § 24-7-502.

Act 219 of 2015, effective July 1, 2015, requires a disability retiree under age 57 at the time of retirement to provide ATRS with a Social Security Administration determination letter or official documentation indicating they have been approved by the Social Security Administration for disability benefits. ATRS must receive this documentation within thirty-six (36) months from the member's effective date of benefits. If a member fails to submit this documentation within the thirty-six (36) month period, the member will be removed from the disability payroll. A member can apply for an extension of the thirty-six (36) month deadline when the member demonstrates his or her Social Security disability claim is still under review and part of a continuous claim that was filed and remained active for at least twenty-four (24) months prior to the thirty-six (36) month deadline. If a member is denied Social Security Disability benefits, the member may seek review by the ATRS Medical Committee by submitting an Application for Arkansas Teacher Retirement System Disability Review along with medical reports from physicians supporting the member's disability. The application for review must be submitted three months prior to the disability benefit ceasing due to missing the thirty-six (36) month deadline or three months after the benefit ceases. Approval for disability benefits is made by the ATRS Medical Committee and Board of Trustees. Board of Trustees approval is the final disposition.

Objectives

Our objectives in conducting this audit were as follows:

- ❖ Determine eligibility for disability benefits is in accordance with ATRS laws, rules, and procedures.
- ❖ Determine effective date and benefits for disability members were calculated accurately and consistently in accordance with ATRS laws, rules, and procedures.

- ❖ Evaluate internal controls surrounding the calculation of disability benefits, including review procedures.
- ❖ Determine requirements relating to Social Security determination and continuation of disability benefits were implemented accurately and consistently in accordance with ATRS laws, rules and procedures.

Scope and Methodology

Our audit covered two time periods:

- ❖ Eligibility, accuracy, and effective dates for disability benefits were reviewed for the period July 1, 2017 through June 30, 2018;
- ❖ Compliance with social security determination requirements included all disability retirees under age 57 on July 1, 2015 and all disability retirees under age 57 at their retirement effective date for the period July 1, 2015 through December 31, 2018;

To accomplish our objectives for eligibility and accuracy of disability benefits, we obtained a listing of all disability retirees during our audit period. From the listing, we selected a sample of 30 disbursements using a random number generator. The selected payments were analyzed for the accuracy of the benefit paid, the accuracy of the effective date of benefits, and the eligibility of member for disability benefits in compliance with ATRS laws, rules, and policies.

In order to evaluate the internal controls over disability benefits, we reviewed procedures and conducted interviews with Benefits and Counseling (B&C) employees.

To accomplish our objective for social security determination requirements, we obtained a listing of all disability retirees under age 57 on July 1, 2015. From the listing, we selected a sample of 30 retirees using a random number generator. The selected member files were analyzed for member notification, receipt of social security determination letter, approval or denial for social security disability benefits, medical committee review for denied benefits, and appropriateness of continuing benefit payments.

We also obtained a listing of all disability retirees under age 57 who retired July 1, 2015 through December 31, 2018. From this listing, we selected a sample of 30 retirees using a random number generator. The selected member files were analyzed for member notification and receipt of social security determination letter. We reviewed written procedures and conducted interviews with B&C staff to evaluate internal controls designed to ensure all disability retirees who are required to submit a Social Security determination letter met this requirement.

In March 2018, B&C identified 156 disability members who had not submitted a Social Security determination letter. These 156 members were again notified of the requirement for submitting a Social Security determination letter and 101 of these responded by submitting the requested document. The remaining fifty-five (55) of those notified were reviewed for appropriateness of the continuance or discontinuance of their disability benefit.

Findings and Recommendations

The objectives of a system of internal controls are to provide management with reasonable, but not absolute, assurance that transactions are executed in accordance with policies and guidelines and are recorded properly. Our findings and recommendations are provided to assist management in implementing internal controls that ensure proper procedures are implemented and followed, and should not be used for any other purpose.

Finding 1: Act 493 of 2013 amended A.C.A. § 24-7-4(a) to redefine the effective date of disability retirement from the calendar month following the member's termination of active membership to the date the written application is filed with ATRS and the member is no longer employed by an ATRS employer. The Act was effective July 1, 2013. Based upon Board Rule 9-4, staff determined the date the member is no longer employed to be the last date of compensation payment. In March 2018, Administration determined that the date the member is no longer employed as provided in Act 493, should be the member's termination date.

We found that four of the thirty 30 disability we reviewed for accuracy had their benefits calculated using the last date of employer payment as their retirement effective date. This resulted in an underpayment of benefits for three members and an overpayment of benefits for one member. Benefits underpaid totaled \$3,860.46 and benefits overpaid totaled \$3,851.98.

Recommendation: Develop procedures to ensure new legislation is implemented timely, accurately, and efficiently. Apply the implementation of Act 493 consistently by reviewing and correcting disability retirees from July 2014 through June 2018 whose effective date of benefits were not determined based on the member's termination date.

Response:

Our Disability team is currently rectifying this matter. ATRS Disability staff has applied our Look Back period as a result of over and underpayments due to inaccuracies of the disability effective date. A list of those individuals has been provided to the ATRS Executive Director and Internal Audit. ATRS Administration has recommended that we correct this matter as a fiduciary obligation to our members. We have provided disability staff with guidance and training to abide by Act 493, and develop written Standard Operating Procedures for disability. We have placed several control measures as a preventive mechanism to correctly identify a member's effective date since discovering our past practice errors and misinterpretation of Act 493.

Finding 2: Board Rule 9-4 (B)(i) definition of termination of active membership does not reflect the system's interpretation of Arkansas Code. A.C.A. § 24-7-704 bases the effective date of disability retirement on a member who is no longer employed by an ATRS employer. No longer employed by an ATRS employer is not defined in the Board Rules. Also, Board rule 9-4 (I) is no longer applicable.

Recommendation: Implement procedures to ensure board rules are updated timely and accurately when new legislation is enacted. Any board rules that are not currently in agreement with the Arkansas Code need to be updated. Also, Board rules should be amended to include a definition for no longer employed by an ATRS employer.

Response:

We concur with the previous recommendation. ATRS Management will disseminate information regarding new legislation via written and verbal communication to staff members for complete interpretation of the law. Standard Operating Procedures will be updated, examples will be provided to staff, and training will be conducted to ensure total comprehension.

Finding 3: Agency procedure is for incoming U.S. Postal Service mail from or regarding an ATRS member to be delivered from the mailroom to the Scanning Department. However, medical reports are given directly to the disability counselor.

Recommendation: All incoming mail including medical reports should be taken from the mailroom to the Scanning Department for entry into the ATRS Member Information System (ATRMIS). The Scanning Department will scan the documents into the member's file and all documents should be worked from the ATRMIS image system.

Response:

The mailroom staff currently delivers a member's medical reports to our Disability counselor. Once the counselor removes the necessary documents that are vital for processing a disability applicant for medical review and retirement, the rest of the report is sent to scanning. The documents are reviewed by the Disability counselor and stored in a personal shared directory. Those documents have a shelf-life of one year and afterwards they are deleted by our Data Processing department. ATRS Administration has made a decision to provide our Disability counselor with a safe to safeguard vital records pertaining to a member's medical information in the future.

Finding 4: The Certification of Salary form 258 requests the employer provide the member's resigned/termination date. Neither the form nor the correspondence accompanying the form gives direction as to what constitutes a member's termination date.

Recommendation: Clear and precise definitions of information requested should be included on all outgoing forms. The Certification of Salary form should have a clear definition of what constitutes a member's termination date.

Response:

Act 24-7-502 gives a very detailed definition of "Termination". We have agreed that termination is a complete severance of the employer-employee relationship at all system-covered employers. The member must be no longer performing work in any capacity or receiving pay from an employer in which all ties have been detached. The effective date will be determined once all these conditions have been met. We are in the process of developing suitable language on Form 258 to have a clear understanding of a member's termination date.

Finding 5: Staff monitors whether a disability retiree under age 57 at retirement has submitted their Social Security determination letter showing the member is receiving Social Security disability benefits. If the letter has not been received three months prior to a member's deadline, correspondence is sent to the member reminding them of the upcoming deadline and the consequences of not sending in the required letter. Two reports are used to obtain all

members who have not submitted a letter. One report, R7115, was missing four disability members.

Recommendation: A field should be added to ATRMIS that indicates whether members have met the requirement to submit a Social Security determination letter. A report could then be designed using this information to allow the staff to accurately monitor the fulfillment of this requirement for each member.

Response:

ATRS staff has communicated with our Data Processing department to enhance parameters utilized on R7115. We recently ran this report for correctness to validate the members who were on disability and under age 57. We will also have a discussion with Data Processing to add a field to member maintenance that indicates the system has received the member's Social Security Determination Letter.

Finding 6: There are no written procedures regarding the removal of members from the disability payroll if they do not fulfill the requirement for Social Security disability benefits. Furthermore, there is no Board rule or written procedures surrounding the re-retirement of these members once they meet the requirements for age and service retirement.

Recommendation: Develop detailed written procedures that are consistent with ATRS rules and laws to cover all aspects of removing a disability retiree from the benefit payroll. Also, consider the need for a Board rule concerning the age and service retirement of a previous disability retiree that was determined to be ineligible and removed from the benefit payroll.

Response:

Our Disability team has been working diligently on improving our Standard Operating Procedures overall including Social Security Determination reviews and drafting additional policies. ATRS Management will make this a priority to develop and implement these procedures for removing Disability retirees from the benefit payroll when they are not in compliance with Act 24-7-704.

Conclusion

Members are well informed of the requirement to submit confirmation they are receiving Social Security disability benefits within thirty six months of retirement and staff adequately monitors submission of Social Security determination letters. However, policy and procedures need to be updated to give clear and precise instructions for all aspects of disability retirement. New legislation or rules need to be consistently applied to all members.

Internal Audit Department

INTERNAL AUDIT PLAN

FOR THE PERIOD JULY 1, 2019 TO JUNE 30, 2020

PREPARED BY:

BRENDA WEST, INTERNAL AUDITOR

DENA DIXSON, ASSISTANT INTERNAL AUDITOR

Internal Audit Department

Audit Plan FY 2020

Introduction

As required by the International Standards for the Professional Practice of Internal Auditing issued by the Institute of Internal Auditors (IIA), and by Arkansas Teacher Retirement System's (ATRS) Internal Audit Charter, we submit the following Internal Audit Plan for Fiscal Year 2020.

In selecting areas for review, Internal Audit gives priority to processes where failure of the system to adequately perform could have serious consequences for ATRS, its members, stakeholders, and the Board. Therefore, projects were identified for this audit plan by using the 2018 ATRS risk assessment. Also, as ATRS continues to grow in terms of responsibilities, assets, and membership, there are areas that require regular reviews to ascertain whether the system continues to operate in an effective and efficient risk controlled manner.

The Internal Audit Department will work with department managers to schedule a convenient time to perform audits. Audit projects will have an informal time budget associated with them. If audits require more time than planned, more hours will be used to ensure a high-quality, useful audit is conducted. If audits require less hours than originally planned, more topics will be chosen and presented to the Audit Committee for approval. This technique ensures audit flexibility and that the highest priority areas are covered first.

Scope

This plan covers the period July 1, 2019 through June 30, 2020.

Objective

The Internal Audit Department's objective is to assist the Board of Trustees and all levels of management in the effective discharge of their responsibilities by furnishing analysis, appraisals, and recommendations concerning the activities of the agency. This objective is accomplished by ensuring:

- Compliance with applicable laws and regulations
- Reliability and integrity of financial and operational information
- Safeguarding of assets
- Effectiveness and efficiency of operations

Internal Audit Department

Audit Plan FY 2020

Risk Assessment

Risk assessment is defined as a "systematic process for assessing and integrating professional judgments about probable adverse conditions and/or events." The risk assessment process provides a means of organizing and integrating professional judgments for development of the annual audit work schedule.

Risk is defined as the probability that an event or action could possibly occur that may adversely affect the organization and the activity being audited. Risk is a measure of uncertainty. Control Risk is the risk that established internal controls lose effectiveness over time. Custodial Risk is the risk associated with owning and safeguarding of assets. Operation Risk is the risk of direct or indirect loss resulting from inadequate or failed internal processes, people, systems, or external events. Business Risk is the risk associated with the probable material effects of an uncertain environment or achieving established objectives. Residual Risk is the amount of risk that management is willing to assume or the amount of risk that will not be addressed by applicable controls.

The risk assessment process begins with identification of auditable areas. The risks are assessed according to the guidelines provided by the Arkansas Department of Finance and Administration Internal Audit Section.

Acceptable Level of Risk

Although this plan contemplates a wide-ranging scope of audit effort, it does not provide coverage for all ATRS's components and systems. We have tried to maximize the limited resources to provide reasonable coverage to the projects we believe require the most attention.

It is important for the Board and management to understand the limitations of the audit coverage and the risks they assume in areas not audited. We believe that this plan allocates resources of the Internal Audit Department to the highest risk areas of the system and includes audit effort to address other areas requiring periodic review. We have also scheduled time for special projects to address areas identified during the year that do not appear to warrant a full audit but should be reviewed during the upcoming fiscal year.

Reporting

All audit reports are reviewed by the audit client and the ATRS Director prior to being released as the official audit report. This procedure helps ensure the audit report is factual, accurate, and free of bias. In addition, a self-review checklist is used by the Internal Audit Department to ensure the audit reports are properly supported by sufficient audit evidence. All audit reports will be provided to the Audit Committee and the Board of Trustees for their review.

Internal Audit Department

Audit Plan FY 2020

Planning and Administrative Projects

Internal Audit Department's responsibilities include the completion of numerous administrative and planning projects each year. Some of these projects include, but are not limited to, the following:

- Development of annual audit plan;
- Development of internal risk assessment;
- Establishment and maintenance of the internal audit manual;
- Maintenance of the Internal Auditor recommendation follow-up process; and
- Development and maintenance of Disaster Recovery Plan.

Questions

If you have any questions regarding this audit plan, please contact Brenda at 682-6335 or via email at brendaw@artrs.gov.

Internal Audit Department

**FY 2020 Annual Audit Plan
Available Audit Hours**

Total Hours (2 employees * 2080 hours)	4,160
Less: Holidays	216 (A)
Annual Leave	348 (B)
Sick Leave	192 (C)
General Administration & Board Meetings	800 (D)
Continuing Professional Education	100 (E)
	<u>1,656</u>
Available Audit Hours	<u>2,504</u>

Calculations

(A) (12 holidays * 9 hours) * 2 employees	216
(B) 2 Employees (annual leave)	348
(C) 2 Employees (sick leave)	192
(D) General Administration and Board Meetings	800
(E) Continuing Professional Education (2 Professionals require CPE, plus additional training)	<u>100</u>
	<u>1,656</u>

Internal Audit Department

**FY 2020 Annual Audit Plan
Scheduled Audits**

<u>Name of Audit</u>	<u>Estimated Hours</u>
1. Disability Retirees Returning to Work	300
2. 2020 Risk Assessment	600
3. Implementation of Legislation Enacted by the 92 nd General Assembly	300
4. Implementation of Benefit Resolutions Effective July1, 2019	300
5. Options Benefits	300
6. Arkansas Continuity of Operations Program (ACCOOP)/Disaster Recovery	40
7. Follow-up Reports	200
8. Special Projects	<u>464</u>
 Total Estimated Hours	 <u>2,504</u>

TRS Internal Audit Department FY2019 Summary of Work Completed

Internal Audit Reports

Reciprocal Service

Reciprocal service allows employees to move from one employer that participates in an Arkansas public retirement system to another employer participating in a different public retirement system without losing the retirement benefits accrued in their previous public service. A.C.A. § 24-2-401(3) defines the participating systems as the Arkansas Teacher Retirement System, the Arkansas State Highway Employees' Retirement System, the Arkansas Public Employees' Retirement System, the State Police Retirement System, the Arkansas Judicial Retirement System, an alternate plan for higher education institutions, and the Arkansas Local Police and Fire Retirement System.

A.C.A. §§ 24-2-402(4)(B) and 24-7-601(e)(4) provide that the Final Average Salary (FAS) used to determine benefits in all reciprocal systems shall be that of the reciprocal system that furnishes the highest FAS at retirement. A.C.A. § 24-2-402(4)(B) further provides that compensation in the Arkansas Judicial Retirement System shall not be used to determine FAS. The FAS of each system is determined according to their own rules.¹ Upon the retirement of a member with reciprocal service, the reciprocal retirement systems will notify other affected systems of their calculated FAS and share their service records to ensure that service requirements for each system are met.

The objectives of the audit were to determine benefits for reciprocal members were calculated accurately and consistently in accordance with ATRS laws, rules, and procedures; evaluate internal controls surrounding the calculation of reciprocal benefits, including review procedures; and evaluate the adequacy of staff training to calculate reciprocal benefits..

The audit contained five findings and recommendations.

Issued: February 4, 2019
Status: Follow-up in FY2020

Disability Benefits

Disability retirement provides benefits for members who demonstrate total and permanent physical or mental incapacity to perform the duties of his or her position while employed as a member by an Arkansas Teacher Retirement System (ATRS) employer. To be eligible for disability benefits, a member must be active and have 5 or more years of actual and reciprocal service. Actual service does not include purchased or free credited service. Members eligible for voluntary retirement under A.C.A. § 24-7-701 are not eligible for disability retirement.

¹ A.C.A. § 24-10-505(b)(3) pertaining to the Arkansas Local Police and Fire Retirement System, provides for the ATRS benefit pertaining to their members to be determined based on the ATRS covered salary when their reciprocal service was rendered. Also, the alternate plans for higher education institutions are defined contribution plans and, therefore, salaries are not reported to the plans. The FAS for their members is determined based on salaries reported to ATRS at the time of covered service.

TRS Internal Audit Department FY2019 Summary of Work Completed

Applications for disability retirement are reviewed and approved or disapproved by the ATRS Medical Committee and actions taken by the Medical Committee are reported to the Board of Trustees. Members applying for disability benefits must submit an Application for Arkansas Teacher Retirement Disability Retirement to ATRS along with physician medical reports documenting the member's disability. If medical reports are not received with the application, the member has 6 months from the date of application to submit the applicable medical reports. If after 6 months all medical reports have not been received, the incomplete application is considered by the ATRS Medical Committee.

The objectives of the audit were determine eligibility for disability benefits is in accordance with ATRS laws, rules, and procedures; determine effective date and benefits for disability members were calculated accurately and consistently in accordance with ATRS laws, rules, and procedures; evaluate internal controls surrounding the calculation of disability benefits, including review procedures; and determine requirements relating to Social Security determination and continuation of disability benefits were implemented accurately and consistently in accordance with ATRS laws, rules and procedures.

The audit contained 6 findings and recommendations.

Issued: June 3, 2019

Status: Follow-up FY2020

History Adjustments

Arkansas Teacher Retirement System (ATRS) maintains a history of each member's employer, salary, contributions, and service credit earned for each fiscal year. A member's history includes any eligible service a member purchases as service credit and any free military service the member establishes as service credit.

Members of ATRS are allowed to purchase service credit earned as a teacher, administrator, or other employment covered by ATRS in another state retirement system, department of defense, or private school. Types of service a member can purchase are out-of-state, overseas, private school, sabbatical leave, domestic federal, federal retirement, military and National Guard. A member may repay a refund the member previously received and reestablished the refunded service. A member may purchase their non-contributory service and establish it as contributory.

Adjustments to a member's history are made when a member makes a payment on a purchase account, pays in full the actuarial cost of purchasing service, death benefits are paid, member receives a refund of contributions, a correction to days or salary are reported by an employer, removing overlapping service with other Arkansas state retirement systems, a retiree returns to active covered employment prior to completing the termination requirements, underpayment of contributions, salary/service incorrectly reported as non-contributory, CASH refund issued, and incorrect social security number on the system.

The objectives of this audit are to verify history adjustments were made according to ATRS laws and procedures; verify history adjustments were made accurately and timely to member accounts; and evaluate internal controls surrounding history adjustments including review procedures.

TRS Internal Audit Department FY2019 Summary of Work Completed

Issued: Pending
Status: In Progress

Follow-up Reports

Membership

The Membership Section of the Member Services Department enrolls new members into the Arkansas Teacher Retirement System (ATRS) and updates important information for existing members of ATRS such as their name, address, and beneficiaries. New members to ATRS are entered into the Arkansas Teacher Retirement Membership Information System (ATRMIS) using a Membership Data Form (MDF). A MDF is also required anytime an existing member of ATRS changes jobs or schools. The Membership Section requires existing members to complete other paper forms when changing information not associated with a job change.

As part of the enrollment process, the Membership Section advises employers regarding the contribution status of new members and existing members returning to work or changing jobs and/or school districts. This is accomplished through the ATRS Termination and Membership Status Sheet (Status Sheet). However, the contribution status is not formally determined and recorded in the ATRS Member System until a MDF is received. An exception to this process is retired members, whose eligibility to return to work is determined by another Section of ATRS.

The objective of the follow-up was to assess if corrective measures implemented by the Agency have adequately addressed the issues noted in the findings of the original audit.

The Membership Follow-up contained 6 findings and recommendations.

Issued: April 1, 2019
Status: 2nd Follow-up in FY2020

Implementation of Legislation Enacted by the 91st General Assembly

An audit to assess ATRS implementation of new laws enacted by the 91st General Assembly by reviewing policies and procedures to verify they were properly updated to conform to the new provisions of law.

The objective of the follow-up was to assess implementation of legislation that occurred after the issuance of the original audit report dated December 4, 2017.

The original audit contained no findings or recommendations for legislation implemented prior to December 4, 2017.

Expected Issue: October 7, 2019
Status: In Progress

TRS Internal Audit Department FY2019 Summary of Work Completed

Lump Sum Death Benefit

Act 1022 of 1997 created a lump sum death benefit to be paid by the Arkansas Teacher Retirement System (ATRS) to the beneficiaries of active and retired members with five or more years of actual service with an ATRS covered employer. The Act provided for the payment of up to \$7,500 to the beneficiaries of contributory members and up to \$5,000 to the beneficiaries of non-contributory members, with mixed service being prorated according to credited service. The exact amount of the benefit was to be determined by the Board of Trustees as actuarially appropriate.

Over the years the law was amended to provide for different maximum amounts and eligibility requirements. ATRS Rule 11-2 currently sets the maximum lump sum death benefit at \$10,000 for those with 10 or more years of contributory service only, and at \$6,667 for those with 10 or more years of non-contributory service only, with mixed service prorated at a 3:2 ratio. Per Act 977 of 2011, members with 15 years of contributory service credit are eligible for the maximum contributory only amount of \$10,000 without consideration of any non-contributory service.

The objective of the follow-up was to assess the adequacy of corrective measures related to the audit findings and recommendations contained in the original report. The report was suspended to enable the Agency to continue implementing corrective measures related to revisions of the Member Information System.

The original audit contained three findings and recommendations.

Original Report Issued: April 2, 2018
Status: Suspended until FY2020

Special Projects

Disaster Recovery

The Arkansas Continuity of Operations Program (ACOOOP) is administered by the Department of Information Systems. As a part of ACOOP, each agency is required to develop and maintain a Disaster Recovery Plan to ensure that essential services will continue to be provided after any disruptive event. ACOOP uses a software tool that facilitates the maintenance of standards and consistency of the plans of the various state agencies. The Internal Audit Department is responsible for entering ATRS information into the software tool on a continual basis.

ACOOOP conducts plan reviews and provides an evaluation based on criteria and a rating chart from FEMA.

Status: Continual updates required.

ANNUAL CONFLICT OF INTEREST STATEMENT

International Standards for the Professional Practice of Internal Auditing (Standards) require internal auditors to have an impartial, unbiased attitude and avoid any conflict of interest in fact and appearance. The Standards state:

- Internal auditors must have an impartial, unbiased attitude and avoid any conflict of interest.
- If independence or objectivity is impaired in fact or appearance, the details of the impairment must be disclosed to appropriate parties. The nature of the disclosure will depend upon the impairment.
- Internal auditors must refrain from assessing specific operations for which they were previously responsible. Objectivity is presumed to be impaired if an internal auditor provides assurance services for an activity for which the internal auditor had responsibility within the previous year.
- Assurance engagements for functions over which the chief audit executive has responsibility must be overseen by a party outside the internal audit activity.
- Internal auditors may provide consulting services relating to operations for which they had previous responsibilities.
- If internal auditors have potential impairments to independence or objectivity relating to proposed consulting services, disclosure must be made to the engagement client prior to accepting engagement.

Disclosure of impairments to independence: (Please list or indicate "None".)

None

I certify that I have disclosed any information of which I am aware that might be viewed as impairment to my objectivity in conducting FY 2020 Internal Audit activities. Any future impairment to my independence or objectivity that arises during the fiscal year will be immediately reported to the Internal Audit Director and the Audit Committee.



Internal Auditor

5/30/19

Date

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Dina Dixon
Internal Auditor

5/20/19
Date

II-a

CODE OF ETHICS ACKNOWLEDGMENT

I certify that I have read and understand the Code of Ethics of the Institute of Internal Auditors. I agree to abide by the principles of the Code, which are Integrity, Objectivity, Confidentiality, and Competency. I further agree to act in accordance with the behavior expectations of internal auditors as stated in the Code.




Internal Auditor

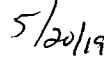
5/20/2019
Date

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Internal Auditor



Date

Memorandum

To: Arkansas Teacher Retirement System
From: Chae Hong
CC: Jack Dowd, PJ Kelly
Date: May 16, 2019
Re: ATRS American Center Sub IC Memo May 16, 2019 - Concurrence Memo

Background and Recommendation

American Center, is a 286,596 square foot, Class A office asset located in the Nashville, Tennessee MSA. The property is a legacy joint venture with a local Arkansas based firm, Cooper Realty Investments (“Cooper”), formed in December 2000 to acquire the \$71 million asset.

Performance has been strong recording approximately a 10.3% since inception net IRR with the last 2006 refinancing effectively returning ATRS’ cost basis. Given the Class A nature of the asset and its strategic location, American Center has averaged 91.6% occupancy through its history over multiple economic cycles. If the asset is held, Cooper projects a 9.4% net IRR.

Cooper is also asking to refinance the existing loan which carries a 7.04% interest rate with an approximate \$6 million prepayment penalty. The loan matures on November 2021. Cooper believes that it is prudent to lock in today’s favorable interest rate rather than waiting until 2021. According to Cooper’s base case, the cost of the prepayment would only take away 40 basis points from the property’s future return.

American Center has been a strong performing asset for ATRS with a more than competent JV Partner. Although the refinancing will incur a prepayment penalty, the ability to lock in today’s significantly lower rates outweighs the potential risk of a higher rate environment several years from now. We concur with Cooper’s recommendation to hold and refinance.

We would also reiterate our recommendation that ATRS obtain a fiduciary to handle asset management for American Center. As a consultant Townsend/Aon is reviewing portfolio fit and is reviewing the JV partner’s analysis for reasonableness at a high-level. In contrast, a fiduciary for asset management would conduct a detailed analysis of the rent rolls, market and sub-market, physical structure, capital structure, and other factors. While the JV partner reviews these same factors and is aligned with ATRS in many ways, incentives do diverge in some respects.

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

**RESOLUTION
No. 2019- 26**

**Approving Staff Authority to Negotiate and Execute the
Refinancing of American Center**

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 exiting loan associated with **American Center** is maturing in the near future and current loan rates are economically advantageous to refinance now; and

WHEREAS, the 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 the refinancing of **American Center** loan.

NOW, THEREFORE, BE IT RESOLVED, that the ATRS Board approves staff authority to negotiate and execute the refinancing of **American Center**; and

FURTHER, BE IT RESOLVED, that the ATRS staff is hereby authorized to take all necessary and proper steps to implement this refinancing if acceptable terms are reached.

Adopted this 3rd day of June, 2019.

**Jeff Stubblefield, *Chairman*
Arkansas Teacher Retirement System**



Arkansas Teacher Retirement System | First Quarter 2019

Quarterly Investment Review

Visit the Aon Retirement and Investment Blog (<http://retirementandinvestmentblog.aon.com>); sharing our best thinking.

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Executive Summary

Thought Leadership Highlights

White Papers

All Investors: Cyber Risk Exposure from Third-party Asset Managers	Link
All Investors: Global Invested Capital Markets	Link
All Investors: Key Considerations for Responsible Investing Initiatives	Link
All Investors: What is Different about this Commercial Real Estate Cycle?	Link
All Investors: Bank Capital Relief	Link
All Investors: Debating Active vs. Passive	Link
All Investors: Making Portfolios More Fee-Efficient	Link
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All Investors ex-DC: Alternative Premia, Alternative Price	Link
All investors ex-DC: Direct Lending: An Investment Opportunity Within Private Debt	Link
All Investors ex-DC: When Opportunity Knocks Again: Ideas for Incorporating Opportunistic Flexibility Into Asset Allocation	Link
All Investors ex-DC: Why Diversify Now?	Link
DC: DC Case Study Improving Participant Experience	Link
DC: Government, Education, and Utility Sectors Could be fit for an 'Aggressive' Target Date Fund Glide Path	Link
DC: How to Offer 403(b) Participants a Secure Retirement Income	Link
DC: Living the Dream: Aon DC and Financial Wellbeing Employee Survey 2018	Link
DC: Why Target Date Funds Should be Lower Risk for Populations without Defined Benefit Plans	Link
Health Care: Managing Health Care Reserves: Aligning Operating Assets with Broader Organizational Goals	Link
Non-Profit: Key Components of Effective Investment Policy Statements for Non-Profit Organizations	Link
Private DB: Retiree Lump Sum Windows Back on the Table - Navigating Risk Management Options (webinar replay)	Link

Current Topics of Interest

First Quarter 2019 Market Review and Outlook [Link](#)

Newsletters: [Pathways Newsletter for Retirement Plans](#) | [CIO Newsletter](#) | [Connections Newsletter for Non-Profits](#) | [Legal Consulting and Compliance Newsletter](#)

Thought Leadership Hub

<https://retirement-investment-insights.aon.com/>

Opinions, estimates, forecasts, and statements on financial market trends that are based on current market conditions constitute our judgment and are subject to change without notice. The views and strategies described may not be suitable for all investors. References to specific securities, asset classes, and financial markets are for illustrative purposes only and are not intended to be, and should not be interpreted as, recommendations.

AHIC's Key Themes for Public Pensions

Environment

- Market conditions suggest that we have moved into a transition phase this year, taking us from a long period of risky asset strength towards an expected market downturn phase when diversifying with defensive approaches is more advisable, and bonds may strengthen
- Navigating a transition environment is difficult. Our view is that this is a good time to be thinking ahead. Good areas for consideration include portfolio exposures to risky assets, the extent of diversification, and whether more buffers can be made available to prepare for much more difficult market conditions.

Current Investment Themes

- Continue examining the move away from traditional equities and bonds to diversifiers that have different risk exposures
- Factor investing and the equity insurance risk premia are attractive alternatives to traditional active and passive management for equities
- For investors who can tolerate illiquidity, consider including bank capital relief or insurance linked securities, both of which have attractive entry points

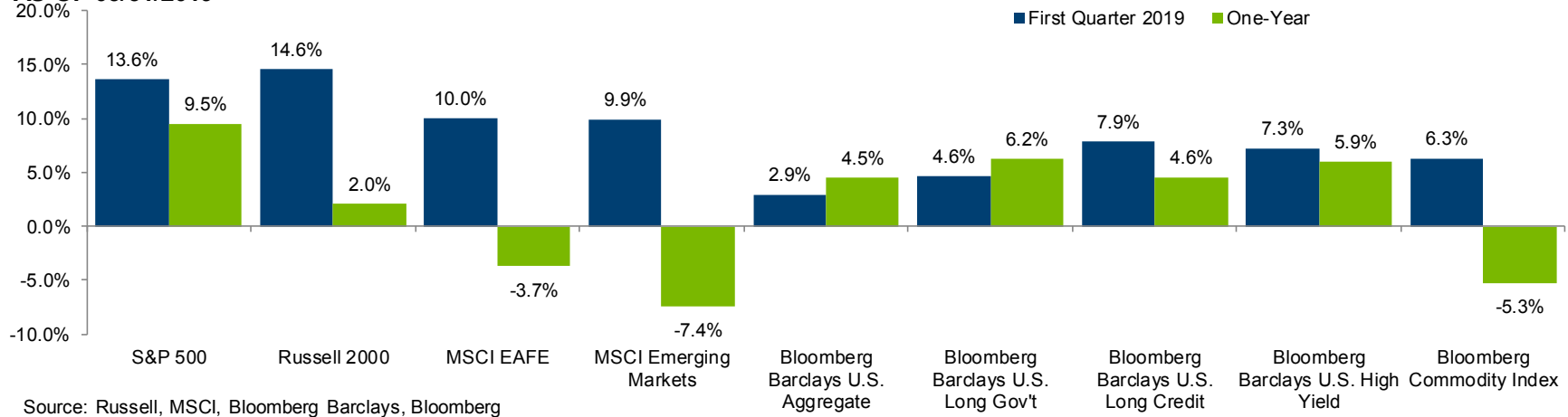
Long-Term Strategy

- Investment Related
 - Consider opportunities to capture illiquidity premium
 - Opportunity allocations may be a governance approach to facilitate getting compelling, but nontraditional investments into the portfolio
- Governance Related
 - Consider doing an Investment Program Analyzer survey project to review opportunities to improve decision-making processes
 - Consider evaluating the plan's approach to protecting participant data from cyber risk exposures

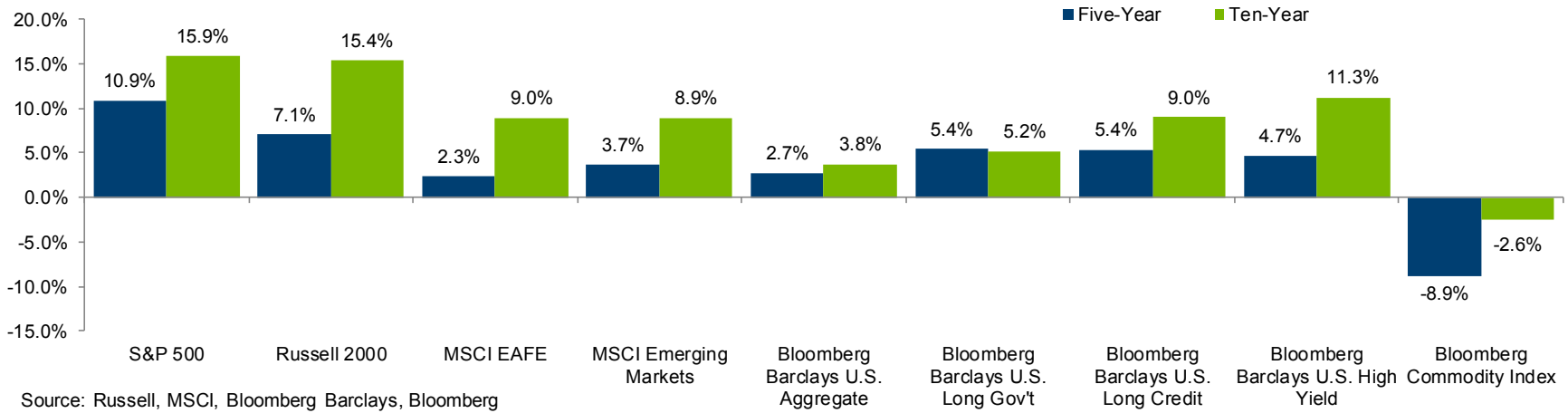
The opinions referenced are as of March 31, 2019 and are subject to change due to changes in the market or economic conditions and may not necessarily come to pass. Information contained herein is for informational purposes only and should not be considered investment advice. Diversification does not ensure a profit nor does it protect against loss of principal. Diversification among investment options and asset classes may help to reduce overall volatility.

Market Highlights

SHORT TERM RETURNS AS OF 03/31/2019



LONG TERM ANNUALIZED RETURNS AS OF 03/31/2019



Aon
 Proprietary & Confidential
 Investment advice and consulting services provided by Aon Hewitt Investment Consulting, Inc., an Aon Company.

Market Highlights

Returns of the Major Capital Markets					
Period Ending 03/31/2019					
	First Quarter	1-Year	3-Year ¹	5-Year ¹	10-Year ¹
Equity					
MSCI All Country World IMI	12.29%	1.89%	10.58%	6.33%	12.27%
MSCI All Country World	12.18%	2.60%	10.67%	6.45%	11.98%
Dow Jones U.S. Total Stock Market	14.04%	8.66%	13.45%	10.29%	16.01%
Russell 3000	14.04%	8.77%	13.48%	10.36%	16.00%
S&P 500	13.65%	9.50%	13.51%	10.91%	15.92%
Russell 2000	14.58%	2.05%	12.92%	7.05%	15.36%
MSCI All Country World ex-U.S. IMI	10.30%	-4.96%	7.94%	2.66%	9.20%
MSCI All Country World ex-U.S.	10.31%	-4.22%	8.09%	2.57%	8.85%
MSCI EAFE	9.98%	-3.71%	7.27%	2.33%	8.96%
MSCI EAFE (Local Currency)	10.59%	2.83%	8.53%	5.98%	9.75%
MSCI Emerging Markets	9.92%	-7.41%	10.68%	3.68%	8.94%
Fixed Income					
Bloomberg Barclays Global Aggregate	2.20%	-0.38%	1.49%	1.04%	3.05%
Bloomberg Barclays U.S. Aggregate	2.94%	4.48%	2.03%	2.74%	3.77%
Bloomberg Barclays U.S. Long Govt	4.64%	6.20%	1.54%	5.43%	5.19%
Bloomberg Barclays U.S. Long Credit	7.86%	4.58%	5.21%	5.38%	9.00%
Bloomberg Barclays U.S. Long Govt/Credit	6.45%	5.24%	3.75%	5.35%	7.23%
Bloomberg Barclays U.S. TIPS	3.19%	2.70%	1.70%	1.94%	3.41%
Bloomberg Barclays U.S. High Yield	7.26%	5.93%	8.56%	4.68%	11.26%
Bloomberg Barclays Global Treasury ex U.S.	1.39%	-3.81%	0.91%	0.09%	2.18%
JP Morgan EMBI Global (Emerging Markets)	6.59%	3.52%	5.20%	4.80%	8.12%
Commodities					
Bloomberg Commodity Index	6.32%	-5.25%	2.22%	-8.92%	-2.56%
Goldman Sachs Commodity Index	14.97%	-3.04%	6.18%	-12.61%	-3.37%
Hedge Funds					
HFR1 Fund-Weighted Composite ²	5.88%	0.90%	5.12%	3.06%	5.48%
HFR1 Fund of Funds ²	4.99%	0.49%	4.05%	2.27%	3.58%
Real Estate					
NAREIT U.S. Equity REITS	16.33%	20.86%	6.13%	9.12%	18.28%
NCREIF NFI - ODCE	1.42%	7.52%	7.97%	10.17%	8.74%
FTSE Global Core Infrastructure Index	14.30%	17.72%	11.34%	8.69%	12.92%
Private Equity					
Burgiss Private iQ Global Private Equity ³	0.00%	17.51%	12.00%	13.67%	9.75%

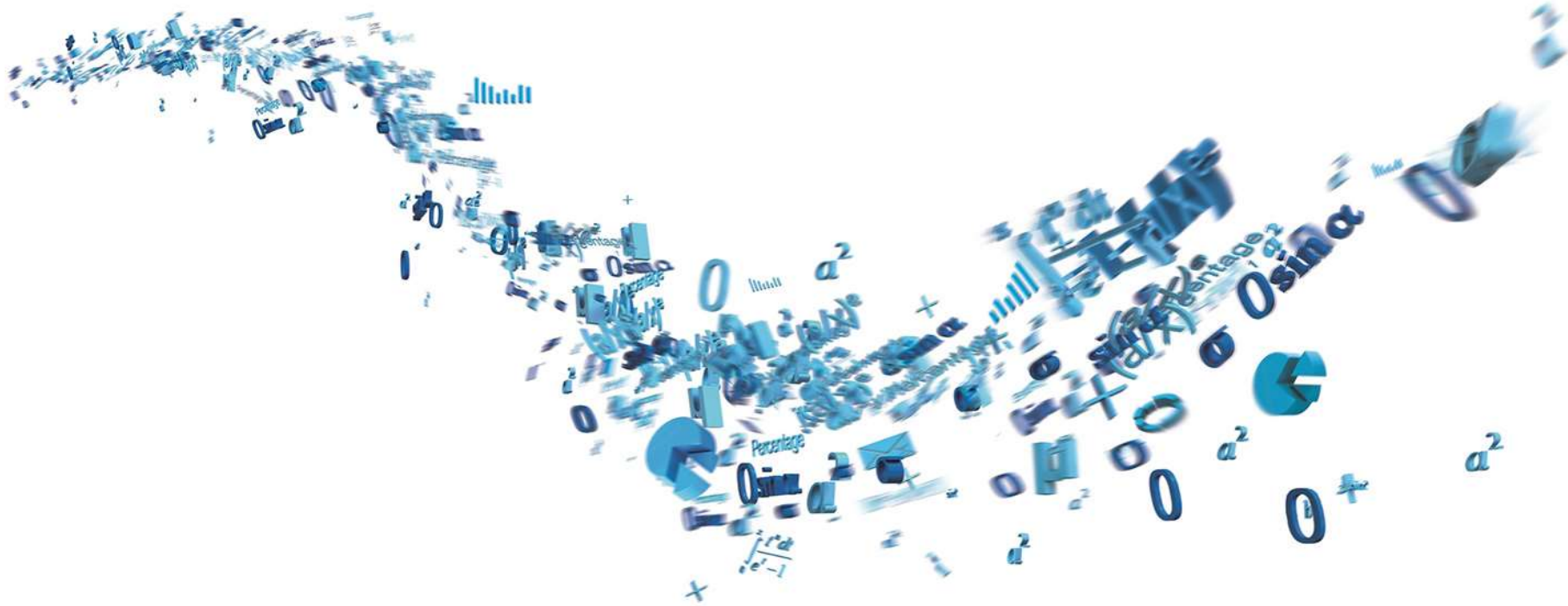
MSCI Indices show net total returns. All other indices show gross total returns.

¹ Periods are annualized.

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

³ Burgiss Private iQ Global Private Equity data is as at June 30, 2018

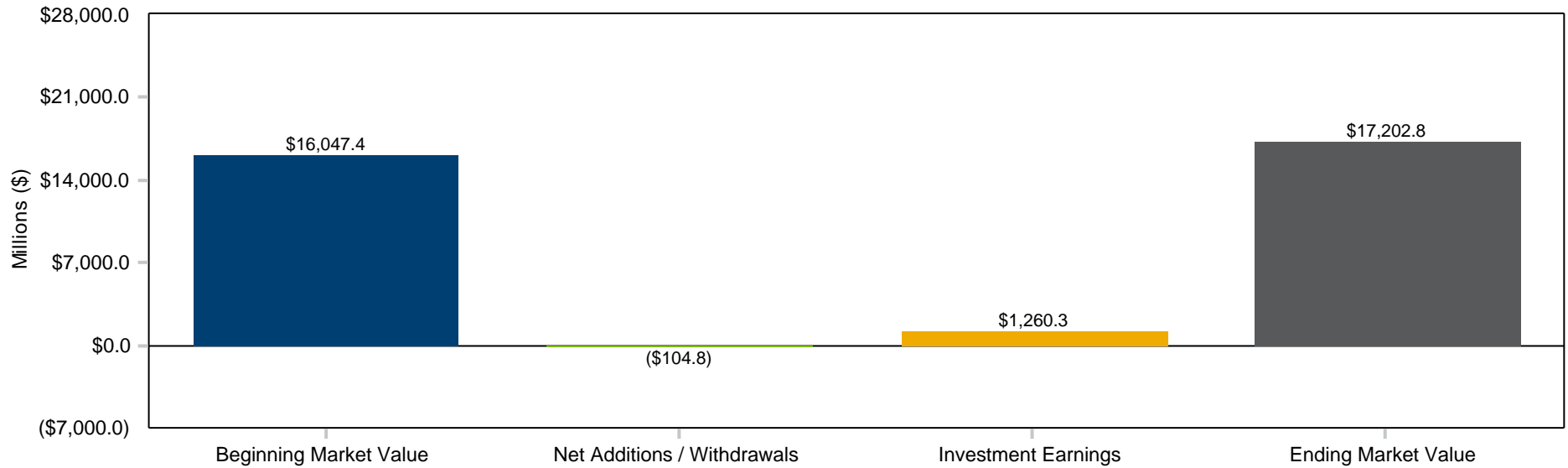
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Total Fund

Total Plan Asset Summary

**Change in Market Value
From January 1, 2019 to March 31, 2019**

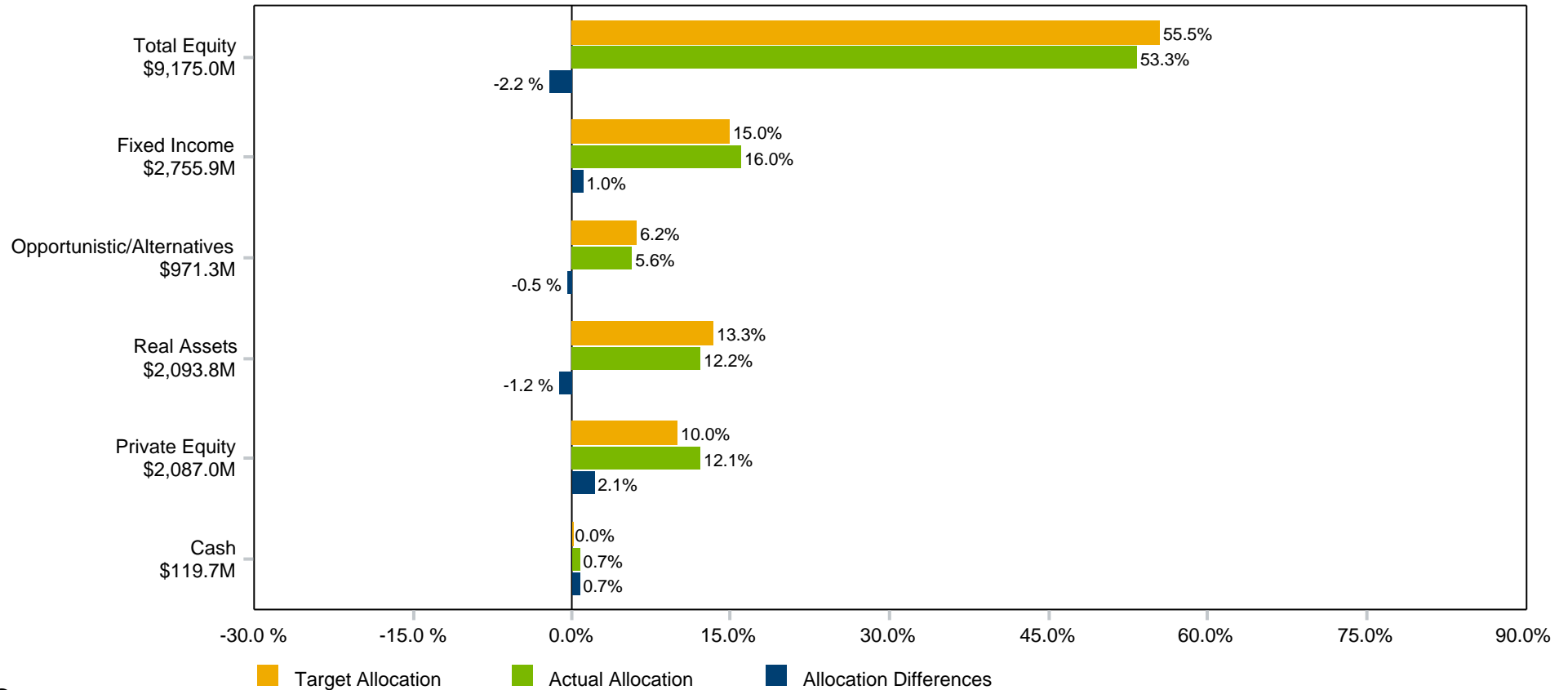


Summary of Cash Flow

Total Fund	1 Quarter	Fiscal YTD	1 Year
Beginning Market Value	16,047,375,068	17,343,640,417	16,925,535,584
+ Additions / Withdrawals	-104,836,567	-557,706,583	-671,832,374
+ Investment Earnings	1,260,305,910	416,910,576	949,141,201
= Ending Market Value	17,202,844,411	17,202,844,411	17,202,844,411

Asset Allocation Compliance

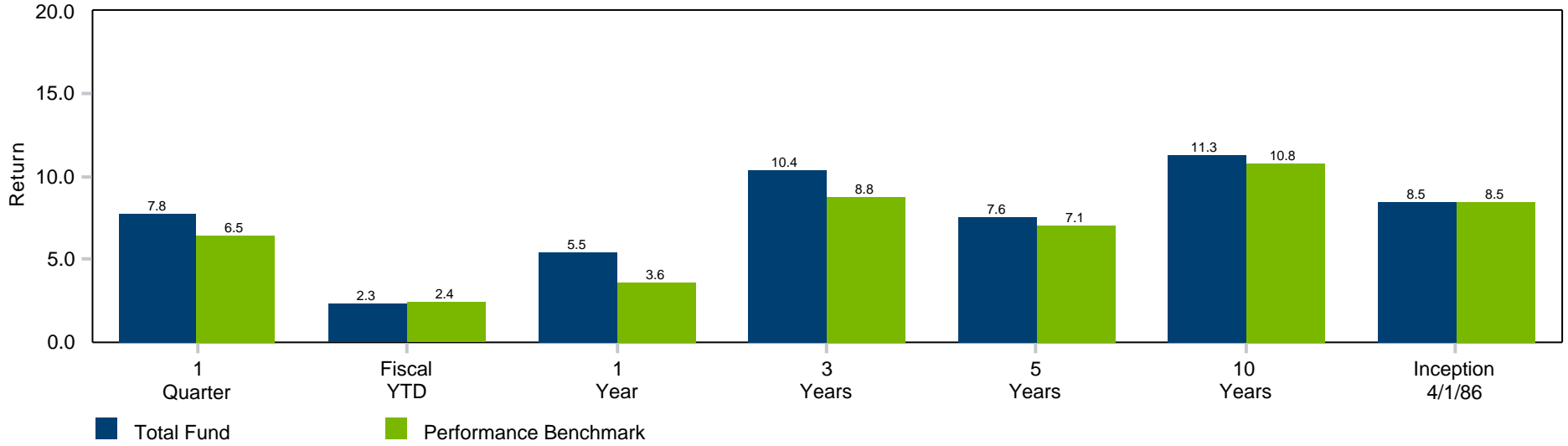
	Market Value (\$M)	Current Allocation (%)	Target Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)
Total Fund	17,202.8	100.00	100.00	N/A	N/A
Total Equity	9,175.0	53.33	55.50	50.00	60.00
Fixed Income	2,755.9	16.02	15.00	13.00	17.00
Opportunistic/Alternatives	971.3	5.65	6.16	0.00	7.00
Real Assets	2,093.8	12.17	13.34	10.00	15.00
Private Equity	2,087.0	12.13	10.00	7.50	12.50
Cash	119.7	0.70	0.00	0.00	5.00



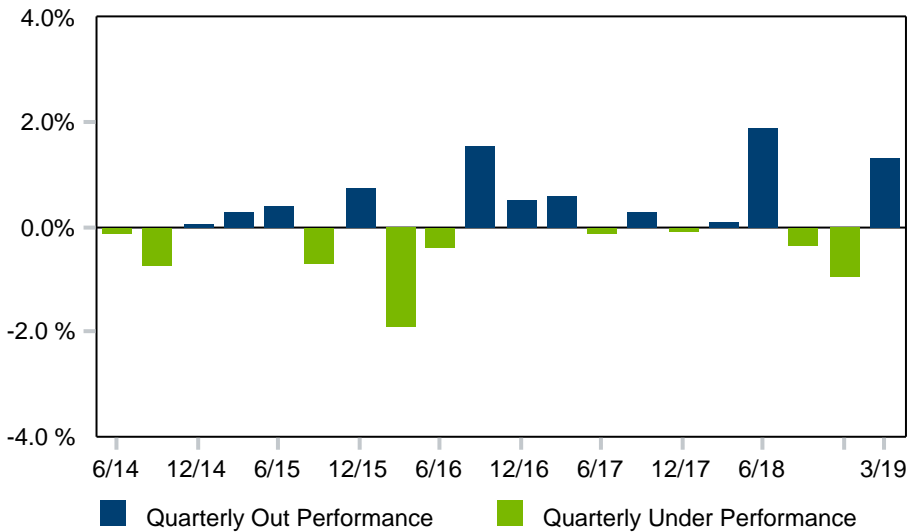
Market values and allocation percentages may not add to the sum total due to rounding.

Total Plan Performance Summary

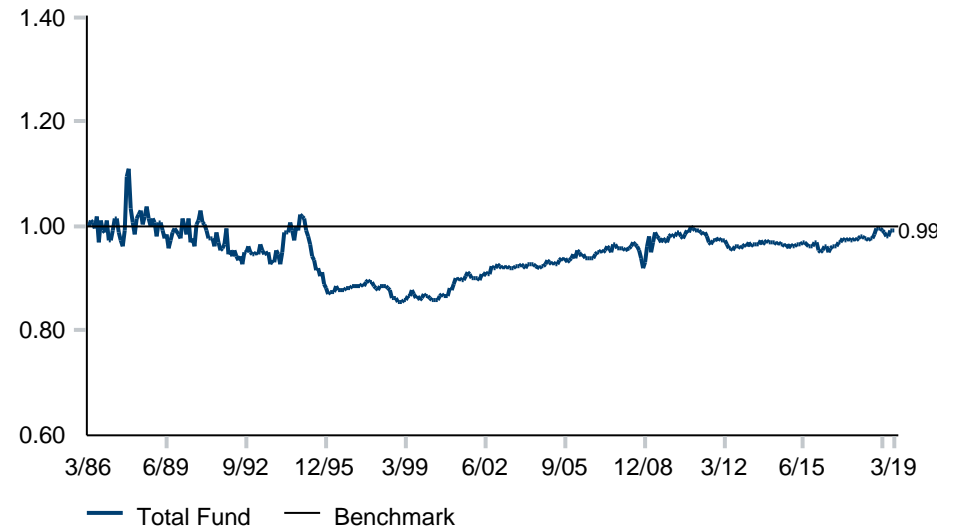
Return Summary



Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception



As of March 31, 2019

Asset Allocation & Performance

	Allocation			Performance(%)							
	Market Value (\$)	%	Policy(%)	1 Quarter	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Total Fund	17,202,844,411	100.0	100.0	7.8	2.3	5.5	10.4	7.6	11.3	8.5	04/01/1986
Performance Benchmark				6.5	2.4	3.6	8.8	7.1	10.8	8.5	
Total Equity	9,175,002,605	53.3	55.5	14.0	0.4	2.9	12.1	7.6	13.8	7.7	07/01/2015
Total Equity Performance Benchmark				12.9	2.2	3.9	11.5	7.9	13.7	8.2	
Fixed Income	2,755,934,430	16.0	15.0	2.7	3.8	4.1	4.2	3.4	6.3	5.4	07/01/1992
Performance Benchmark				3.3	4.8	4.5	2.6	3.0	4.4	5.6	
Opportunistic/Alternatives	971,331,255	5.6	6.2	1.7	-2.1	-1.2	2.1	2.4		3.5	05/01/2011
Custom Alternatives Benchmark				3.5	0.8	1.6	2.8	1.4		1.6	
Real Assets	2,093,849,690	12.2	13.3	1.0	4.2	6.2	7.6	8.6		8.9	07/01/2013
Total Real Assets Benchmark				1.3	4.4	6.2	6.3	8.2		8.7	
Real Estate	1,369,347,207	8.0		1.3	4.4	6.6	8.1	9.8	7.0	9.1	12/01/1998
NFI-ODCE (Net)				1.5	5.3	7.4	7.3	9.4	7.7	9.2	
Timber	258,608,363	1.5		0.3	1.9	2.7	3.9	3.9	2.1	7.1	06/01/1998
Timberland Property Benchmark				0.1	0.1	0.8	2.2	4.2	2.5		
Agriculture	195,073,675	1.1		0.8	2.7	4.2	3.8	4.6		5.9	09/01/2011
Agriculture Benchmark				1.5	3.8	5.0	4.6	5.2			
Infrastructure	270,820,445	1.6		0.3	8.1					8.1	07/01/2018
CPI + 5%				2.4	4.6					4.6	
Private Equity	2,086,999,159	12.1	10.0	0.3	9.6	23.0	16.4	14.4	13.0	12.4	03/01/1997
Private Equity Policy				-13.9	-3.3	-3.4	11.1	10.0	15.5	9.9	
Cash	119,727,271	0.7	0.0								

*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 145 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.

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

As of March 31, 2019

Asset Allocation & Performance

	Allocation		Performance(%)								Inception Date
	Market Value (\$)	%	1 Quarter	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	Since Inception		
Total Fund	17,202,844,411	100.0	7.8 (37)	2.3 (71)	5.5 (10)	10.4 (1)	7.6 (1)	11.3 (1)	8.5	04/01/1986	
Performance Benchmark			6.5 (69)	2.4 (68)	3.6 (55)	8.8 (23)	7.1 (3)	10.8 (7)	8.5		
Total Equity	9,175,002,605	53.3	14.0 (27)	0.4 (56)	2.9 (46)	12.1 (23)	7.6 (30)	13.8 (28)	7.7 (33)	07/01/2015	
Total Equity Performance Benchmark			12.9 (42)	2.2 (42)	3.9 (37)	11.5 (26)	7.9 (27)	13.7 (30)	8.2 (29)		
Jacobs Levy 130/30	604,936,382	3.5	15.5 (29)	3.1 (40)	7.1 (39)	16.7 (13)	14.8 (2)	19.3 (4)	10.1 (11)	01/01/2008	
Russell 3000 Index			14.0 (45)	4.7 (28)	8.8 (28)	13.5 (30)	10.4 (22)	16.0 (33)	8.4 (39)		
Allianz Structured Alpha U.S. 250	167,975,982	1.0	15.6 (27)	5.6 (20)	10.9 (19)	14.9 (21)	12.9 (6)	19.0 (5)	17.9 (4)	05/01/2009	
S&P 500 Index			13.6 (52)	5.9 (19)	9.5 (24)	13.5 (30)	10.9 (17)		15.0 (29)		
Allianz Structured Alpha Global 500	795,637,980	4.6	16.0 (12)	1.4 (51)	5.1 (28)	13.5 (14)			14.2 (10)	10/01/2015	
MSCI AC World IMI (Net)			12.3 (47)	1.2 (52)	1.9 (53)	10.6 (37)			10.6 (37)		
Allianz Structured Alpha Global 350	264,642,873	1.5	14.9 (18)	1.4 (50)	4.1 (35)				12.8 (29)	12/01/2016	
MSCI AC World IMI (Net)			12.3 (47)	1.2 (52)	1.9 (53)				11.1 (44)		
Daruma Asset Management	368,203,619	2.1	17.2 (12)	-9.0 (89)	-4.2 (91)	5.8 (100)	1.7 (100)	13.4 (98)	8.3 (65)	08/01/2000	
Russell 2000 Index			14.6 (39)	-5.3 (48)	2.0 (41)	12.9 (28)	7.1 (49)	15.4 (55)	7.6 (84)		
Kennedy Capital Management	519,026,020	3.0	13.9 (28)	-9.8 (69)	-5.2 (79)	9.0 (44)	5.2 (50)	17.4 (14)	12.1 (5)	01/01/1994	
Russell 2000 Value Index			11.9 (65)	-7.5 (47)	0.2 (25)	10.9 (27)	5.6 (43)	14.1 (71)	9.6 (93)		
Stephens	402,173,661	2.3	15.4 (65)	1.6 (34)	12.2 (30)	18.3 (38)	8.3 (59)	16.7 (50)	9.9 (40)	08/01/2006	
Russell 2000 Growth Index			17.1 (51)	-3.2 (70)	3.9 (75)	14.9 (61)	8.4 (57)	16.5 (52)	9.3 (59)		
Voya Absolute Return	522,728,345	3.0	11.4 (59)	0.3 (58)	0.1 (65)	10.4 (40)	9.1 (16)	15.2 (14)	10.2 (18)	10/01/2008	
Performance Benchmark			12.2 (49)	2.1 (43)	2.6 (48)	10.7 (36)	8.9 (18)	14.9 (17)	10.2 (18)		
Allianz (Nicholas Applegate)	564,388,465	3.3	11.7 (78)	6.6 (15)	11.5 (17)	13.5 (30)	7.6 (56)	13.0 (89)	9.8 (30)	12/01/1998	
Performance Benchmark			10.2 (91)	3.8 (35)	7.8 (35)	12.1 (46)	7.1 (63)	13.0 (90)	7.5 (63)		
Pershing Square International	114,457,000	0.7	28.9 (1)	24.1 (1)	39.0 (1)	13.2 (32)	3.3 (95)	11.0 (97)	8.9 (62)	07/01/2008	
Dow Jones U.S. Total Stock Market Index			14.0 (45)	4.6 (29)	8.7 (29)	13.5 (30)	10.3 (22)	16.0 (33)	10.0 (34)		
Pershing Square Holdings	122,826,800	0.7	33.7 (1)	18.5 (1)	42.5 (1)	7.7 (89)	-3.7 (99)		0.2 (100)	01/01/2013	
Dow Jones U.S. Total Stock Market Index			14.0 (45)	4.6 (29)	8.7 (29)	13.5 (30)	10.3 (22)		13.6 (25)		
Triam Partners	64,556,644	0.4	14.6	9.3	12.4	8.8			7.8	11/01/2015	
S&P 500 Index			13.6	5.9	9.5	13.5			11.8		
Triam Co-Investments	63,492,926	0.4	12.2	8.5	15.1				0.9	01/01/2017	
S&P 500 Index			13.6	5.9	9.5				13.3		
SSgA Global Index	1,082,061,353	6.3	12.4 (46)	1.3 (52)	2.3 (50)	10.9 (33)	6.7 (43)	12.6 (45)	5.9 (54)	04/01/2008	
MSCI AC World IMI (Net)			12.3 (47)	1.2 (52)	1.9 (53)	10.6 (37)	6.3 (49)	12.3 (52)	5.5 (63)		

As of March 31, 2019

Asset Allocation & Performance

	Allocation		Performance(%)								Inception Date
	Market Value (\$)	%	1 Quarter	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	Since Inception		
BlackRock MSCI ACWI IMI Fund	103,797,952	0.6	12.4 (46)	1.4 (50)	2.4 (49)	10.8 (34)	6.7 (43)		7.8 (56)	07/01/2011	
MSCI AC World IMI (Net)			12.3 (47)	1.2 (52)	1.9 (53)	10.6 (37)	6.3 (49)		7.4 (63)		
Wellington Global Perspectives	511,544,590	3.0	10.2 (76)	-6.9 (93)	-6.7 (92)	10.5 (39)	5.8 (60)		13.8 (11)	07/01/2009	
Performance Benchmark			13.1 (38)	-4.6 (87)	-2.7 (80)	9.9 (47)	5.5 (64)		11.3 (39)		
T. Rowe Price Global Equity	867,540,152	5.0	17.9 (4)	4.7 (22)	8.3 (15)	18.5 (3)	12.7 (3)		12.9 (11)	09/01/2009	
MSCI AC World Index (Net)			12.2 (49)	2.1 (43)	2.6 (48)	10.7 (36)	6.5 (46)		8.8 (65)		
MSCI AC World Index Growth (net)			14.5 (22)	2.2 (42)	4.5 (33)	12.3 (21)	8.5 (21)		10.4 (35)		
Lazard	539,535,711	3.1	12.9 (42)	-0.5 (67)	-2.5 (79)	11.3 (29)	6.7 (43)		9.0 (63)	09/01/2009	
MSCI AC World Index (Net)			12.2 (49)	2.1 (43)	2.6 (48)	10.7 (36)	6.5 (46)		8.8 (65)		
D.E. Shaw	674,738,480	3.9	11.9 (53)	0.3 (58)	2.6 (48)	12.1 (23)	8.8 (19)		11.0 (24)	09/01/2009	
MSCI World Index (Net)			12.5 (45)	2.2 (42)	4.0 (36)	10.7 (35)	6.8 (41)		9.4 (56)		
GMO Global All Country Equity	400,467,865	2.3	11.4 (61)	0.8 (55)	-3.1 (81)	9.0 (58)			3.0 (81)	07/01/2014	
MSCI AC World Index (Net)			12.2 (49)	2.1 (43)	2.6 (48)	10.7 (36)			5.7 (48)		
MSCI AC World Index Value (Net)			9.9 (80)	2.0 (43)	0.7 (62)	9.0 (58)			3.5 (77)		
Harris Global Equity	420,197,833	2.4	11.2 (63)	-6.4 (92)	-7.7 (94)	9.0 (58)			3.9 (77)	06/01/2014	
MSCI World Index (Net)			12.5 (45)	2.2 (42)	4.0 (36)	10.7 (35)			6.4 (42)		
MSCI World Value (Net)			10.2 (76)	1.7 (47)	1.5 (55)	8.9 (59)			4.1 (75)		
Fixed Income	2,755,934,430	16.0	2.7 (81)	3.8 (68)	4.1 (43)	4.2 (19)	3.4 (35)	6.3 (22)	5.4	07/01/1992	
Performance Benchmark			3.3 (54)	4.8 (13)	4.5 (17)	2.6 (60)	3.0 (49)	4.4 (66)	5.6		
BlackRock	394,329,588	2.3	3.5 (39)	5.0 (22)	4.8 (24)	2.4 (52)	3.0 (45)	5.1 (42)	4.5 (38)	10/01/2003	
Performance Benchmark			3.3 (44)	4.8 (26)	4.5 (34)	2.6 (48)	3.0 (45)	4.4 (52)	4.2 (44)		
Loomis Sayles	411,327,736	2.4	4.0 (31)	4.4 (40)	3.7 (67)	6.2 (15)	4.3 (20)	10.4 (8)	8.2 (6)	09/01/2008	
Performance Benchmark			4.7 (25)	4.9 (24)	5.0 (19)	4.4 (28)	3.5 (34)	6.5 (32)	5.6 (29)		
Putnam	360,800,000	2.1	3.4 (47)	1.9 (36)	2.9 (22)	4.9 (27)	1.9 (50)	4.5	3.0	08/01/2008	
LIBOR			0.7 (90)	1.9 (36)	2.5 (29)	1.5 (71)	1.0 (68)	0.7	0.8		
SSgA Aggregate Bond Index	629,504,207	3.7	2.9 (55)	4.6 (32)	4.5 (36)	2.0 (62)	2.8 (53)		3.2 (60)	06/01/2010	
Barclays Aggregate Index			2.9 (55)	4.6 (32)	4.5 (36)	2.0 (62)	2.7 (53)		3.2 (60)		
Wellington Global Total Return	333,709,793	1.9	1.0 (89)	3.6 (15)	6.3 (4)	2.8 (65)			1.9 (50)	05/01/2014	
BofA Merrill Lynch 3 Month US T-Bill			0.6 (91)	1.7 (39)	2.1 (32)	1.2 (76)	0.7 (70)		0.8 (70)		
Reams Core Plus Bond Fund	343,875,288	2.0	3.0 (54)	5.3 (16)	5.0 (19)	2.5 (49)			2.6 (54)	05/01/2014	
Barclays Aggregate Index			2.9 (55)	4.6 (32)	4.5 (36)	2.0 (62)			2.6 (54)		
BRS Recycling Tax Credit	208,000,000	1.2									
BRS Recycling Tax Credit Phase 2	74,387,817	0.4									

As of March 31, 2019

Asset Allocation & Performance

	Allocation		Performance(%)							
	Market Value (\$)	%	1 Quarter	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Opportunistic/Alternatives	971,331,255	5.6	1.7	-2.1	-1.2	2.1	2.4		3.5	05/01/2011
Custom Alternatives Benchmark			3.5	0.8	1.6	2.8	1.4		1.6	
Anchorage	75,307,687	0.4	-0.4	-1.3	-0.1	4.0	2.7		5.4	05/01/2011
Credit Suisse Event Driven			5.0	-0.5	1.1	4.8	0.4		2.0	
York	67,832,193	0.4	0.2	-7.7	-6.0	6.0	0.2		3.9	05/01/2011
Credit Suisse Event Driven			5.0	-0.5	1.1	4.8	0.4		2.0	
Capula	79,767,997	0.5	2.2	4.6	5.3	5.8	6.6		6.0	05/01/2011
HFRI Macro (Total) Index			2.3	-0.1	-0.2	-0.1	1.2		-0.1	
Graham	56,423,461	0.3	3.7	-4.6	-4.4	-0.2	4.5		1.3	05/01/2011
HFRI Macro (Total) Index			2.3	-0.1	-0.2	-0.1	1.2		-0.1	
Circumference Group Core Value	28,774,891	0.2	8.3	4.2	15.2	12.9			10.1	08/01/2015
Russell 2000 Index			14.6	-5.3	2.0	12.9			7.6	
Aeolus Keystone Fund	259,648,303	1.5	-1.2	-6.5	-7.0	-4.5			-3.6	12/01/2015
Citigroup 3 Month T-Bill			0.6	1.7	2.1	1.2			1.1	
Nephila Rubik Holdings	43,009,155	0.3	0.3	-8.9	-8.0				-5.2	06/01/2016
Citigroup 3 Month T-Bill			0.6	1.7	2.1				1.2	
Parametric Global Defensive Equity Fund	163,123,230	0.9	6.6	2.2	3.5				4.5	05/01/2017
Performance Benchmark			6.4	2.3	2.9				4.6	
MSCI AC World Index			12.3	2.4	3.2				8.6	
Circumference Group Equity Opportunity Fund	1,842,297	0.0	12.4	15.3	14.7				14.7	04/01/2018
Man Alternative Risk Premia	96,770,363	0.6	2.0	-0.4					-2.5	06/01/2018
SG Multi Alternative Risk Premia Index			3.2	0.9					0.4	
CFM ISD Fund 1.5x	98,831,678	0.6	1.3	0.3					0.3	07/01/2018
SG Multi Alternative Risk Premia Index			3.2	0.9					0.9	

As of March 31, 2019

Asset Allocation & Performance

	Allocation		Performance(%)							Inception Date
	Market Value (\$)	%	1 Quarter	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	
Real Assets	2,093,849,690	12.2	1.0	4.2	6.2	7.6	8.6		8.9	07/01/2013
Total Real Assets Benchmark			1.3	4.4	6.2	6.3	8.2		8.7	
Real Estate	1,369,347,207	8.0	1.3	4.4	6.6	8.1	9.8	7.0	9.1	12/01/1998
NFI-ODCE (Net)			1.5	5.3	7.4	7.3	9.4	7.7	9.2	
Timber	258,608,363	1.5	0.3	1.9	2.7	3.9	3.9	2.1	7.1	06/01/1998
Timberland Property Benchmark			0.1	0.1	0.8	2.2	4.2	2.5		
RMK Timberland I	258,608,363	1.5								
Agriculture	195,073,675	1.1	0.8	2.7	4.2	3.8	4.6		5.9	09/01/2011
Agriculture Benchmark			1.5	3.8	5.0	4.6	5.2			
HFMS Farmland	141,051,795	0.8	0.7	2.5	4.1	3.4	4.5		5.8	09/01/2011
HFMS custom NCREIF Farmland Index			1.5	3.4	3.8	3.7	4.5			
UBS Agrivest Core Farmland Fund	54,021,880	0.3	1.0	3.4	4.6	4.9			5.1	07/01/2015
UBS Agrivest custom NCREIF Farmland Index			1.6	4.5	6.2	6.0			6.2	
Infrastructure	270,820,445	1.6	0.3	8.1					8.1	07/01/2018
CPI + 5%			2.4	4.6					4.6	
Private Equity	2,086,999,159	12.1	0.3	9.6	23.0	16.4	14.4	13.0	12.5	04/01/1997
Private Equity Policy			-13.9	-3.3	-3.4	11.1	10.0	15.5	10.0	
Cash	119,727,271	0.7								

*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 145 of this report.

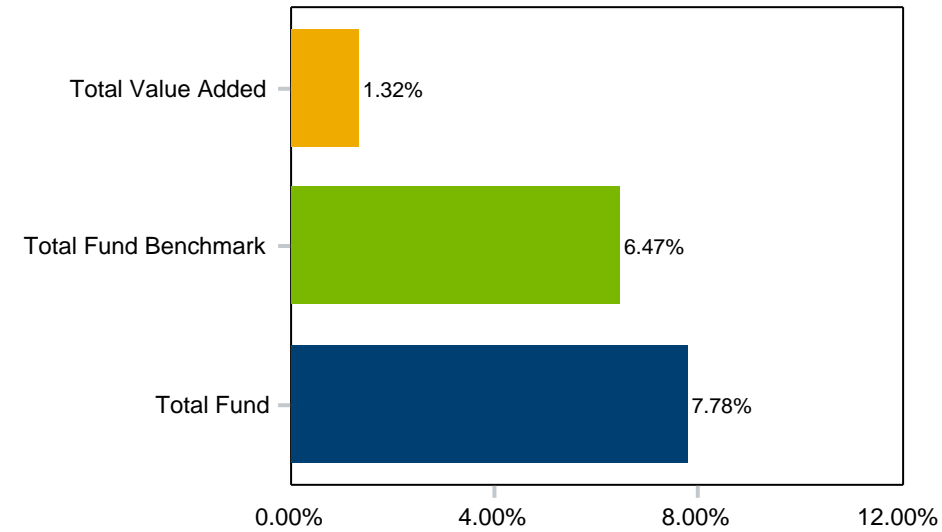
*The inception date above for infrastructure reflects the inception date for the calculation and reporting of time-weighted returns. The Infrastructure program began in July 2014 and the full history of Infrastructure returns are included in Total Real Assets and Total Fund performance.

*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.

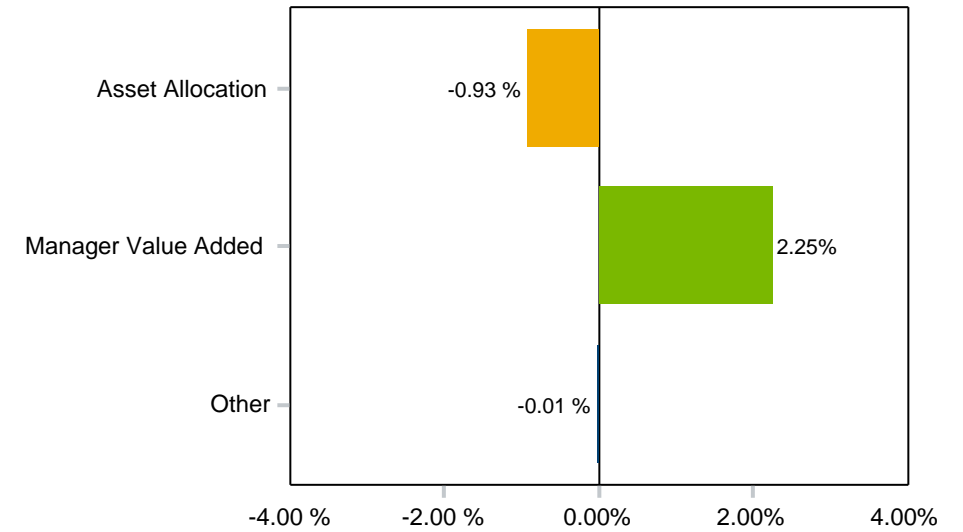
*ATRS made a total commitment of \$100 million to the Triam Co-Investments Fund. As of 3/31/2019, there was an unfunded commitment value equal to 35,536,825.

Total Fund Attribution

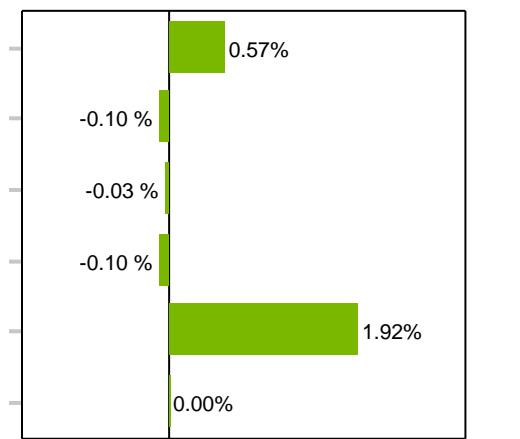
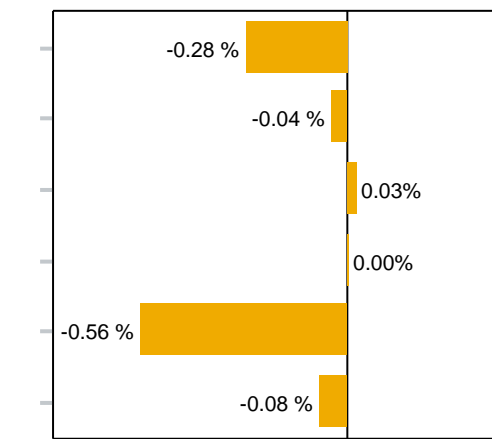
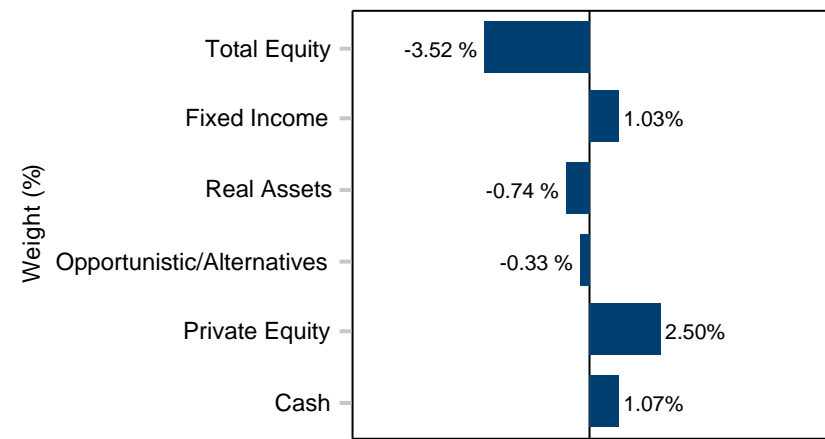
Total Fund Performance



Total Value Added: 1.32%



Total Asset Allocation: -0.93% Total Manager Value Added: 2.25%



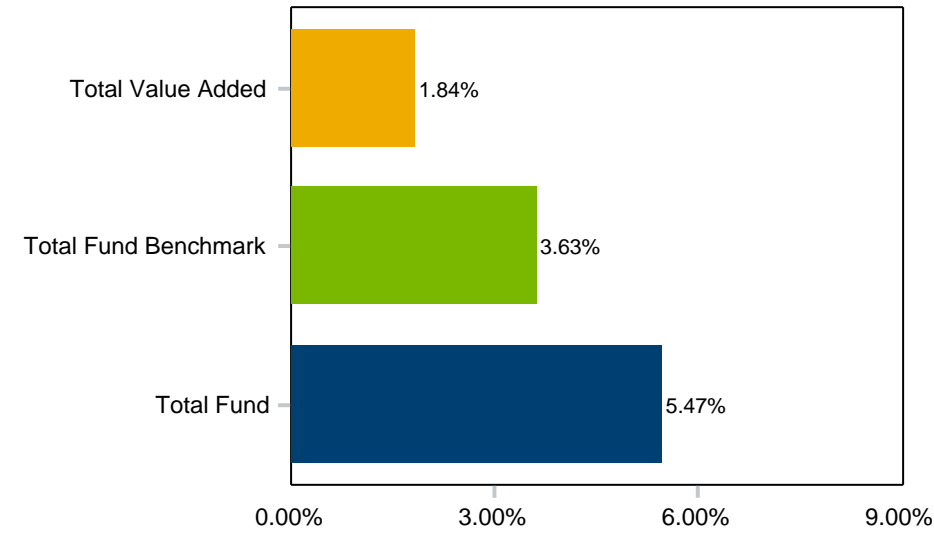
Average Active Weight

Asset Allocation Value Added

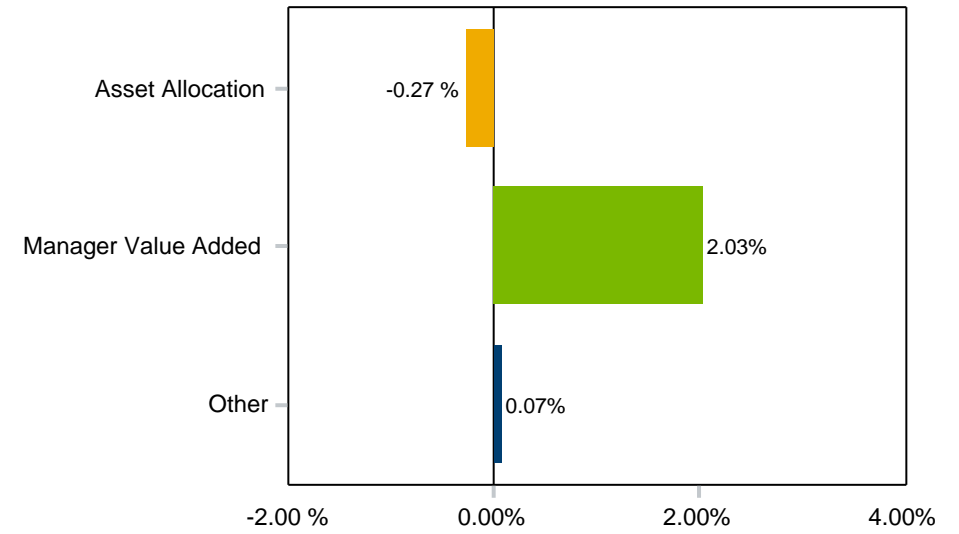
Manager Value Added

Total Fund Attribution

Total Fund Performance

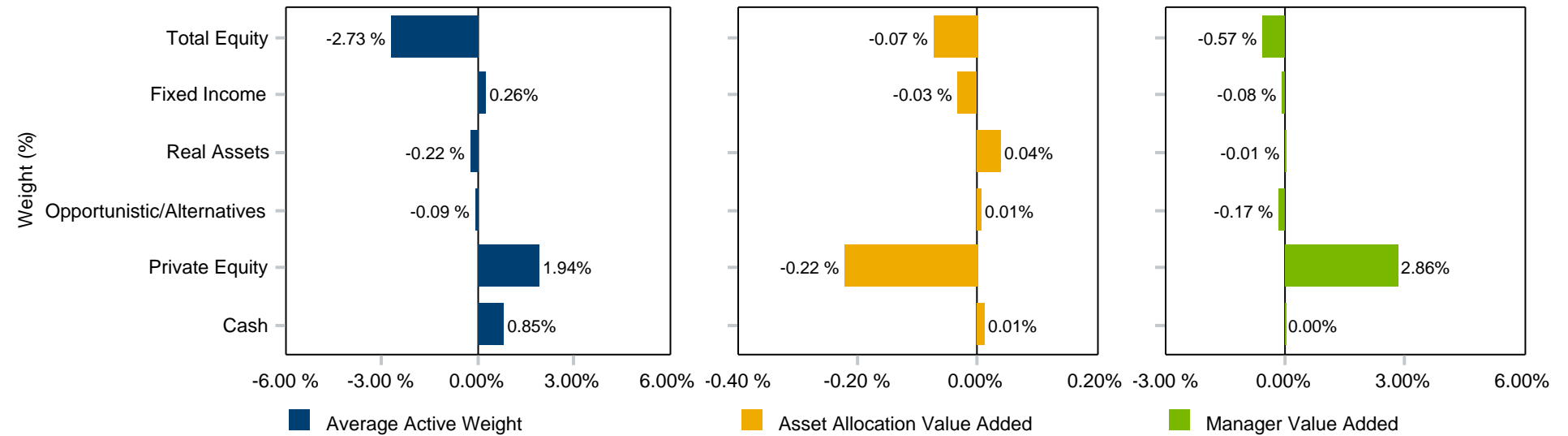


Total Value Added: 1.84%



Total Asset Allocation: -0.27 %

Total Manager Value Added: 2.03%



As of March 31, 2019

Calendar Year Performance

	Performance(%)									
	Fiscal Year 2018	Fiscal Year 2017	Fiscal Year 2016	Fiscal Year 2015	Fiscal Year 2014	Fiscal Year 2013	Fiscal Year 2012	Fiscal Year 2011	Fiscal Year 2010	Fiscal Year 2009
Total Fund	11.7 (1)	16.1 (1)	-0.5 (81)	5.2 (1)	19.0 (3)	14.3 (2)	-1.0 (99)	22.4 (32)	13.5 (36)	-18.1 (27)
Performance Benchmark	9.2 (19)	13.2 (26)	1.8 (12)	5.2 (1)	18.3 (11)	13.5 (9)	2.1 (24)	21.9 (46)	13.1 (55)	-19.0 (43)
Total Equity	13.4 (28)	22.1 (26)	-4.8 (58)	4.1 (31)	25.5 (34)	20.3 (34)	-6.3 (53)	31.5 (43)	17.1 (22)	-25.3 (34)
Total Equity Performance Benchmark	12.2 (34)	19.0 (47)	-1.5 (38)	3.6 (35)	23.9 (46)	18.9 (48)	-1.8 (25)	31.2 (46)	13.6 (38)	-27.8 (46)
Jacobs Levy 130/30	19.9 (21)	24.6 (16)	8.3 (4)	14.2 (6)	24.3 (52)	22.4 (48)	1.4 (41)	43.2 (15)	15.2 (57)	-32.8 (87)
Russell 3000 Index	14.8 (44)	18.5 (54)	2.1 (22)	7.3 (43)	25.2 (43)	21.5 (54)	3.8 (24)	32.4 (55)	15.7 (53)	-26.6 (53)
Allianz Structured Alpha U.S. 250	15.7 (38)	20.4 (40)	6.0 (7)	10.7 (20)	28.1 (20)	23.7 (40)	3.7 (25)	42.6 (16)	17.0 (47)	
S&P 500 Index	14.4 (46)	17.9 (58)	4.0 (12)	7.4 (42)	24.6 (49)	20.6 (60)	5.4 (14)	30.7 (66)	14.4 (62)	
Allianz Structured Alpha Global 500	13.7 (26)	23.8 (17)								
MSCI AC World IMI (Net)	11.1 (42)	19.0 (47)								
Daruma Asset Management	11.7 (86)	20.7 (68)	-8.7 (82)	-2.4 (98)	21.5 (81)	32.9 (5)	-13.6 (100)	46.3 (8)	28.6 (11)	-21.6 (18)
Russell 2000 Index	17.6 (39)	24.6 (31)	-6.7 (63)	6.5 (55)	23.6 (61)	24.2 (58)	-2.1 (46)	37.4 (71)	21.5 (54)	-25.0 (41)
Kennedy Capital Management	12.2 (50)	24.2 (30)	-4.9 (62)	2.7 (51)	29.4 (10)	34.4 (6)	-4.2 (66)	33.9 (52)	34.5 (10)	-27.8 (73)
Russell 2000 Value Index	13.1 (40)	24.9 (23)	-2.6 (41)	0.8 (67)	22.5 (69)	24.8 (58)	-1.4 (34)	31.4 (72)	25.1 (48)	-25.2 (61)
Stephens	29.5 (21)	18.3 (82)	-7.8 (41)	5.1 (89)	18.4 (80)	18.7 (83)	3.0 (8)	46.7 (32)	18.9 (54)	-22.0 (31)
Russell 2000 Growth Index	21.9 (57)	24.4 (41)	-10.8 (57)	12.3 (33)	24.7 (40)	23.7 (53)	-2.7 (39)	43.5 (55)	18.0 (58)	-24.8 (42)
Voya Absolute Return	9.9 (52)	20.3 (37)	1.9 (21)	7.8 (13)	26.9 (23)	19.7 (40)	6.0 (6)	30.5 (51)	14.9 (31)	
Performance Benchmark	10.7 (45)	18.8 (49)	1.1 (24)	7.4 (13)	24.6 (40)	20.6 (33)	5.4 (6)	30.7 (50)	14.4 (34)	
Allianz (Nicholas Applegate)	16.4 (34)	15.9 (74)	-7.1 (79)	4.4 (69)	23.1 (66)	19.4 (70)	-2.4 (65)	29.7 (72)	18.6 (40)	-14.6 (9)
Performance Benchmark	12.0 (63)	16.8 (68)	-4.7 (66)	3.5 (74)	24.4 (51)	18.6 (75)	-3.2 (71)	22.5 (96)	22.6 (23)	-18.8 (18)
Pershing Square International	2.8 (97)	8.2 (95)	-33.2 (100)	12.9 (10)	29.1 (14)	17.3 (80)	0.8 (45)	26.8 (87)	31.6 (6)	-5.5 (2)
Dow Jones U.S. Total Stock Market Index	14.8 (43)	18.5 (53)	2.0 (23)	7.2 (44)	25.0 (45)	21.5 (54)	4.0 (23)	32.4 (54)	16.1 (51)	-26.4 (52)
Pershing Square Holdings	-2.7 (100)	8.3 (95)	-49.1 (100)	15.2 (5)	30.4 (10)					
Dow Jones U.S. Total Stock Market Index	14.8 (43)	18.5 (53)	2.0 (23)	7.2 (44)	25.0 (45)					
Triam Partners	2.8	9.5								
S&P 500 Index	14.4	17.9								
SSgA Global Index	11.4 (40)	19.4 (43)	-3.4 (49)	1.2 (56)	23.8 (47)	17.5 (58)	-6.6 (55)	31.4 (43)	13.4 (40)	-28.8 (51)
MSCI AC World IMI (Net)	11.1 (42)	19.0 (47)	-3.9 (52)	0.8 (59)	23.4 (50)	17.1 (60)	-6.9 (57)	31.0 (48)	13.1 (42)	-28.9 (51)

As of March 31, 2019

Calendar Year Performance

	Performance(%)									
	Fiscal Year 2018	Fiscal Year 2017	Fiscal Year 2016	Fiscal Year 2015	Fiscal Year 2014	Fiscal Year 2013	Fiscal Year 2012	Fiscal Year 2011	Fiscal Year 2010	Fiscal Year 2009
BlackRock MSCI ACWI IMI Fund	11.4 (40)	19.1 (46)	-3.4 (49)	1.2 (56)	23.9 (47)	17.7 (57)	-6.6 (55)			
MSCI AC World IMI (Net)	11.1 (42)	19.0 (47)	-3.9 (52)	0.8 (59)	23.4 (50)	17.1 (60)	-6.9 (57)			
Wellington Global Perspectives	15.7 (19)	24.8 (14)	-4.2 (53)	-1.4 (73)	33.1 (4)	30.7 (5)	-9.1 (71)	45.8 (3)	20.1 (17)	
Performance Benchmark	13.8 (26)	20.5 (36)	-4.7 (57)	1.5 (54)	26.0 (29)	20.6 (33)	-9.9 (76)	35.8 (19)	20.6 (14)	
T. Rowe Price Global Equity	21.3 (6)	28.8 (7)	-0.6 (32)	7.5 (13)	32.0 (5)	18.2 (53)	-7.7 (62)	28.2 (68)		
MSCI AC World Index (Net)	10.7 (45)	18.8 (49)	-3.7 (51)	0.7 (59)	22.9 (55)	16.6 (64)	-6.5 (55)	30.1 (55)		
MSCI AC World Index Growth (net)	16.1 (17)	18.6 (50)	-2.7 (45)	4.9 (25)	23.1 (54)	15.4 (71)	-5.3 (47)	32.0 (38)		
Lazard	9.8 (53)	26.2 (11)	-10.7 (89)	7.3 (13)	23.3 (51)	15.8 (69)	-11.4 (82)	29.6 (58)		
MSCI AC World Index (Net)	10.7 (45)	18.8 (49)	-3.7 (51)	0.7 (59)	22.9 (55)	16.6 (64)	-6.5 (55)	30.1 (55)		
D.E. Shaw	15.8 (18)	19.2 (45)	0.0 (28)	3.9 (33)	25.6 (33)	19.3 (45)	-1.9 (26)	31.1 (48)		
MSCI World Index (Net)	11.1 (43)	18.2 (52)	-2.8 (45)	1.4 (55)	24.0 (46)	18.6 (49)	-5.0 (45)	30.5 (51)		
GMO Global All Country Equity	6.8	20.0	-6.5	-4.5						
MSCI AC World Index (Net)	10.7	18.8	-3.7	0.7						
MSCI AC World Index Value (Net)	5.4	19.0	-4.8	-3.4						
Harris Global Equity	5.0	38.9	-12.8	0.7						
MSCI World Index (Net)	11.1	18.2	-2.8	1.4						
MSCI World Value (Net)	5.6	18.7	-3.7	-2.9						

As of March 31, 2019

Calendar Year Performance

	Performance(%)									
	Fiscal Year 2018	Fiscal Year 2017	Fiscal Year 2016	Fiscal Year 2015	Fiscal Year 2014	Fiscal Year 2013	Fiscal Year 2012	Fiscal Year 2011	Fiscal Year 2010	Fiscal Year 2009
Fixed Income	1.3 (18)	5.2 (7)	3.5 (84)	1.0 (60)	6.1 (49)	3.8 (11)	5.2 (93)	7.3 (36)	17.4 (22)	-0.3 (84)
Performance Benchmark	-0.3 (82)	0.9 (64)	5.8 (31)	1.6 (40)	5.2 (70)	0.2 (54)	7.4 (79)	4.8 (83)	10.6 (87)	4.9 (5)
BlackRock	-0.3 (75)	0.3 (64)	6.0 (23)	2.4 (16)	5.2 (51)	0.3 (60)	8.0 (32)	6.3 (36)	13.7 (38)	1.4 (71)
Performance Benchmark	-0.3 (72)	0.9 (51)	5.8 (26)	1.6 (39)	5.2 (50)	0.2 (62)	7.4 (41)	4.8 (50)	10.6 (54)	4.9 (45)
Loomis Sayles	1.8 (25)	8.1 (16)	1.9 (72)	1.1 (59)	12.0 (11)	10.7 (7)	4.4 (75)	15.7 (10)	26.0 (6)	
Performance Benchmark	0.5 (45)	4.0 (26)	5.0 (37)	1.0 (64)	6.8 (35)	2.8 (29)	8.4 (26)	7.8 (27)	15.5 (32)	
Putnam	4.1 (36)	7.9 (29)	-3.6 (70)	-0.7 (53)	3.7 (71)	5.5 (29)	-1.8 (62)	4.6 (55)	16.9 (7)	
LIBOR	1.5 (59)	0.8 (83)	0.4 (42)	0.2 (42)	0.3 (85)	0.4 (83)	0.4 (49)	0.4 (88)	0.4 (82)	
SSgA Aggregate Bond Index	-0.4 (76)	-0.3 (81)	6.0 (23)	1.9 (28)	4.3 (62)	-0.6 (81)	7.4 (40)	3.9 (65)		
Barclays Aggregate Index	-0.4 (76)	-0.3 (82)	6.0 (23)	1.9 (29)	4.4 (61)	-0.7 (83)	7.5 (39)	3.9 (64)		
Wellington Global Total Return	5.1 (32)	-0.7 (85)	1.3 (32)	0.5 (38)						
BofA Merrill Lynch 3 Month US T-Bill	1.4 (60)	0.5 (83)	0.2 (42)	0.0 (45)						
Reams Core Plus Bond Fund	0.0	0.0	6.1	1.5						
Barclays Aggregate Index	-0.4	-0.3	6.0	1.9						
BRS Recycling Tax Credit										
BRS Recycling Tax Credit Phase 2										
Opportunistic/Alternatives	0.6	6.8	-1.7	5.8	10.2	12.9	-1.0			
Custom Alternatives Benchmark	3.5	2.8	-3.7	1.7	6.3	7.1	-3.9			
Anchorage	6.2	5.9	-3.9	3.8	18.9	19.4	-1.0			
Credit Suisse Event Driven	3.8	9.3	-10.4	-2.0	14.1	14.5	-7.2			
York	12.2	14.3	-12.9	-7.2	22.4	19.4	-0.8			
Credit Suisse Event Driven	3.8	9.3	-10.4	-2.0	14.1	14.5	-7.2			
Capula	3.8	7.8	6.1	8.9	7.9	4.0	3.4			
HFRI Macro (Total) Index	1.1	-2.4	1.8	4.2	1.5	-0.1	-2.8			
Graham	6.5	-3.2	-1.0	23.9	2.7	5.9	-8.3			
HFRI Macro (Total) Index	1.1	-2.4	1.8	4.2	1.5	-0.1	-2.8			
Circumference Group Core Value	15.9	14.0								
Russell 2000 Index	17.6	24.6								
Aeolus Keystone Fund	-17.9	11.2								
Citigroup 3 Month T-Bill	1.3	0.5								
Nephila Rubik Holdings	-7.7	2.2								
Citigroup 3 Month T-Bill	1.3	0.5								
Parametric Global Defensive Equity Fund	5.8									
Performance Benchmark	6.3									
MSCI AC World Index	11.3									
Circumference Group Equity Opportunity Fund										
Man Alternative Risk Premia										
SG Multi Alternative Risk Premia Index										
CFM ISD Fund 1.5x										
SG Multi Alternative Risk Premia Index										

As of March 31, 2019

Calendar Year Performance

	Performance(%)									
	Fiscal Year 2018	Fiscal Year 2017	Fiscal Year 2016	Fiscal Year 2015	Fiscal Year 2014	Fiscal Year 2013	Fiscal Year 2012	Fiscal Year 2011	Fiscal Year 2010	Fiscal Year 2009
Real Assets	9.4	7.5	9.5	11.7	9.0					
Total Real Assets Benchmark	6.2	6.6	10.0	11.5	11.4					
Real Estate	11.1	6.9	12.0	13.4	12.1	7.9	9.8	17.7	-11.4	-23.4
NFI-ODCE (Net)	7.1	7.4	12.6	12.4	12.7	10.5	13.4	16.0	-9.6	-14.7
Timber	1.2	8.0	0.4	9.4	-1.1	6.8	-5.3	4.8	-3.0	5.8
Timberland Property Benchmark	2.6	3.7	2.5	10.5	7.7	6.9	-2.9	-0.4	-6.0	8.0
RMK Timberland I										
Agriculture	3.3	4.3	9.8	2.5	11.0	11.5				
Agriculture Benchmark	3.5	4.5	5.6	6.5	12.8	20.9				
HFMS Farmland	2.9	3.9	10.7	2.5	11.0	11.5				
HFMS custom NCREIF Farmland Index	2.0	4.0	4.8	6.5	12.8	20.9				
UBS Agrivest Core Farmland Fund	4.5	5.0	6.2							
UBS Agrivest custom NCREIF Farmland Index	5.0	5.5	8.4							
Infrastructure										
CPI + 5%										
Private Equity	22.3	16.7	7.7	11.9	20.6	12.5	12.5	16.0	4.5	-18.1
Private Equity Policy	16.1	20.4	1.6	14.5	25.0	16.8	9.4	20.1	55.6	-36.7
Cash	1.2	5.0	3.2							

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

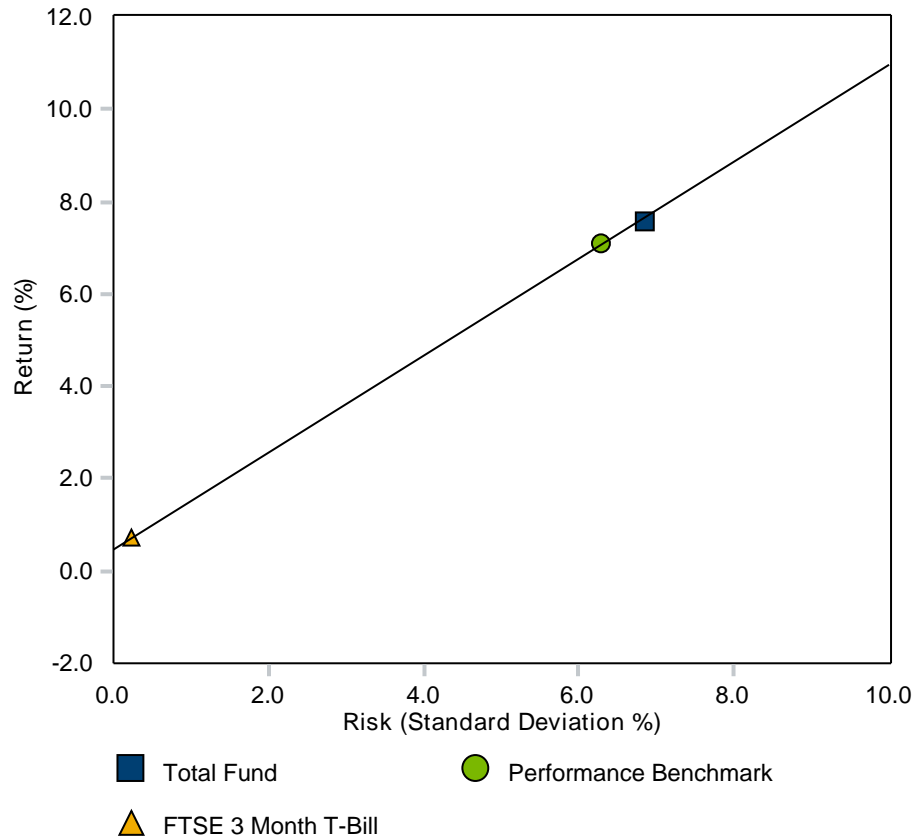
*The inception of the Total Equity asset class was July 1, 2015. Performance prior to July 2015 represents the weighted average of the U.S. Equity and Global Equity asset class monthly returns. For historical performance of the U.S. Equity and Global Equity asset classes please see page 145 of this report.

*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.

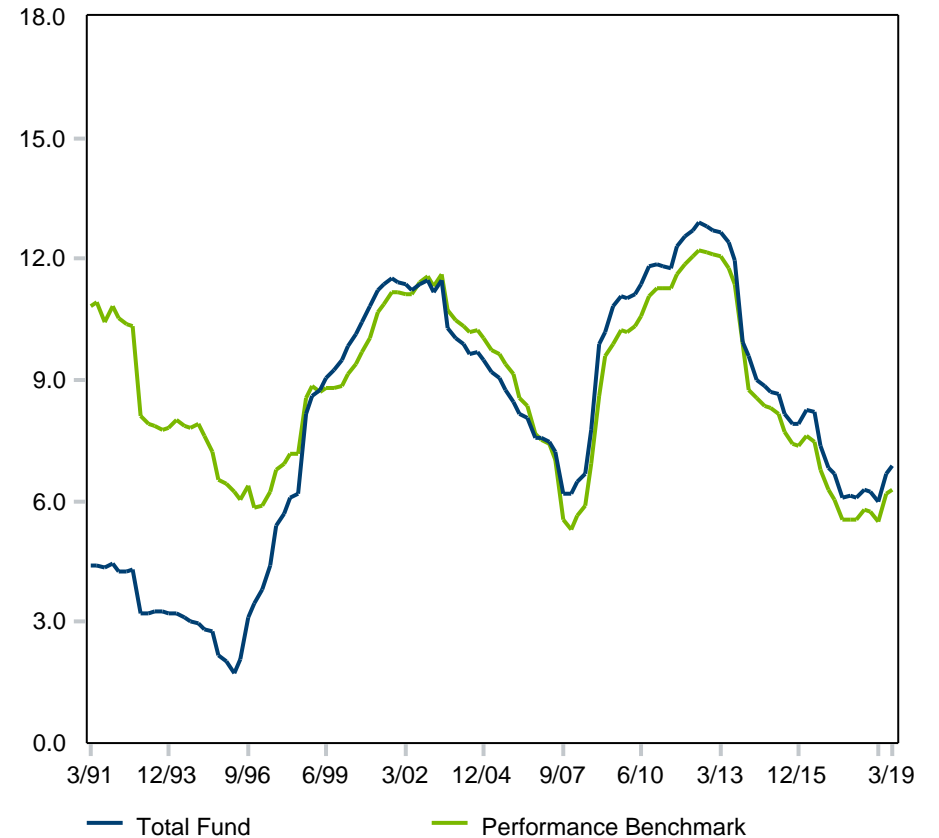
*The BRS Recycling Tax Credit represents an annual income stream of \$16 million dollars over the next 14 years, which ATRS purchased for approximately \$162 million. This represents an approximate 9.9% yield for the 2017 fiscal year. The value shown above represents the year-end market value in accordance 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



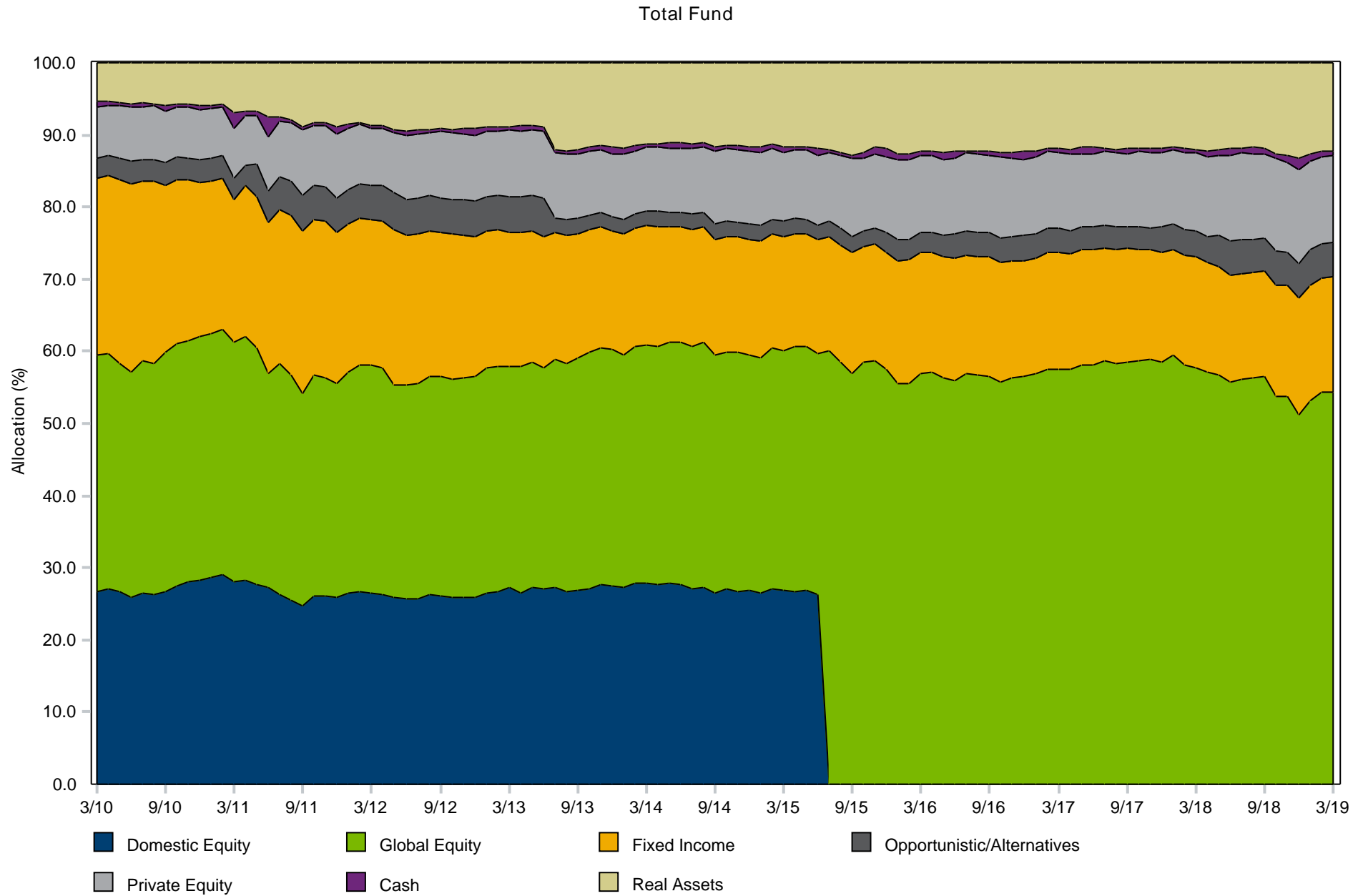
Rolling 5 Years Standard Deviation



5 Years Historical Statistics

	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Total Fund	0.50	1.87	0.27	0.93	0.99	0.14	1.05	7.57	6.86	0.96
Performance Benchmark	0.00	0.00	N/A	1.00	1.00	0.00	1.00	7.08	6.29	1.00
FTSE 3 Month T-Bill	-6.33	6.30	-1.00	0.00	N/A	0.73	0.00	0.72	0.23	-0.03

Historical Asset Allocation by Segment



Asset Allocation as of 3/31/2019										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	\$604,936.4	--	--	--	--	\$604,936.4	3.52%				
Allianz Structured Alpha U.S. 250	\$167,976.0	--	--	--	--	\$167,976.0	0.98%				
Allianz Structured Alpha Global 500	\$795,638.0	--	--	--	--	\$795,638.0	4.63%				
Allianz Structured Alpha Global 350	\$264,642.9	--	--	--	--	\$264,642.9	1.54%				
Daruma Asset Management	\$368,203.6	--	--	--	--	\$368,203.6	2.14%				
Kennedy Capital Management	\$519,026.0	--	--	--	--	\$519,026.0	3.02%				
Stephens	\$402,173.7	--	--	--	--	\$402,173.7	2.34%				
Voya Absolute Return	\$522,728.3	--	--	--	--	\$522,728.3	3.04%				
Allianz (Nicholas Applegate)	\$564,388.5	--	--	--	--	\$564,388.5	3.28%				
Pershing Square International	\$114,457.0	--	--	--	--	\$114,457.0	0.67%				
Pershing Square Holdings	\$122,826.8	--	--	--	--	\$122,826.8	0.71%				
SSgA Global Index	\$1,082,061.4	--	--	--	--	\$1,082,061.4	6.29%				
BlackRock MSCI ACWI IMI Fund	\$103,798.0	--	--	--	--	\$103,798.0	0.60%				
Wellington Global Perspectives	\$511,544.6	--	--	--	--	\$511,544.6	2.97%				
T. Rowe Price Global Equity	\$867,540.2	--	--	--	--	\$867,540.2	5.04%				
Lazard	\$539,535.7	--	--	--	--	\$539,535.7	3.14%				
D.E. Shaw	\$674,738.5	--	--	--	--	\$674,738.5	3.92%				
GMO Global All Country Equity	\$400,467.9	--	--	--	--	\$400,467.9	2.33%				
Harris Global Equity	\$420,197.8	--	--	--	--	\$420,197.8	2.44%				
Triam Partners	\$64,556.6	--	--	--	--	\$64,556.6	0.38%				
Triam Partners Co-Investments	\$63,492.9	--	--	--	--	\$63,492.9	0.37%				
Capital Guardian, Knight Vinke, & Relational	\$72.0	--	--	--	--	\$72.0	0.00%				
Total Equity						\$9,175,002.6	53.33%	55.50%	55.00%		
BlackRock	--	\$394,329.6	--	--	--	\$394,329.6	2.29%				
Loomis Sayles	--	\$411,327.7	--	--	--	\$411,327.7	2.39%				
Putnam	--	\$360,800.0	--	--	--	\$360,800.0	2.10%				
SSgA Aggregate Bond Index	--	\$629,504.2	--	--	--	\$629,504.2	3.66%				
Wellington Global Total Return	--	\$333,709.8	--	--	--	\$333,709.8	1.94%				
Reams Core Plus Bond Fund	--	\$343,875.3	--	--	--	\$343,875.3	2.00%				
BRS Recycling Tax Credit	--	\$208,000.0	--	--	--	\$208,000.0	1.21%				
BRS Recycling Tax Credit Phase 2	--	\$74,387.8	--	--	--	\$74,387.8	0.43%				
Total Fixed Income						\$2,755,934.4	16.02%	15.00%	15.00%		
Anchorage	--	--	--	\$75,307.7	--	\$75,307.7	0.44%				
Capula	--	--	--	\$79,768.0	--	\$79,768.0	0.46%				
Graham	--	--	--	\$56,423.5	--	\$56,423.5	0.33%				
York	--	--	--	\$67,832.2	--	\$67,832.2	0.39%				
Circumference Group Core Value	--	--	--	\$28,774.9	--	\$28,774.9	0.17%				
Circumference Group Equity Opportunity Fund	--	--	--	\$1,842.3	--	\$1,842.3	0.01%				
Aeolus Keystone Fund	--	--	--	\$259,648.3	--	\$259,648.3	1.51%				
Nephila Rubik Holdings	--	--	--	\$43,009.2	--	\$43,009.2	0.25%				
Parametric Global Defensive Equity	--	--	--	\$163,123.2	--	\$163,123.2	0.95%				
Man Alternative Risk Premia	--	--	--	\$96,770.4	--	\$96,770.4	0.56%				
CFM ISD Fund 1.5x	--	--	--	\$98,831.7	--	\$98,831.7	0.57%				
Total Opportunistic/Alternatives						\$971,331.3	5.65%	6.16%	5.00%		
Real Estate			\$1,369,347.2			\$1,369,347.2	7.96%				
Timber			\$258,608.4			\$258,608.4	1.50%				
Agriculture			\$195,073.7			\$195,073.7	1.13%				
Infrastructure			\$270,820.4			\$270,820.4	1.57%				
Total Real Assets						\$2,093,849.7	12.17%	13.34%	15.00%		
Total Private Equity				\$2,086,999.2		\$2,086,999.2	12.13%	10.00%	10.00%		
Total Cash					\$119,727.3	\$119,727.3	0.70%	0.00%	0.00%		
Total Fund	\$9,175,002.6	\$2,755,934.4	\$2,093,849.7	\$3,058,330.4	\$119,727.3	\$17,202,844.4	100.0%	100.00%	100.00%		

*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.

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Asset Allocation as of 3/31/2019				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	\$1,775.2	0.13%	0.01%	LaSalle Income & Growth Fund VI	\$7,596.5	0.55%	0.04%
Almanac Realty Securities Fund VI	\$8,435.8	0.62%	0.05%	LaSalle Income & Growth Fund VII	\$15,344.4	1.12%	0.09%
Almanac Realty Securities Fund VII	\$22,570.2	1.65%	0.13%	Lone Star Real Estate Fund IV	\$12,418.8	0.91%	0.07%
Almanac Realty Securities Fund VIII	\$293.1	0.02%	0.00%	Long Wharf Real Estate Partners V	\$29,325.9	2.14%	0.17%
American Center	\$62,492.4	4.56%	0.36%	Metropolitan RE Co-Investments	\$14,849.1	1.08%	0.09%
AR Insurance	\$6,950.9	0.51%	0.04%	New Boston Fund VII	\$637.9	0.05%	0.00%
AR Teachers Retirement Building	\$5,004.2	0.37%	0.03%	O'Connor NAPP II	\$10,601.6	0.77%	0.06%
Blackstone Real Estate Partners VII	\$31,943.1	2.33%	0.19%	Olympus	\$355.4	0.03%	0.00%
Carlyle Realty Partners VII	\$18,305.7	1.34%	0.11%	PRISA	\$268,799.7	19.63%	1.56%
Carlyle Realty VIII	\$2,061.0	0.15%	0.01%	Recoveries Land	\$84.0	0.01%	0.00%
CBREI SP U.S. Opportunity V	\$11,782.9	0.86%	0.07%	Rockwood Capital RE Partners IX	\$10,571.8	0.77%	0.06%
CBREI SP VIII	\$22,126.7	1.62%	0.13%	Rose Law Firm	\$4,664.3	0.34%	0.03%
Cerberus Institutional RE Partners III	\$16,700.6	1.22%	0.10%	Texarkana DHS	\$1,818.8	0.13%	0.01%
Chenal Retirement Village	\$1,900.0	0.14%	0.01%	Torchlight Debt Opportunity Fund II	\$482.9	0.04%	0.00%
Calmwater	\$16,251.9	1.19%	0.09%	Torchlight Debt Opportunity Fund III	\$0.0	0.00%	0.00%
Fletcher Properties	\$1,300.7	0.09%	0.01%	Torchlight Debt Opportunity Fund IV	\$10,140.9	0.74%	0.06%
FPA Core Plus IV	\$13,716.9	1.00%	0.08%	Torchlight Debt Opportunity Fund V	\$19,275.0	1.41%	0.11%
Harbert European Real Estate	\$27,005.5	1.97%	0.16%	Torchlight Debt Opportunity Fund VI	\$1,246.9	0.09%	0.01%
Heitman European Property IV	\$4,646.4	0.34%	0.03%	UBS Trumbull Property Fund	\$253,223.7	18.49%	1.47%
JP Morgan Strategic Property Fund	\$283,177.9	20.68%	1.65%	UBS Trumbull Property Income Fund	\$52,228.5	3.81%	0.30%
Kayne Anderson V	\$10,319.1	0.75%	0.06%	Victory	\$32,707.9	2.39%	0.19%
Landmark Fund VI	\$4,019.7	0.29%	0.02%	West Mphs. DHS	\$2,377.1	0.17%	0.01%
Landmark Real Estate VIII	\$5,052.4	0.37%	0.03%	Westbrook IX	\$17,476.2	1.28%	0.10%
LaSalle Asia Opportunity Fund IV	\$5,881.9	0.43%	0.03%	Westbrook Real Estate Fund X	\$13,478.4	0.98%	0.08%
LaSalle Asia Opportunity Fund V	\$5,927.1	0.43%	0.03%	Woodland Heights	\$0.3	0.00%	0.00%
Total Real Estate					\$1,369,347.2	100.00%	7.96%

*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 3/31/2019				Values in \$1,000			
	Private Equity	Percent of Private Equity	Percent of Total Fund		Private Equity	Percent of Private Equity	Percent of Total Fund
Arlington Capital IV	\$17,245.8	0.83%	0.10%	Insight Equity II	\$25,035.4	1.20%	0.15%
Advent GPE VI	\$7,763.5	0.37%	0.05%	Insight Mezzanine I	\$3,348.8	0.16%	0.02%
Altus Capital II	\$7,767.2	0.37%	0.05%	JF Lehman III	\$29,470.1	1.41%	0.17%
American Industrial Partners VI	\$18,856.4	0.90%	0.11%	JF Lehman IV	\$30,854.7	1.48%	0.18%
Altaris Constellation Partners	\$18,402.3	0.88%	0.11%	KPS III	\$6,997.2	0.34%	0.04%
Altaris Health Partners IV	\$7,202.9	0.35%	0.04%	KPS IV	\$9,739.1	0.47%	0.06%
Atlas Capital II	\$11,396.8	0.55%	0.07%	Levine Leichtman V	\$16,575.1	0.79%	0.10%
Audax Mezzanine III	\$5,020.7	0.24%	0.03%	Lime Rock III	\$21,451.1	1.03%	0.12%
Big River - Equity	\$317,000.0	15.19%	1.84%	LLR III	\$9,532.5	0.46%	0.06%
Big River - Holdings Note 2023	\$12,529.7	0.60%	0.07%	Mason Wells III	\$16,679.0	0.80%	0.10%
Big River - Holdings Note 3/16/23	\$5,241.4	0.25%	0.03%	NGP IX	\$1,193.5	0.06%	0.01%
Big River - Preferred Equity	\$46,426.0	2.22%	0.27%	NGP X	\$12,813.4	0.61%	0.07%
Bison V	\$12,852.1	0.62%	0.07%	NGP XI	\$28,583.7	1.37%	0.17%
Boston Ventures VII	\$17,239.9	0.83%	0.10%	NGP XII	\$8,825.8	0.42%	0.05%
Boston Ventures IX	\$9,513.4	0.46%	0.06%	One Rock Capital Partners II	\$8,794.7	0.42%	0.05%
BV VIII	\$21,684.1	1.04%	0.13%	PineBridge	\$15,643.3	0.75%	0.09%
Castlelake II	\$17,144.0	0.82%	0.10%	Riverside IV	\$4,796.5	0.23%	0.03%
Castlelake III	\$18,965.7	0.91%	0.11%	Riverside V	\$25,164.9	1.21%	0.15%
Clearlake V	\$17,077.8	0.82%	0.10%	Siris III	\$12,989.1	0.62%	0.08%
Court Square III	\$37,102.6	1.78%	0.22%	Siris IV	\$4,378.5	0.21%	0.03%
CSFB-ATRS 2005-1 Series	\$55,208.2	2.65%	0.32%	SK Capital V	\$3,201.8	0.15%	0.02%
CSFB-ATRS 2006-1 Series	\$112,040.7	5.37%	0.65%	Sycamore Partners II	\$20,209.3	0.97%	0.12%
Diamond State Ventures II	\$6,138.2	0.29%	0.04%	Sycamore Partners III	\$2,627.0	0.13%	0.02%
DLJ Investment Partners II	\$0.0	0.00%	0.00%	TA XI	\$26,711.1	1.28%	0.16%
Doughty Hanson III	\$0.0	0.00%	0.00%	Tennenbaum VI	\$15,591.5	0.75%	0.09%
Doughty Hanson Tech I	\$450.4	0.02%	0.00%	Thoma Bravo Discover	\$11,480.0	0.55%	0.07%
DW Healthcare III	\$20,255.0	0.97%	0.12%	Thoma Bravo Discover II	\$2,531.1	0.12%	0.01%
DW Healthcare IV	\$22,660.4	1.09%	0.13%	Thoma Bravo XI	\$27,157.0	1.30%	0.16%
EnCap IX	\$17,331.6	0.83%	0.10%	Thoma Bravo XII	\$30,694.8	1.47%	0.18%
EnCap VIII	\$15,496.9	0.74%	0.09%	Thoma Bravo XIII	\$4,288.2	0.21%	0.02%
EnCap X	\$25,601.2	1.23%	0.15%	Vista Equity III	\$8,025.6	0.38%	0.05%
EnCap XI	\$4,186.4	0.20%	0.02%	Vista Foundation II	\$13,816.6	0.66%	0.08%
Franklin Park Series	\$571,850.9	27.40%	3.32%	Vista Foundation III	\$20,119.4	0.96%	0.12%
GCG	\$17,883.3	0.86%	0.10%	Wellspring V	\$18,166.7	0.87%	0.11%
GTLA Holdings	\$20,000.0	0.96%	0.12%	Wicks IV	\$27,023.5	1.29%	0.16%
Highland	\$46,177.8	2.21%	0.27%	WNG II	\$775.8	0.04%	0.00%
Total Private Equity					\$2,086,999.2	100.00%	12.13%

*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.

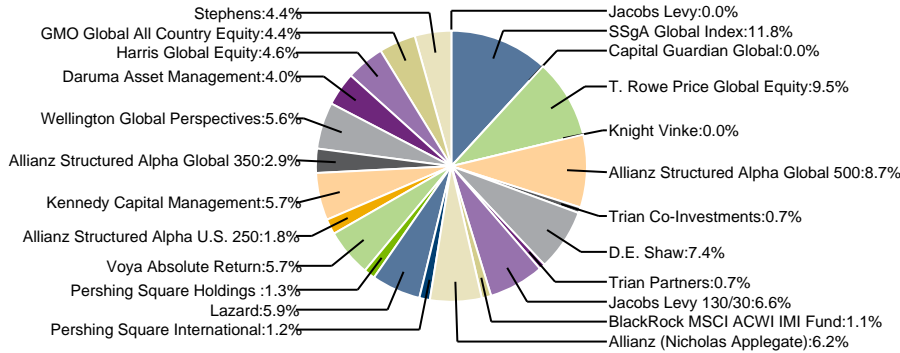


Total Equity

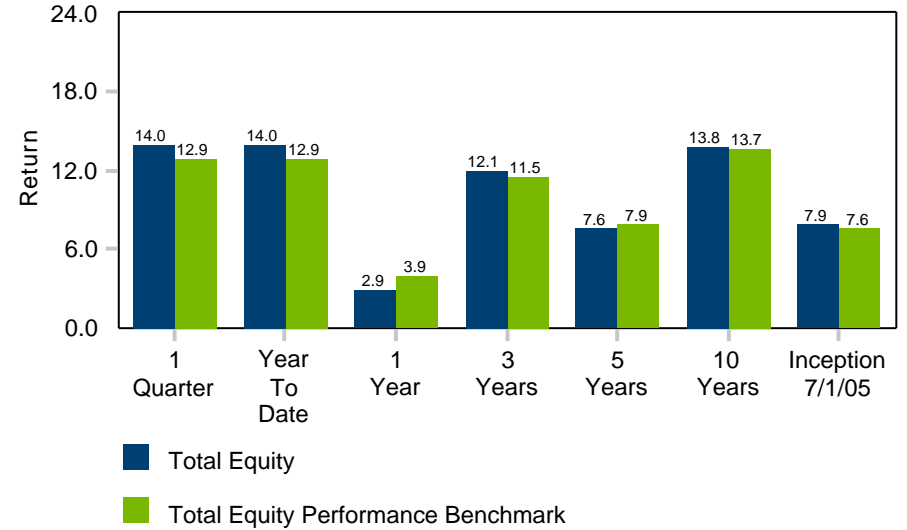
Total Equity Portfolio Overview

Current Allocation

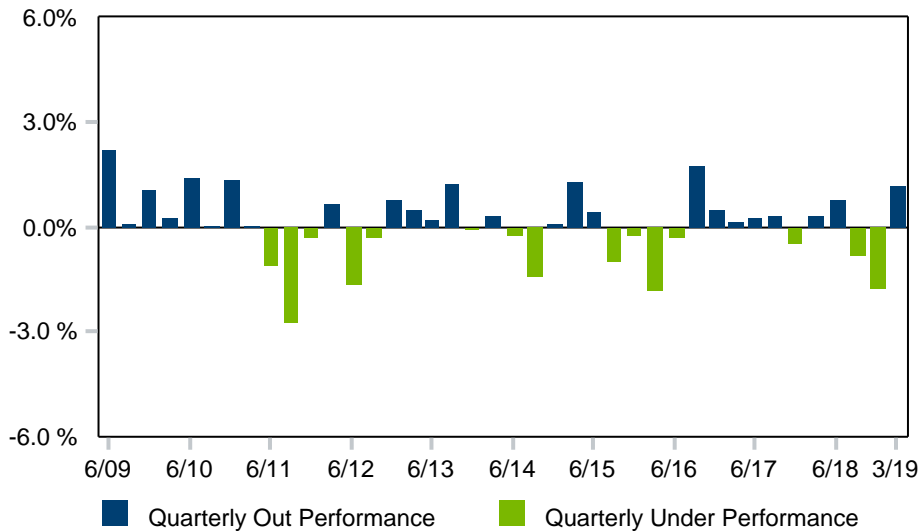
March 31, 2019 : \$9,175M



Return Summary



Quarterly Excess Performance



Ratio of Cumulative Wealth - 10 Years

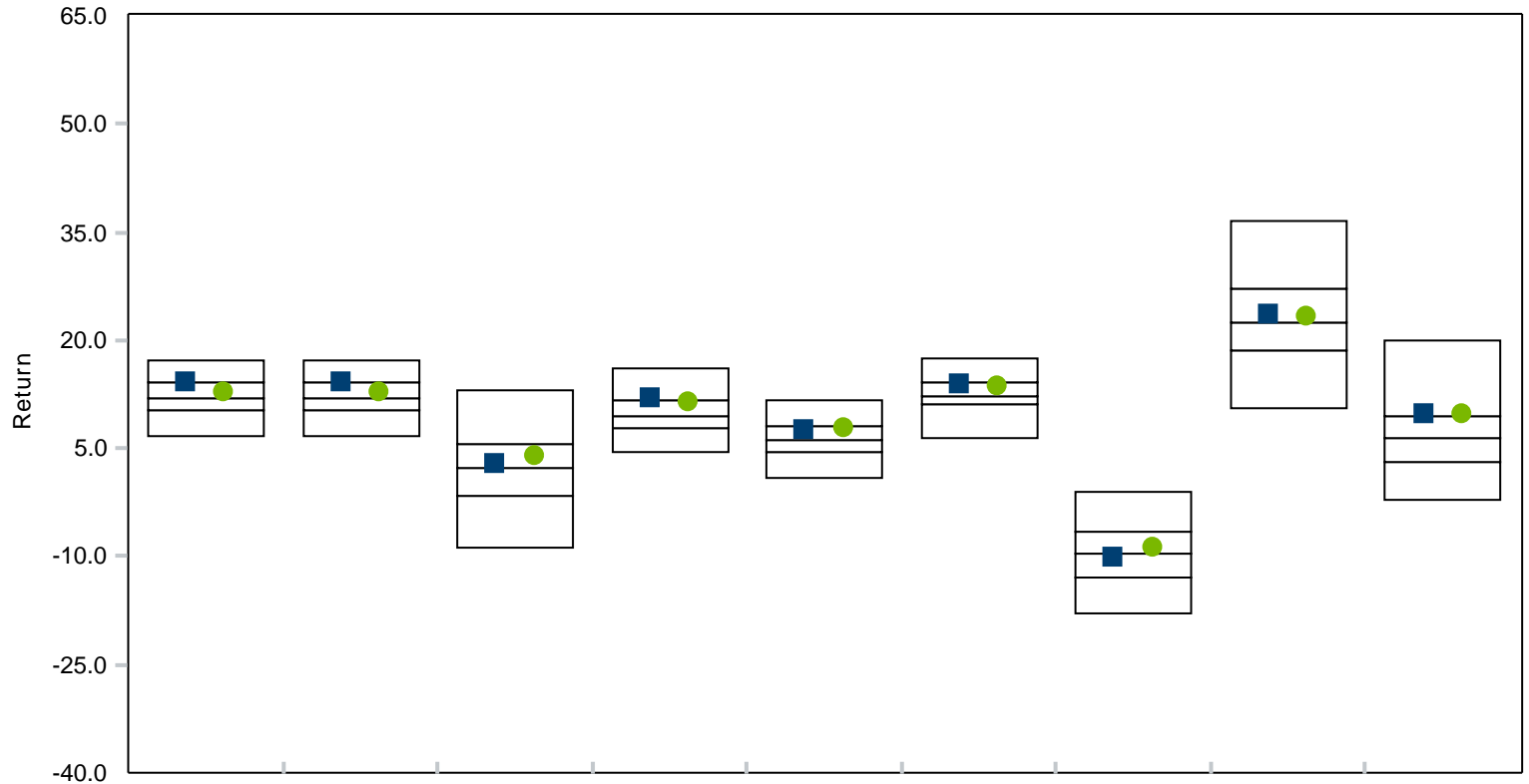


The inception of the Total Equity asset class was July 1, 2015. Performance prior to July 2015 represents the weighted average of the U.S. Equity and Global Equity asset class monthly returns. For historical performance of the U.S. Equity and Global Equity asset classes please see page 145 of this report.

As of March 31, 2019

Peer Group Analysis

IM Global Equity (SA+CF)

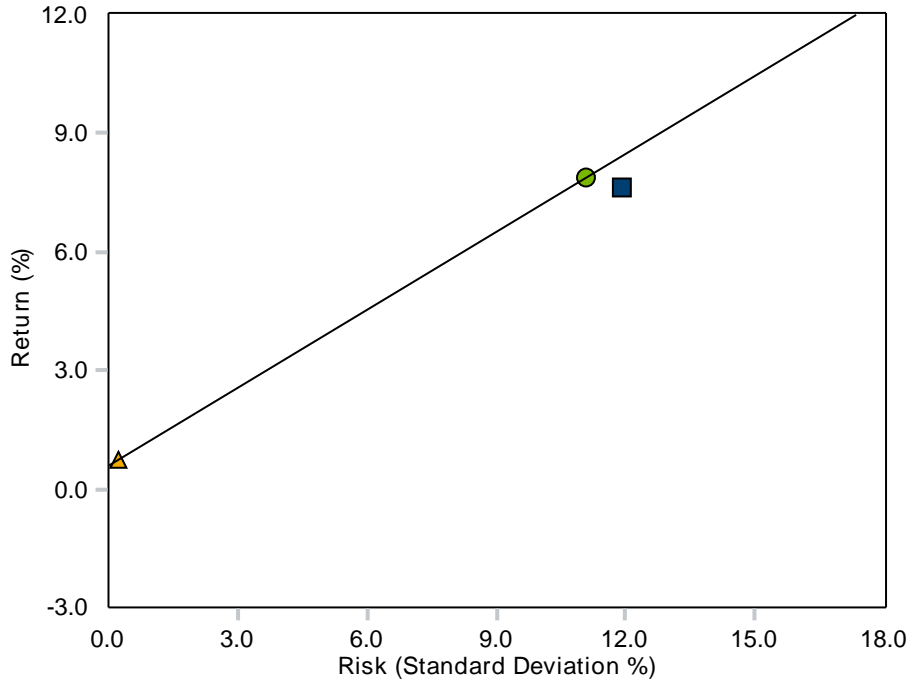


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2018	2017	2016
■ Total Equity	14.0 (27)	14.0 (27)	2.9 (46)	12.1 (23)	7.6 (30)	13.8 (28)	-10.2 (56)	23.5 (44)	9.9 (24)
● Total Equity Performance Benchmark	12.9 (42)	12.9 (42)	3.9 (37)	11.5 (26)	7.9 (27)	13.7 (30)	-8.7 (42)	23.1 (47)	9.8 (24)
5th Percentile	17.2	17.2	13.2	16.2	11.8	17.4	-0.9	36.5	19.9
1st Quartile	14.2	14.2	5.6	11.6	8.0	14.1	-6.4	27.2	9.4
Median	12.0	12.0	2.2	9.6	6.2	12.3	-9.6	22.5	6.3
3rd Quartile	10.3	10.3	-1.5	7.7	4.4	11.2	-12.9	18.6	3.1
95th Percentile	6.6	6.6	-8.8	4.5	1.0	6.4	-18.0	10.5	-2.3
Population	481	481	479	454	409	257	503	534	562

Parenteses contain percentile rankings.

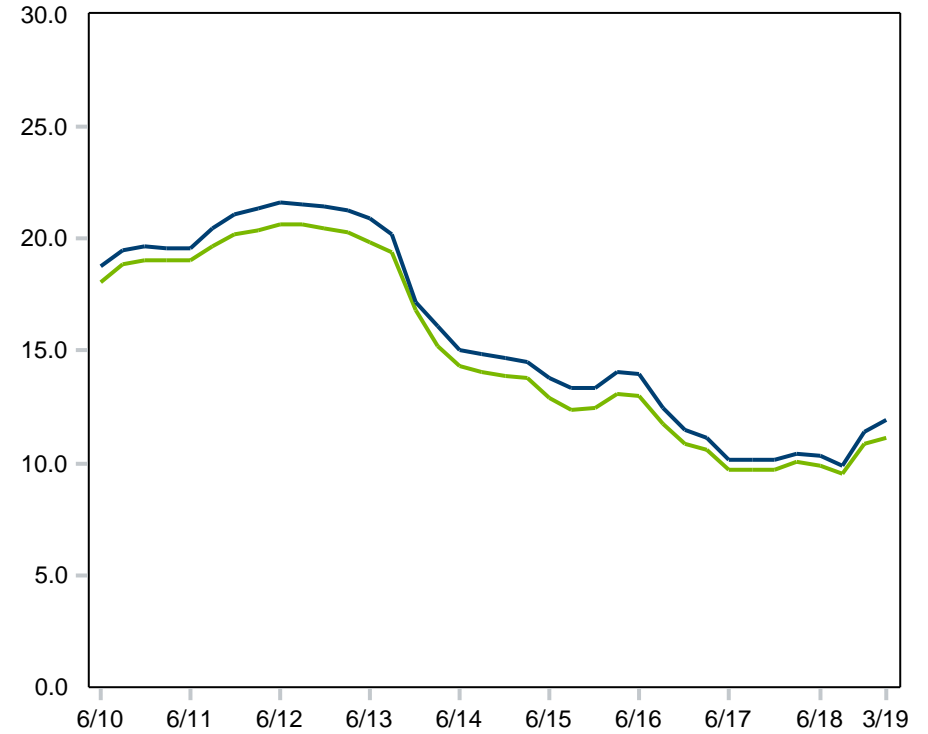
Total Equity Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



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

Rolling 5 Years Standard Deviation



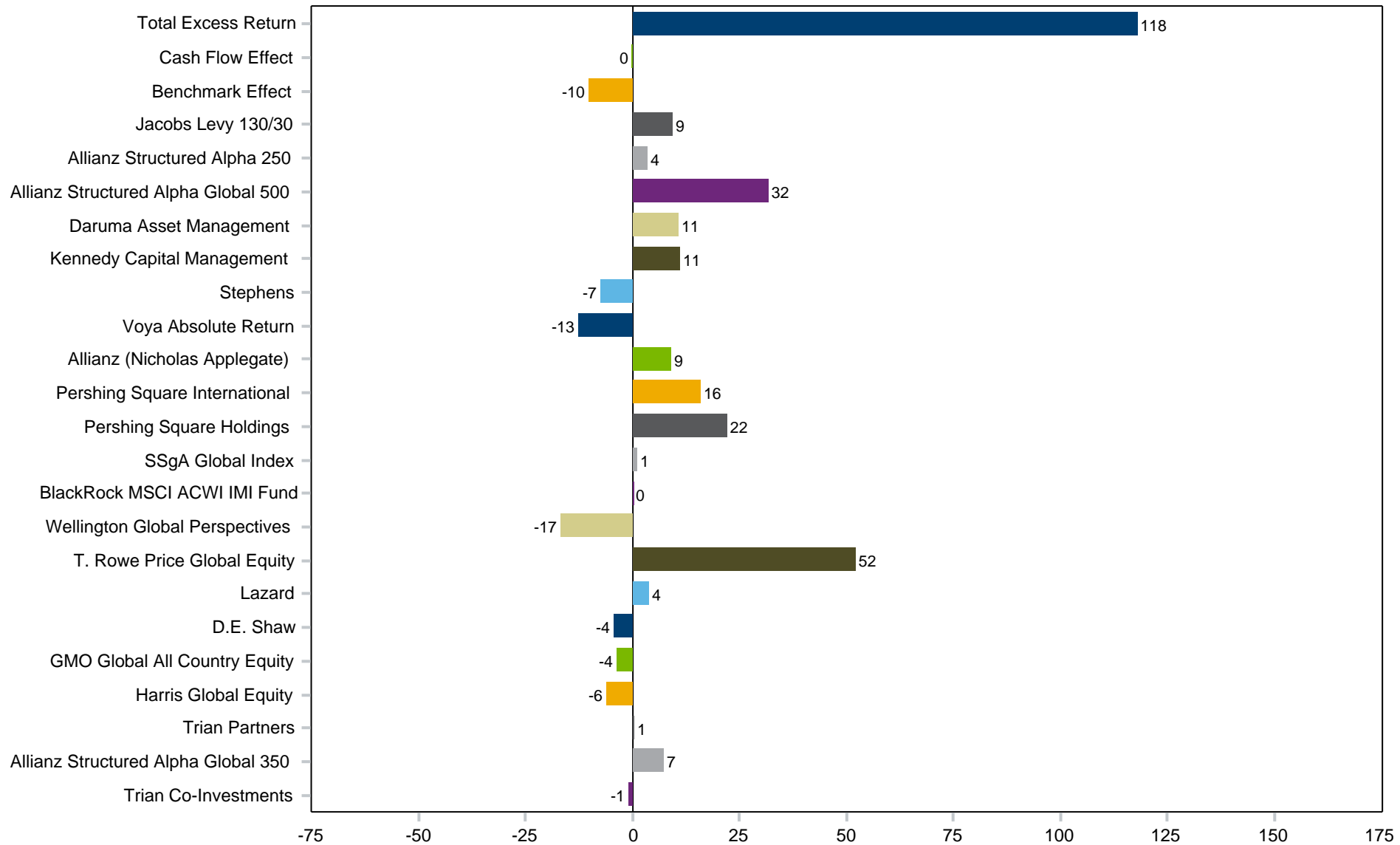
- Total Equity
- Total Equity Performance Benchmark

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	1.93	-0.09	0.98	0.61	-0.69	1.06	7.59	11.94	0.99
Total Equity Performance Benchmark	0.00	0.00	N/A	1.00	0.67	0.00	1.00	7.88	11.11	1.00
FTSE 3 Month T-Bill	-7.50	11.12	-0.67	0.00	N/A	0.72	0.00	0.72	0.23	0.00

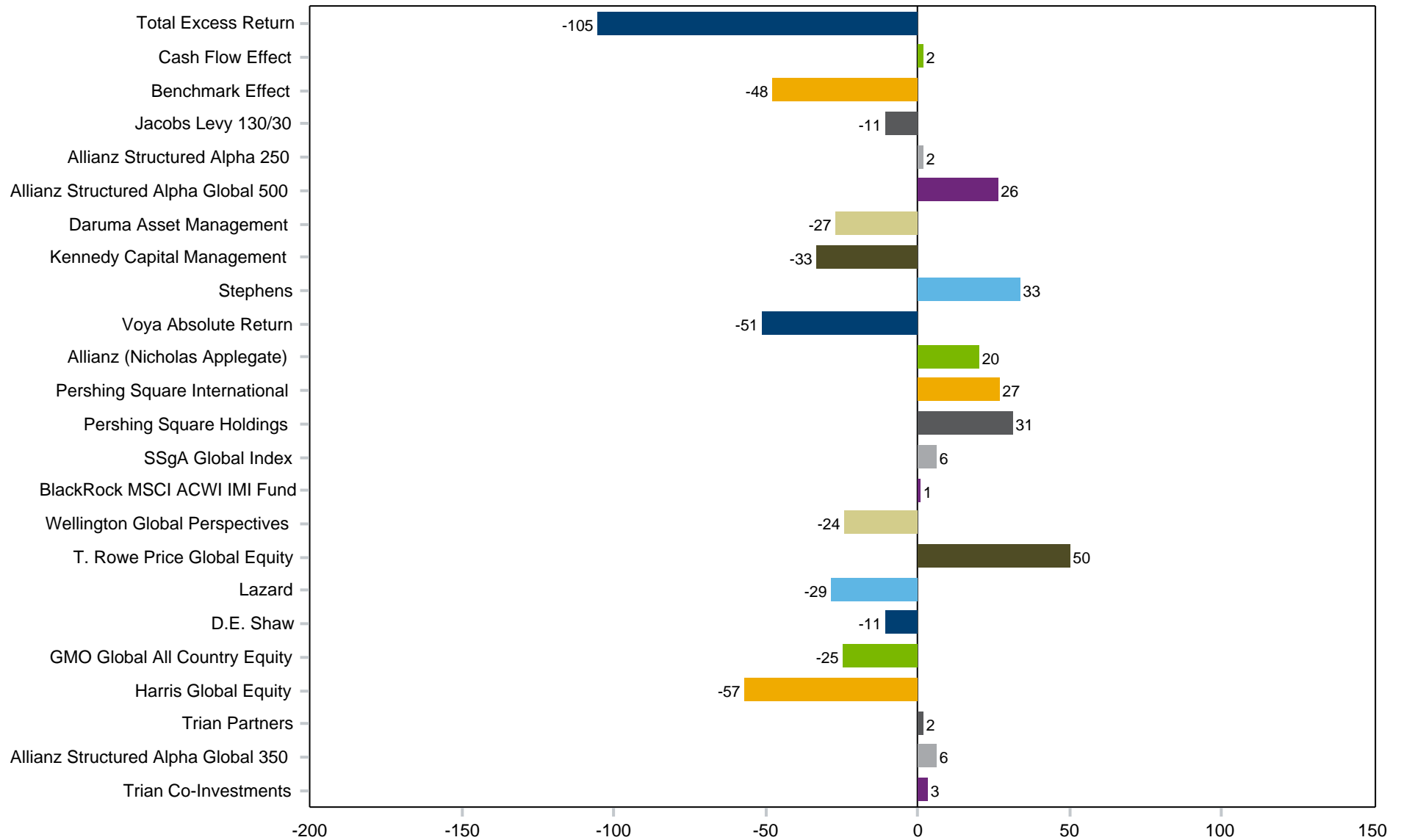
Asset Class Attribution

1 Quarter



Asset Class Attribution

1 Year

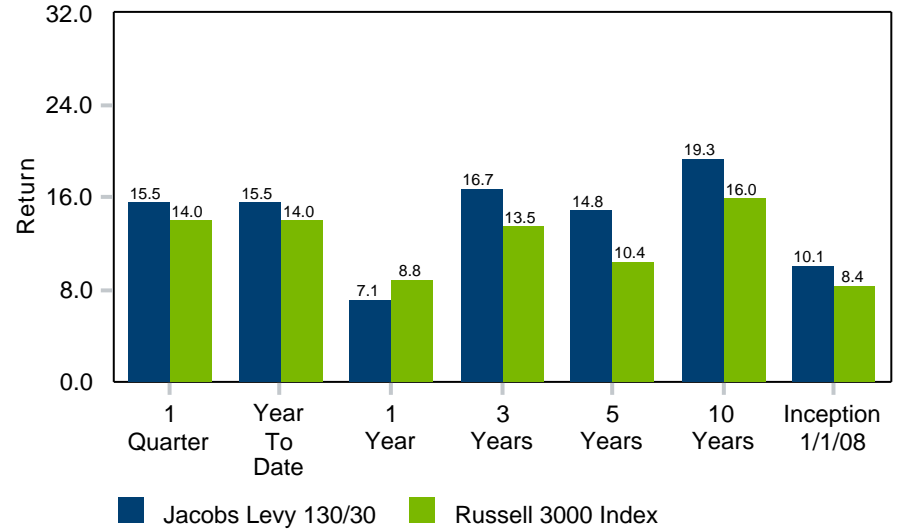


Jacobs Levy 130/30 Performance Summary

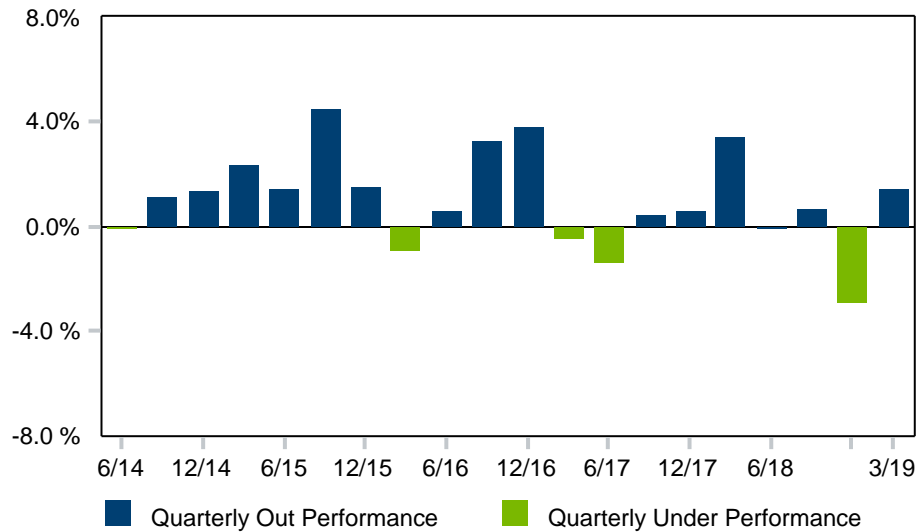
Account Information

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)

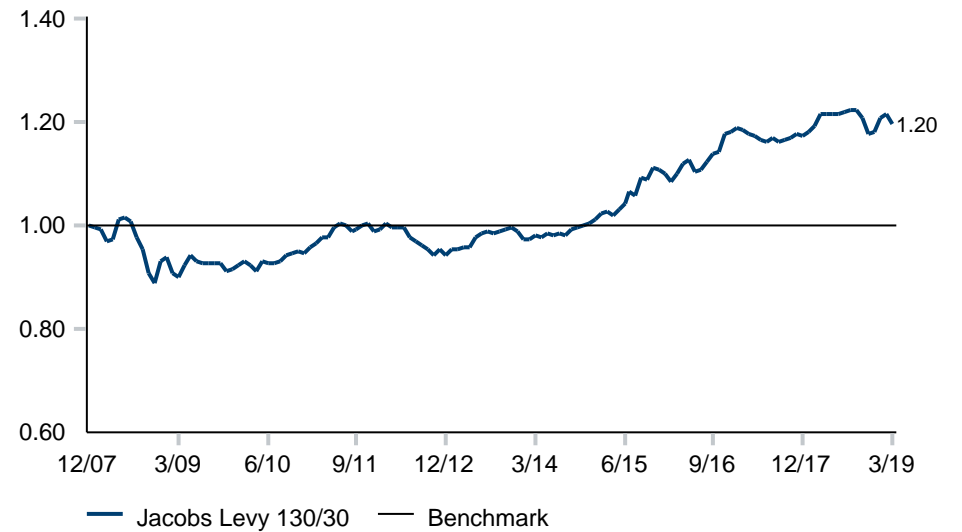
Return Summary



Quarterly Excess Performance

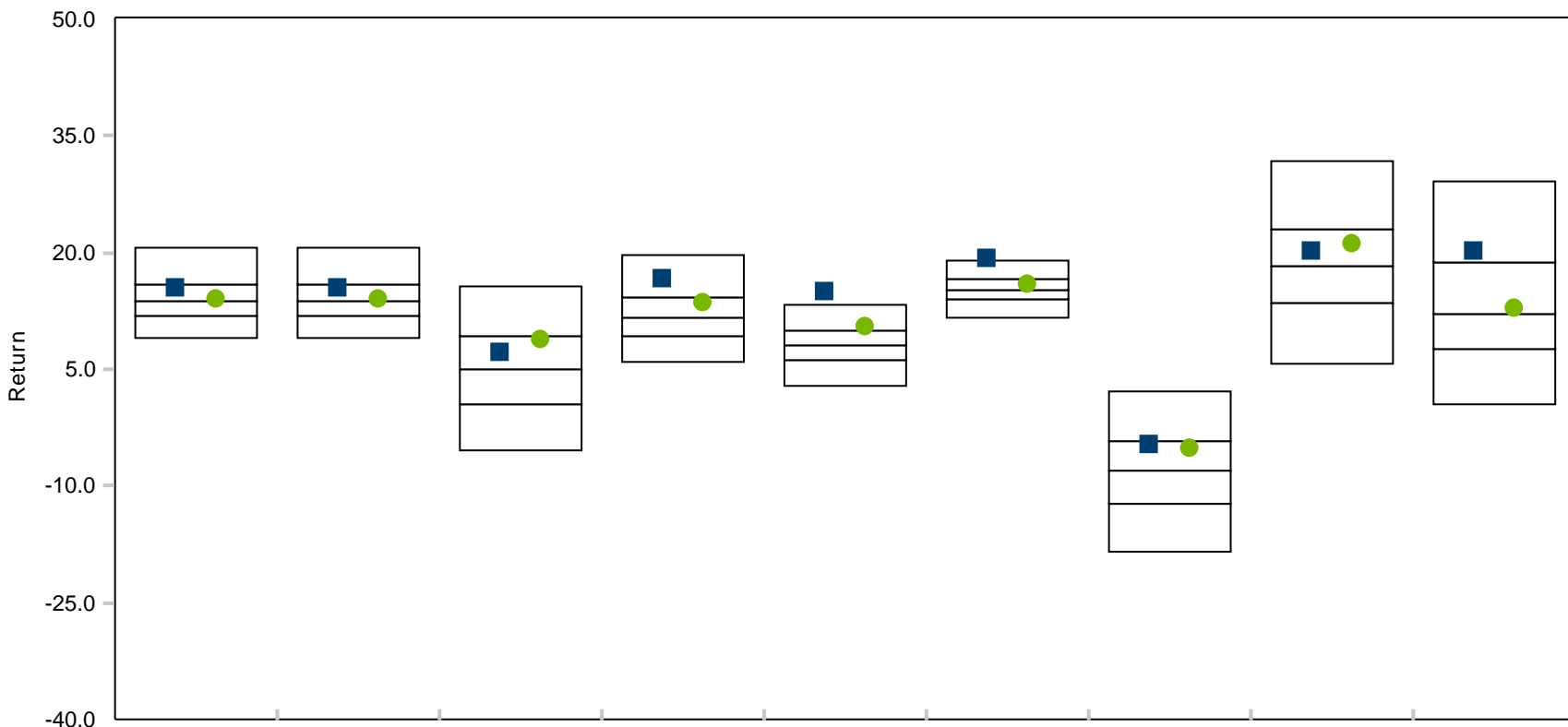


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM U.S. Equity (SA+CF)

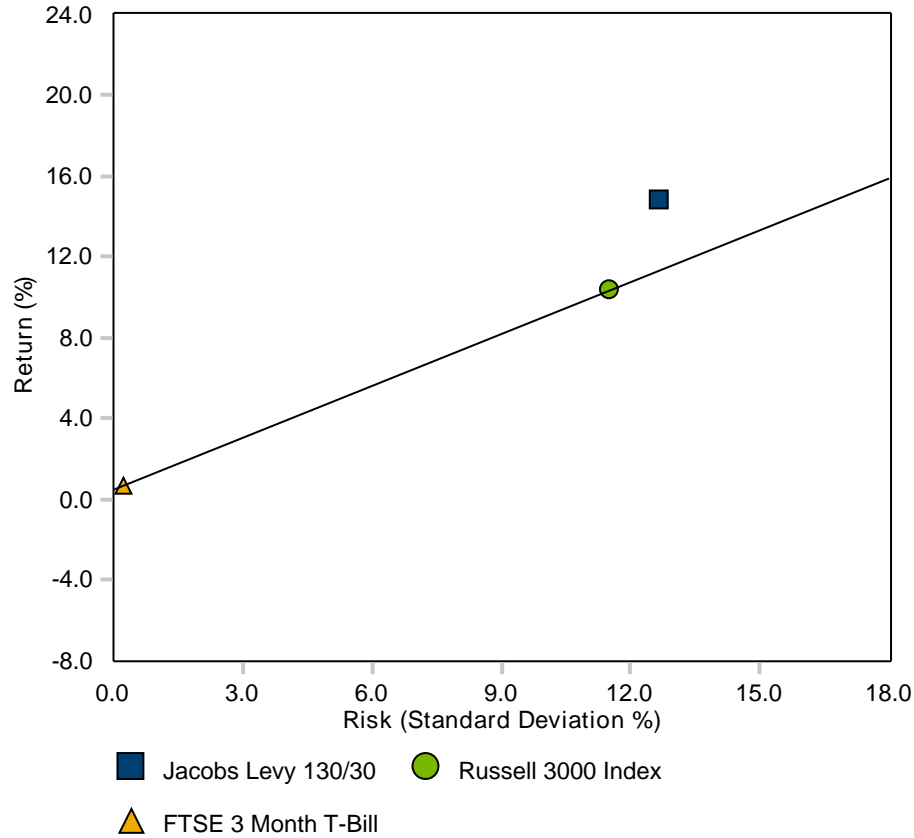


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2018	2017	2016
■ Jacobs Levy 130/30	15.5 (29)	15.5 (29)	7.1 (39)	16.7 (13)	14.8 (2)	19.3 (4)	-4.7 (28)	20.3 (41)	20.2 (20)
● Russell 3000 Index	14.0 (45)	14.0 (45)	8.8 (28)	13.5 (30)	10.4 (22)	16.0 (33)	-5.2 (32)	21.1 (35)	12.7 (48)
5th Percentile	20.6	20.6	15.7	19.6	13.2	18.9	2.2	31.7	29.1
1st Quartile	15.9	15.9	9.3	14.1	10.1	16.5	-4.3	23.1	18.7
Median	13.7	13.7	5.0	11.7	8.1	15.2	-7.9	18.3	12.1
3rd Quartile	11.8	11.8	0.5	9.4	6.2	14.0	-12.4	13.6	7.6
95th Percentile	9.1	9.1	-5.5	5.9	2.8	11.7	-18.5	5.7	0.5
Population	2,231	2,231	2,222	2,172	2,092	1,756	2,327	2,511	2,664

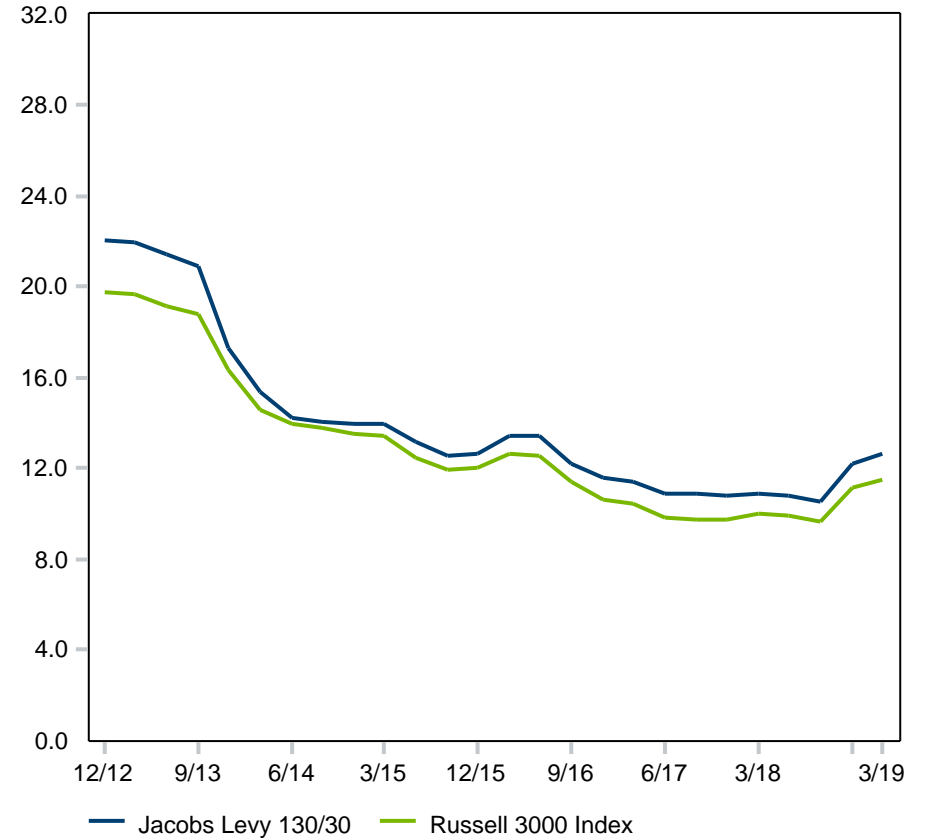
1211
Parentheses contain percentile rankings.

Jacobs Levy 130/30 Risk Profile

Annualized Return vs. Annualized Standard Deviation
5 Years



Rolling 5 Years Standard Deviation



5 Years Historical Statistics

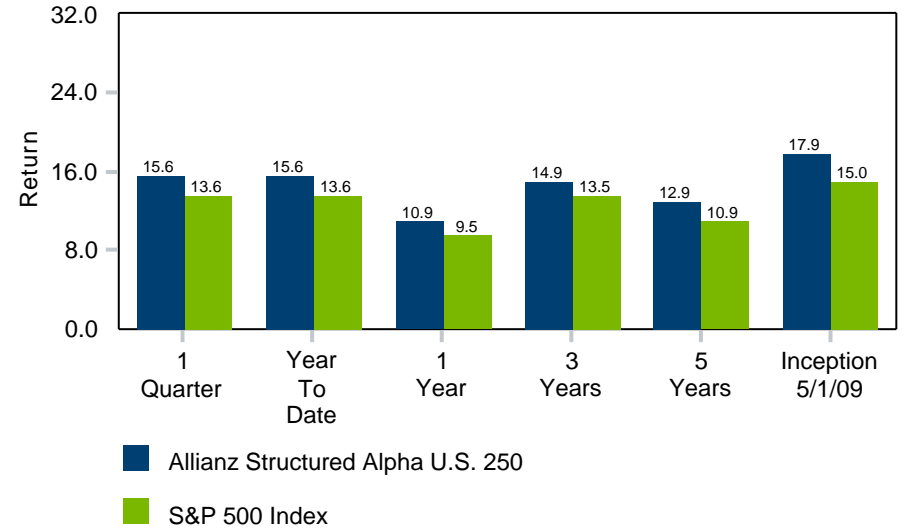
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Jacobs Levy 130/30	4.16	3.72	1.12	0.92	1.10	3.61	1.06	14.83	12.70	0.96
Russell 3000 Index	0.00	0.00	N/A	1.00	0.85	0.00	1.00	10.36	11.50	1.00
FTSE 3 Month T-Bill	-9.83	11.50	-0.85	0.00	N/A	0.72	0.00	0.72	0.23	0.01

Allianz Structured Alpha U.S. 250 Performance Summary

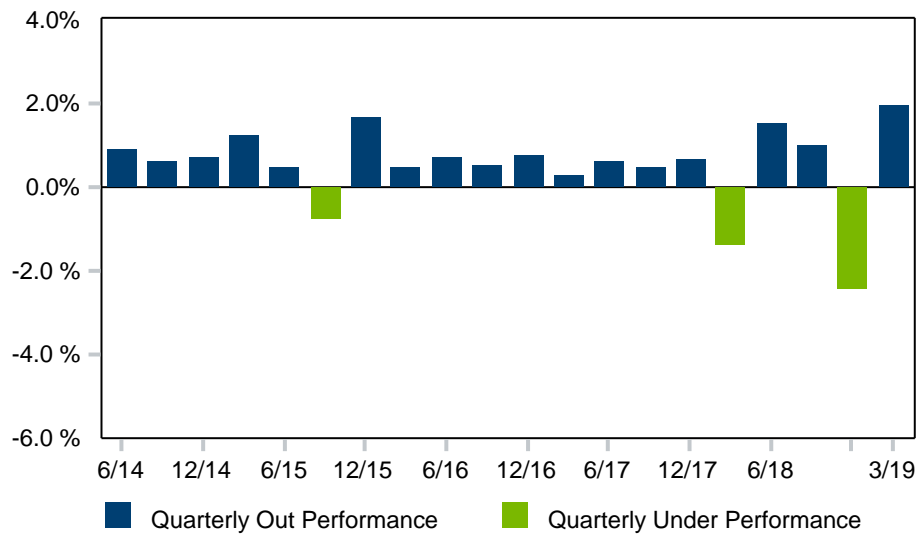
Account Information

Account Name: Allianz Structured Alpha U.S. 250
 Inception Date: 04/30/2009
 Account Structure: Commingled Fund
 Asset Class: US Equity
 Benchmark: S&P 500 Index
 Peer Group: IM U.S. Equity (SA+CF)

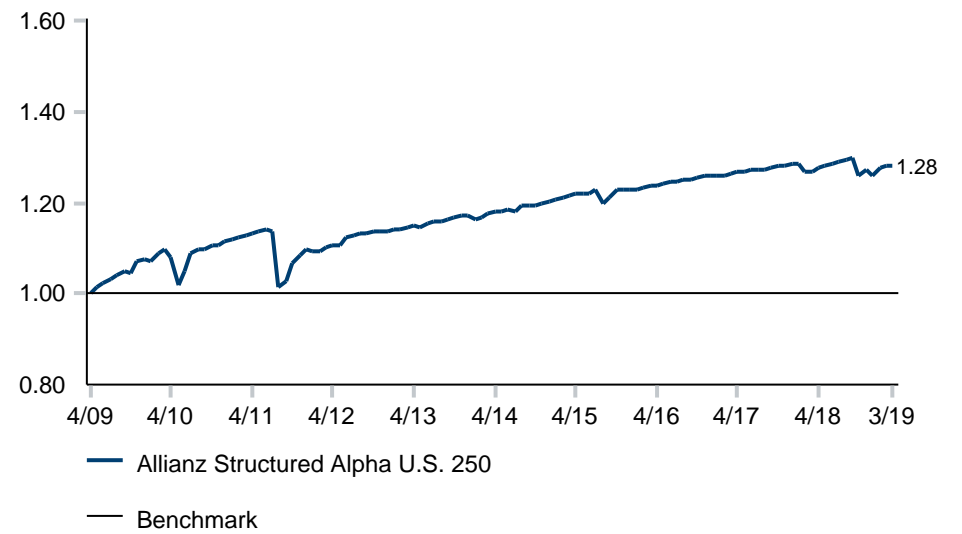
Return Summary



Quarterly Excess Performance

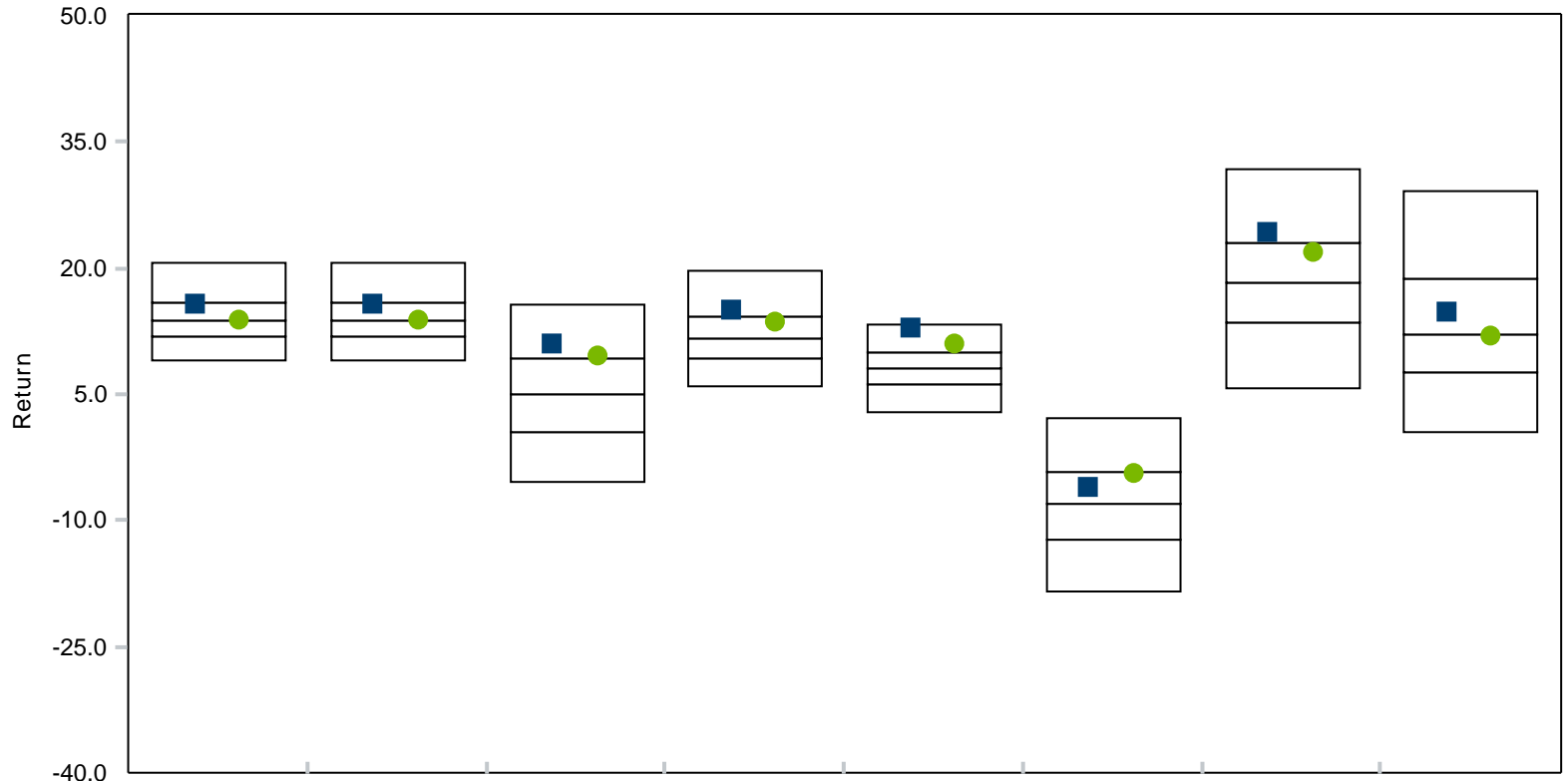


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM U.S. Equity (SA+CF)

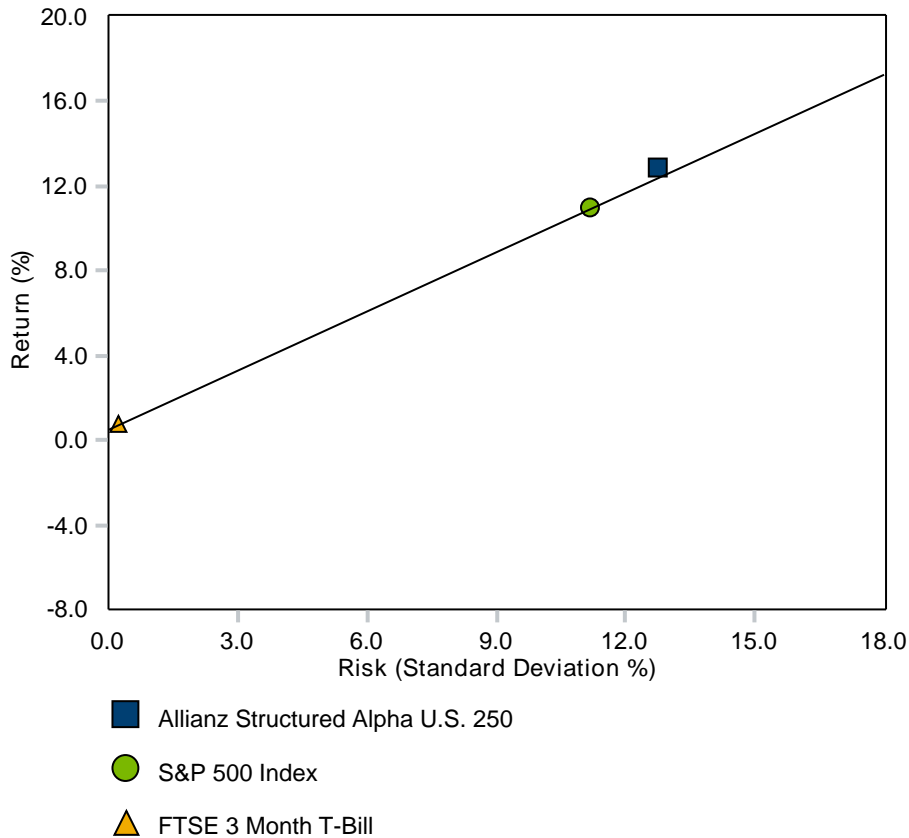


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2018	2017	2016
■ Allianz Structured Alpha U.S. 250	15.6 (27)	15.6 (27)	10.9 (19)	14.9 (21)	12.9 (6)	-6.2 (39)	24.2 (22)	14.7 (40)
● S&P 500 Index	13.6 (52)	13.6 (52)	9.5 (24)	13.5 (30)	10.9 (17)	-4.4 (26)	21.8 (31)	12.0 (51)
5th Percentile	20.6	20.6	15.7	19.6	13.2	2.2	31.7	29.1
1st Quartile	15.9	15.9	9.3	14.1	10.1	-4.3	23.1	18.7
Median	13.7	13.7	5.0	11.7	8.1	-7.9	18.3	12.1
3rd Quartile	11.8	11.8	0.5	9.4	6.2	-12.4	13.6	7.6
95th Percentile	9.1	9.1	-5.5	5.9	2.8	-18.5	5.7	0.5
Population	2,231	2,231	2,222	2,172	2,092	2,327	2,511	2,664

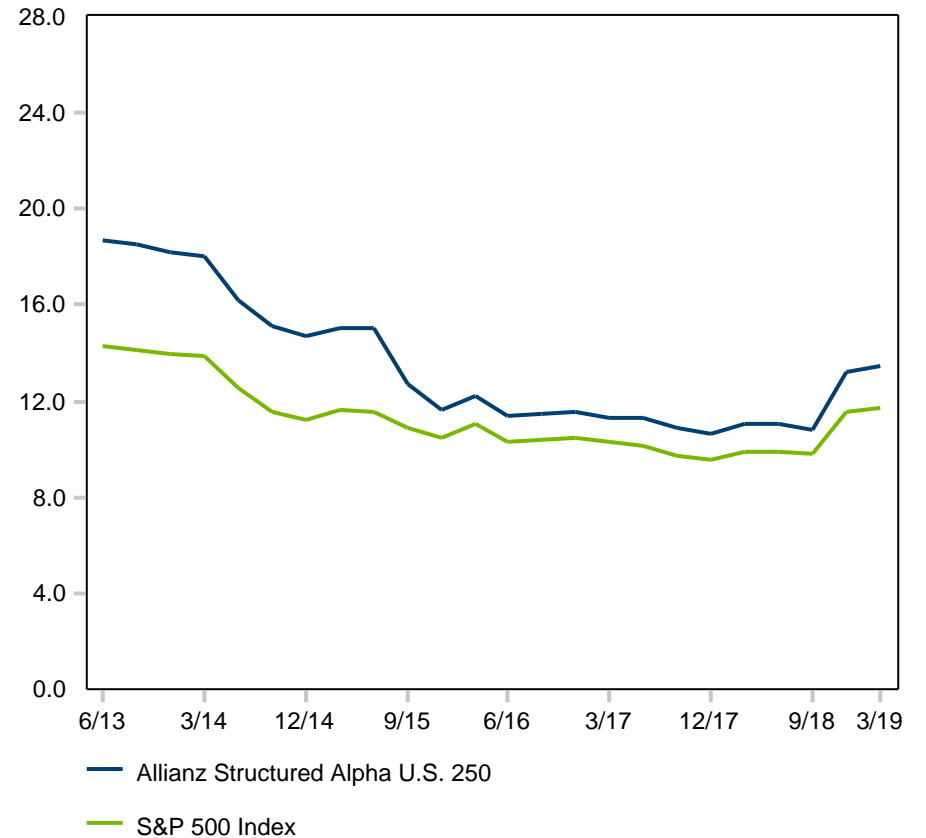
parentheses contain percentile rankings.

Allianz Structured Alpha U.S. 250 Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 4 Years Standard Deviation



5 Years Historical Statistics

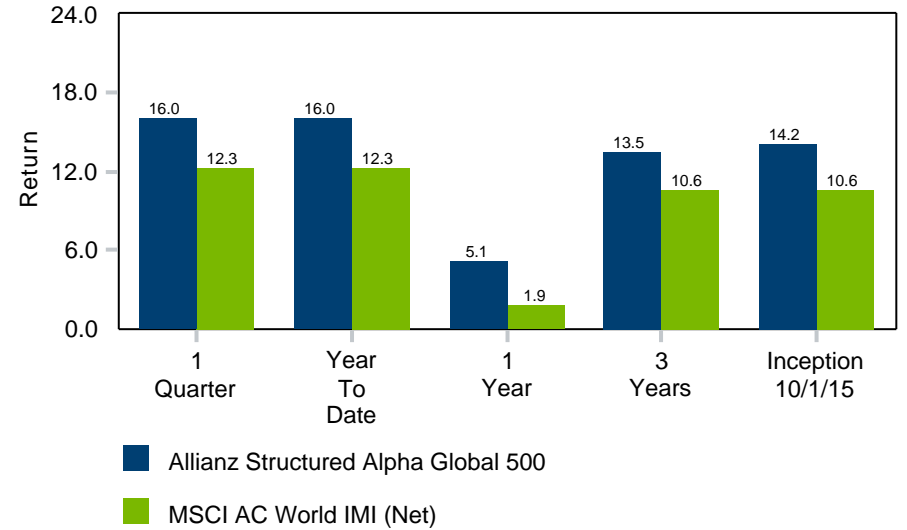
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Allianz Structured Alpha U.S. 250	1.97	2.27	0.87	0.98	0.96	0.51	1.13	12.87	12.78	0.99
S&P 500 Index	0.00	0.00	N/A	1.00	0.92	0.00	1.00	10.91	11.19	1.00
FTSE 3 Month T-Bill	-10.29	11.19	-0.92	0.00	N/A	0.72	0.00	0.72	0.23	0.00

Allianz Structured Alpha Global 500 Performance Summary

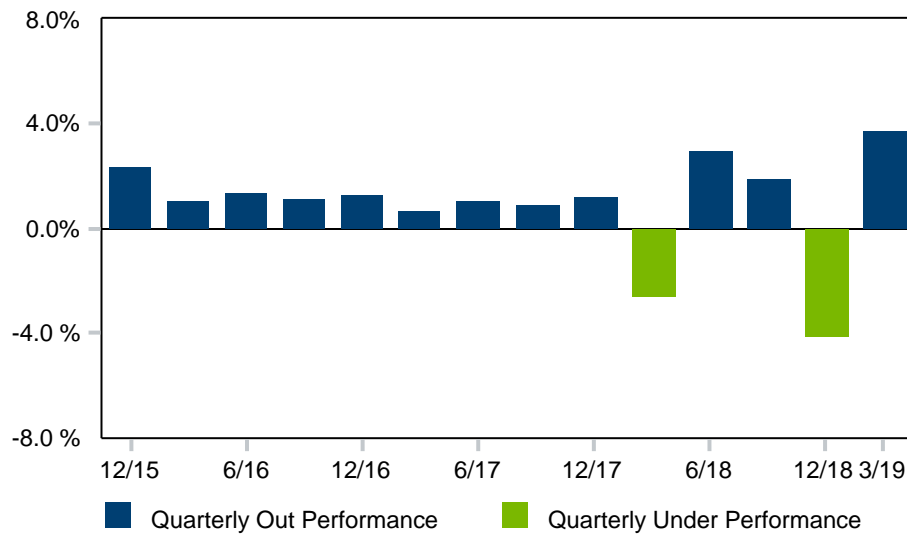
Account Information

Account Name: Allianz Structured Alpha Global 500
 Inception Date: 10/01/2015
 Account Structure: Commingled Fund
 Asset Class: Global Equity
 Benchmark: MSCI AC World IMI (Net)
 Peer Group: IM Global Equity (SA+CF)

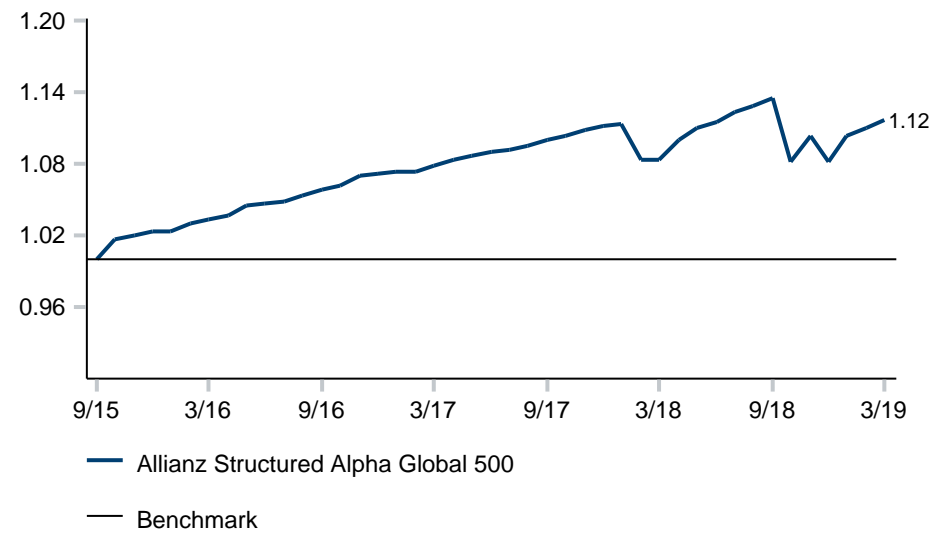
Return Summary



Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception

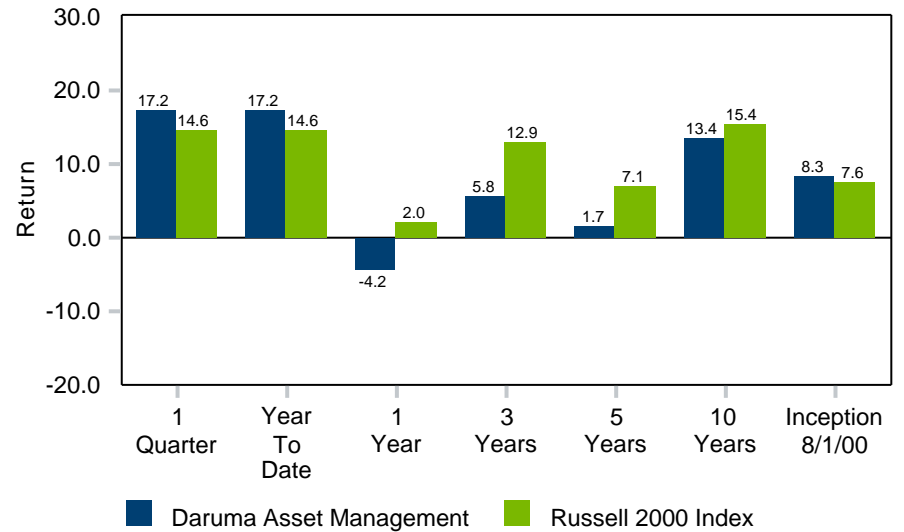


Daruma Asset Management Performance Summary

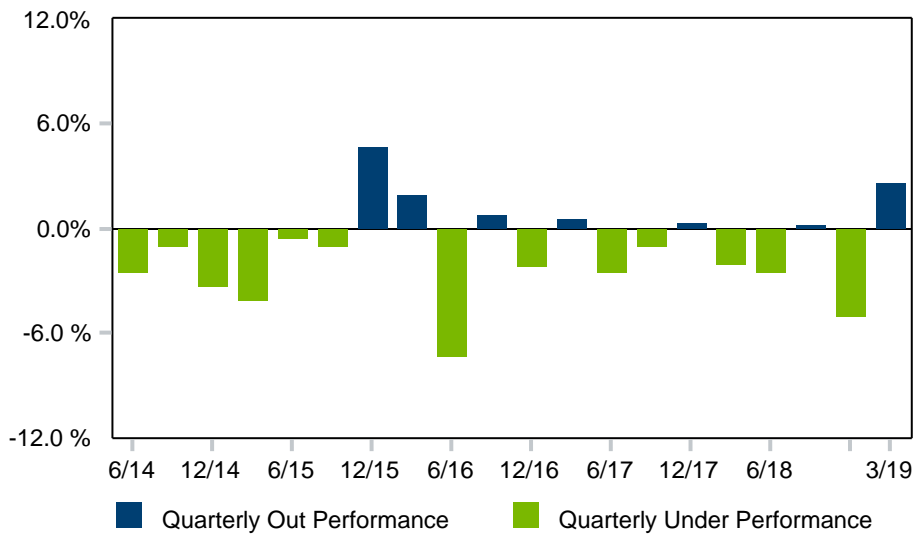
Account Information

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

Return Summary



Quarterly Excess Performance

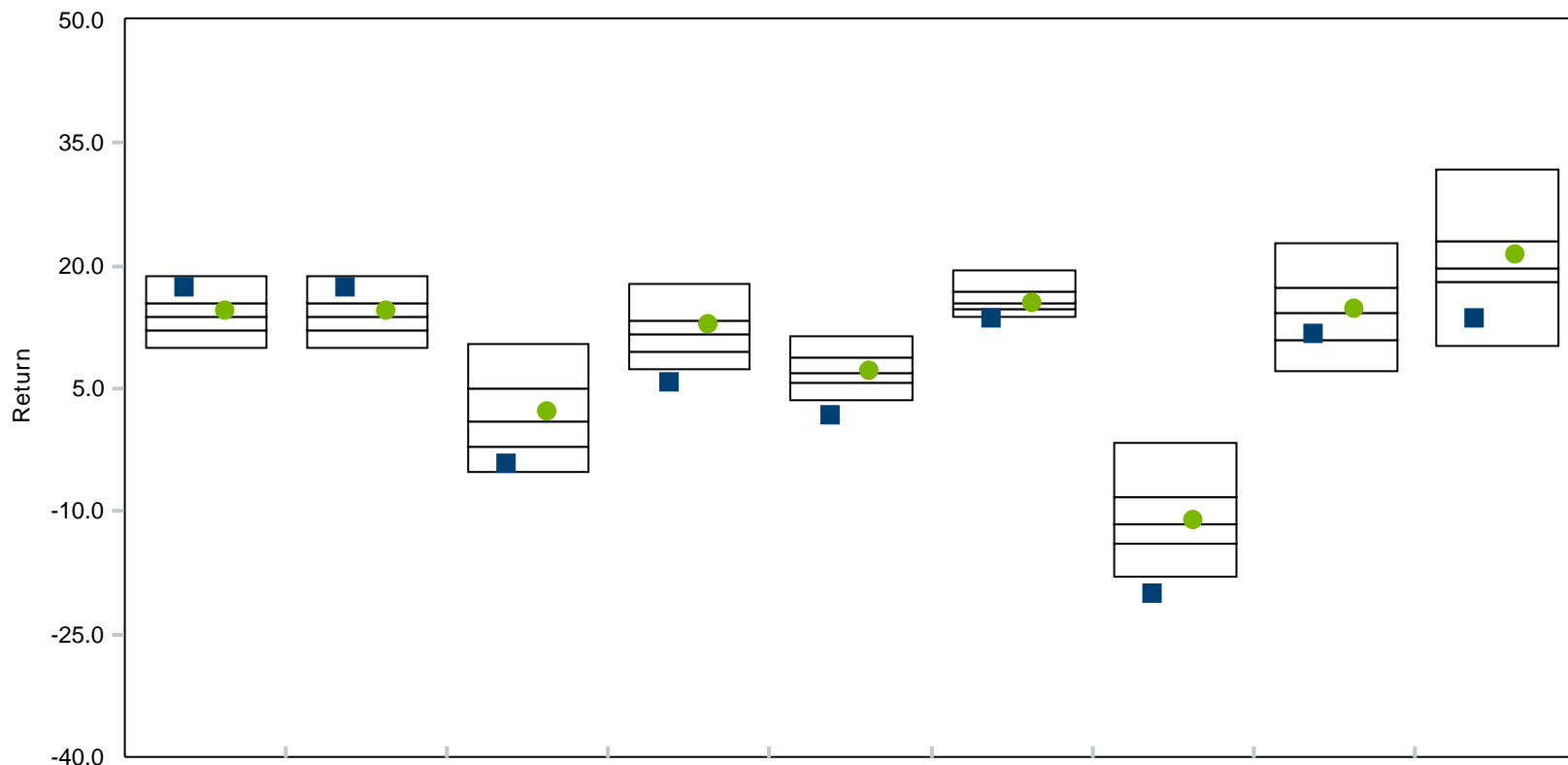


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

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

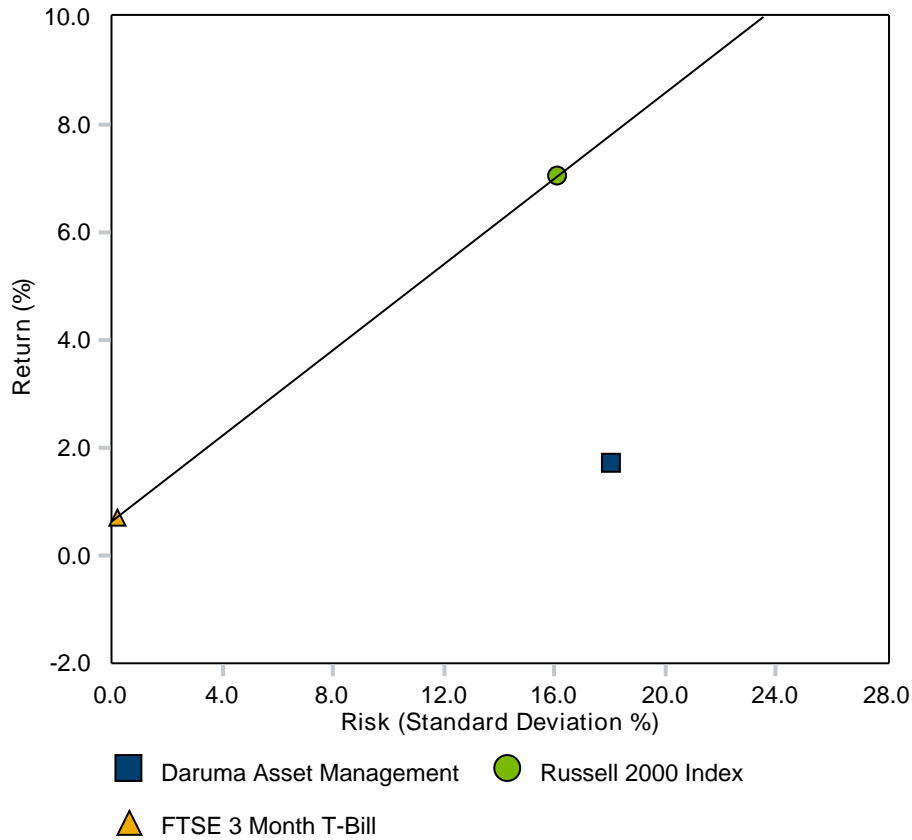


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2018	2017	2016
■ Daruma Asset Management	17.2 (12)	17.2 (12)	-4.2 (91)	5.8 (100)	1.7 (100)	13.4 (98)	-20.0 (99)	11.7 (69)	13.6 (90)
● Russell 2000 Index	14.6 (39)	14.6 (39)	2.0 (41)	12.9 (28)	7.1 (49)	15.4 (55)	-11.0 (48)	14.6 (43)	21.3 (36)
5th Percentile	18.7	18.7	10.4	17.9	11.3	19.4	-1.6	22.7	31.7
1st Quartile	15.4	15.4	4.9	13.3	8.7	16.9	-8.1	17.4	23.1
Median	13.8	13.8	0.9	11.7	7.0	15.5	-11.5	14.2	19.8
3rd Quartile	12.1	12.1	-2.1	9.5	5.8	14.6	-13.9	11.0	18.0
95th Percentile	10.0	10.0	-5.1	7.3	3.6	13.7	-17.9	7.2	10.1
Population	135	135	135	134	132	108	140	146	150

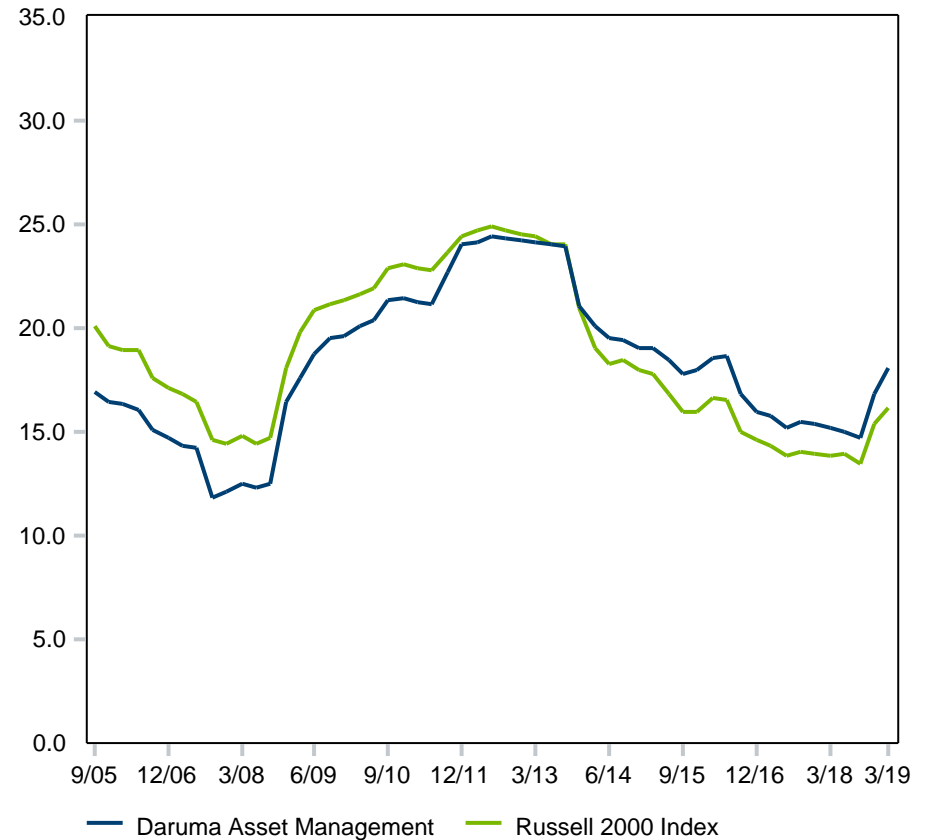
parentheses contain percentile rankings.

Daruma Asset Management Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 5 Years Standard Deviation



5 Years Historical Statistics

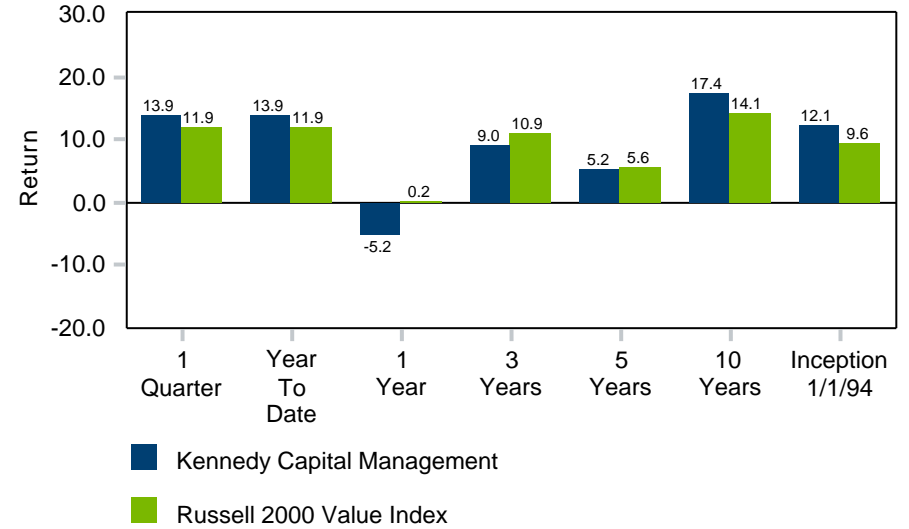
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Daruma Asset Management	-4.82	5.78	-0.83	0.90	0.14	-5.20	1.06	1.71	18.09	0.95
Russell 2000 Index	0.00	0.00	N/A	1.00	0.46	0.00	1.00	7.05	16.15	1.00
FTSE 3 Month T-Bill	-7.41	16.16	-0.46	0.00	N/A	0.72	0.00	0.72	0.23	-0.01

Kennedy Capital Management Performance Summary

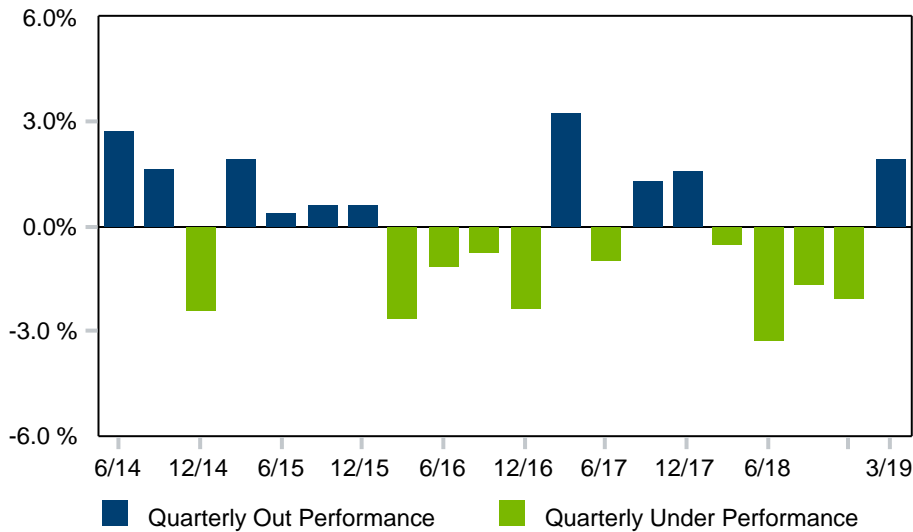
Account Information

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)

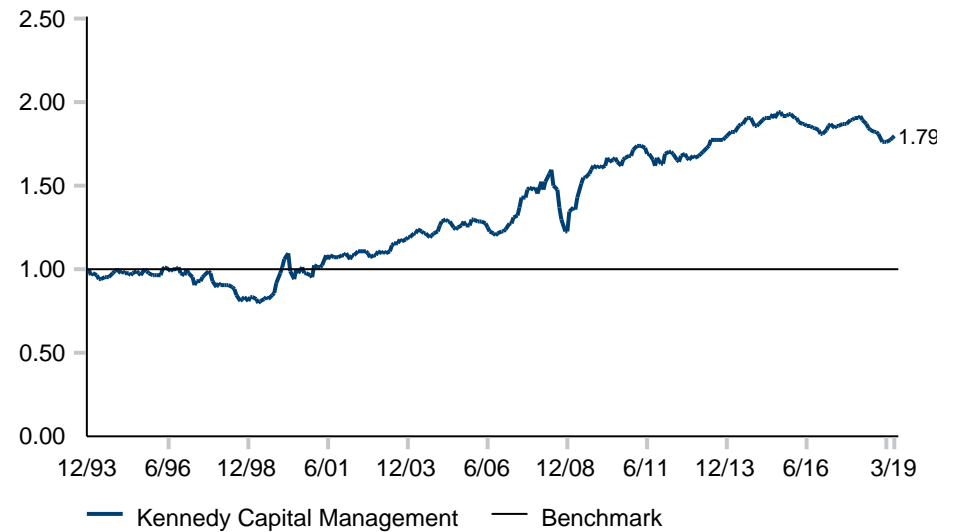
Return Summary



Quarterly Excess Performance

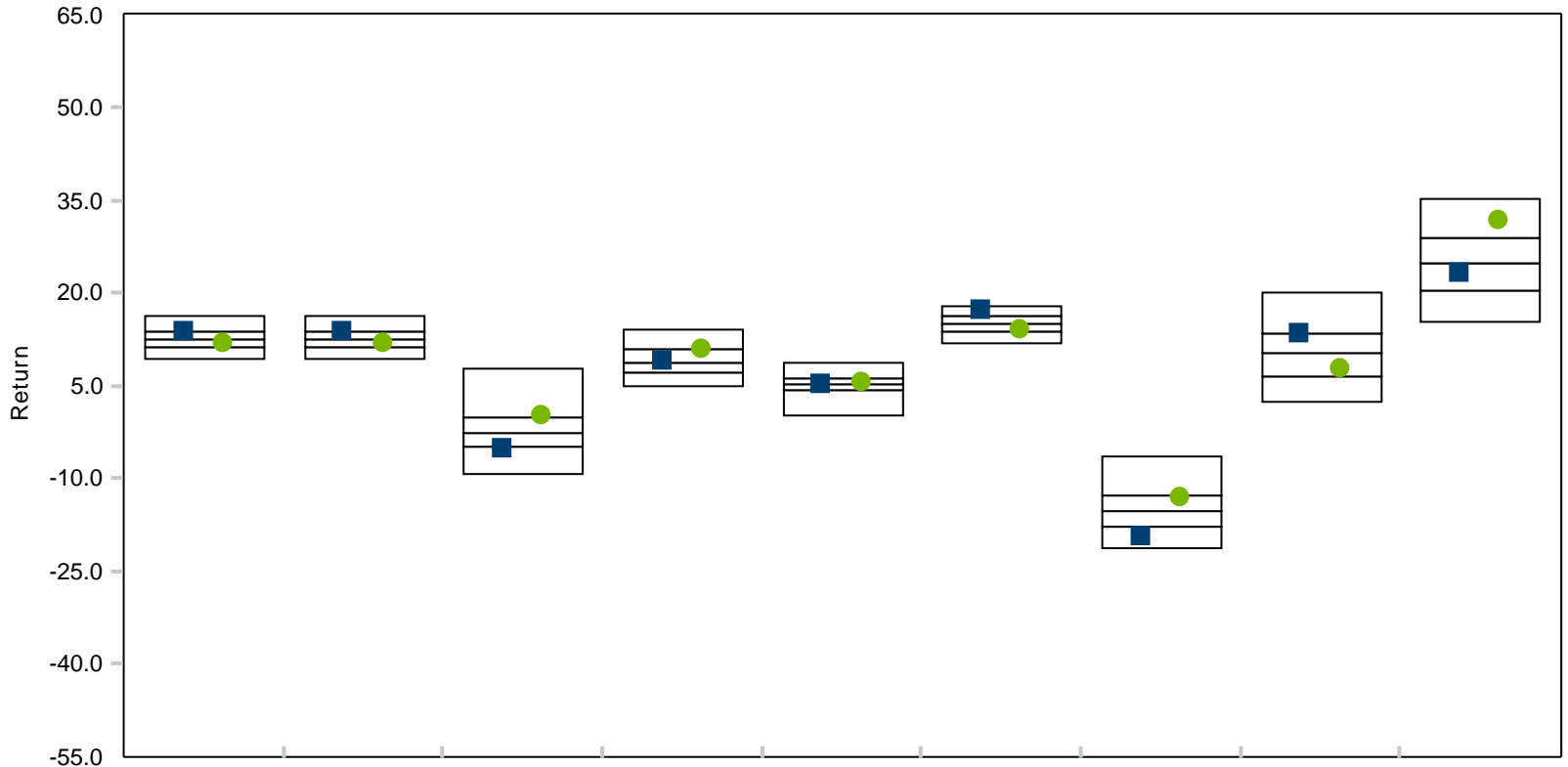


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

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

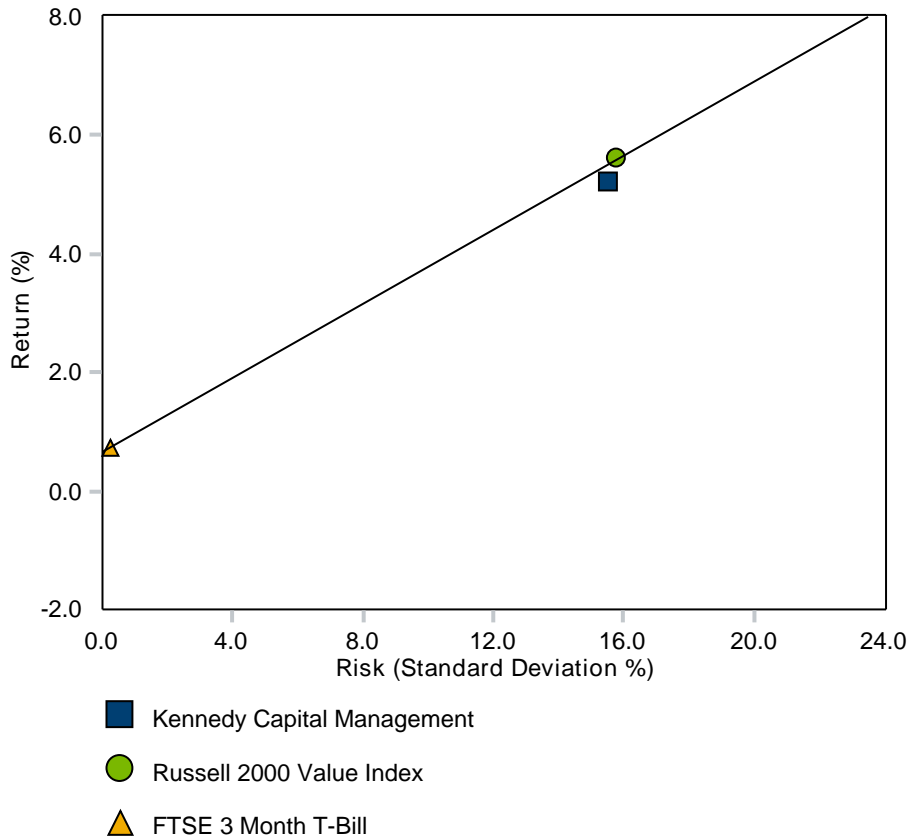


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2018	2017	2016
■ Kennedy Capital Management	13.9 (28)	13.9 (28)	-5.2 (79)	9.0 (44)	5.2 (50)	17.4 (14)	-19.4 (85)	13.4 (26)	23.4 (60)
● Russell 2000 Value Index	11.9 (65)	11.9 (65)	0.2 (25)	10.9 (27)	5.6 (43)	14.1 (71)	-12.9 (29)	7.8 (68)	31.7 (11)
5th Percentile	16.5	16.5	7.8	14.1	8.7	18.0	-6.3	20.2	35.2
1st Quartile	13.9	13.9	0.0	11.1	6.4	16.3	-12.6	13.5	29.0
Median	12.7	12.7	-2.6	8.7	5.2	15.1	-15.3	10.5	24.9
3rd Quartile	11.2	11.2	-4.9	7.4	4.3	13.7	-17.8	6.7	20.4
95th Percentile	9.3	9.3	-9.3	5.1	0.2	12.0	-21.1	2.6	15.6
Population	194	194	193	190	185	161	208	226	233

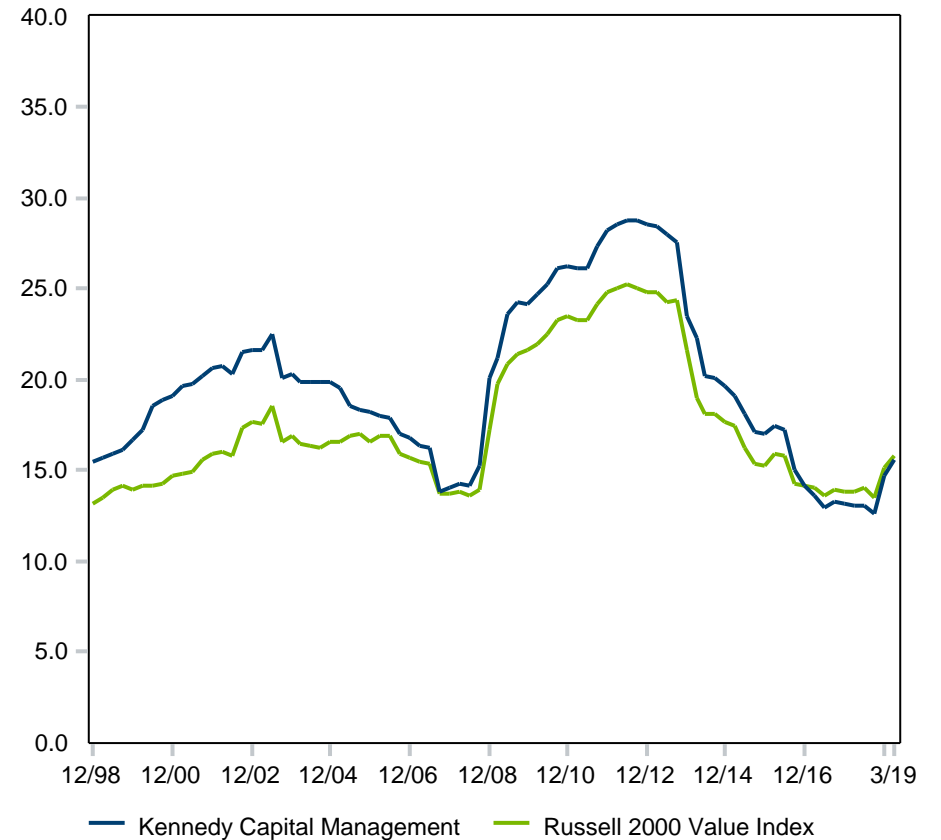
13
11
11
Parentheses contain percentile rankings.

Kennedy Capital Management Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 5 Years Standard Deviation



5 Years Historical Statistics

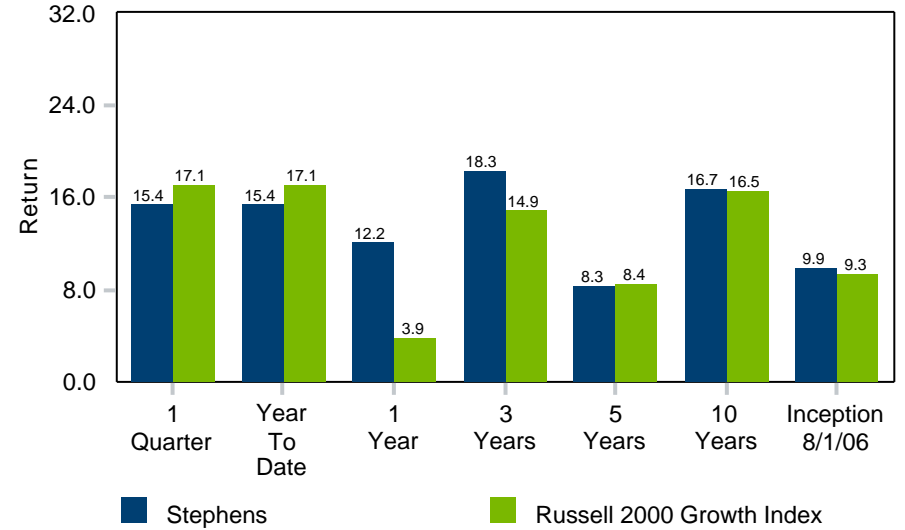
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Kennedy Capital Management	-0.39	3.33	-0.12	0.96	0.36	-0.13	0.96	5.22	15.56	0.98
Russell 2000 Value Index	0.00	0.00	N/A	1.00	0.38	0.00	1.00	5.59	15.81	1.00
FTSE 3 Month T-Bill	-5.96	15.82	-0.38	0.00	N/A	0.73	0.00	0.72	0.23	-0.04

Stephens Performance Summary

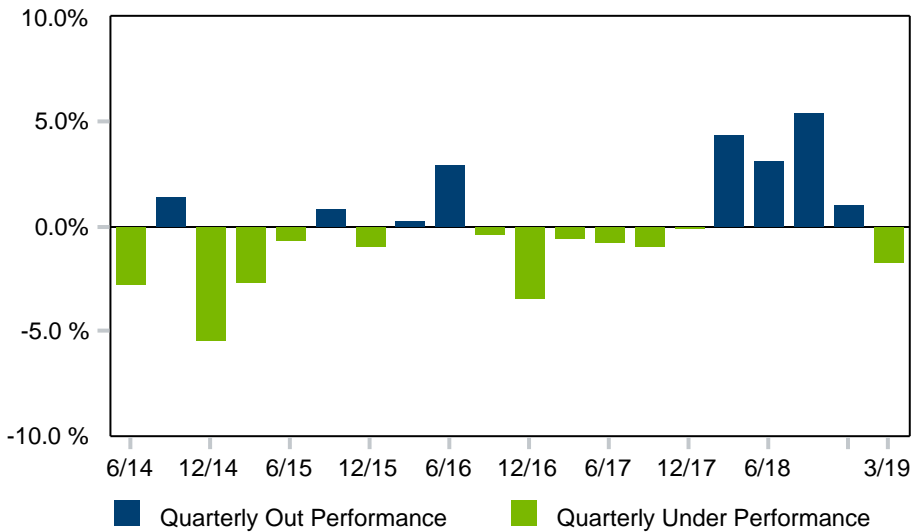
Account Information

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)

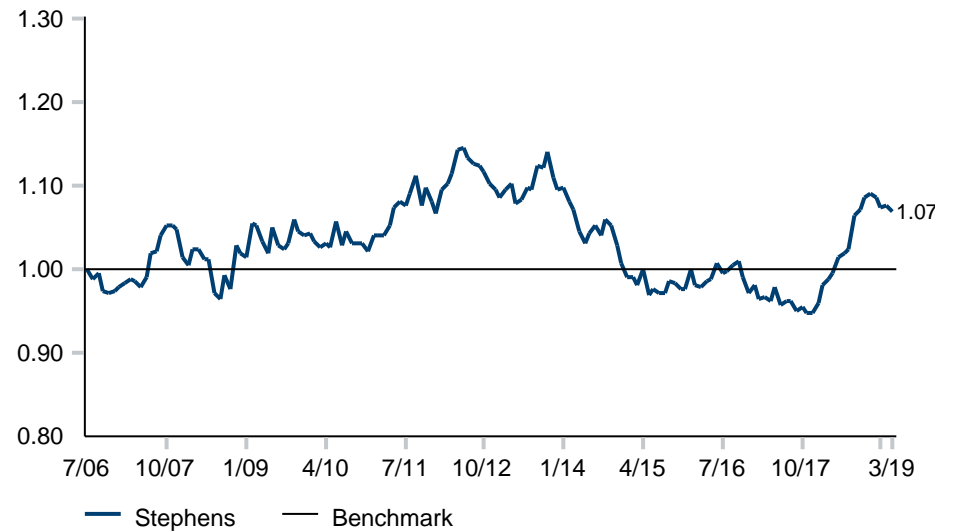
Return Summary



Quarterly Excess Performance

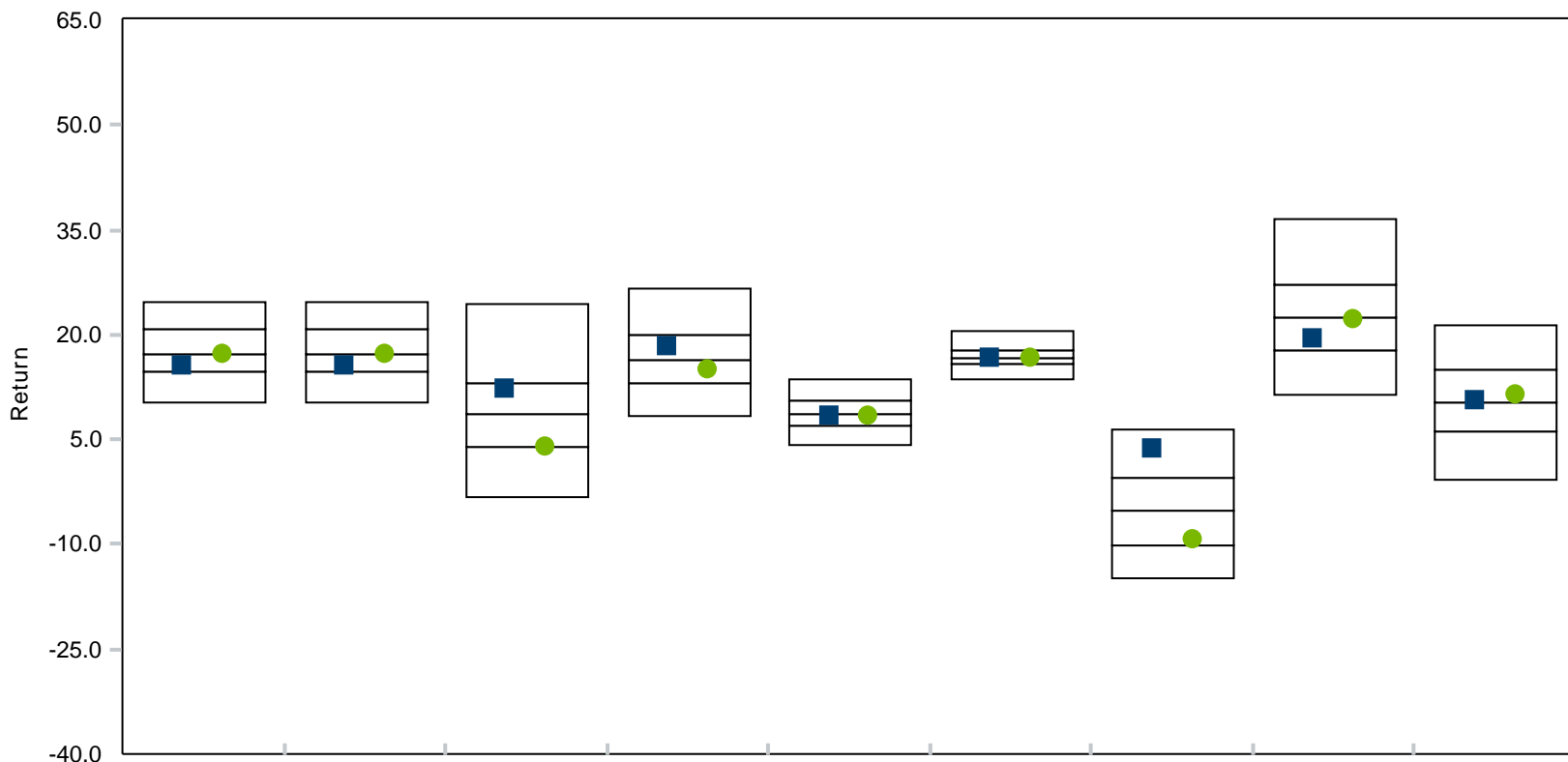


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

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

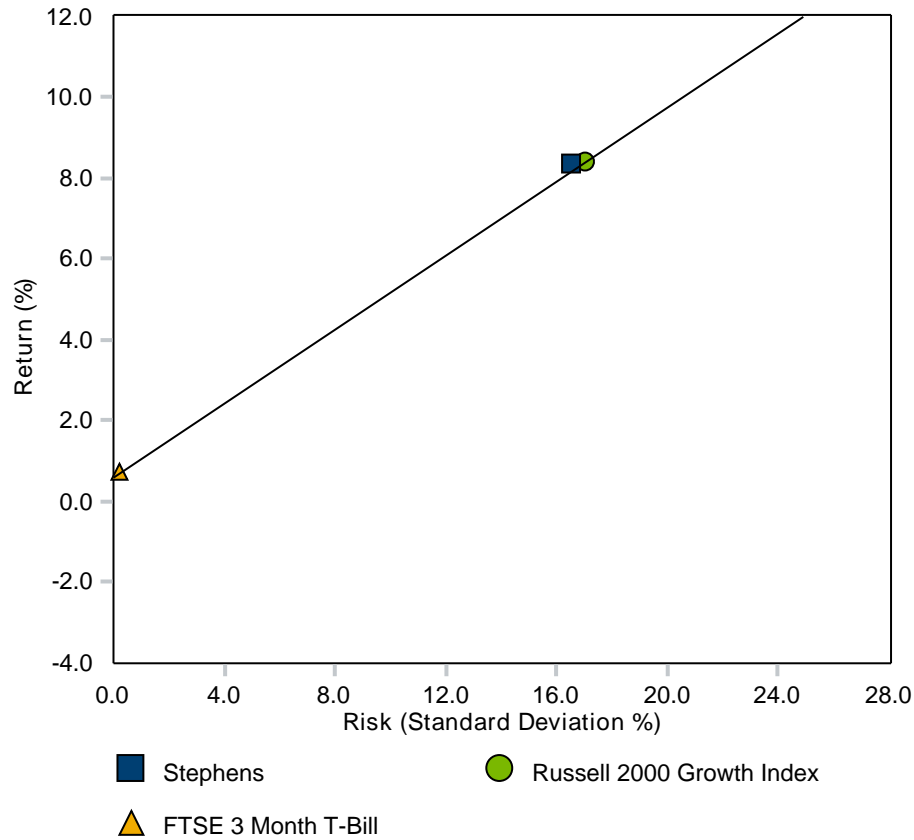


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2018	2017	2016
■ Stephens	15.4 (65)	15.4 (65)	12.2 (30)	18.3 (38)	8.3 (59)	16.7 (50)	3.7 (10)	19.4 (67)	10.6 (49)
● Russell 2000 Growth Index	17.1 (51)	17.1 (51)	3.9 (75)	14.9 (61)	8.4 (57)	16.5 (52)	-9.3 (73)	22.2 (52)	11.3 (45)
5th Percentile	24.6	24.6	24.5	26.5	13.5	20.4	6.3	36.4	21.3
1st Quartile	20.7	20.7	13.2	20.1	10.5	17.9	-0.4	27.3	15.0
Median	17.2	17.2	8.7	16.4	8.6	16.6	-5.2	22.5	10.3
3rd Quartile	14.6	14.6	3.8	13.1	7.1	15.7	-10.0	17.7	6.2
95th Percentile	10.3	10.3	-3.3	8.2	4.2	13.6	-14.9	11.3	-0.8
Population	162	162	161	157	152	138	170	177	187

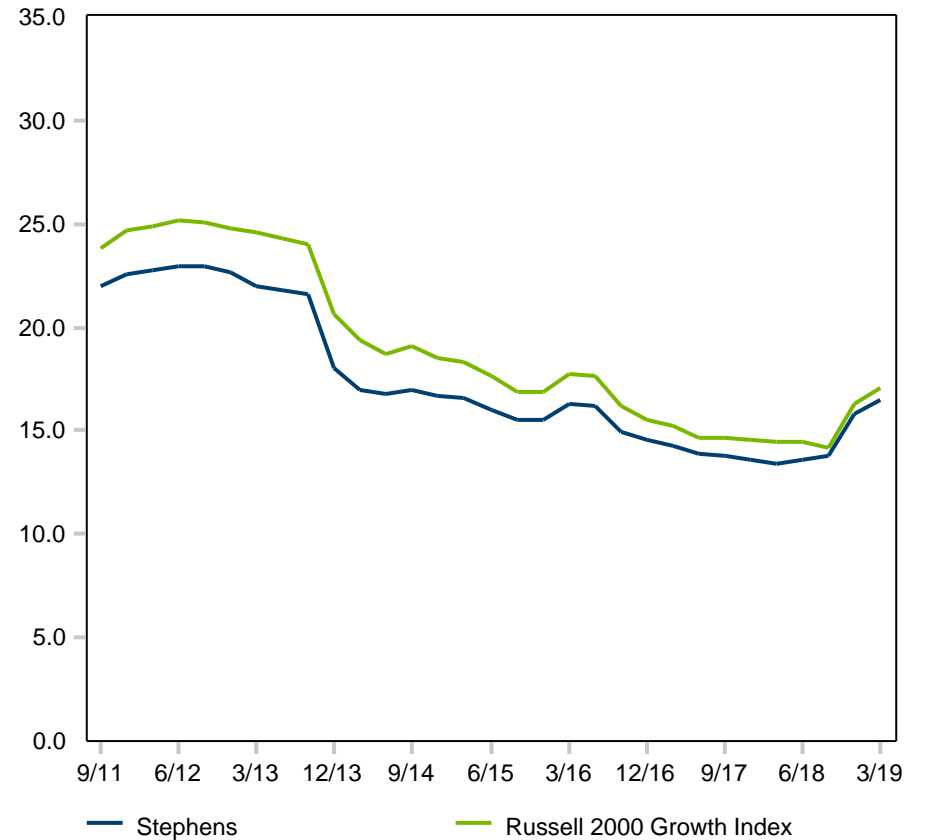
parentheses contain percentile rankings.

Stephens Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 5 Years Standard Deviation



5 Years Historical Statistics

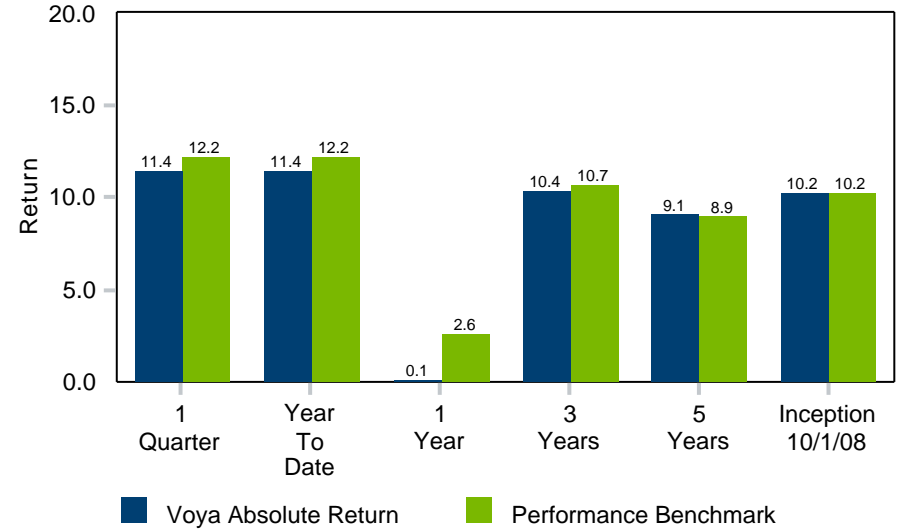
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Stephens	-0.17	4.81	-0.03	0.92	0.53	0.50	0.93	8.33	16.53	0.96
Russell 2000 Growth Index	0.00	0.00	N/A	1.00	0.52	0.00	1.00	8.41	17.05	1.00
FTSE 3 Month T-Bill	-8.84	17.05	-0.52	0.00	N/A	0.72	0.00	0.72	0.23	0.01

Voya Absolute Return Performance Summary

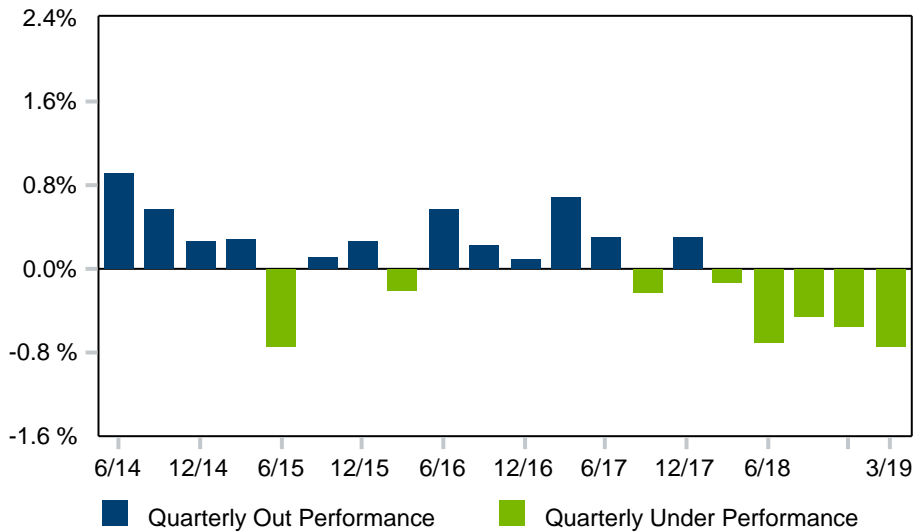
Account Information

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)

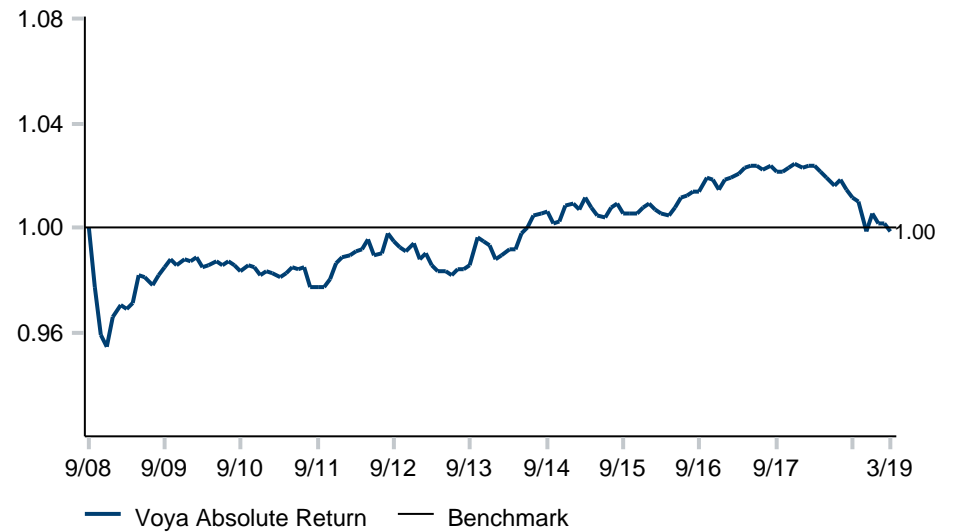
Return Summary



Quarterly Excess Performance

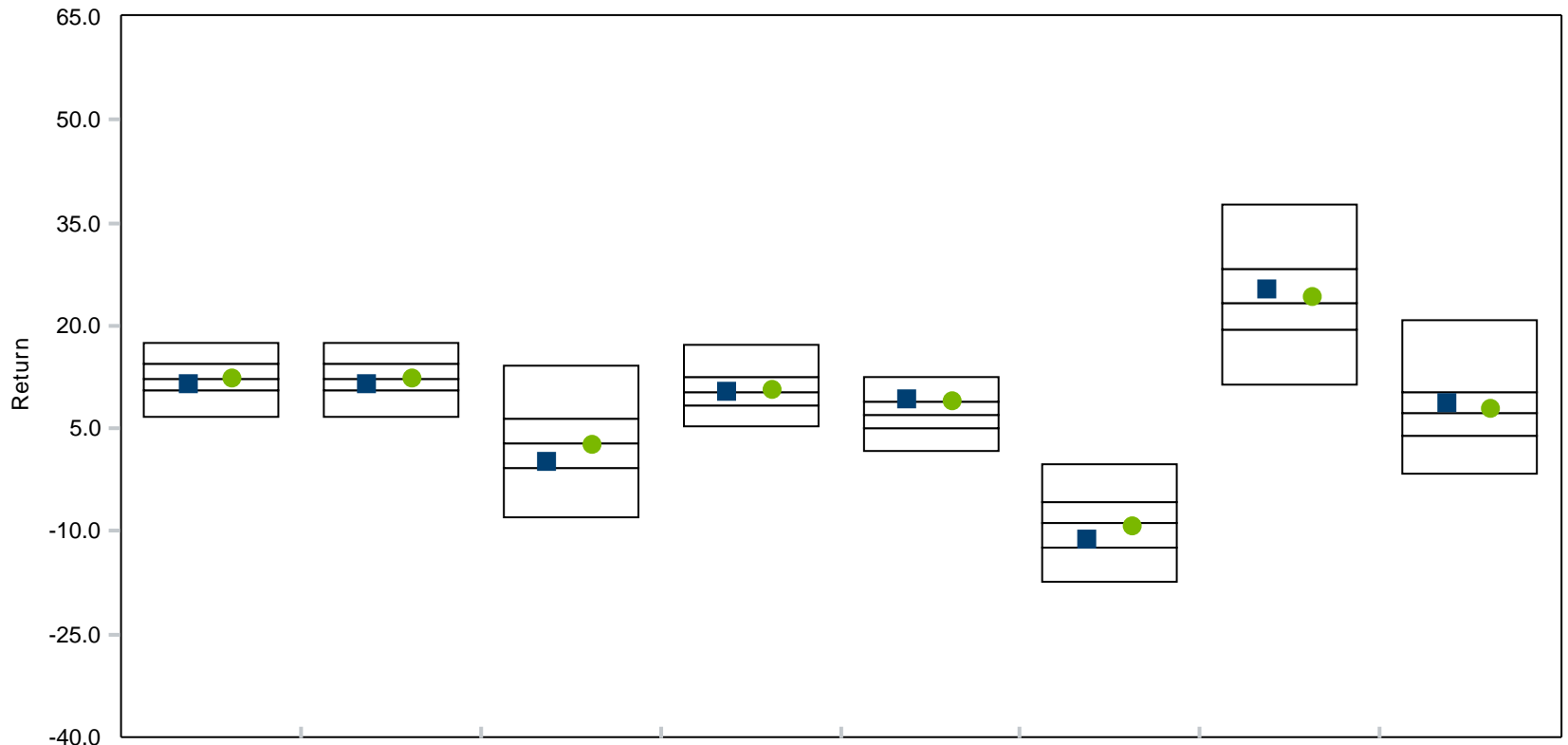


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM Global Equity (SA+CF)



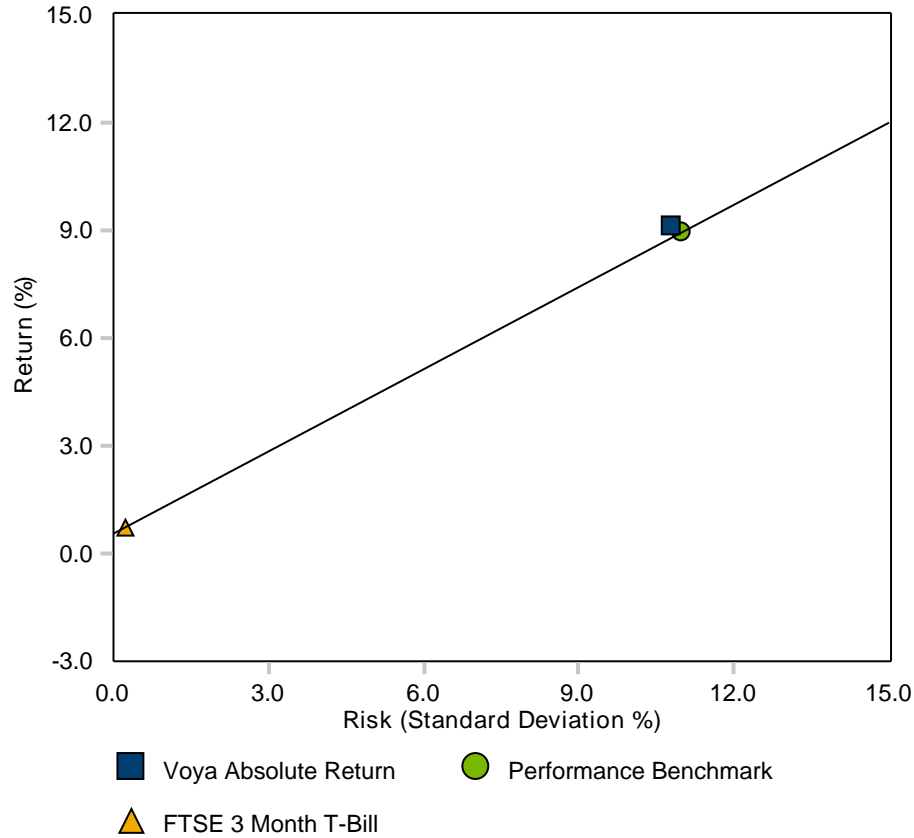
■ Voya Absolute Return
● Performance Benchmark

	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2018	2017	2016
Voya Absolute Return	11.4 (62)	11.4 (62)	0.1 (70)	10.4 (51)	9.1 (23)	-11.1 (68)	25.2 (40)	8.6 (38)
Performance Benchmark	12.2 (52)	12.2 (52)	2.6 (54)	10.7 (48)	8.9 (24)	-9.4 (56)	24.0 (47)	7.9 (44)
5th Percentile	17.4	17.4	14.0	17.1	12.6	-0.2	37.5	20.8
1st Quartile	14.4	14.4	6.4	12.4	8.8	-5.7	28.2	10.2
Median	12.2	12.2	2.9	10.4	7.0	-8.9	23.4	7.1
3rd Quartile	10.5	10.5	-0.7	8.5	5.2	-12.2	19.4	3.9
95th Percentile	6.8	6.8	-8.1	5.3	1.8	-17.3	11.4	-1.5
Population	481	481	479	454	409	503	534	562

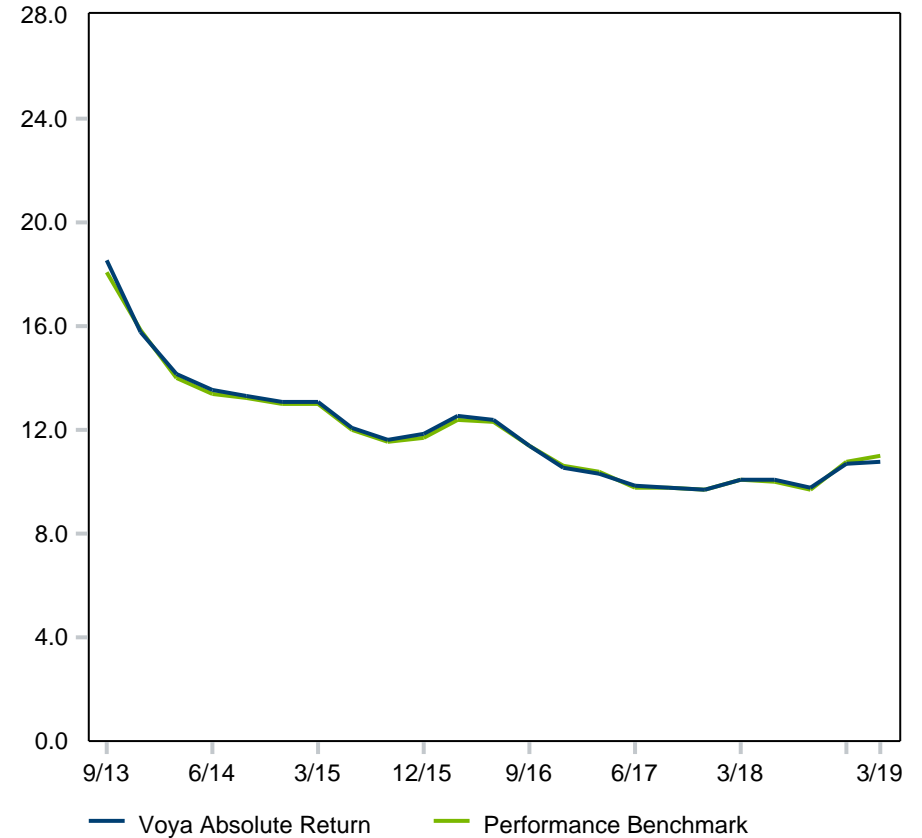
parentheses contain percentile rankings.

Voya Absolute Return Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 5 Years Standard Deviation



5 Years Historical Statistics

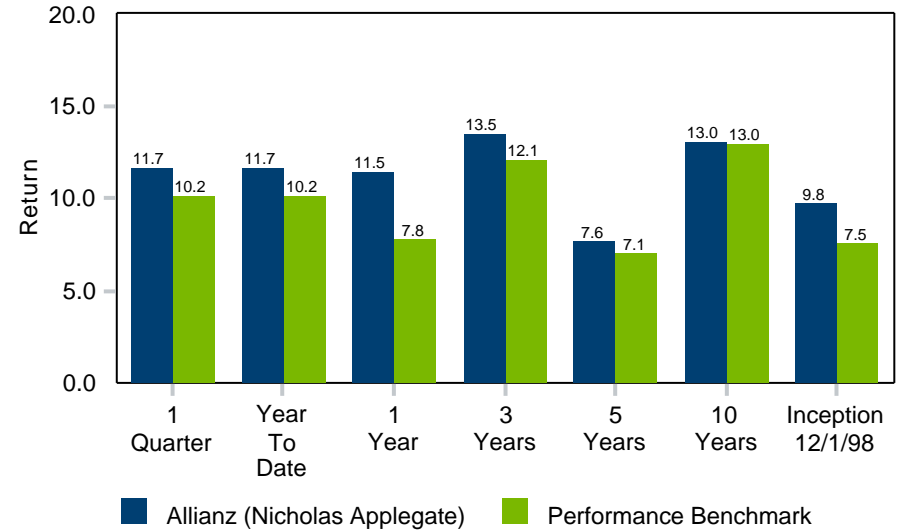
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Voya Absolute Return	0.11	1.10	0.10	0.99	0.79	0.33	0.98	9.09	10.78	1.00
Performance Benchmark	0.00	0.00	N/A	1.00	0.77	0.00	1.00	8.95	10.98	1.00
FTSE 3 Month T-Bill	-8.47	10.99	-0.77	0.00	N/A	0.73	0.00	0.72	0.23	-0.04

Allianz (Nicholas Applegate) Performance Summary

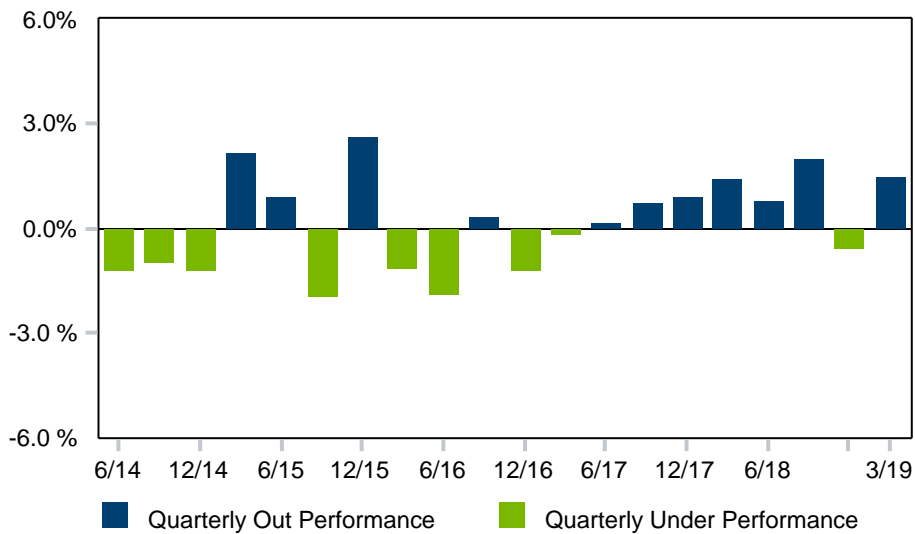
Account Information

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

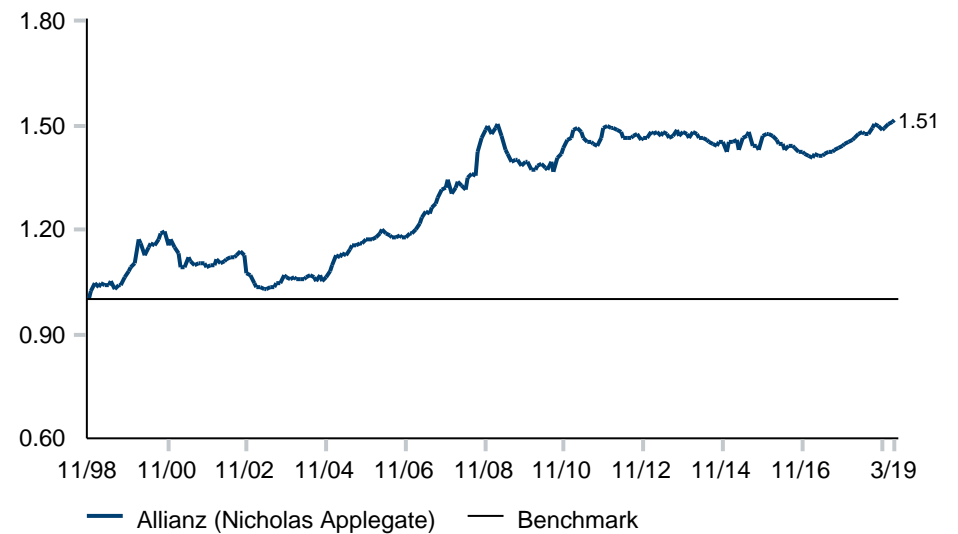
Return Summary



Quarterly Excess Performance

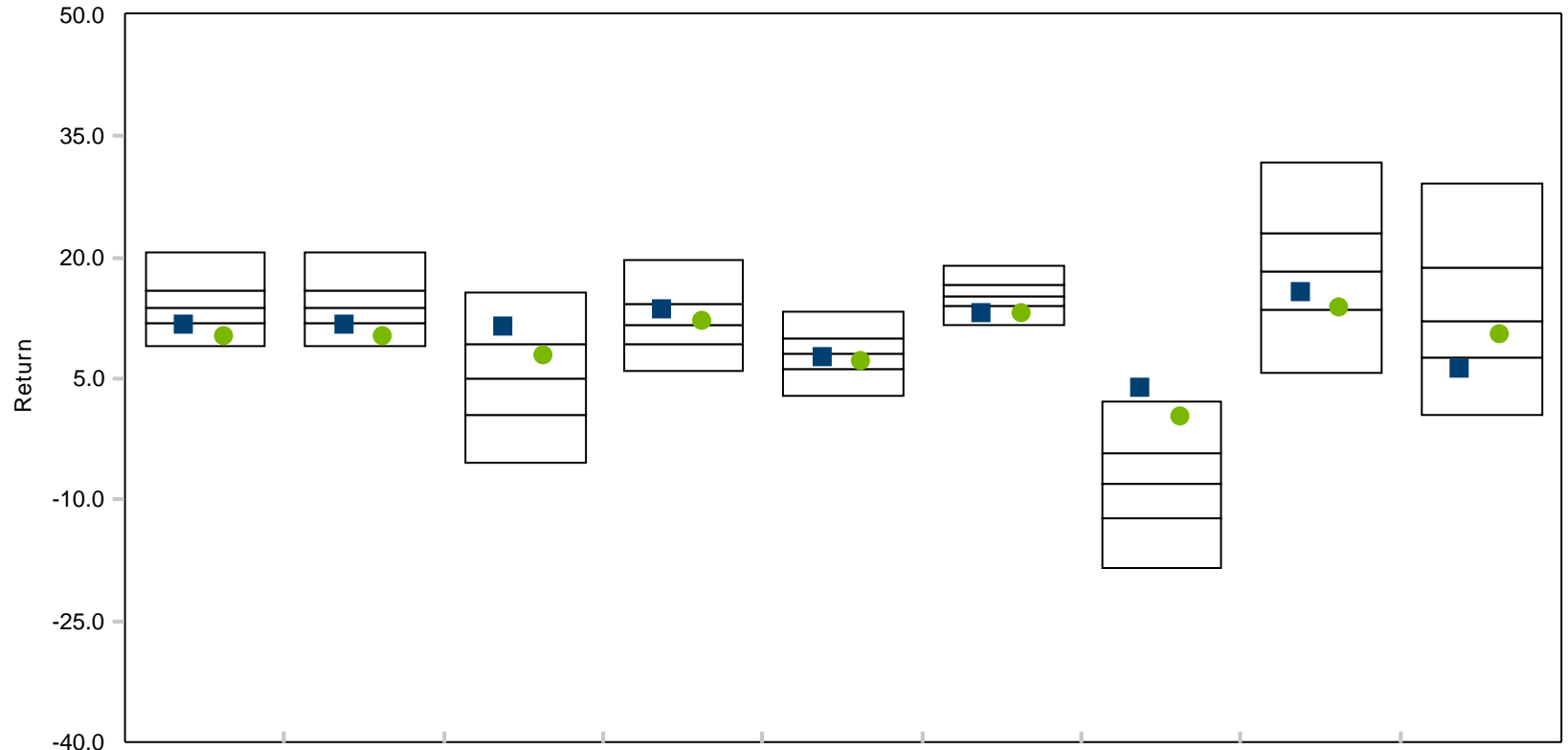


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM U.S. Equity (SA+CF)

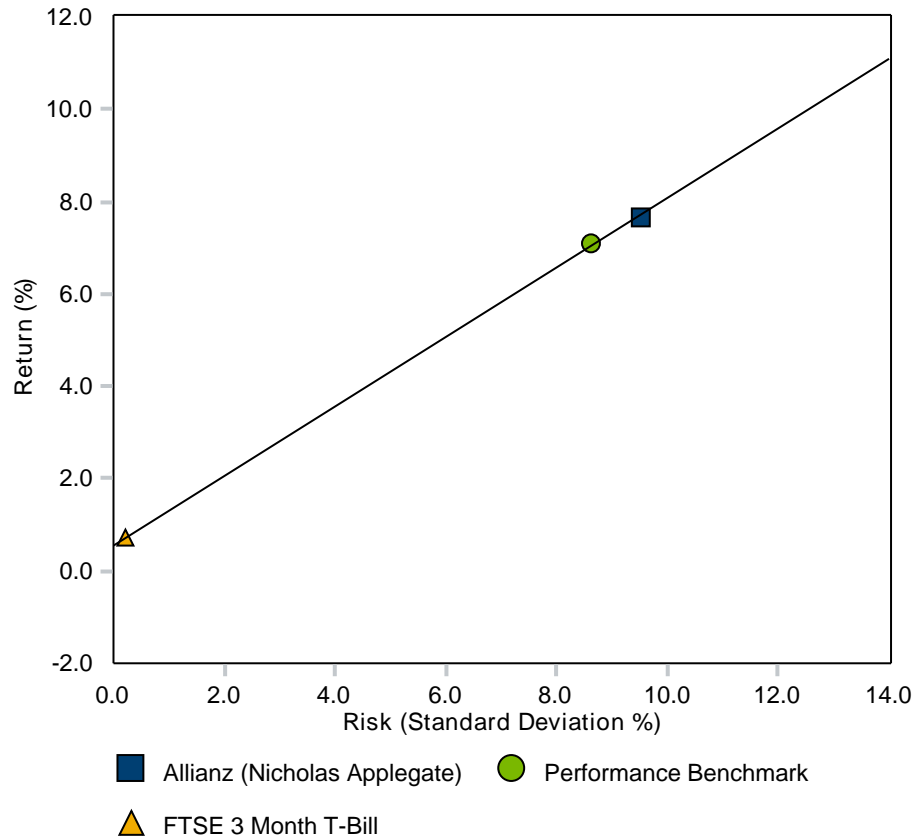


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2018	2017	2016
■ Allianz (Nicholas Applegate)	11.7 (78)	11.7 (78)	11.5 (17)	13.5 (30)	7.6 (56)	13.0 (89)	3.7 (4)	15.6 (64)	6.2 (80)
● Performance Benchmark	10.2 (91)	10.2 (91)	7.8 (35)	12.1 (46)	7.1 (63)	13.0 (90)	0.2 (9)	13.7 (75)	10.4 (62)
5th Percentile	20.6	20.6	15.7	19.6	13.2	18.9	2.2	31.7	29.1
1st Quartile	15.9	15.9	9.3	14.1	10.1	16.5	-4.3	23.1	18.7
Median	13.7	13.7	5.0	11.7	8.1	15.2	-7.9	18.3	12.1
3rd Quartile	11.8	11.8	0.5	9.4	6.2	14.0	-12.4	13.6	7.6
95th Percentile	9.1	9.1	-5.5	5.9	2.8	11.7	-18.5	5.7	0.5
Population	2,231	2,231	2,222	2,172	2,092	1,756	2,327	2,511	2,664

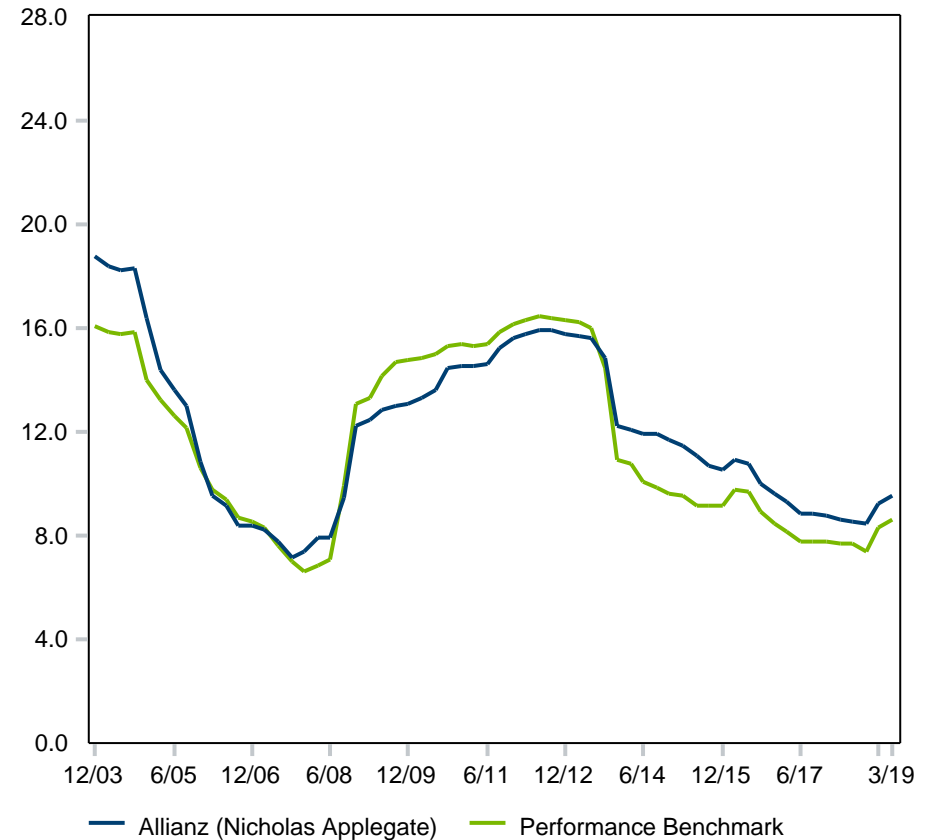
Parenteses contain percentile rankings.

Allianz (Nicholas Applegate) Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 5 Years Standard Deviation



5 Years Historical Statistics

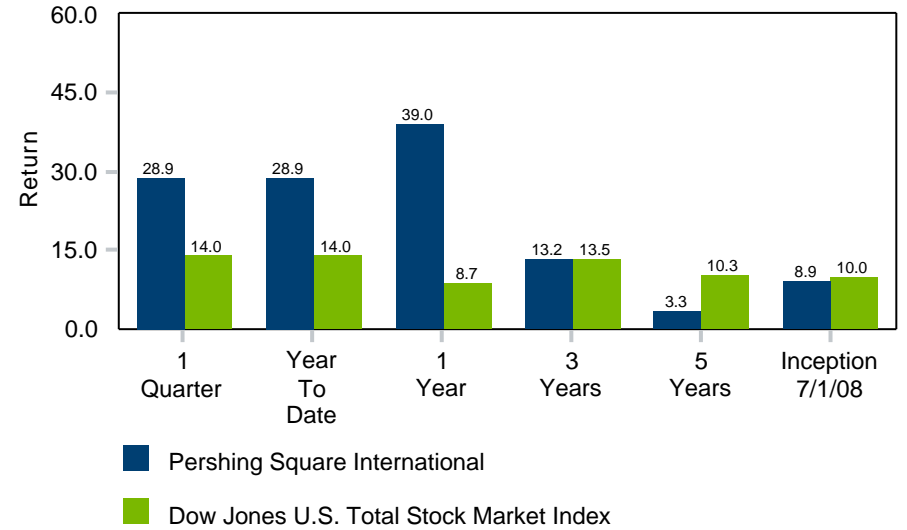
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Allianz (Nicholas Applegate)	0.62	2.91	0.21	0.91	0.75	0.25	1.05	7.64	9.52	0.95
Performance Benchmark	0.00	0.00	N/A	1.00	0.75	0.00	1.00	7.06	8.63	1.00
FTSE 3 Month T-Bill	-6.49	8.62	-0.75	0.00	N/A	0.71	0.00	0.72	0.23	0.06

Pershing Square International Performance Summary

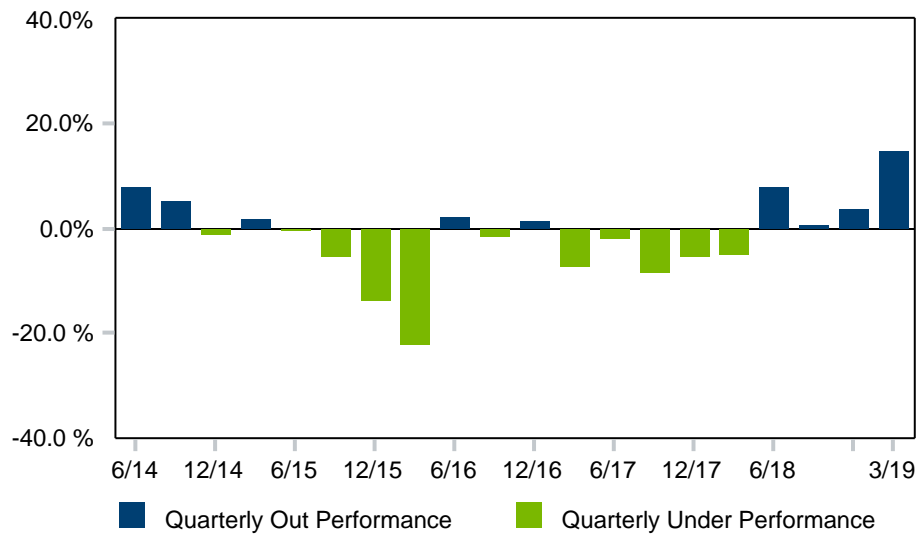
Account Information

Account Name: Pershing Square International
 Inception Date: 06/30/2008
 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)

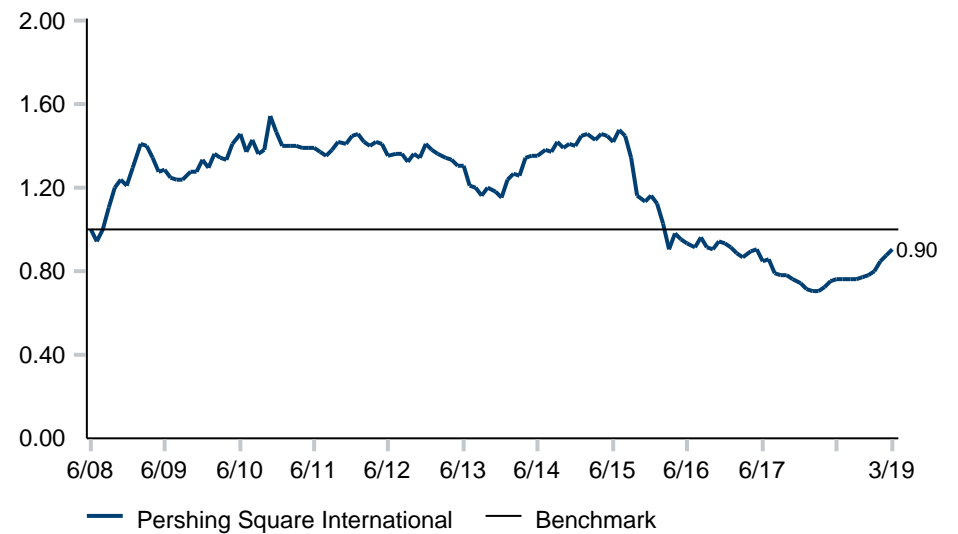
Return Summary



Quarterly Excess Performance

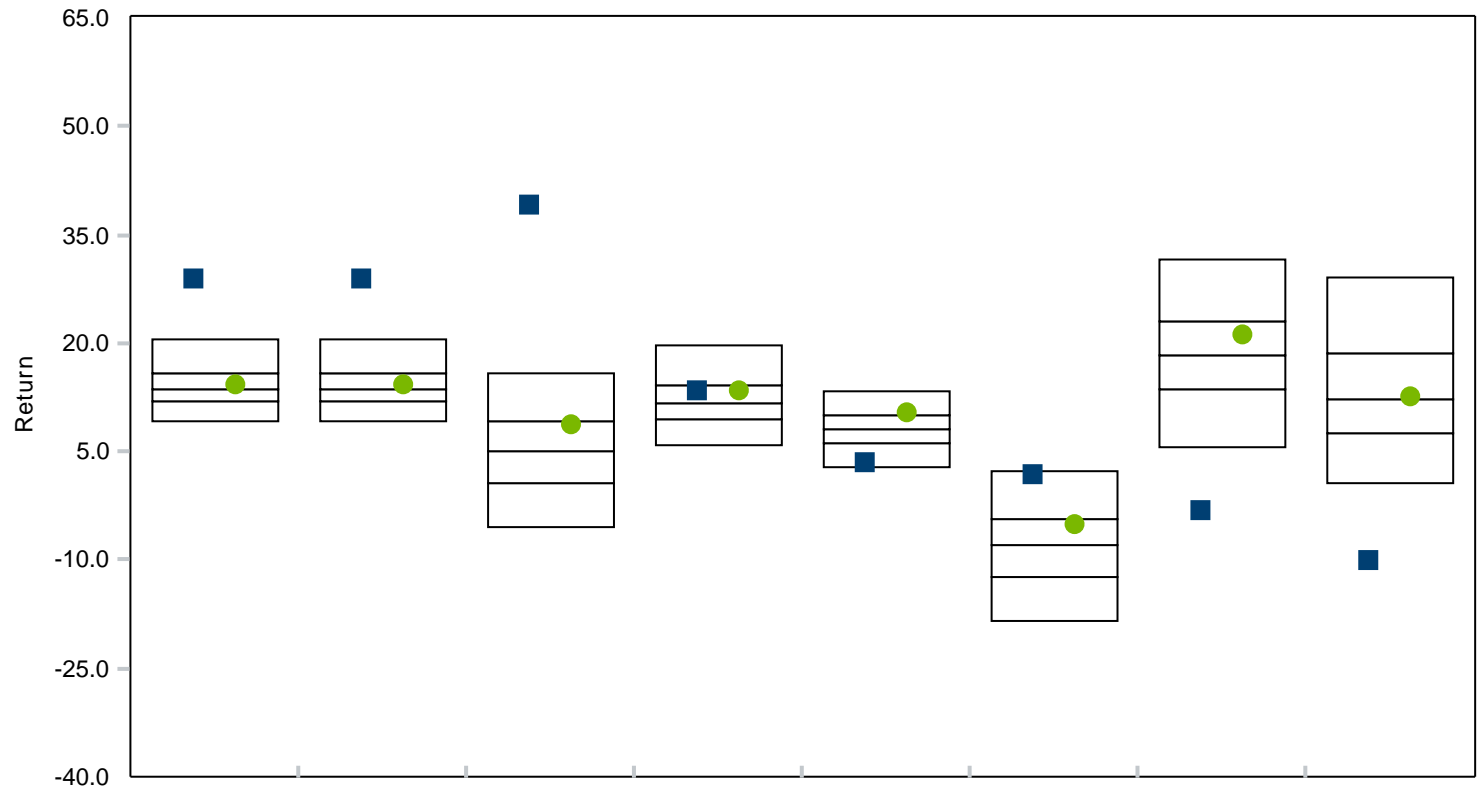


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM U.S. Equity (SA+CF)

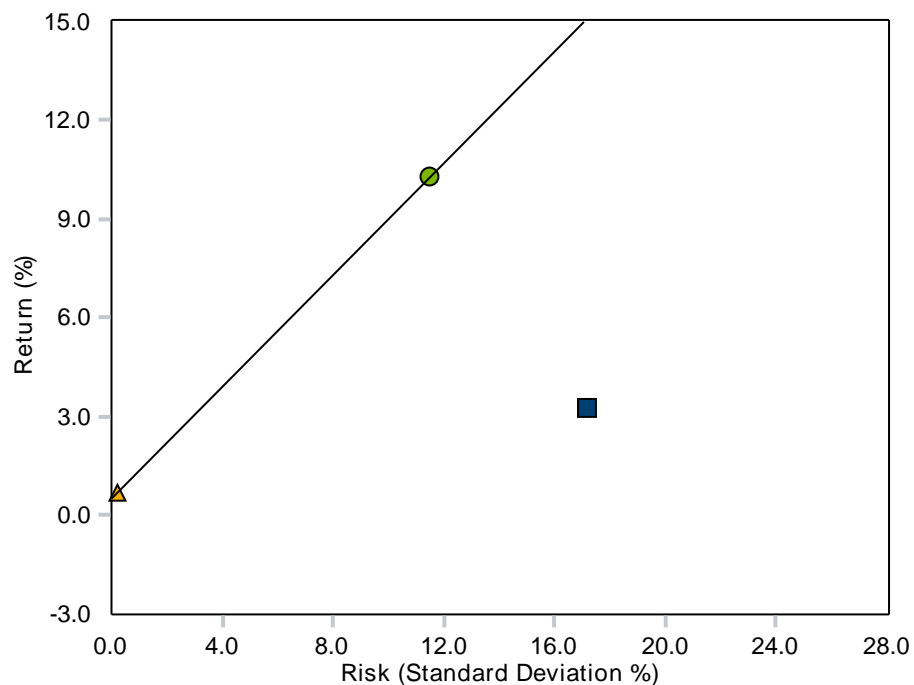


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2018	2017	2016
■ Pershing Square International	28.9 (1)	28.9 (1)	39.0 (1)	13.2 (32)	3.3 (95)	1.8 (6)	-3.2 (99)	-10.1 (100)
● Dow Jones U.S. Total Stock Market Index	14.0 (45)	14.0 (45)	8.7 (29)	13.5 (30)	10.3 (22)	-5.3 (33)	21.2 (35)	12.6 (49)
5th Percentile	20.6	20.6	15.7	19.6	13.2	2.2	31.7	29.1
1st Quartile	15.9	15.9	9.3	14.1	10.1	-4.3	23.1	18.7
Median	13.7	13.7	5.0	11.7	8.1	-7.9	18.3	12.1
3rd Quartile	11.8	11.8	0.5	9.4	6.2	-12.4	13.6	7.6
95th Percentile	9.1	9.1	-5.5	5.9	2.8	-18.5	5.7	0.5
Population	2,231	2,231	2,222	2,172	2,092	2,327	2,511	2,664

Parenteses contain percentile rankings.

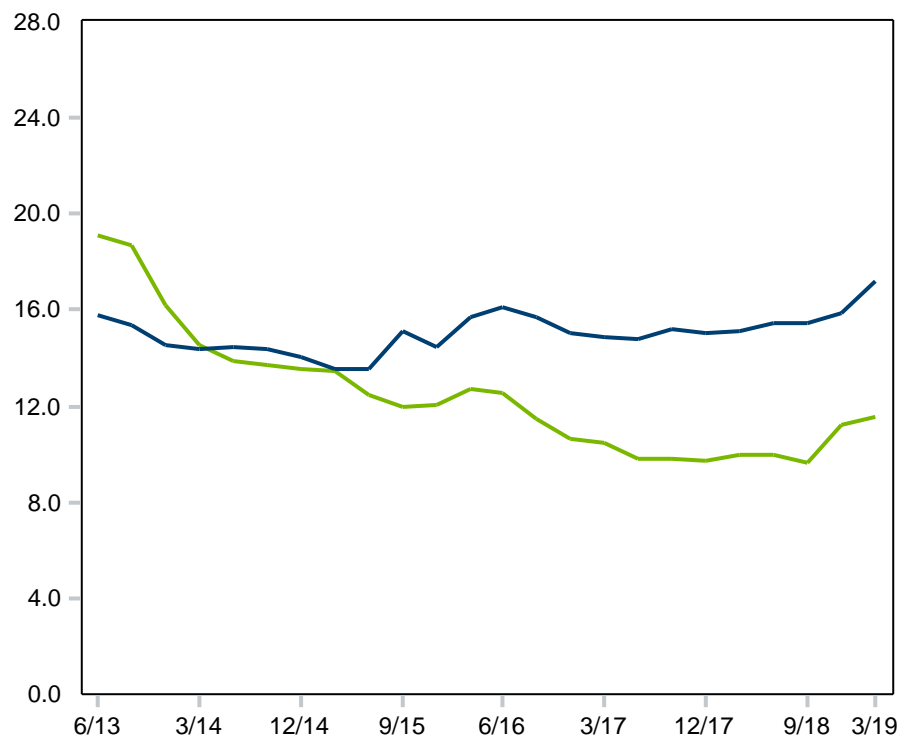
Pershing Square International Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



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

Rolling 5 Years Standard Deviation



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

5 Years Historical Statistics

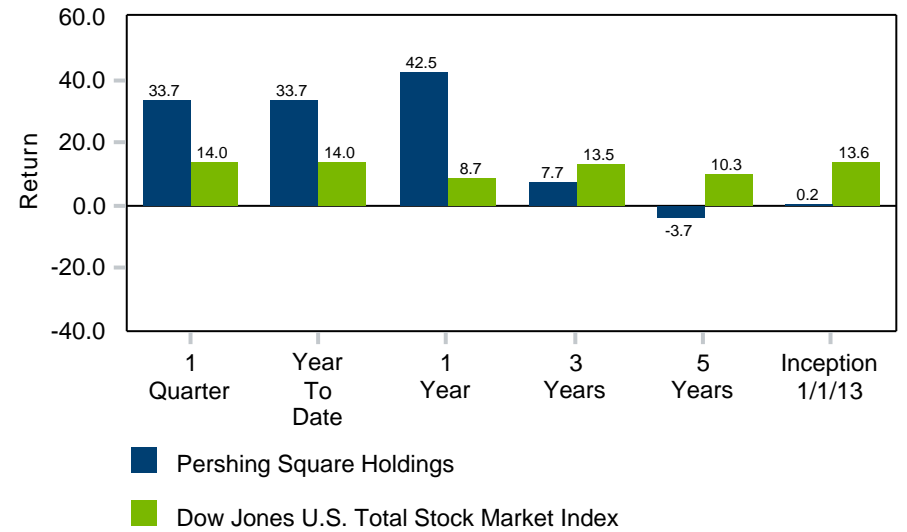
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Pershing Square International	-5.82	14.34	-0.41	0.32	0.23	-4.07	0.84	3.27	17.21	0.56
Dow Jones U.S. Total Stock Market Index	0.00	0.00	N/A	1.00	0.85	0.00	1.00	10.29	11.52	1.00
FTSE 3 Month T-Bill	-9.77	11.52	-0.85	0.00	N/A	0.72	0.00	0.72	0.23	0.01

Pershing Square Holdings Performance Summary

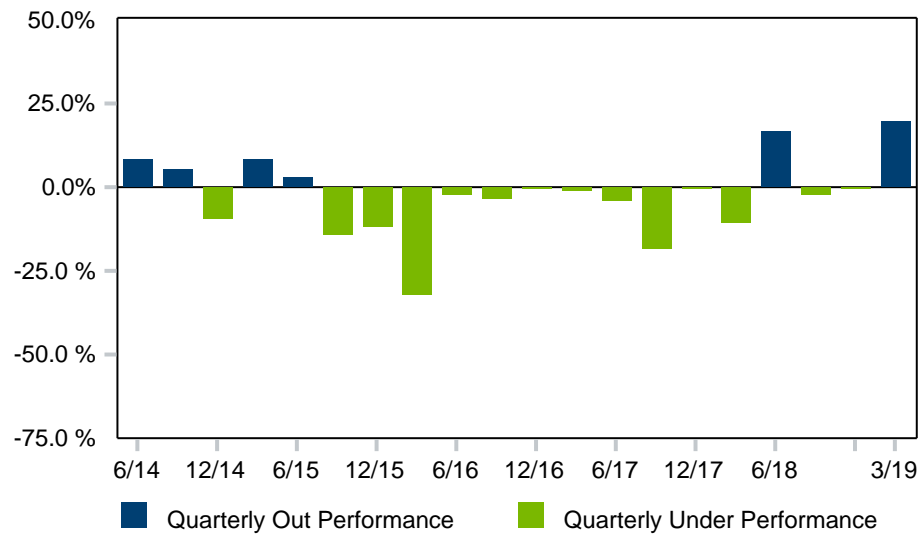
Account Information

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

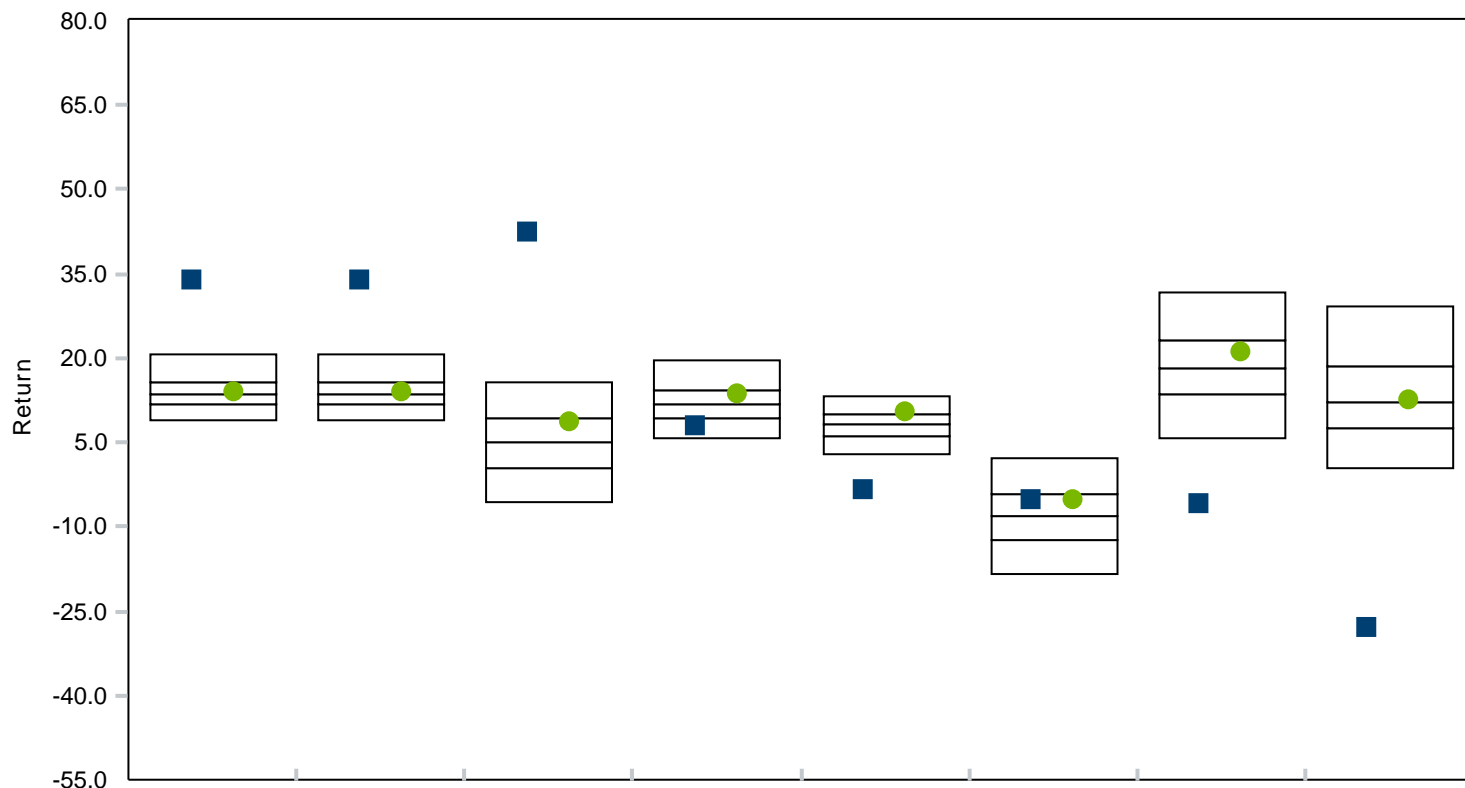


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM U.S. Equity (SA+CF)



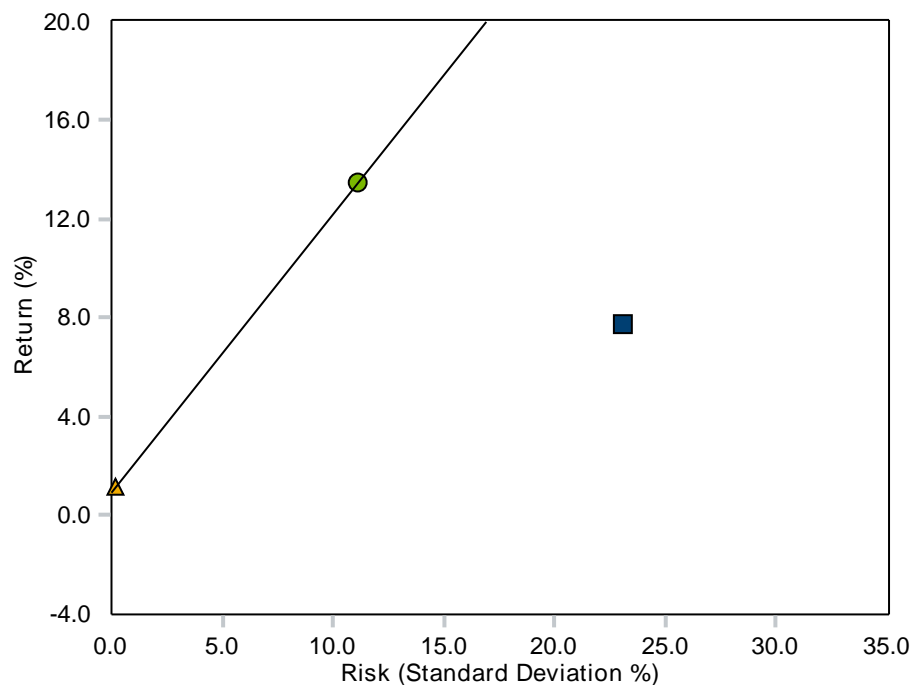
■ Pershing Square Holdings
● Dow Jones U.S. Total Stock Market Index

	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2018	2017	2016
Pershing Square Holdings	33.7 (1)	33.7 (1)	42.5 (1)	7.7 (89)	-3.7 (99)	-5.3 (33)	-6.0 (100)	-27.9 (100)
Dow Jones U.S. Total Stock Market Index	14.0 (45)	14.0 (45)	8.7 (29)	13.5 (30)	10.3 (22)	-5.3 (33)	21.2 (35)	12.6 (49)
5th Percentile	20.6	20.6	15.7	19.6	13.2	2.2	31.7	29.1
1st Quartile	15.9	15.9	9.3	14.1	10.1	-4.3	23.1	18.7
Median	13.7	13.7	5.0	11.7	8.1	-7.9	18.3	12.1
3rd Quartile	11.8	11.8	0.5	9.4	6.2	-12.4	13.6	7.6
95th Percentile	9.1	9.1	-5.5	5.9	2.8	-18.5	5.7	0.5
Population	2,231	2,231	2,222	2,172	2,092	2,327	2,511	2,664

Parenteses contain percentile rankings.

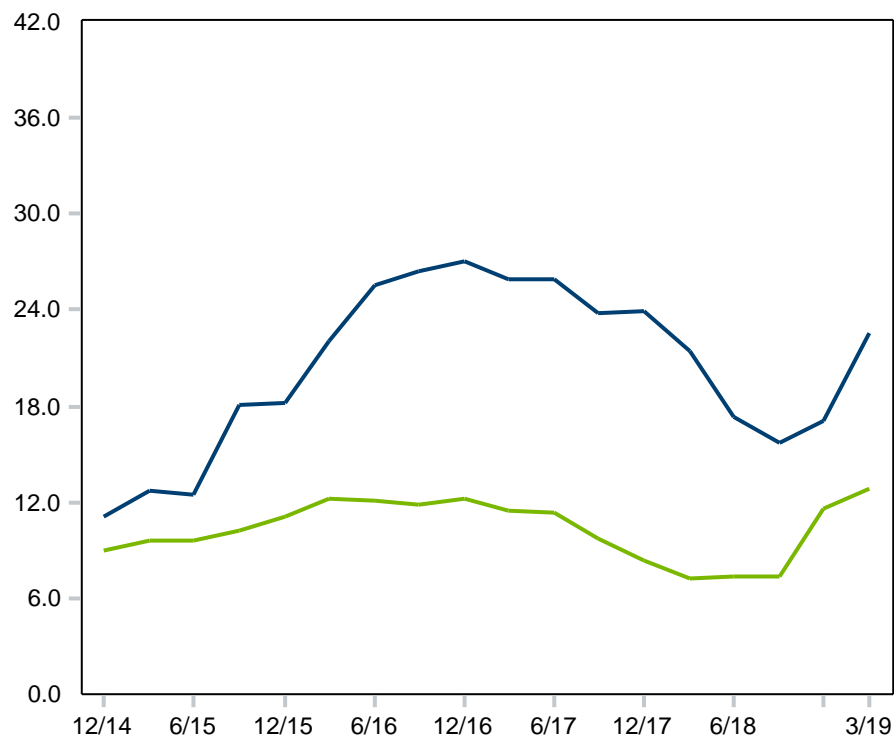
Pershing Square Holdings Risk Profile

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

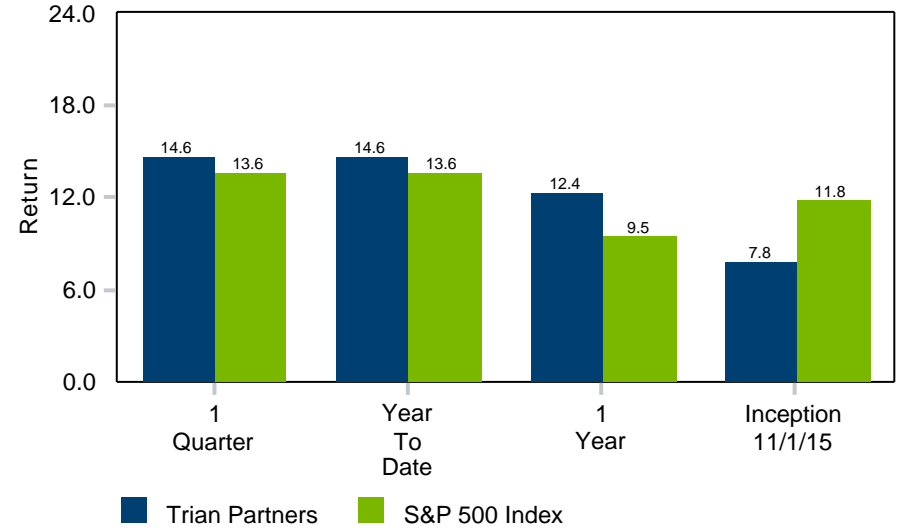
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Pershing Square Holdings	-3.30	17.97	-0.18	0.43	0.38	-7.75	1.36	7.73	23.13	0.65
Dow Jones U.S. Total Stock Market Index	0.00	0.00	N/A	1.00	1.09	0.00	1.00	13.45	11.12	1.00
FTSE 3 Month T-Bill	-12.13	11.14	-1.09	0.01	N/A	1.20	0.00	1.17	0.22	-0.10

Trian Partners Performance Summary

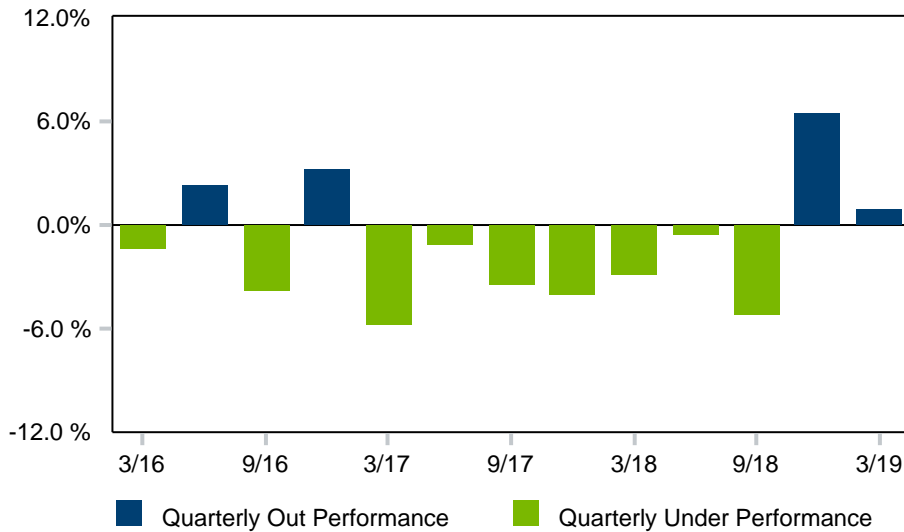
Account Information

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

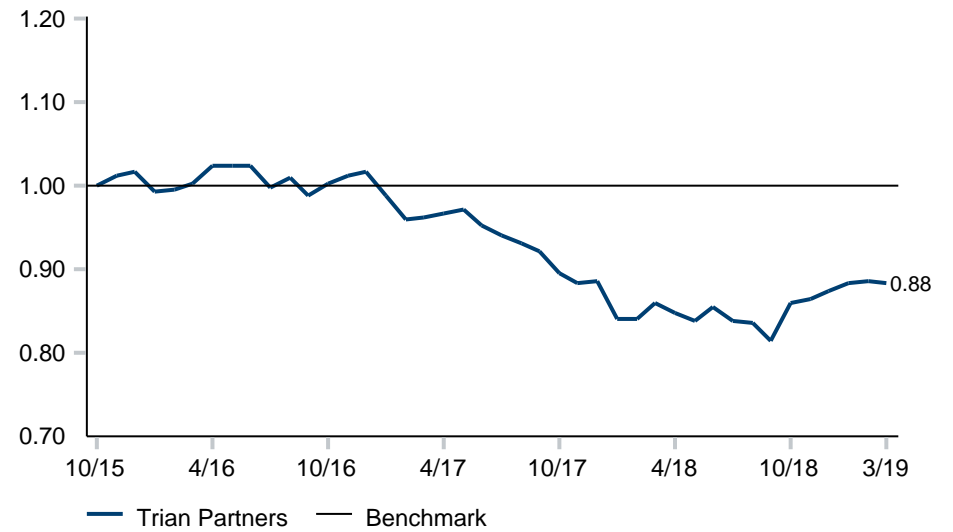
Return Summary



Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception

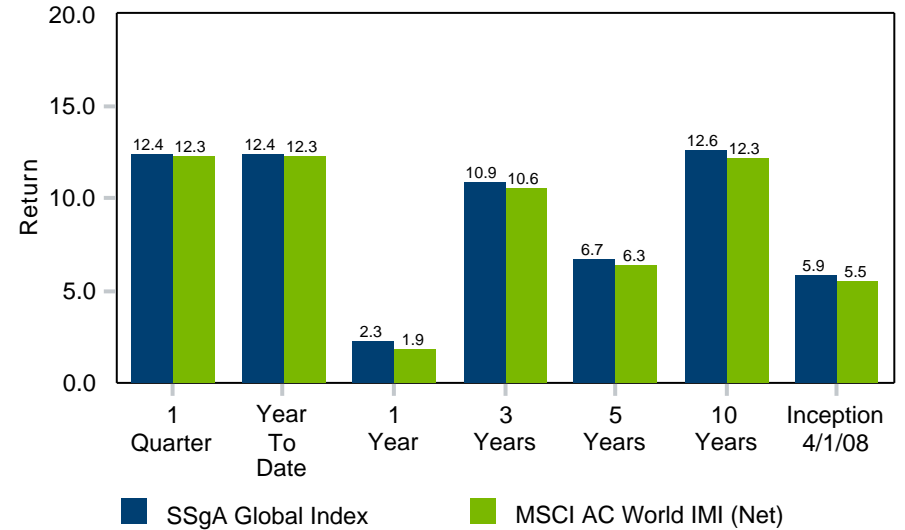


SSgA Global Index Performance Summary

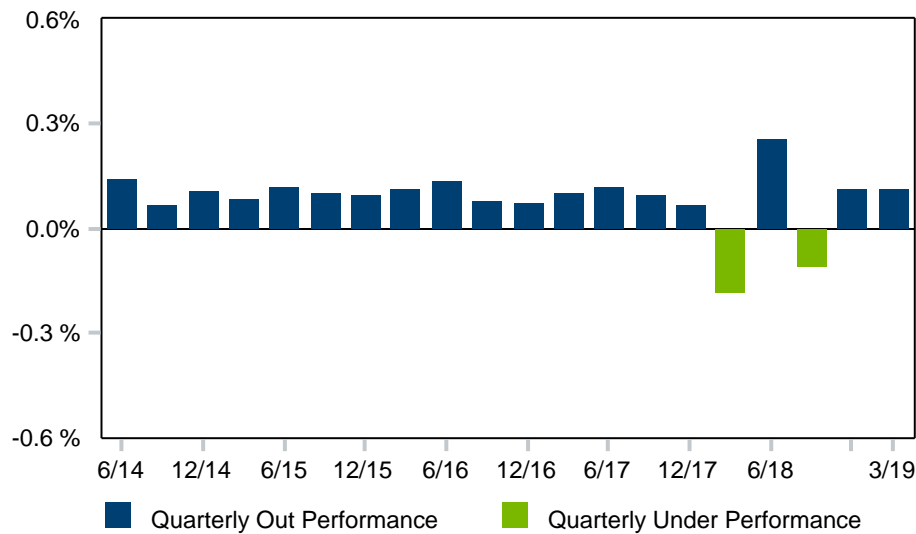
Account Information

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)

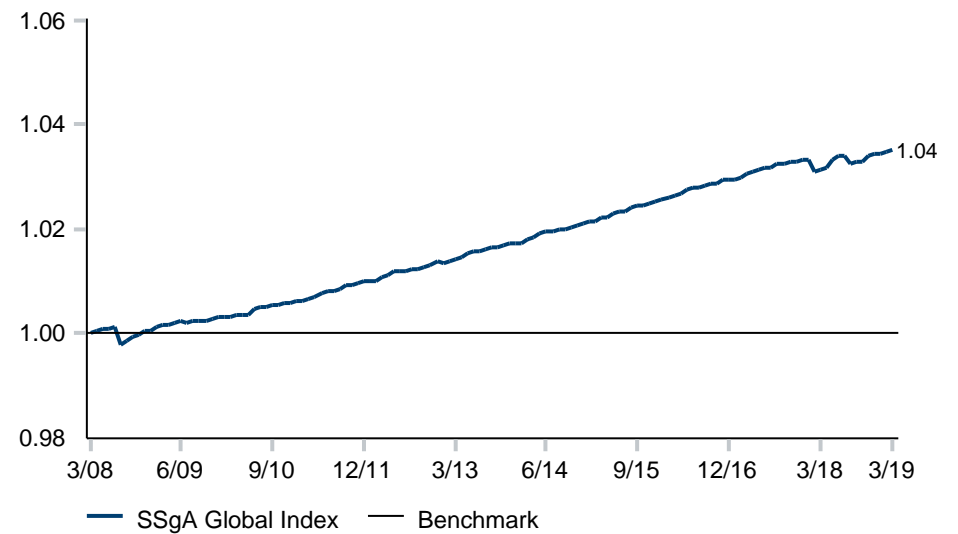
Return Summary



Quarterly Excess Performance

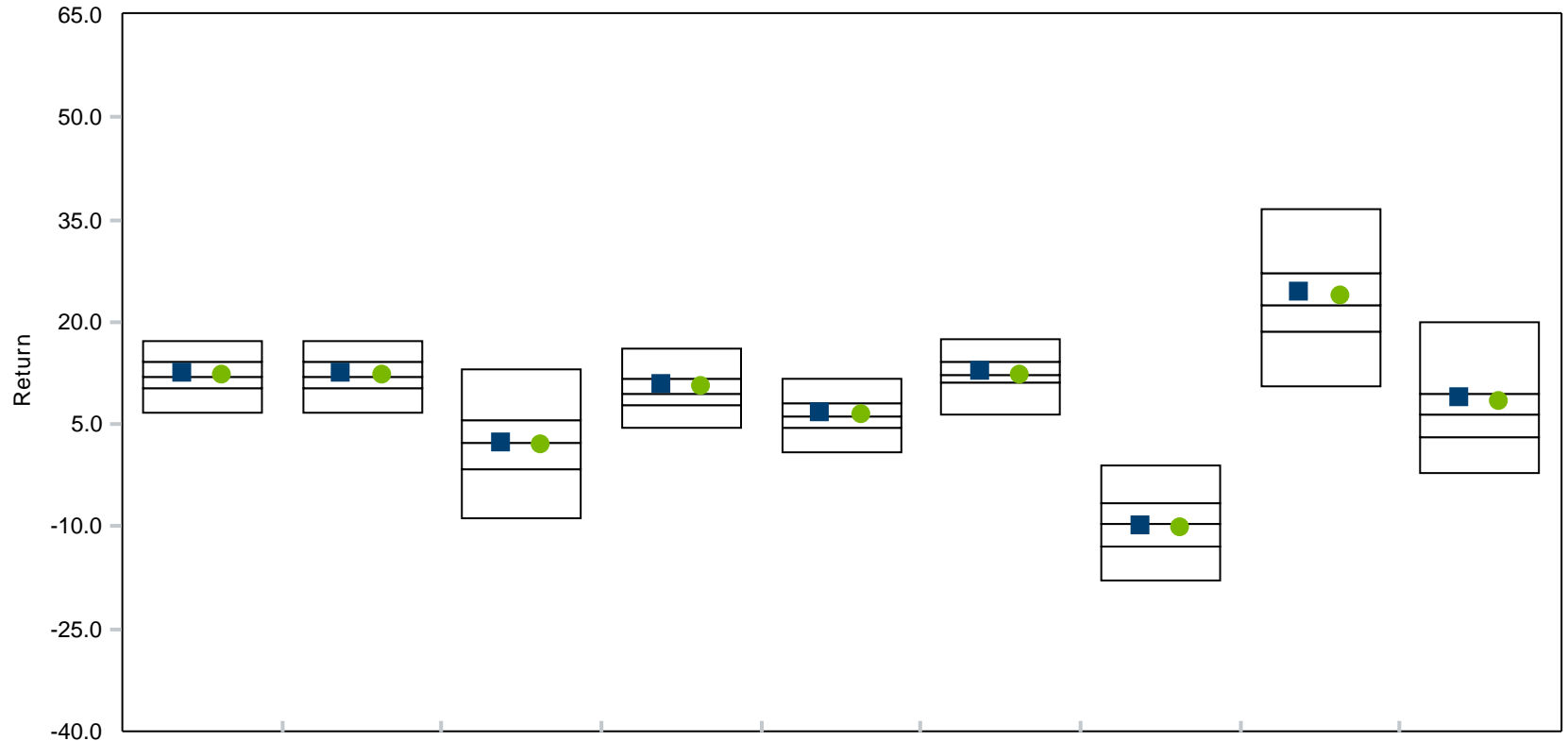


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM Global Equity (SA+CF)

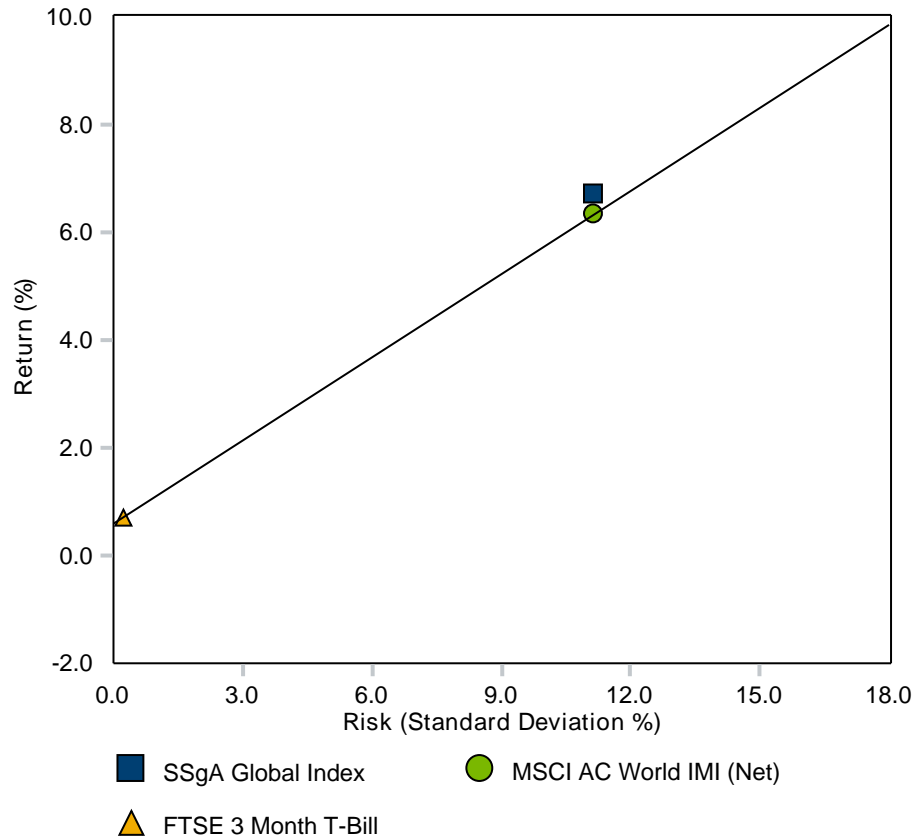


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2018	2017	2016
■ SSgA Global Index	12.4 (46)	12.4 (46)	2.3 (50)	10.9 (33)	6.7 (43)	12.6 (45)	-10.0 (54)	24.4 (39)	8.8 (30)
● MSCI AC World IMI (Net)	12.3 (47)	12.3 (47)	1.9 (53)	10.6 (37)	6.3 (49)	12.3 (52)	-10.1 (55)	23.9 (42)	8.4 (34)
5th Percentile	17.2	17.2	13.2	16.2	11.8	17.4	-0.9	36.5	19.9
1st Quartile	14.2	14.2	5.6	11.6	8.0	14.1	-6.4	27.2	9.4
Median	12.0	12.0	2.2	9.6	6.2	12.3	-9.6	22.5	6.3
3rd Quartile	10.3	10.3	-1.5	7.7	4.4	11.2	-12.9	18.6	3.1
95th Percentile	6.6	6.6	-8.8	4.5	1.0	6.4	-18.0	10.5	-2.3
Population	481	481	479	454	409	257	503	534	562

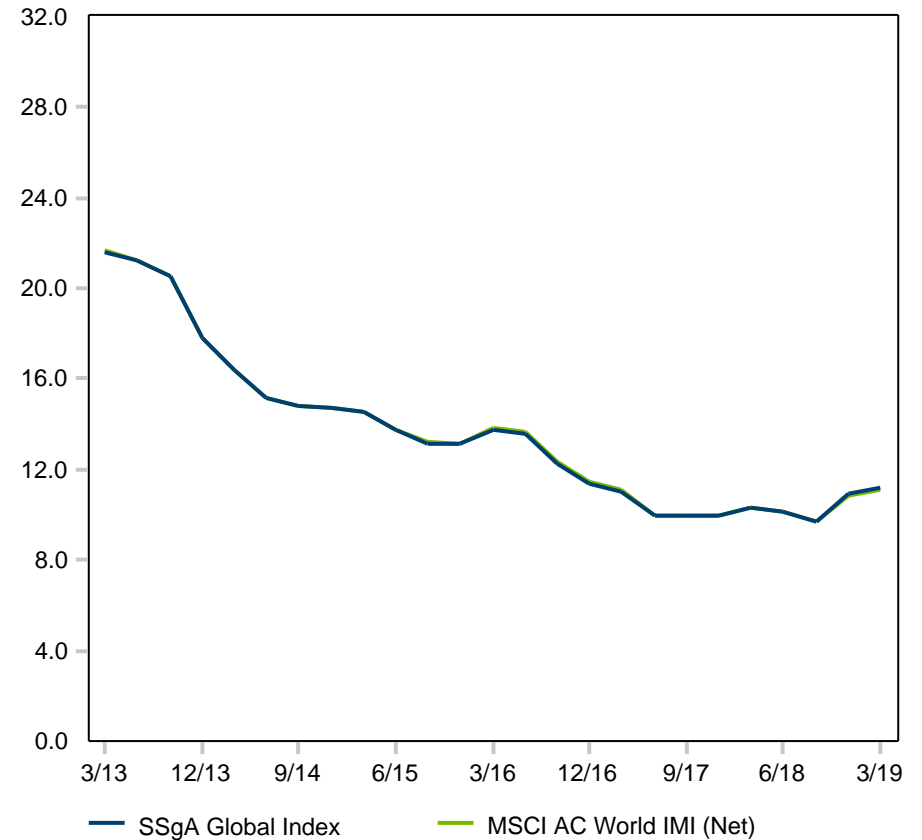
parentheses contain percentile rankings.

SSgA Global Index Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 5 Years Standard Deviation



5 Years Historical Statistics

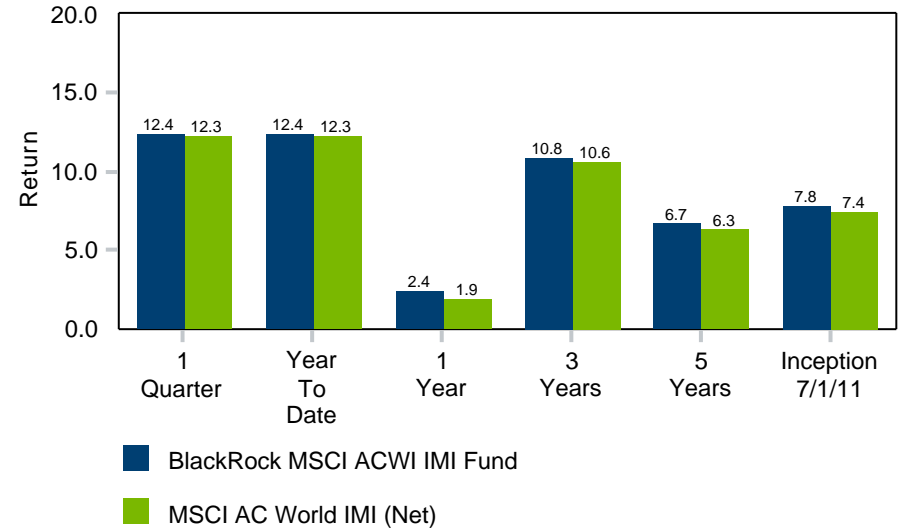
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
SSgA Global Index	0.34	0.17	1.98	1.00	0.57	0.33	1.00	6.69	11.15	1.00
MSCI AC World IMI (Net)	0.00	0.00	N/A	1.00	0.54	0.00	1.00	6.33	11.14	1.00
FTSE 3 Month T-Bill	-6.05	11.14	-0.54	0.00	N/A	0.72	0.00	0.72	0.23	0.01

BlackRock MSCI ACWI IMI Fund Performance Summary

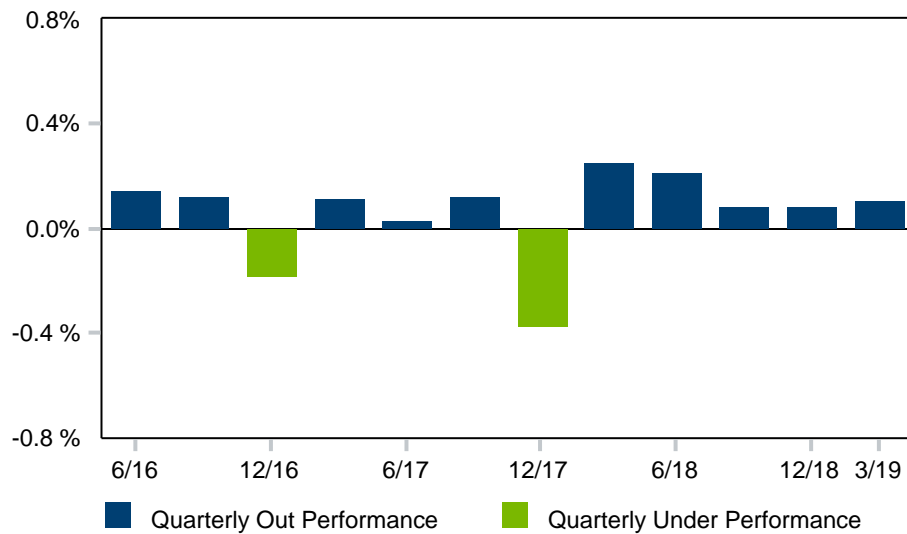
Account Information

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)

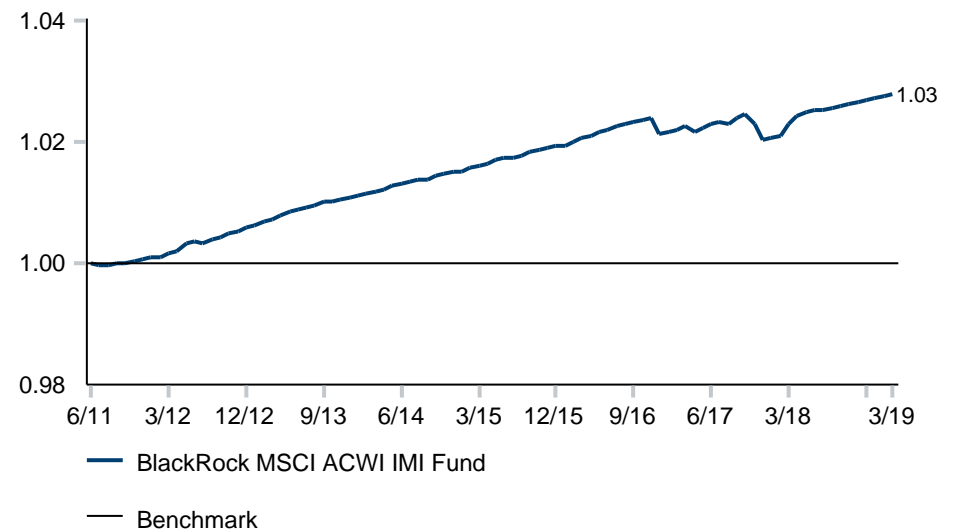
Return Summary



Quarterly Excess Performance

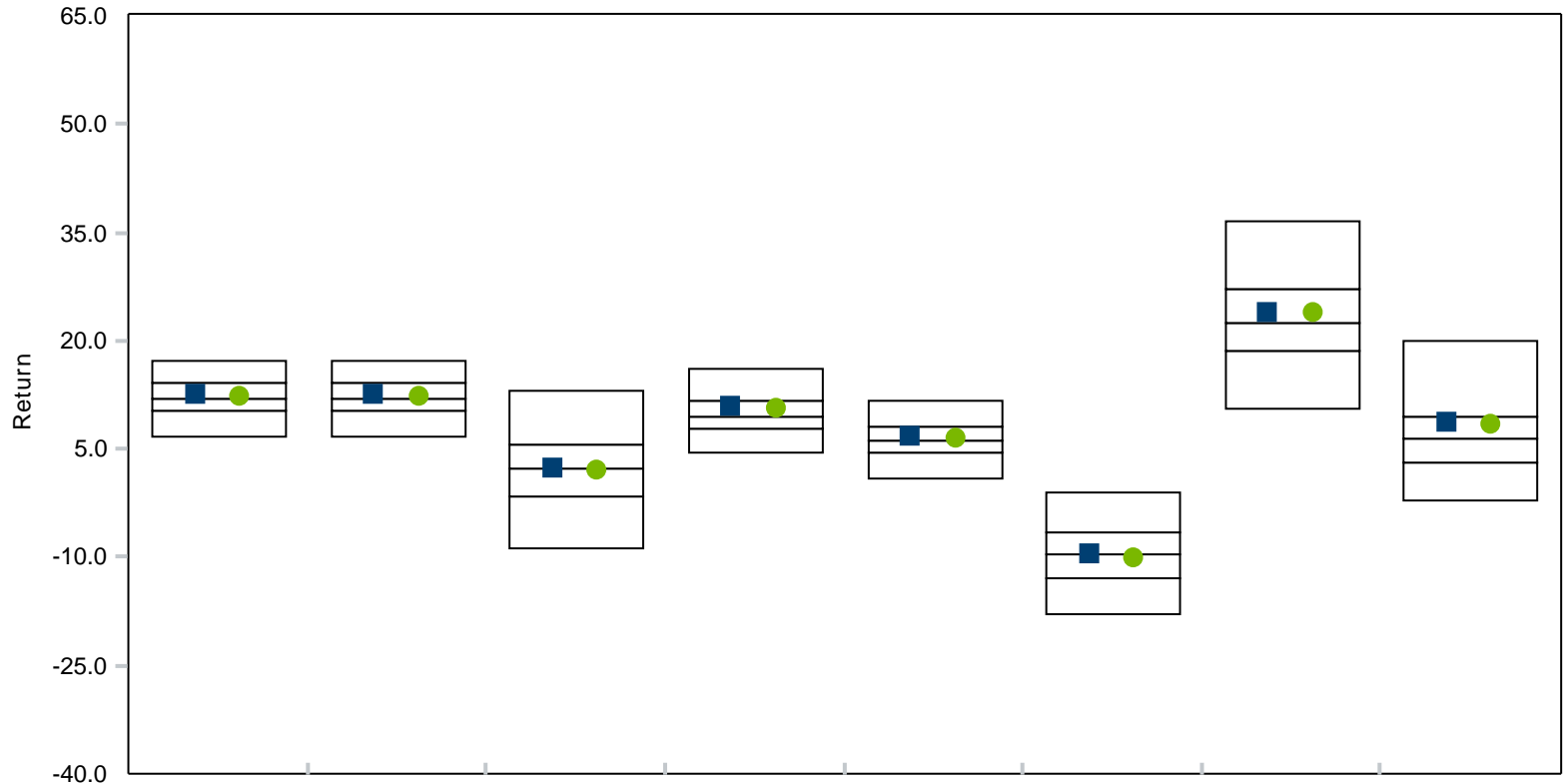


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM Global Equity (SA+CF)

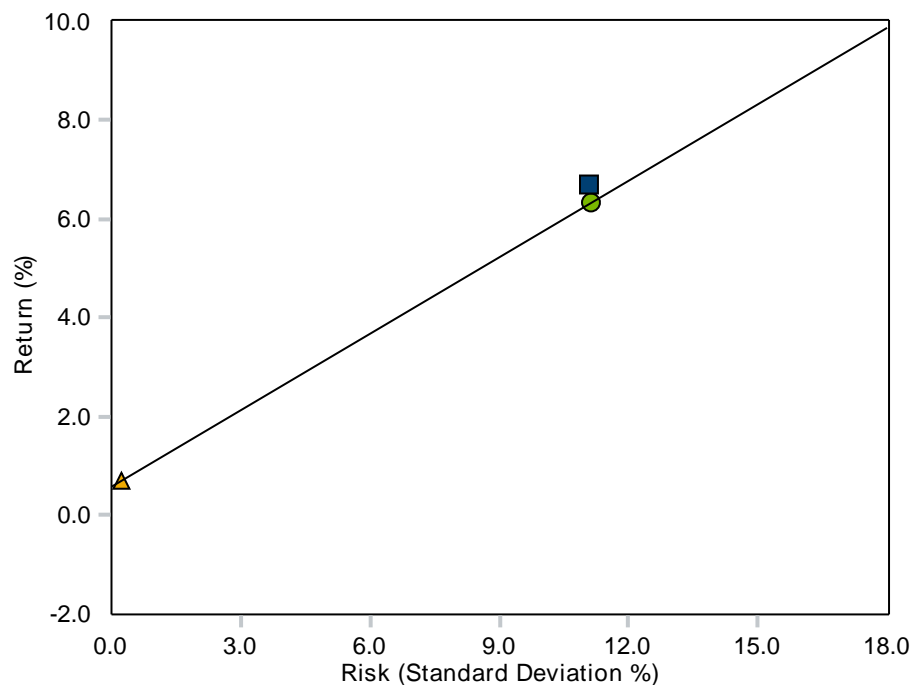


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2018	2017	2016
■ BlackRock MSCI ACWI IMI Fund	12.4 (46)	12.4 (46)	2.4 (49)	10.8 (34)	6.7 (43)	-9.5 (50)	23.8 (42)	8.6 (32)
● MSCI AC World IMI (Net)	12.3 (47)	12.3 (47)	1.9 (53)	10.6 (37)	6.3 (49)	-10.1 (55)	23.9 (42)	8.4 (34)
5th Percentile	17.2	17.2	13.2	16.2	11.8	-0.9	36.5	19.9
1st Quartile	14.2	14.2	5.6	11.6	8.0	-6.4	27.2	9.4
Median	12.0	12.0	2.2	9.6	6.2	-9.6	22.5	6.3
3rd Quartile	10.3	10.3	-1.5	7.7	4.4	-12.9	18.6	3.1
95th Percentile	6.6	6.6	-8.8	4.5	1.0	-18.0	10.5	-2.3
Population	481	481	479	454	409	503	534	562

parentheses contain percentile rankings.

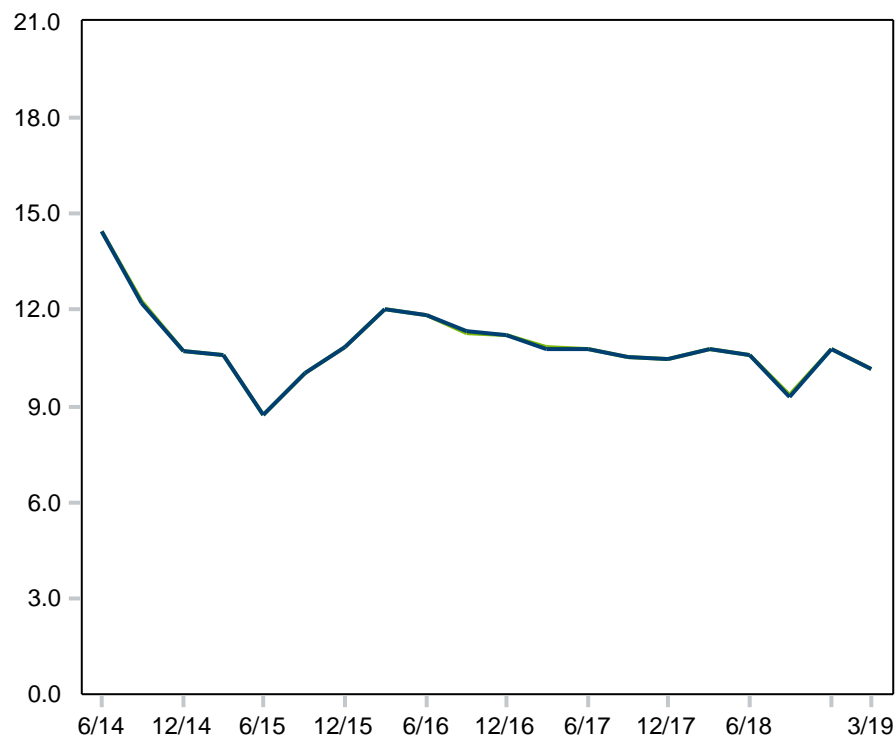
BlackRock MSCI ACWI IMI Fund Risk Profile

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

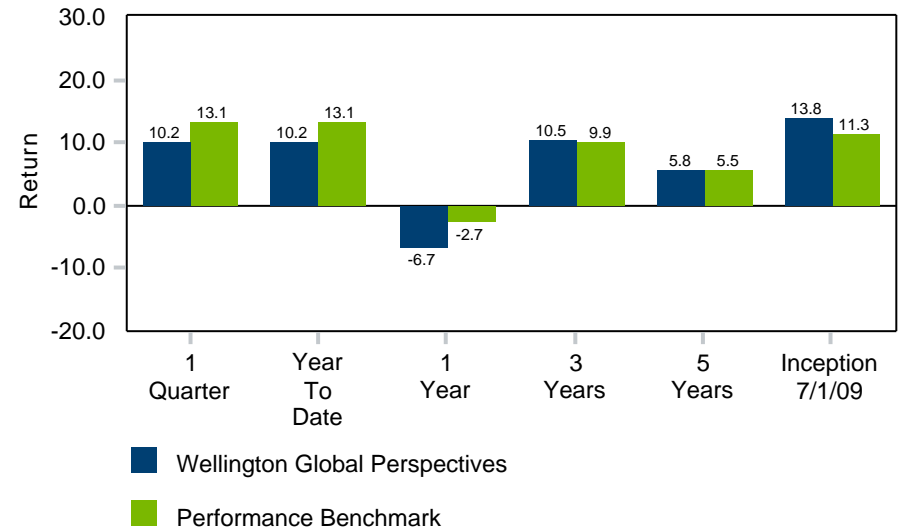
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
BlackRock MSCI ACWI IMI Fund	0.32	0.23	1.37	1.00	0.57	0.33	1.00	6.67	11.12	1.00
MSCI AC World IMI (Net)	0.00	0.00	N/A	1.00	0.54	0.00	1.00	6.33	11.14	1.00
FTSE 3 Month T-Bill	-6.05	11.14	-0.54	0.00	N/A	0.72	0.00	0.72	0.23	0.01

Wellington Global Perspectives Performance Summary

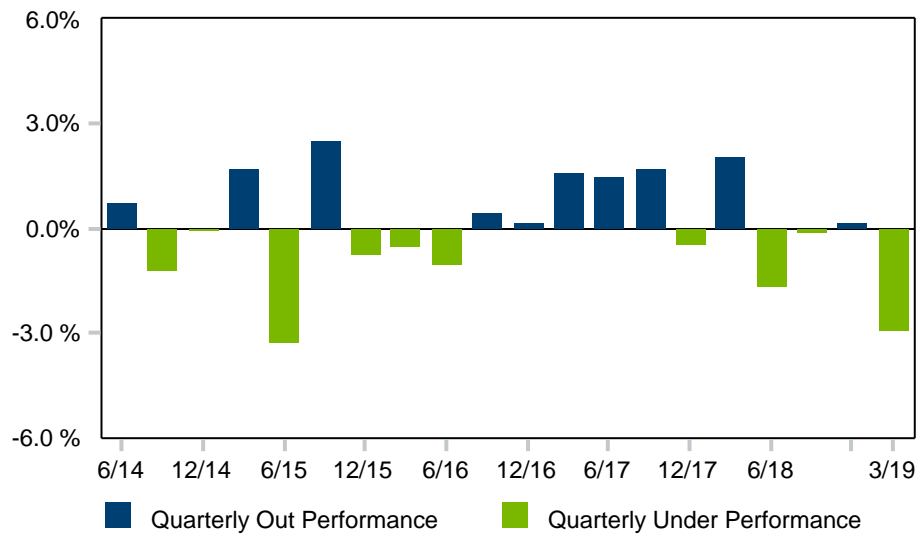
Account Information

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 Small Cap Equity (SA+CF)

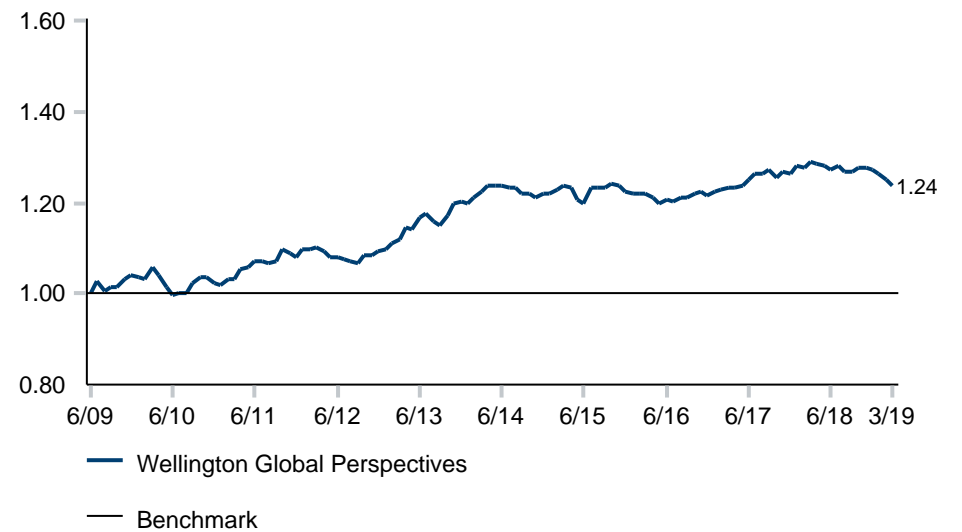
Return Summary



Quarterly Excess Performance

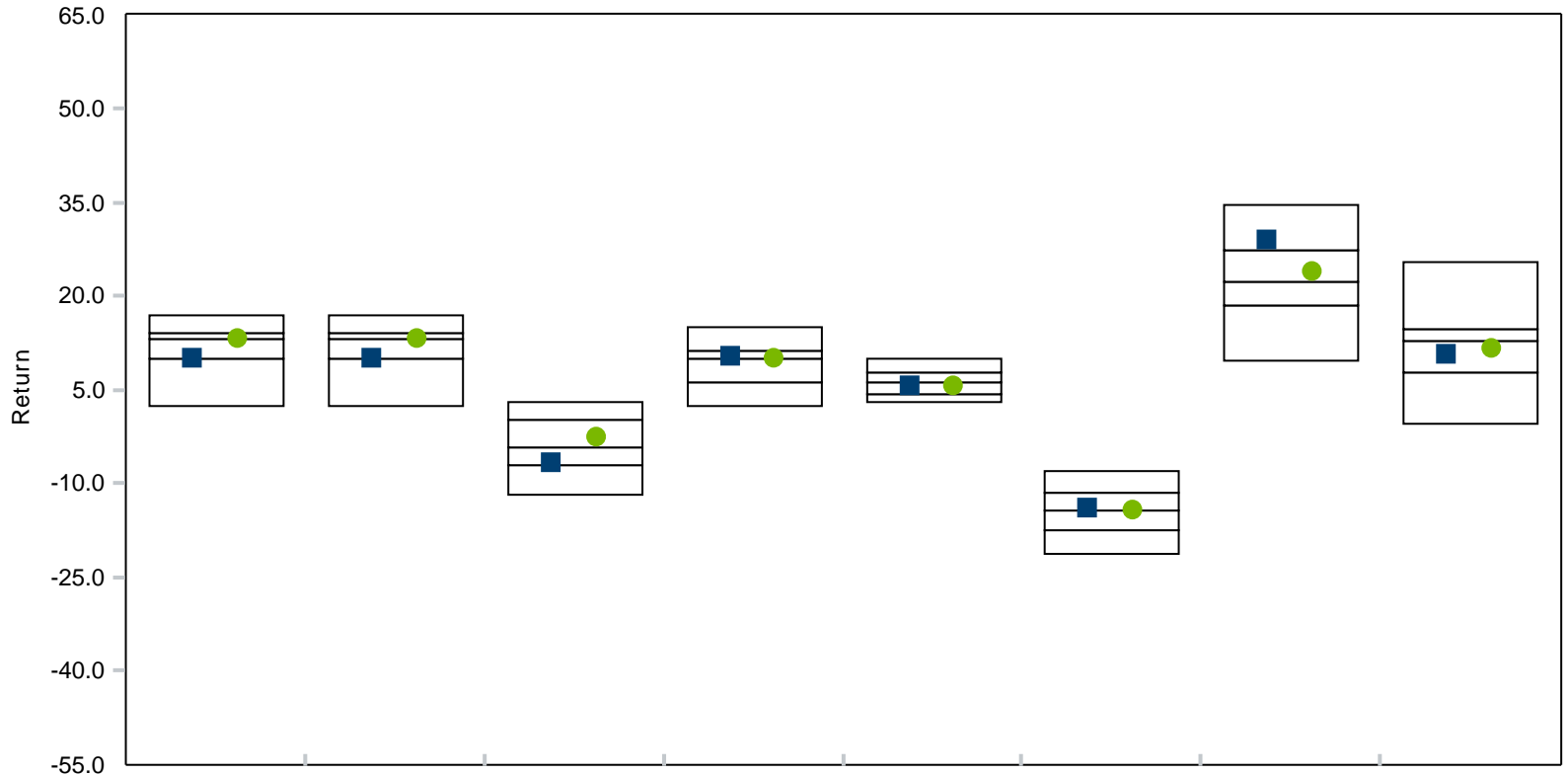


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM Global Small Cap Equity (SA+CF)

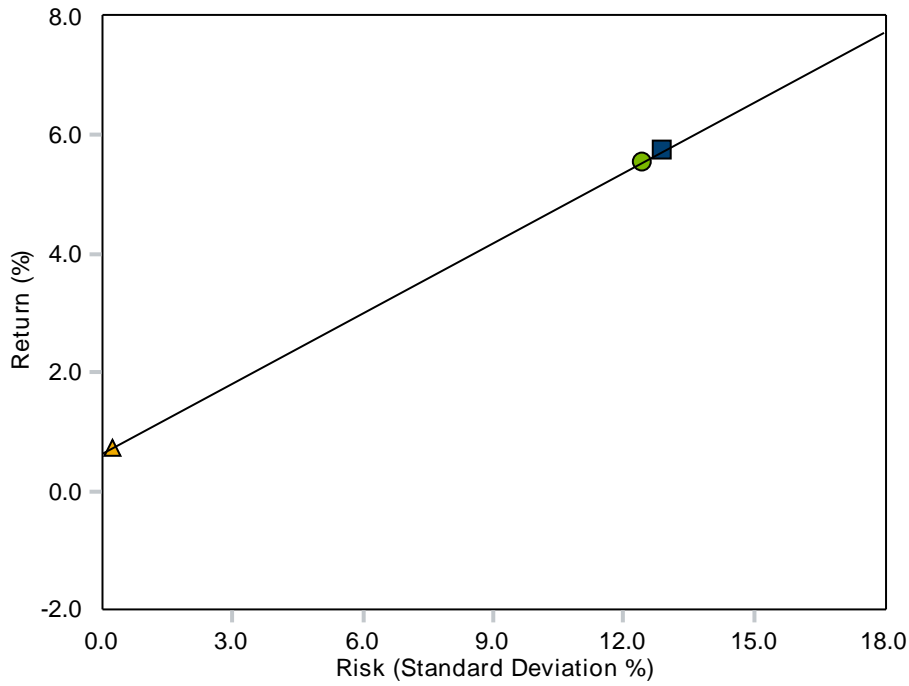


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2018	2017	2016
Wellington Global Perspectives	10.2 (75)	10.2 (75)	-6.7 (74)	10.5 (46)	5.8 (59)	-14.0 (44)	29.0 (20)	10.6 (57)
Performance Benchmark	13.1 (52)	13.1 (52)	-2.7 (42)	9.9 (53)	5.5 (60)	-14.4 (50)	23.8 (40)	11.6 (53)
5th Percentile	17.0	17.0	3.2	15.1	10.0	-7.8	34.6	25.5
1st Quartile	14.2	14.2	0.2	11.4	7.9	-11.5	27.4	14.7
Median	13.2	13.2	-4.1	10.2	6.3	-14.4	22.3	12.8
3rd Quartile	9.9	9.9	-7.1	6.3	4.3	-17.3	18.6	7.9
95th Percentile	2.5	2.5	-11.6	2.6	3.1	-21.1	9.6	-0.4
Population	28	28	28	26	25	31	31	33

parentheses contain percentile rankings.

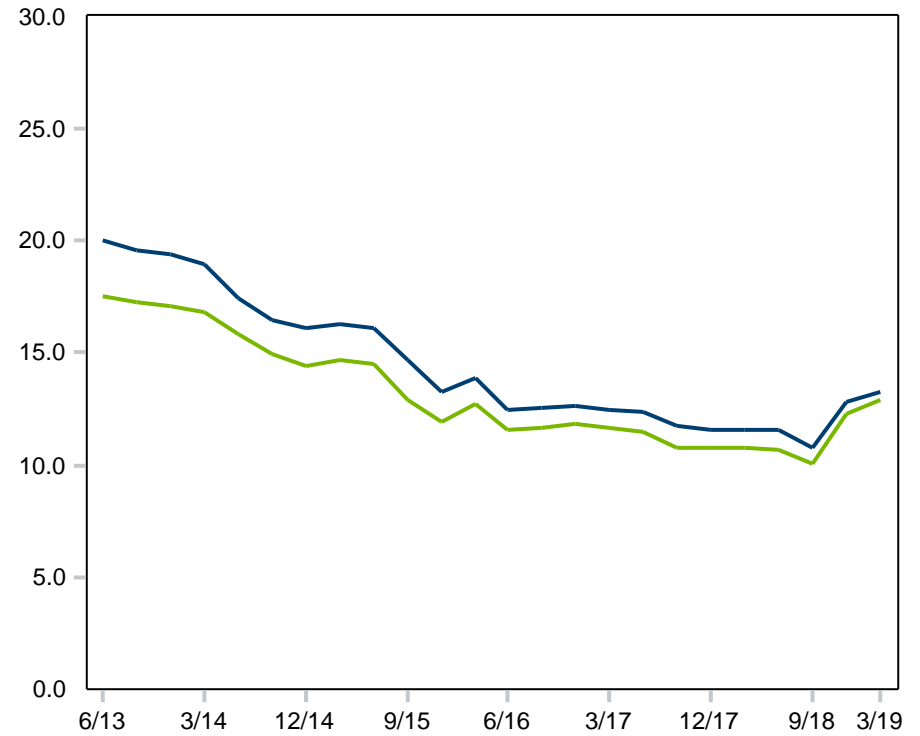
Wellington Global Perspectives Risk Profile

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

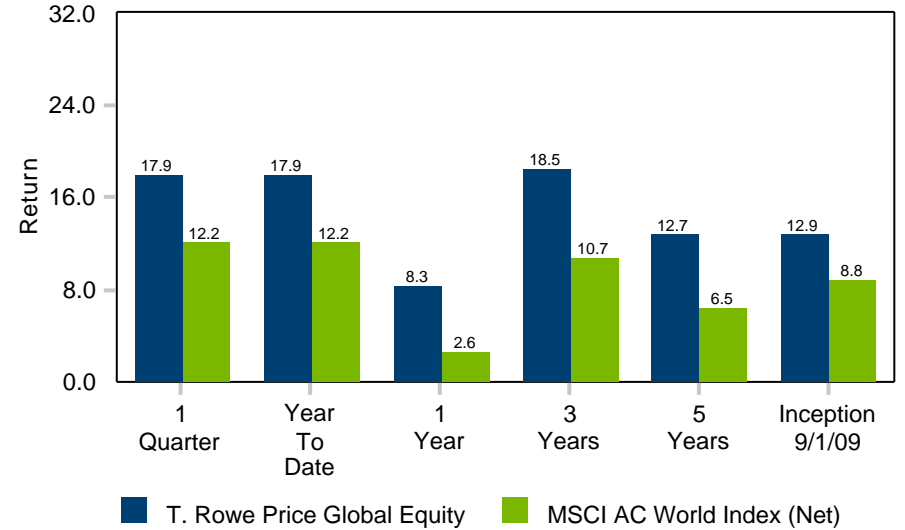
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Wellington Global Perspectives	0.26	2.78	0.09	0.95	0.44	0.18	1.01	5.75	12.88	0.98
Performance Benchmark	0.00	0.00	N/A	1.00	0.44	0.00	1.00	5.54	12.42	1.00
FTSE 3 Month T-Bill	-5.45	12.43	-0.44	0.00	N/A	0.72	0.00	0.72	0.23	-0.02

T. Rowe Price Global Equity Performance Summary

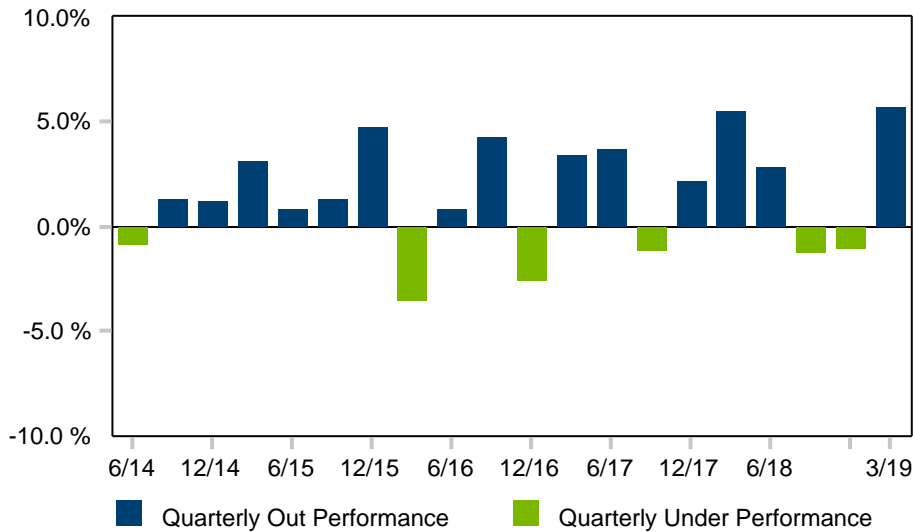
Account Information

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)

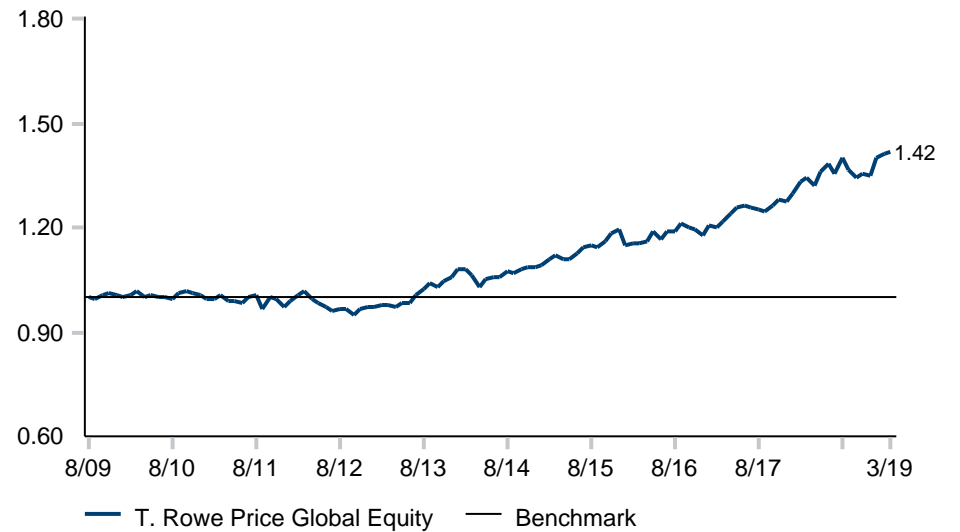
Return Summary



Quarterly Excess Performance

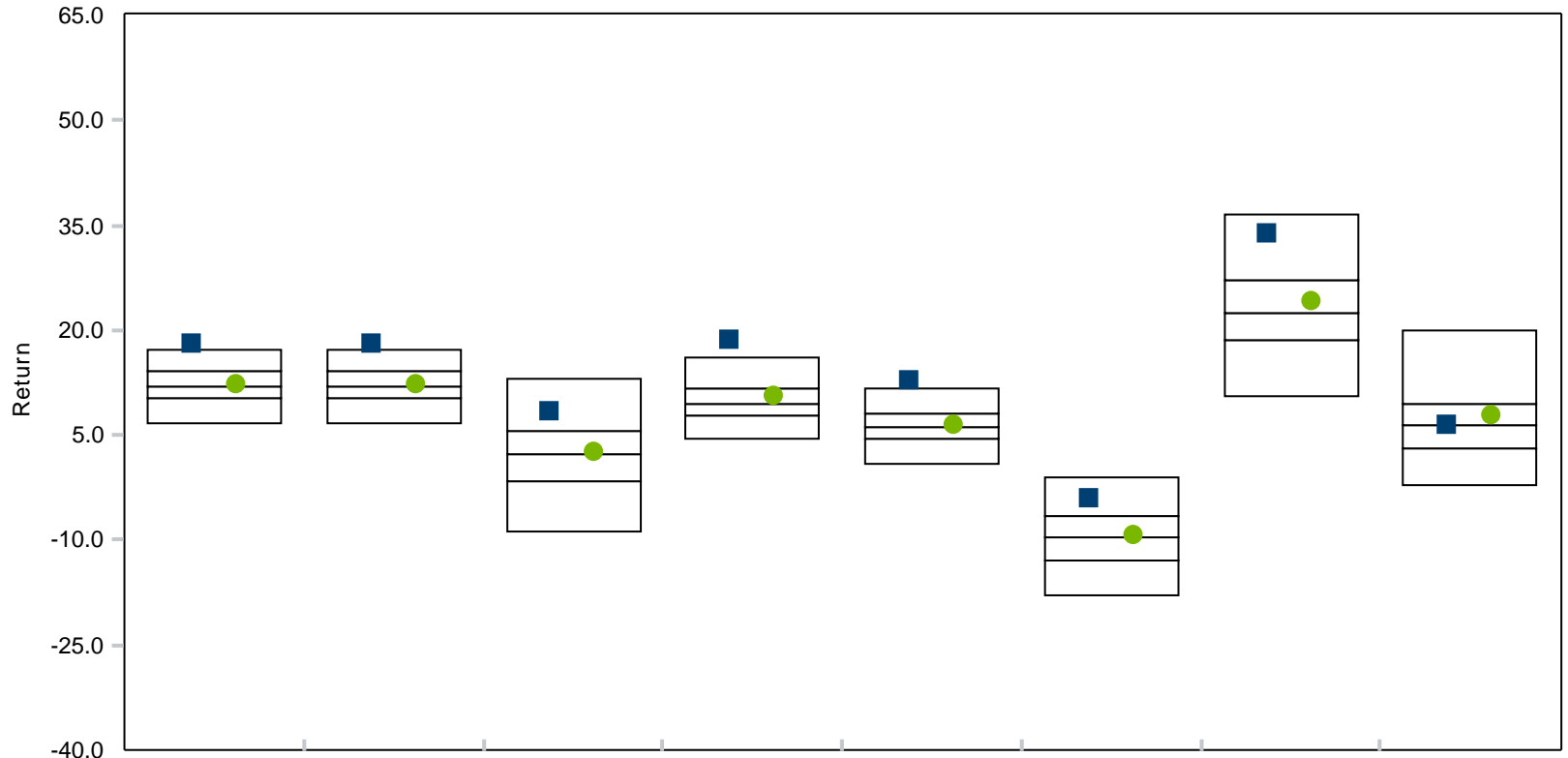


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM Global Equity (SA+CF)

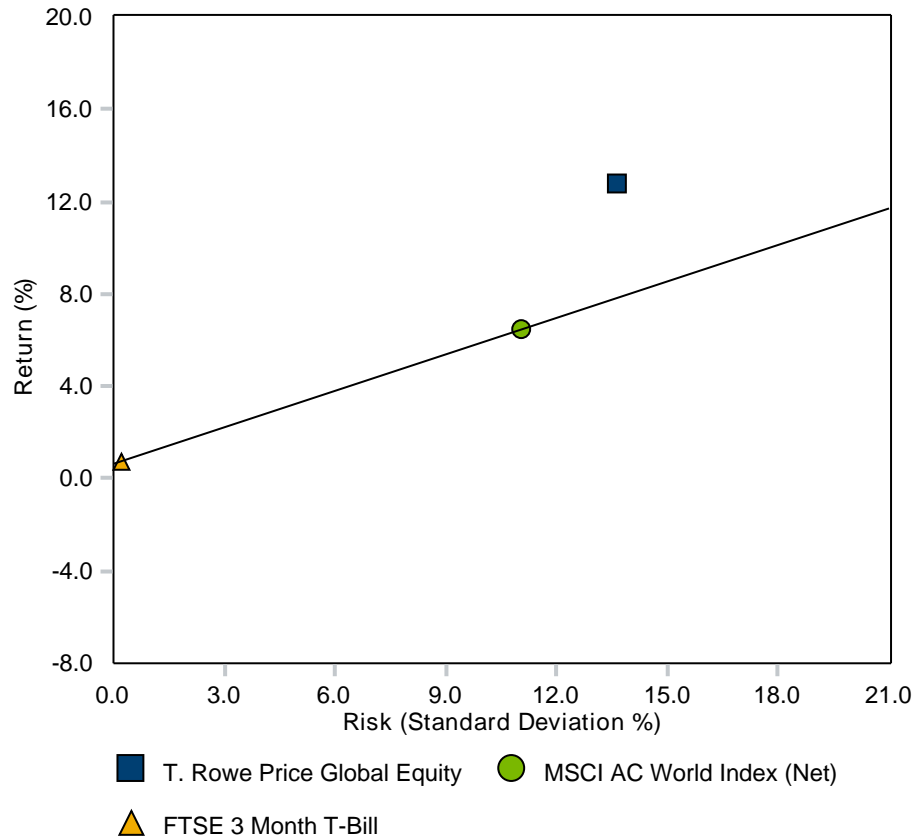


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2018	2017	2016
■ T. Rowe Price Global Equity	17.9 (4)	17.9 (4)	8.3 (15)	18.5 (3)	12.7 (3)	-4.0 (14)	33.7 (9)	6.4 (49)
● MSCI AC World Index (Net)	12.2 (49)	12.2 (49)	2.6 (48)	10.7 (36)	6.5 (46)	-9.4 (50)	24.0 (42)	7.9 (38)
5th Percentile	17.2	17.2	13.2	16.2	11.8	-0.9	36.5	19.9
1st Quartile	14.2	14.2	5.6	11.6	8.0	-6.4	27.2	9.4
Median	12.0	12.0	2.2	9.6	6.2	-9.6	22.5	6.3
3rd Quartile	10.3	10.3	-1.5	7.7	4.4	-12.9	18.6	3.1
95th Percentile	6.6	6.6	-8.8	4.5	1.0	-18.0	10.5	-2.3
Population	481	481	479	454	409	503	534	562

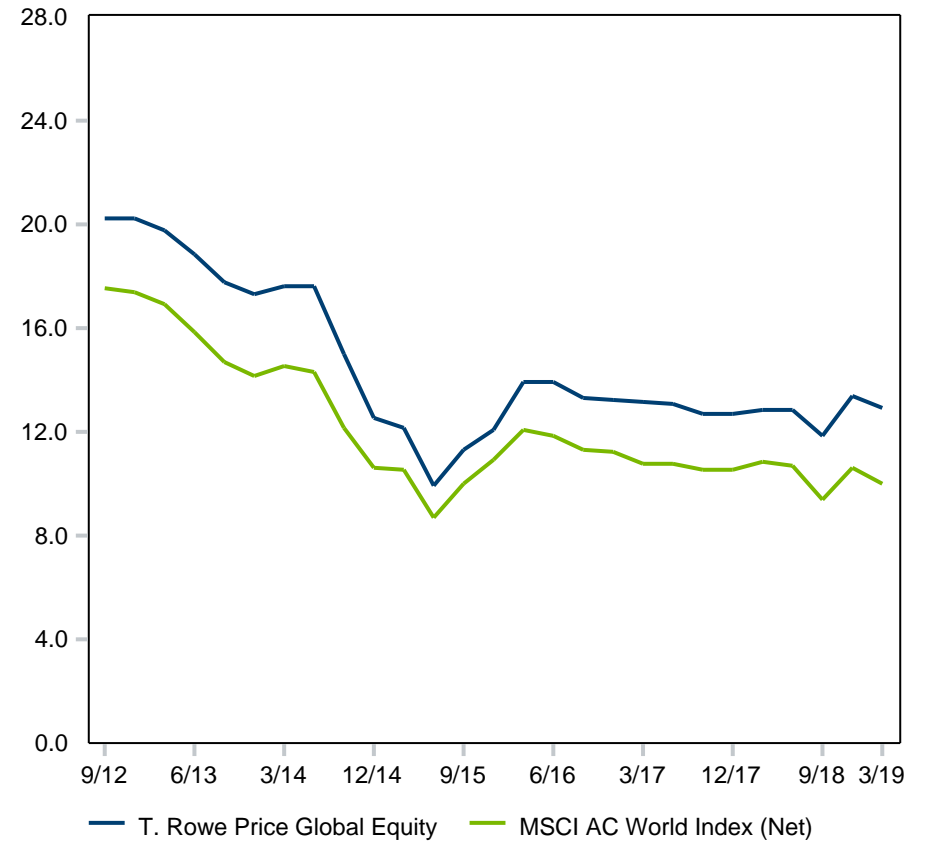
parentheses contain percentile rankings.

T. Rowe Price Global Equity Risk Profile

Annualized Return vs. Annualized Standard Deviation
5 Years



Rolling 3 Years Standard Deviation



5 Years Historical Statistics

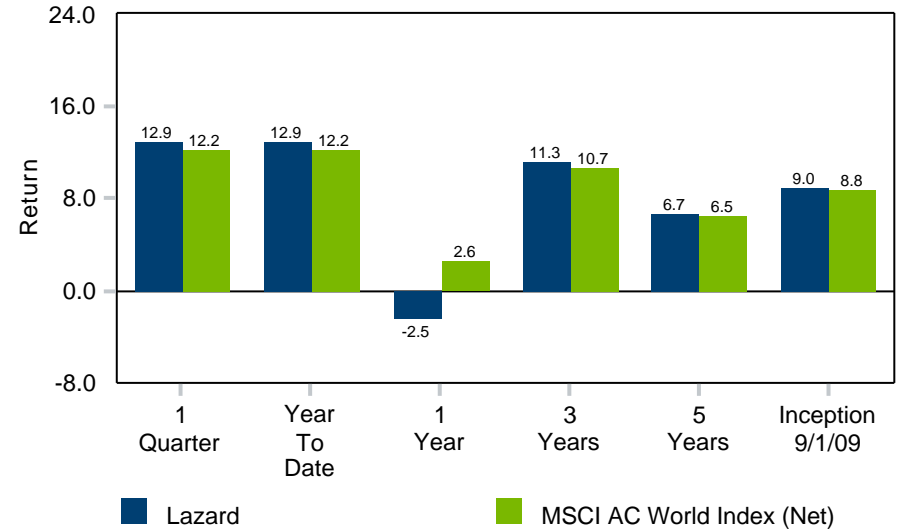
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
T. Rowe Price Global Equity	6.08	5.35	1.14	0.86	0.90	5.20	1.15	12.72	13.66	0.93
MSCI AC World Index (Net)	0.00	0.00	N/A	1.00	0.56	0.00	1.00	6.45	11.06	1.00
FTSE 3 Month T-Bill	-6.15	11.06	-0.56	0.00	N/A	0.72	0.00	0.72	0.23	0.01

Lazard Performance Summary

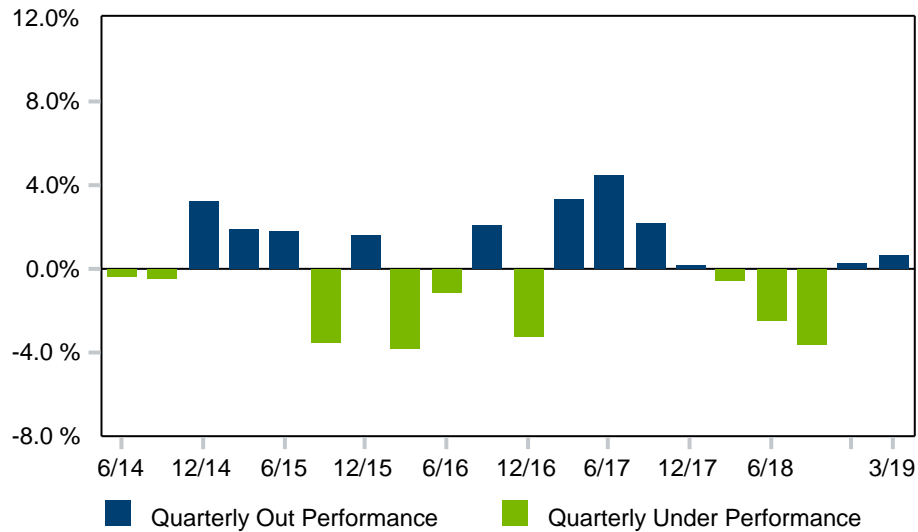
Account Information

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)

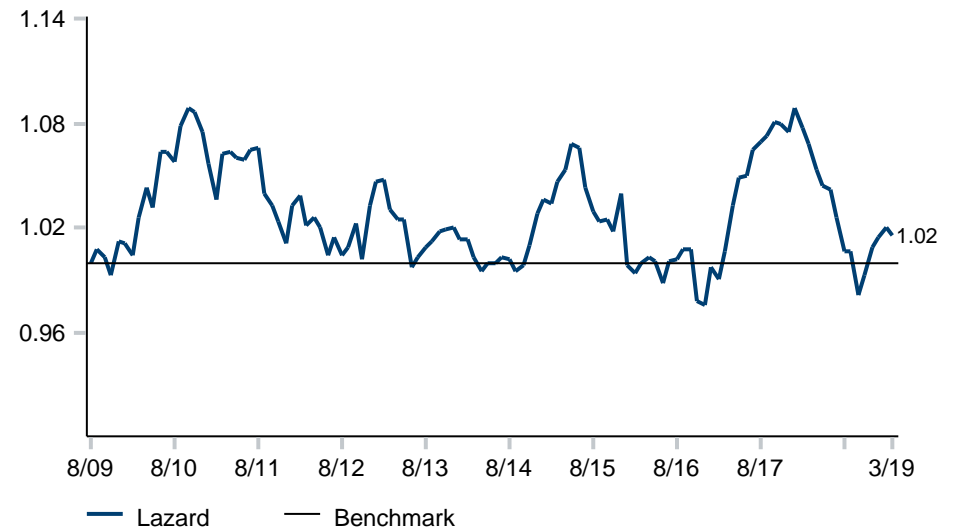
Return Summary



Quarterly Excess Performance

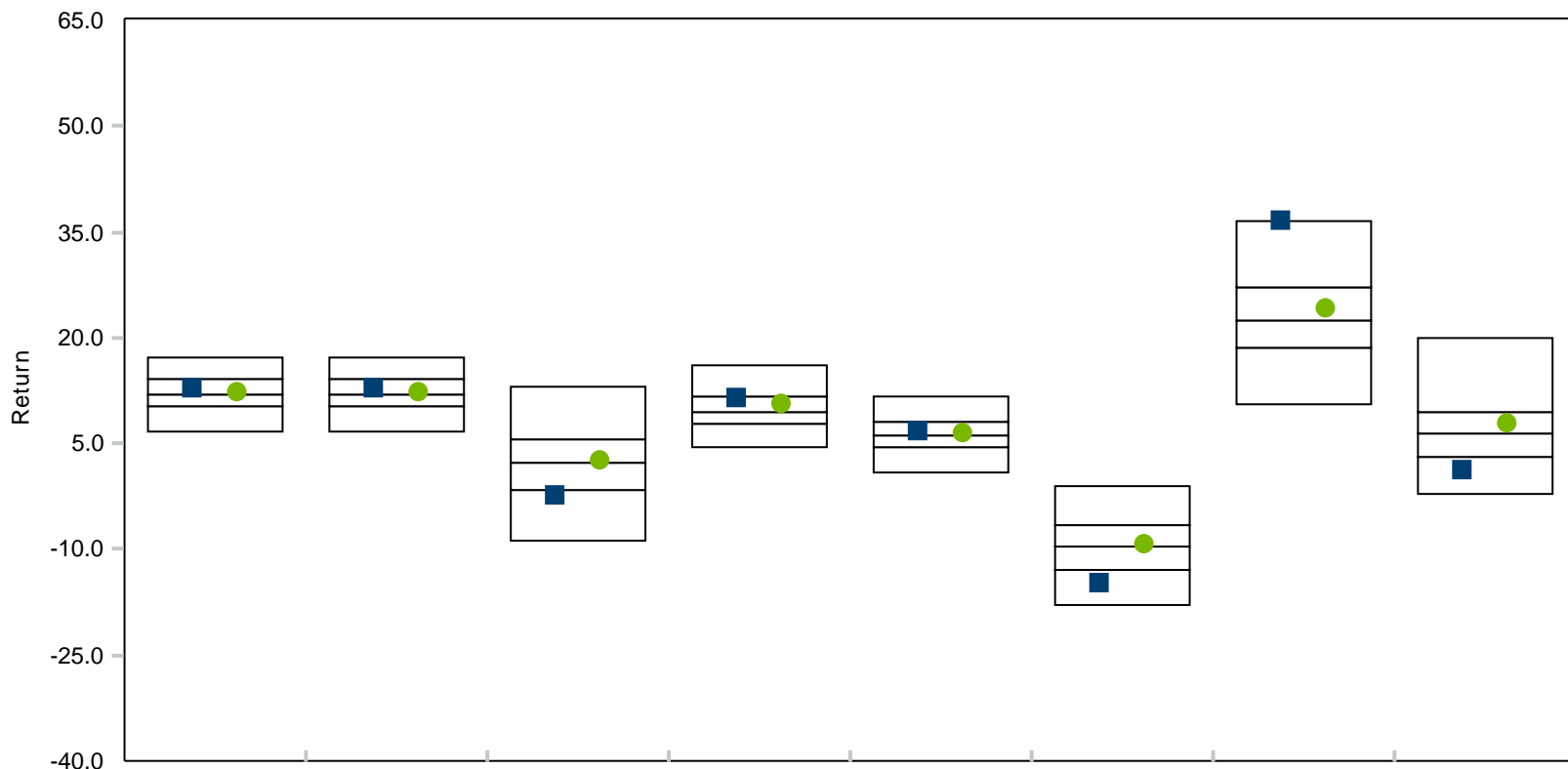


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM Global Equity (SA+CF)

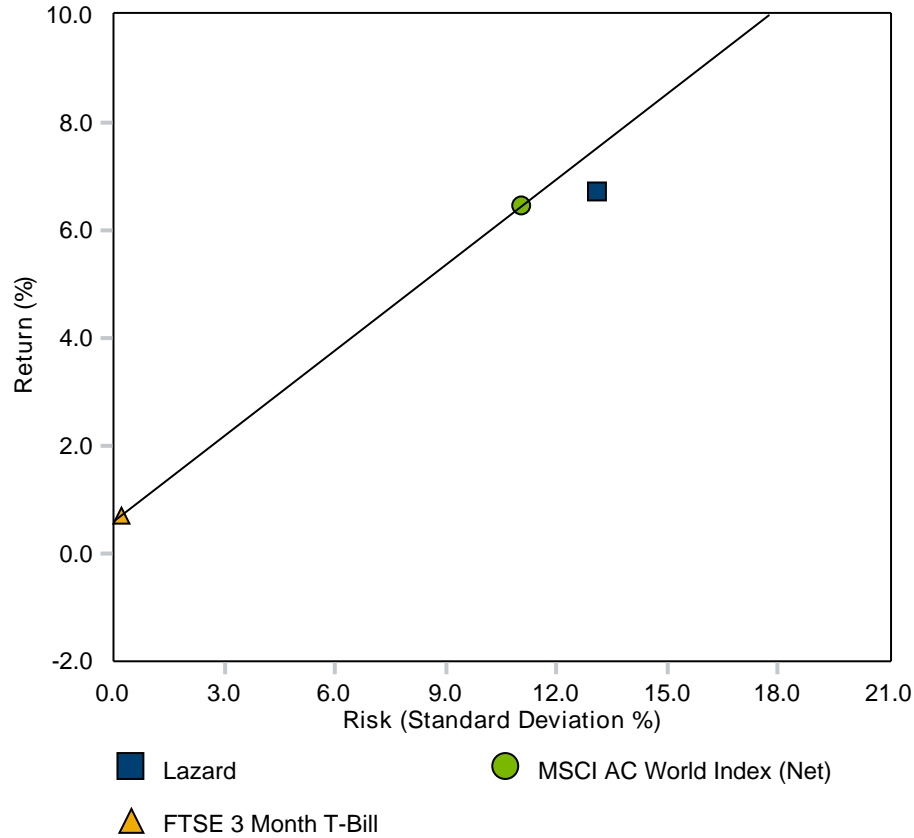


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2018	2017	2016
■ Lazard	12.9 (42)	12.9 (42)	-2.5 (79)	11.3 (29)	6.7 (43)	-14.9 (86)	36.5 (6)	1.3 (85)
● MSCI AC World Index (Net)	12.2 (49)	12.2 (49)	2.6 (48)	10.7 (36)	6.5 (46)	-9.4 (50)	24.0 (42)	7.9 (38)
5th Percentile	17.2	17.2	13.2	16.2	11.8	-0.9	36.5	19.9
1st Quartile	14.2	14.2	5.6	11.6	8.0	-6.4	27.2	9.4
Median	12.0	12.0	2.2	9.6	6.2	-9.6	22.5	6.3
3rd Quartile	10.3	10.3	-1.5	7.7	4.4	-12.9	18.6	3.1
95th Percentile	6.6	6.6	-8.8	4.5	1.0	-18.0	10.5	-2.3
Population	481	481	479	454	409	503	534	562

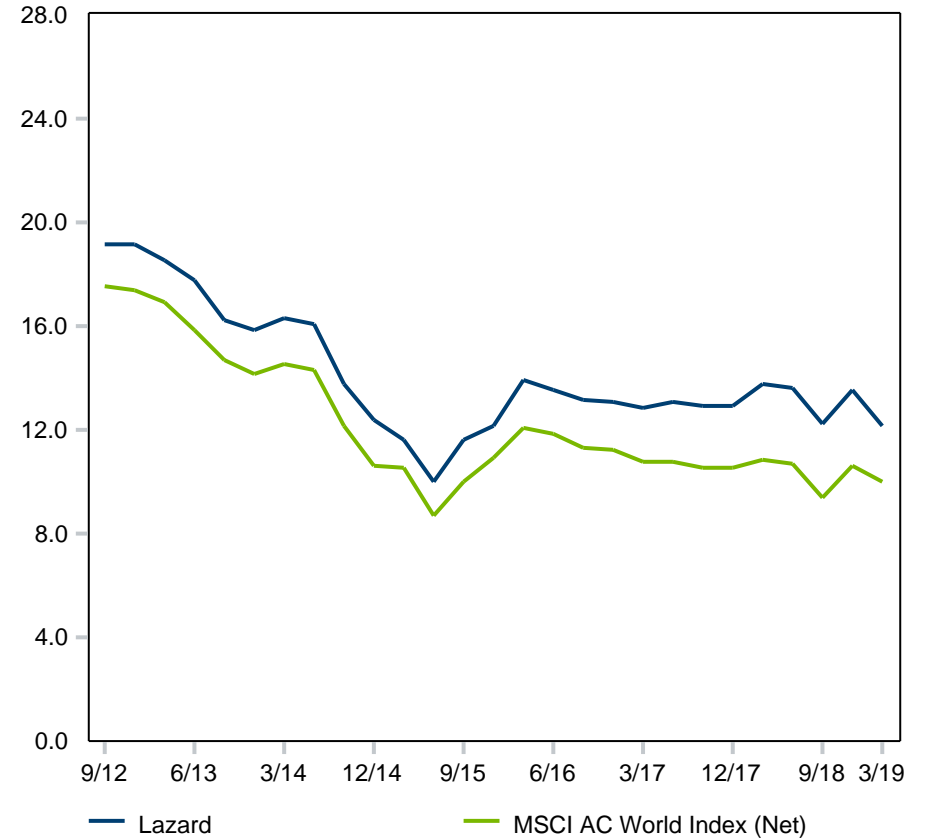
parentheses contain percentile rankings.

Lazard Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 3 Years Standard Deviation



5 Years Historical Statistics

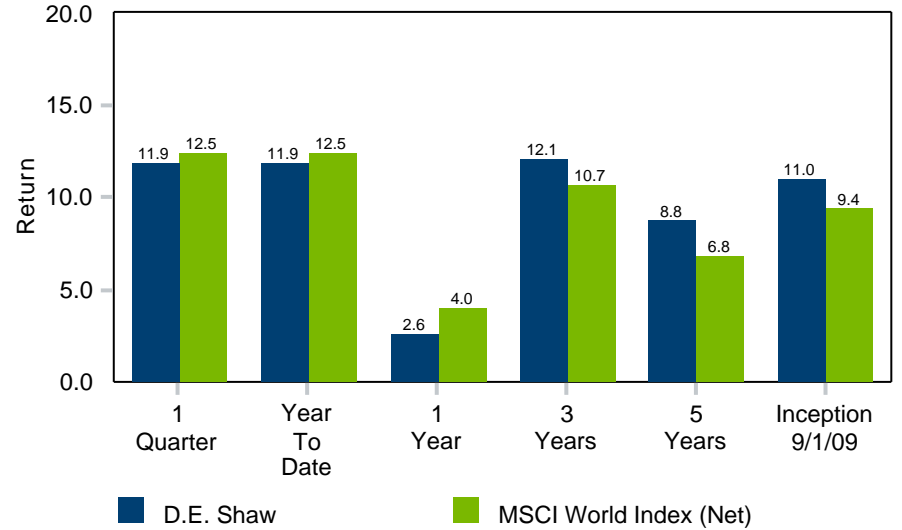
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Lazard	0.49	4.32	0.11	0.90	0.51	-0.36	1.12	6.71	13.09	0.95
MSCI AC World Index (Net)	0.00	0.00	N/A	1.00	0.56	0.00	1.00	6.45	11.06	1.00
FTSE 3 Month T-Bill	-6.15	11.06	-0.56	0.00	N/A	0.72	0.00	0.72	0.23	0.01

D.E. Shaw Performance Summary

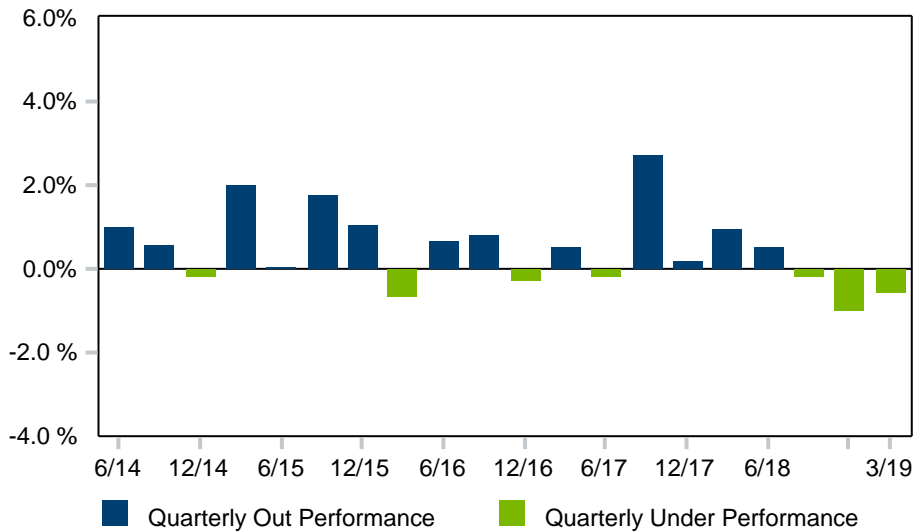
Account Information

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)

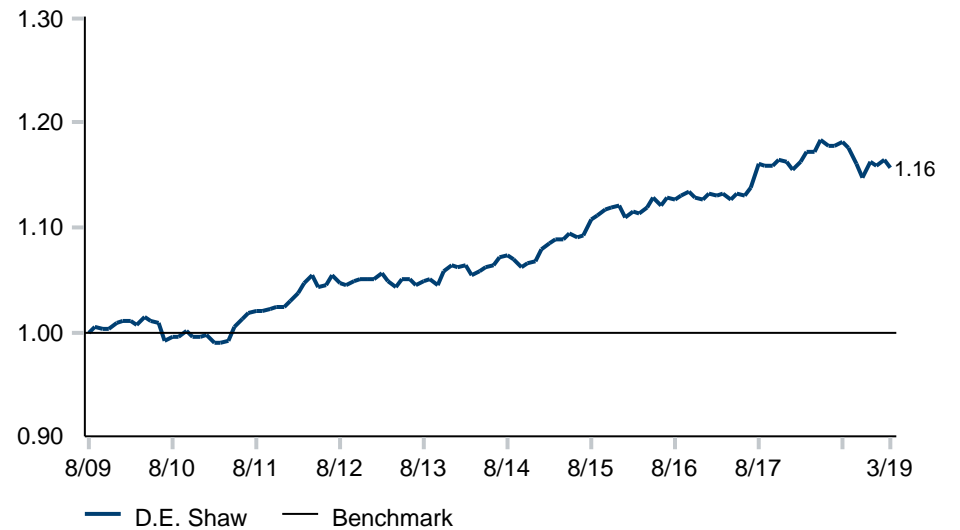
Return Summary



Quarterly Excess Performance

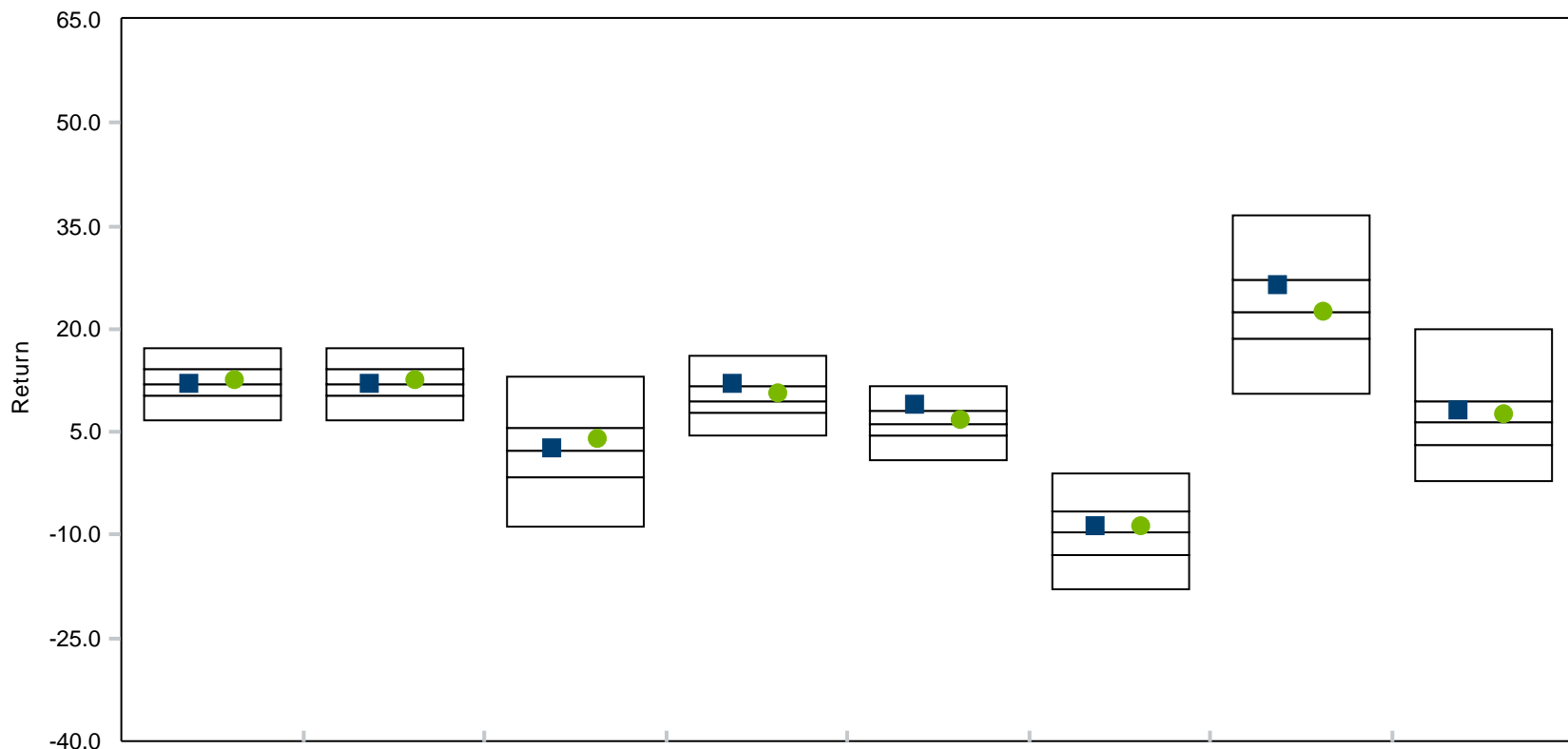


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM Global Equity (SA+CF)

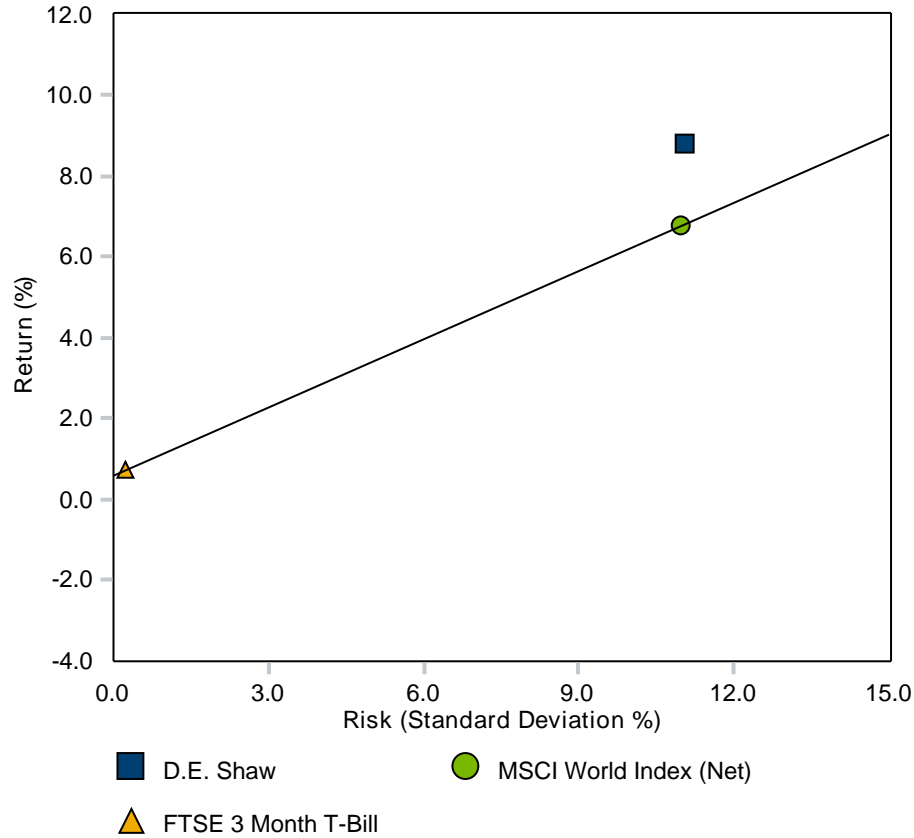


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2018	2017	2016
■ D.E. Shaw	11.9 (53)	11.9 (53)	2.6 (48)	12.1 (23)	8.8 (19)	-8.6 (42)	26.2 (30)	8.0 (37)
● MSCI World Index (Net)	12.5 (45)	12.5 (45)	4.0 (36)	10.7 (35)	6.8 (41)	-8.7 (43)	22.4 (51)	7.5 (40)
5th Percentile	17.2	17.2	13.2	16.2	11.8	-0.9	36.5	19.9
1st Quartile	14.2	14.2	5.6	11.6	8.0	-6.4	27.2	9.4
Median	12.0	12.0	2.2	9.6	6.2	-9.6	22.5	6.3
3rd Quartile	10.3	10.3	-1.5	7.7	4.4	-12.9	18.6	3.1
95th Percentile	6.6	6.6	-8.8	4.5	1.0	-18.0	10.5	-2.3
Population	481	481	479	454	409	503	534	562

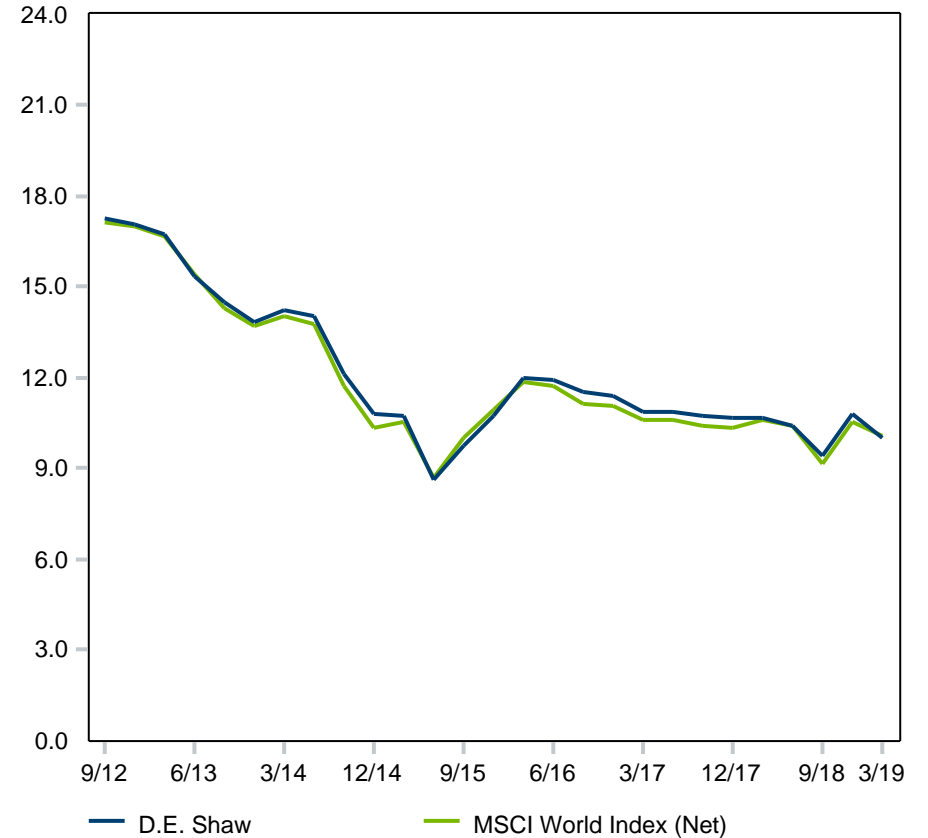
parentheses contain percentile rankings.

D.E. Shaw Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 3 Years Standard Deviation



5 Years Historical Statistics

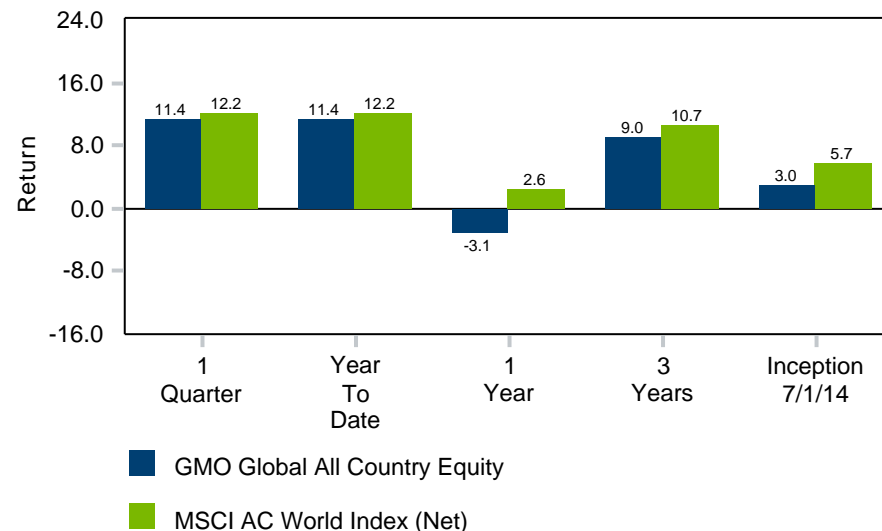
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
D.E. Shaw	1.88	2.09	0.90	0.96	0.75	1.98	0.99	8.78	11.05	0.98
MSCI World Index (Net)	0.00	0.00	N/A	1.00	0.59	0.00	1.00	6.78	10.98	1.00
FTSE 3 Month T-Bill	-6.45	10.97	-0.59	0.00	N/A	0.72	0.00	0.72	0.23	0.01

GMO Global All Country Equity Performance Summary

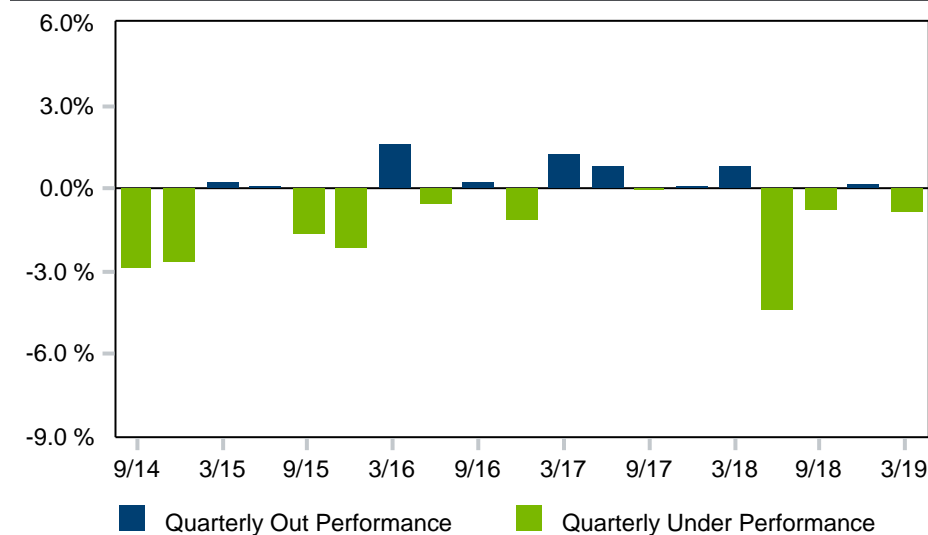
Account Information as of 03/31/19

Product Name : GMO:Global Eq All;III (GMGEX)
Fund Family : Grantham Mayo Van Otterloo & Co LLC
Ticker : GMGEX
Peer Group : IM Global Multi-Cap Core Equity (MF)
Benchmark : MSCI AC World Index (Net)
Fund Inception : 11/26/1996
Portfolio Manager : Inker/Wilderman
Total Assets : \$1,642.00 Million
Total Assets Date : 03/31/2019
Gross Expense : 0.63%
Net Expense : 0.62%
Turnover : 14%

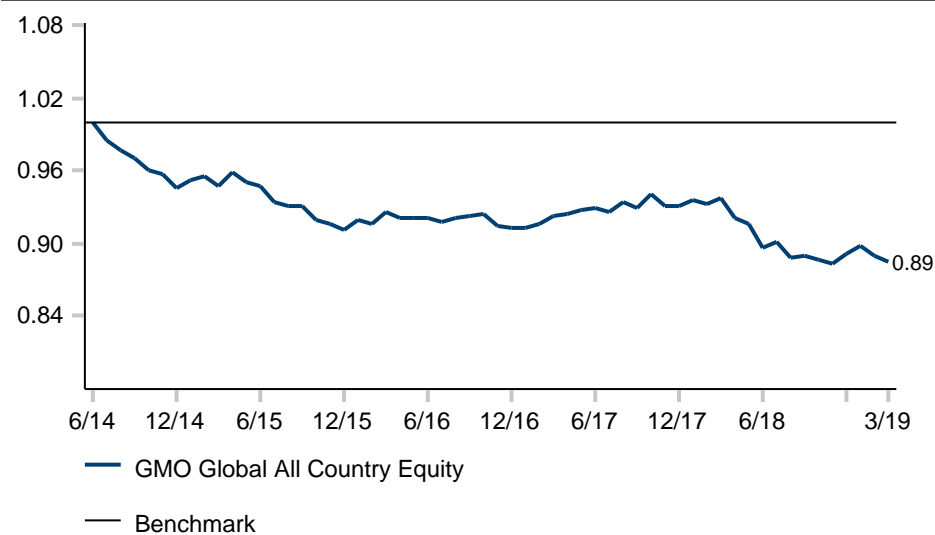
Return Summary



Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception

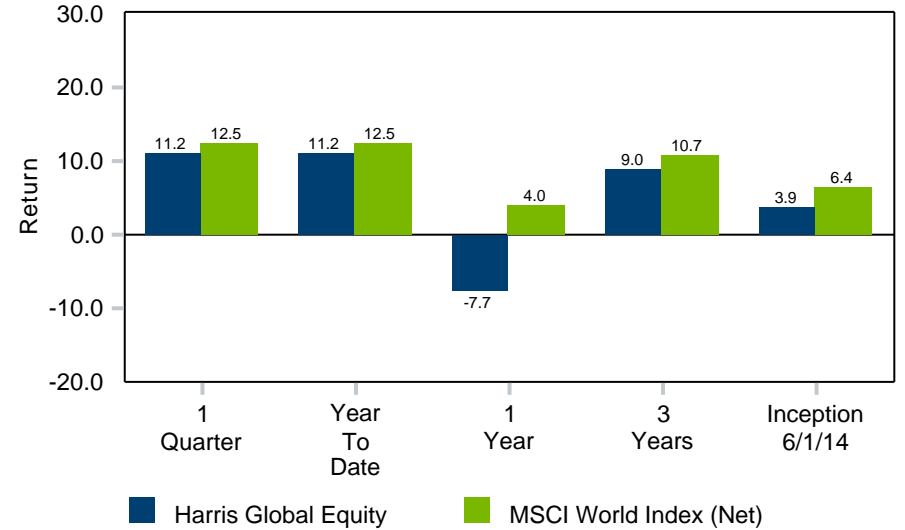


Harris Global Equity Performance Summary

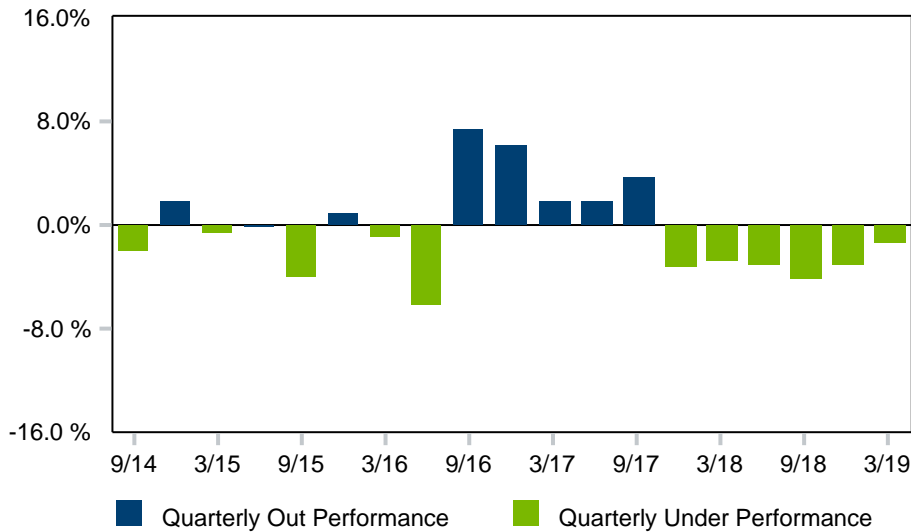
Account Information

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)

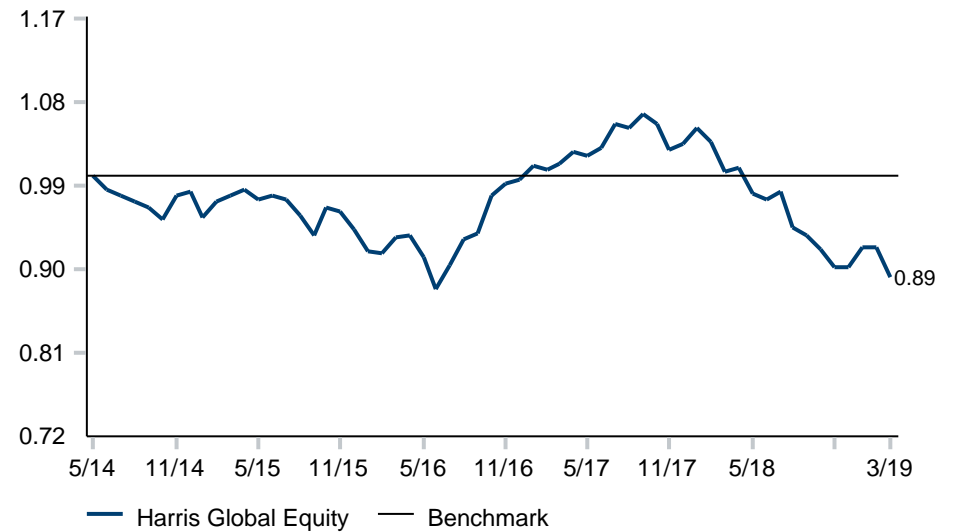
Return Summary



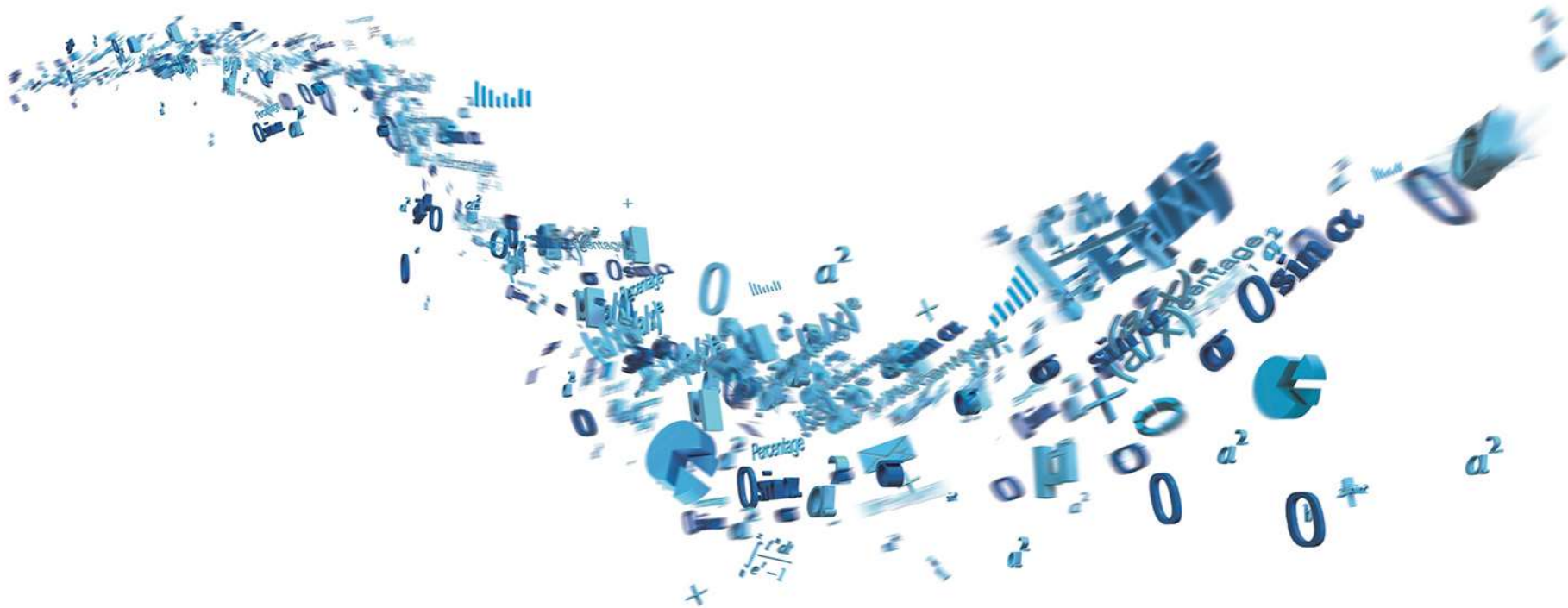
Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception



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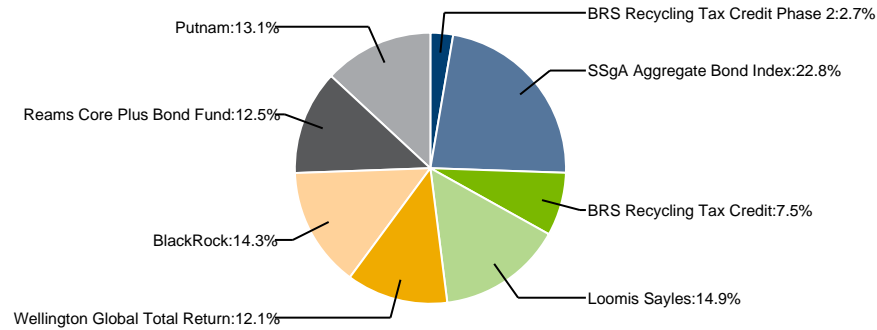


Fixed Income

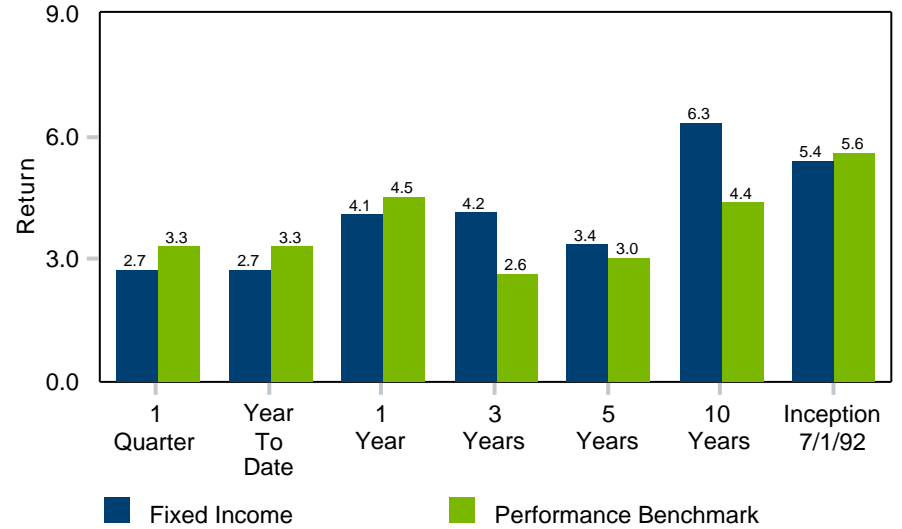
Fixed Income Portfolio Overview

Current Allocation

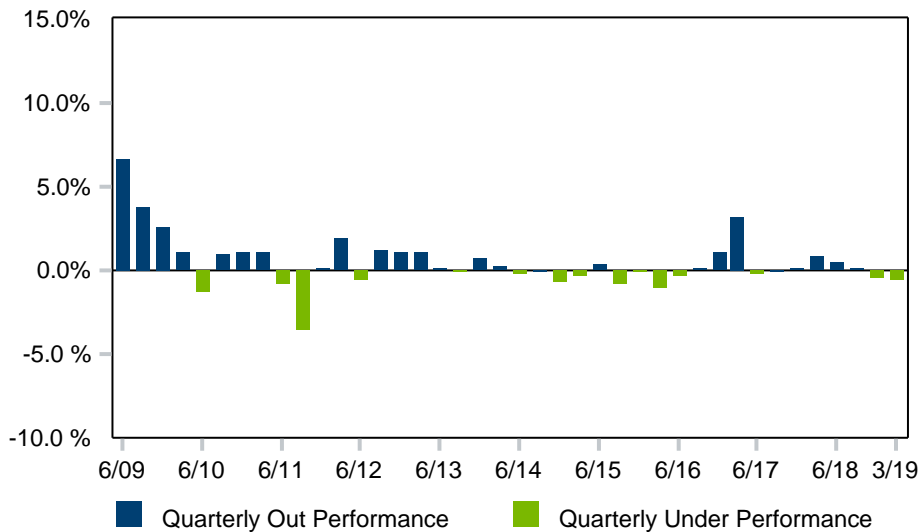
March 31, 2019 : \$2,756M



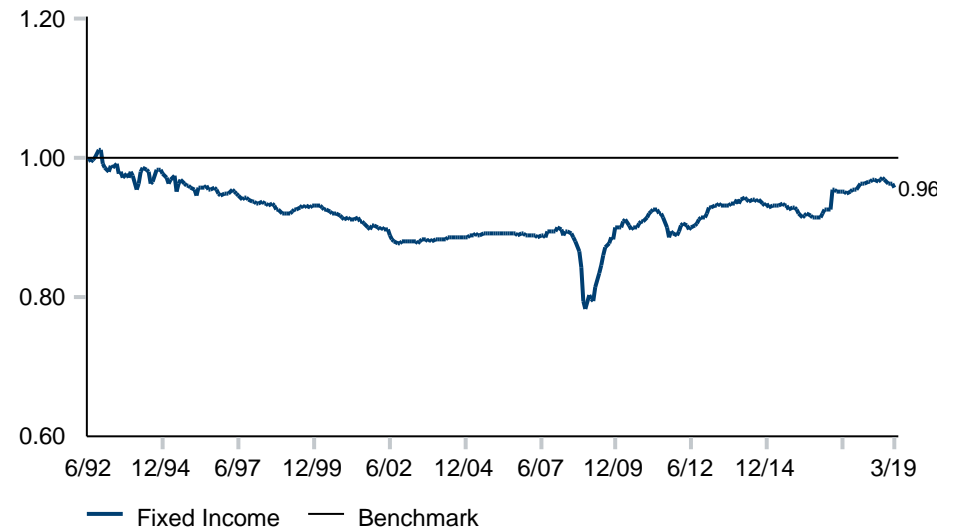
Return Summary



Quarterly Excess Performance

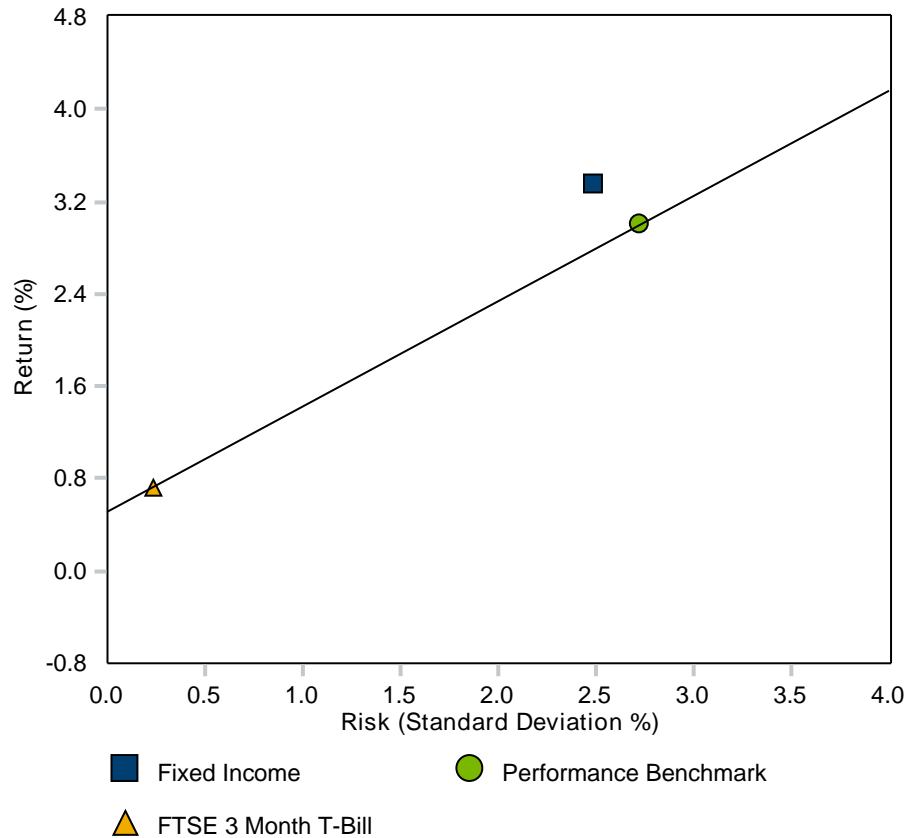


Ratio of Cumulative Wealth - Since Inception

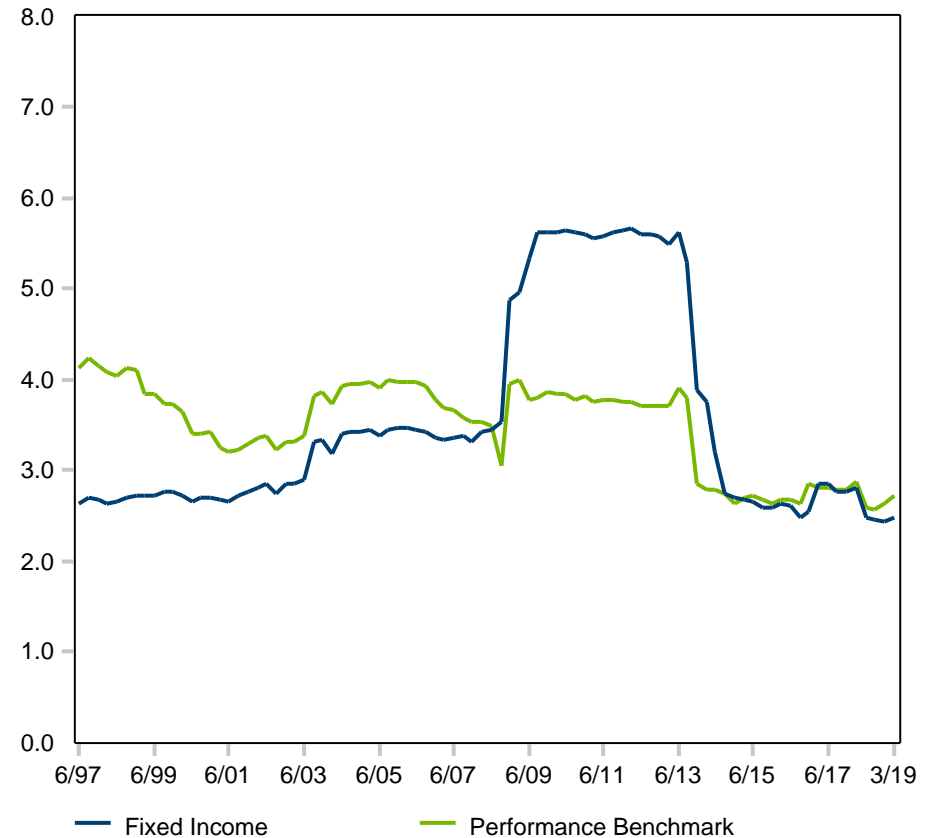


Fixed Income Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 5 Years Standard Deviation

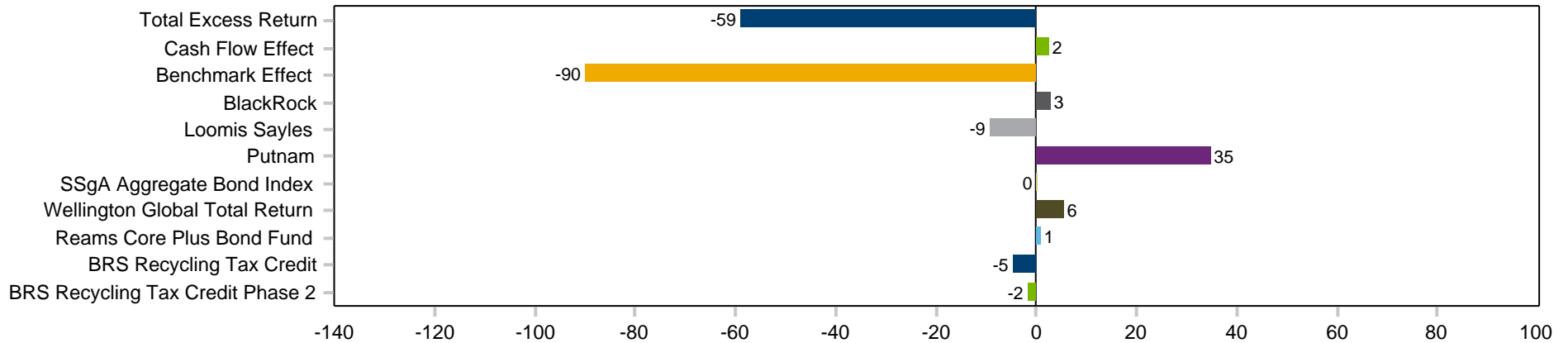


5 Years Historical Statistics

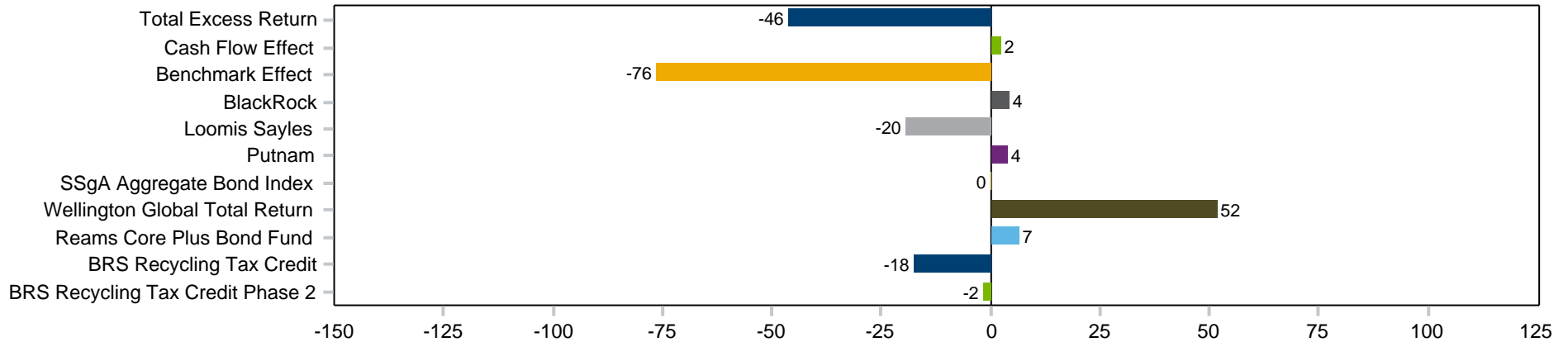
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Fixed Income	0.34	1.78	0.19	0.59	1.05	1.24	0.70	3.35	2.48	0.77
Performance Benchmark	0.00	0.00	N/A	1.00	0.84	0.00	1.00	3.00	2.72	1.00
FTSE 3 Month T-Bill	-2.27	2.71	-0.84	0.00	N/A	0.70	0.01	0.72	0.23	0.07

Asset Class Attribution

1 Quarter



1 Year



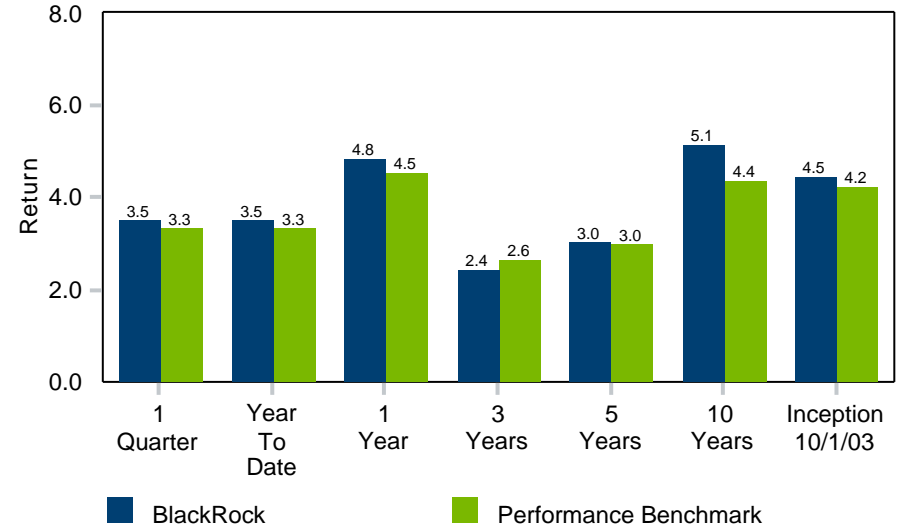
*The BRS Recycling Tax Credit represents an annual income stream of \$16 million dollars over the next 14 years, which ATRS purchased for approximately \$162 million. This represents an approximate 9.9% yield for the 2017 fiscal year. The value shown above represents the year-end market value in accordance 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

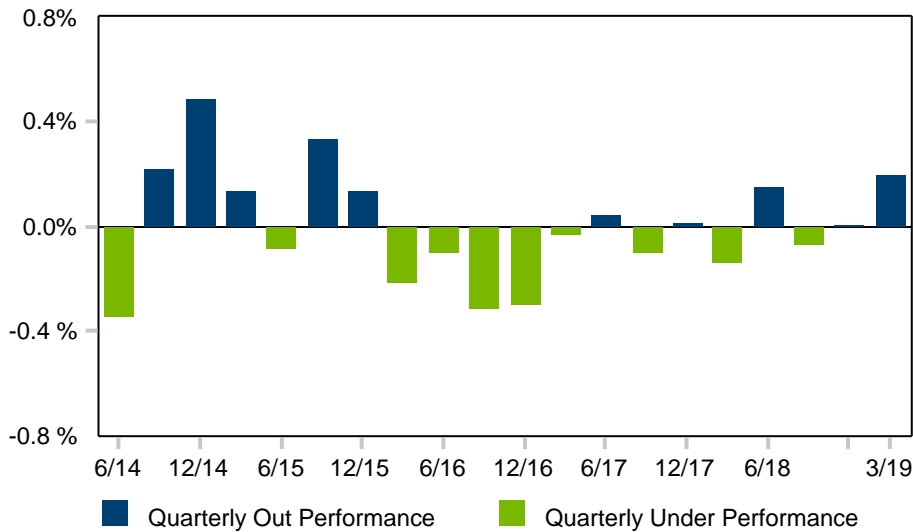
Account Information

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)

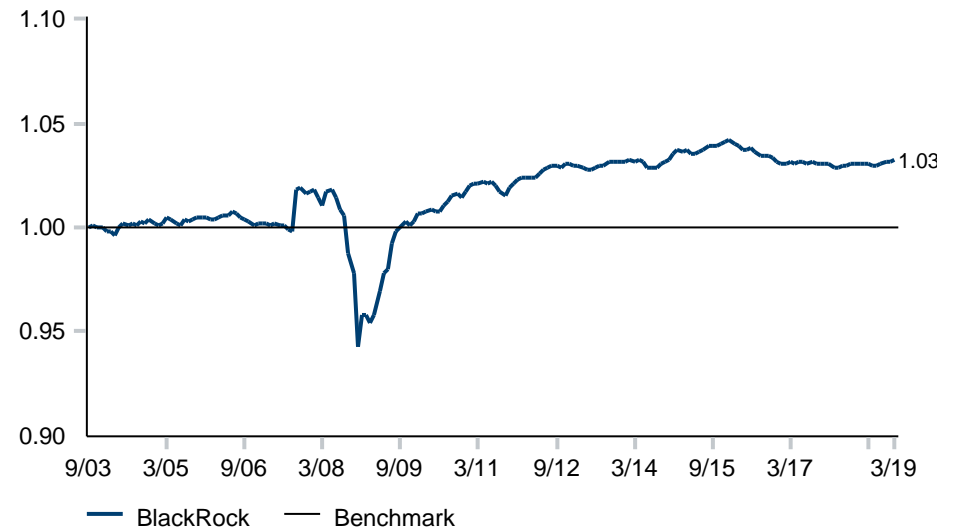
Return Summary



Quarterly Excess Performance

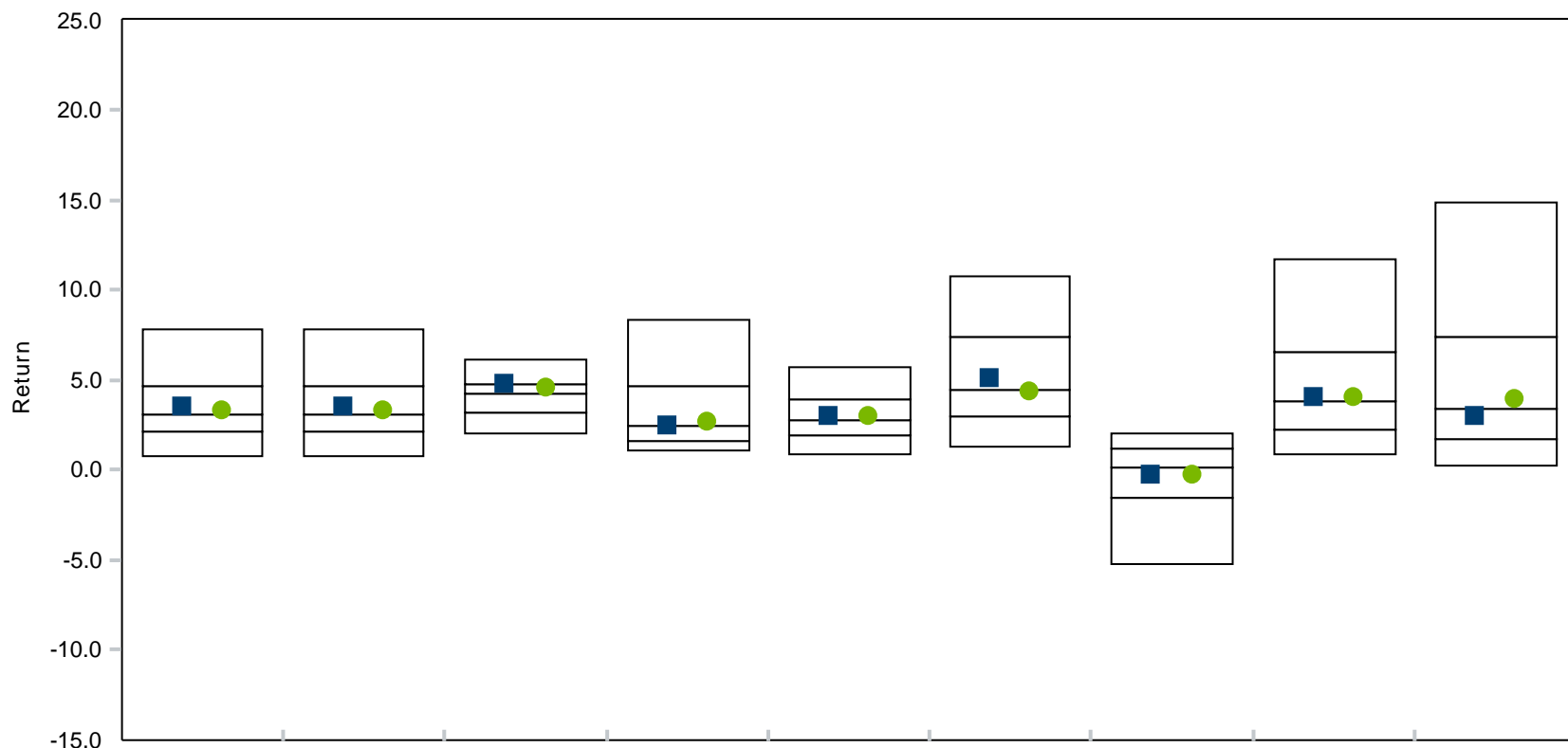


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

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

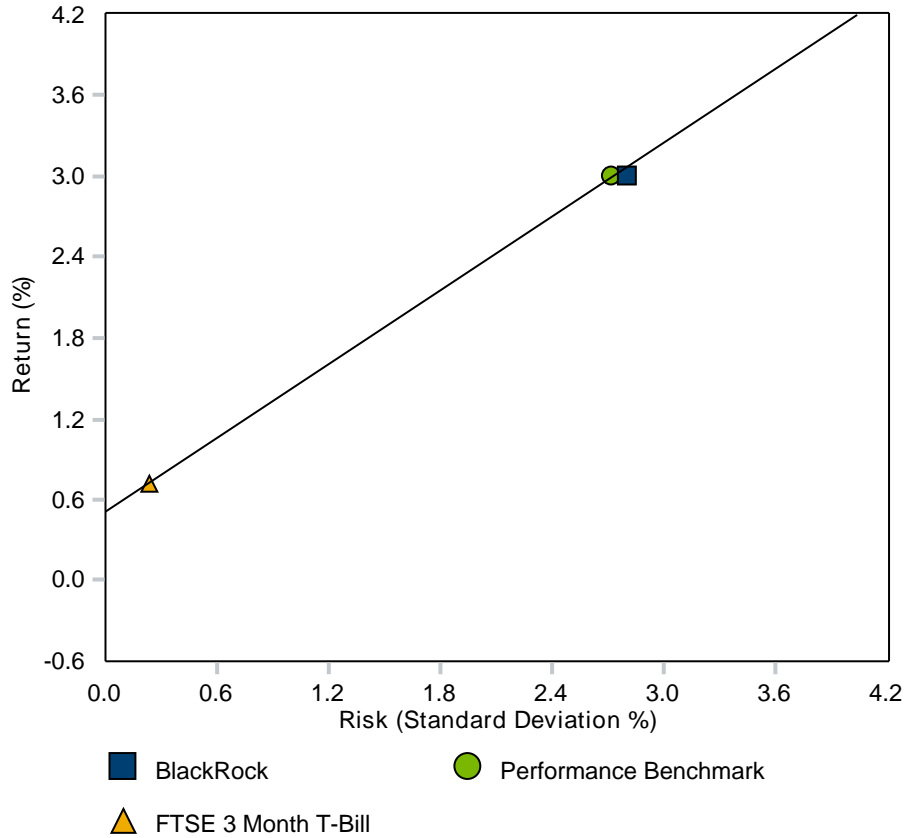


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years	2018	2017	2016
■ BlackRock	3.5 (39)	3.5 (39)	4.8 (24)	2.4 (52)	3.0 (45)	5.1 (42)	-0.3 (60)	4.0 (48)	3.0 (55)
● Performance Benchmark	3.3 (44)	3.3 (44)	4.5 (34)	2.6 (48)	3.0 (45)	4.4 (52)	-0.3 (58)	4.1 (46)	3.9 (45)
5th Percentile	7.8	7.8	6.2	8.4	5.7	10.8	2.0	11.7	14.9
1st Quartile	4.6	4.6	4.8	4.7	3.9	7.4	1.2	6.5	7.4
Median	3.1	3.1	4.2	2.5	2.8	4.5	0.1	3.9	3.4
3rd Quartile	2.1	2.1	3.2	1.7	2.0	3.0	-1.5	2.3	1.7
95th Percentile	0.8	0.8	2.0	1.1	0.9	1.3	-5.2	0.9	0.2
Population	1,340	1,340	1,330	1,286	1,245	1,016	1,401	1,471	1,526

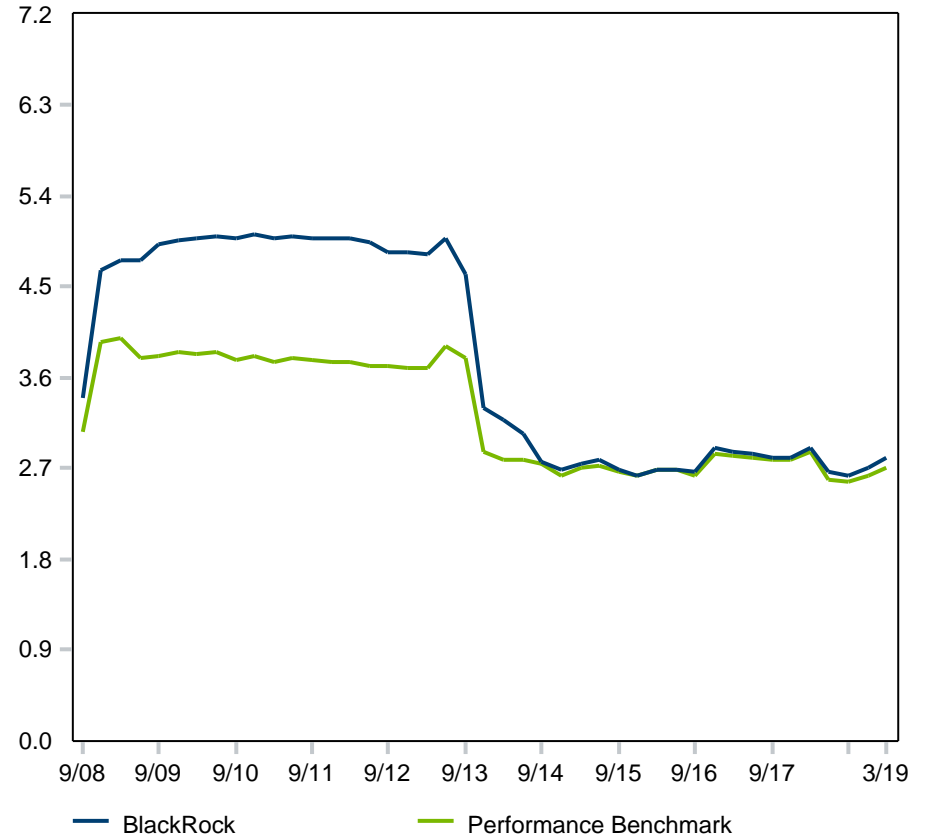
parentheses contain percentile rankings.

BlackRock Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 5 Years Standard Deviation



5 Years Historical Statistics

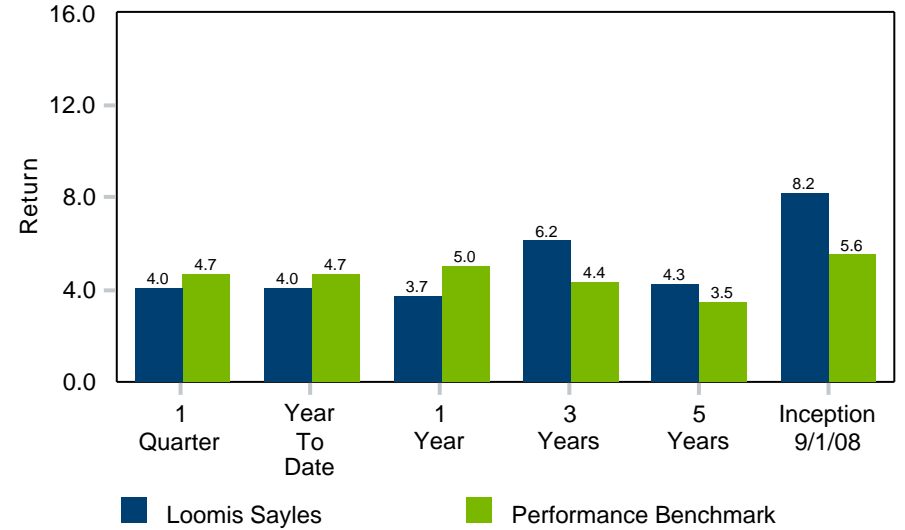
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
BlackRock	0.01	0.37	0.03	0.98	0.82	-0.05	1.02	3.01	2.80	0.99
Performance Benchmark	0.00	0.00	N/A	1.00	0.84	0.00	1.00	3.00	2.72	1.00
FTSE 3 Month T-Bill	-2.27	2.71	-0.84	0.00	N/A	0.70	0.01	0.72	0.23	0.07

Loomis Sayles Performance Summary

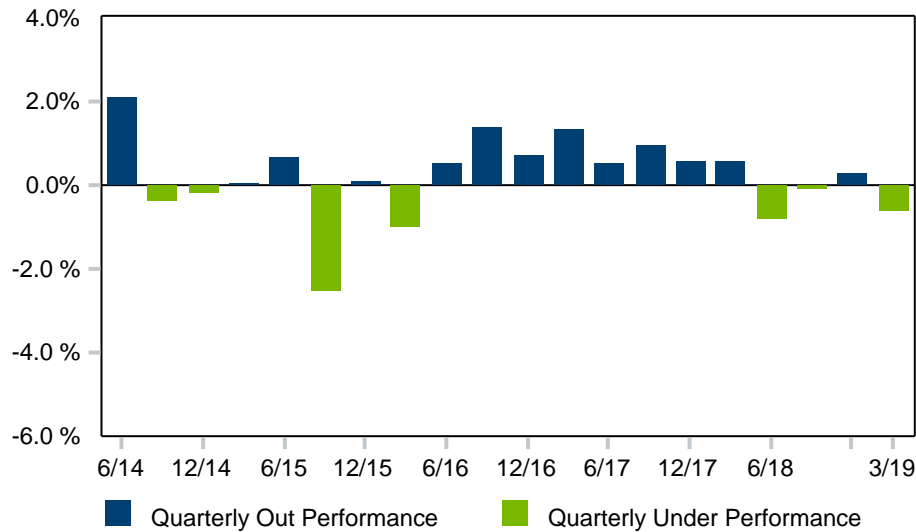
Account Information

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)

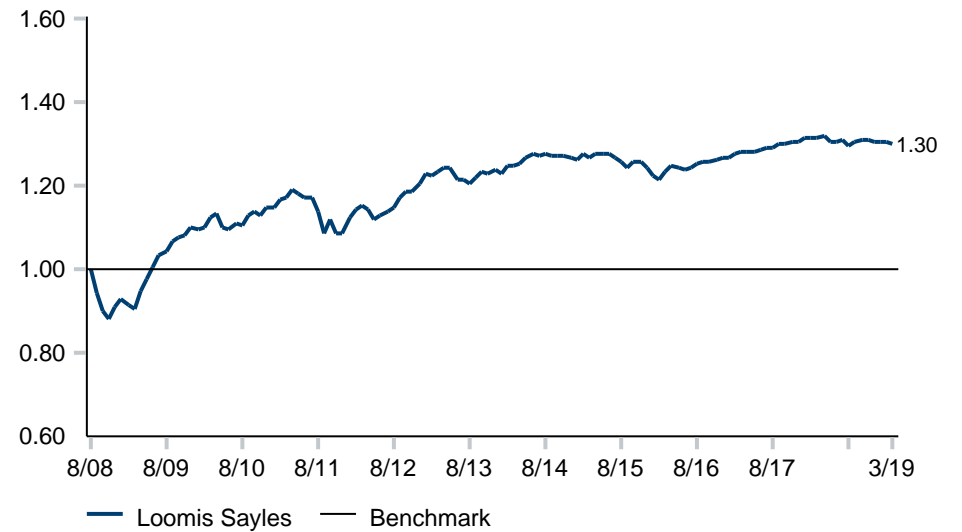
Return Summary



Quarterly Excess Performance

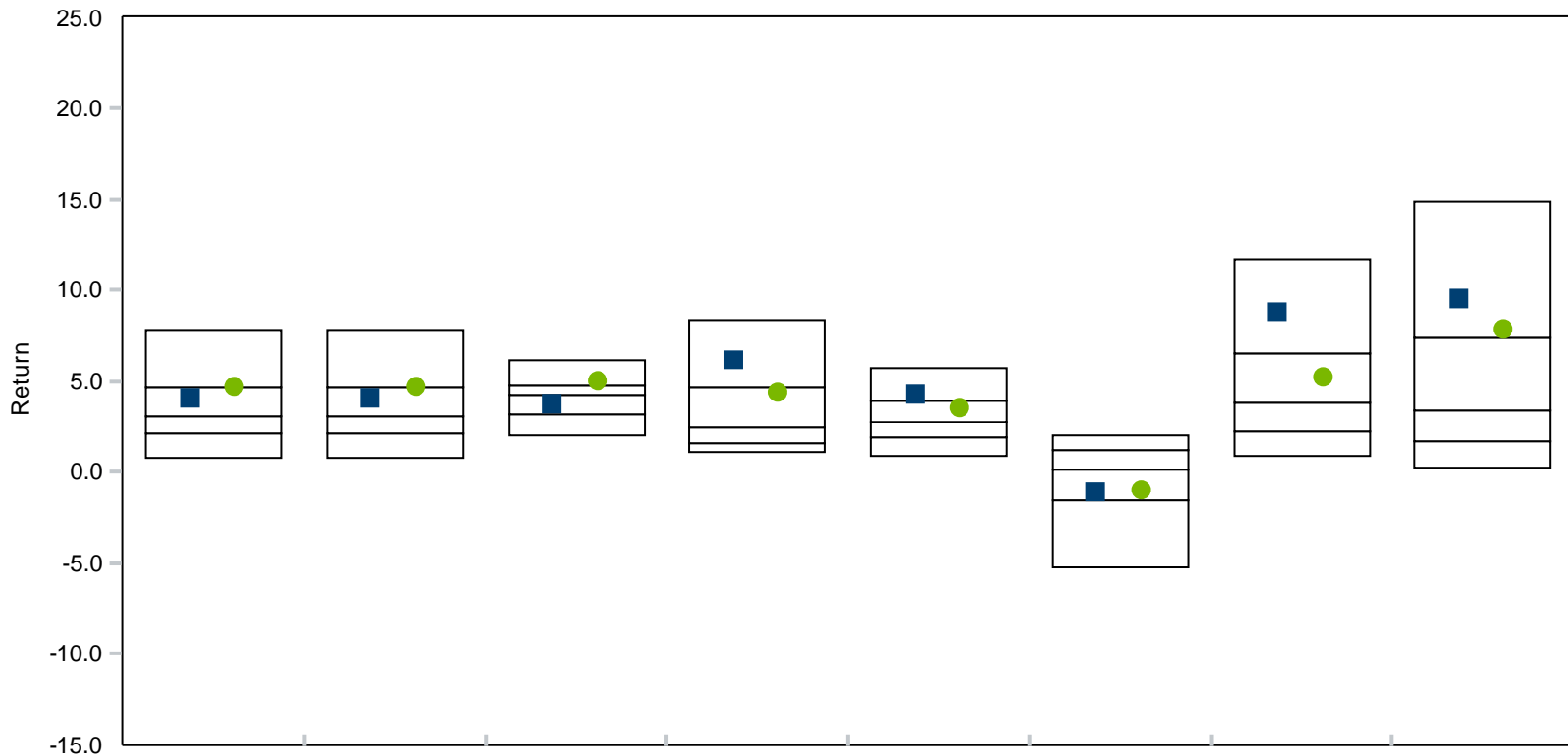


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

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

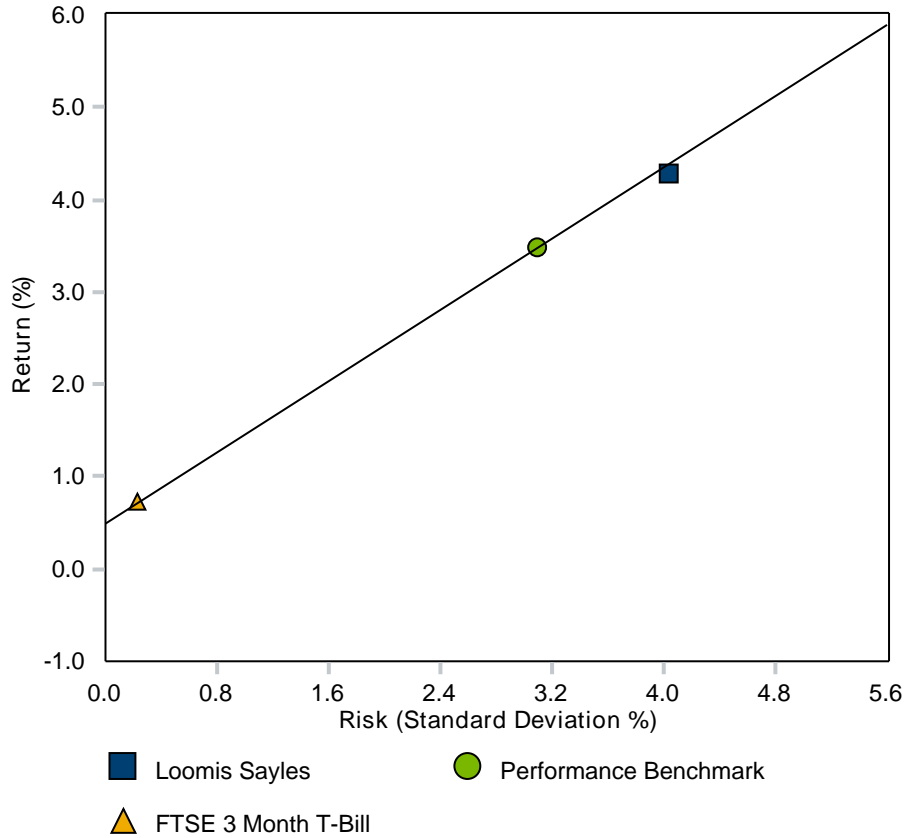


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2018	2017	2016
■ Loomis Sayles	4.0 (31)	4.0 (31)	3.7 (67)	6.2 (15)	4.3 (20)	-1.1 (72)	8.8 (12)	9.5 (19)
● Performance Benchmark	4.7 (25)	4.7 (25)	5.0 (19)	4.4 (28)	3.5 (34)	-1.0 (71)	5.2 (33)	7.8 (24)
5th Percentile	7.8	7.8	6.2	8.4	5.7	2.0	11.7	14.9
1st Quartile	4.6	4.6	4.8	4.7	3.9	1.2	6.5	7.4
Median	3.1	3.1	4.2	2.5	2.8	0.1	3.9	3.4
3rd Quartile	2.1	2.1	3.2	1.7	2.0	-1.5	2.3	1.7
95th Percentile	0.8	0.8	2.0	1.1	0.9	-5.2	0.9	0.2
Population	1,340	1,340	1,330	1,286	1,245	1,401	1,471	1,526

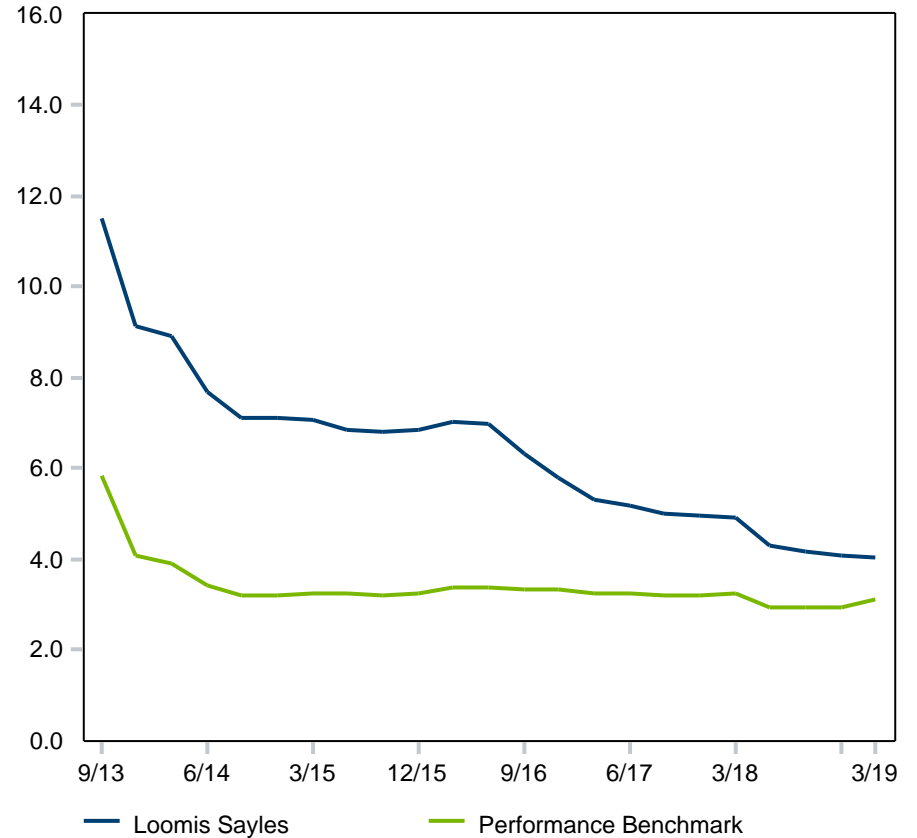
Partheses contain percentile rankings.

Loomis Sayles Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 5 Years Standard Deviation



5 Years Historical Statistics

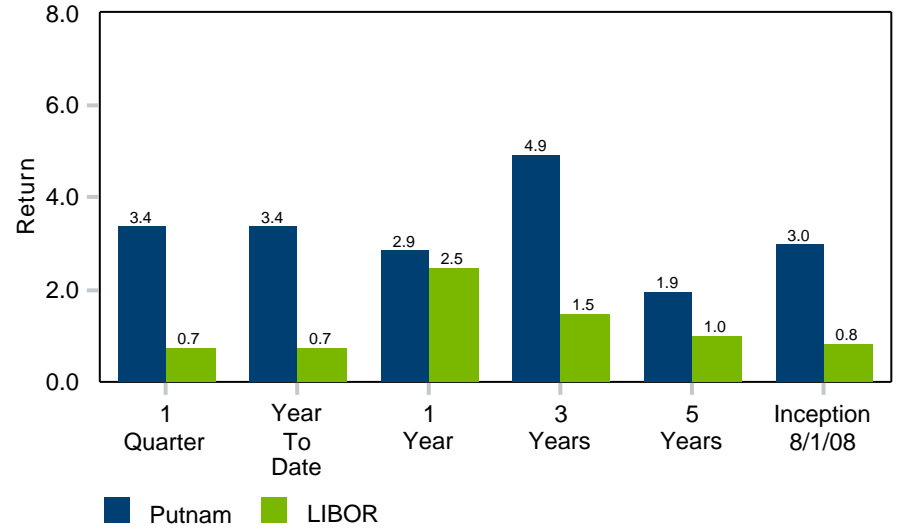
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Loomis Sayles	0.80	2.04	0.39	0.76	0.88	0.33	1.14	4.28	4.05	0.87
Performance Benchmark	0.00	0.00	N/A	1.00	0.89	0.00	1.00	3.48	3.10	1.00
FTSE 3 Month T-Bill	-2.75	3.09	-0.89	0.01	N/A	0.70	0.01	0.72	0.23	0.08

Putnam Performance Summary

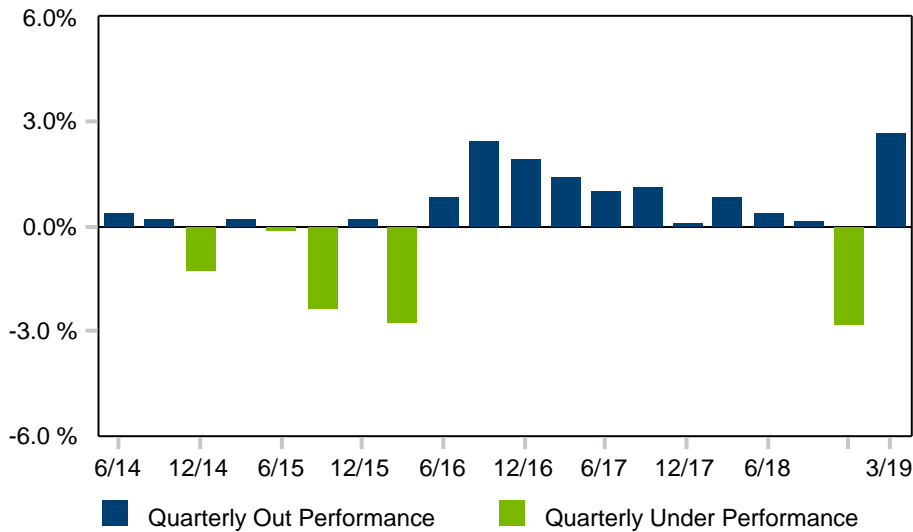
Account Information

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)

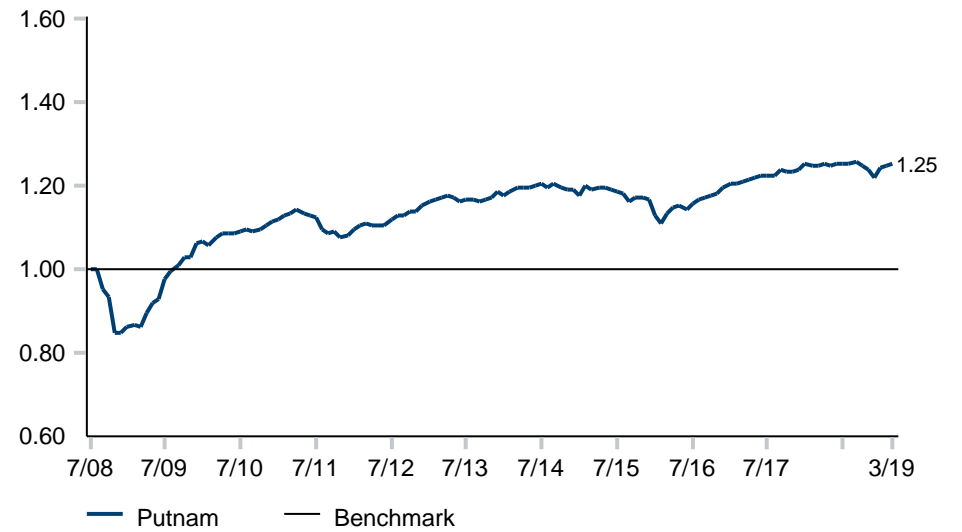
Return Summary



Quarterly Excess Performance

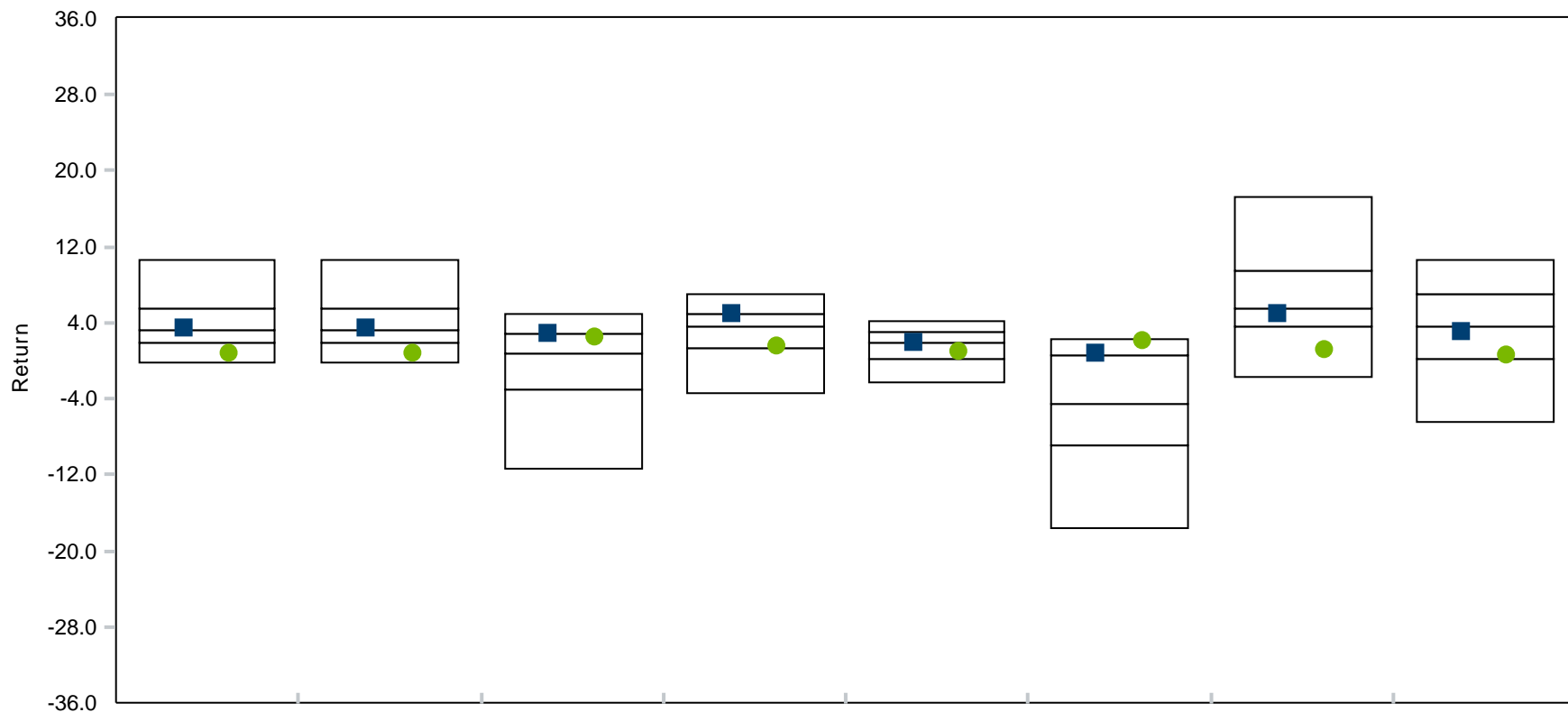


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

IM Absolute Return (MF)

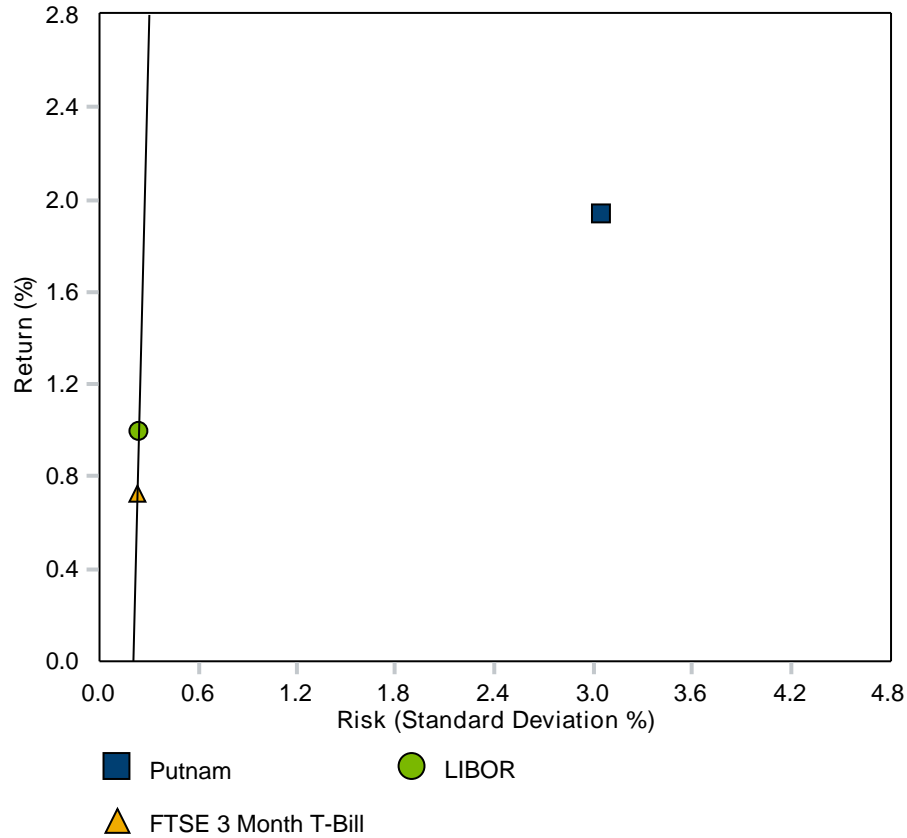


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2018	2017	2016
■ Putnam	3.4 (47)	3.4 (47)	2.9 (22)	4.9 (27)	1.9 (50)	0.7 (23)	4.9 (57)	3.1 (55)
● LIBOR	0.7 (90)	0.7 (90)	2.5 (29)	1.5 (71)	1.0 (68)	2.1 (6)	1.1 (91)	0.7 (74)
5th Percentile	10.7	10.7	4.9	7.0	4.1	2.4	17.2	10.5
1st Quartile	5.4	5.4	2.8	5.0	3.0	0.5	9.5	6.9
Median	3.2	3.2	0.8	3.5	1.9	-4.6	5.5	3.5
3rd Quartile	1.9	1.9	-3.1	1.3	0.1	-9.0	3.5	0.1
95th Percentile	-0.1	-0.1	-11.4	-3.4	-2.2	-17.6	-1.7	-6.4
Population	45	45	45	45	38	49	51	51

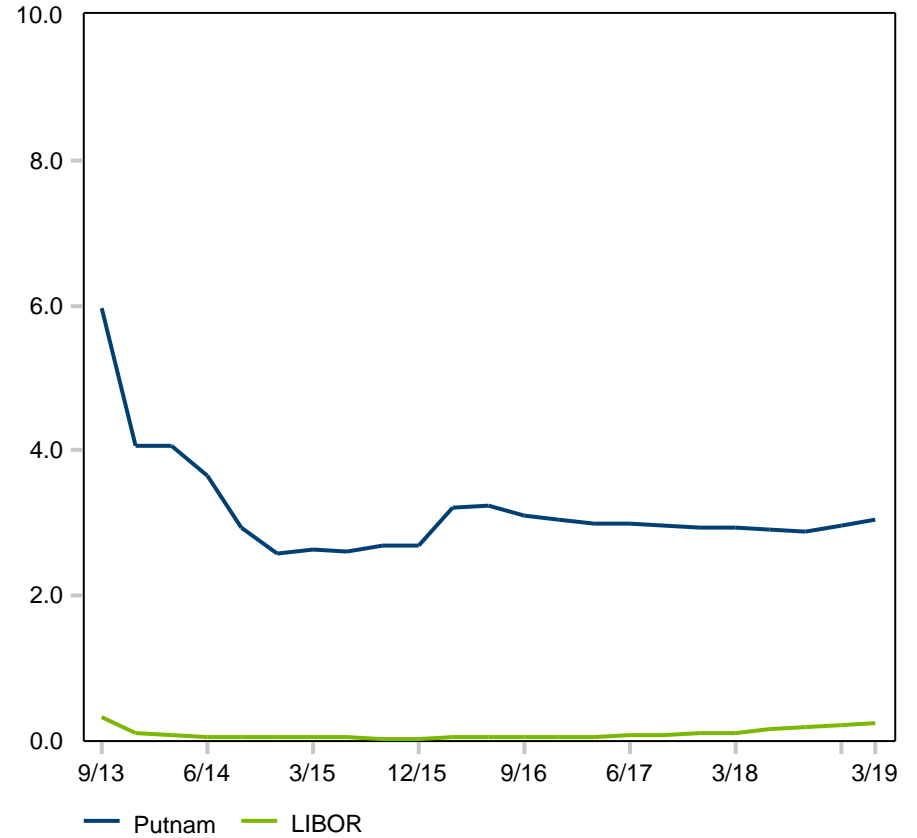
108
108
108
Parentheses contain percentile rankings.

Putnam Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 5 Years Standard Deviation



5 Years Historical Statistics

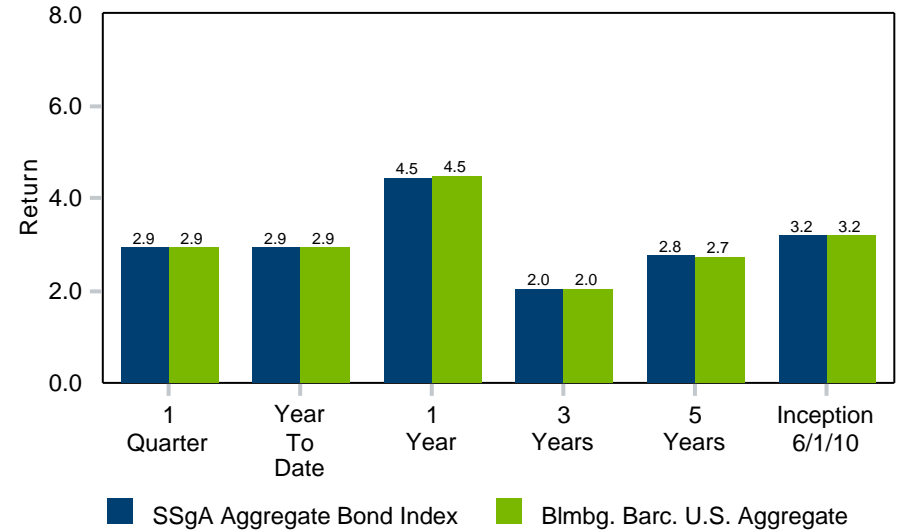
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Putnam	0.97	3.03	0.32	0.03	0.41	-0.13	2.11	1.93	3.06	0.17
LIBOR	0.00	0.00	N/A	1.00	4.58	0.00	1.00	0.99	0.24	1.00
FTSE 3 Month T-Bill	-0.27	0.06	-4.58	0.94	N/A	-0.21	0.94	0.72	0.23	0.97

SSgA Aggregate Bond Index Performance Summary

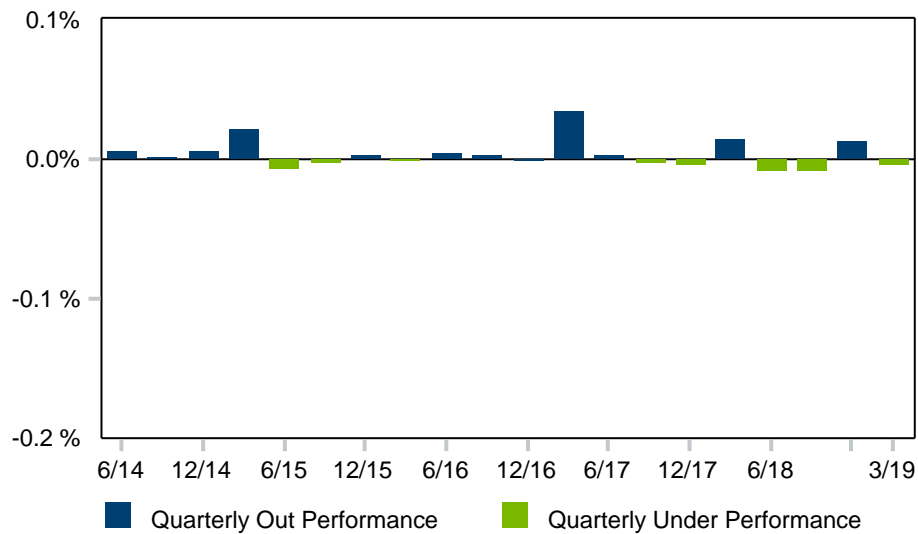
Account Information

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

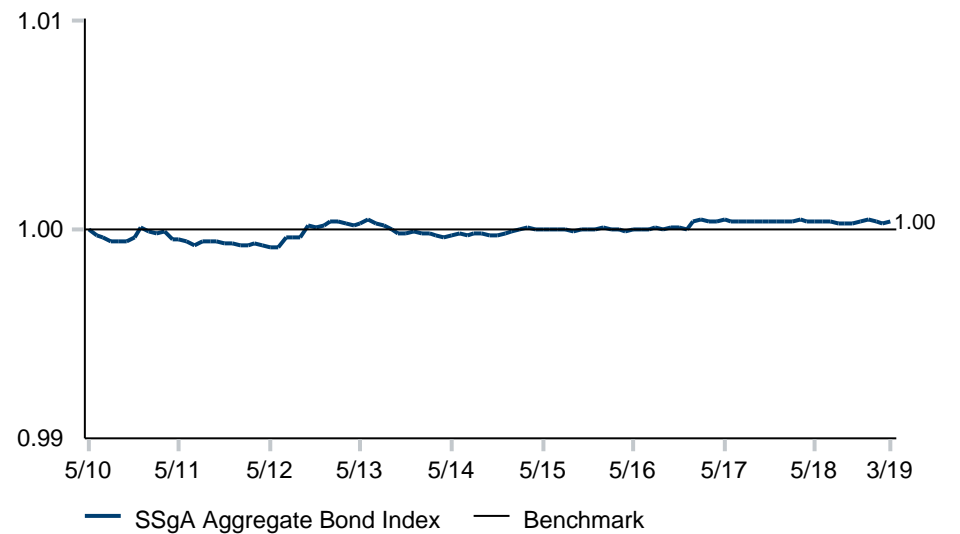
Return Summary



Quarterly Excess Performance

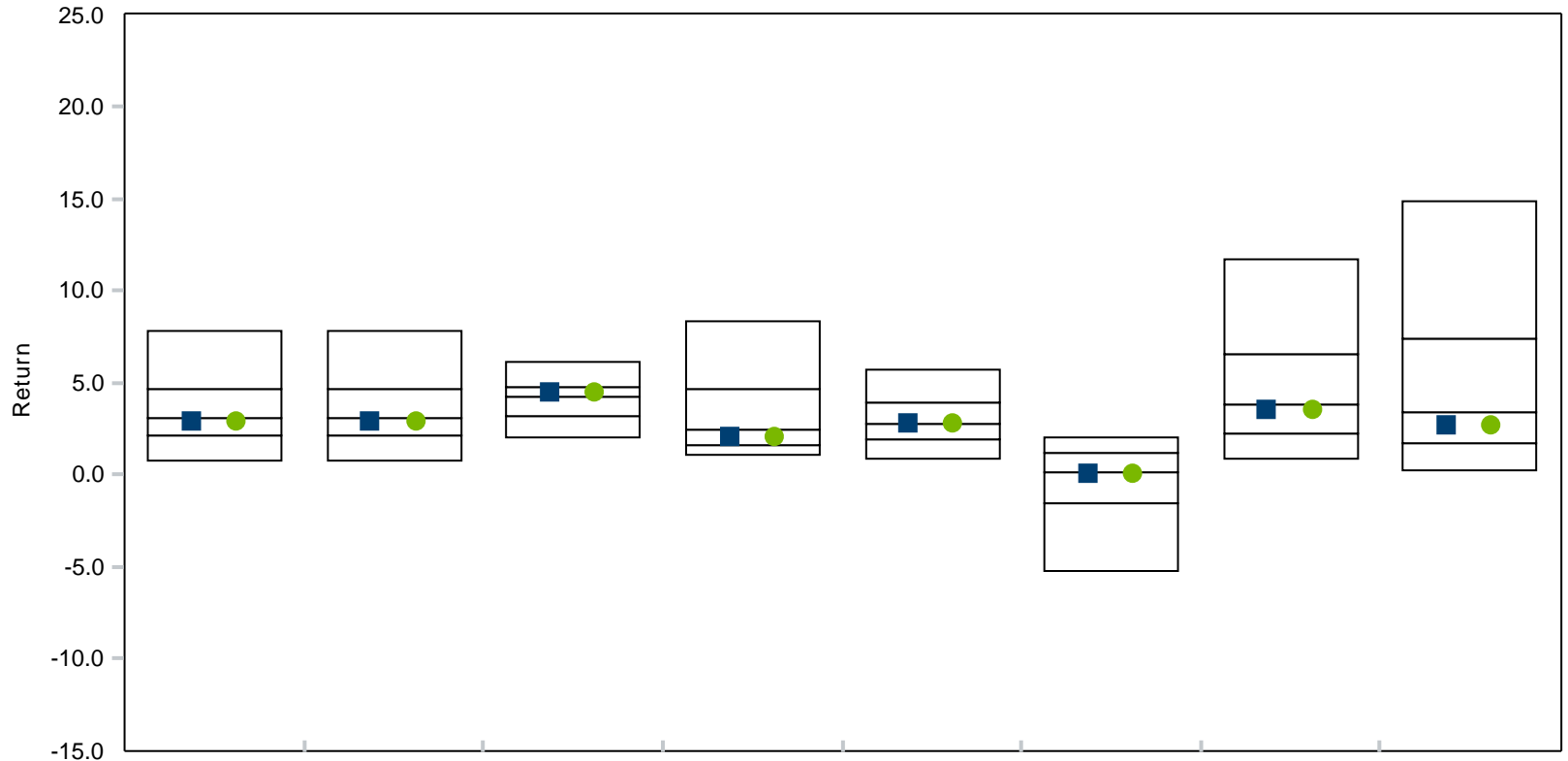


Ratio of Cumulative Wealth - Since Inception



Peer Group Analysis

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

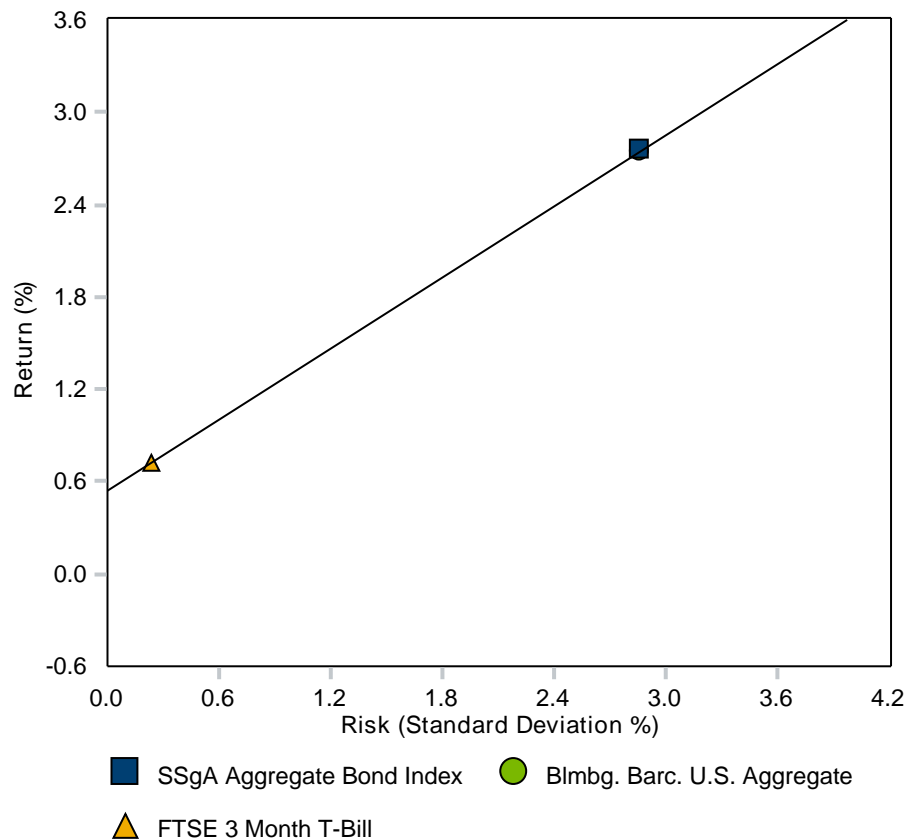


	1 Quarter	Year To Date	1 Year	3 Years	5 Years	2018	2017	2016
■ SSgA Aggregate Bond Index	2.9 (55)	2.9 (55)	4.5 (36)	2.0 (62)	2.8 (53)	0.0 (52)	3.6 (56)	2.7 (60)
● Blmbg. Barc. U.S. Aggregate	2.9 (55)	2.9 (55)	4.5 (36)	2.0 (62)	2.7 (53)	0.0 (52)	3.5 (57)	2.6 (60)
5th Percentile	7.8	7.8	6.2	8.4	5.7	2.0	11.7	14.9
1st Quartile	4.6	4.6	4.8	4.7	3.9	1.2	6.5	7.4
Median	3.1	3.1	4.2	2.5	2.8	0.1	3.9	3.4
3rd Quartile	2.1	2.1	3.2	1.7	2.0	-1.5	2.3	1.7
95th Percentile	0.8	0.8	2.0	1.1	0.9	-5.2	0.9	0.2
Population	1,340	1,340	1,330	1,286	1,245	1,401	1,471	1,526

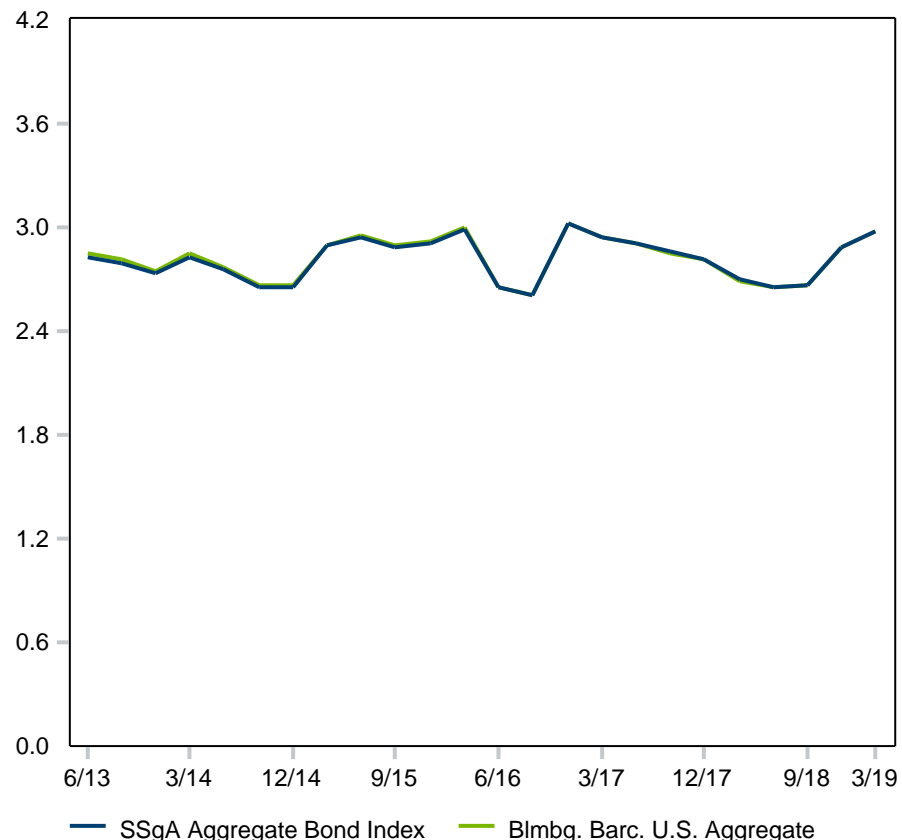
parentheses contain percentile rankings.

SSgA Aggregate Bond Index Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 3 Years Standard Deviation



5 Years Historical Statistics

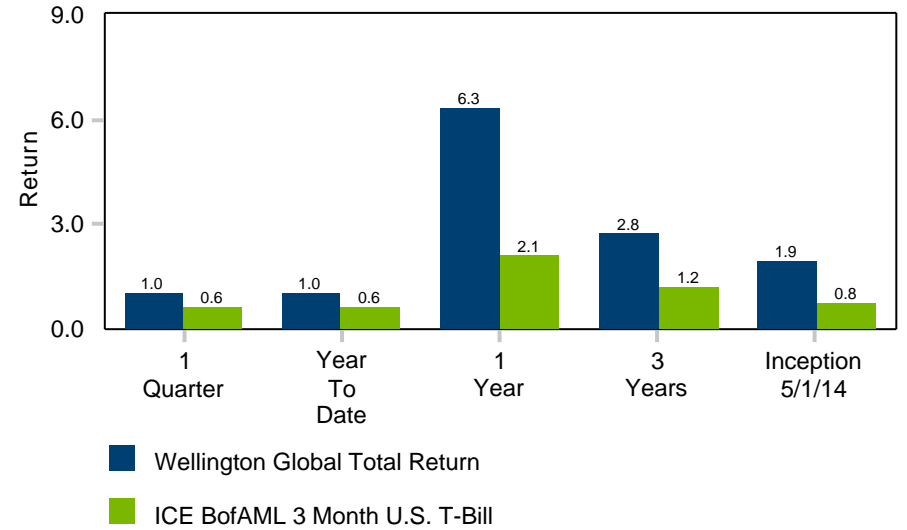
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
SSgA Aggregate Bond Index	0.01	0.03	0.55	1.00	0.71	0.01	1.00	2.76	2.86	1.00
Blmbg. Barc. U.S. Aggregate	0.00	0.00	N/A	1.00	0.71	0.00	1.00	2.74	2.86	1.00
FTSE 3 Month T-Bill	-2.03	2.85	-0.71	0.00	N/A	0.71	0.01	0.72	0.23	0.07

Wellington Global Total Return Performance Summary

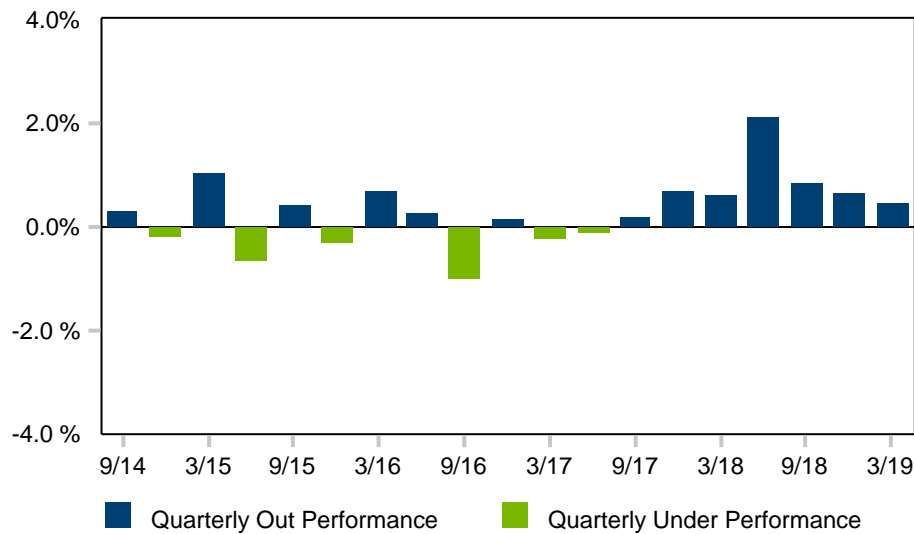
Account Information

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)

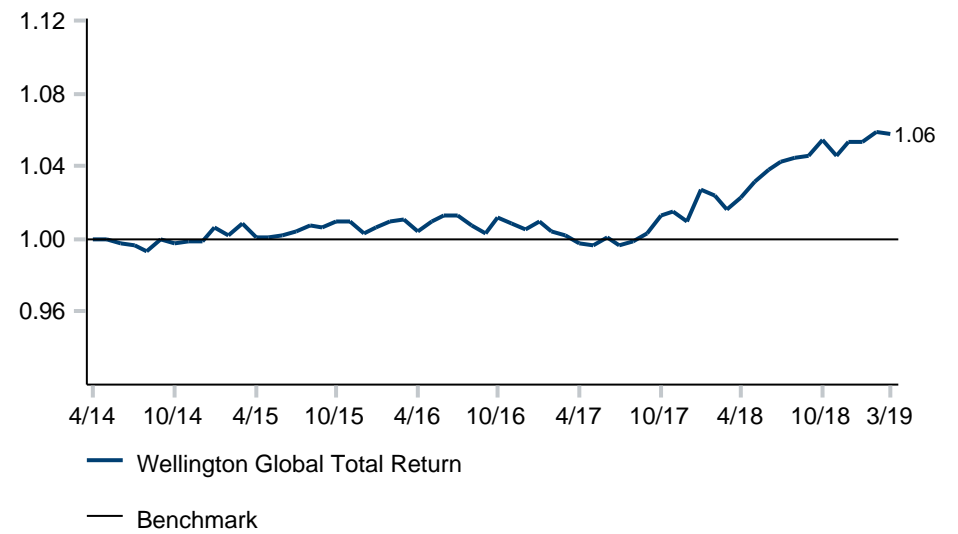
Return Summary



Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception

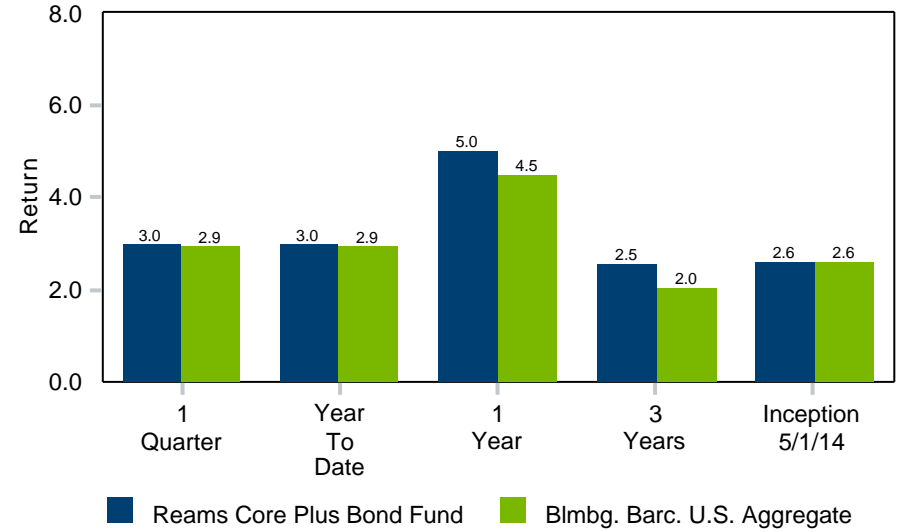


Reams Core Plus Bond Fund Performance Summary

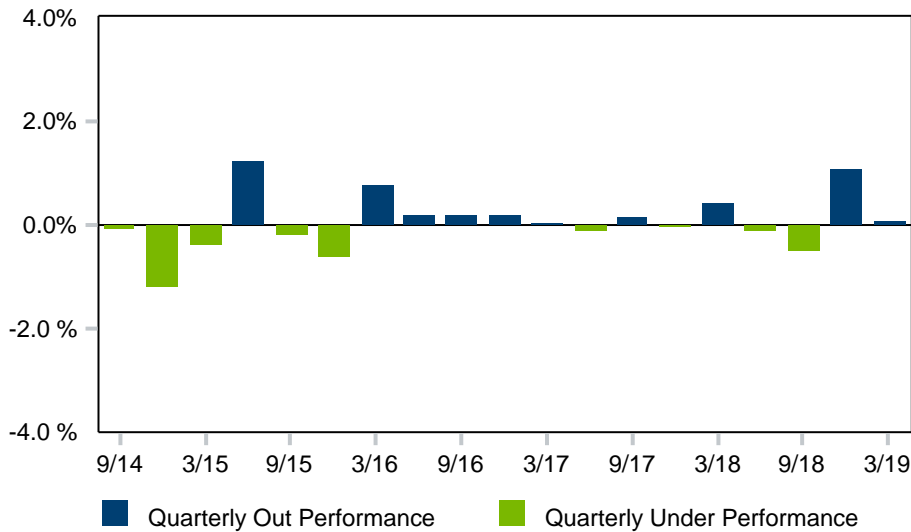
Account Information

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

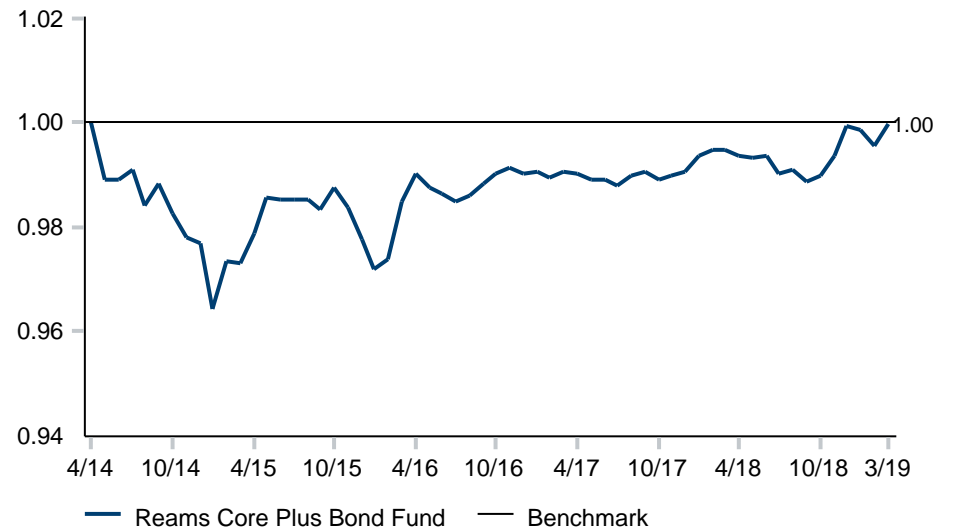
Return Summary

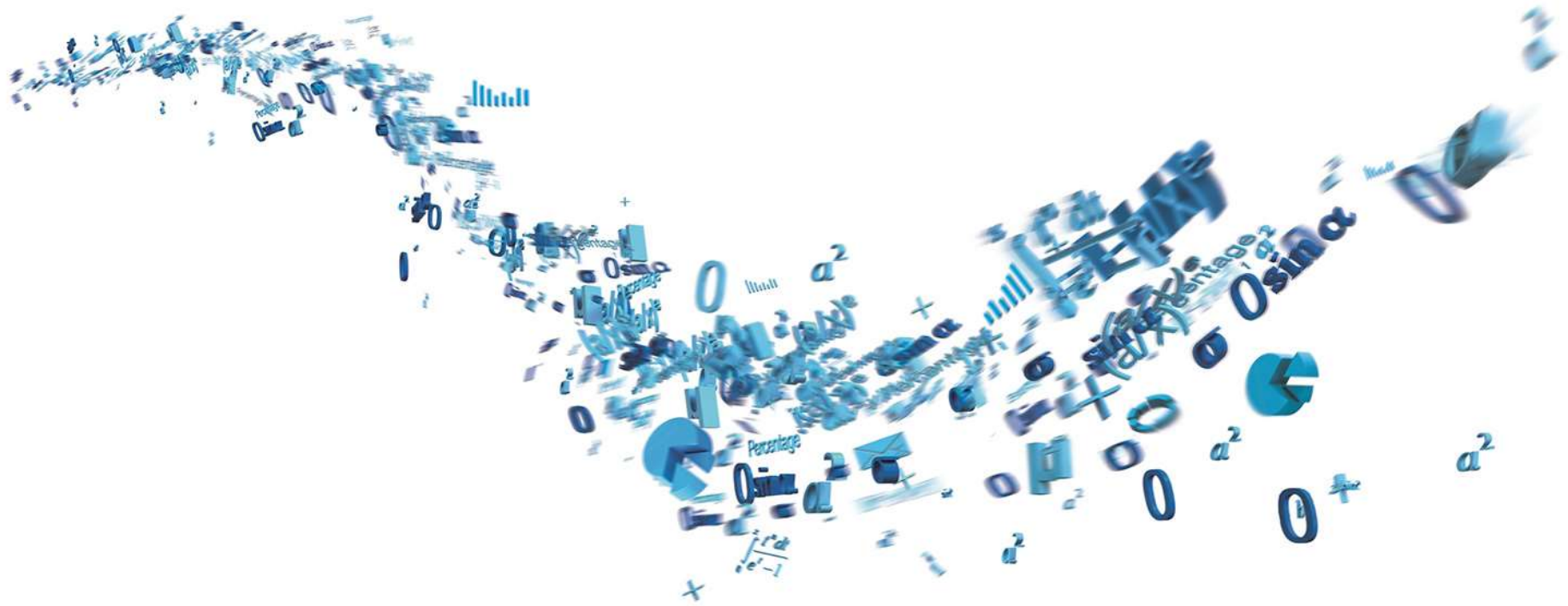


Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception



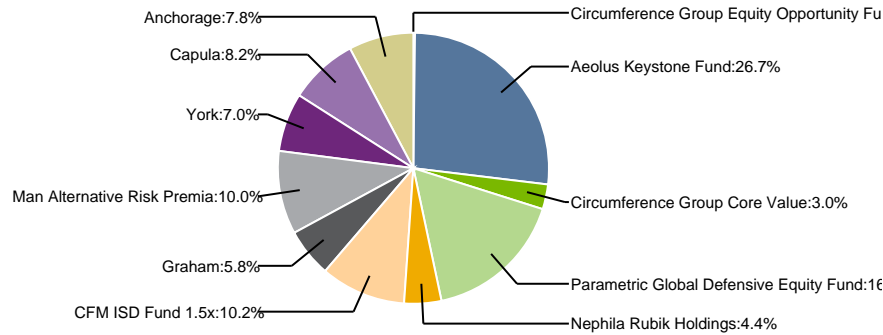


Opportunistic/Alternatives

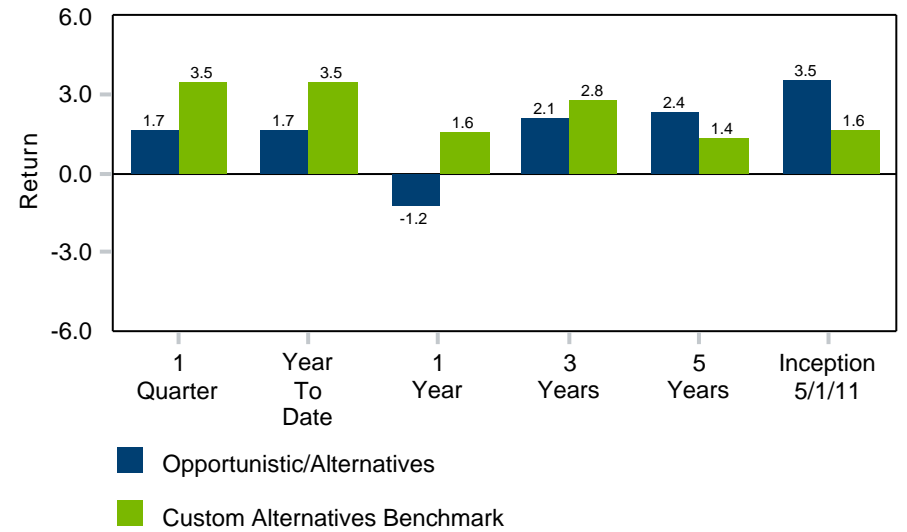
Opportunistic/Alternatives Portfolio Overview

Current Allocation

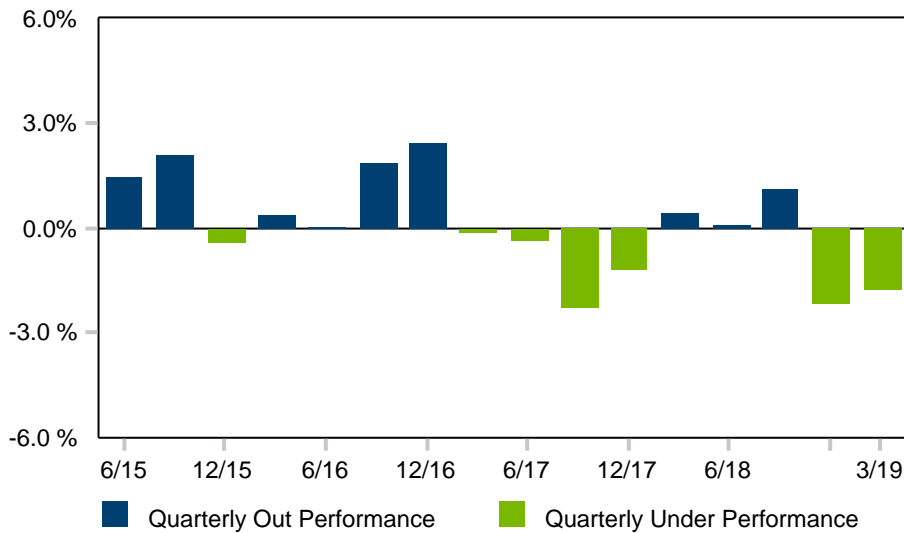
March 31, 2019 : \$971M



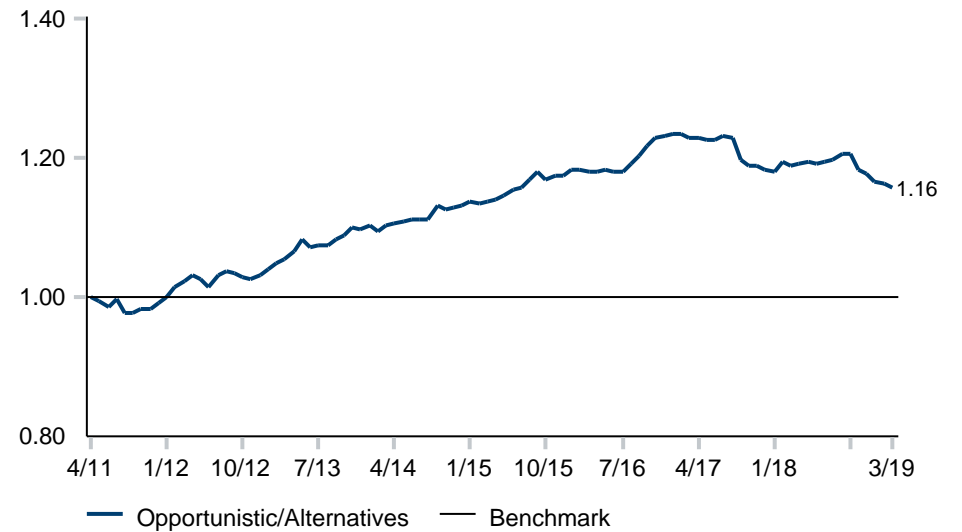
Return Summary



Quarterly Excess Performance

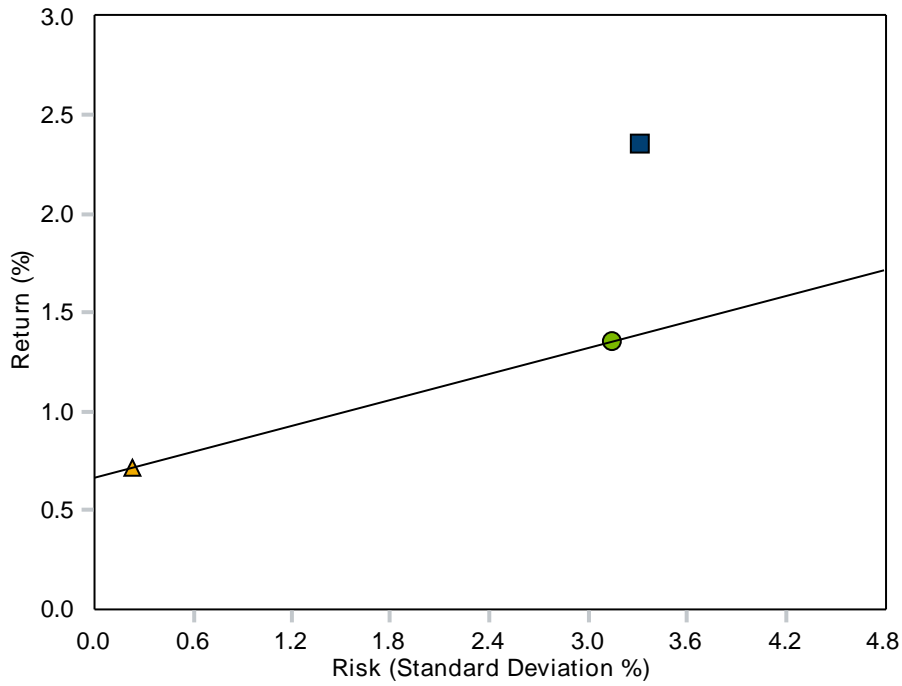


Ratio of Cumulative Wealth - Since Inception



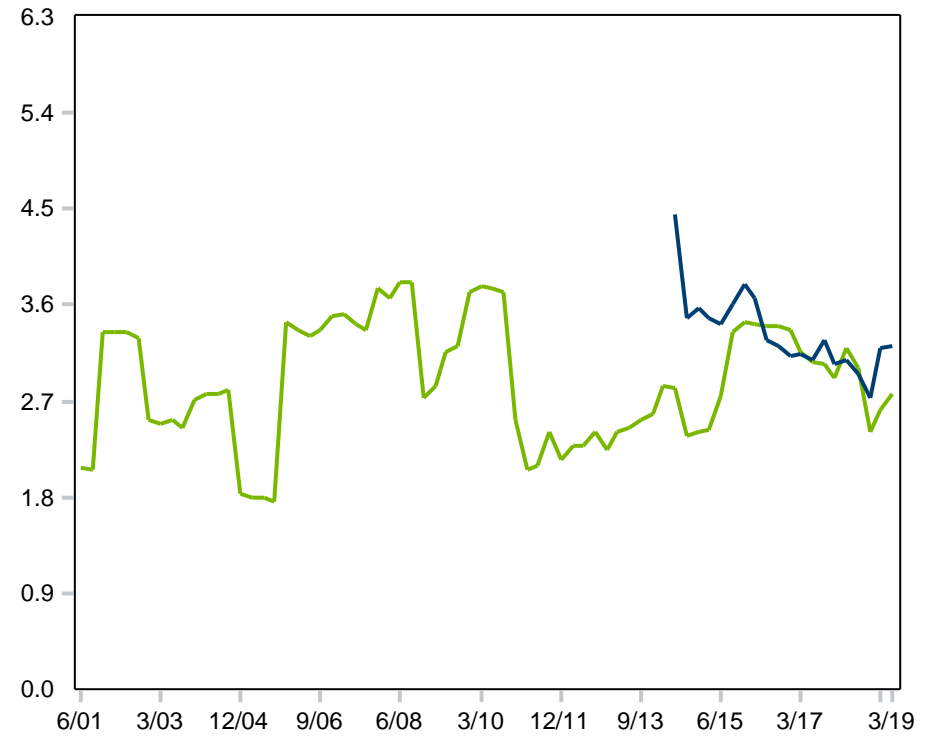
Opportunistic/Alternatives Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



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

Rolling 3 Years Standard Deviation



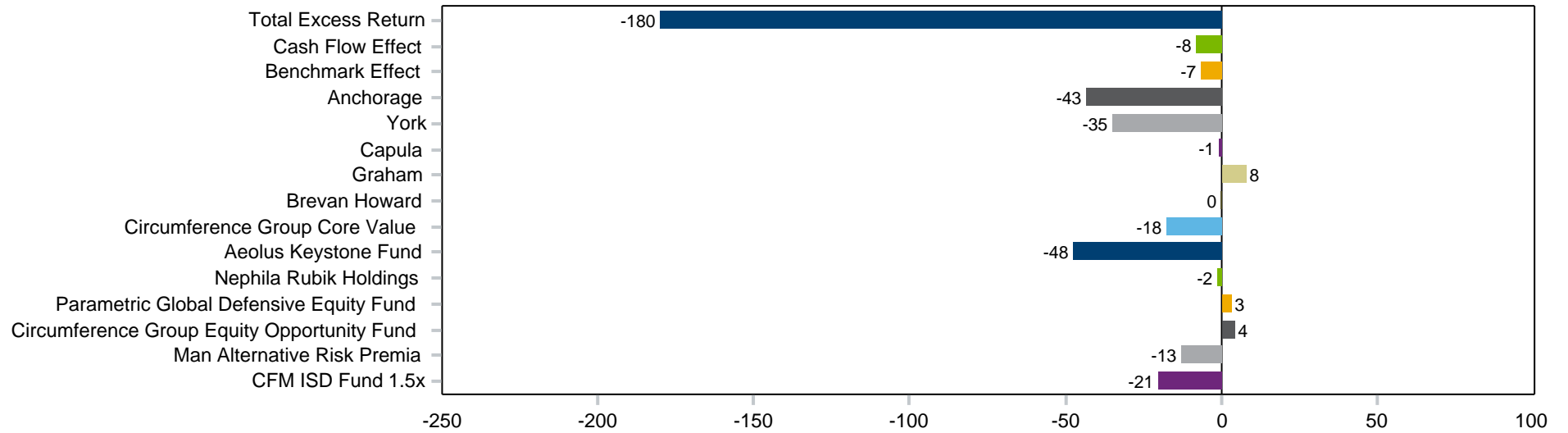
- Opportunistic/Alternatives
- Custom Alternatives Benchmark

5 Years Historical Statistics

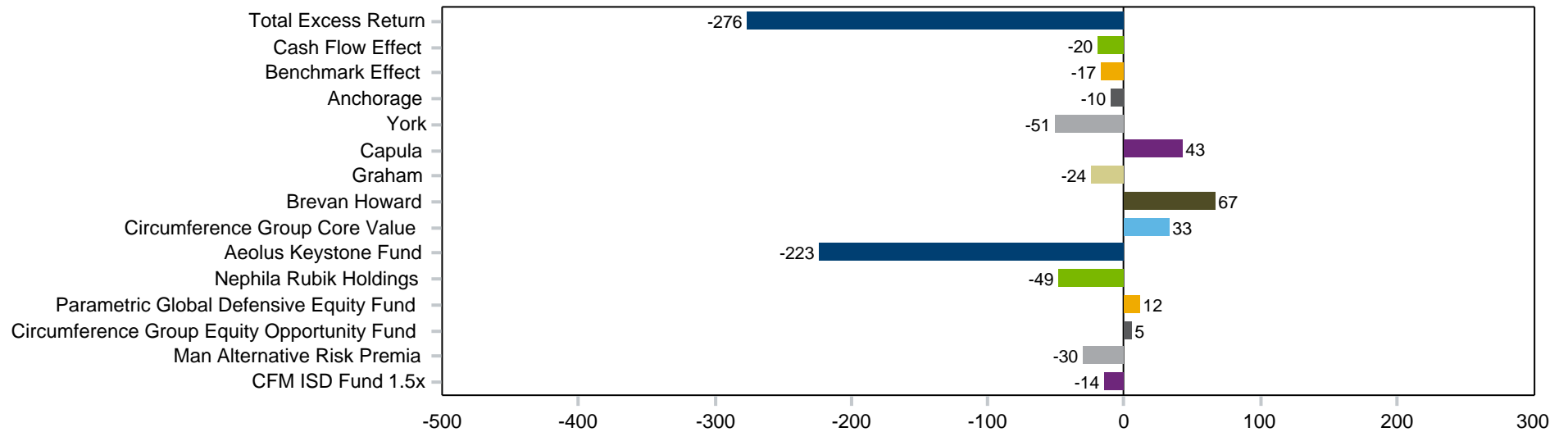
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Opportunistic/Alternatives	0.99	2.40	0.41	0.53	0.49	1.33	0.76	2.36	3.32	0.72
Custom Alternatives Benchmark	0.00	0.00	N/A	1.00	0.22	0.00	1.00	1.36	3.15	1.00
FTSE 3 Month T-Bill	-0.68	3.14	-0.22	0.00	N/A	0.72	0.00	0.72	0.23	0.06

Asset Class Attribution

1 Quarter



1 Year

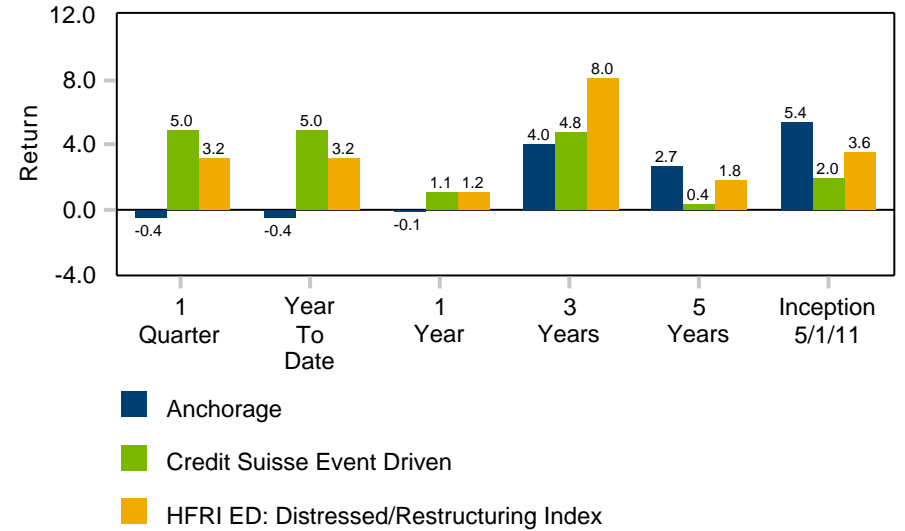


Anchorage Performance Summary

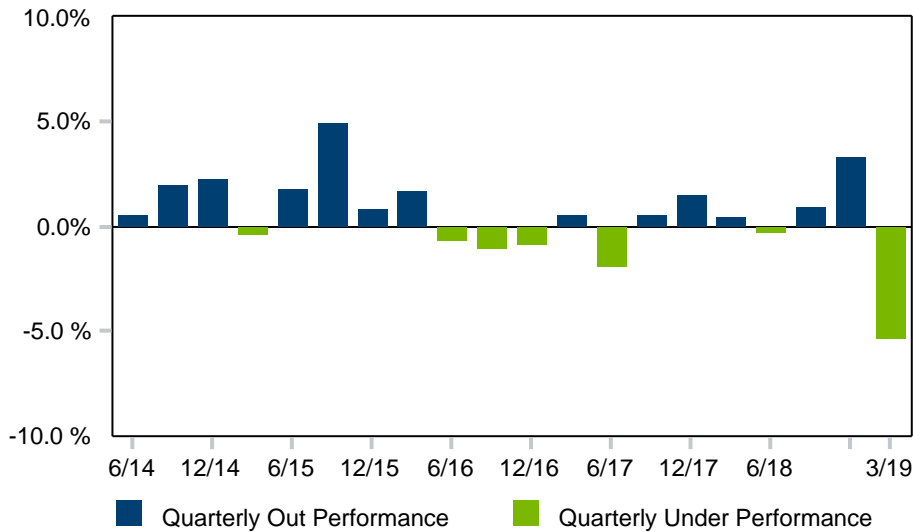
Account Information

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

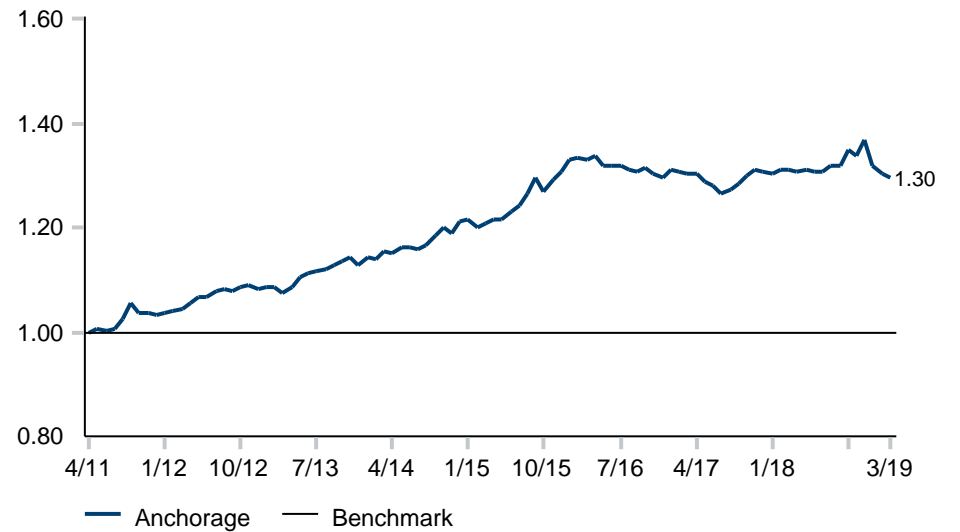
Return Summary



Quarterly Excess Performance

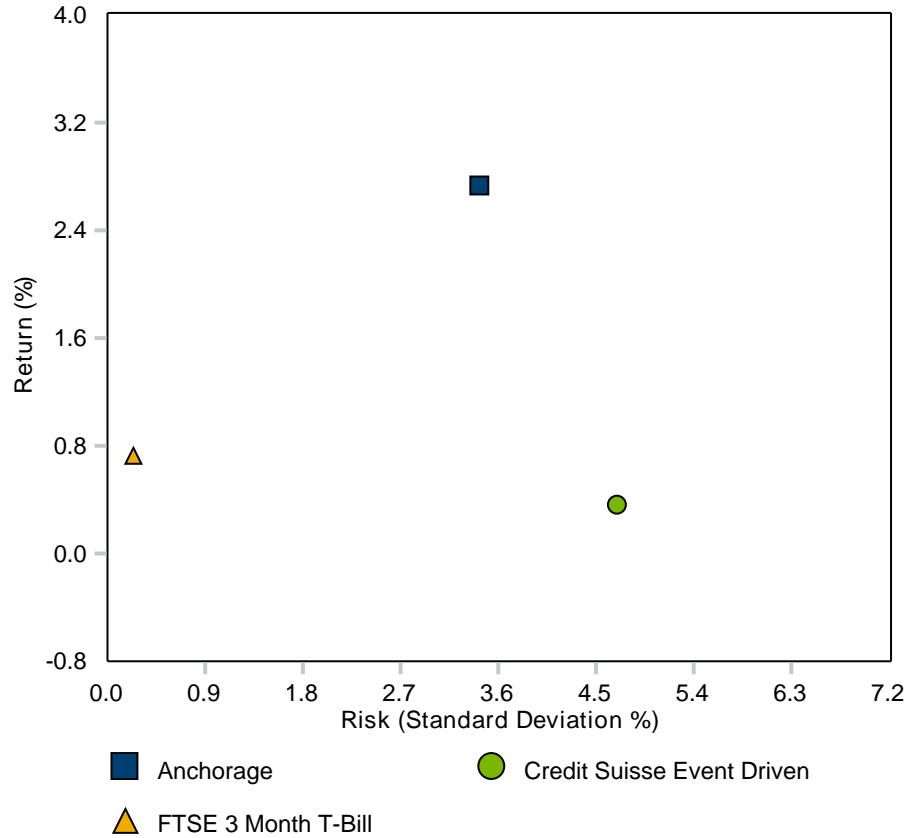


Ratio of Cumulative Wealth - Since Inception

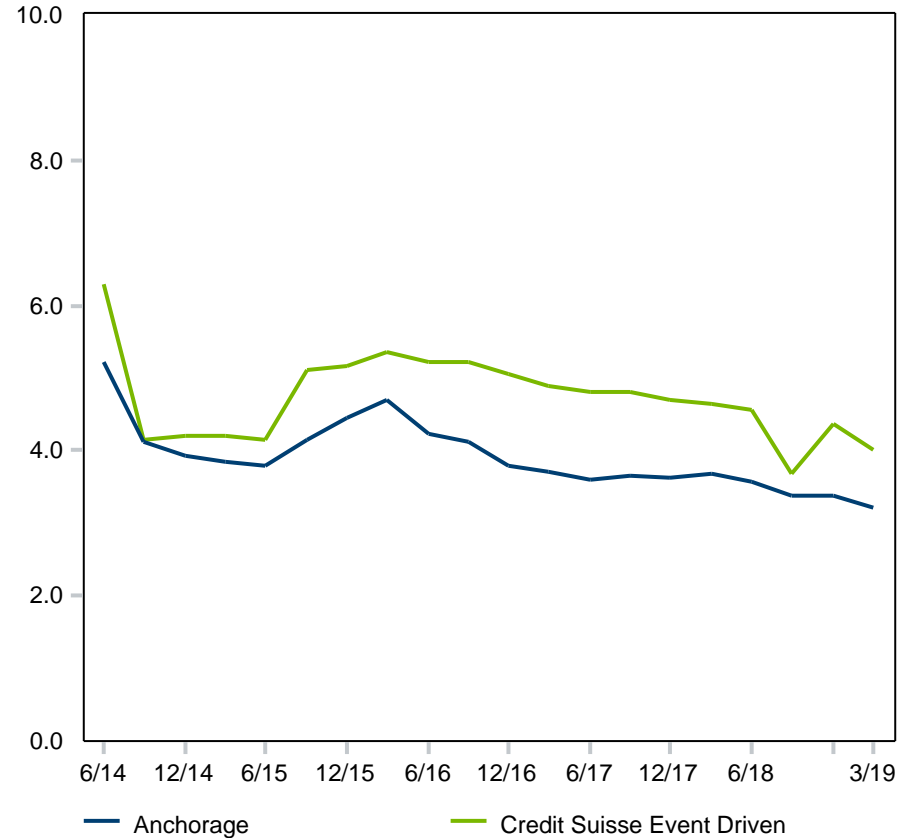


Anchorage Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 3 Years Standard Deviation



5 Years Historical Statistics

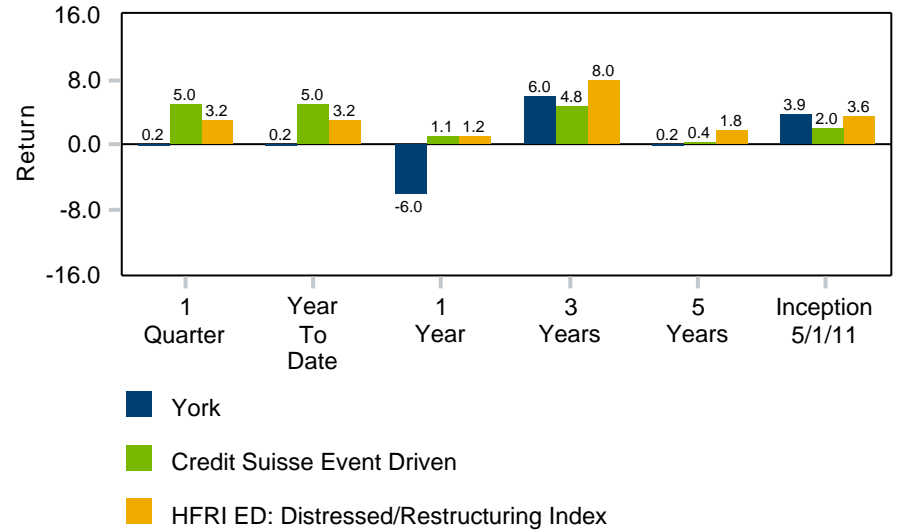
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Anchorage	2.29	3.78	0.61	0.37	0.59	2.58	0.44	2.73	3.43	0.61
Credit Suisse Event Driven	0.00	0.00	N/A	1.00	-0.05	0.00	1.00	0.36	4.71	1.00
FTSE 3 Month T-Bill	0.25	4.69	0.05	0.01	N/A	0.72	0.00	0.72	0.23	0.09

York Performance Summary

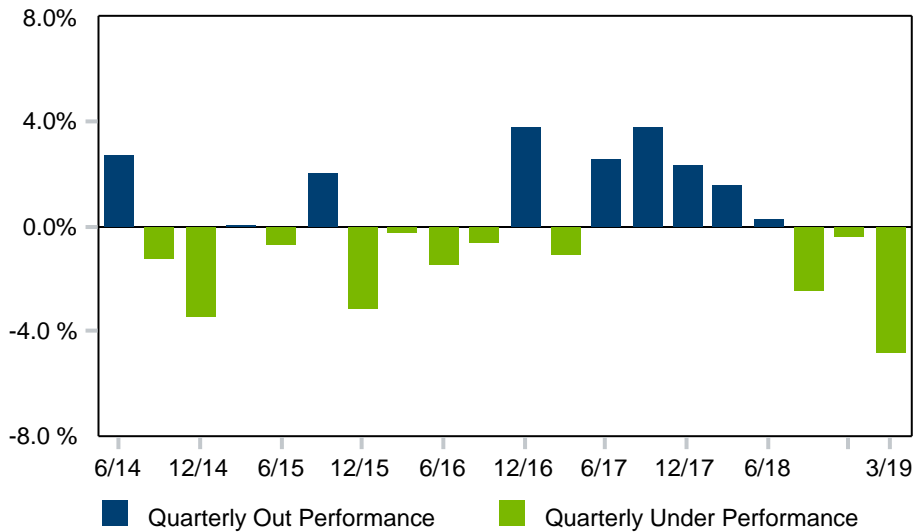
Account Information

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

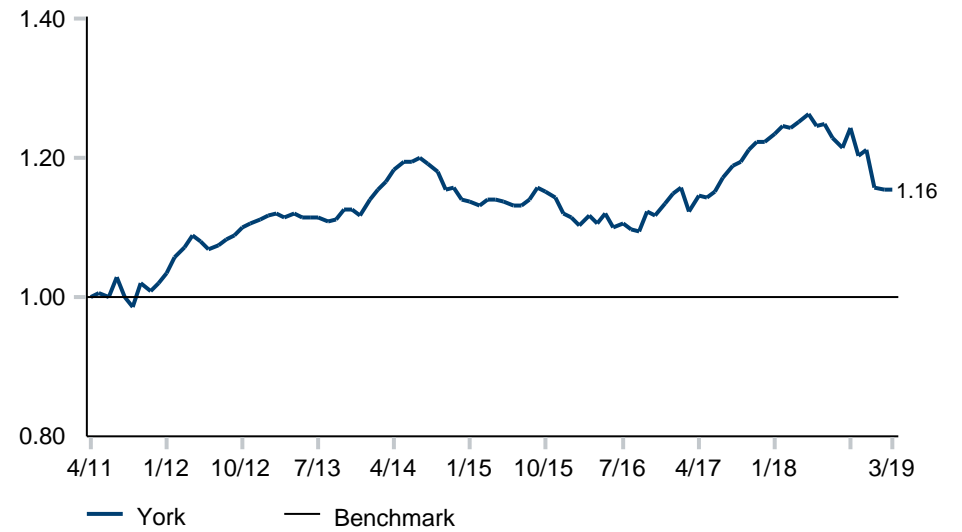
Return Summary



Quarterly Excess Performance

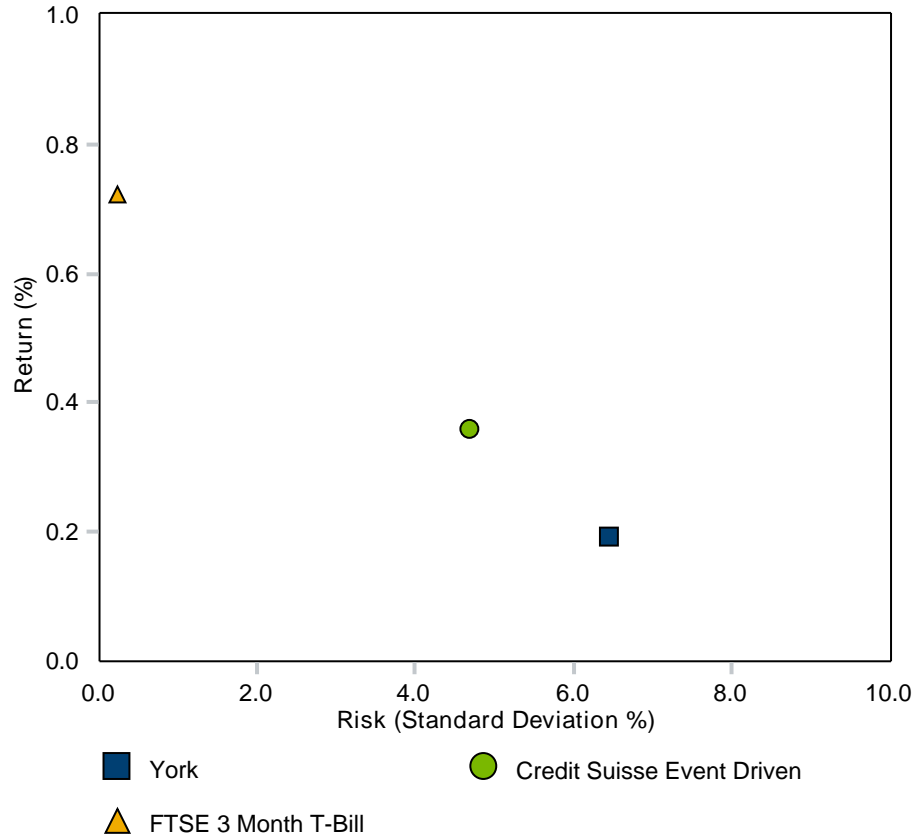


Ratio of Cumulative Wealth - Since Inception

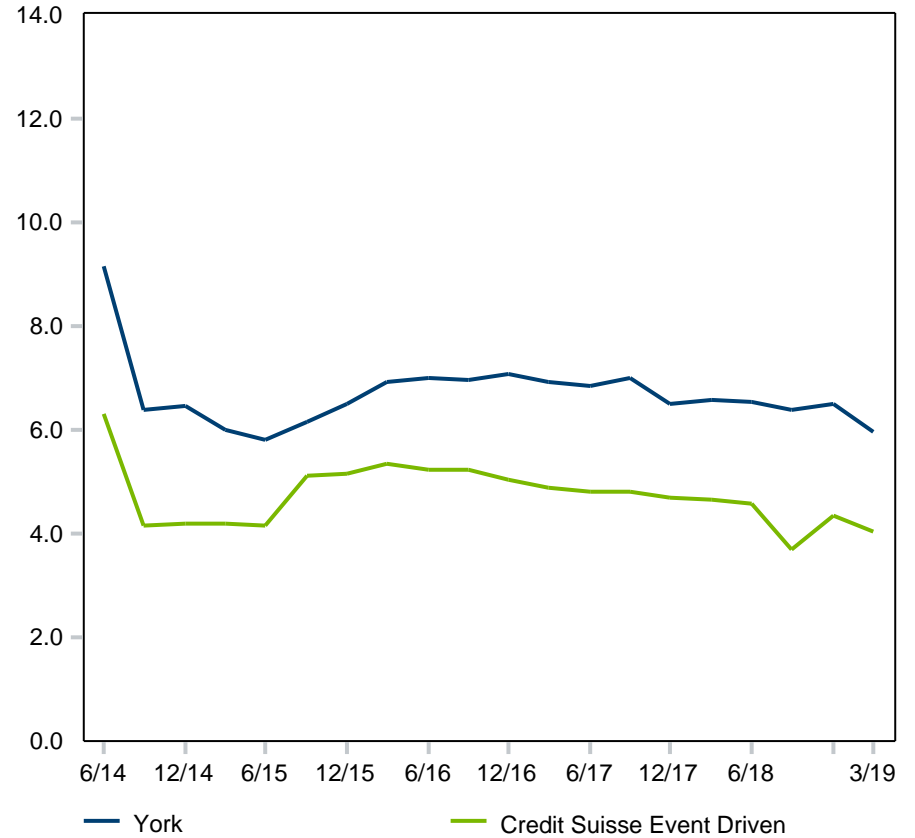


York Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 3 Years Standard Deviation



5 Years Historical Statistics

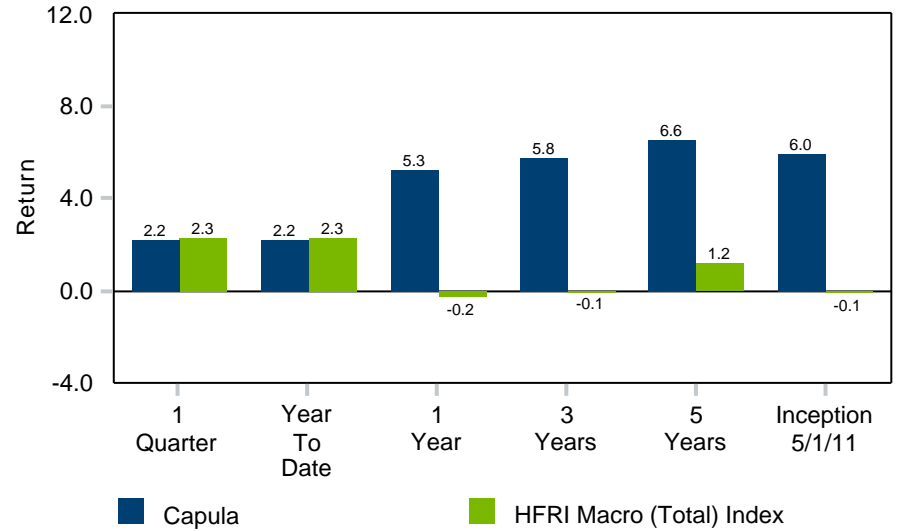
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
York	-0.07	4.68	-0.01	0.48	-0.05	-0.04	0.95	0.19	6.47	0.69
Credit Suisse Event Driven	0.00	0.00	N/A	1.00	-0.05	0.00	1.00	0.36	4.71	1.00
FTSE 3 Month T-Bill	0.25	4.69	0.05	0.01	N/A	0.72	0.00	0.72	0.23	0.09

Capula Performance Summary

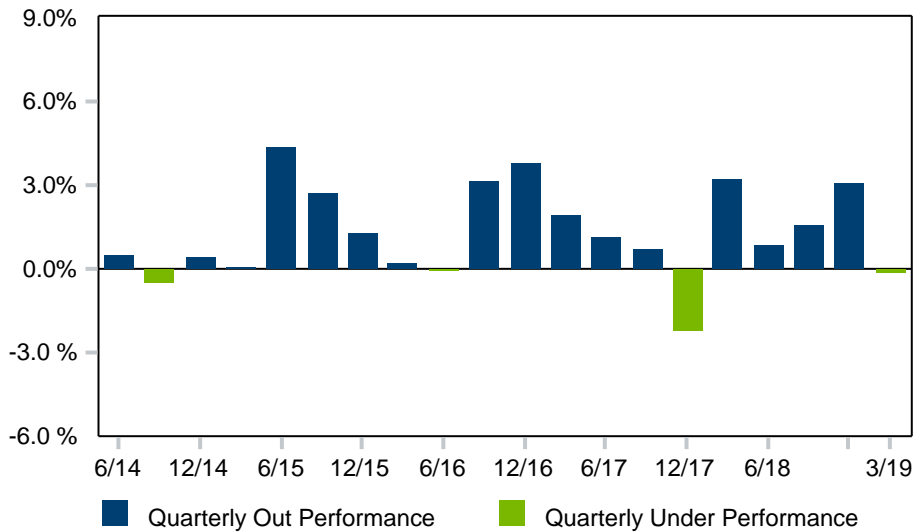
Account Information

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

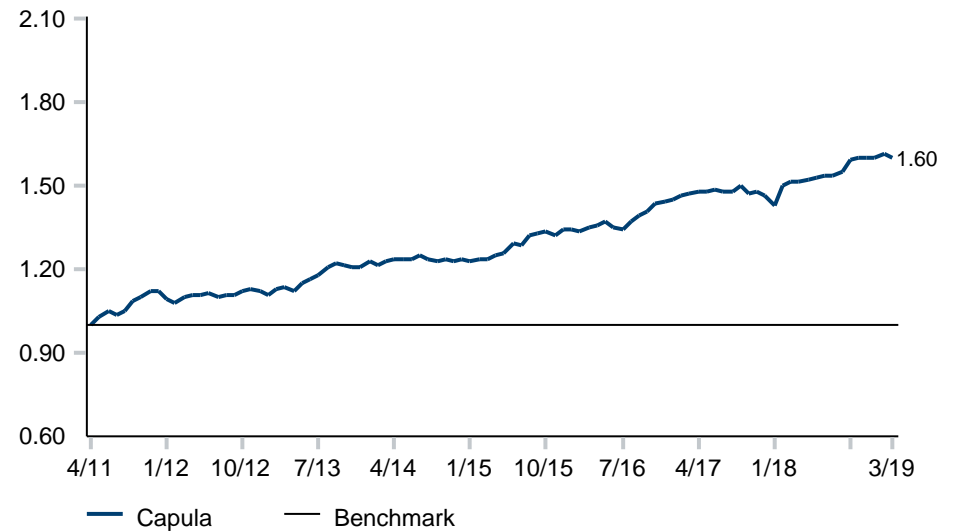
Return Summary



Quarterly Excess Performance

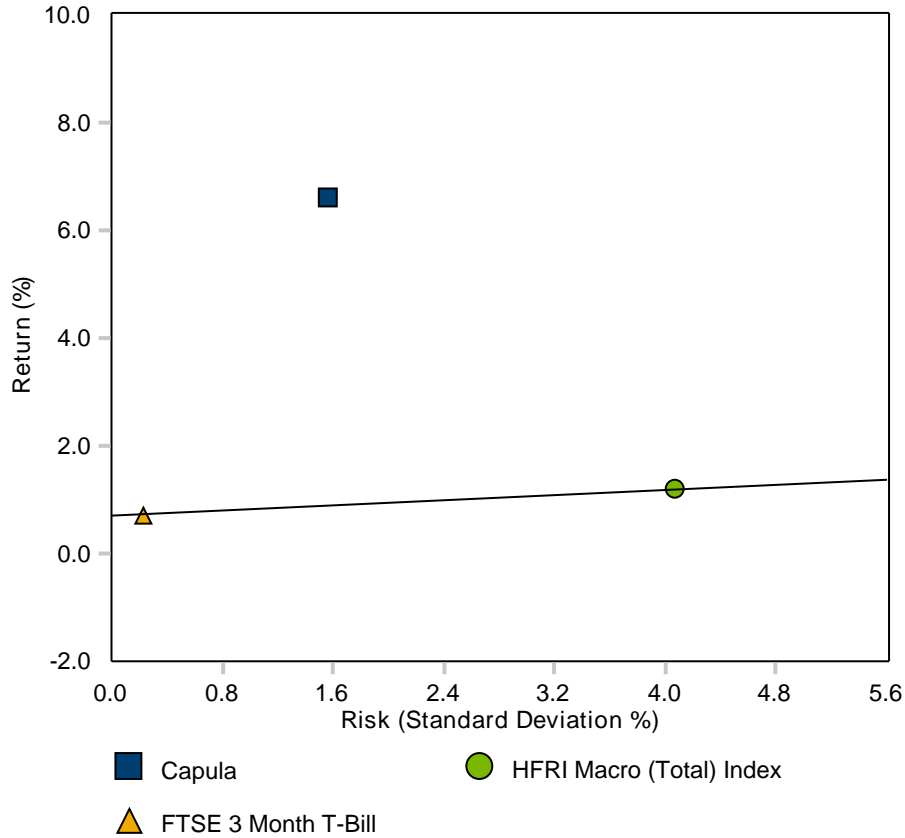


Ratio of Cumulative Wealth - Since Inception

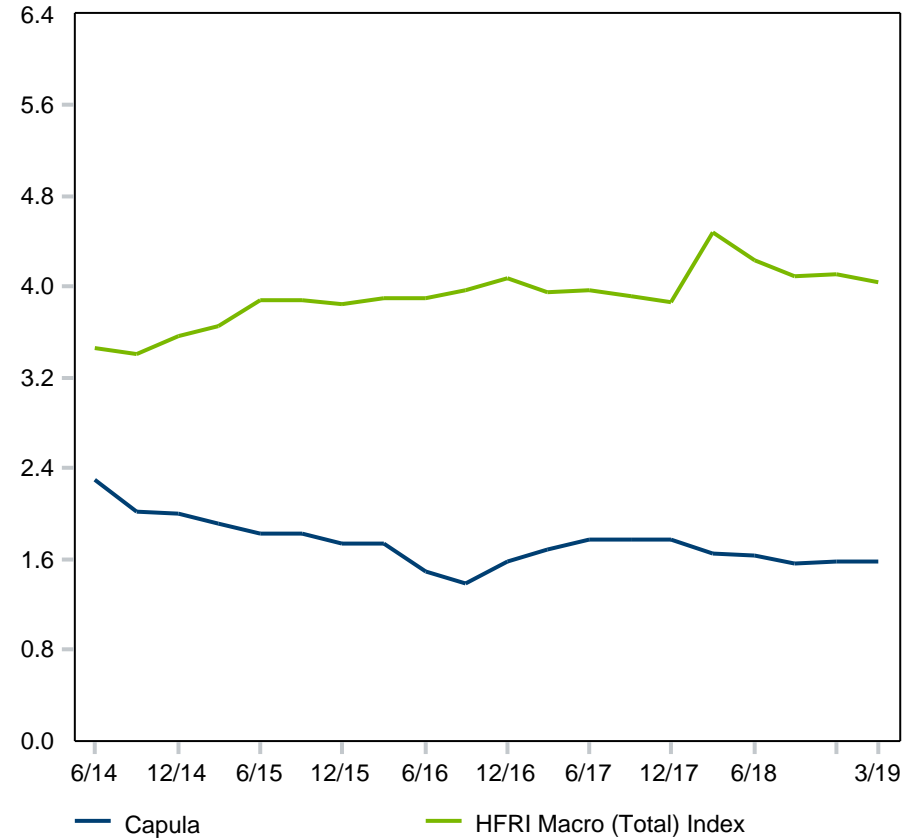


Capula Risk Profile

Annualized Return vs. Annualized Standard Deviation 5 Years



Rolling 3 Years Standard Deviation



5 Years Historical Statistics

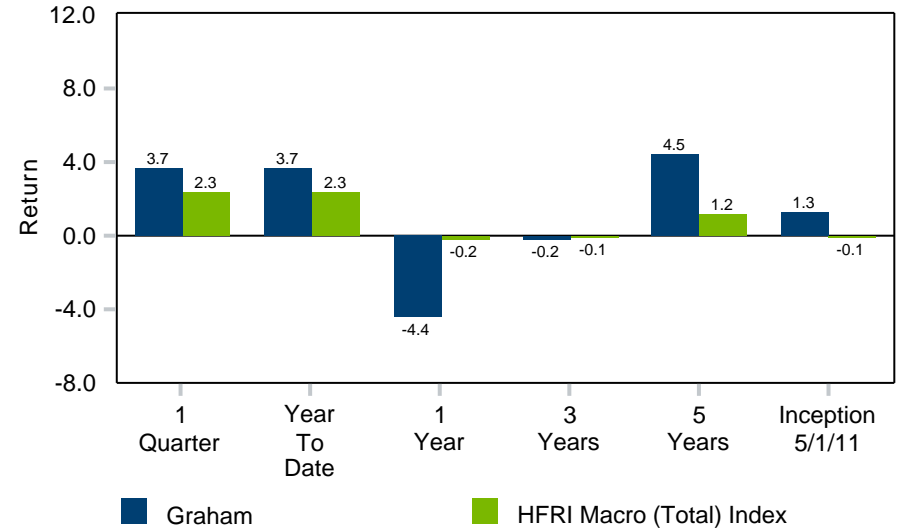
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Capula	5.16	4.06	1.27	0.04	3.48	6.50	0.08	6.59	1.57	0.20
HFRI Macro (Total) Index	0.00	0.00	N/A	1.00	0.13	0.00	1.00	1.17	4.08	1.00
FTSE 3 Month T-Bill	-0.53	4.10	-0.13	0.00	N/A	0.73	0.00	0.72	0.23	-0.07

Graham Performance Summary

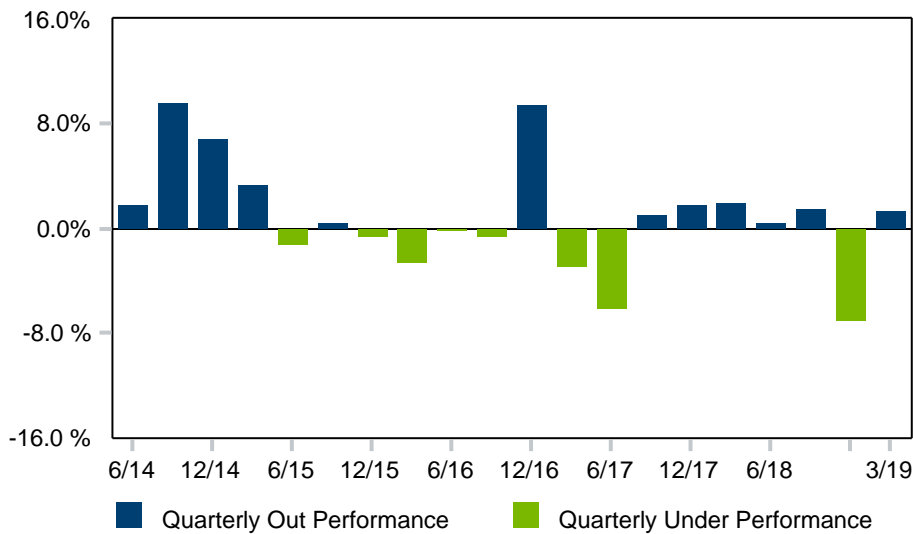
Account Information

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

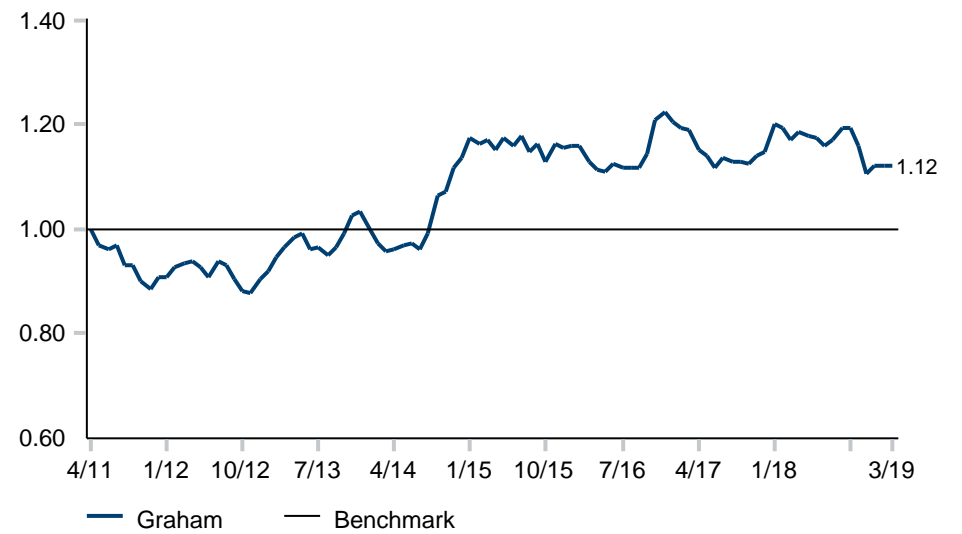
Return Summary



Quarterly Excess Performance

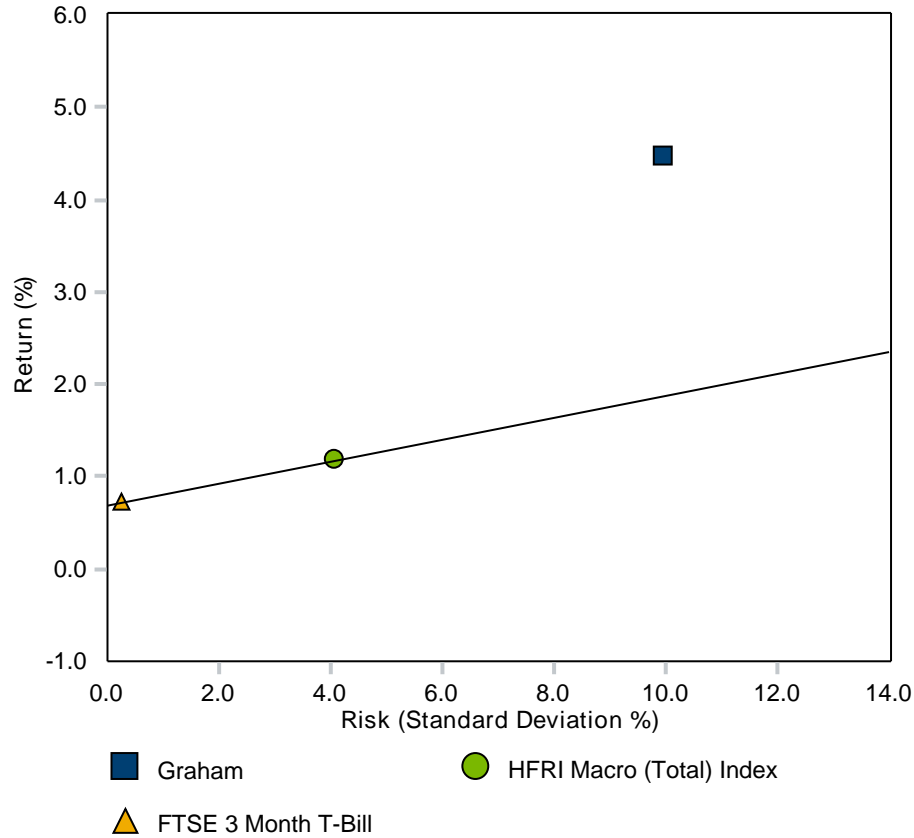


Ratio of Cumulative Wealth - Since Inception

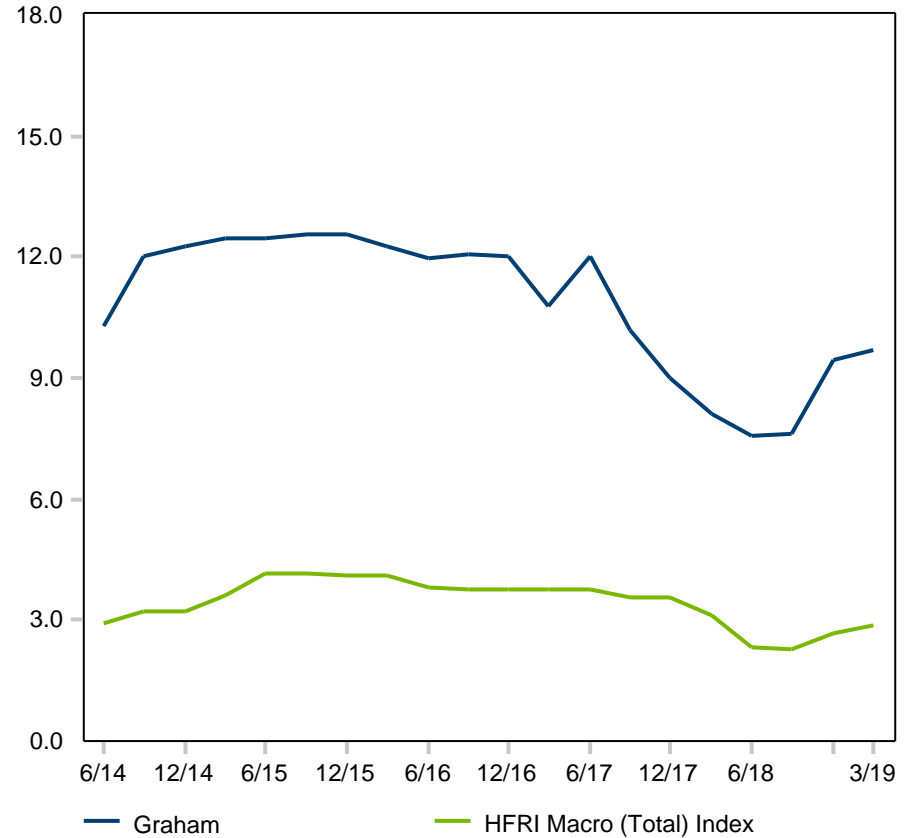


Graham Risk Profile

Annualized Return vs. Annualized Standard Deviation
5 Years



Rolling 3 Years Standard Deviation



5 Years Historical Statistics

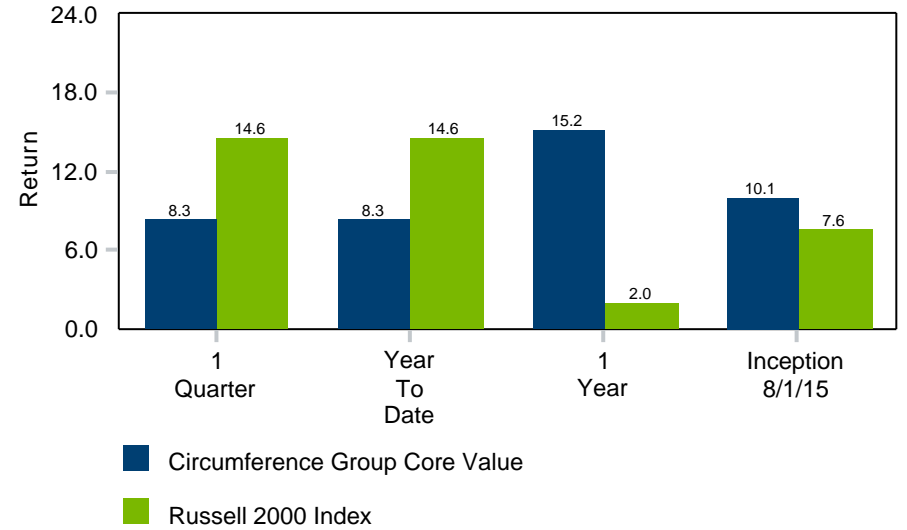
	Active Return	Tracking Error	Information Ratio	R-Squared	Sharpe Ratio	Alpha	Beta	Return	Standard Deviation	Actual Correlation
Graham	3.61	7.46	0.48	0.55	0.41	2.62	1.82	4.46	9.97	0.74
HFRI Macro (Total) Index	0.00	0.00	N/A	1.00	0.13	0.00	1.00	1.17	4.08	1.00
FTSE 3 Month T-Bill	-0.53	4.10	-0.13	0.00	N/A	0.73	0.00	0.72	0.23	-0.07

Circumference Group Core Value Performance Summary

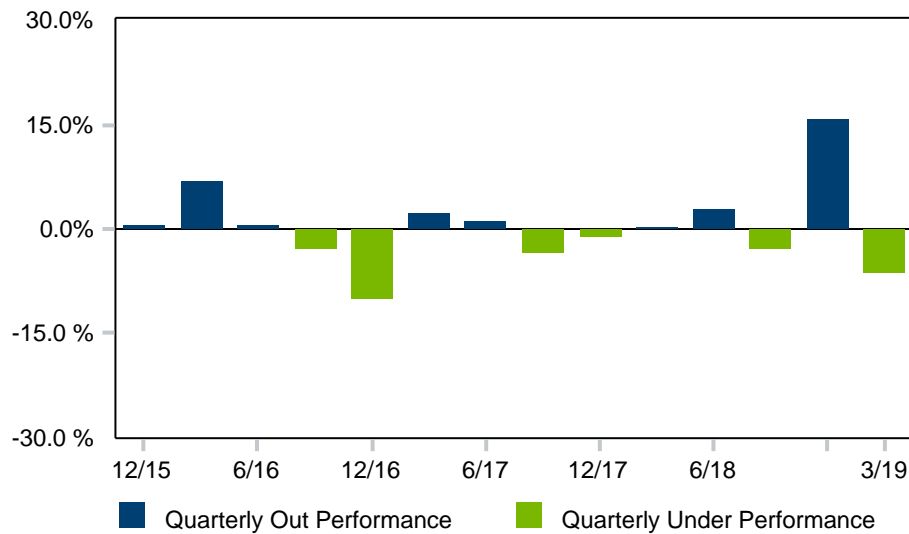
Account Information

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:

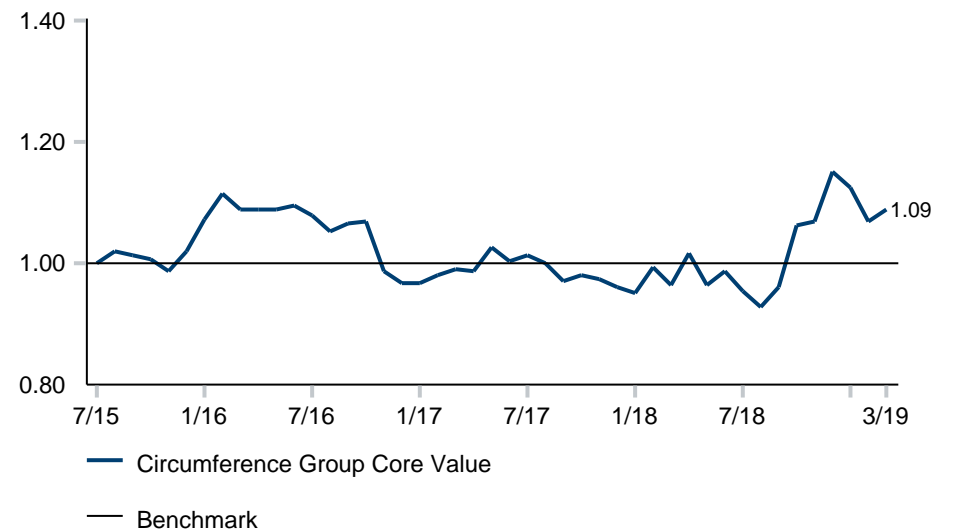
Return Summary



Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception

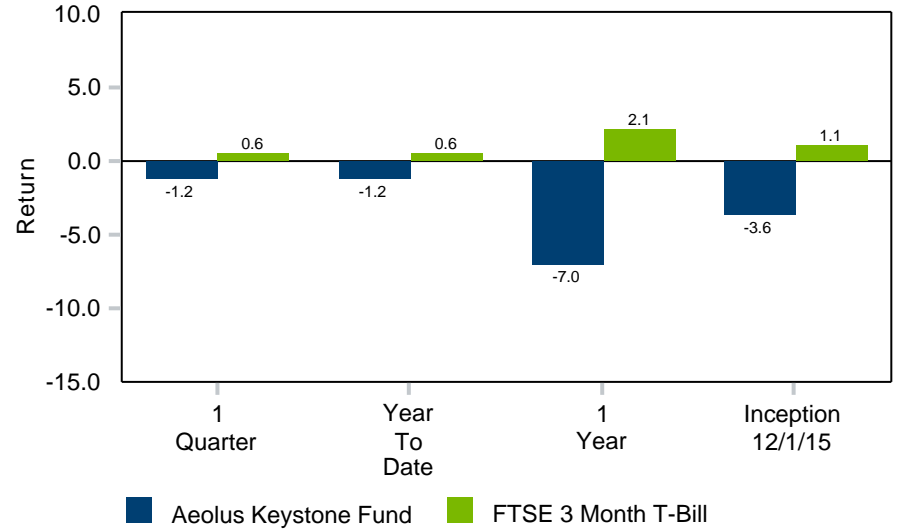


Aeolus Keystone Fund Performance Summary

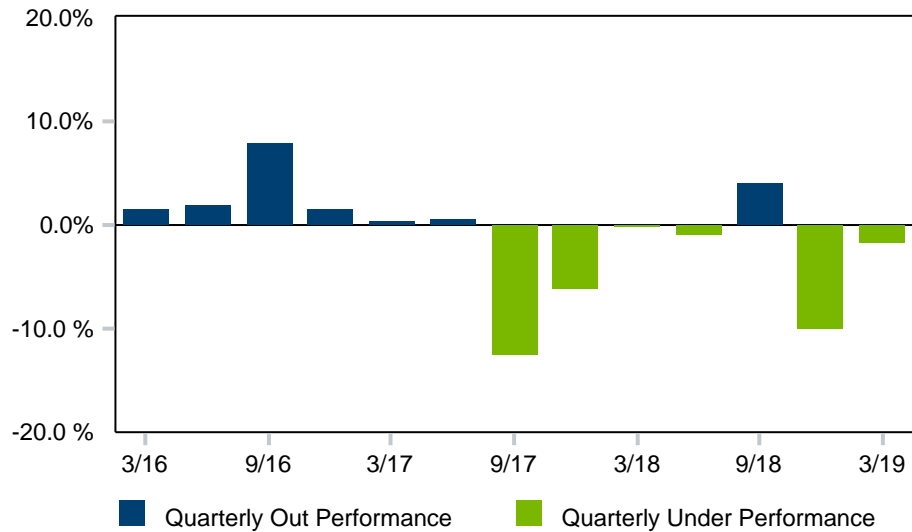
Account Information

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:

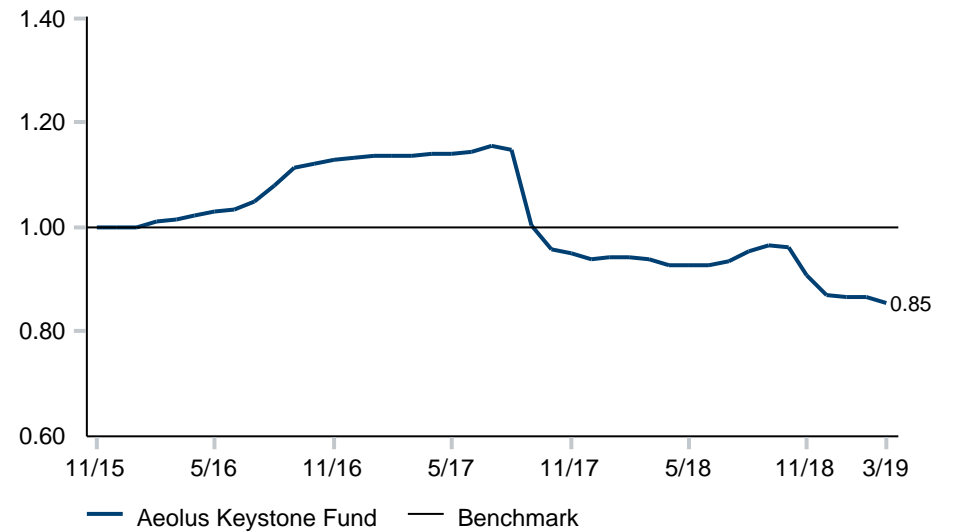
Return Summary



Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception

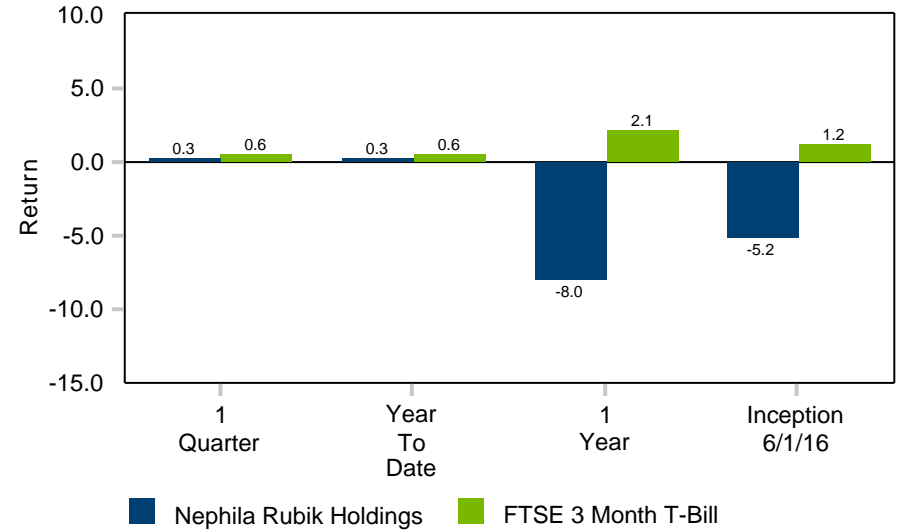


Nephila Rubik Holdings Performance Summary

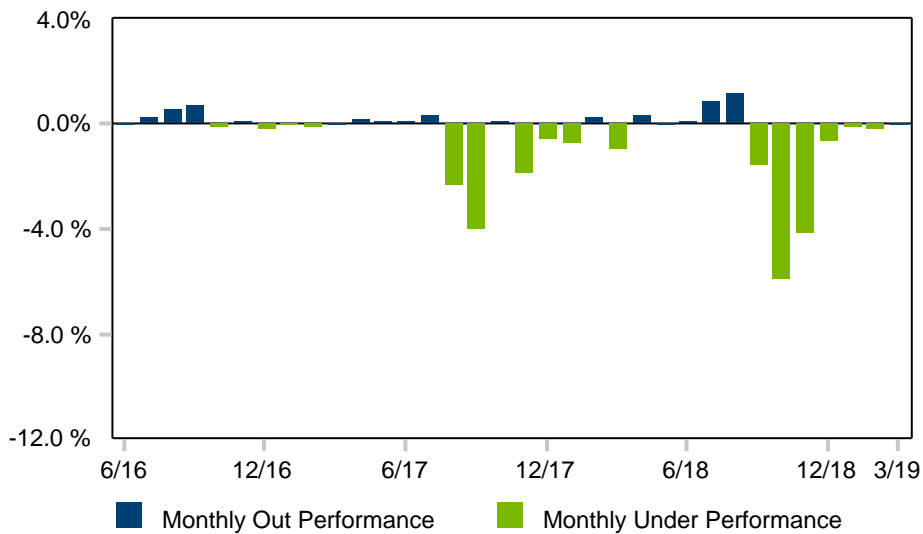
Account Information

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

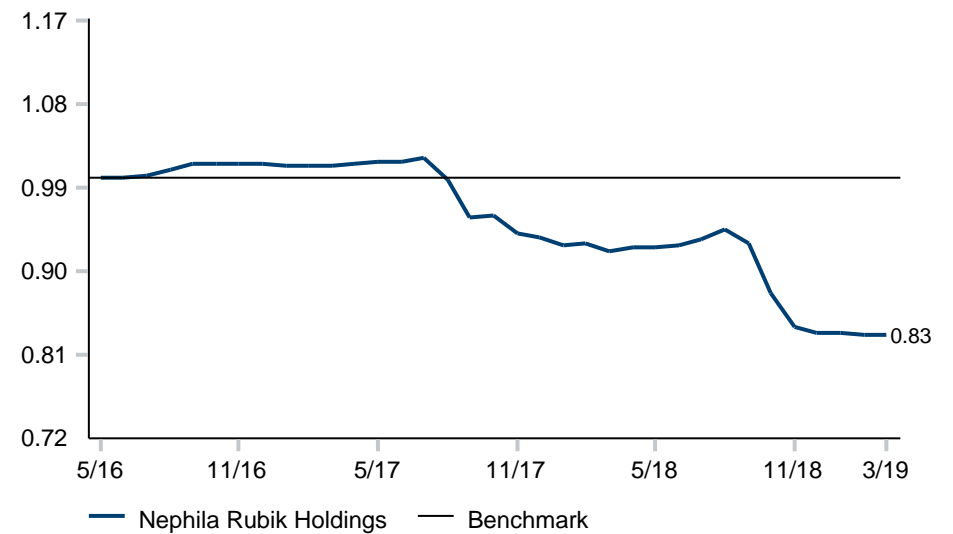
Return Summary



Monthly Excess Performance



Ratio of Cumulative Wealth - Since Inception

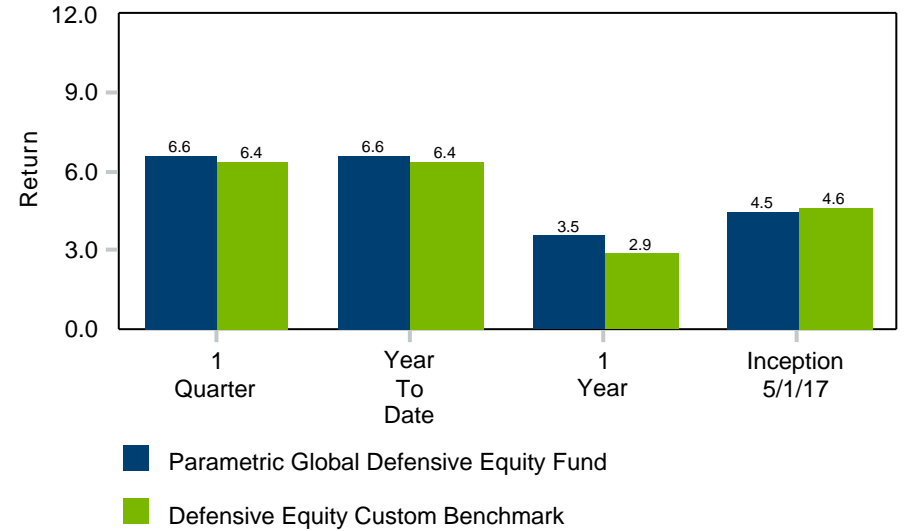


Parametric Global Defensive Equity Fund Performance Summary

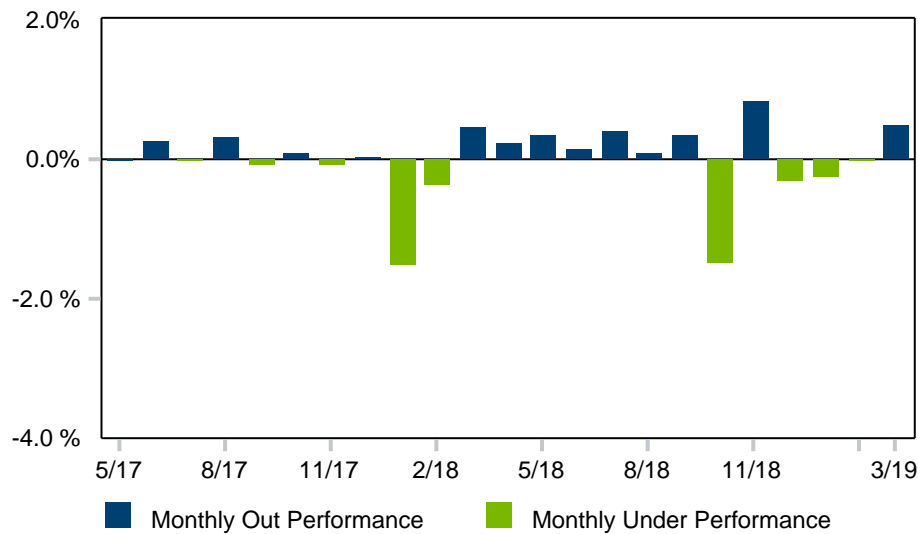
Account Information

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:

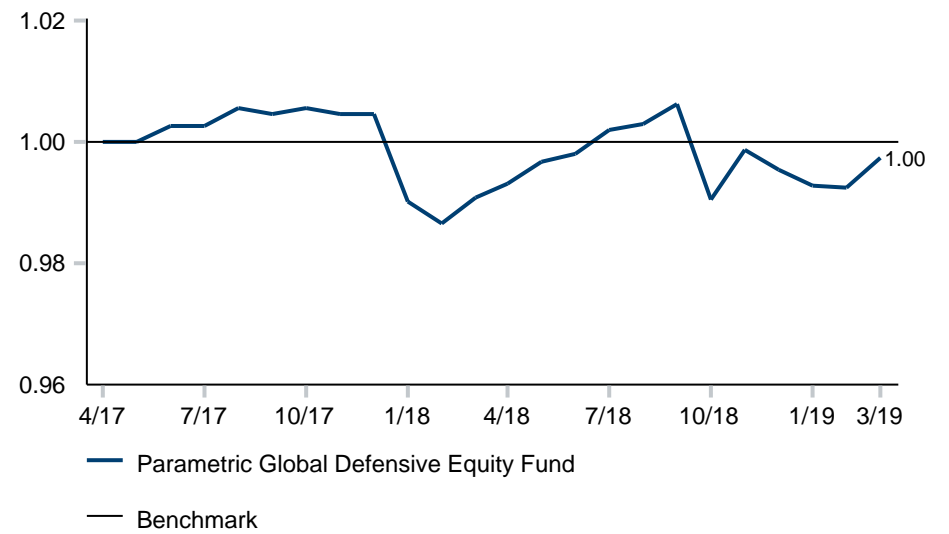
Return Summary

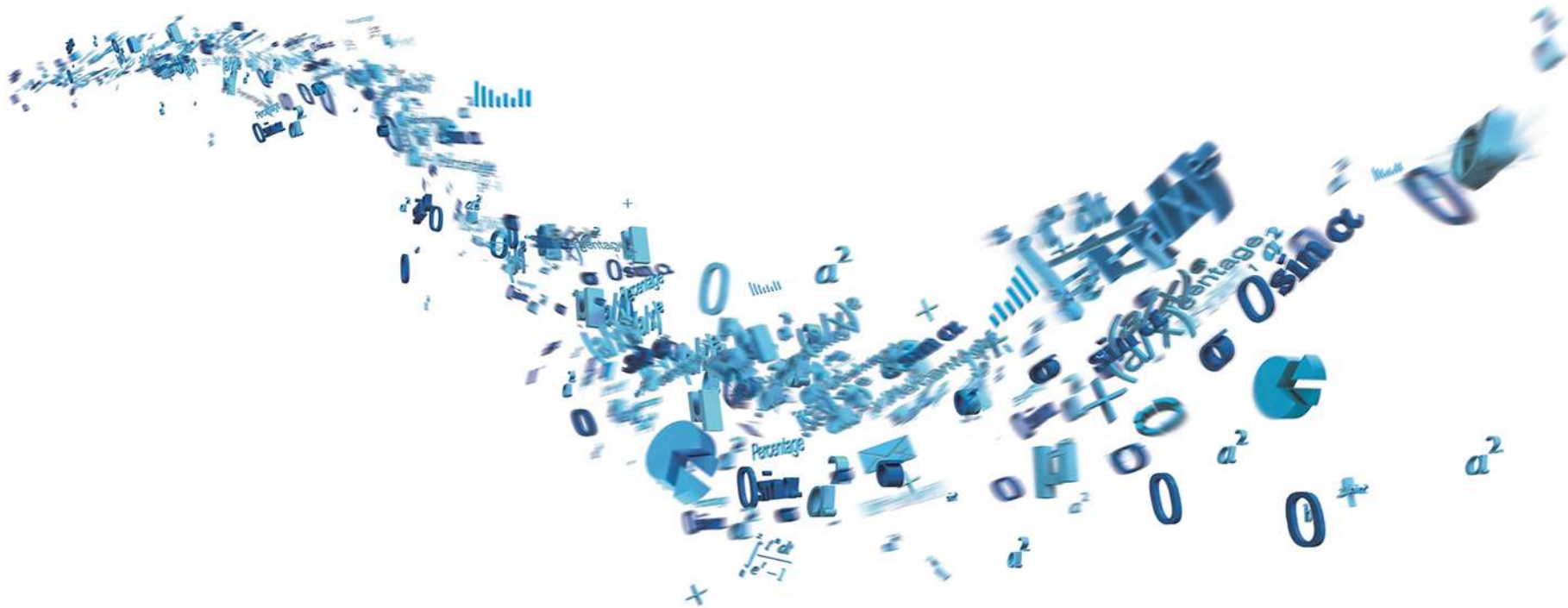


Monthly Excess Performance



Ratio of Cumulative Wealth - Since Inception



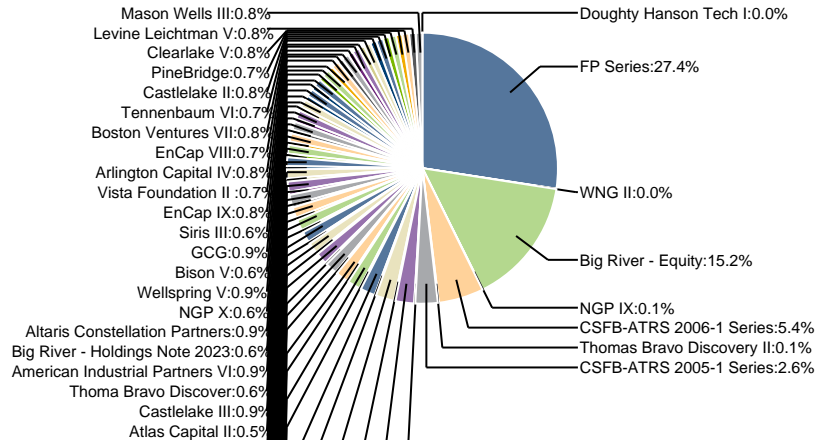


Private Equity

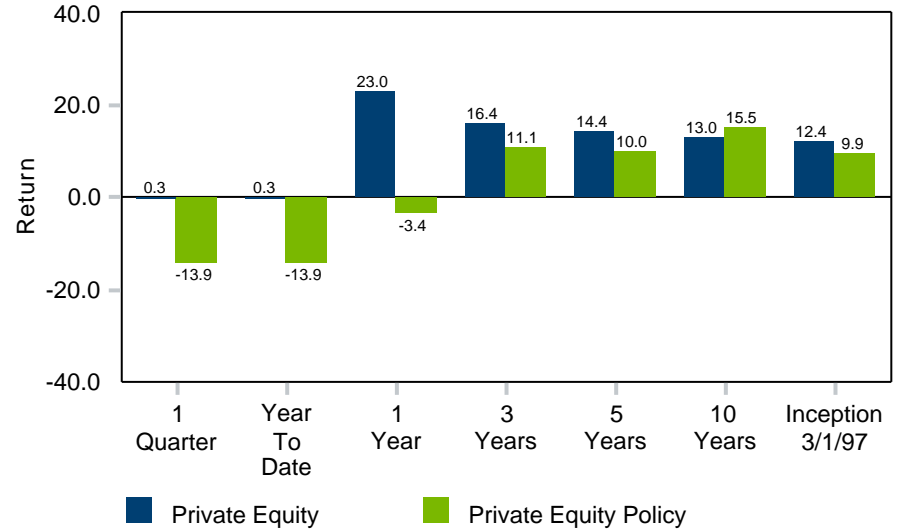
Private Equity Portfolio Overview

Current Allocation

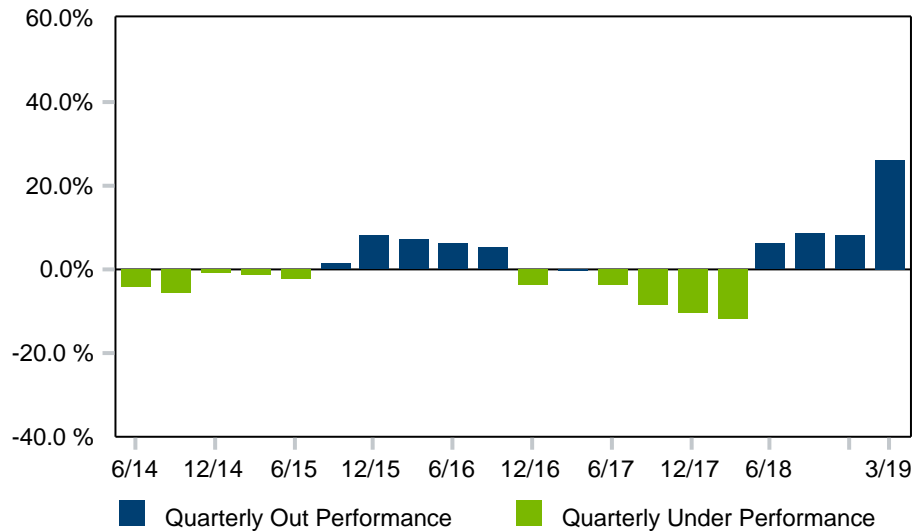
March 31, 2019 : \$2,087M



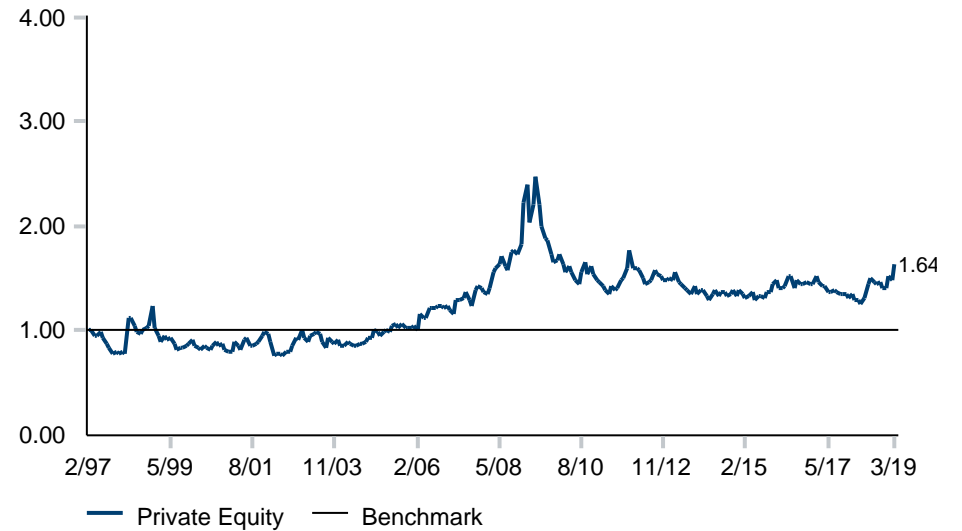
Return Summary

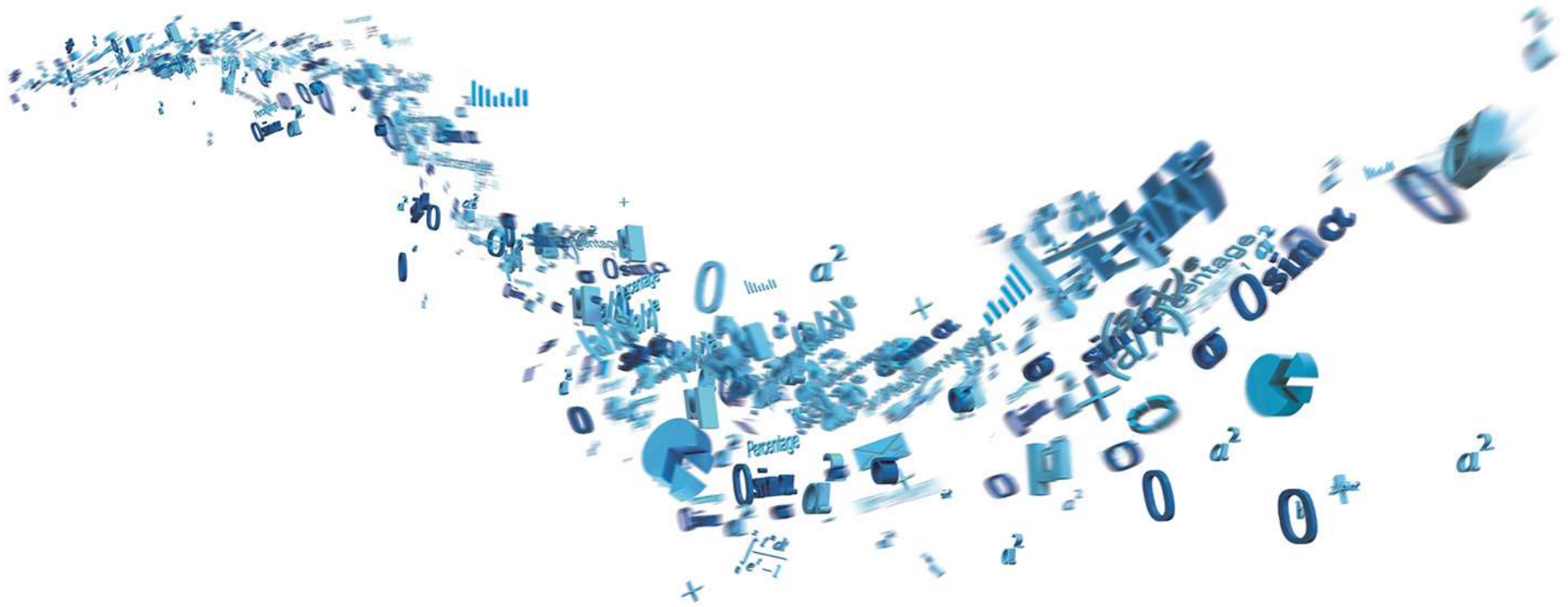


Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception



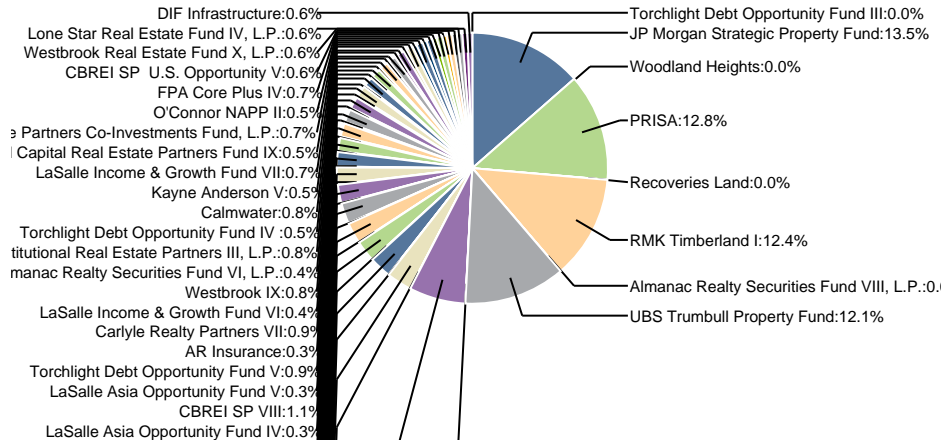


Real Assets

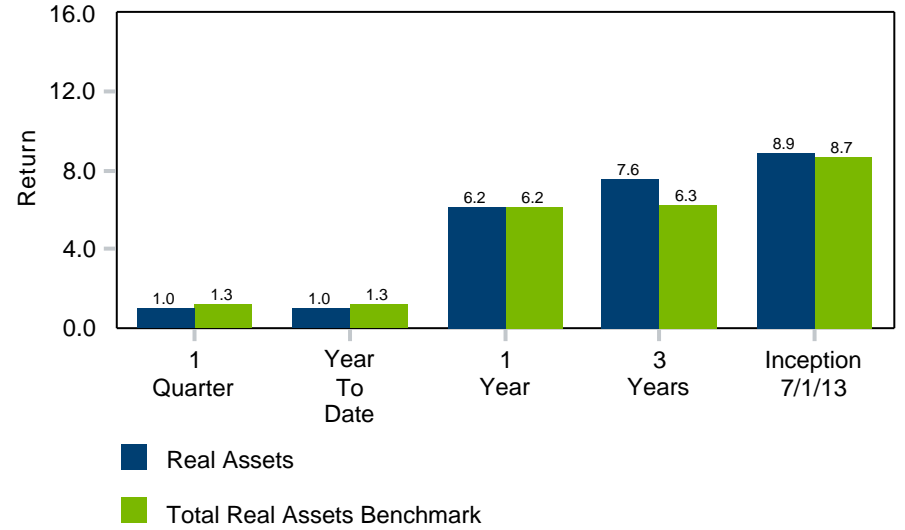
Real Assets Portfolio Overview

Current Allocation

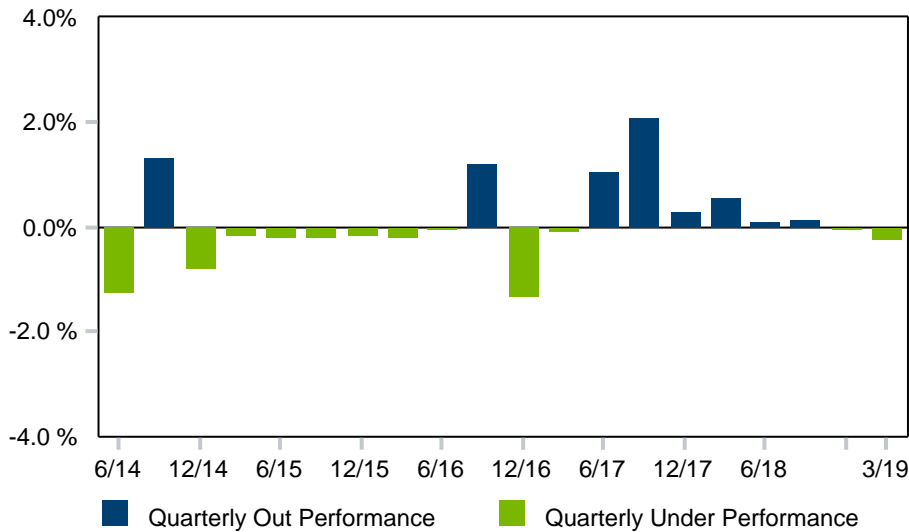
March 31, 2019 : \$2,094M



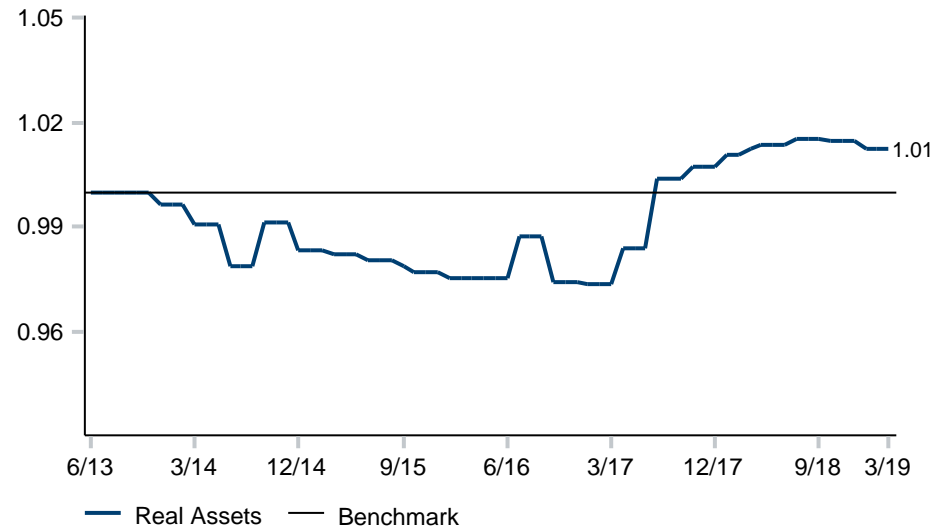
Return Summary

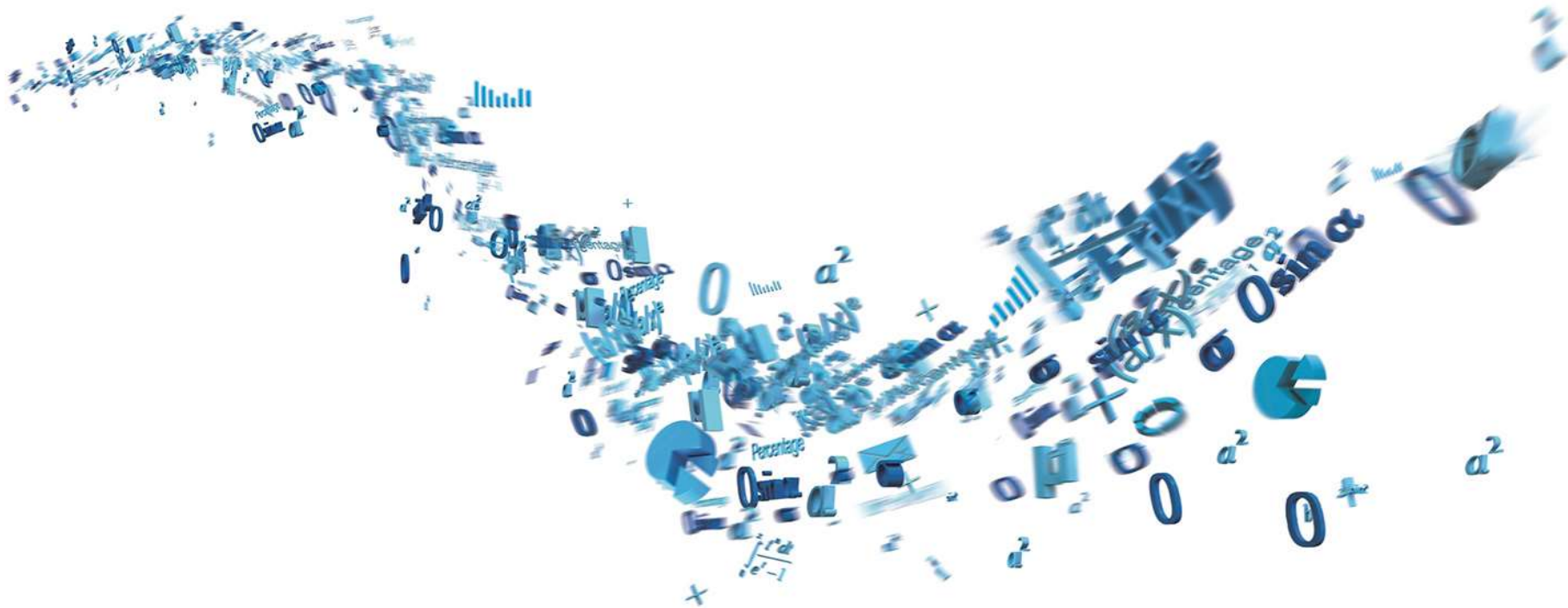


Quarterly Excess Performance



Ratio of Cumulative Wealth - Since Inception

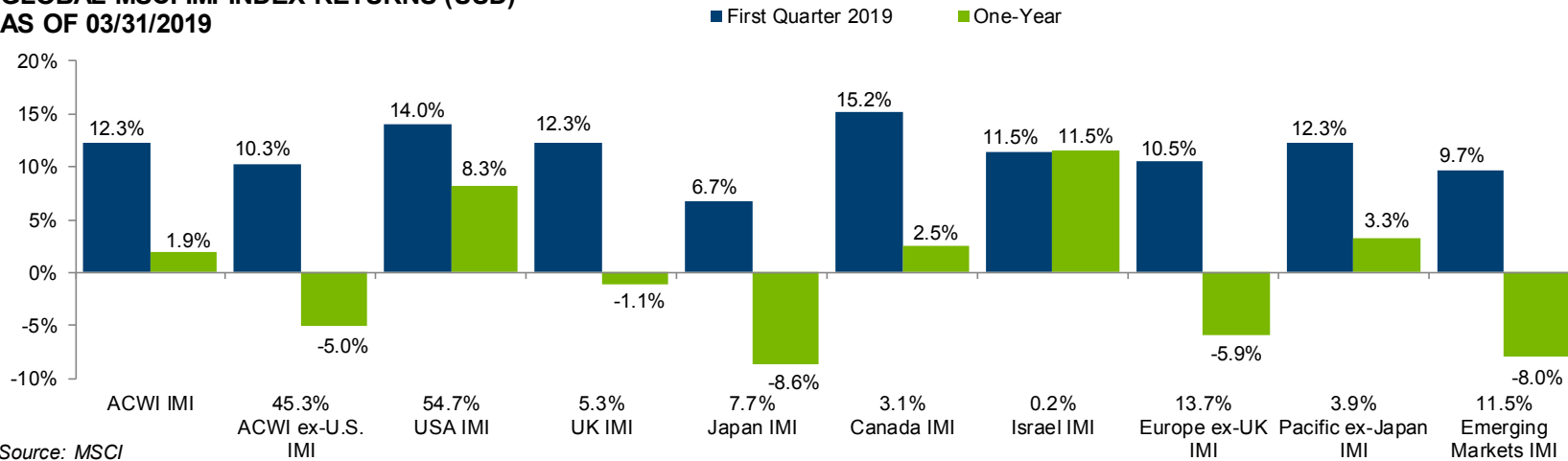




Market Environment

Global Equity Markets

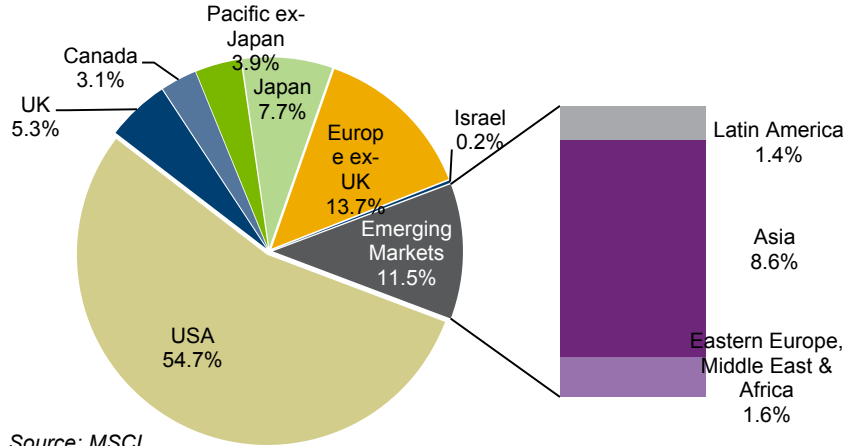
GLOBAL MSCI IMI INDEX RETURNS (USD) AS OF 03/31/2019



- Concerns of slowing global growth and trade wars partially eased in the first quarter of 2019, bolstering global equities in the process. In local currency terms, the MSCI AC World Investable Market Index returned 12.3% – not quite fully offsetting the previous quarter's decline.
- Rising oil prices and encouraging performance from Canadian Financials and Energy, combined with a strengthening of the Canadian dollar against the U.S. dollar resulted in the Canadian equity market being the strongest performer (USD terms) over the quarter.
- Japanese and European (ex-UK) equities were predominantly boosted by valuation multiple expansion. This came despite deteriorating economic dataflow, with Japanese and eurozone PMIs moving into contractionary territory, weak industrial production and falling inflation.
- Strong sterling performance over the quarter on the back of increased possibility of a “no deal” Brexit scenario boosted UK equity market returns in USD terms. In local currency terms, however, UK equities largely lagged other markets.

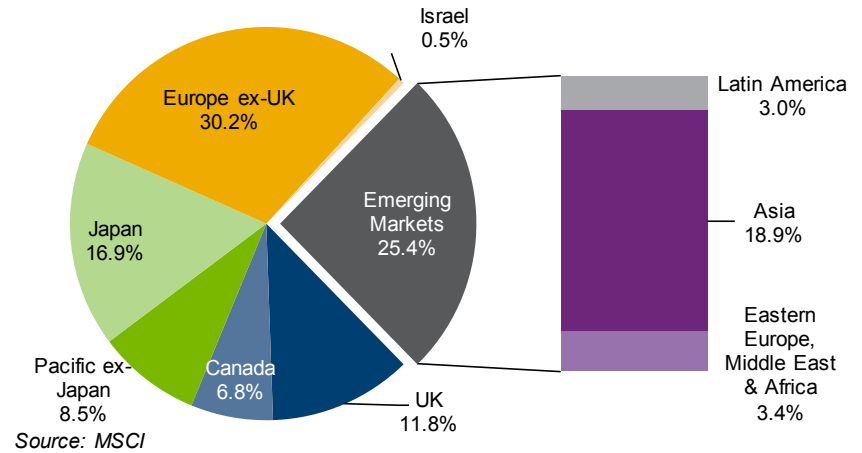
Global Equity Markets

**MSCI ALL COUNTRY WORLD IMI INDEX
GEOGRAPHIC ALLOCATION AS OF 03/31/2019**



Source: MSCI

**MSCI ALL COUNTRY WORLD EX-U.S. IMI INDEX
GEOGRAPHIC ALLOCATION AS OF 03/31/2019**

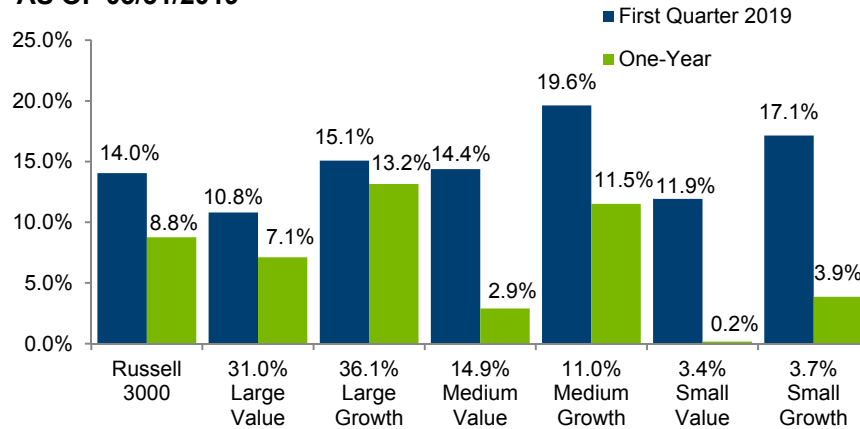


Source: MSCI

- The two exhibits on this slide illustrate the percentage that each country/region represents of the global and international equity markets as measured by the MSCI All Country World IMI Index and the MSCI All Country World ex-U.S. IMI Index, respectively.

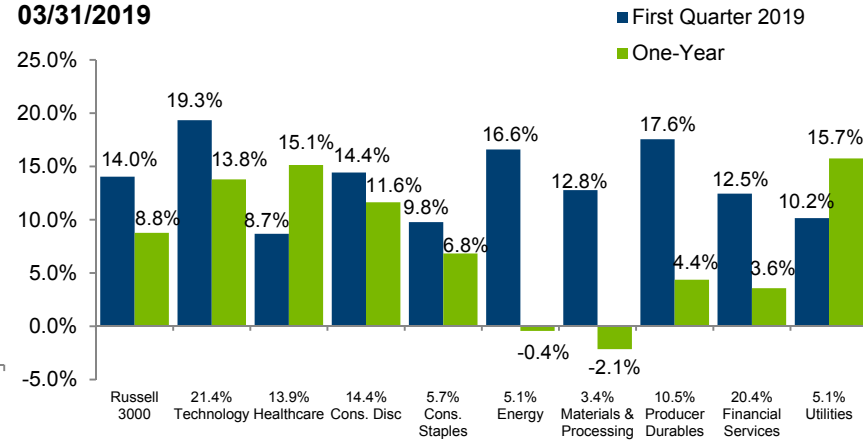
U.S. Equity Markets

RUSSELL STYLE RETURNS AS OF 03/31/2019



Source: Russell Indexes

RUSSELL GICS SECTOR RETURNS AS AT 03/31/2019

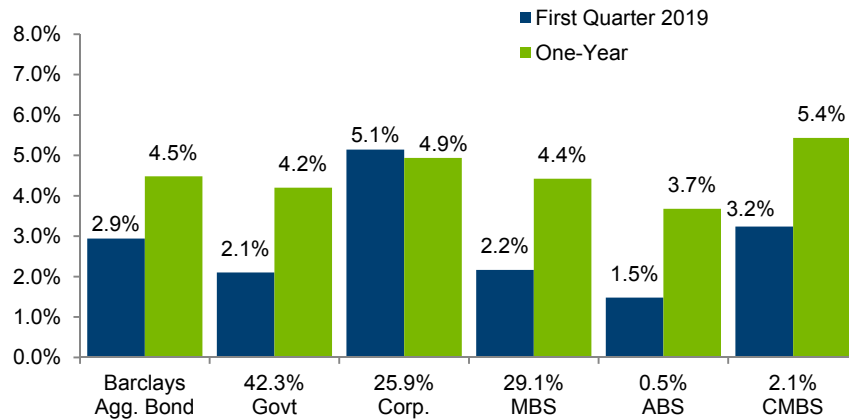


Source: Russell Indexes

- With concerns of a slower U.S. economy abating and more promising steps to some U.S.-China trade reconciliation, it is unsurprising that drivers of the U.S. equity market upturn came from sectors traditionally thought to be cyclical or, at least, sensitive to the economic environment. The Dow Jones Total Stock Market Index rose by 14.0% over the quarter with the majority of the strong performance coming earlier in the quarter. The Russell 3000 Index rose 14.0% during the first quarter and 8.8% over the one-year period.
- All sectors generated positive returns over the quarter. In particular, Technology (19.3%) and Producer Durables (17.6%) were the best performing sectors in Q1 2019.
- Performance was positive across the market capitalization spectrum over the quarter. In general, large cap stocks underperformed both medium and small cap stocks over the quarter. Growth stocks outperformed their Value counterparts in Q1 2019; a continuation of a longer-lasting trend where Value stocks have lagged their Growth stock equivalents significantly over the last twelve months.

U.S. Fixed Income Markets

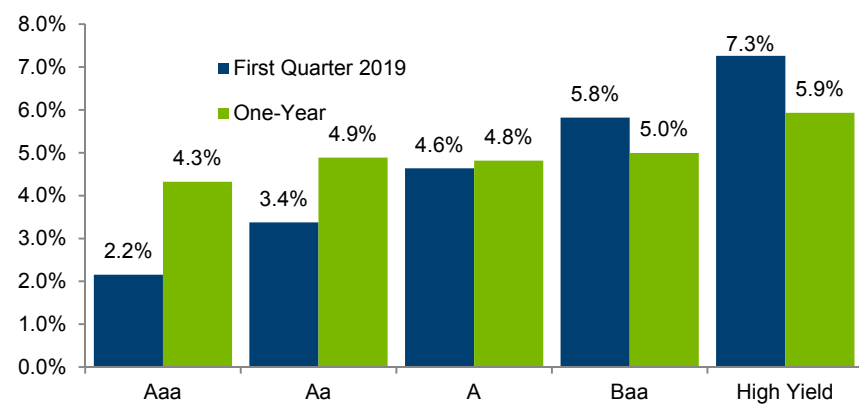
BLOOMBERG BARCLAYS AGGREGATE RETURNS BY SECTOR AS OF 03/31/2019



Source: FactSet

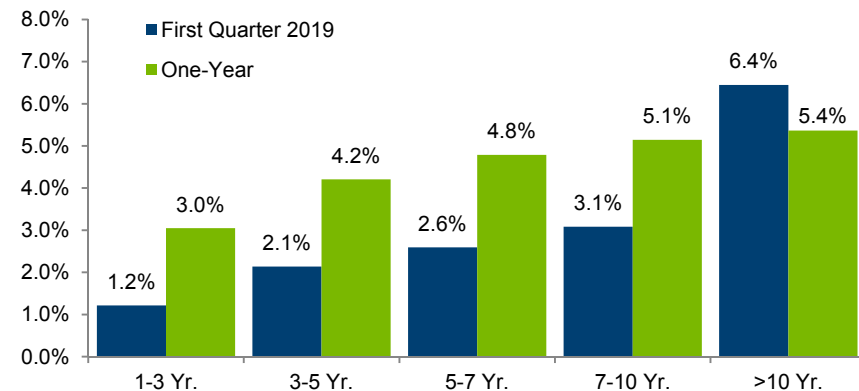
- The Bloomberg Barclays U.S. Aggregate Bond Index rose by 2.9% over the quarter. Corporate bonds were the best performers, returning 5.1% whilst ABS bonds underperformed with a return of 1.5%.
- Performance was positive across all credit grades. High yield bonds rose the most at 7.3%. Within investment grade bonds, Baa bonds outperformed with a return of 5.8%.
- Long-maturity bonds outperformed intermediate and short-maturity bonds over the quarter. Long-maturity bonds returned 6.4% while short-maturity bonds returned only 1.2% in Q1 2019.

BLOOMBERG BARCLAYS AGGREGATE RETURNS BY QUALITY AND HIGH YIELD RETURNS AS OF 03/31/2019



Source: FactSet

BLOOMBERG BARCLAYS AGGREGATE RETURNS BY MATURITY AS OF 03/31/2019

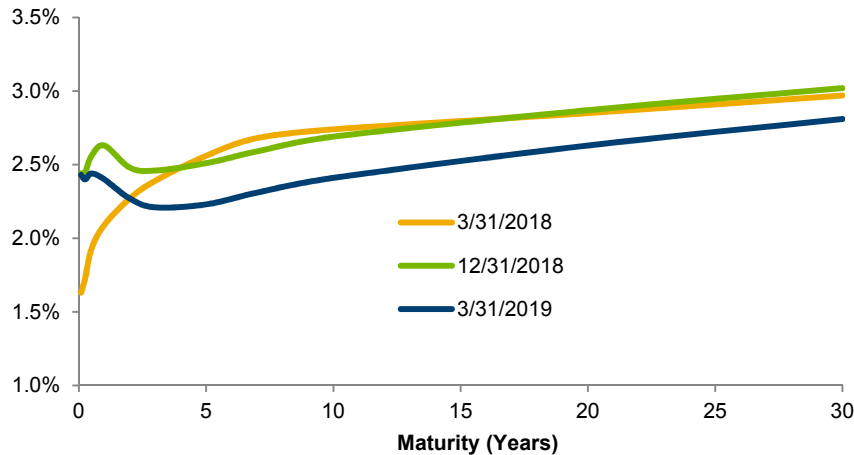


Source: FactSet

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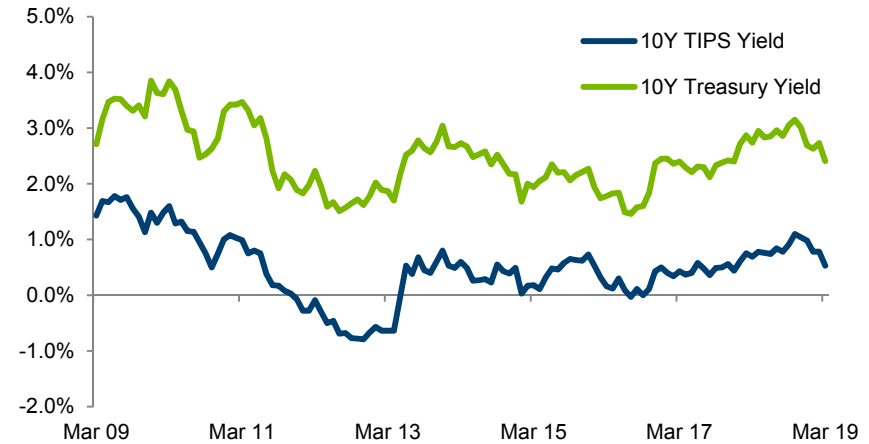
U.S. Fixed Income Markets

U.S. TREASURY YIELD CURVE



Source: U.S. Department of Treasury

U.S. 10-YEAR TREASURY AND TIPS YIELDS

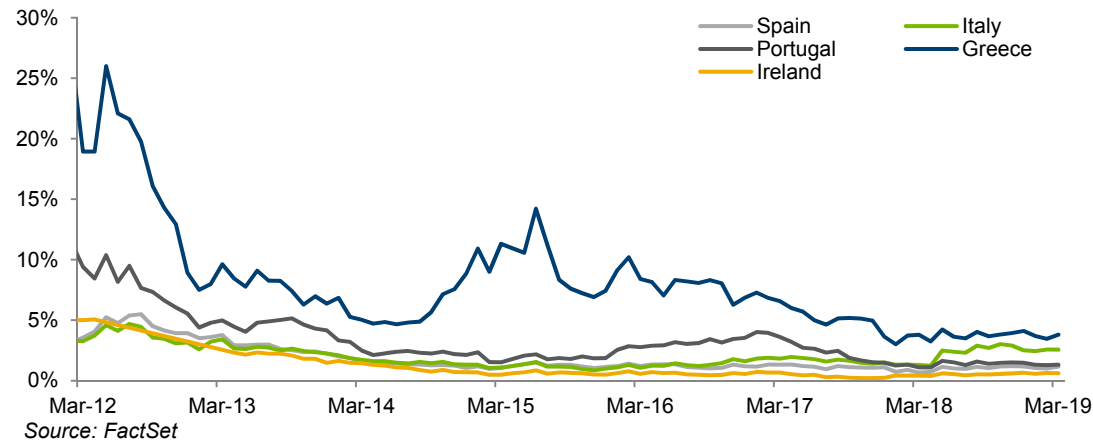


Source: U.S. Department of Treasury

- The U.S. nominal yield curve shifted downwards over the quarter with yields falling across all maturities. The U.S. treasury yield curve flattened significantly in Q1. The difference between three-month and ten-year U.S. treasury yields (a key measure of the U.S. yield curve watched by the Fed and seen as an indicator of a coming recession) turned negative for the first time since August 2007.
- The 10-year U.S. Treasury yield ended the quarter at 2.41%, 28bps lower than at the start of the quarter in which the US Federal Reserve (Fed) decided to pause after hiking interest rates over the past year. Projected rate hikes for 2019 have been abandoned and pushed back later to 2020. Moreover, September is now earmarked as the end of the Fed's balance sheet tightening, while the pace of quantitative tightening will halve from May onwards (from \$30bn to \$15bn).
- The 10-year TIPS yield fell by 45bps over the quarter and ended the period at 0.53%.

European Fixed Income Markets

**EUROZONE PERIPHERAL BOND SPREADS
(10-YEAR SPREADS OVER GERMAN BUNDS)**



- Bond spreads over 10-year German bunds generally fell across the eurozone (except for Italy). The European Central Bank (ECB) pushed back its interest rate to 2020 at the earliest. The ECB announced the third iteration of the Targeted Long-Term Refinancing Operations (TLTRO), aimed at encouraging bank supply of credit. This comes just one quarter after the ECB ended its quantitative easing programme.
- German government bund yields fell by 31bps to -0.07% over the quarter with the yields falling below zero for the first time in two years after the country's manufacturing sector dived deeper into contraction territory. Italian government bond yields fell by 25bps to 2.49% over the quarter. Both Fitch and Moody's credit rating agencies kept their ratings unchanged for Italian sovereign bonds at BBB and Baa3 respectively, easing fears of a downgrade expected by some market participants.
- Portuguese government bond yields fell by 46bps to a record low of 1.25%, as Standard and Poor's upgraded the country's credit rating to BBB.
- Greek government bond yields fell by 62bps to 3.73% over the quarter which saw the successful release of the country's first new bond issuance since it exited its third bailout programme in August 2018.

Credit Spreads

Spread (bps)	3/31/2019	12/31/2018	3/31/2018	Quarterly Change (bps)	1-Year Change (bps)
U.S. Aggregate	44	54	41	-10	3
Long Gov't	1	2	1	-1	0
Long Credit	172	200	148	-28	24
Long Gov't/Credit	99	113	88	-14	11
MBS	35	35	29	0	6
CMBS	69	86	67	-17	2
ABS	39	53	48	-14	-9
Corporate	119	153	109	-34	10
High Yield	391	526	354	-135	37
Global Emerging Markets	283	330	230	-47	53

Source: FactSet, Bloomberg Barclays

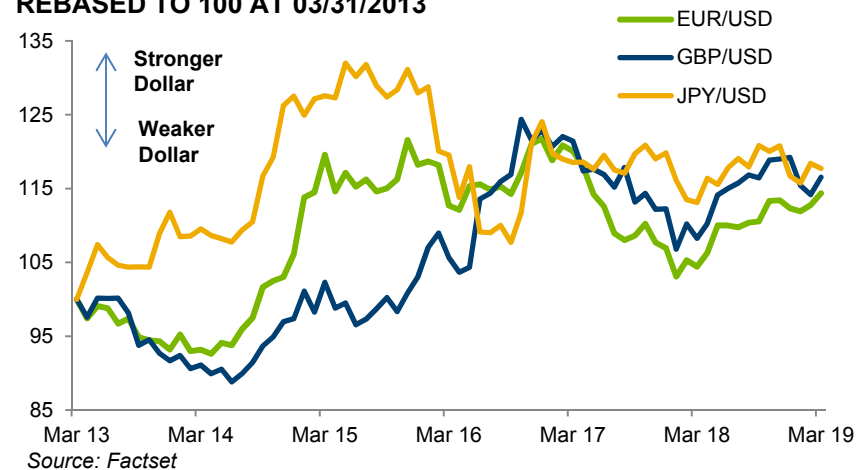
- Against a backdrop of improving risk appetite, credit spreads over U.S. Treasuries generally narrowed over the quarter.
- Broadly retracing the prior quarter's credit spread widening, High Yield bond spreads narrowed significantly in Q1 2019, decreasing by 135bps. This was followed by Global Emerging Markets bonds spreads, which narrowed by 47bps.

Currency

**TRADE WEIGHTED U.S. DOLLAR INDEX
(1973 = 100)**



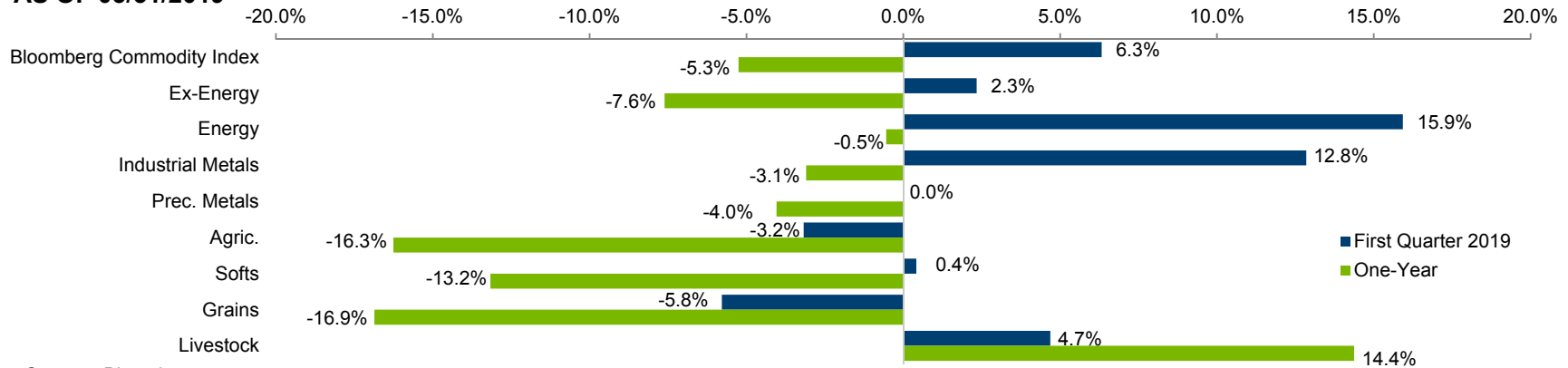
**U.S. DOLLAR RELATIVE TO EUR, GBP AND JPY
REBASED TO 100 AT 03/31/2013**



- The U.S. dollar had a mixed performance against major currencies over the quarter and ended marginally lower as it fell 0.4% on a trade-weighted basis over the quarter. U.S. dollar appreciated against euro and yen but depreciated against sterling and Canadian dollar.
- In the UK, it became clear over the quarter that a "no deal" Brexit scenario does not seem to have parliamentary backing, prompting sterling to find firmer footing. Sterling appreciated by 2.3% against the U.S. dollar.
- Alongside a more dovish ECB and a weaker economic outlook, the euro notably underperformed, falling against all major currencies. In particular, the euro depreciated by 1.8% against the U.S. dollar.

Commodities

COMMODITY RETURNS AS OF 03/31/2019

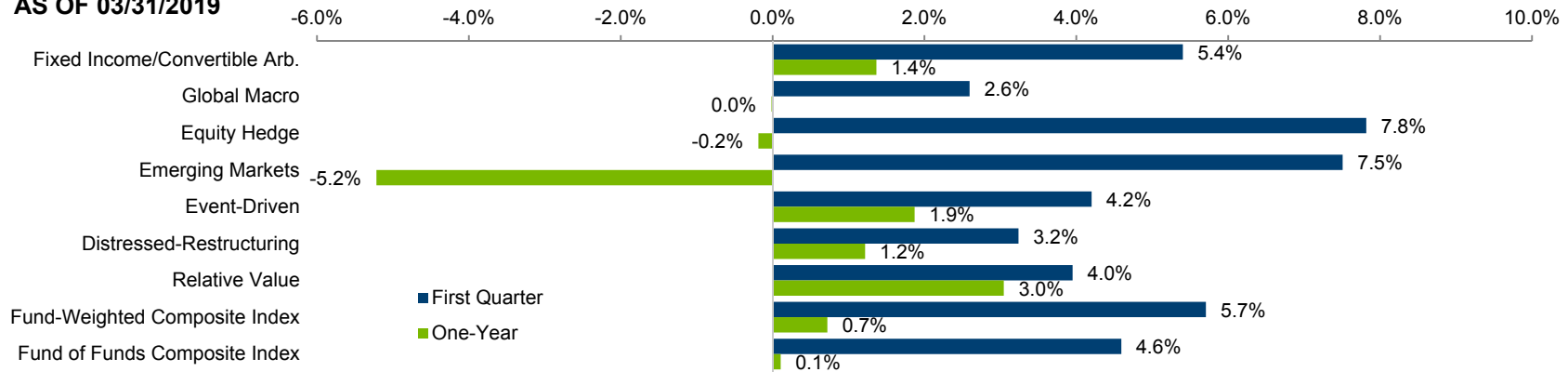


Source: Bloomberg

- Commodities rose over the quarter which saw the Bloomberg Commodity Index return 6.3%.
- Energy was the best performing sector over the quarter with a return of 15.9% as crude oil prices rose sharply. The cut in OPEC's crude oil production, as well as an unexpected fall in U.S. inventories, more than offset the potentially dampening effect on commodity demand from weakening economic growth and trade. The price of Brent crude oil rose by 27.1% to \$68/bbl. and WTI crude oil spot prices rose by 32.4% to \$60/bbl.
- Agriculture (-3.2%) was the worst performing sector in Q1 2019. Within the Agriculture sector, Softs rose by 0.4% whilst Grains fell by 5.8%.

Hedge Fund Markets Overview

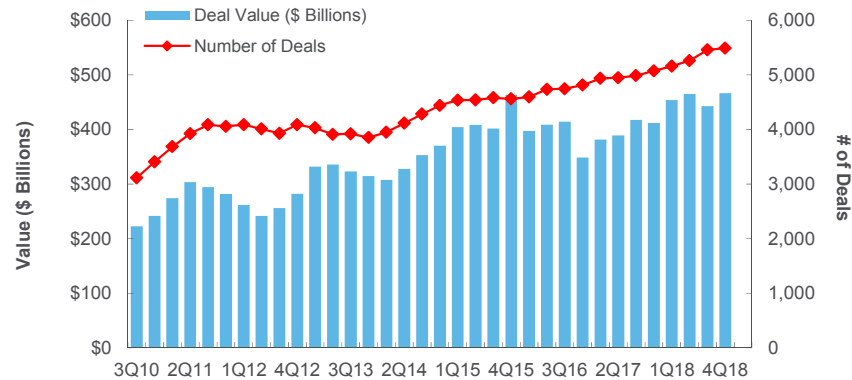
HEDGE FUND PERFORMANCE AS OF 03/31/2019



*Note: Latest 5 months of HFR data are estimated by HFR and may change in the future.
Source: HFR*

- Hedge fund performance was positive across all strategies in the first quarter.
- Over the quarter, Equity Hedge and Emerging Markets strategies were the best performers with returns of 7.9% and 7.8%, Conversely, Distressed-Restructuring and Global Macro were the worst performers, returning 3.3% and 2.9% respectively.
- HFRI Fund-Weighted Composite Index and the HFRI Fund of Funds Composite Index produced returns of 5.9% and 5.0% respectively.

Private Equity Market Overview – Q4 2018 – Slide 1 of 2



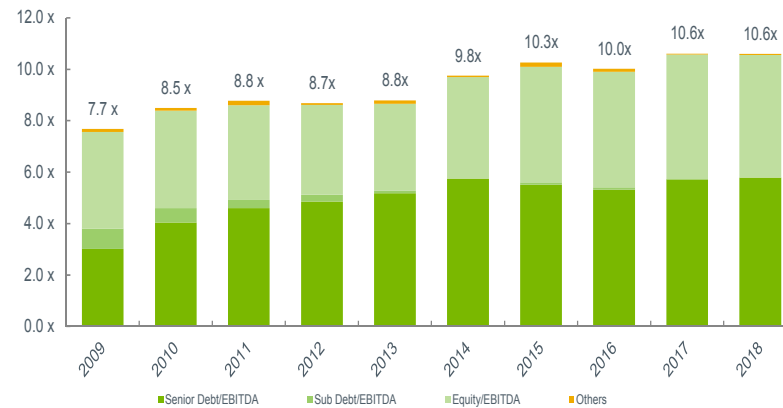
- Fundraising:** In 2018, \$459.6 billion was raised by 1,373 funds, which was a decrease of 27.1% on a capital basis but an increase of 0.7% by number of funds from the prior year. Dry powder stood at \$1.89 trillion at the end of the year, an increase of 11.8% and 39.9% compared to year-end 2017 and the five year average, respectively.¹
- Buyout:** Global private equity-backed buyout deals totaled \$466.9 billion in 2018, which was up 13.3% and 22.3% from 2017 and five year average, respectively.¹ At the end of 2018, the average purchase price multiple for all U.S. LBOs was 10.6x EBITDA, flat with year-end 2017 and up from the five-year average (9.9x).² Large cap purchase price multiples stood at 10.6x, up compared to the full-year 2017 level of 10.4x.² The weighted average purchase price multiple across all European transaction sizes averaged 11.3x EBITDA for year-end 2018, up from the 10.7x multiple seen at year-end 2017. Purchase prices for transactions of €1.0 billion or more increased from 11.6x in 2017 to 11.7x in 2018. Transactions between €500.0 million and €1.0 billion were up 0.8x from the end of 2017, and stood at 11.3x at year-end 2018.² Globally, exit value totaled \$351.8 billion on 2,072 deals during the year, higher than the \$337.1 billion in exits from 2,059 deals during 2017.
- Venture:** During the year, 5,536 venture-backed transactions totaling \$99.5 billion were completed, which was a substantial increase on a capital basis over the prior year's total of \$76.4 billion across 5,824 deals. This was 31.6% higher than the five-year average of \$75.6 billion.³ Total U.S. venture-backed exit activity totaled approximately \$122.0 billion across 864 completed transactions in 2018, up notably from \$92.0 billion across 885 exits in 2017.⁴
- Mezzanine:** 56 funds closed on \$31.7 billion during the year. This was a significant increase from the prior year's total of \$12.4 billion raised by 48 funds and represented an increase of 38.4% from the five-year average of \$22.9 billion. Estimated dry powder was \$58.4 billion at the end of 2018, up by \$4.9 billion from the prior year and higher than the \$53.1 billion high seen at year-end 2016.¹

Sources: ¹ Preqin ² Standard & Poor's ³ PwC/CB Insights MoneyTree Report ⁴ PitchBook/NVCA Venture Monitor ⁵ Fitch Ratings ⁶ Thomson Reuters ⁷ UBS

Notes: FY=Fiscal year ended 12/31; YTD=Year to date; LTM=Last 12 months (aka trailing 12 months); PPM=Purchase Price Multiples: Total Purchase Price ÷ EBITDA.

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Private Equity Market Overview – Q4 2018 – Slide 2 of 2



- Distressed Debt:** The LTM U.S. high-yield default rate was 2.4% as of December 2018, which was up from December 2017's LTM rate of 1.3%.⁵ During the year, \$39.3 billion was raised by 63 funds, lower than the \$48.1 billion raised by 72 funds during 2017.¹ Dry powder was estimated at \$117.6 billion at the end of 2018, which was up 6.7% from year-end 2017. This remained above the five-year annual average level of \$96.4 billion.¹
- Secondaries:** 26 funds raised \$21.2 billion during the year, down significantly from the \$42.8 billion raised by 50 funds in 2017.¹ The average discount rate for all private equity sectors finished the year at 8.9%, higher than the 7.9% discount at the end of 2017.⁶
- Infrastructure:** \$92.9 billion of capital was raised by 75 funds in 2018 compared to \$77.8 billion of capital raised by 100 partnerships in 2017. At the end of the year, dry powder stood at \$177.0 billion, up from last year's record of \$164.0 billion. Infrastructure managers completed 2,454 deals with an aggregate deal value of \$322.0 billion in 2018 compared to 3,165 deals totaling \$387.0 billion in 2017.¹
- Natural Resources:** During 2018, 35 funds closed on \$19.1 billion compared to 44 funds totaling \$21.9 billion in 2017. Energy and utilities industry managers completed 150 deals totaling \$34.4 billion in 2018, compared to \$36.9 billion across 130 deals in 2017.¹

Sources: ¹ Preqin ² Standard & Poor's ³ PwC/CB Insights MoneyTree Report ⁴ PitchBook/NVCA Venture Monitor ⁵ Fitch Ratings ⁶ Thomson Reuters ⁷ UBS

Notes: FY=Fiscal year ended 12/31; YTD=Year to date; LTM=Last 12 months (aka trailing 12 months); PPM=Purchase Price Multiples: Total Purchase Price ÷ EBITDA.

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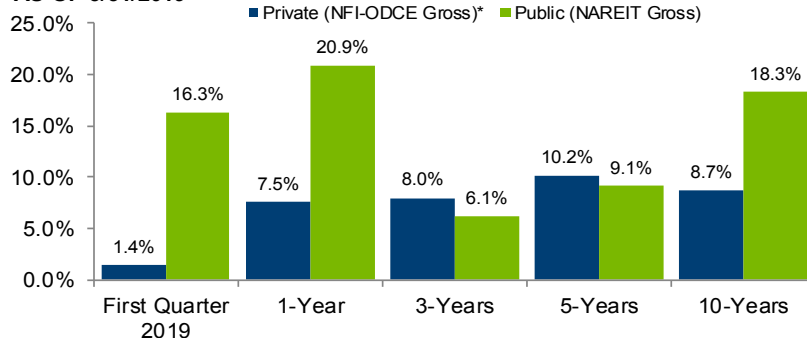
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U.S. Commercial Real Estate Markets

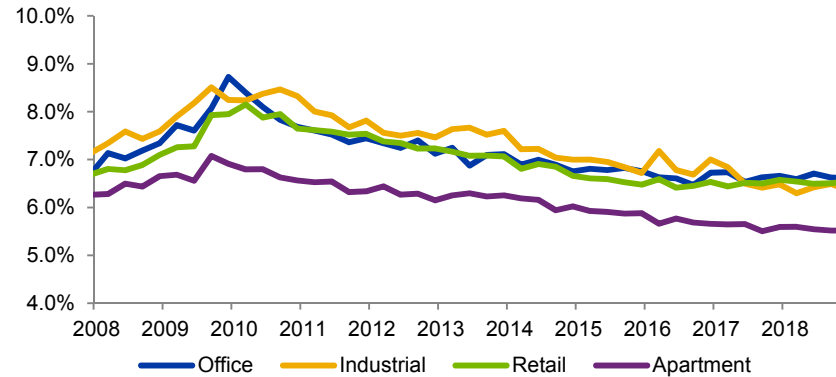
PRIVATE VS. PUBLIC REAL ESTATE RETURNS

AS OF 3/31/2019



*Second quarter returns are preliminary
Sources: NCREIF, Factset

CAP RATES BY SECTOR



Sources: RCA, AON 12/31/2018

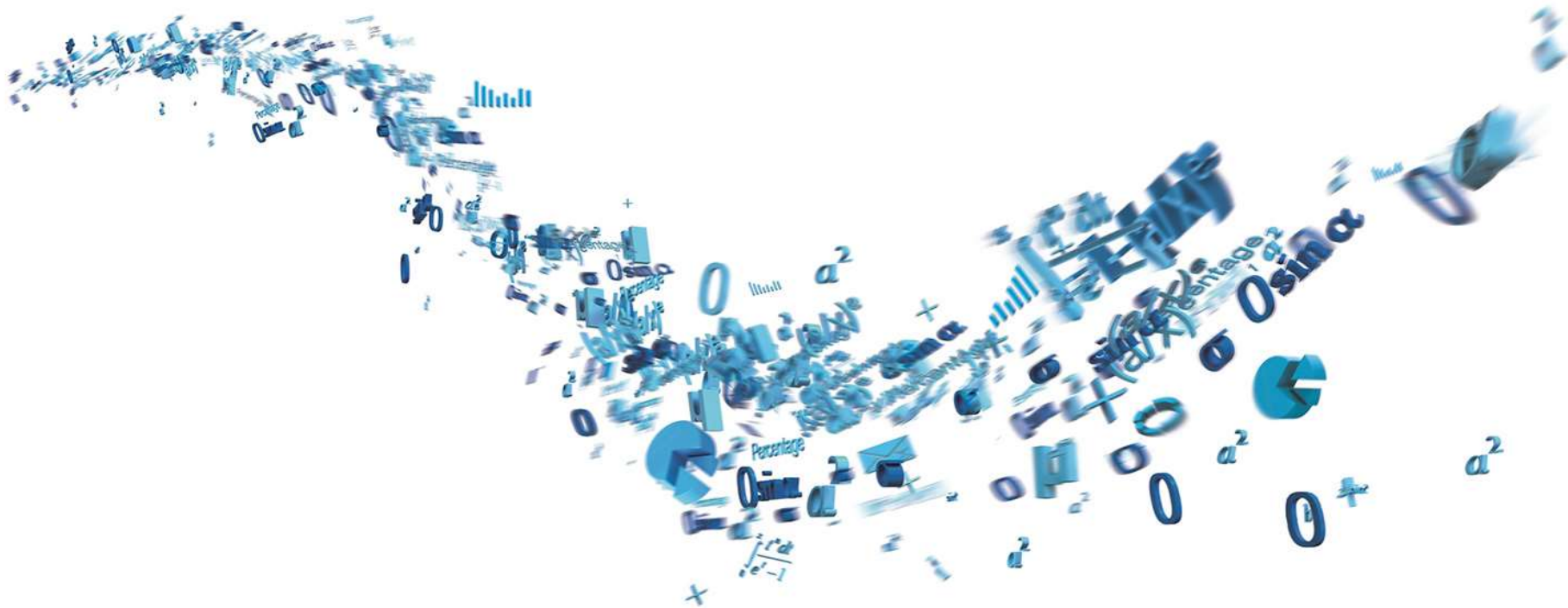
- U.S. Core real estate returned 1.42%* over the first quarter, equating to 7.5% total gross return year-over-year, including a 4.2% income return. Debt mark to market was a drag on the quarterly return as a result of declining interest rates. Net income growth is expected to be the larger driver of the total return on a go forward basis given the current point of the real estate cycle.
- Global property markets, as measured by the FTSE EPRA/NAREIT Global Developed Real Estate Index, returned 14.9% (USD) in aggregate during the first quarter. Sector strength was largely attributed to a broader equity market rally due to an abrupt shift in monetary policy across major economies. The EU restarted QE just 2 months after ceasing the program, and the US Fed communicated a general pause from increasing rates for 2019. REIT market performance was driven by Asia Pacific (15.6% USD), North America (16.0% USD) and Europe (12.2% USD). The U.S. REIT markets (FTSE NAREIT Equity REITs Index) gained 16.3% in the first quarter. U.S. 10-year Treasury bond yield fell to 2.41%, after hitting highs over 3% in 2018. the movement was supportive to REIT share prices. Similarly, the German 10-year bond yield fell from .24% back to -0.07% at the end of the quarter.
- According to RCA through February 2019, the U.S. property market has experienced price growth of 6.3% year-over-year across major sectors. In addition, transaction volume was down 4% over the same period.
- Return expectations have normalized, with go forward expectations in line with historical norms. Declining interest rates have led to a rally across various asset classes. According to Preqin, there remains a record amount of dry powder (\$326 billion) in closed-end vehicles seeking real estate exposure, which should continue to lend support to valuations and liquidity in the commercial real estate market.

*Indicates preliminary NFI-ODCE data gross of fees

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Fee Schedule

Fee Schedule

	Fee Schedule	Market Value As of 03/31/2019 \$000	Estimated Annual Fee \$000	Estimated Annual Fee (%)
Total Equity		9,175,003	40,768	0.44
Jacobs Levy 130/30	0.60 % of First \$200 M 0.35 % of Next \$300 M 0.30 % Thereafter	604,936	2,565	0.42
Allianz Structured Alpha U.S. 250		167,976	-	-
Allianz Structured Alpha Global 500		795,638	-	-
Allianz Structured Alpha Global 350		264,643	-	-
Daruma Asset Management	0.70 % of First \$150 M 0.50 % Thereafter	368,204	2,141	0.58
Kennedy Capital Management	0.60 % of First \$100 M 0.50 % Thereafter	519,026	2,695	0.52
Stephens	0.75 % of First \$150 M 0.70 % of Next \$50 M 0.65 % Thereafter	402,174	2,789	0.69
Voya Absolute Return	0.60 % of First \$250 M 0.40 % Thereafter	522,728	2,591	0.50
Allianz (Nicholas Applegate)	0.40 % of First \$100 M 0.30 % of Next \$100 M 0.25 % of Next \$100 M 0.20 % Thereafter	564,388	1,479	0.26
Pershing Square International	1.50 % of Assets	114,457	1,717	1.50
Pershing Square Holdings	1.50 % of Assets	122,827	1,842	1.50
Triam Partners	1.50 % of Assets	64,557	968	1.50
Triam Co-Investments	0.50 % of Assets	63,493	317	0.50
SSgA Global Index	0.04 % of First \$1000 M 0.03 % Thereafter	1,082,061	425	0.04
BlackRock MSCI ACWI IMI Fund	0.05 % of First \$250 M 0.04 % Thereafter	103,798	52	0.05
Wellington Global Perspectives	0.80 % of Assets	511,545	4,092	0.80
T. Rowe Price Global Equity	0.43 % of First \$500 M 0.40 % Thereafter	867,540	3,595	0.41
Lazard	0.68 % of First \$300 M 0.65 % Thereafter	539,536	3,597	0.67
D.E. Shaw	0.84 % of First \$100 M 0.80 % of Next \$100 M 0.76 % Thereafter	674,738	5,248	0.78
GMO Global All Country Equity	0.64 % of Assets	400,468	2,563	0.64
Harris Global Equity	0.60 % of First \$100 M 0.50 % of Next \$100 M 0.45 % Thereafter	420,198	2,091	0.50

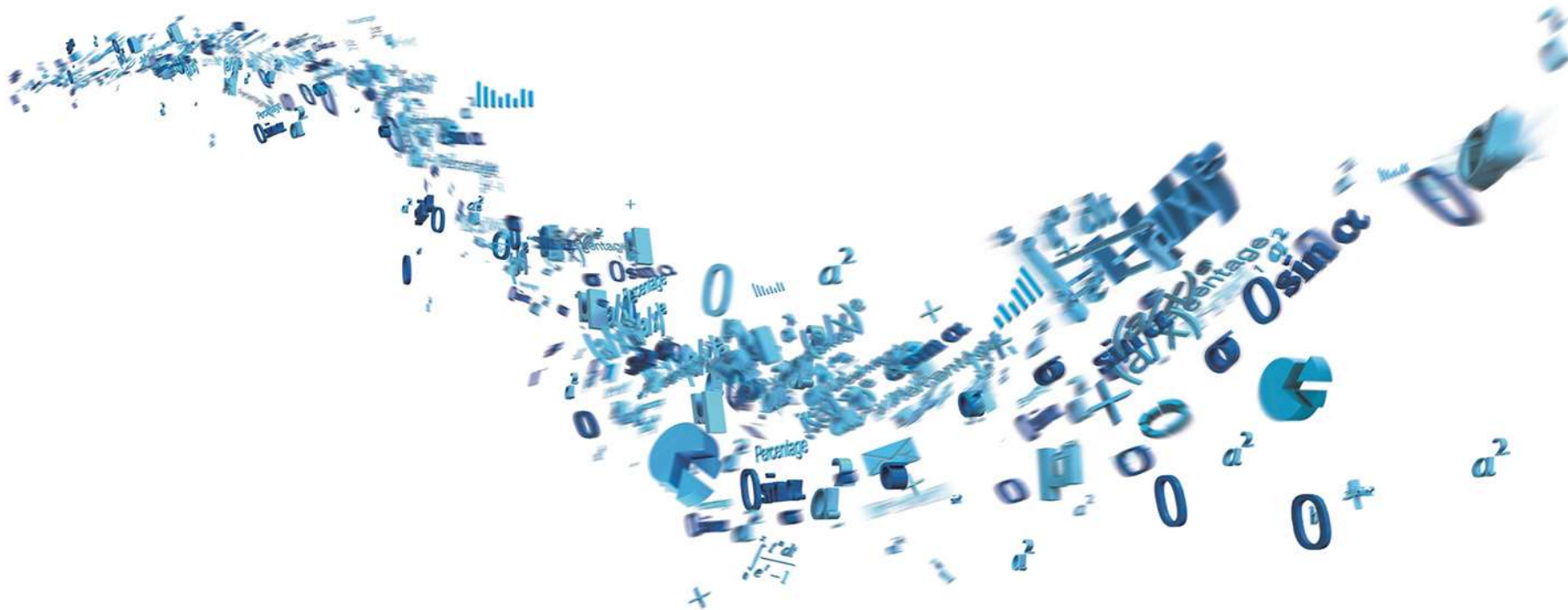
223 Above fees reflect only the current base management fee and excludes any performance fee arrangement.

Fee Schedule

	Fee Schedule	Market Value As of 03/31/2019 \$000	Estimated Annual Fee \$000	Estimated Annual Fee (%)
Fixed Income		2,755,934	5,083	0.18
BlackRock	0.20 % of First \$200 M 0.15 % of Next \$200 M 0.10 % of Next \$400 M 0.08 % Thereafter	394,330	691	0.18
Loomis Sayles	0.50 % of First \$20 M 0.40 % of Next \$30 M 0.30 % Thereafter	411,328	1,304	0.32
Putnam	0.40 % of First \$100 M 0.35 % of Next \$150 M 0.30 % of Next \$250 M 0.25 % Thereafter	360,800	1,257	0.35
SSgA Aggregate Bond Index	0.04 % of First \$100 M 0.02 % Thereafter	629,504	141	0.02
Wellington Global Total Return	0.30 % of Assets	333,710	1,001	0.30
Reams Core Plus Bond Fund	0.20 % of Assets	343,875	688	0.20
BRS Recycling Tax Credit		208,000	-	-
BRS Recycling Tax Credit Phase 2		74,388	-	-
Opportunistic/Alternatives		971,331	13,579	1.40
Anchorage	2.00 % of Assets	75,308	1,506	2.00
York	1.50 % of Assets	67,832	1,017	1.50
Capula	2.00 % of Assets	79,768	1,595	2.00
Graham	2.00 % of Assets	56,423	1,128	2.00
Circumference Group Core Value	1.50 % of Assets	28,775	432	1.50
Aeolus Keystone Fund	2.00 % of Assets	259,648	5,193	2.00
Nephila Rubik Holdings	1.50 % of Assets	43,009	645	1.50
Parametric Global Defensive Equity Fund	0.40 % of First \$150 M 0.35 % Thereafter	163,123	646	0.40
Circumference Group Equity Opportunity Fund		1,842	-	-
Man Alternative Risk Premia	0.85 % of Assets	96,770	823	0.85
CFM ISD Fund 1.5x	0.60 % of Assets	98,832	593	0.60

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

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Disclaimers and Notes

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 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 March 1, 2018, the Total Equity Performance Benchmark was comprised of 32.9% DJ U.S. Total Stock Market Index and 67.1% 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

Allianz (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 Allianz (previously Nicholas Applegate) 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.

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.

Nicholas Applegate 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 Nicholas Applegate 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 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

As of June 30, 2015	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
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 USD-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 USD investment grade 144A securities.

Bloomberg Barclays Global Treasury Ex-US - The Barclays Global Treasury ex US Index is a subset of the flagship Global Treasury Index that does not have any exposure to US 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 million 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 million 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 million 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 million 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 million 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 million 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 US Large Cap Index - an index comprised of nearly 640 US large cap companies and includes securities traded on NYSE, NYSEMarket, 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 US 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 US 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 US 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 US 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 equity-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 million 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 US Dollar and have a minimum of \$50 Million 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-US 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 million 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@aonhewitt.com for more index information.

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 AHIC's investment advisory fees or other trust payable expenses you may incur as a client. AHIC's 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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Refer to Hedge Fund Research, Inc. www.hedgefundresearch.com for information on HFR indices.

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Aon Hewitt Investment Consulting, Inc.
200 East Randolph Street
Suite 1500
Chicago, IL 60601
ATTN: AHIC Compliance Officer



Arkansas Teacher Retirement System | April 30, 2019

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.

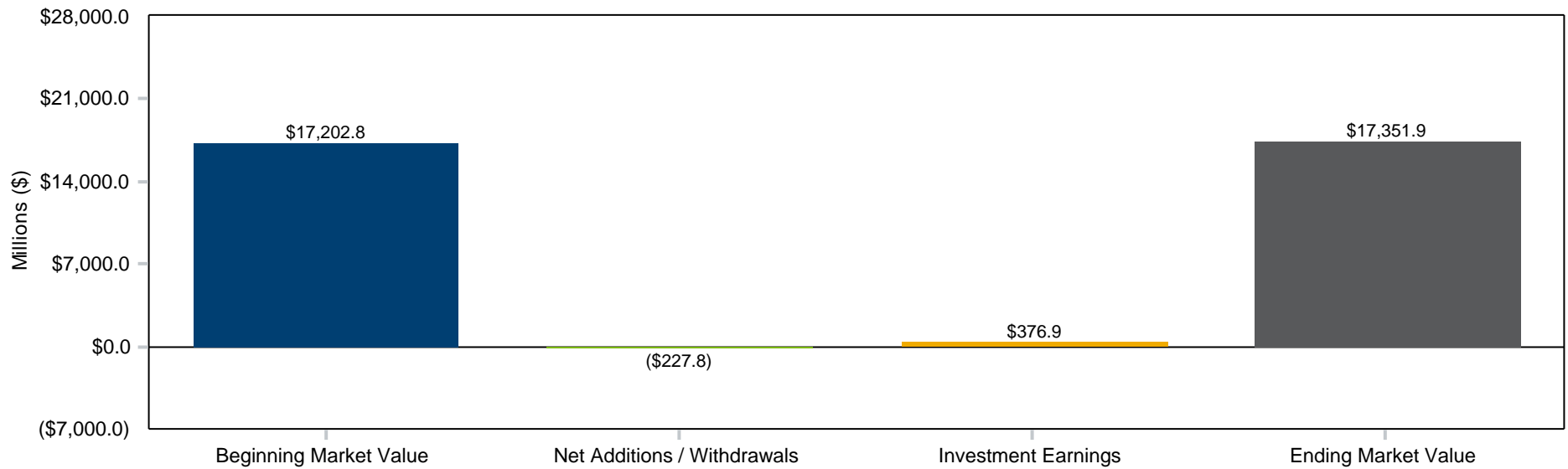
As of April 30, 2019

Market Environment

	Performance(%)						
	1 Month	Year To Date	Fiscal YTD	1 Year	3 Years	5 Years	10 Years
Dow Jones U.S. Total Stock Market Index	4.0	18.6	8.8	12.6	14.7	11.1	15.3
S&P 500 Index	4.0	18.2	10.1	13.5	14.9	11.6	15.3
Russell 1000 Index	4.0	18.6	9.8	13.3	14.8	11.4	15.4
Russell 1000 Value Index	3.5	15.9	8.2	9.1	11.0	8.3	13.8
Russell 1000 Growth Index	4.5	21.3	11.4	17.4	18.6	14.5	17.0
Russell 2000 Index	3.4	18.5	-2.1	4.6	13.6	8.6	14.1
Russell 2000 Value Index	3.8	16.2	-4.0	2.2	11.5	6.9	12.9
Russell 2000 Growth Index	3.0	20.7	-0.2	6.9	15.6	10.2	15.2
MSCI AC World IMI (Net)	3.3	16.0	4.5	4.3	11.2	6.9	11.3
MSCI AC World ex USA IMI (Net)	2.6	13.2	0.1	-4.0	7.9	3.0	8.1
MSCI EAFE Index (Net)	2.8	13.1	0.2	-3.2	7.2	2.6	8.0
MSCI Emerging Markets Index (Net)	2.1	12.2	2.7	-5.0	11.3	4.0	7.5
Blmbg. Barc. U.S. Universal Index	0.1	3.5	5.0	5.4	2.5	2.9	4.3
Blmbg. Barc. U.S. Aggregate	0.0	3.0	4.7	5.3	1.9	2.6	3.7
Blmbg. Barc. U.S. Government	-0.3	1.8	3.8	4.8	1.0	2.0	2.5
Blmbg. Barc. Credit Bond Index	0.5	5.4	6.3	6.4	3.2	3.5	6.0
Blmbg. Barc. U.S. Mortgage Backed Securities	-0.1	2.1	4.1	4.9	1.7	2.4	3.1
Blmbg. Barc. U.S. Corp: High Yield	1.4	8.8	6.3	6.7	7.7	4.8	10.1
Citigroup 90-Day T-Bill	0.2	0.8	1.9	2.2	1.2	0.8	0.4

Total Plan Asset Summary

**Change in Market Value
From April 1, 2019 to April 30, 2019**



Summary of Cash Flow

Total Fund	1 Month	Fiscal YTD	1 Year
Beginning Market Value	17,202,844,411	17,343,640,417	17,065,841,272
+ Additions / Withdrawals	-227,807,702	-785,514,284	-844,721,054
+ Investment Earnings	376,869,460	793,780,036	1,130,785,951
= Ending Market Value	17,351,906,169	17,351,906,169	17,351,906,169

As of April 30, 2019

Asset Allocation & Performance

	Allocation			Performance(%)								
	Market Value (\$)	%	Policy(%)	1 Month	Year To Date	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Total Fund	17,351,906,169	100.0	100.0	2.2	10.1	4.5	6.6	10.6	8.0	10.8	8.5	04/01/1986
Performance Benchmark				2.0	8.6	4.5	4.6	9.4	7.5	10.5	8.5	
Total Equity	9,324,419,567	53.7	55.1	3.9	18.4	4.3	6.0	12.8	8.4	12.9	8.6	07/01/2015
Total Equity Performance Benchmark				3.5	16.8	5.8	6.8	12.4	8.5	12.8	9.0	
Fixed Income	2,763,667,883	15.9	15.0	0.3	3.0	4.1	4.6	3.9	3.2	6.0	5.4	07/01/1992
Performance Benchmark				0.1	3.5	5.0	5.4	2.5	2.9	4.3	5.6	
Opportunistic/Alternatives	984,984,670	5.7	5.7	1.4	3.1	-0.7	-0.3	2.4	2.6		3.7	05/01/2011
Custom Alternatives Benchmark				1.0	4.6	1.9	2.3	2.9	1.6		1.8	
Real Assets	2,075,857,605	12.0	12.3									
Real Estate	1,352,704,708	7.8										
Timber	258,608,363	1.5										
Agriculture	195,256,218	1.1										
Infrastructure	269,288,315	1.6										
Private Equity	2,116,648,414	12.2	12.0									
Cash	86,328,030	0.5	0.0									

***Preliminary Results**

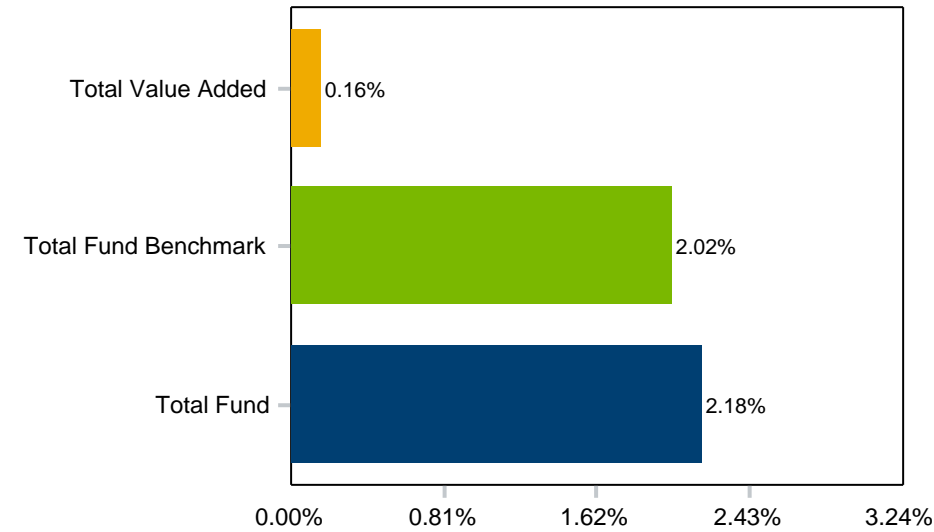
*Policy % is the interim target used for benchmarking purposes. See page 17 for long-term targets. Beginning July 1, 2013, an updated Investment Policy was adopted which includes the new Real Assets category, which includes Real Estate, Timber, Agriculture and Infrastructure.

*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.

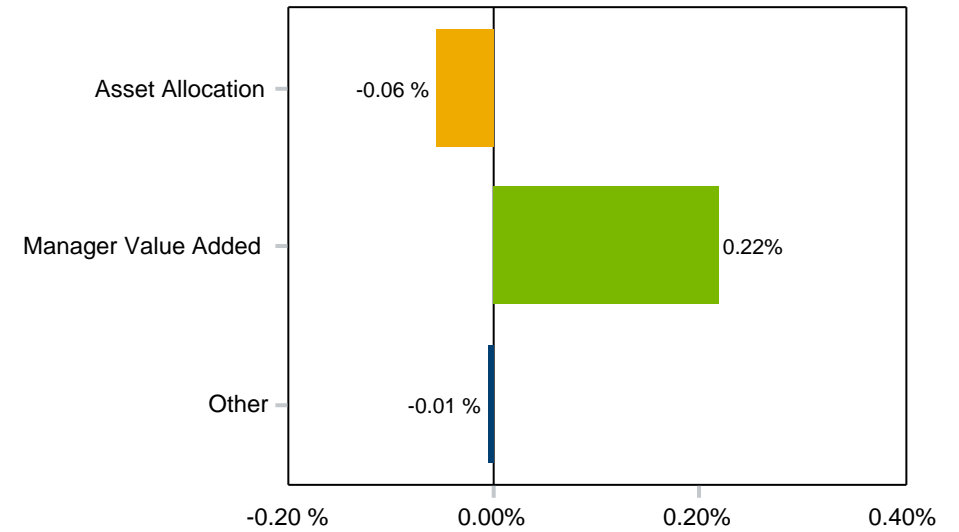
*The inception of the Total Equity asset class was July 1, 2015. Performance prior to July 2015 represents the weighted average of the U.S. Equity and Global Equity asset class monthly returns. For historical performance of the U.S. Equity and Global Equity asset classes please see page 21 of this report.

Total Fund Attribution

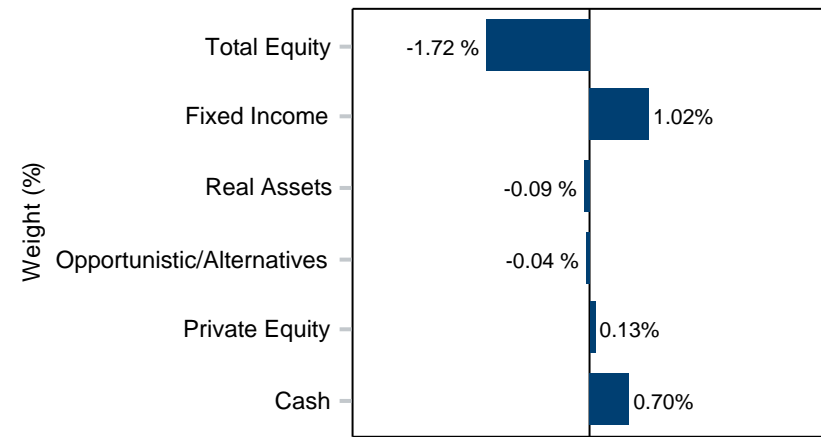
Total Fund Performance



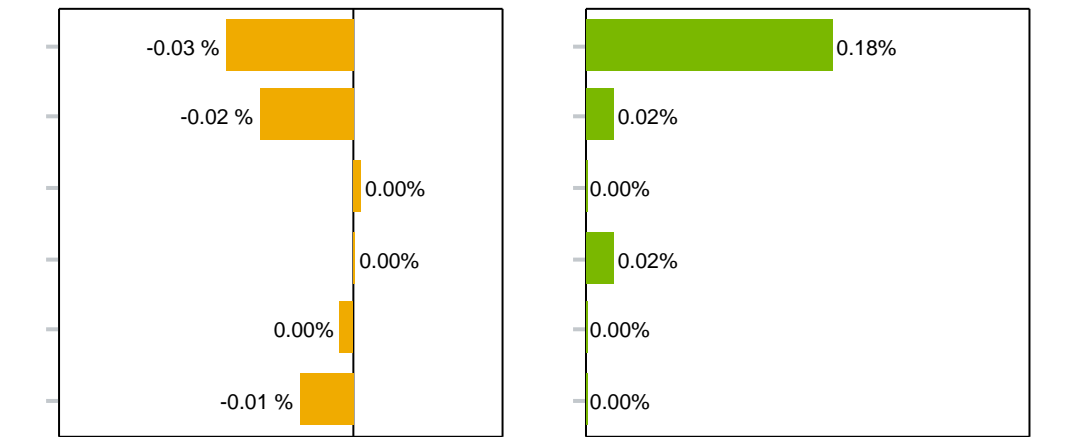
Total Value Added: 0.16%



Total Asset Allocation: -0.06 %



Total Manager Value Added: 0.22%



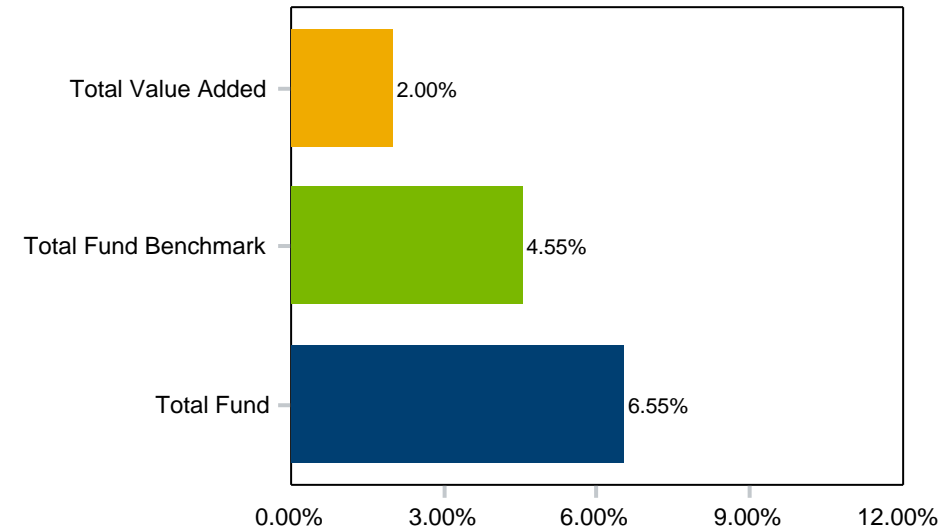
Average Active Weight

Asset Allocation Value Added

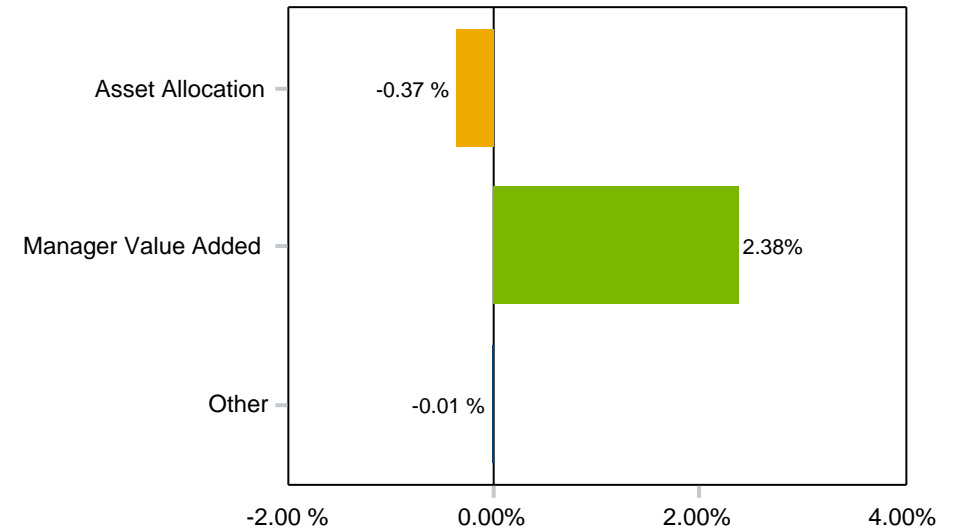
Manager Value Added

Total Fund Attribution

Total Fund Performance

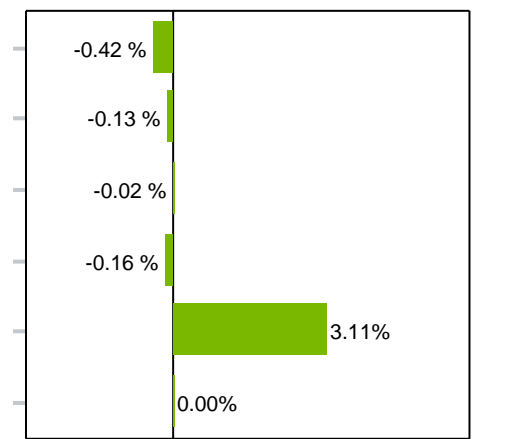
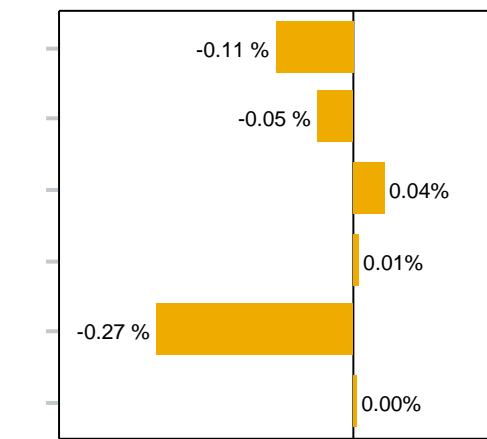
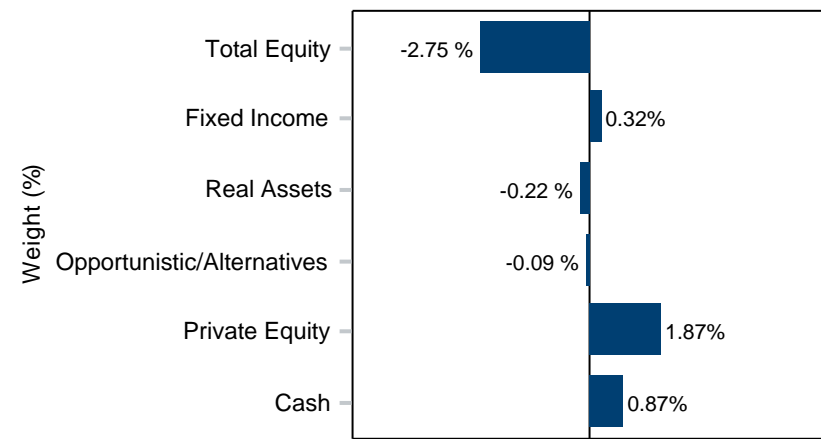


Total Value Added: 2.00%



Total Asset Allocation: -0.37%

Total Manager Value Added: 2.38%



Average Active Weight

Asset Allocation Value Added

Manager Value Added

As of April 30, 2019

Asset Allocation & Performance

	Allocation		Performance(%)							
	Market Value (\$)	%	1 Month	Year To Date	Fiscal YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Total Equity	9,324,419,567	100.0	3.9	18.4	4.3	6.0	12.8	8.4	8.6	07/01/2015
Total Equity Performance Benchmark			3.5	16.8	5.8	6.8	12.4	8.5	9.0	
Jacobs Levy 130/30	632,064,611	6.8	4.5	20.7	7.7	11.4	17.4	15.9	10.4	01/01/2008
Russell 3000 Index			4.0	18.6	8.9	12.7	14.7	11.2	8.7	
Allianz Structured Alpha U.S. 250	175,498,502	1.9	4.5	20.8	10.3	14.5	16.4	13.6	18.3	05/01/2009
S&P 500 Index			4.0	18.2	10.1	13.5	14.9	11.6	15.3	
Allianz Structured Alpha Global 500	828,346,942	8.9	4.1	20.8	5.5	6.8	14.3		15.1	10/01/2015
MSCI AC World IMI (Net)			3.3	16.0	4.5	4.3	11.2		11.3	
Allianz Structured Alpha Global 350	275,021,817	2.9	3.9	19.4	5.4	6.3			14.1	12/01/2016
MSCI AC World IMI (Net)			3.3	16.0	4.5	4.3			12.2	
Kennedy Capital Management	541,095,351	5.8	4.2	18.7	-6.0	-1.7	10.0	6.3	12.3	01/01/1994
Russell 2000 Value Index			3.8	16.2	-4.0	2.2	11.5	6.9	9.7	
Stephens	425,968,575	4.6	5.9	22.2	7.6	17.9	19.9	11.3	10.3	08/01/2006
Russell 2000 Growth Index			3.0	20.7	-0.2	6.9	15.6	10.2	9.5	
Voya Absolute Return	541,868,037	5.8	3.6	15.5	3.9	2.9	11.2	9.7	10.5	10/01/2008
Performance Benchmark Voya Absolute Return			3.4	16.0	5.5	5.1	11.4	9.5	10.5	
Allianz (Nicholas Applegate)	579,717,066	6.2	2.7	14.7	9.5	14.0	14.3	8.4	9.9	12/01/1998
Performance Benchmark			2.7	13.1	6.6	10.9	12.5	7.6	7.7	
Pershing Square International	116,720,016	1.3	2.0	31.4	26.6	38.0	11.0	2.2	9.1	07/01/2008
Dow Jones U.S. Total Stock Market Index			4.0	18.6	8.8	12.6	14.7	11.1	10.3	
Pershing Square Holdings	125,683,237	1.3	2.3	36.8	21.3	36.0	3.1	-4.6	0.6	01/01/2013
Dow Jones U.S. Total Stock Market Index			4.0	18.6	8.8	12.6	14.7	11.1	14.1	
SSgA Global Index	1,077,715,003	11.6	3.4	16.2	4.7	4.7	11.5	7.3	6.1	04/01/2008
MSCI AC World IMI (Net)			3.3	16.0	4.5	4.3	11.2	6.9	5.8	
BlackRock MSCI ACWI IMI Fund	257,984,172	2.8	2.9	15.6	4.3	4.2	11.3	7.1	8.1	07/01/2011
MSCI AC World IMI (Net)			3.3	16.0	4.5	4.3	11.2	6.9	7.8	

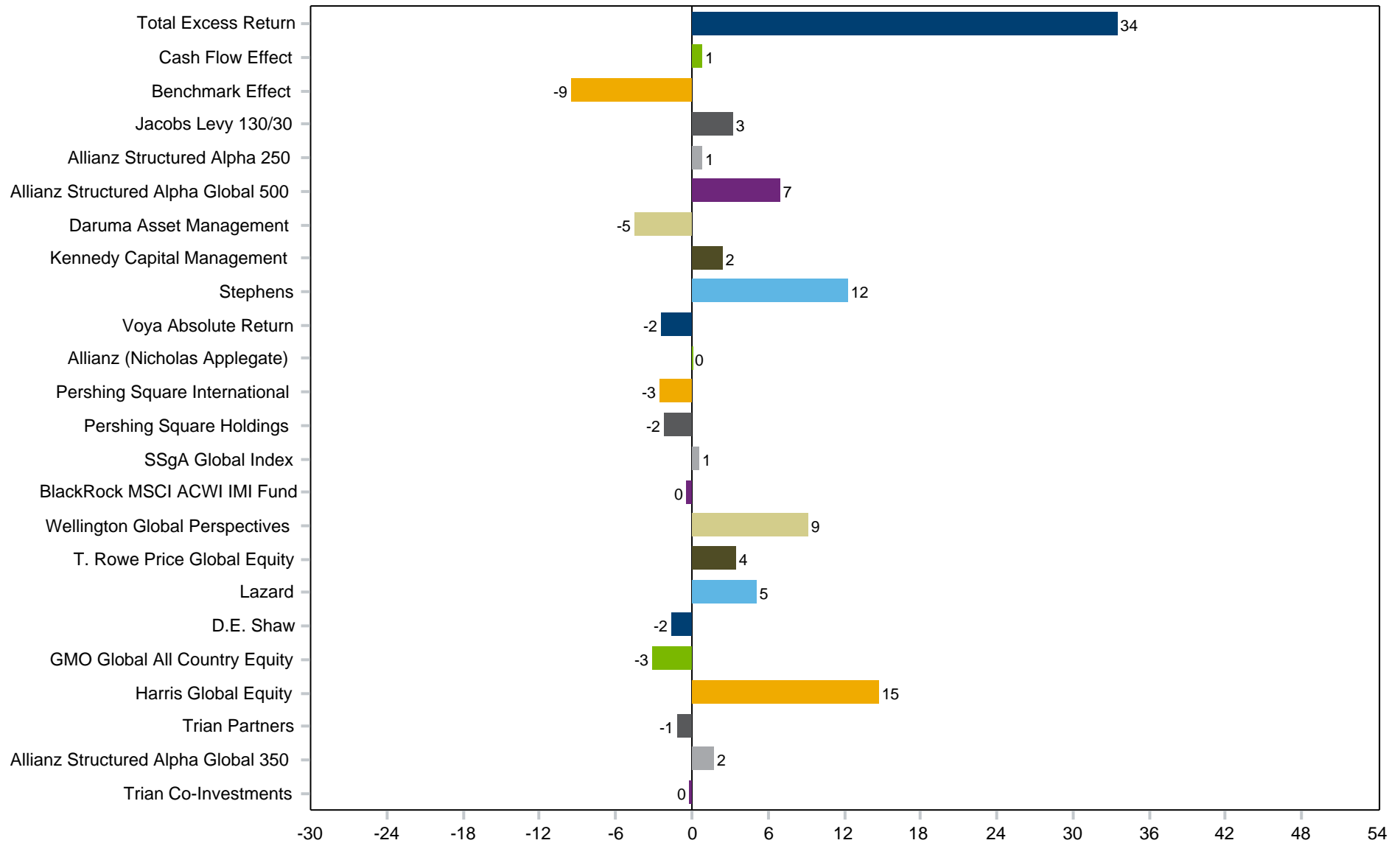
As of April 30, 2019

Asset Allocation & Performance

	Allocation		Performance(%)							
	Market Value (\$)	%	1 Month	Year To Date	Fiscal YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Wellington Global Perspectives	534,733,459	5.7	4.5	15.1	-2.8	-2.9	11.6	6.8	14.1	07/01/2009
Performance Benchmark			2.8	16.3	-1.9	-0.8	10.1	6.4	11.5	
T. Rowe Price Global Equity	900,346,398	9.7	3.7	22.3	8.7	13.3	19.3	14.1	13.3	08/01/2009
MSCI AC World Index (Net)			3.4	16.0	5.5	5.1	11.4	7.0	9.4	
MSCI AC World Index Growth (Net)			4.0	19.1	6.3	8.0	13.6	9.3	10.9	
Lazard	562,736,630	6.0	4.2	17.7	3.7	2.1	12.1	7.6	9.1	08/01/2009
MSCI AC World Index (Net)			3.4	16.0	5.5	5.1	11.4	7.0	9.4	
D.E. Shaw	697,207,271	7.5	3.3	15.6	3.7	4.9	12.6	9.2	11.3	09/01/2009
MSCI World Index (Net)			3.5	16.5	5.9	6.5	11.4	7.3	9.7	
GMO Global All Country Equity	411,116,890	4.4	2.7	14.3	3.5	0.3	9.7		3.5	07/01/2014
MSCI AC World Index (Net)			3.4	16.0	5.5	5.1	11.4		6.3	
MSCI AC World Index Value (Net)			2.7	12.9	4.7	2.1	9.1		4.0	
Harris Global Equity	448,782,953	4.8	6.8	18.7	-0.1	-2.9	10.7		5.2	06/01/2014
MSCI World Index (Net)			3.5	16.5	5.9	6.5	11.4		7.0	
MSCI World Value (Net)			2.9	13.4	4.7	3.1	9.1		4.6	
Triam Partners	66,144,737	0.7	2.5	17.4	11.9	16.3	8.8		8.3	11/01/2015
S&P 500 Index			4.0	18.2	10.1	13.5	14.9		12.8	
Triam Co-Investments	65,317,701	0.7	3.7	16.3	12.5	19.8			2.4	01/01/2017
S&P 500 Index			4.0	18.2	10.1	13.5			14.7	

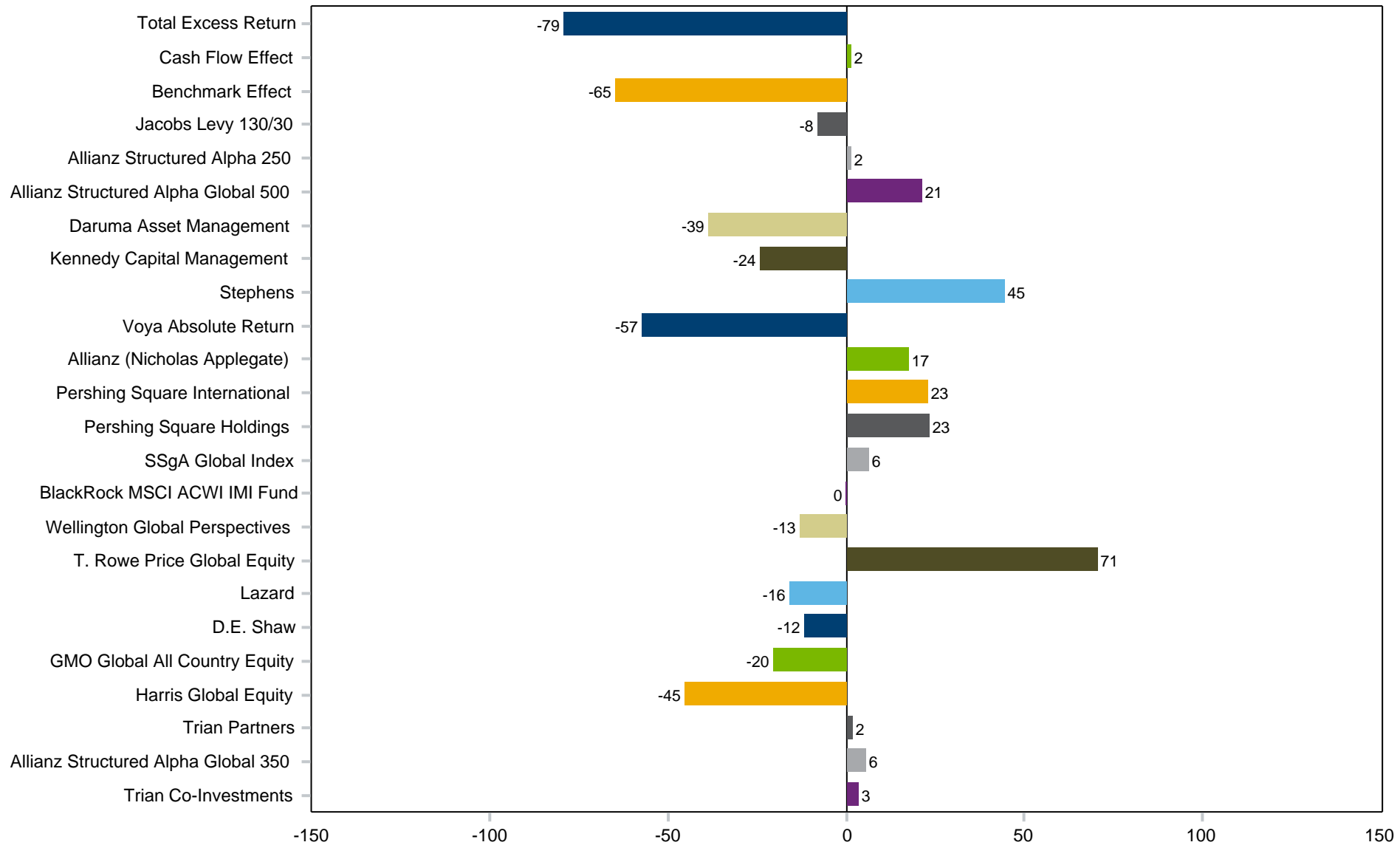
Asset Class Attribution

1 Month



Asset Class Attribution

1 Year



As of April 30, 2019

Asset Allocation & Performance

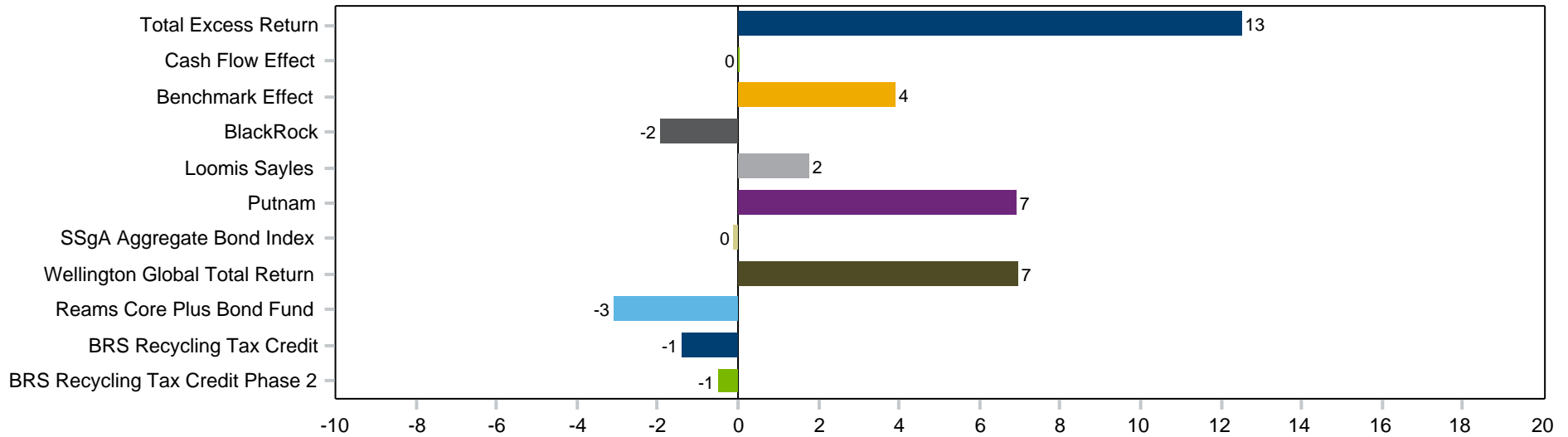
	Allocation		Performance(%)							
	Market Value (\$)	%	1 Month	Year To Date	Fiscal YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Fixed Income	2,763,667,883	100.0	0.3	3.0	4.1	4.6	3.9	3.2	5.4	07/01/1992
Performance Benchmark			0.1	3.5	5.0	5.4	2.5	2.9	5.6	
BlackRock	394,409,607	14.3	0.0	3.5	5.0	5.5	2.2	2.8	4.4	10/01/2003
Performance Benchmark			0.1	3.5	5.0	5.4	2.5	2.9	4.2	
Loomis Sayles	414,115,677	15.0	0.7	4.7	5.1	4.6	5.4	4.2	8.2	09/01/2008
Performance Benchmark			0.5	5.2	5.4	5.9	4.0	3.4	5.6	
Putnam	363,600,000	13.2	0.7	4.2	2.6	3.1	4.7	2.1	3.0	08/01/2008
LIBOR			0.2	0.9	2.1	2.5	1.5	1.0	0.9	
SSgA Aggregate Bond Index	629,646,289	22.8	0.0	3.0	4.7	5.3	1.9	2.6	3.2	06/01/2010
Blmbg. Barc. U.S. Aggregate			0.0	3.0	4.7	5.3	1.9	2.6	3.2	
Wellington Global Total Return	336,335,631	12.2	0.8	1.8	4.4	6.3	3.2		2.1	06/01/2014
ICE BofAML 3 Month U.S. T-Bill			0.2	0.8	1.9	2.2	1.2		0.8	
Reams Core Plus Bond Fund	343,172,861	12.4	-0.2	2.8	5.1	5.7	2.1		2.6	06/01/2014
Blmbg. Barc. U.S. Aggregate			0.0	3.0	4.7	5.3	1.9		2.4	
BRS Recycling Tax Credit	208,000,000	7.5								
BRS Recycling Tax Credit Phase 2	74,387,817	2.7								

*Preliminary Results

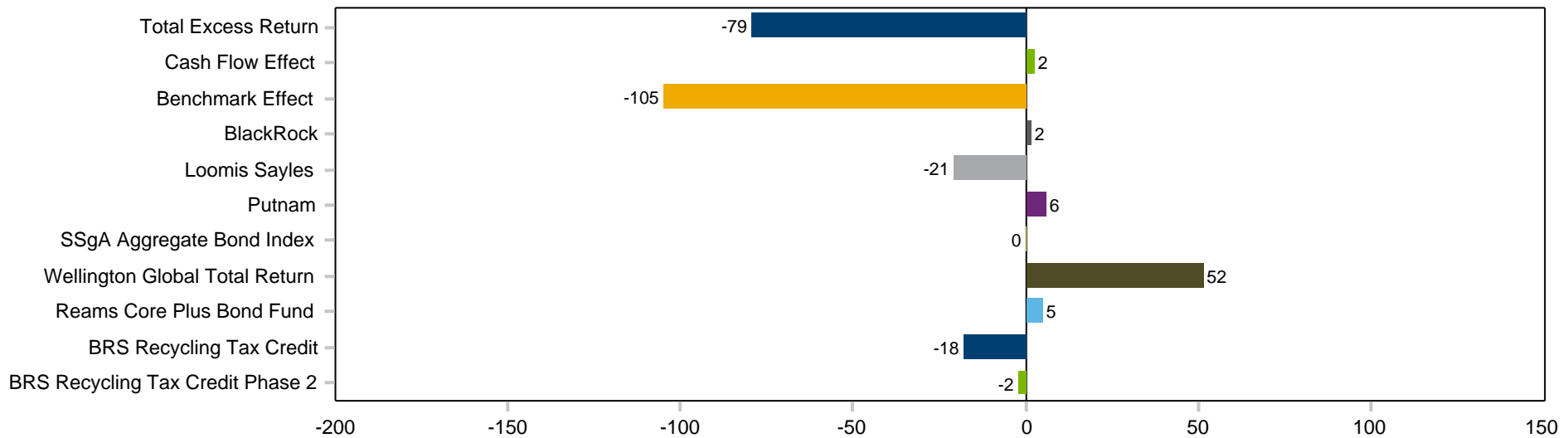
*The BRS Recycling Tax Credit represents an annual income stream of \$16 million dollars over the next 14 years, which ATRS purchased for approximately \$162 million. The value shown above represents the year-end market value in accordance with GASB Statement 72, representing the 14 years of annual income,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

Asset Class Attribution

1 Month



1 Year



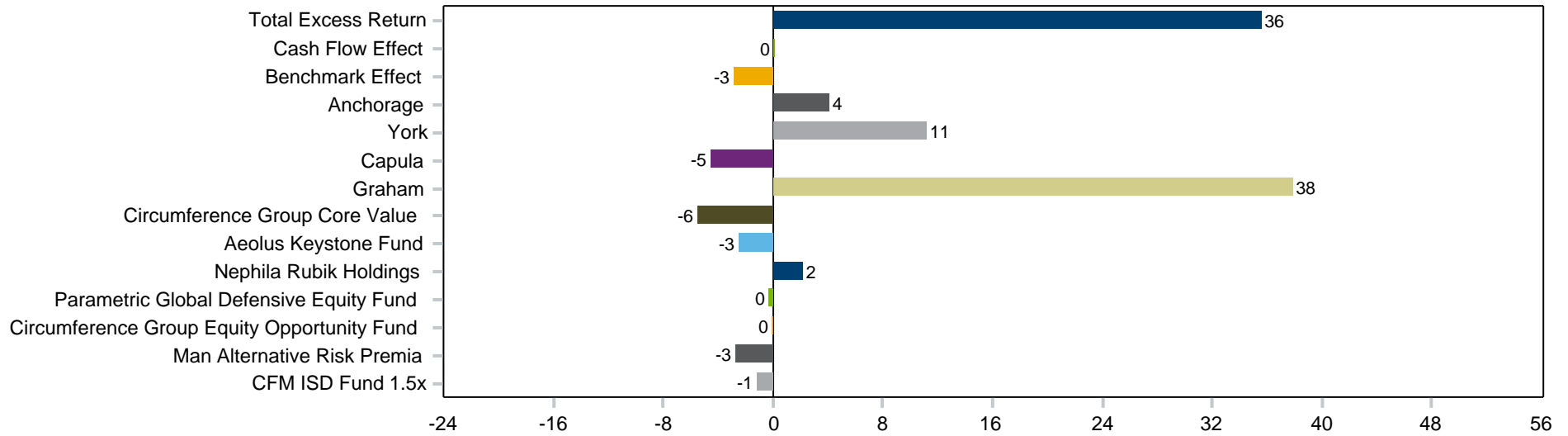
As of April 30, 2019

Asset Allocation & Performance

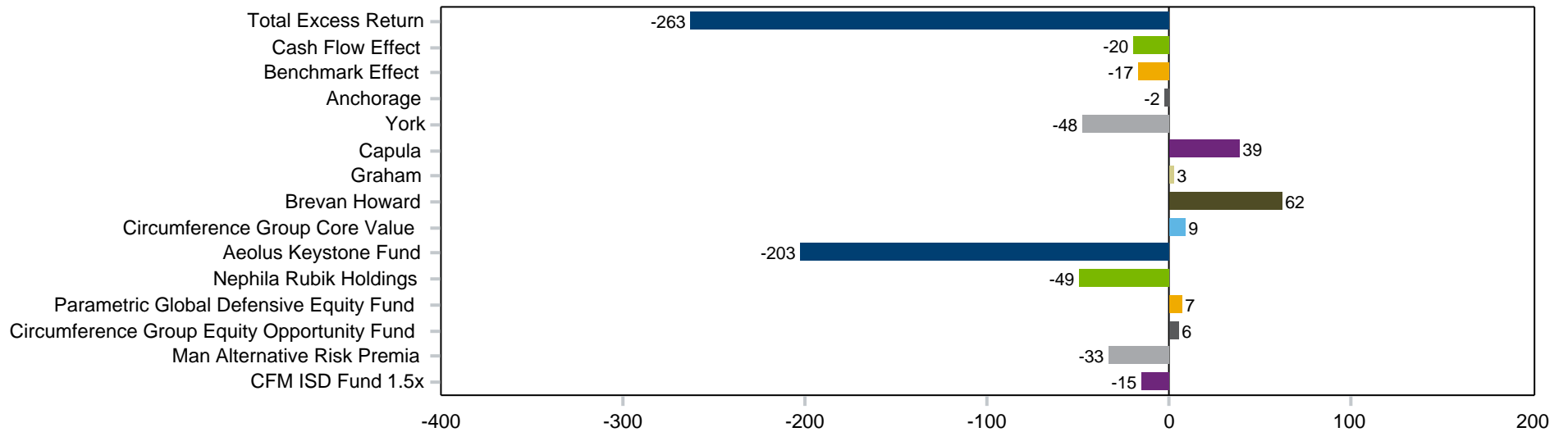
	Allocation		Performance(%)							
	Market Value (\$)	%	1 Month	Year To Date	Fiscal YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Opportunistic/Alternatives	984,984,670	100.0	1.4	3.1	-0.7	-0.3	2.4	2.6	3.7	05/01/2011
Custom Alternatives Benchmark			1.0	4.6	1.9	2.3	2.9	1.6	1.8	
Anchorage	77,130,133	7.8	2.4	2.0	1.0	2.3	4.1	3.2	5.6	05/01/2011
Credit Suisse Event Driven			1.9	6.9	1.4	2.6	4.9	0.7	2.2	
HFRI ED: Distressed/Restructuring Index			1.6	4.8	0.1	2.1	7.7	2.1	3.7	
York	70,206,319	7.1	3.5	3.7	-4.5	-3.9	7.0	0.6	4.3	05/01/2011
Credit Suisse Event Driven			1.9	6.9	1.4	2.6	4.9	0.7	2.2	
HFRI ED: Distressed/Restructuring Index			1.6	4.8	0.1	2.1	7.7	2.1	3.7	
Capula	80,422,095	8.2	0.8	3.1	5.4	5.9	5.8	6.6	6.0	05/01/2011
HFRI Macro (Total) Index			1.4	3.7	1.3	0.9	0.4	1.4	0.0	
Graham	60,869,630	6.2	7.9	11.8	2.9	1.5	2.8	5.9	2.3	05/01/2011
HFRI Macro (Total) Index			1.4	3.7	1.3	0.9	0.4	1.4	0.0	
Circumference Group Core Value	29,212,773	3.0	1.5	10.0	5.8	9.8	12.9		10.3	08/01/2015
Russell 2000 Index			3.4	18.5	-2.1	4.6	13.6		8.4	
Circumference Group Equity Opportunity Fund	1,842,297	0.2	0.0	12.4	15.3	14.7			13.5	04/01/2018
Aeolus Keystone Fund	259,924,065	26.4	0.1	-1.1	-6.4	-6.1	-4.6		-3.5	12/01/2015
FTSE 3 Month T-Bill			0.2	0.8	1.9	2.2	1.2		1.1	
Nephila Rubik Holdings	43,308,288	4.4	0.7	1.0	-8.3	-7.8			-4.8	06/01/2016
FTSE 3 Month T-Bill			0.2	0.8	1.9	2.2			1.3	
Parametric Global Defensive Equity Fund	166,048,556	16.9	1.8	8.5	4.1	4.6			5.4	06/01/2017
Performance Benchmark			1.8	8.3	4.2	4.2			5.6	
MSCI AC World Index			3.4	16.2	5.9	5.6			9.3	
Man Alternative Risk Premia	96,899,350	9.8	0.1	2.1	-0.3				-2.4	06/01/2018
SG Multi Alternative Risk Premia Index			0.4	3.7	1.3				0.8	
CFM ISD Fund 1.5x	99,121,163	10.1	0.3	1.6	0.6				0.6	07/01/2018
SG Multi Alternative Risk Premia Index			0.4	3.7	1.3				1.3	

Asset Class Attribution

1 Month



1 Year



Asset Allocation as of 4/30/2019										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	\$632,064.6	--	--	--	--	\$632,064.6	3.64%				
Allianz Structured Alpha U.S. 250	\$175,498.5	--	--	--	--	\$175,498.5	1.01%				
Allianz Structured Alpha Global 500	\$828,346.9	--	--	--	--	\$828,346.9	4.77%				
Allianz Structured Alpha Global 350	\$275,021.8	--	--	--	--	\$275,021.8	1.58%				
Daruma Asset Management	\$60,278.3	--	--	--	--	\$60,278.3	0.35%				
Kennedy Capital Management	\$541,095.4	--	--	--	--	\$541,095.4	3.12%				
Stephens	\$425,968.6	--	--	--	--	\$425,968.6	2.45%				
Voya Absolute Return	\$541,868.0	--	--	--	--	\$541,868.0	3.12%				
Allianz (Nicholas Applegate)	\$579,717.1	--	--	--	--	\$579,717.1	3.34%				
Pershing Square International	\$116,720.0	--	--	--	--	\$116,720.0	0.67%				
Pershing Square Holdings	\$125,683.2	--	--	--	--	\$125,683.2	0.72%				
SSgA Global Index	\$1,077,715.0	--	--	--	--	\$1,077,715.0	6.21%				
BlackRock MSCI ACWI IMI Fund	\$257,984.2	--	--	--	--	\$257,984.2	1.49%				
Wellington Global Perspectives	\$534,733.5	--	--	--	--	\$534,733.5	3.08%				
T. Rowe Price Global Equity	\$900,346.4	--	--	--	--	\$900,346.4	5.19%				
Lazard	\$562,736.6	--	--	--	--	\$562,736.6	3.24%				
D.E. Shaw	\$697,207.3	--	--	--	--	\$697,207.3	4.02%				
GMO Global All Country Equity	\$411,116.9	--	--	--	--	\$411,116.9	2.37%				
Harris Global Equity	\$448,783.0	--	--	--	--	\$448,783.0	2.59%				
Triam Partners	\$66,144.7	--	--	--	--	\$66,144.7	0.38%				
Triam Partners Co-Investments	\$65,317.7	--	--	--	--	\$65,317.7	0.38%				
Capital Guardian, Knight Vinke, & Relational	\$71.9	--	--	--	--	\$71.9	0.00%				
Total Equity						\$9,324,419.6	53.74%	55.06%	55.00%		
BlackRock	--	\$394,409.6	--	--	--	\$394,409.6	2.27%				
Loomis Sayles	--	\$414,115.7	--	--	--	\$414,115.7	2.39%				
Putnam	--	\$363,600.0	--	--	--	\$363,600.0	2.10%				
SSgA Aggregate Bond Index	--	\$629,646.3	--	--	--	\$629,646.3	3.63%				
Wellington Global Total Return	--	\$336,335.6	--	--	--	\$336,335.6	1.94%				
Reams Core Plus Bond Fund	--	\$343,172.9	--	--	--	\$343,172.9	1.98%				
BRS Recycling Tax Credit	--	\$208,000.0	--	--	--	\$208,000.0	1.20%				
BRS Recycling Tax Credit Phase 2	--	\$74,387.8	--	--	--	\$74,387.8	0.43%				
Total Fixed Income						\$2,763,667.9	15.93%	15.00%	15.00%		
Anchorage	--	--	--	\$77,130.1	--	\$77,130.1	0.44%				
Capula	--	--	--	\$80,422.1	--	\$80,422.1	0.46%				
Graham	--	--	--	\$60,869.6	--	\$60,869.6	0.35%				
York	--	--	--	\$70,206.3	--	\$70,206.3	0.40%				
Circumference Group Core Value	--	--	--	\$29,212.8	--	\$29,212.8	0.17%				
Circumference Group Equity Opportunity Fund	--	--	--	\$1,842.3	--	\$1,842.3	0.01%				
Aeolus Keystone Fund	--	--	--	\$259,924.1	--	\$259,924.1	1.50%				
Nephila Rubik Holdings	--	--	--	\$43,308.3	--	\$43,308.3	0.25%				
Parametric Global Defensive Equity	--	--	--	\$166,048.6	--	\$166,048.6	0.96%				
Man Alternative Risk Premia	--	--	--	\$96,899.4	--	\$96,899.4	0.56%				
CFM ISD Fund 1.5x	--	--	--	\$99,121.2	--	\$99,121.2	0.57%				
Total Opportunistic/Alternatives						\$984,984.7	5.68%	5.69%	5.00%		
Real Estate			\$1,352,704.7			\$1,352,704.7	7.80%				
Timber			\$258,608.4			\$258,608.4	1.49%				
Agriculture			\$195,256.2			\$195,256.2	1.13%				
Infrastructure			\$269,288.3			\$269,288.3	1.55%				
Total Real Assets						\$2,075,857.6	11.96%	12.26%	15.00%		
Total Private Equity				\$2,116,648.4		\$2,116,648.4	12.20%	12.00%	10.00%		
Total Cash					\$86,328.0	\$86,328.0	0.50%	0.00%	0.00%		
Total Fund	\$9,324,419.6	\$2,763,667.9	\$2,075,857.6	\$3,101,633.1	\$86,328.0	\$17,351,906.2	100.0%	100.00%	100.00%		

*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 4/30/2019				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	\$1,775.2	0.13%	0.01%	LaSalle Income & Growth Fund VI	\$7,596.5	0.56%	0.04%
Almanac Realty Securities Fund VI	\$8,674.8	0.64%	0.05%	LaSalle Income & Growth Fund VII	\$14,325.0	1.06%	0.08%
Almanac Realty Securities Fund VII	\$18,491.8	1.37%	0.11%	Lone Star Real Estate Fund IV	\$12,418.8	0.92%	0.07%
Almanac Realty Securities Fund VIII	-\$1,714.6	-0.13%	-0.01%	Long Wharf Real Estate Partners V	\$29,325.9	2.17%	0.17%
American Center	\$62,551.6	4.62%	0.36%	Metropolitan RE Co-Investments	\$11,259.7	0.83%	0.06%
AR Insurance	\$6,950.9	0.51%	0.04%	New Boston Fund VII	\$637.9	0.05%	0.00%
AR Teachers Retirement Building	\$5,004.2	0.37%	0.03%	O'Connor NAPP II	\$10,601.6	0.78%	0.06%
Blackstone Real Estate Partners VII	\$32,811.8	2.43%	0.19%	Olympus	\$355.4	0.03%	0.00%
Carlyle Realty Partners VII	\$18,280.9	1.35%	0.11%	PRISA	\$268,799.7	19.87%	1.55%
Carlyle Realty VIII	\$2,061.0	0.15%	0.01%	Recoveries Land	\$84.0	0.01%	0.00%
CBREI SP U.S. Opportunity V	\$11,782.9	0.87%	0.07%	Rockwood Capital RE Partners IX	\$10,571.8	0.78%	0.06%
CBREI SP VIII	\$22,126.7	1.64%	0.13%	Rose Law Firm	\$4,664.3	0.34%	0.03%
Cerberus Institutional RE Partners III	\$14,455.9	1.07%	0.08%	Texarkana DHS	\$1,818.8	0.13%	0.01%
Chenal Retirement Village	\$1,900.0	0.14%	0.01%	Torchlight Debt Opportunity Fund II	\$482.9	0.04%	0.00%
Calmwater	\$16,251.9	1.20%	0.09%	Torchlight Debt Opportunity Fund III	\$0.0	0.00%	0.00%
Fletcher Properties	\$1,300.7	0.10%	0.01%	Torchlight Debt Opportunity Fund IV	\$9,359.3	0.69%	0.05%
FPA Core Plus IV	\$13,716.9	1.01%	0.08%	Torchlight Debt Opportunity Fund V	\$19,275.0	1.42%	0.11%
Harbert European Real Estate	\$27,005.5	2.00%	0.16%	Torchlight Debt Opportunity Fund VI	\$1,587.7	0.12%	0.01%
Heitman European Property IV	\$4,646.4	0.34%	0.03%	UBS Trumbull Property Fund	\$253,165.1	18.72%	1.46%
JP Morgan Strategic Property Fund	\$282,646.7	20.89%	1.63%	UBS Trumbull Property Income Fund	\$51,889.6	3.84%	0.30%
Kayne Anderson V	\$10,319.1	0.76%	0.06%	Victory	\$32,707.9	2.42%	0.19%
Landmark Fund VI	\$4,019.7	0.30%	0.02%	West Mphs. DHS	\$2,377.1	0.18%	0.01%
Landmark Real Estate VIII	\$5,052.4	0.37%	0.03%	Westbrook IX	\$15,246.0	1.13%	0.09%
LaSalle Asia Opportunity Fund IV	\$4,636.7	0.34%	0.03%	Westbrook Real Estate Fund X	\$13,478.4	1.00%	0.08%
LaSalle Asia Opportunity Fund V	\$5,927.1	0.44%	0.03%	Woodland Heights	\$0.3	0.00%	0.00%
Total Real Estate					\$1,352,704.7	100.00%	7.80%

*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 4/30/2019				Values in \$1,000			
	Private Equity	Percent of Private Equity	Percent of Total Fund		Private Equity	Percent of Private Equity	Percent of Total Fund
Arlington Capital IV	\$21,662.0	1.02%	0.12%	Insight Equity II	\$25,035.4	1.18%	0.14%
Advent GPE VI	\$7,763.5	0.37%	0.04%	Insight Mezzanine I	\$3,348.8	0.16%	0.02%
Altus Capital II	\$7,767.2	0.37%	0.04%	JF Lehman III	\$29,470.1	1.39%	0.17%
American Industrial Partners VI	\$18,856.4	0.89%	0.11%	JF Lehman IV	\$30,854.7	1.46%	0.18%
Altaris Constellation Partners	\$18,402.3	0.87%	0.11%	KPS III	\$6,997.2	0.33%	0.04%
Altaris Health Partners IV	\$7,202.9	0.34%	0.04%	KPS IV	\$9,819.7	0.46%	0.06%
Atlas Capital II	\$11,521.1	0.54%	0.07%	Levine Leichtman V	\$16,141.7	0.76%	0.09%
Audax Mezzanine III	\$4,483.9	0.21%	0.03%	Lime Rock III	\$21,451.1	1.01%	0.12%
Big River - Equity	\$317,000.0	14.98%	1.83%	LLR III	\$9,532.5	0.45%	0.05%
Big River - Holdings Note 2023	\$12,529.7	0.59%	0.07%	Mason Wells III	\$16,679.0	0.79%	0.10%
Big River - Holdings Note 3/16/23	\$5,241.4	0.25%	0.03%	NGP IX	\$1,193.5	0.06%	0.01%
Big River - Preferred Equity	\$46,426.0	2.19%	0.27%	NGP X	\$12,813.4	0.61%	0.07%
Bison V	\$18,372.2	0.87%	0.11%	NGP XI	\$28,583.7	1.35%	0.16%
Boston Ventures VII	\$17,239.9	0.81%	0.10%	NGP XII	\$8,938.0	0.42%	0.05%
Boston Ventures IX	\$12,465.2	0.59%	0.07%	One Rock Capital Partners II	\$13,284.7	0.63%	0.08%
BV VIII	\$21,684.1	1.02%	0.12%	PineBridge	\$16,701.6	0.79%	0.10%
Castlelake II	\$17,144.0	0.81%	0.10%	Riverside IV	\$3,847.0	0.18%	0.02%
Castlelake III	\$18,701.8	0.88%	0.11%	Riverside V	\$24,604.6	1.16%	0.14%
Clearlake V	\$17,077.8	0.81%	0.10%	Siris III	\$12,989.1	0.61%	0.07%
Court Square III	\$37,171.7	1.76%	0.21%	Siris IV	\$4,378.5	0.21%	0.03%
CSFB-ATRS 2005-1 Series	\$55,208.2	2.61%	0.32%	SK Capital V	\$3,436.1	0.16%	0.02%
CSFB-ATRS 2006-1 Series	\$112,040.7	5.29%	0.65%	Sycamore Partners II	\$16,396.9	0.77%	0.09%
Diamond State Ventures II	\$6,138.2	0.29%	0.04%	Sycamore Partners III	\$2,627.0	0.12%	0.02%
DLJ Investment Partners II	\$0.0	0.00%	0.00%	TA XI	\$26,711.1	1.26%	0.15%
Doughty Hanson III	\$0.0	0.00%	0.00%	Tennenbaum VI	\$15,591.5	0.74%	0.09%
Doughty Hanson Tech I	\$450.4	0.02%	0.00%	Thoma Bravo Discover	\$11,480.0	0.54%	0.07%
DW Healthcare III	\$20,255.0	0.96%	0.12%	Thoma Bravo Discover II	\$3,699.1	0.17%	0.02%
DW Healthcare IV	\$22,660.4	1.07%	0.13%	Thoma Bravo XI	\$27,157.0	1.28%	0.16%
EnCap IX	\$16,287.0	0.77%	0.09%	Thoma Bravo XII	\$30,694.8	1.45%	0.18%
EnCap VIII	\$15,496.9	0.73%	0.09%	Thoma Bravo XIII	\$6,619.6	0.31%	0.04%
EnCap X	\$25,601.2	1.21%	0.15%	Vista Equity III	\$8,025.6	0.38%	0.05%
EnCap XI	\$4,546.9	0.21%	0.03%	Vista Foundation II	\$13,816.6	0.65%	0.08%
Franklin Park Series	\$579,716.2	27.39%	3.34%	Vista Foundation III	\$21,609.3	1.02%	0.12%
GCG	\$17,680.8	0.84%	0.10%	Wellspring V	\$16,717.5	0.79%	0.10%
GTLA Holdings	\$20,000.0	0.94%	0.12%	Wicks IV	\$27,023.5	1.28%	0.16%
Highland	\$52,513.7	2.48%	0.30%	WNG II	\$1,069.7	0.05%	0.01%
Total Private Equity					\$2,116,648.4	100.00%	12.20%

*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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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.

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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 April 1, 2019, the Total Equity Performance Benchmark was comprised of 32.6% DJ U.S. Total Stock Market Index and 67.4% 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 Equivalentents - The Citigroup 90 day T-bill.

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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.

Nicholas Applegate 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 Nicholas Applegate 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 April 30, 2019

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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.

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Appendix

Historical U.S. Equity and Global Equity composite returns

As of June 30, 2015	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
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 AHIC's investment advisory fees or other trust payable expenses you may incur as a client. AHIC's 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 Teachers Retirement System Fourth Quarter 2018 Real Assets Performance Review

PROPRIETARY & CONFIDENTIAL

May 2019

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Real Assets Markets Performance and Overview

MARKET RETURN SUMMARY

As of 12/31/2018	Quarter	1 year	3 years	5 years	10 years
NFI-ODCE (Net)	1.5%	7.4%	7.3%	9.4%	6.0%
NPI	1.4%	6.7%	7.2%	9.3%	7.5%
NCREIF Timberland Index	1.0%	3.4%	3.2%	5.8%	3.8%
NCREIF Farmland Index	2.9%	6.7%	6.7%	8.6%	11.1%

Note: Please see Glossary for Index Definitions

- In the fourth quarter of 2018, the NFI-ODCE (net) returned 1.5%, down 40 basis points quarter-over-quarter. NFI-ODCE returns are holding up well, despite the maturity of the real estate cycle. Quarterly returns continue to moderate towards the long-term average with net income being a larger driver of the total return
- The NCREIF Timberland Index (“NTI”) returned 1.0% for the quarter. The NTI’s trailing one-year return was 3.4% and driven primarily by an income return of 3.2% while appreciation returned 0.7%. Regionally, the Northwest remains the NTI’s top performer while the U.S. Lakes region lagged
- The NCREIF Farmland Index returned 2.9% up 160 basis points from the prior quarter. Permanent and row crops notched similar performance at approximately 1.3% each. For the trailing one-year, permanent crops returned 8.4% compared to row crops’ 5.6%

Portfolio Funding Status and Composition

As of December 31, 2018	ATRS' Portfolio \$ in Millions
Number of Investments	59
Total Commitments	\$3,301.4
Unfunded Commitments	\$466.7
Total Paid-In Capital	\$3,110.4
Total Distributions	\$2,468.3
Net Asset Value	\$2,144.4
Gross Asset Value	\$2,652.9
DPI*	0.8x
TVPI*	1.5x
Since Inception IRR*	7.3%
<i>*Active and Liquidated</i>	

PORTFOLIO COMPOSITION TO TARGETS (As of 12/31/2018)		
	Target	Actual Funded
Target Real Asset Allocation	15%	13.4%
<u>Portfolio Style Composition</u>		
Real Estate	10%	8.8%
Core*	50%-70%	71.9%
Non-Core	30%-50%	28.1%
Value-Added**	N/A	14.0%
Opportunistic**	N/A	14.1%
Agriculture	1%	1.2%
Timber	2%	1.6%
Infrastructure	2%	1.7%
Leverage	50%	19.2%

* Includes Arkansas Investments

** No stated targets

- As of the fourth quarter of 2018, the real assets portfolio stands at 13.4% of ATRS' total assets
- Recent infrastructure, agriculture, and real estate commitments will help the portfolio continue to move towards its target allocation irrespective of the liquidating investments
- In general, the portfolio is in compliance with its Statement of Investment Policy leverage, geographic region, and property type diversification; there is a slight overweight to core real estate, but a significant amount of noncore commitments have yet to be drawn

ATRS' Real Assets Performance



ATRS TOTAL REAL ASSETS RETURN SUMMARY

As of 12/31/2018	Quarter	1 Year Ending	3 Year Ending	5 Year Ending	10 Year Ending
Total Real Assets Portfolio	1.0%	6.2%	7.5%	8.6%	6.2%
Real Assets Benchmark*	1.3%	6.2%	6.3%	8.2%	5.4%

- The table shows the returns for ATRS' Total Real Assets Portfolio and the Real Assets Benchmark. ATRS underperformed the real assets benchmark by 30 basis points for the third quarter but has outperformed over longer term periods

*The ATRS Total Real Assets Benchmark is comprised of the NFI-ODCE returns, the NCREIF Timberland returns and the NCREIF Agriculture returns weighted by the allocations based on Net Asset Values across the various sub-categories, and thus defined as Real Assets benchmark, Timber benchmark, Agriculture benchmark, and Infrastructure benchmark

ATRS' Real Estate Performance

ATRS TOTAL REAL ESTATE RETURN SUMMARY

As of 12/31/2018	Quarter	1 Year Ending	3 Year Ending	5 Year Ending	10 Year Ending
Total Real Estate	1.3%	6.6%	8.1%	9.9%	7.3%
NFI-ODCE (Net)	1.5%	7.4%	7.3%	9.4%	6.0%

- The table shows the time-weighted, net of fee returns for ATRS' Total Real Estate Portfolio and the NFI-ODCE benchmark. ATRS underperformed the benchmark by 20 basis points for the quarter and 80 basis points over the trailing one year; ATRS' portfolio is outperforming over all other time periods however
- There are a number of Non-Core Funds that have entered the J-curve and performance is expected to have a more meaningful impact as newer funds move out of the J-Curve and investments are realized
- PRISA was the primary driver of the real estate return with a 2.2% total return

ATRS' Timberland and Agriculture Performance

As of 12/31/2018	Quarter	1 Year Ending	3 Year Ending	5 Year Ending	10 Year Ending
Total Timberland	0.3%	2.7%	3.9%	3.9%	2.1%
Timberland Property Benchmark*	0.1%	0.8%	2.2%	4.2%	2.5%
Total Agriculture	0.8%	4.3%	3.8%	4.6%	N/A
Agriculture Benchmark*	1.5%	5.0%	4.6%	5.2%	N/A
CPI + 500 BPS	0.7%	7.0%	7.1%	6.6%	6.9%

- The timber portfolio outperformed the benchmark over the quarter, returning a 0.3%. The portfolio outperforms the benchmark over the quarter, one-, and three-year time periods, but underperforms over the trailing five- and ten-year time periods
- The agriculture portfolio underperformed the benchmark over the quarter, returning a 0.8%. The portfolio underperforms over the trailing one, three and five-year time periods

ATRS' Infrastructure Performance

As of 12/31/2018

Asset Class	Total Commitment (\$)	Unfunded Commitment (\$)	Total Paid-In (\$)	Total Distributions (\$)	Net Asset Value (\$)	Total Value (\$)	DPI	TVPI	Net IRR
Total Infrastructure	345,413,930	79,141,807	274,030,449	50,490,475	275,348,984	325,839,459	0.18x	1.19x	12.17%

- ATRS' Infrastructure portfolio has been slowly moving out of the J-Curve and performance has been showing solid results to date
- First Reserve Energy Infrastructure Fund II is currently driving portfolio performance; the fund is achieving a 35.99% Net IRR

ATRS' Real Assets Portfolio Highlights

- Commitment activity update
 - ATRS made commitments to the following
 - Blackstone Real Estate Partners Europe VI: \$50 million
 - Rockwood Capital Real Estate Partners Fund XI: \$40 million
 - Walton Street Real Estate Debt Fund II: \$40 million

Significant Events

- Almanac Realty Investors announced the retirement of John McGurk, who founded Rothschild Realty, the predecessor to Almanac in 1981. Mr. McGurk's retirement had been anticipated and no action is recommended; in October 2018, it was announced that Mr. McGurk had passed away
- Westbrook saw the departure of its COO, Sush Torgalkar. The firm has backfilled his role and no action has been recommended
- Subsequent to quarter end the following significant events occurred with no recommended action:
 - Landmark announced the retirement of one of its senior partners, Bob Dombi. He is expected to serve as a senior advisor but will no longer be involved on day to day operations
 - Cerberus' Head of Real Estate, Ron Kravitz, announced his retirement

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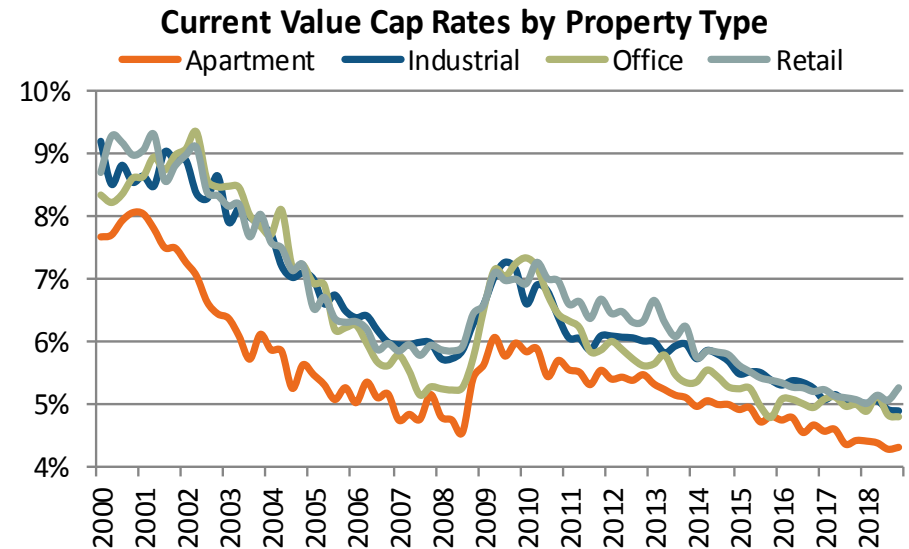
United States Real Estate Market Update (4Q18)

General

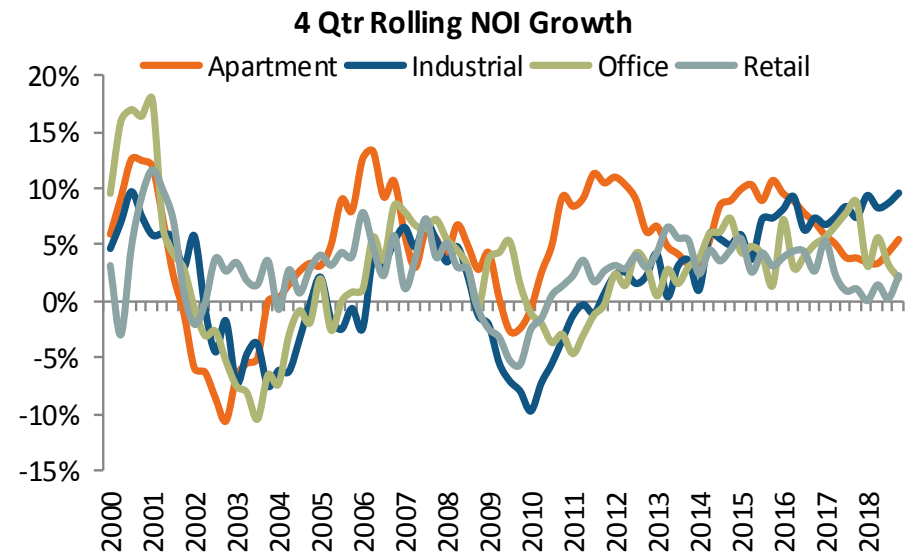
- The S&P 500 produced a gross total return of -13.1% during the Quarter, as markets dropped from tightening monetary policy, weak PMI data, and trade war rhetoric. The MSCI US REIT index produced a return of -6.7%. Consumer Sentiment fell to 98.3 and has continued to deteriorate subsequent to quarter end.
- Macro indicators for U.S. real estate continue to be positive; GDP grew at an annualized rate of 2.6% in the Fourth Quarter and headline CPI rose by 2.2% YoY, above the Fed's 2% target. As of Quarter-end, the economy has now experienced 99 consecutive months of job growth. The Federal Reserve has continued to tighten monetary policy, with the effective federal funds rate reaching 2.4% at Quarter-end. Subsequent to Quarter end, the Fed took on a more cautious approach to additional monetary tightening.

Commercial Real Estate

- Private real estate market carrying values remained flat over the quarter. Transaction cap rates (5.3%) compressed during the quarter. While, current valuation cap rates remained flat across property sectors, with the exception of the retail sector cap rates which expanded by 20 bps.
- NOI growth by sector continued to deviate during the Quarter, with the industrial sector continuing to outpace the other traditional property types. While industrial has faced increasing supply, it continues to benefit from outsized demand tailwinds (e-commerce and economic growth).
- In the Fourth Quarter of 2018, \$30bn of aggregate capital was raised by Real Estate Funds. In 2018, Private Equity Real Estate Funds have raised \$134.5bn which is on pace with the prior 5 years.
- 10-year treasury bond yields dropped 37 bps to 2.69% during the quarter, and, subsequent to quarter end, have remained anchored around 2.7%. A combination of expansionary fiscal policy and tightening monetary policy have led to increasing short-term interest rates and a flattening yield curve.



Source: NCREIF



Source: NCREIF

United States Property Matrix (4Q18)



INDUSTRIAL

MULTIFAMILY

- As of 4Q18, industrial properties returned 3.4% and outperformed the NPI by 202 bps.
- Transaction volumes reached \$780.2 billion for the year, marking a 23.8% year-over-year increase. Large-scale portfolio sales made 2018 the largest overall historic year in terms of total activity. With 42.5% of transactions over \$150 million in size, it was an increasingly difficult year for investors trying to gain exposure.
- Annual Net absorption of 261.9 million sqft outpaced construction deliveries of 260.6 million sqft, basis. Absorption is beginning to slow as a result of limited availability, rather than overall demand for space.
- Vacancy remained stable at 4.9%, continuing to be at an all-time historic low. Asking rents continue to climb, but at a slower annual rate of 4.7%. Average asking rents have now increased 26.5% over the last five years.
- Logistics related occupiers accounted for 62% of leasing activity, up from 56% in 2016.

- The apartment sector delivered a 1.3% return during the Quarter, underperforming the NPI by 3 bps.
- Transaction volume for 2018 reached \$167.5 billion, an increase of 15.1% year-over-year. The record breaking volume has made multifamily the most actively traded sector for the third straight year.
- Cross-border investment increased 29.3% for the year, reaching \$14.9 billion. Despite this increase, private domestic buyers totaled \$105.1 billion for the year, maintaining their designation as the largest share of acquisitions.
- Absorptions outpaced completions by 12.6%, causing vacancy to decline by 30 bps year-over-year to 4.6%. Increased demand has elevated rent growth to 4.2% on an annual basis.
- Deliveries have now decreased for five consecutive quarters, partially driven delays caused by labor shortages. This is forecasted to shift, with 2019 expected to deliver increased units and put pressure on supply-demand fundamentals in some markets.

OFFICE

RETAIL

- The office sector returned 1.6% in 4Q18, 27 bps above the NPI return over the period.
- Transaction volumes increased by 5.0% in 2018, driven by larger asset sales. Annual sales volumes totaled \$132.0 billion for the year. Single asset transactions accounted for 78% of volume, the largest proportion over the past five years.
- Rental rates increased by 2.8% in 2018, with selective secondary markets experiencing growth as high as 12.0%. This was driven by a slight decrease in vacancy of 40 bps over the 12-month period.
- Investors are shifting attention to primary markets as they target lower risk markets with increased liquidity and longer-term hold assets that can endure through market cycles. Volumes in primary CBDs has increased 2.5% in 2018, while secondary markets have declined by 11.0% over the same period.
- Foreign investment declined by 5.2% in 2018, with increased activity in Europe, where growing costs have become more accommodative.

- As of 4Q18, the retail sector delivered a quarterly return of -0.4%, performing 181 bps below the NPI.
- Transaction volumes totaled \$70.9 billion in 2018, driven by large entity-level transactions. Including these entity-level sales, annual sales growth increased 38.9%. Excluding the large portfolio sales, volume was down 18.0% year-over-year.
- Institutional investors continue to remain cautious, decreasing investment activity by 41.9% in 2018. Similarly, foreign investment decreased by 14.7% for a third consecutive year of declining investment.
- Despite the continued announcement of store closures, 12-month rental growth was 5.7%, largely driven by grocery-anchored centers. Growth is expected to slow heading into 2019.
- Absorption for the year totaled 16.8 million sqft, down 50.4% from 2017 as occupiers become increasingly cautious with the overall footprint following numerous closures.

Global Real Estate Market Update (4Q18)

- Global investment activity in 2018 exceeded expectations, with investment volumes reaching the highest levels since 2007. For the full year, the three most active cities were New York City, Los Angeles, and London, respectively.
- While investment volumes for the year were strong, there were signs of softening in the fourth quarter of 2018, with quarterly year-over-year investment and leasing volumes decreasing. This trend is expected to continue through 2019.
- Strong U.S. economic growth in 2018 bolstered its investment activity, with the fourth quarter 2018 being the strongest quarter since 2016..
- In EMEA, transaction volumes declined year-over-year, mainly due to declines in the U.K. However, Germany showed strong fourth quarter growth, and smaller markets such as Belgium, Portugal, and Ireland all saw substantial increases during 2018.
- Year-over-year, Asia Pacific saw a moderate increase in transaction volumes, with South Korea being the strongest performer and recording over a 40% increase.
- In the office sector, global leasing markets were up 5% year-over-year, largely attributable to Asia Pacific which saw an increase of 21% in 2018. European leasing volumes were flat year-over-year, primarily driven by record-low vacancy rather than a lack of demand. Leasing in the U.S. office market continued to grow during 2018. Further, the global office vacancy rate was down to 11.4% by year-end 2018, which is the lowest of the current cycle. However, the global vacancy rate is expected to increase moderately over the next year.
- In the retail sector, retailers continue to focus efforts on appealing to changing consumer tastes, with an emphasis on entertainment and experiential retail centers. In the U.S. regional malls have continued to struggle, while developers focus in on live-work-play centers. In Europe, rents in the retail sector remained stable amidst declining consumer confidence and heightened uncertainty. Wage growth and lower inflation in the EU is expected to provide a stimulus for retail spending in 2019 and 2020. In Asia Pacific, experience-oriented retail continues to drive demand.
- The multifamily fundamentals during 2018 were solid in the U.S., with low vacancy rates and strong full-year absorption. Despite Brexit uncertainties, investment activity was high in the UK multifamily market, and volumes also increased during the year in Germany, the Netherlands, and Spain.
- The Industrial sector ended the year with record volumes, strong pre-leasing, and high rental growth which is expected to continue into 2019. These strong fundamentals and sector growth were evident across the U.S., Europe, and Asia Pacific.

Global Total Commercial Real Estate Volume - 2017 - 2018

\$ US Billions	Q4 2018	Q4 2017	% Change		2018	2017	% Change 2018 - 2017
			Q4 18 - Q4 17				
Americas	151	122	24%		512	441	16%
EMEA	106	139	-24%		325	365	-11%
Asia Pacific	216	274	-21%		847	822	3%
Total	473	535	-12%		1684	1629	3%

Source: Real Capital Analytics, Inc., Q4' 18

Global Outlook - GDP (Real) Growth % pa, 2019-2021

	2019	2020	2021
Global	3.4	3.4	3.0
Asia Pacific	4.7	4.6	-
Australia	2.6	2.7	-
China	6.2	6.0	5.8
India	7.2	7.3	7.4
Japan	0.8	0.5	-
North America	2.4	1.9	1.8
US	2.5	1.9	1.8
MENA*	3.0	3.1	-
European Union	1.6	1.7	-
France	1.3	1.4	-
Germany	1.2	1.5	-
UK	1.4	1.5	1.7

*Middle East North Africa

Source: Bloomberg

Note: 2021 projections are not yet available for certain regions



Timberland – Fourth Quarter 2018 Market Update

TIMBERLAND MARKETS

- Momentum in the US housing market faltered during the quarter with a 5.4% decrease in total starts from last quarter (1.2M units) and 7.3% below 4Q17, leading to a 26% decline in prices for wood products for the quarter. **(FIGURE 1)**
 - Primarily driven by increasing home prices and mortgage rates along with a weakening of consumer confidence.
- Pricing was mixed for softwood stumpage across the major regions, with stagnant to declining prices across most regions save for New Zealand, with prices improving by approx. 5%, driven by record export volumes to China.
- Prices for US Pacific Northwest softwood logs declined 12% over the quarter, driven by decreasing demand for North American lumber and plywood.
- Average stumpage prices for US southern pine were relatively flat during the quarter, a trend over the last two years as the region’s oversupply issues continue to impede any price growth despite rising demand for lumber and plywood in the region. **(FIGURE 2)**

FIGURE 1: US Housing Starts and Softwood Lumber Price (USD per MBF)

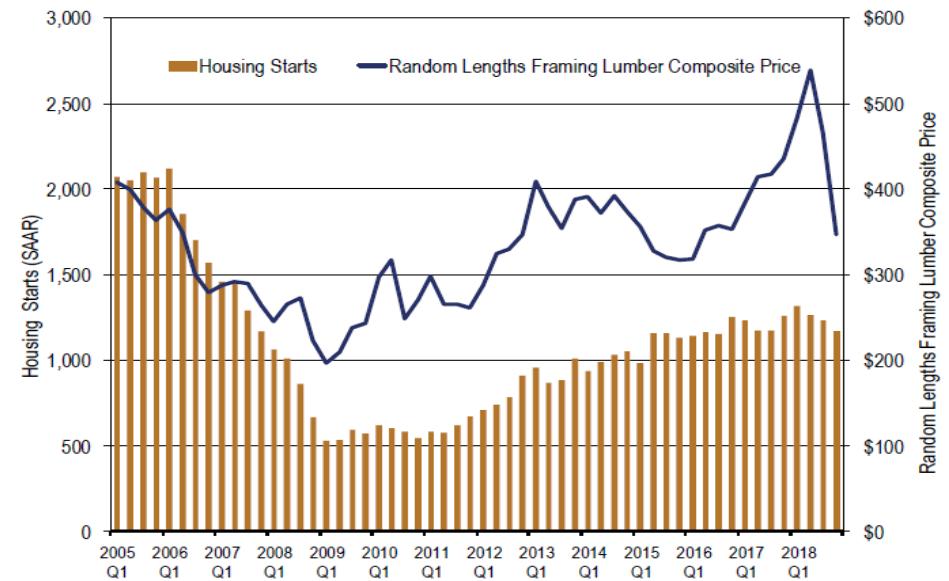
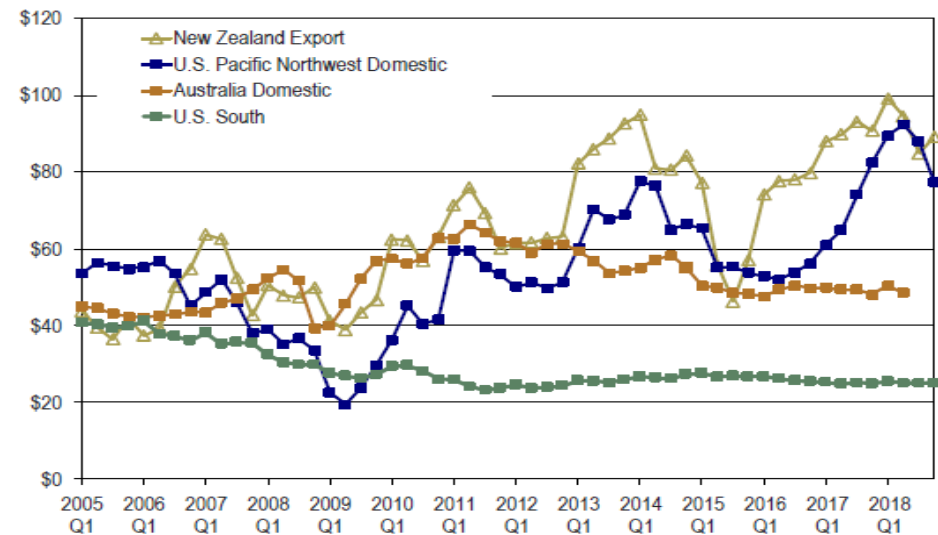


FIGURE 2: Regional Softwood Sawtimber Stumpage Prices (USD per m3)



Timberland – Fourth Quarter 2018 Market Update

TIMBERLAND MARKETS

- Lumber prices also retreated from their peaks reached during mid-year, highlighting a weakening US housing market sentiment in conjunction with an increasing lumber supply driven by extensive domestic production and non-Canadian imports. **(FIGURE 3)**
- China had another record year of softwood log imports in 2018 with over 40M cubic meters of logs imported, the third consecutive year of YoY increases; 2018 volumes were up 37% from 2015.
 - Despite import volumes declining slightly from last quarter, December 2018 numbers were the second highest monthly imports on record.
- New Zealand continues to expand its market share, supplying 44% of the total import volume to China during the quarter, up from 30% in 2015. *(Wood Resource Quarterly)*. **(FIGURE 4)**
- Over the past five years, import volumes have declined from the key supplying regions of Russia and Canada, while they have increased from New Zealand and Australia.

FIGURE 3: Softwood Lumber Prices US West Coast and US South

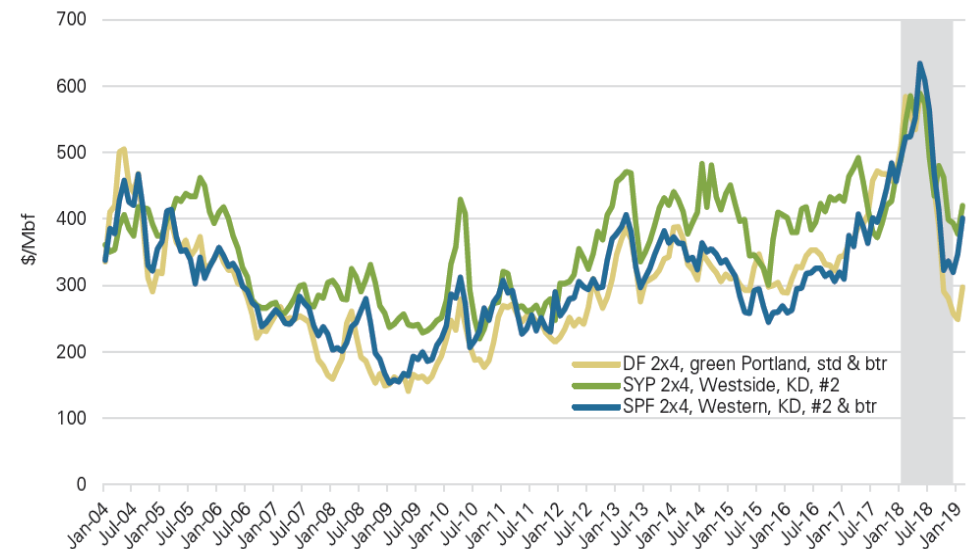
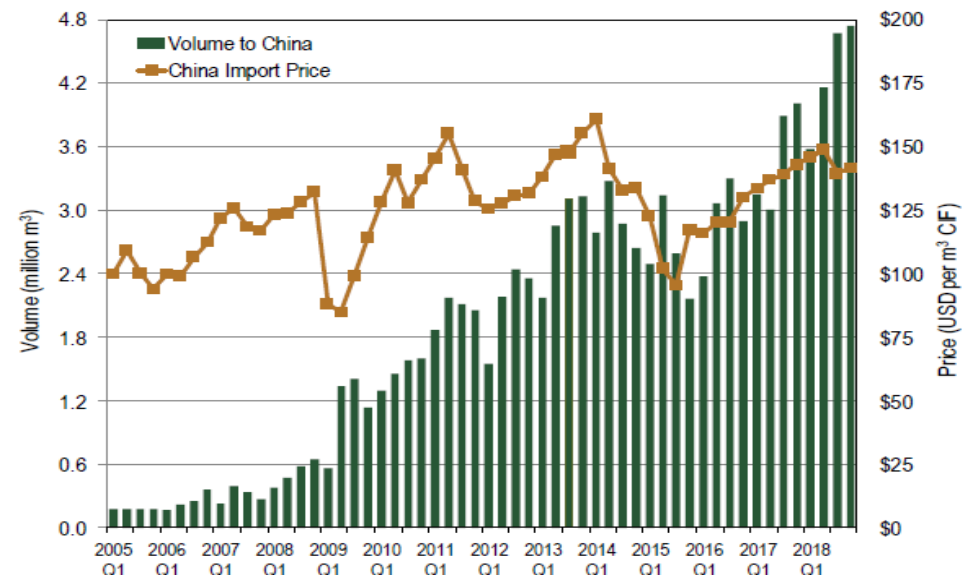


FIGURE 4: New Zealand Softwood Log Export Volume to China



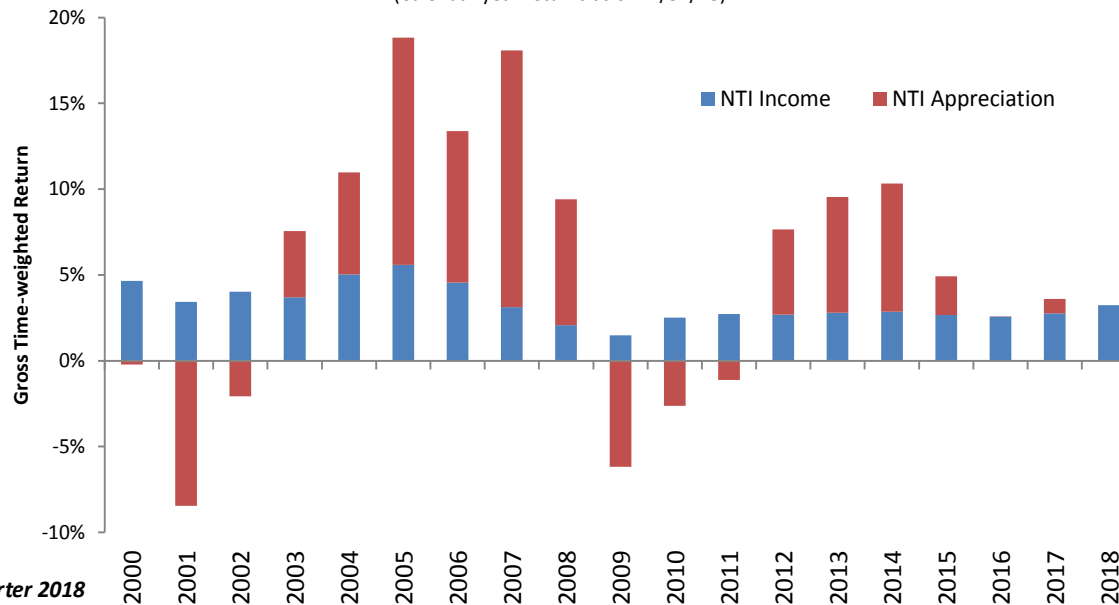
Timberland – Fourth Quarter 2018 Market Update

TIMBERLAND PERFORMANCE

- The NCREIF Timberland Index (“NTI”) returned 0.75% for the quarter, down from 1.0% quarter-over-quarter and 1.5% from 4Q17.
 - The return consisted of a 0.77% income return and a - 0.02% appreciation return.
- The NTI’s annual return for 2018 was 3.2%, driven entirely by an income return of 3.2%; the appreciation return was effectively flat for the year.
- On a regional basis, the Northeast drove returns for the quarter with a total return of 2.7% that was split by a 1.2% appreciation return and a 1.5% income return.
- The Lake States lagged all other regions and returned -1.2% for the quarter, driven by negative appreciation of -1.6% and an income return of 0.3%.
- Timberland values (value/acre) improved modestly during the quarter and were \$1,848 per acre, with all but the Lake States posting an improvement in value per acre.

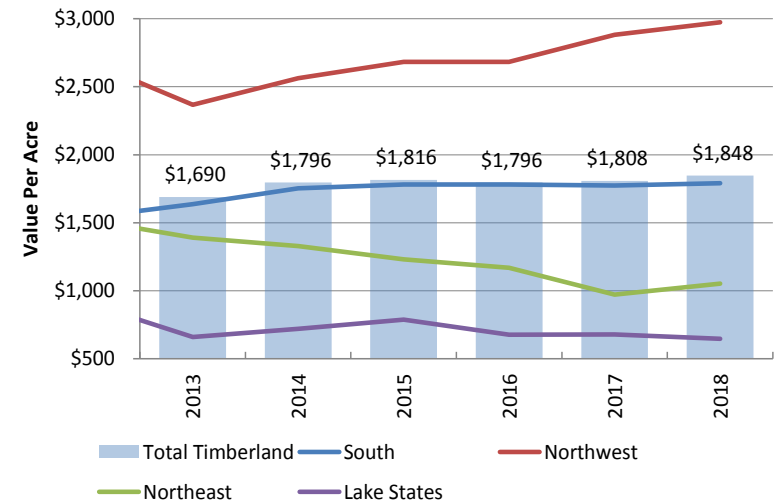
NCREIF Timber Index Return Attribution

(Calendar year returns as of 12/31/18)



NCREIF Timber Index Regional Market Values

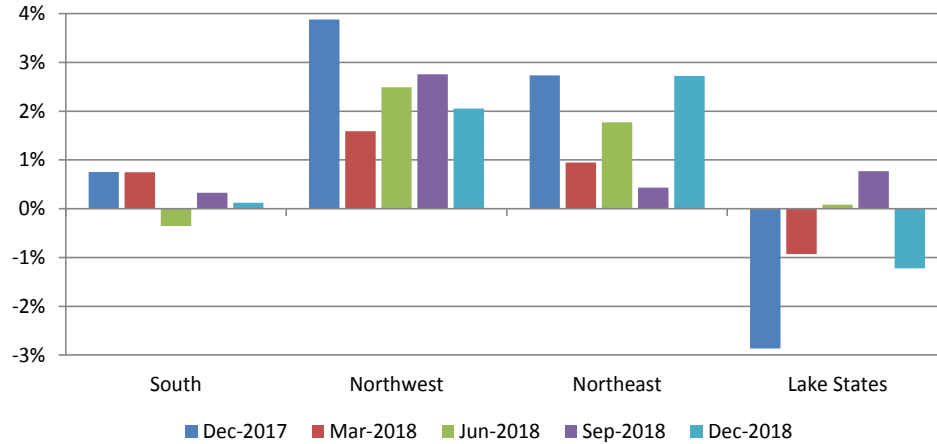
(Per acre values at year-end through 12/31/18)



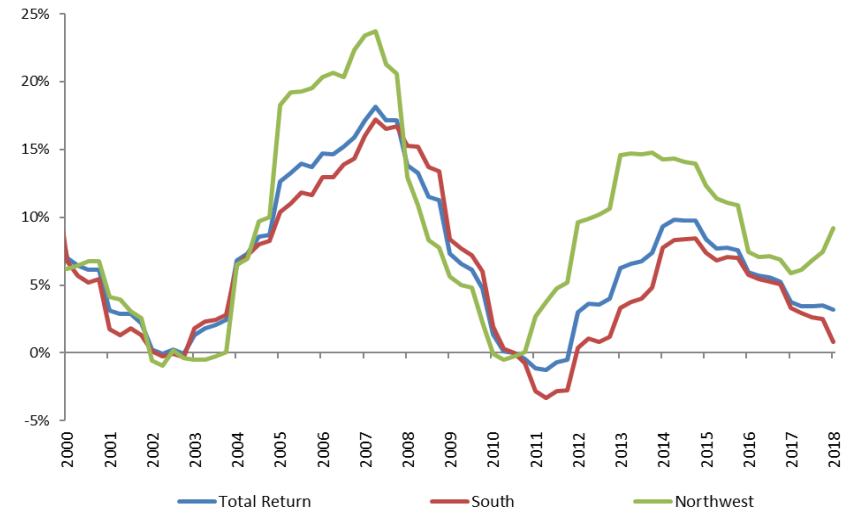
Timberland – Fourth Quarter 2018 Market Update

TIMBERLAND PERFORMANCE

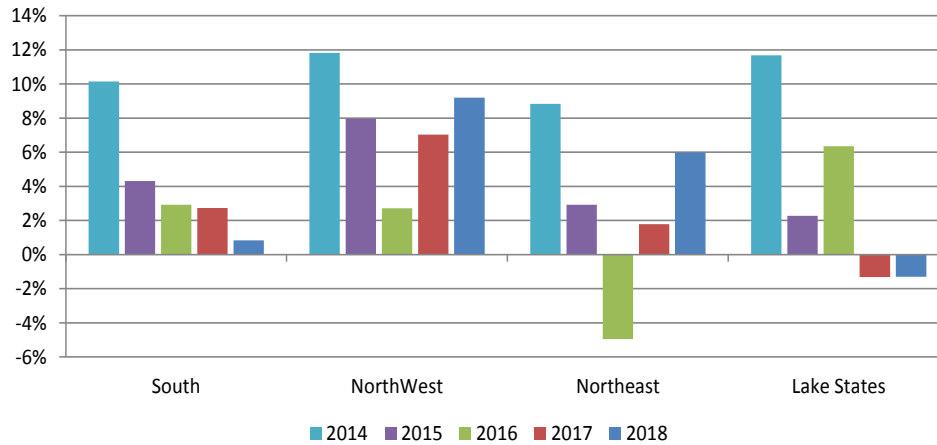
NTI Regional Return Trends
(Quarterly total returns 4Q17-4Q18)



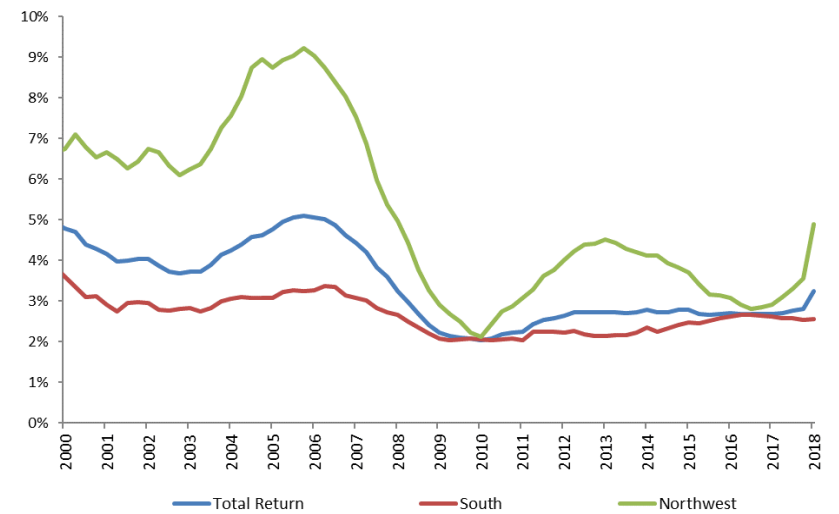
Total Returns by Region
(3-Year Rolling Return Dec. '00 - Dec. '18)



NTI Regional Return Trends
(Annual total returns 2014 - 2018)



EBITDA Returns by Region
(3-Year Rolling Return Dec. '00 - Dec. '18)



Farmland - Fourth Quarter 2018 Market Update

FARMLAND MARKETS

- Global commodity markets were relatively stable during the quarter but upward price movement is not expected over near-term with ongoing trade tensions and robust ending stocks. **(FIGURE 1)**
- While US-China trade uncertainty remained, the fear of a lasting trade war entering 2018 subsided by year-end as US-China trade discussions have progressed into 2019, with possible resolution by 2H19.
- A resolution should provide an immediate lift to US soybean prices and other impacted crops, while Brazil's increased soybean demand and profitability as China has shifted its focus, would face downward pressure especially with another impending record soybean harvest in Brazil for 18'/19'. **(FIGURE 2)**
- While the US agriculture sector has been supported by relatively stable land values, financial and operating conditions remained highly variable by region/commodity.
- US net farm income is projected to decline by approximately 16%, marking 2018 as the second lowest year since 2009; however, forward projections remained optimistic with an estimated 10% improvement in profitability for 2019.

FIGURE 1: Monthly Commodity Prices - YTD

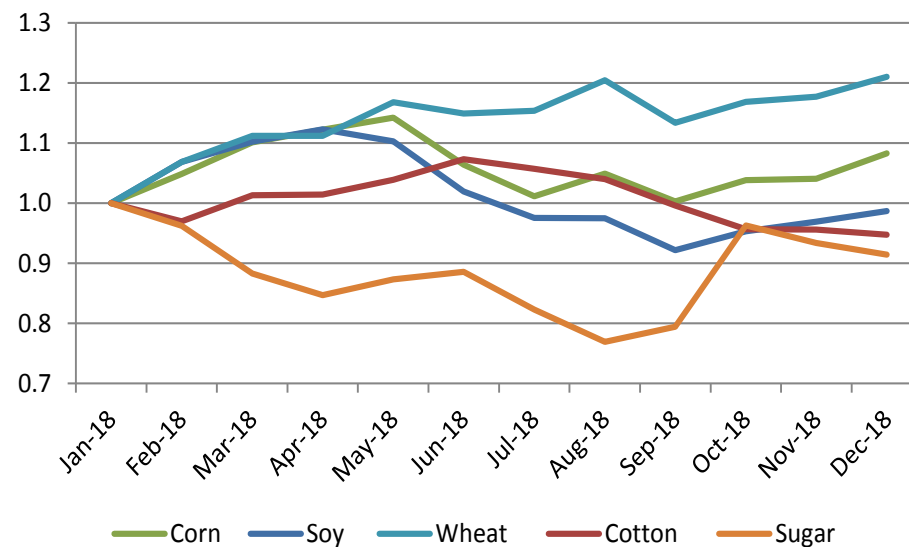
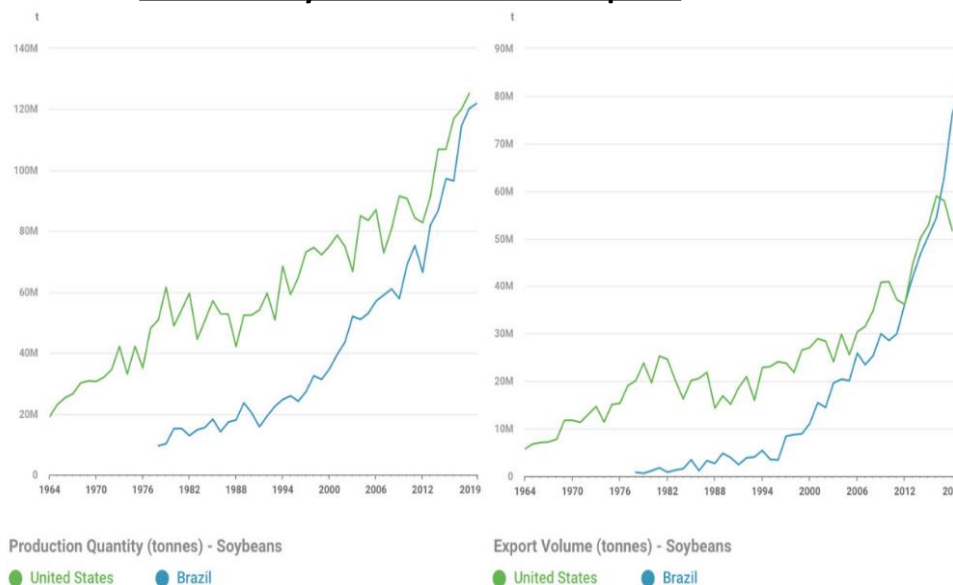


FIGURE 2: US-Brazil Soybean Production & Exports



Farmland - Fourth Quarter 2018 Market Update

FARMLAND MARKETS

- Both corn and wheat experienced modest price increases for the quarter, 2% and 1%, respectively, while soybean prices declined 3.5% over the quarter primarily due to China's soybean tariffs beginning in early 3Q18. (FIGURE 3)
- Export markets for major US row crops remained the primary drivers in 2018, and results have been mixed; corn exports have increased significantly while wheat export demand improves; however, soybeans remain significantly impaired with US-China trade tensions.
- US corn exports were up 24% over last year, driven by reduced volumes out of South American export competitors. The impact from Chinese tariffs have been minimal as US corn exports have limited exposure to China, with less than 1% of US exports in 2017 to China.
- Tree nuts were mixed with minimal price movement in almonds and pistachios; walnuts suffered a significant price correction due to strong production and lower export demand due to China/India's damaging tariff regime enacted during the year. (FIGURE 4)
- Almond production hit a record 2.3 billion pounds in 2018, but robust supplies and unfavorable import tariffs that began mid-2018 will pressure pricing in 2019.
- Pistachios will be pressured by ample stocks and lower export demand again driven by retaliatory tariffs.

FIGURE 3: US Row Crop Prices (\$US per Bu)

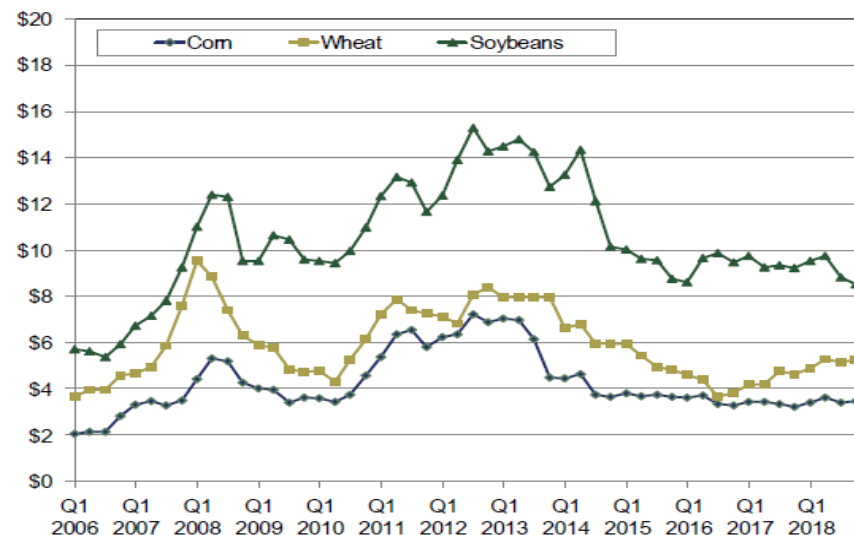
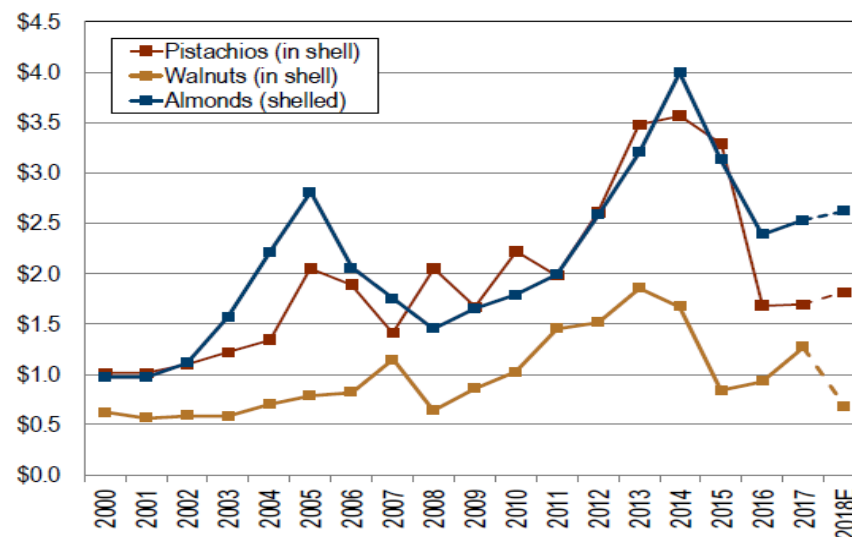


FIGURE 4: US Average Grower Tree Nut Prices (\$US per lb)



Farmland - Fourth Quarter 2018 Market Update

FARMLAND MARKETS

- Australian fundamentals remained strong with continued export demand growth and favorable trade terms in the Trans-Pacific Partnership starting at year-end; however, drought conditions impacted several regions during the year, driving crop production value to decline by approx. 7%.
- As a result, overall exports are forecasted to decline by 14% driven mainly by the lower production from poor seasonal conditions coupled with increased domestic consumption; however, helping to offset lower volumes are favorable projected prices, with an estimated 3% increase in average prices received for 18'/19'. **(FIGURE 5)**
- Looking ahead, trade concerns will remain at the forefront for US producers centered on the ongoing US-China negotiations and the approval of the USMCA (fka NAFTA).
- Continued variability across global commodity markets over the near-term is expected, while depressed farmer income levels will lead to increased US farm debt levels, but still well below farm-crisis levels from the 1980s. **(FIGURE 6)**
- Farmland cash rents have remained relatively resilient, supported by continued strength in land values, and we expect persistence through 2019, continuing to provide stability, in an otherwise challenged global agricultural environment.

FIGURE 5: Major Australian Agricultural Commodity Exports

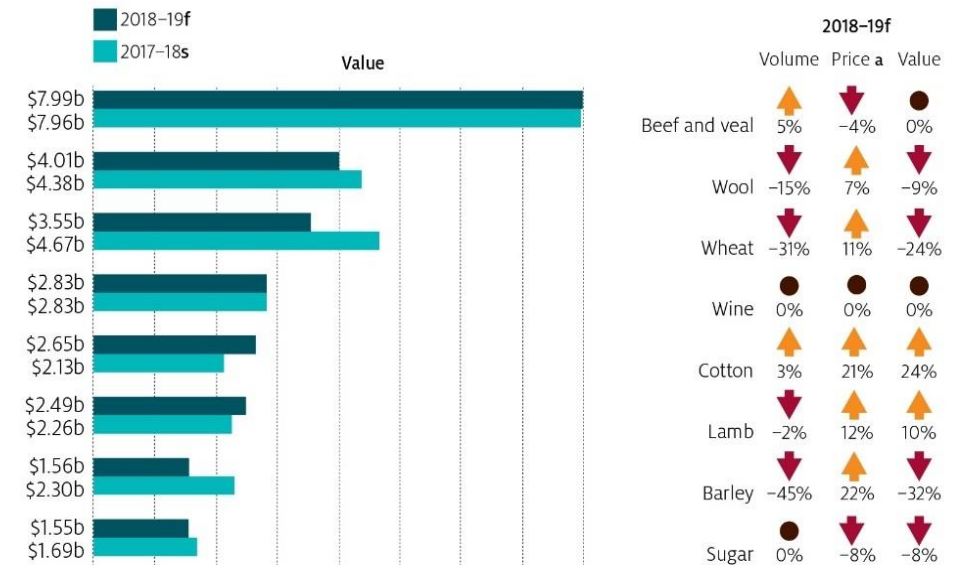
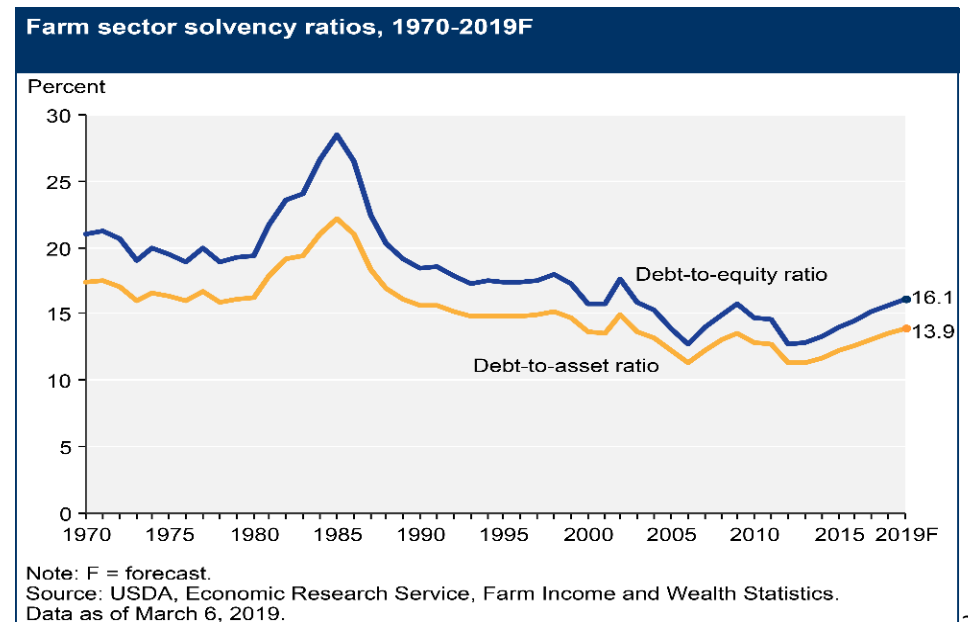


FIGURE 6: US Farm Sector Debt Ratios 1970 – 2019f



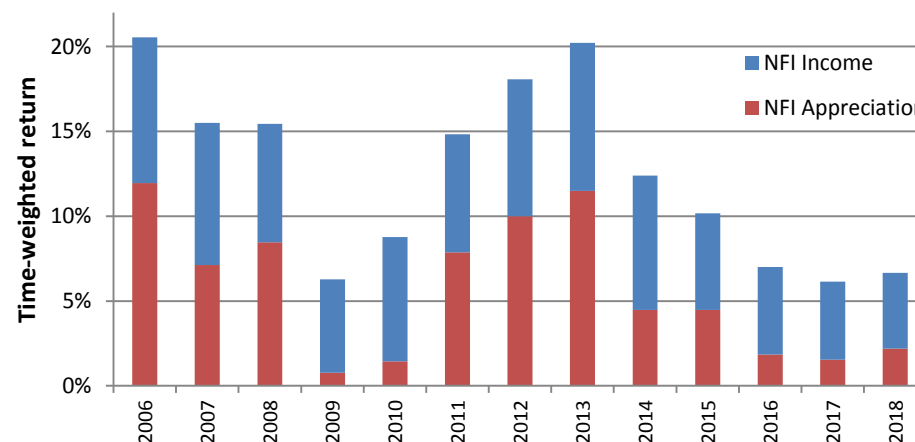
Farmland - Fourth Quarter 2018 Market Update

FARMLAND PERFORMANCE

- 2018 marked an end to the prolonged decline in farmland returns as it was The NCREIF Farmland Index's ("NFI") first year-over-year increase after four years of decreasing annual returns.
- The total return for the year was 6.7%, a 50 bps improvement over 2017's total return of 6.2%; 2018's total return included a 4.5% income return and 2.2% appreciation return.
- For the quarter, the NFI reported a 2.8% total return, a meaningful increase over the previous quarter's 1.3% return despite just falling shy of 4Q17's return of 2.9%. The total return consisted of a 2.2% income return and a 0.7% appreciation return.
- Permanent crops continued to outperform row crops on both an annual and quarterly basis; for 2018 permanent crops returned 8.2% and row crops returned 5.9%; for 4Q18 permanent crops returned 5.1% and row crops 1.5%.
- Permanent crops may have reached a cyclical bottom in 2017 following their peak in 2013 with a YoY improvement of 19 bps.
- Permanent crops total return in 2018 was comprised of a 1.9% income return and a 6.2% appreciation return.
- Row crops total return in 2018 was 5.9%, and included a 3.5% income return and a 2.3% appreciation return.

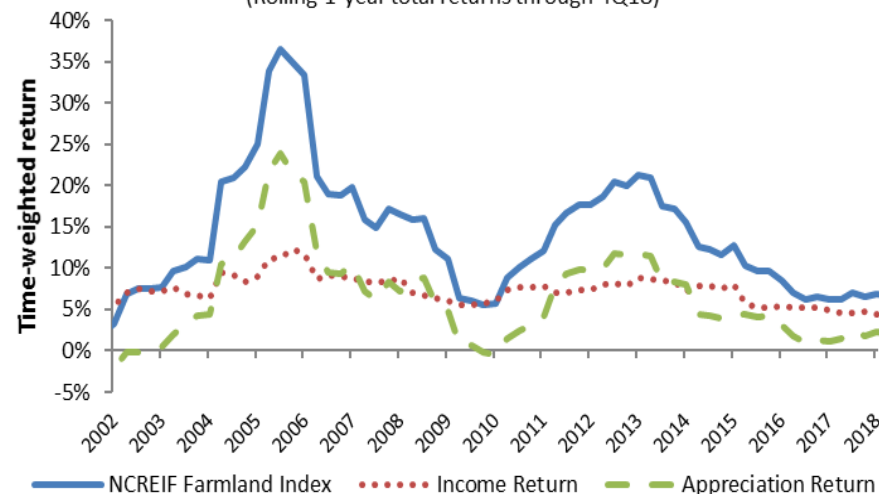
NCREIF Farmland Index Annual Performance

(Calendar Year Return Attribution)



NCREIF Farmland Index Performance

(Rolling 1-year total returns through 4Q18)

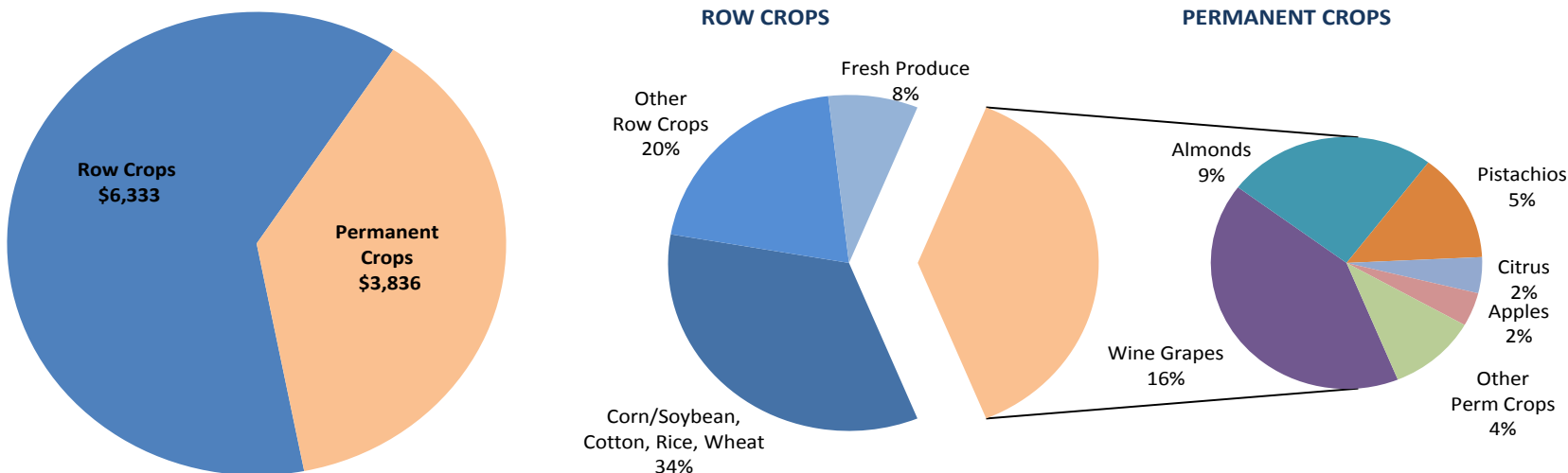


Farmland - Fourth Quarter 2018 Market Update

FARMLAND PERFORMANCE

- The NFI's size grew considerably during 2018 by both principal measures - market value and property count; the market value increased by 20% in conjunction with the total property count increasing by 24.
- At year-end 2018, the NFI consisted of 900 properties valued at \$10.2 billion in comparison to 2017's year-end total of 727 properties valued at \$8.5 billion.
- Row crops remain the majority of the NFI in both property count and total value, comprising 73% of the NFI's total properties and 62% of the total value, and predominantly drove the NFI's growth during the year with sizable increases in both market value and property count; 32% and 36%, respectively.
- In comparison, permanent crops did not experience any growth during the year with respect to new property additions, and relatively flat regarding property count over the past 24-months, highlighting a cautionary position for some investors stemming from water-scarcity challenges faced across the US West.
- The NFI's increase in both number and value of properties can be attributed to the trend of increasing institutional investment in the asset class and the ongoing consolidation in farmland ownership.

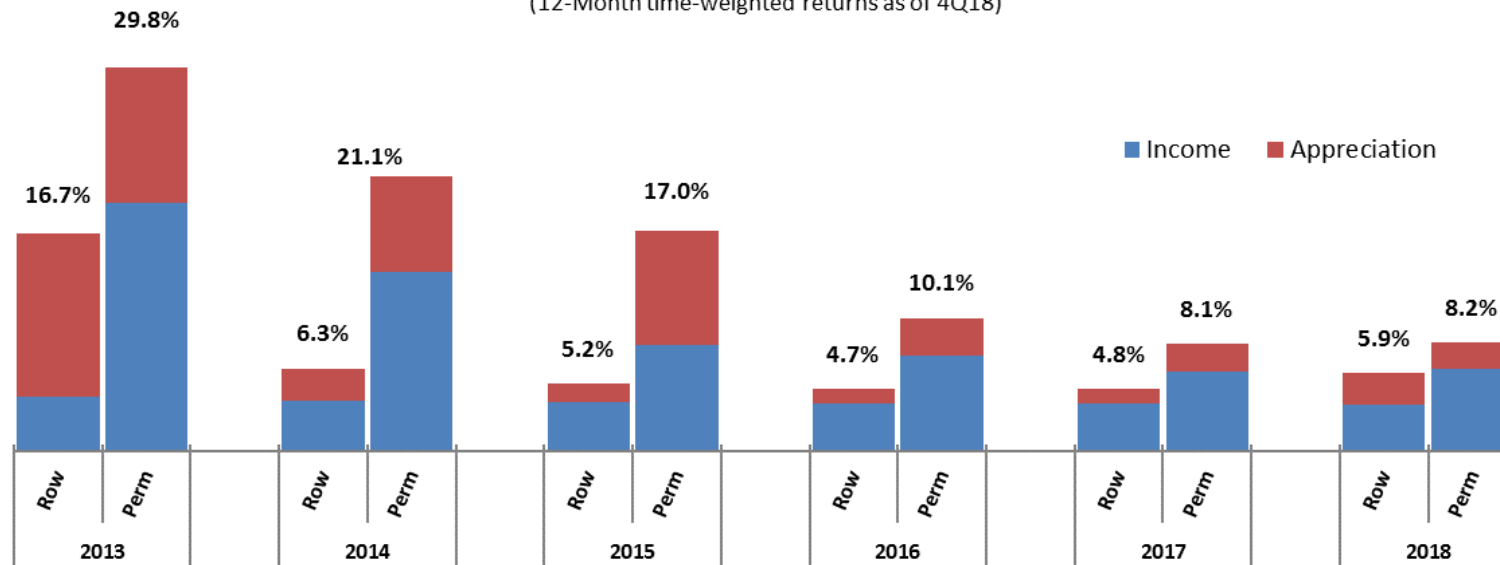
NCREIF Farmland Index by Crop Type



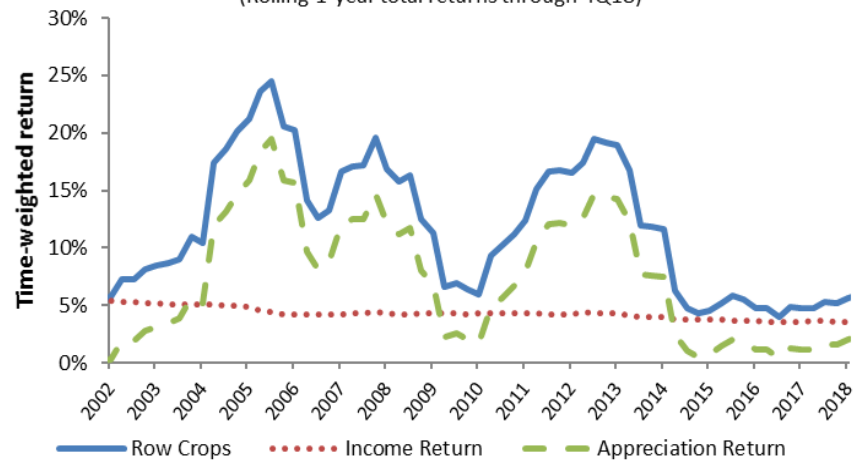
Farmland - Fourth Quarter 2018 Market Update

FARMLAND PERFORMANCE

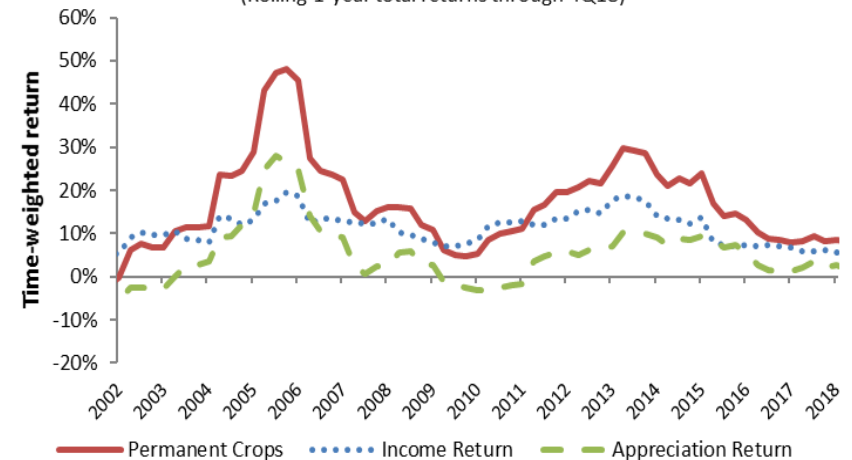
NCREIF Farm Type Performance Attribution
(12-Month time-weighted returns as of 4Q18)



NCREIF Row Crop Performance
(Rolling 1-year total returns through 4Q18)



NCREIF Permanent Crop Performance
(Rolling 1-year total returns through 4Q18)



Infrastructure – Fourth Quarter 2018 Market Update

General

- Eighteen funds reached a final close in Q4 2018, securing \$15.9bn in aggregate capital. Year-on-year this represents a 21% drop in the number of funds holding a final close yet an increase of \$17.4bn in aggregate capital raised.
- Deal value was up 34% compared to the previous quarter (est. aggregate value of \$320bn) for 17% more deals. Average deal size increased by 15% quarter-over-quarter and 27% year-over-year.

Europe

- A number of Greenfield projects closed in renewable energy, conventional energy, social infrastructure, transport and telecommunications. Notable secondary trades that closed in the quarter included the \$19.1bn acquisition of Abertis by the Atlantia Group in a bid to become the worlds largest toll road operator, the \$5.7bn acquisition by Global Infrastructure Partners of a 50% stake in Hornsea off-shore wind farm. Clean energy investment in 2018 for Europe as a whole was \$74.5bn, increasing 27% year-over-year. This was driven by the financing of five off-shore wind farms and a sharp recovery in the Spanish solar market. Notably Spain, Denmark and Belgium increased investment into clean energy by 7x, 5x and 4x respectively, whilst Germany was down 32%.

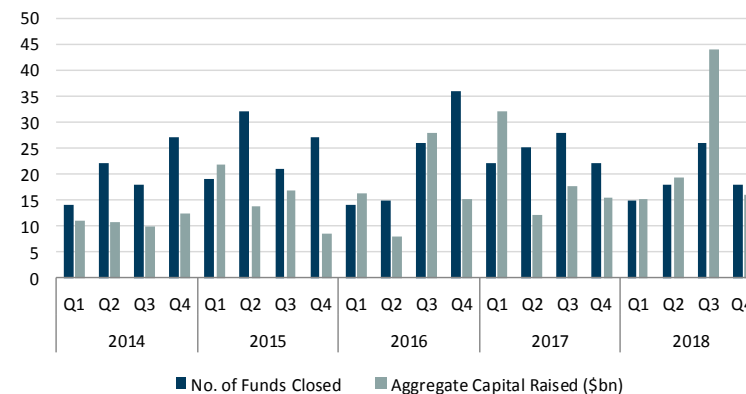
North America

- Dealflow was dominated by a number of energy transactions, notably the acquisition of Enbridge by Brookfield for \$1.9bn and the sale of a 50% stake in BridgeTex Pipeline for \$1.4bn to OMERS Infrastructure. Other notable transaction was Brookfield's \$3.3bn acquisition of Enercare, a provider of electricity, plumbing, water and other home services to residential areas in Canada. During 2018, clean energy investment increased 12% year-over-year in the US (to \$64.2bn). Investment was down in Canada and Mexico, by 34% in Canada (to \$2.2bn) and 38% in Mexico (to \$3.8bn).

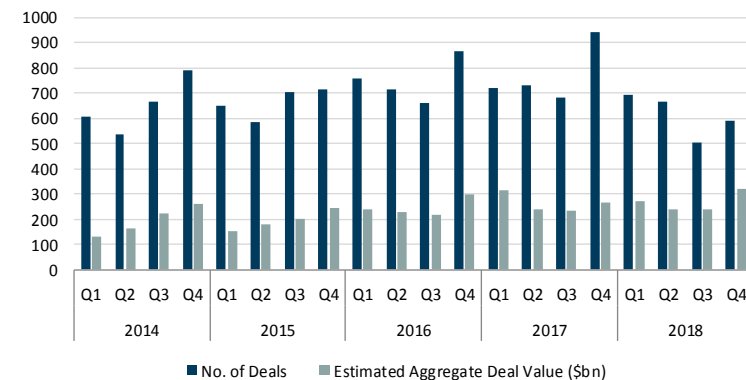
Asia Pacific

- Clean energy investment remained strong, although investment in China, one of the highest contributors, was down year-over-year (to \$100.1bn, down 32%). Investment in Australia increased to \$9.5bn, up 6%. Deal flow was dominated by two large transactions in Australia - the \$6.6bn privatisation of a 50% stake in Sydney Motorway Corporation by the government of NSW and the \$2.2bn the sale of Quadrant Energy, a natural gas producer and supplier. Other notables transactions in the region were the \$1.9bn privatisation of the Fukuoka Airport in Japan and the financial close for two \$1.5bn gas-fired power plant stations in Indonesia and Thailand.

Unlisted Infrastructure Fundraising



Infrastructure Deals Completed



Source: Preqin

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Agenda

Section 1	Executive Summary
Section 2	Market Overview
Section 3	Real Assets Portfolio Update
Section 4	Glossary

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ATRS' Portfolio Overview

As of 12/31/2018	Quarter	1 Year Ending	3 Year Ending	5 Year Ending	10 Year Ending
Total Real Assets Portfolio	1.0%	6.2%	7.5%	8.6%	6.2%
Real Assets Benchmark*	1.3%	6.2%	6.3%	8.2%	5.4%

As of December 31, 2018	ATRS' Portfolio \$ in Millions	As of December 31, 2018	Market Value (\$ millions)	Current Allocation (%)	Target (%)
Number of Investments	59	ATRS Total Assets	\$16,051.6		
Total Commitments	\$3,301.4	Real Assets Portfolio:	2,144.4	13.4%	15%
Unfunded Commitments	\$466.7	Real Estate	1,413.3	8.8%	10%
Total Paid-In Capital	\$3,110.4	Core*	1016.5	71.9%	50-70%
Total Distributions	\$2,468.3	Non-Core	396.8	28.1%	30-50%
Net Asset Value	\$2,144.4	Value-Added**	197.6	14.0%	N/A**
Gross Asset Value	\$2,652.9	Opportunistic**	199.2	14.1%	N/A**
DPI*	0.8x	Agriculture	197.7	1.2%	1%
TVPI*	1.5x	Timber	258.0	1.6%	2%
Since Inception IRR*	7.3%	Infrastructure	275.3	1.7%	2%
<i>*Active and Liquidated</i>		Unfunded Commitments	466.7	2.9%	
		Market Value + Unfunded	2,611.1	16.3%	

* Includes Arkansas Investments

** No stated targets

ATRS Real Estate Performance: Core Portfolio

As of 12/31/2018

Fund Name	Vintage Year	Total Commitment (\$)	Unfunded Commitment (\$)	Total Paid-In (\$)	Total Distributions (\$)	Net Asset Value (\$)	Total Value (\$)	DPI	TVPI	Net IRR
Arkansas Investments	2007	142,694,200	0	144,624,546	157,328,030	126,900,474	284,228,504	1.09x	1.97x	9.36%
JPMorgan Strategic Property Fund	2006	170,000,000	0	170,000,000	56,283,266	285,320,948	341,604,214	0.33x	2.01x	6.93%
MetLife Commercial Mortgage Income Fund, LP	2018	50,000,000	50,000,000	0	0	0	0	N/A	N/A	N/A
Prudential Property Investment Separate Account	2005	170,000,000	0	212,936,320	120,771,948	271,072,197	391,844,144	0.57x	1.84x	6.57%
UBS Trumbull Property Fund	2005	170,000,000	0	199,152,820	78,831,408	280,585,732	359,417,140	0.40x	1.80x	6.25%
UBS Trumbull Property Income Fund	2016	50,000,000	0	50,000,000	1,857,015	52,647,455	54,504,470	0.04x	1.09x	6.73%
Total Core		752,694,200	50,000,000	776,713,686	415,071,667	1,016,526,806	1,431,598,472	0.53x	1.84x	7.04%

Time Weighted Returns:

As of 12/31/2018 Partnership Name	Quarter	1 Year Ending	3 Year Ending	5 Year Ending	10 Year Ending
Arkansas Investments	1.0%	2.8%	18.3%	14.0%	10.8%
JPMorgan Strategic Property Fund	1.6%	7.1%	6.9%	9.0%	6.4%
Prudential Property Investment Separate Account	1.6%	7.9%	7.5%	9.9%	6.0%
UBS Trumbull Property Fund	1.6%	6.2%	5.9%	8.0%	5.8%
UBS Trumbull Property Income Fund	2.1%	6.9%	N/A	N/A	N/A
Total Core & Open-End Portfolio	1.6%	6.5%	8.1%	9.5%	7.1%
NFI-ODCE (Net)	1.5%	7.4%	7.3%	9.4%	6.0%

Note: Arkansas Investments are included in Core portfolio

ATRS' Real Estate Performance: Value-Add Portfolio

As of 12/31/2018

Fund Name	Vintage Year	Total Commitment (\$)	Unfunded Commitment (\$)	Total Paid-In (\$)	Total Distributions (\$)	Net Asset Value (\$)	Total Value (\$)	DPI	TVPI	Net IRR
Almanac Realty Securities Fund V, L.P.	2008	50,000,000	0	54,264,528	78,253,959	2,421,457	80,675,416	1.44x	1.49x	11.77%
Almanac Realty Securities Fund VI, L.P.	2012	30,000,000	0	18,829,376	17,807,005	8,435,844	26,242,849	0.95x	1.39x	13.00%
Almanac Realty Securities Fund VII, L.P.	2015	30,000,000	11,076,934	22,274,631	6,511,061	21,488,234	27,999,295	0.29x	1.26x	14.40%
Almanac Realty Securities Fund VIII, L.P.	2018	30,000,000	29,924,529	75,471	0	-52,793	-52,793	0.00x	-0.70x	N/A
Calmwater Fund III	2017	30,000,000	14,027,922	26,058,117	10,382,848	16,487,618	26,870,466	0.40x	1.03x	6.36%
CBRE Strategic Partners U.S. Value 8, L.P.	2016	25,000,000	6,652,749	18,347,251	783,486	19,731,673	20,515,159	0.04x	1.12x	10.91%
Fidelity Real Estate Growth Fund III	2008	30,000,000	0	26,910,386	35,676,792	0	35,676,792	1.33x	1.33x	7.36%
FPA Core Plus Fund IV, L.P.	2018	30,000,000	20,400,000	9,600,000	0	9,333,431	9,333,431	0.00x	0.97x	-4.12%
Harbert European Real Estate Fund IV	2016	25,009,965	1,744,909	23,985,080	342,026	27,382,377	27,724,403	0.01x	1.16x	8.41%
JPMorgan Special Situations Property Fund	2006	50,000,000	0	50,000,000	64,229,336	0	64,229,336	1.28x	1.28x	2.96%
LaSalle Income & Growth Fund VI	2013	20,000,000	952,381	19,047,619	20,745,195	7,596,542	28,341,736	1.09x	1.49x	12.77%
LaSalle Income & Growth Fund VII	2017	20,000,000	8,213,108	14,716,686	3,321,875	14,326,362	17,648,237	0.23x	1.20x	15.31%
Long Wharf Real Estate Partners V	2015	30,000,000	-0	31,494,655	5,846,924	29,668,645	35,515,569	0.19x	1.13x	10.08%
New Boston Real Estate Investment Fund VII	2008	10,000,000	0	9,668,685	7,520,215	637,944	8,158,159	0.78x	0.84x	-2.51%
Rockwood Capital Real Estate Partners Fund IX, L.P.	2012	30,000,000	4,081,464	27,422,960	27,488,047	11,232,445	38,720,492	1.00x	1.41x	13.85%
Westbrook Real Estate Fund IX, L.P.	2012	40,000,000	3,603,488	45,867,668	41,994,913	17,424,312	59,419,225	0.92x	1.30x	11.65%
Westbrook Real Estate Fund X, L.P.	2015	25,000,000	15,162,963	12,724,731	2,868,421	11,457,742	14,326,163	0.23x	1.13x	11.92%
Total Value Added		505,009,965	115,840,447	411,287,843	323,772,103	197,571,832	521,343,935	0.79x	1.27x	7.25%

ATRS' Real Estate Performance: Opportunistic Portfolio

As of 12/31/2018

Fund Name	Vintage Year	Total Commitment (\$)	Unfunded Commitment (\$)	Total Paid-In (\$)	Total Distributions (\$)	Net Asset Value (\$)	Total Value (\$)	DPI	TVPI	Net IRR
Blackstone Real Estate Partners VII, L.P.	2011	50,000,000	7,342,119	62,352,224	65,809,023	34,605,492	100,414,515	1.06x	1.61x	16.78%
Carlyle Realty Partners VII, L.P.	2014	30,000,000	16,085,560	25,878,716	15,117,356	18,305,685	33,423,041	0.58x	1.29x	12.56%
Carlyle Realty Partners VIII, L.P.	2018	25,000,000	22,346,866	2,674,110	2,292	2,060,989	2,063,281	0.00x	0.77x	45.04%
CB Richard Ellis Strategic Partners U.S. Opportunity Fund V, L.P.	2008	50,000,000	1,674,283	48,588,090	54,212,819	12,119,748	66,332,567	1.12x	1.37x	5.26%
Cerberus Institutional Real Estate Partners III, L.P.	2012	30,000,000	7,307,395	39,123,764	33,286,304	18,651,349	51,937,653	0.85x	1.33x	10.93%
Heitman European Property Partners IV	2009	50,000,000	2,318,450	34,448,111	24,292,222	4,646,439	28,938,661	0.71x	0.84x	-2.89%
Kayne Anderson Real Estate Partners V, L.P.	2018	25,000,000	16,250,000	8,957,799	0	7,819,069	7,819,069	0.00x	0.87x	-14.55%
Landmark Real Estate Partners VI, L.P.	2010	40,000,000	4,909,392	35,090,608	49,786,872	5,701,033	55,487,905	1.42x	1.58x	19.67%
Landmark Real Estate Partners VIII, L.P.	2017	25,000,000	21,877,660	5,265,953	2,220,717	4,213,420	6,434,137	0.42x	1.22x	28.09%
LaSalle Asia Opportunity Fund IV	2014	30,000,000	11,080,298	26,115,903	32,700,157	5,881,876	38,582,033	1.25x	1.48x	32.69%
LaSalle Asia Opportunity Fund V	2016	30,000,000	22,976,403	7,023,597	836,207	6,758,866	7,595,073	0.12x	1.08x	4.92%
Lone Star Real Estate Fund IV, L.P.	2015	24,260,817	5,204,622	20,812,524	11,757,140	16,602,316	28,359,456	0.56x	1.36x	18.68%
Metropolitan Real Estate Partners Co-Investments Fund, L.P.	2015	20,000,000	2,178,890	18,816,942	6,396,528	18,249,216	24,645,744	0.34x	1.31x	14.60%
O'Connor North American Property Partners II	2008	50,000,000	5,000,000	58,124,146	39,973,487	10,652,176	50,625,663	0.69x	0.87x	-2.64%
Olympus Real Estate Fund III, L.P.	2000	100,000,000	0	112,839,568	98,504,479	355,396	98,859,875	0.87x	0.88x	-3.67%
Torchlight Debt Opportunity Fund II	2007	55,000,000	0	55,000,000	45,846,294	1,945,869	47,792,163	0.83x	0.87x	-1.83%
Torchlight Debt Opportunity Fund III	2008	30,000,000	0	33,493,596	49,863,151	0	49,863,151	1.49x	1.49x	13.72%
Torchlight Debt Opportunity Fund IV	2013	30,000,000	0	32,937,974	34,145,907	11,548,494	45,694,401	1.04x	1.39x	10.55%
Torchlight Debt Opportunity Fund V	2015	25,000,000	10,000,000	15,001,134	1,547,433	17,690,604	19,238,037	0.10x	1.28x	13.23%
Torchlight Debt Opportunity Fund VI, LP	2017	25,000,000	23,565,776	1,434,224	0	1,421,795	1,421,795	0.00x	0.99x	-0.68%
Total Opportunistic		1,207,298,178	180,117,715	1,142,978,338	1,342,000,027	199,229,832	1,541,229,859	1.17x	1.35x	10.27%

ATRS' Timberland, Agriculture, and Infrastructure Performance

As of 12/31/2018

Fund Name	Vintage Year	Total Commitment (\$)	Unfunded Commitment (\$)	Total Paid-In (\$)	Total Distributions (\$)	Net Asset Value (\$)	Total Value (\$)	DPI	TVPI	Net IRR
BTG Timber Separate Account	1998	316,000,000	24,891,933	322,102,300	308,072,909	258,046,113	566,119,022	0.96x	1.76x	5.14%
Total Timber		316,000,000	24,891,933	322,102,300	308,072,909	258,046,113	566,119,022	0.96x	1.76x	5.14%
HFMS Farmland Separate Account	2011	125,000,000	16,677,907	133,253,872	24,931,779	142,951,795	167,883,574	0.19x	1.26x	5.74%
UBS Agrivest Core Farmland Fund	2013	50,000,000	0	50,000,000	3,981,712	54,706,027	58,687,739	0.08x	1.17x	5.04%
Total Agriculture		175,000,000	16,677,907	183,253,872	28,913,491	197,657,822	226,571,313	0.16x	1.24x	5.59%

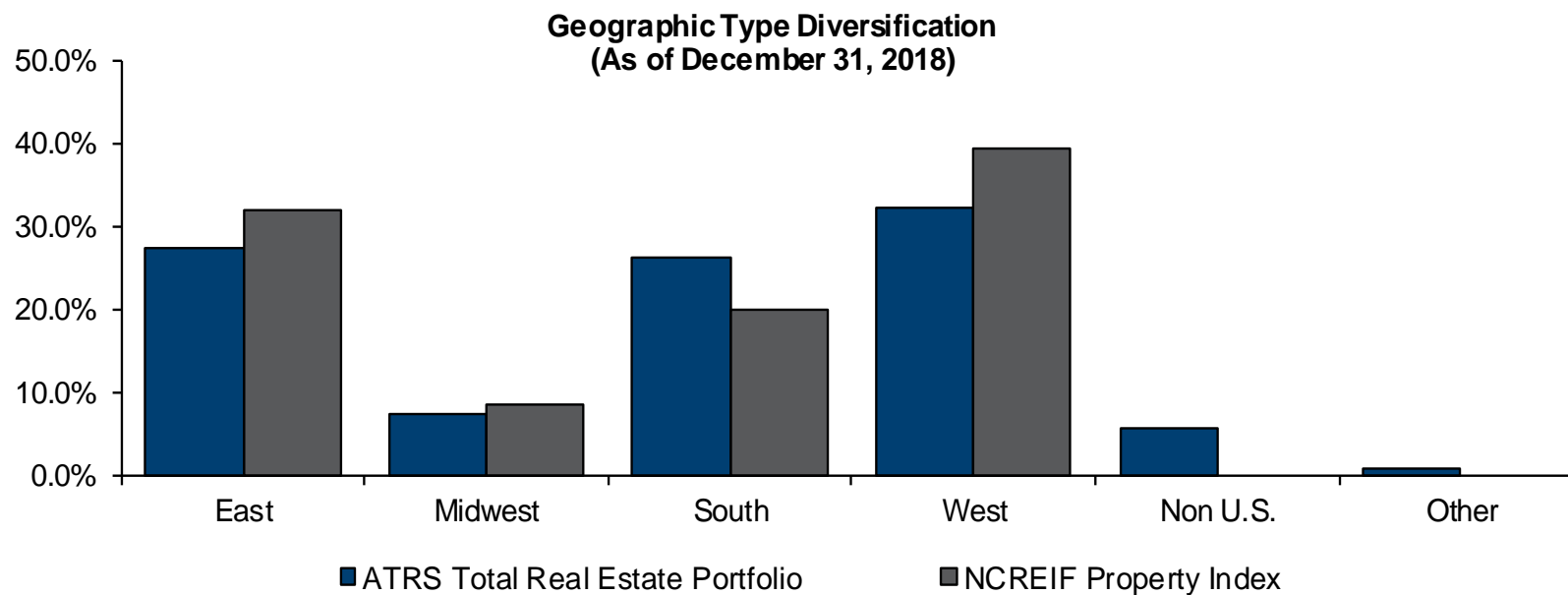
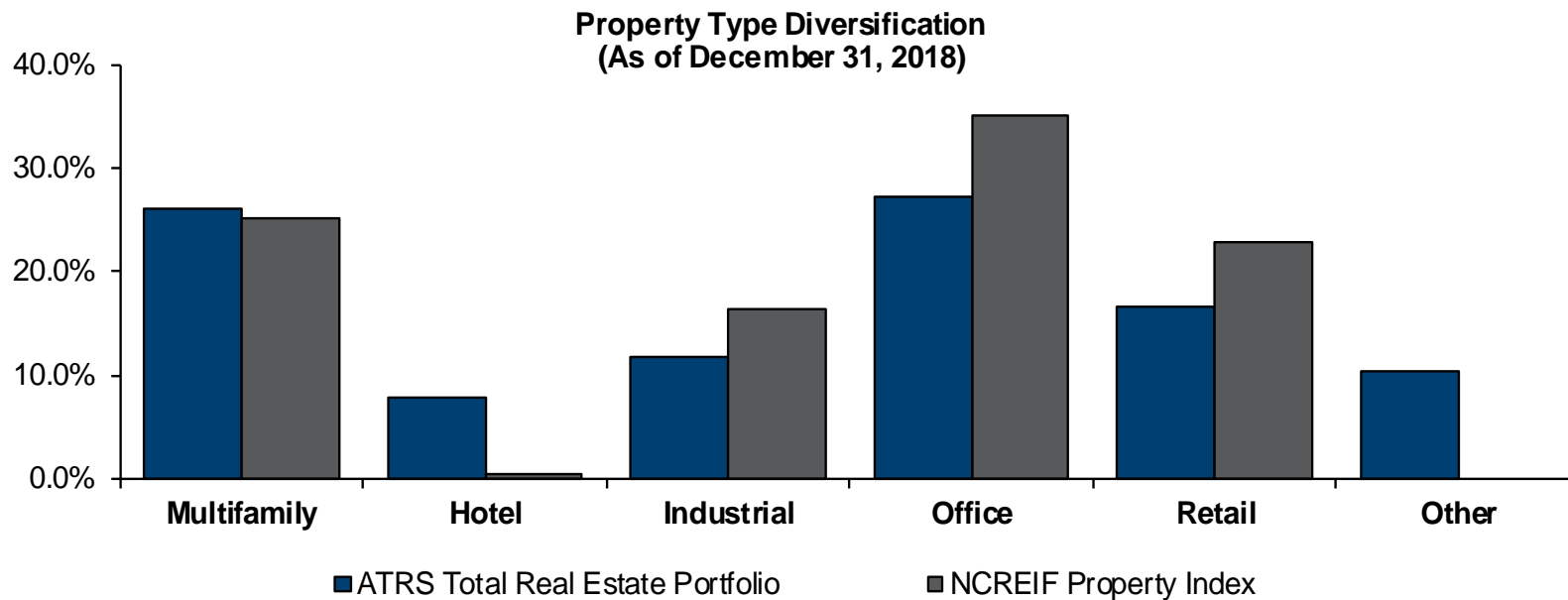
Fund Name	Vintage Year	Total Commitment (\$)	Unfunded Commitment (\$)	Total Paid-In (\$)	Total Distributions (\$)	Net Asset Value (\$)	Total Value (\$)	DPI	TVPI	Net IRR
Antin Infrastructure Partners II, L.P.	2014	47,647,600	5,619,352	35,594,758	2,250,966	45,601,502	47,852,469	0.06x	1.34x	8.87%
DIF Infrastructure Fund V	2018	47,766,330	32,412,341	14,428,203	634,634	13,177,274	13,811,909	0.04x	0.96x	-5.47%
First Reserve Energy Infrastructure Fund II, L.P.	2014	50,000,000	11,905,551	42,604,887	24,154,037	34,620,471	58,774,508	0.57x	1.38x	35.99%
Global Infrastructure Partners III, L.P.	2016	50,000,000	17,126,305	35,611,890	793,647	35,065,927	35,859,574	0.02x	1.01x	0.63%
IFM Global Infrastructure (US), L.P.	2017	50,000,000	0	50,000,000	0	51,420,122	51,420,122	0.00x	1.03x	2.87%
KKR Global Infrastructure Investors II, L.P.	2015	50,000,000	5,833,334	49,538,140	5,890,761	52,144,066	58,034,827	0.12x	1.17x	10.46%
Macquarie Infrastructure Partners III, L.P.	2013	50,000,000	6,244,924	46,252,571	16,766,430	43,319,621	60,086,051	0.36x	1.30x	13.09%
Total Infrastructure		345,413,930	79,141,807	274,030,449	50,490,475	275,348,984	325,839,459	0.18x	1.19x	12.17%

Portfolio Performance Detail: By Vintage Year

As of 12/31/2018

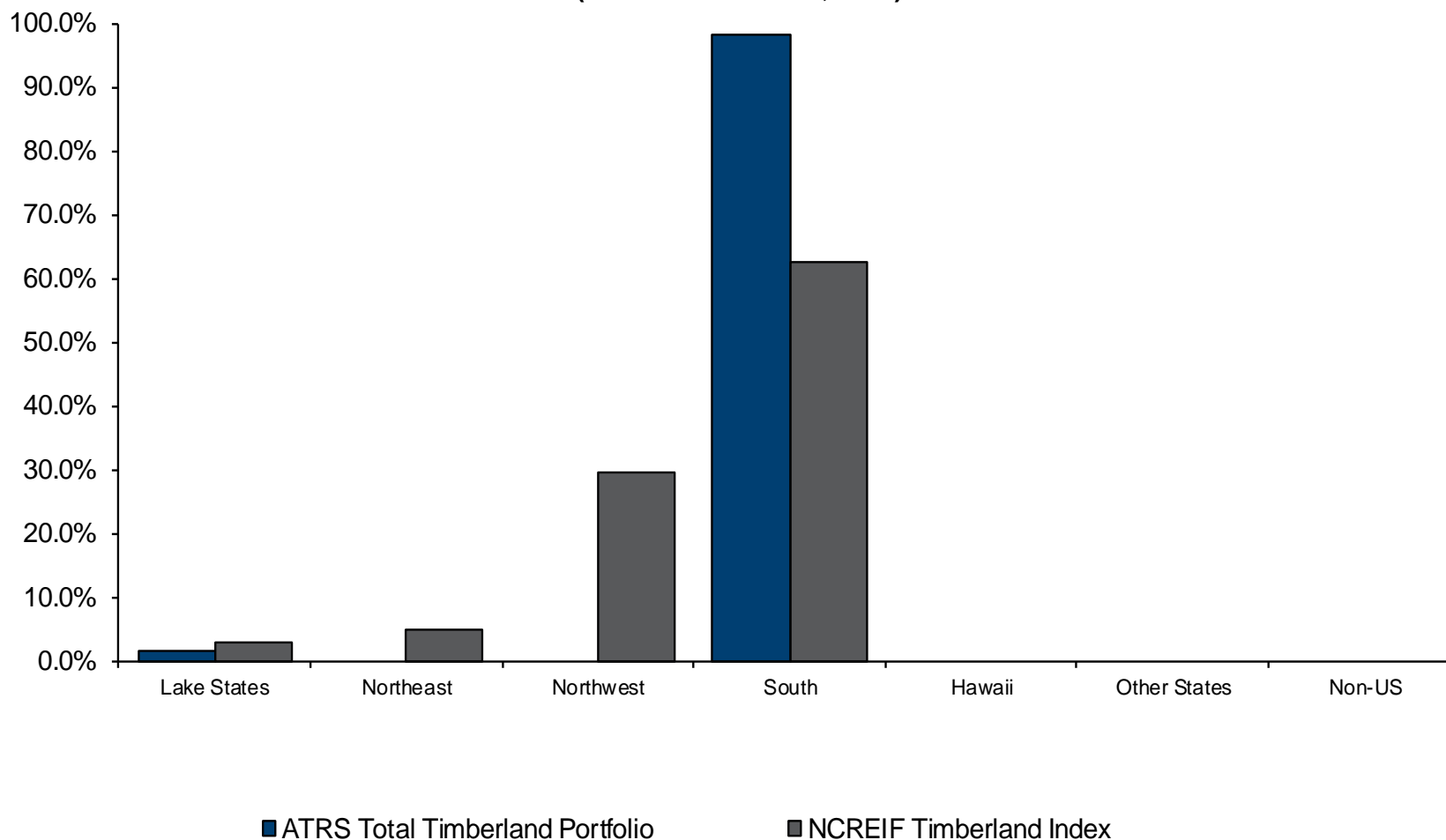
Vintage Year (ATRS)	Total Commitment	Unfunded Commitment	Total Paid-In	Total Distributions	Net Asset Value as of 12/31/2018	Total Value	DPI	TVPI	Net IRR
1997	75,000,000	0	80,737,536	120,795,230	0	120,795,230	1.50x	1.50x	13.42%
1998	416,000,000	24,891,933	434,964,949	456,012,686	258,046,113	714,058,799	1.05x	1.64x	5.54%
1999	178,794,401	0	189,842,518	316,052,650	0	316,052,650	1.66x	1.66x	15.90%
2000	209,242,960	0	228,396,220	289,418,462	355,396	289,773,858	1.27x	1.27x	8.51%
2005	340,000,000	0	412,089,139	199,603,355	551,657,929	751,261,284	0.48x	1.82x	6.42%
2006	220,000,000	0	220,000,000	120,512,602	285,320,948	405,833,550	0.55x	1.84x	6.21%
2007	197,694,200	0	199,624,547	203,174,324	128,846,343	332,020,667	1.02x	1.66x	6.93%
2008	220,000,000	6,674,283	231,049,431	265,500,423	25,831,325	291,331,748	1.15x	1.26x	5.23%
2009	50,000,000	2,318,450	34,448,111	24,292,222	4,646,439	28,938,661	0.71x	0.84x	-2.89%
2010	40,000,000	4,909,392	35,090,608	49,786,872	5,701,033	55,487,905	1.42x	1.58x	19.67%
2011	175,000,000	24,020,026	195,606,096	90,740,802	177,557,287	268,298,089	0.46x	1.37x	8.78%
2012	130,000,000	14,992,348	131,243,769	120,576,269	55,743,950	176,320,219	0.92x	1.34x	12.12%
2013	150,000,000	7,197,305	148,238,164	75,639,244	117,170,683	192,809,927	0.51x	1.30x	9.52%
2014	157,647,600	44,690,761	130,194,264	74,222,516	104,409,534	178,632,051	0.57x	1.37x	17.02%
2015	204,260,817	49,456,744	170,662,758	40,818,269	167,300,822	208,119,091	0.24x	1.22x	13.11%
2016	180,009,965	48,500,366	134,967,818	4,612,381	141,586,298	146,198,679	0.03x	1.08x	6.16%
2017	150,000,000	67,684,466	97,474,979	15,925,440	87,869,317	103,794,757	0.16x	1.06x	12.80%
2018	207,766,330	171,333,736	35,735,583	636,926	32,337,970	32,974,897	0.02x	0.92x	-11.75%
Grand Total(s):	3,301,416,273	466,669,809	3,110,366,489	2,468,320,672	2,144,381,388	4,612,702,060	0.79x	1.48x	7.35%

Portfolio Diversification – Real Estate



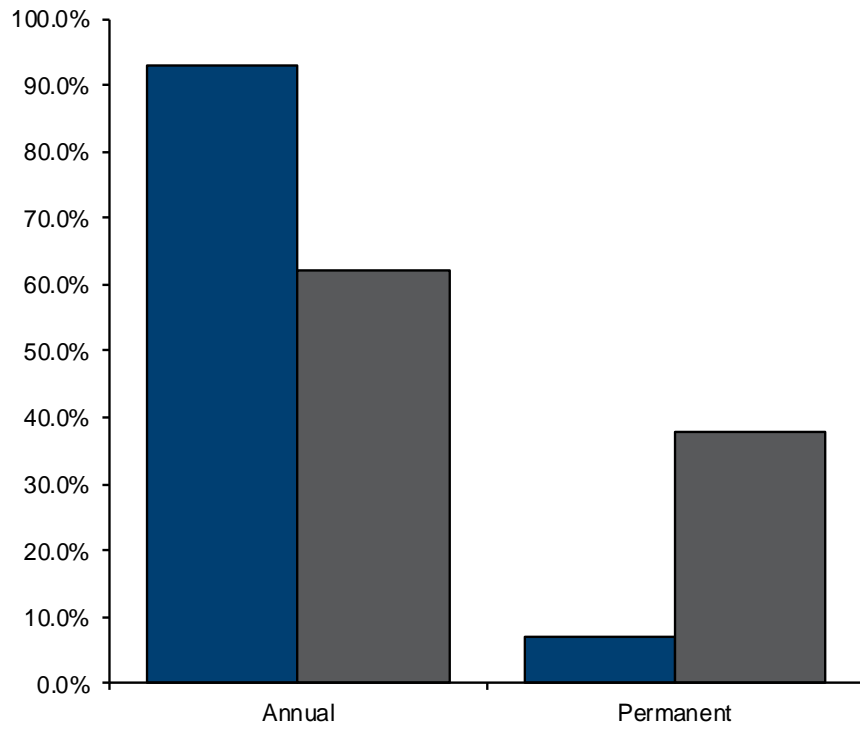
Portfolio Diversification - Timberland

**Geographic Type Diversification
(As of December 31, 2018)**



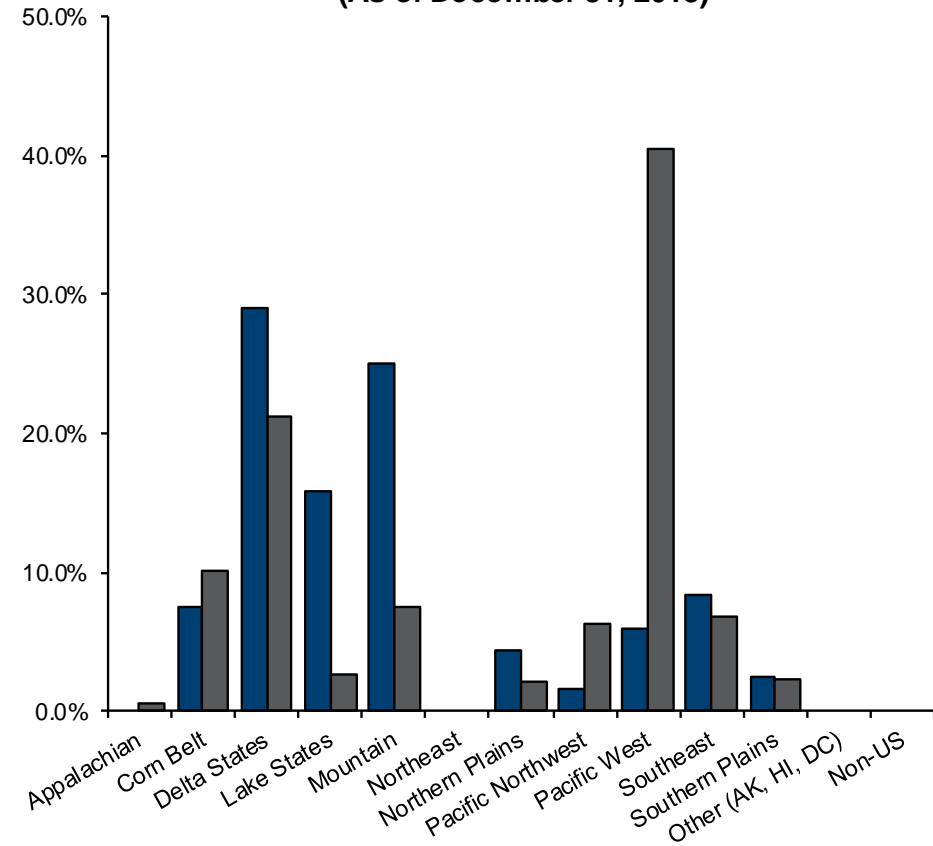
Portfolio Diversification - Agriculture

Crop Type Diversification
(As of December 31, 2018)



■ ATRS Total Farmland Portfolio ■ NCREIF Farmland Index

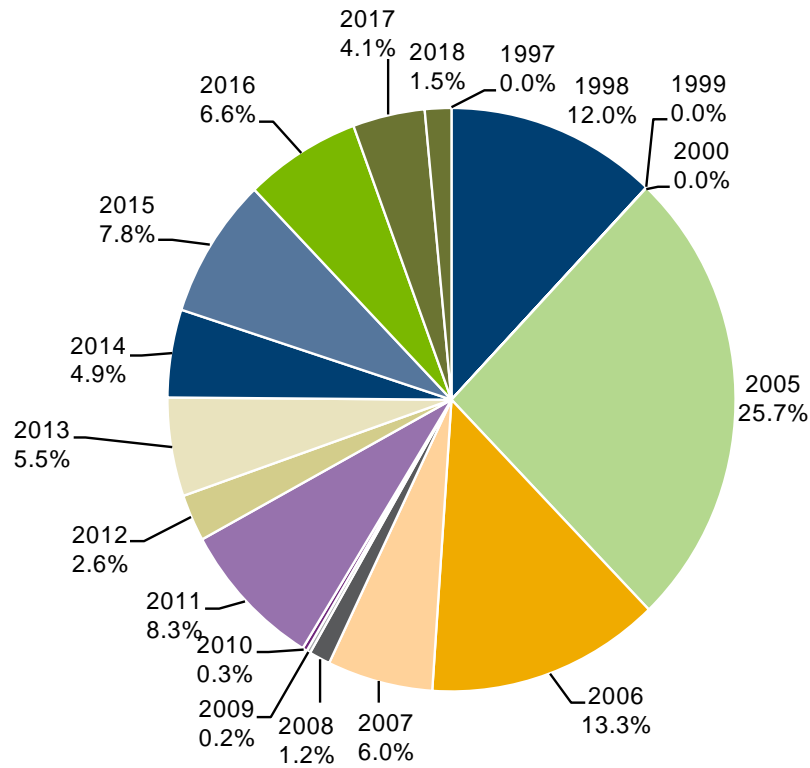
Geographic Type Diversification
(As of December 31, 2018)



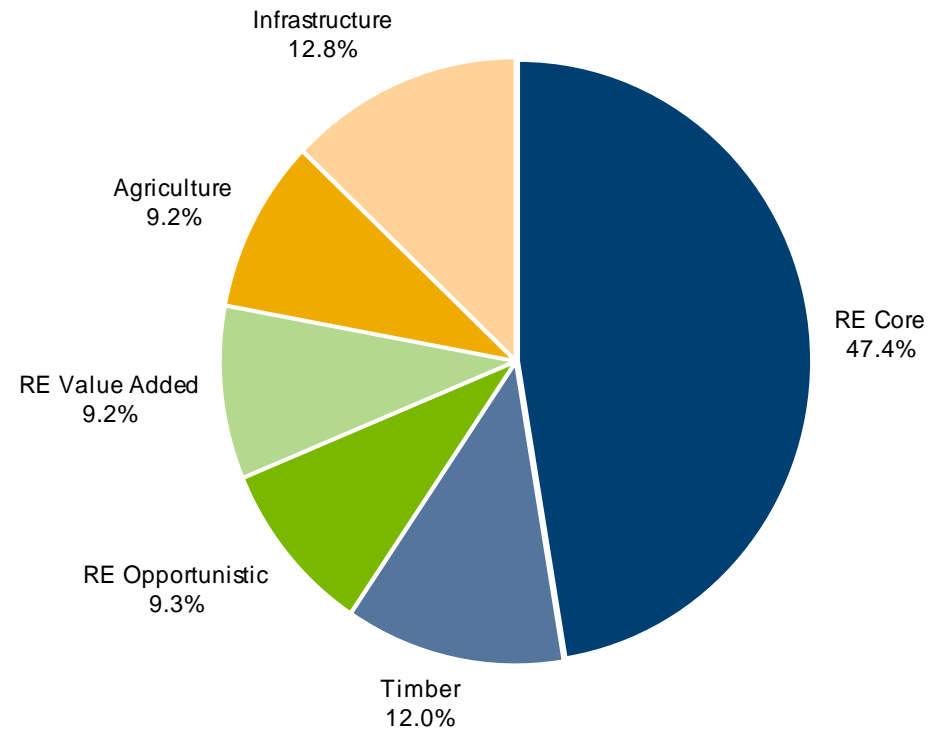
■ ATRS Total Farmland Portfolio ■ NCREIF Farmland Index

Portfolio Diversification (cont'd)

**Vintage Year Diversification by Net Asset Value
(As of 12/31/2018)**



**Style Diversification by Net Asset Value
(As of 12/31/2018)**

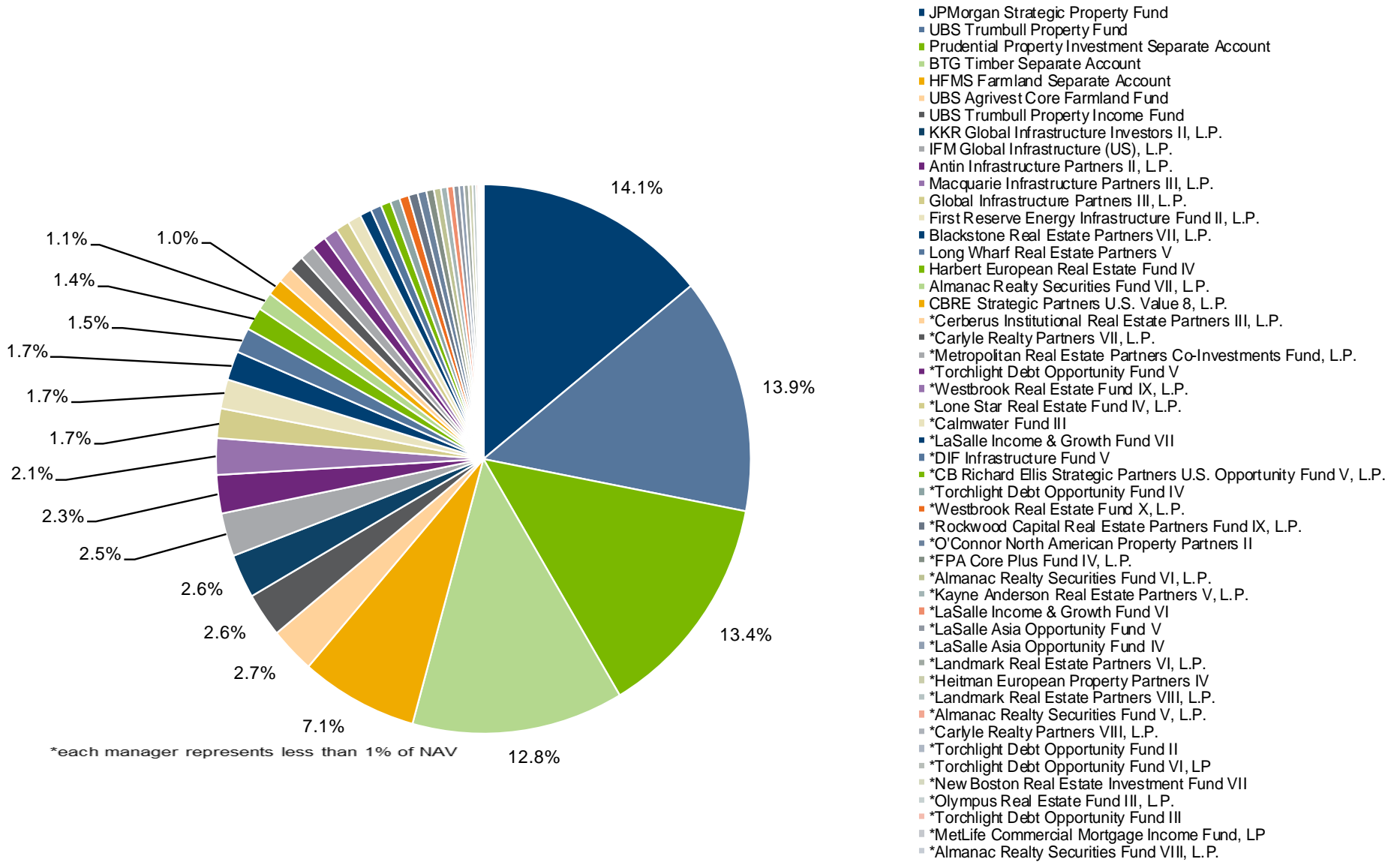


Note: Arkansas Investments are included in Core portfolio

Portfolio Funding Summary

Partnership Name	Funded Commitment (\$)	Unfunded Commitment (\$)	Total Commitment (\$)
Almanac Realty Securities Fund V, L.P.	50,000,000	0	50,000,000
Almanac Realty Securities Fund VI, L.P.	30,000,000	0	30,000,000
Almanac Realty Securities Fund VII, L.P.	18,923,066	11,076,934	30,000,000
Almanac Realty Securities Fund VIII, L.P.	75,471	29,924,529	30,000,000
Antin Infrastructure Partners II, L.P.	42,028,248	5,619,352	47,647,600
Blackstone Real Estate Partners VII, L.P.	42,657,881	7,342,119	50,000,000
BTG Timber Separate Account	291,108,067	24,891,933	316,000,000
Calmwater Fund III	15,972,078	14,027,922	30,000,000
Carlyle Realty Partners VII, L.P.	13,914,440	16,085,560	30,000,000
Carlyle Realty Partners VIII, L.P.	2,653,134	22,346,866	25,000,000
CB Richard Ellis Strategic Partners U.S. Opportunity Fund V, L.P.	48,325,717	1,674,283	50,000,000
CBRE Strategic Partners U.S. Value 8, L.P.	18,347,251	6,652,749	25,000,000
Cerberus Institutional Real Estate Partners III, L.P.	22,692,605	7,307,395	30,000,000
DIF Infrastructure Fund V	15,353,989	32,412,341	47,766,330
First Reserve Energy Infrastructure Fund II, L.P.	38,094,449	11,905,551	50,000,000
FPA Core Plus Fund IV, L.P.	9,600,000	20,400,000	30,000,000
Global Infrastructure Partners III, L.P.	32,873,695	17,126,305	50,000,000
Harbert European Real Estate Fund IV	23,265,056	1,744,909	25,009,965
Heitman European Property Partners IV	47,681,550	2,318,450	50,000,000
HFMS Farmland Separate Account	108,322,093	16,677,907	125,000,000
JPMorgan Strategic Property Fund	170,000,000	0	170,000,000
Kayne Anderson Real Estate Partners V, L.P.	8,750,000	16,250,000	25,000,000
IFM Global Infrastructure (US), L.P.	50,000,000	0	50,000,000
KKR Global Infrastructure Investors II, L.P.	44,166,666	5,833,334	50,000,000
Landmark Real Estate Partners VI, L.P.	35,090,608	4,909,392	40,000,000
Landmark Real Estate Partners VIII, L.P.	3,122,340	21,877,660	25,000,000
LaSalle Asia Opportunity Fund IV	18,919,702	11,080,298	30,000,000
LaSalle Asia Opportunity Fund V	7,023,597	22,976,403	30,000,000
LaSalle Income & Growth Fund VI	19,047,619	952,381	20,000,000
LaSalle Income & Growth Fund VII	11,786,892	8,213,108	20,000,000
Lone Star Real Estate Fund IV, L.P.	19,056,195	5,204,622	24,260,817
Long Wharf Real Estate Partners V	30,000,000	0	30,000,000
Macquarie Infrastructure Partners III, L.P.	43,755,076	6,244,924	50,000,000
MetLife Commercial Mortgage Income Fund, L.P.	0	50,000,000	50,000,000
Metropolitan Real Estate Partners Co-Investments Fund, L.P.	17,821,110	2,178,890	20,000,000
New Boston Real Estate Investment Fund VII	10,000,000	0	10,000,000
O'Connor North American Property Partners II	45,000,000	5,000,000	50,000,000
Olympus Real Estate Fund III, L.P.	100,000,000	0	100,000,000
Prudential Property Investment Separate Account	170,000,000	0	170,000,000
Rockwood Capital Real Estate Partners Fund IX, L.P.	25,918,536	4,081,464	30,000,000
Torchlight Debt Opportunity Fund II	55,000,000	0	55,000,000
Torchlight Debt Opportunity Fund III	30,000,000	0	30,000,000
Torchlight Debt Opportunity Fund IV	30,000,000	0	30,000,000
Torchlight Debt Opportunity Fund V	15,000,000	10,000,000	25,000,000
Torchlight Debt Opportunity Fund VI, LP	1,434,224	23,565,776	25,000,000
UBS Agrivest Core Farmland Fund	50,000,000	0	50,000,000
UBS Trumbull Property Fund	170,000,000	0	170,000,000
UBS Trumbull Property Income Fund	50,000,000	0	50,000,000
Westbrook Real Estate Fund IX, L.P.	36,396,512	3,603,488	40,000,000
Westbrook Real Estate Fund X, L.P.	9,837,037	15,162,963	25,000,000
	2,149,014,904	466,669,808	2,615,684,712

Manager Diversification



Management Fees

A TRS Sub-Asset Class	A TRS Style	Partnership Name	Current Quarter Management Fees as of 12/31/2018	YTD Management Fees
Real Estate	Core	JPMorgan Strategic Property Fund	(609,650.56)	(2,394,297.85)
Real Estate	Core	MetLife Commercial Mortgage Income Fund, LP	0.00	0.00
Real Estate	Core	Prudential Property Investment Separate Account	(579,664.34)	(2,284,238.49)
Real Estate	Core	UBS Trumbull Property Fund	(477,315.60)	(1,943,806.62)
Real Estate	Core	UBS Trumbull Property Income Fund	(102,896.41)	(404,117.27)
Subtotal: Core			(1,769,526.91)	(7,026,460.23)
Real Estate	Opportunistic	Blackstone Real Estate Partners VII, L.P.	(94,803.00)	(407,377.00)
Real Estate	Opportunistic	Carlyle Realty Partners VII, L.P.	(82,527.00)	(343,030.00)
Real Estate	Opportunistic	Carlyle Realty Partners VIII, L.P.	(82,268.00)	(476,941.00)
Real Estate	Opportunistic	CB Richard Ellis Strategic Partners U.S. Opportunity Fund V, L.P.	(31,250.00)	(133,590.00)
Real Estate	Opportunistic	Cerberus Institutional Real Estate Partners III, L.P.	(26,979.00)	(128,493.00)
Real Estate	Opportunistic	Heitman European Property Partners IV	(34,304.99)	(204,938.71)
Real Estate	Opportunistic	Kayne Anderson Real Estate Partners V, L.P.	(109,375.00)	(682,620.00)
Real Estate	Opportunistic	Landmark Real Estate Partners VI, L.P.	(17,745.00)	(78,362.00)
Real Estate	Opportunistic	Landmark Real Estate Partners VIII, L.P.	(62,500.00)	(250,000.00)
Real Estate	Opportunistic	LaSalle Asia Opportunity Fund IV	(23,971.00)	(146,604.00)
Real Estate	Opportunistic	LaSalle Asia Opportunity Fund V	(76,657.00)	(280,936.00)
Real Estate	Opportunistic	Lone Star Real Estate Fund IV, L.P.	(13,737.00)	(59,094.00)
Real Estate	Opportunistic	Metropolitan Real Estate Partners Co-Investments Fund, L.P.	(41,501.61)	(178,561.56)
Real Estate	Opportunistic	O'Connor North American Property Partners II	(17,826.00)	(78,485.00)
Real Estate	Opportunistic	Olympus Real Estate Fund III, L.P.	0.00	0.00
Real Estate	Opportunistic	Torchlight Debt Opportunity Fund II	0.00	(14,277.00)
Real Estate	Opportunistic	Torchlight Debt Opportunity Fund III	0.00	(7,039.00)
Real Estate	Opportunistic	Torchlight Debt Opportunity Fund IV	(30,670.00)	(164,777.00)
Real Estate	Opportunistic	Torchlight Debt Opportunity Fund V	(75,000.00)	(300,000.00)
Real Estate	Opportunistic	Torchlight Debt Opportunity Fund VI, LP	(79,688.00)	(362,740.00)
Subtotal: Opportunistic			(900,802.60)	(4,297,865.27)
Real Estate	Value Added	AImanac Realty Securities Fund V, L.P.	(10,761.00)	(50,277.00)
Real Estate	Value Added	AImanac Realty Securities Fund VI, L.P.	(15,667.00)	(71,581.00)
Real Estate	Value Added	AImanac Realty Securities Fund VII, L.P.	(56,985.00)	(278,735.00)
Real Estate	Value Added	AImanac Realty Securities Fund VIII, L.P.	(94,521.00)	(97,603.00)
Real Estate	Value Added	Calmwater Fund III	(64,525.76)	(257,285.32)
Real Estate	Value Added	CBRE Strategic Partners U.S. Value 8, L.P.	(39,909.00)	(171,648.95)
Real Estate	Value Added	FPA Core Plus Fund IV, L.P.	(21,602.00)	(30,168.00)
Real Estate	Value Added	Harbert European Real Estate Fund IV	(81,022.91)	(376,690.57)
Real Estate	Value Added	LaSalle Income & Growth Fund VI	(23,422.99)	(97,630.34)
Real Estate	Value Added	LaSalle Income & Growth Fund VII	(43,132.45)	(157,063.83)
Real Estate	Value Added	Long Wharf Real Estate Partners V	(113,424.66)	(450,000.01)
Real Estate	Value Added	New Boston Real Estate Investment Fund VII	(5,837.00)	(24,192.00)
Real Estate	Value Added	Rockwood Capital Real Estate Partners Fund IX, L.P.	(87,200.15)	(378,285.35)
Real Estate	Value Added	Westbrook Real Estate Fund IX, L.P.	(56,625.00)	(260,685.00)
Real Estate	Value Added	Westbrook Real Estate Fund X, L.P.	(41,691.00)	(380,951.00)
Subtotal: Value Added			(756,326.92)	(3,082,796.37)
Subtotal: Real Estate			(3,426,656.43)	(14,407,121.87)

Management Fees

A TRS Sub-Asset Class	A TRS Style	Partnership Name	Current Quarter Management Fees as of 12/31/2018	YTD Management Fees
Agriculture		HFMS Farmland Separate Account	(425,702.70)	(1,561,348.62)
Agriculture		UBS Agrivest Core Farmland Fund	(135,162.42)	(538,284.19)
Subtotal:			(560,865.12)	(2,099,632.81)
Subtotal: Agriculture			(560,865.12)	(2,099,632.81)
Infrastructure		Antin Infrastructure Partners II, L.P.	(80,535.81)	(328,772.36)
Infrastructure		DIF Infrastructure Fund V	0.00	(510,553.50)
Infrastructure		First Reserve Energy Infrastructure Fund II, L.P.	(134,617.00)	(469,867.00)
Infrastructure		Global Infrastructure Partners III, L.P.	(213,190.00)	(676,838.00)
Infrastructure		IFM Global Infrastructure (US), L.P.	(97,862.97)	(97,862.97)
Infrastructure		KKR Global Infrastructure Investors II, L.P.	(302,674.00)	(668,843.00)
Infrastructure		Macquarie Infrastructure Partners III, L.P.	(120,811.84)	(512,257.07)
Subtotal:			(949,691.62)	(3,264,993.90)
Subtotal: Infrastructure			(949,691.62)	(3,264,993.90)
Timber		BTG Timber Separate Account	(562,250.05)	(2,304,482.67)
Subtotal:			(562,250.05)	(2,304,482.67)
Subtotal: Timber			(562,250.05)	(2,304,482.67)

Agenda

Section 1	Executive Summary
Section 2	Market Overview
Section 3	Real Assets Portfolio Update
Section 4	Glossary

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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
- 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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There can be no assurance that any account will achieve results comparable to those presented. Past performance is not indicative of future results.

Arkansas Teacher Retirement System Private Equity Portfolio Review

December 31, 2018

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Executive Summary

Portfolio Summary

Since establishing the private equity program in 1996, Arkansas Teacher Retirement System (“ATRS”) has committed approximately \$4.6 billion to 74 primary funds, 21 fund-of-funds, 1 co-investment fund, and 13 direct investments through December 31, 2018. Of the \$4.6 billion committed, 85% has been contributed, 103% of contributed capital has been returned, and a total value of 1.6 times contributed capital has been generated. ATRS’ portfolio has outperformed the Dow Jones U.S. Total Stock Market Index equivalent (“PME”) by 430 basis points since inception.

Investment Activity

For the twelve months ended December 31, 2018, ATRS made capital contributions of approximately \$302.6 million and received distributions of \$463.8 million, for net distributions of \$161.2 million.

Commitment Activity

Since January 1, 2018, ATRS closed on commitments totaling \$285.0 million to the following ten funds:

- Clearlake V (\$30.0 million)
- FP International 2018 (\$25.0 million)
- FP Venture 2018 (\$25.0 million)
- WNG II (\$30.0 million)
- Riverside VI (\$30.0 million)
- SK Capital V (\$30.0 million)
- Thoma Bravo XIII (\$30.0 million)
- FP International 2019 (\$30.0 million)
- American Industrial VII (\$30.0 million)
- Arlington V (\$25.0 million)

Further, in 2018 ATRS closed on an additional \$17.2 million direct investment in Big River Steel, and an additional \$55.0 million commitment to ATRS/FP Private Equity as part of the 2018 private equity allocation. Additionally, a \$20.0 million commitment was

made to GTLA Holdings, and a contingent note was closed with Highland. ATRS also approved \$30.0 million commitments to DW Healthcare V and the FP VC Access Fund, as well as an additional \$30.0 million commitment to ATRS/FP Private Equity as part of the 2019 private equity allocation.

Market Commentary

U.S. Private Equity: Investment activity has remained relatively steady in terms of deal count, though Q4 saw a spike in activity to close the year. U.S. LBO pricing and leverage levels remain at or near post-crisis peak levels. U.S. Buyout fundraising in 2018 was down 30% year-over-year, driven primarily by less Mega Fund (>\$5 billion) activity.

U.S. Venture Capital: The fundraising market reached new highs during 2018 with the \$55 billion in capital raised, topping the post-crisis high by more than 34%. While investment activity has generally slowed in recent years, Angel/Seed activity has declined significantly since 2015 compared to relatively stable deal flow in the early and late stage markets. Valuations have inflated across the U.S. venture ecosystem. Since 2012, pre-money valuation levels have increased 2-3x or more at every stage.

Franklin Park

May 21, 2019

Portfolio Overview

Portfolio Summary



Group	Num.	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	Remaining Value (%)	Exposure (\$)	DPI	TVPI	Net IRR
By Vehicle											
1996-2000: Legacy Portfolio	13	1,106,390,461	1,070,676,238	0	1,639,739,921	450,427	0.0%	450,427	1.5 x	1.5 x	9.2%
2005-2006: CSFB Portfolio	2	654,300,000	685,367,256	69,480,025	888,554,392	175,381,197	8.4%	244,861,222	1.3 x	1.6 x	8.8%
Post 2006 Fund Portfolio	81	2,573,323,718	1,858,312,352	922,095,337	1,383,732,033	1,479,502,975	70.5%	2,401,598,312	0.7 x	1.5 x	15.2%
Big River Steel	8	199,880,449	199,940,356	0	80,303,700	381,197,088	18.2%	381,197,088	0.4 x	2.3 x	29.6%
Blue Oak Arkansas	1	18,000,000	19,740,000	0	4,717,993	0	0.0%	0	0.2 x	0.2 x	-50.5%
Highland LLC	3	51,000,000	53,250,000	2,750,000	30,106,250	40,679,807	1.9%	43,429,807	0.6 x	1.3 x	18.8%
GTLA Holdings	1	20,000,000	20,000,000	0	0	20,000,000	1.0%	20,000,000	0.0 x	1.0 x	0.0%
Total	109	4,622,894,628	3,907,286,203	994,325,362	4,027,154,288	2,097,211,494	100.0%	3,091,536,856	1.0 x	1.6 x	10.8%
By Fund Type											
Co-Investment Fund	1	263,823,718	189,733,356	127,818,749	76,911,658	186,979,898	8.9%	314,798,647	0.4 x	1.4 x	14.5%
Fund-of-Funds	21	1,124,300,000	965,980,298	253,113,624	1,012,906,676	549,102,122	26.2%	802,215,746	1.0 x	1.6 x	10.3%
Operating Company	13	288,880,449	292,930,356	2,750,000	115,127,942	441,876,895	21.1%	444,626,895	0.4 x	1.9 x	25.3%
Primary Fund	74	2,945,890,461	2,458,642,192	610,642,989	2,822,208,012	919,252,579	43.8%	1,529,895,568	1.1 x	1.5 x	10.4%
Total	109	4,622,894,628	3,907,286,203	994,325,362	4,027,154,288	2,097,211,494	100.0%	3,091,536,856	1.0 x	1.6 x	10.8%

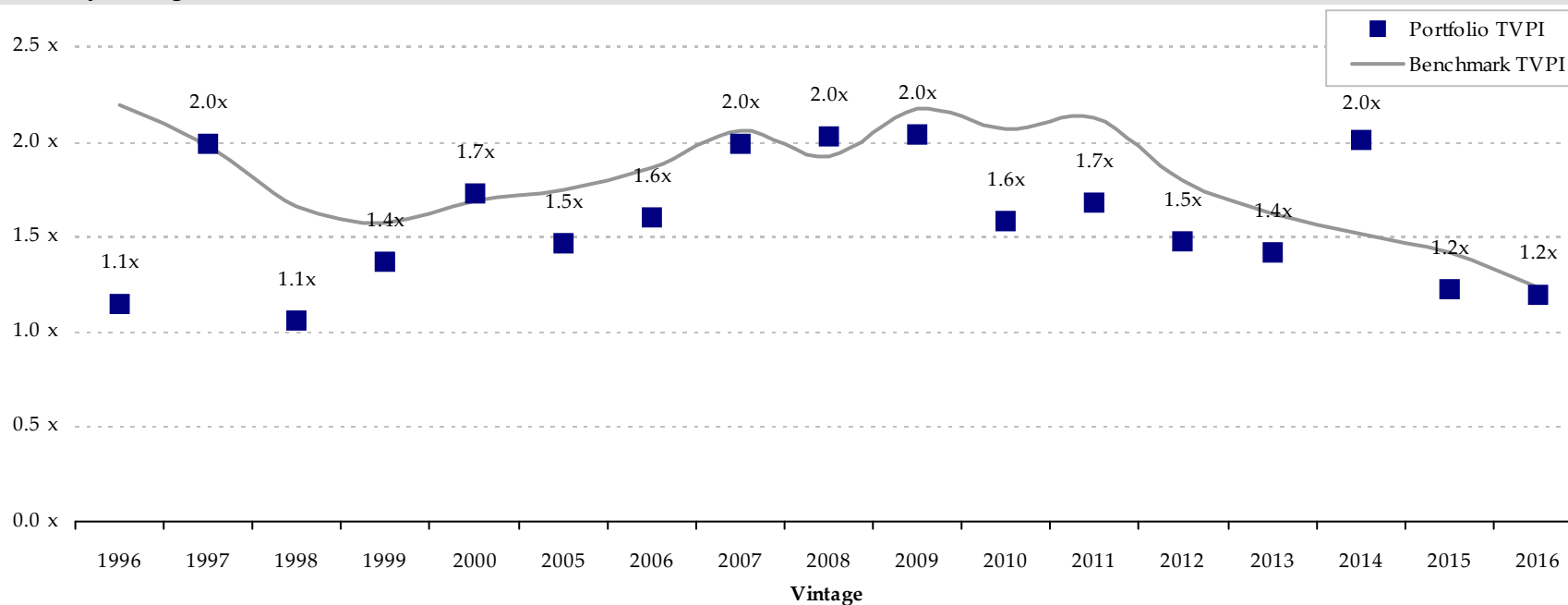
Portfolio Summary



Group	Num.	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	Remaining Value (%)	Exposure (\$)	DPI	TVPI	Net IRR
By Strategy											
Buyout	50	2,067,390,461	1,698,648,077	467,571,664	2,134,849,382	607,576,429	29.0%	1,075,148,093	1.3 x	1.6 x	11.0%
Distressed Debt	3	100,000,000	93,881,464	20,052,609	72,691,833	53,218,351	2.5%	73,270,960	0.8 x	1.3 x	7.2%
Growth Equity	2	90,000,000	87,804,590	5,057,033	135,178,897	51,254,956	2.4%	56,311,989	1.5 x	2.1 x	18.1%
Hard Assets	13	378,500,000	332,609,379	72,303,912	194,270,238	197,612,856	9.4%	269,916,768	0.6 x	1.2 x	7.1%
Infrastructure	8	212,880,449	214,676,670	0	76,796,402	381,197,088	18.2%	381,197,088	0.4 x	2.1 x	26.2%
Mezzanine	6	250,000,000	173,117,705	19,477,791	199,825,686	26,332,481	1.3%	45,810,272	1.2 x	1.3 x	10.1%
Multi-Strategy	6	974,123,718	942,088,646	197,781,774	992,249,856	368,949,730	17.6%	566,731,504	1.1 x	1.4 x	7.5%
Special Assets	1	30,000,000	0	30,000,000	0	0	0.0%	30,000,000	N/A	N/A	N/A
Structured Capital	3	85,000,000	55,785,572	38,724,629	14,624,070	48,377,729	2.3%	87,102,358	0.3 x	1.1 x	7.9%
Turnaround	6	160,000,000	119,709,141	63,926,335	105,305,868	83,658,700	4.0%	147,585,035	0.9 x	1.6 x	16.5%
Venture Capital	11	275,000,000	188,964,958	79,429,615	101,362,057	279,033,174	13.3%	358,462,789	0.5 x	2.0 x	19.8%
Total	109	4,622,894,628	3,907,286,203	994,325,362	4,027,154,288	2,097,211,494	100.0%	3,091,536,856	1.0 x	1.6 x	10.8%
By Sub-Asset Class											
Corporate Finance	85	4,059,014,179	3,425,390,889	912,145,747	3,810,664,289	1,376,301,425	65.6%	2,288,447,172	1.1 x	1.5 x	10.2%
Direct Investments	13	288,880,449	292,930,356	2,750,000	115,127,942	441,876,895	21.1%	444,626,895	0.4 x	1.9 x	25.3%
Venture Capital	11	275,000,000	188,964,958	79,429,615	101,362,057	279,033,174	13.3%	358,462,789	0.5 x	2.0 x	19.8%
Total	109	4,622,894,628	3,907,286,203	994,325,362	4,027,154,288	2,097,211,494	100.0%	3,091,536,856	1.0 x	1.6 x	10.8%

- Remaining Value is defined as the investor's value as reported by the fund's manager.
- Exposure is defined as the sum of an 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

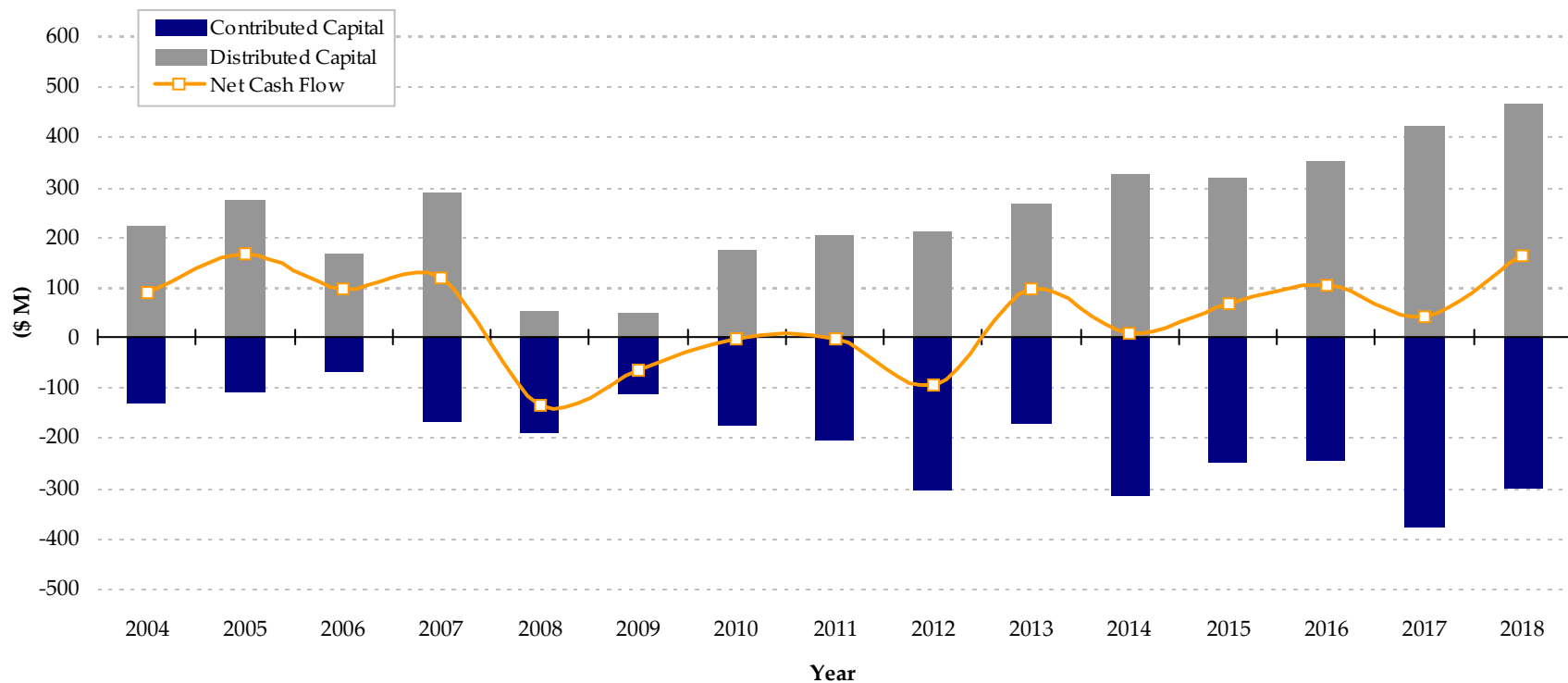


Net IRR vs. PME vs. Cambridge Associates: U.S. All Private Equity

Calculation Set	1-Year	3-Year	5-Year	10-Year	Inception
Aggregate Portfolio	23.6%	17.4%	14.3%	12.8%	10.8%
DJ US TSM TR Index* Public Market Equivalent (Aggregate Portfolio)	-4.6%	9.4%	8.1%	13.5%	6.5%
Cambridge Associates: U.S. All Private Equity	18.4%	13.1%	14.4%	12.1%	N/A
Post 2006 Fund Portfolio	17.4%	15.6%	14.2%	15.7%	15.2%
DJ US TSM TR Index* Public Market Equivalent (Post 2006 Fund Portfolio)	-4.8%	9.1%	7.9%	12.0%	11.0%

* 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 September 30, 2018. 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 September 30, 2018.
 - Benchmark data is not available (N/A).

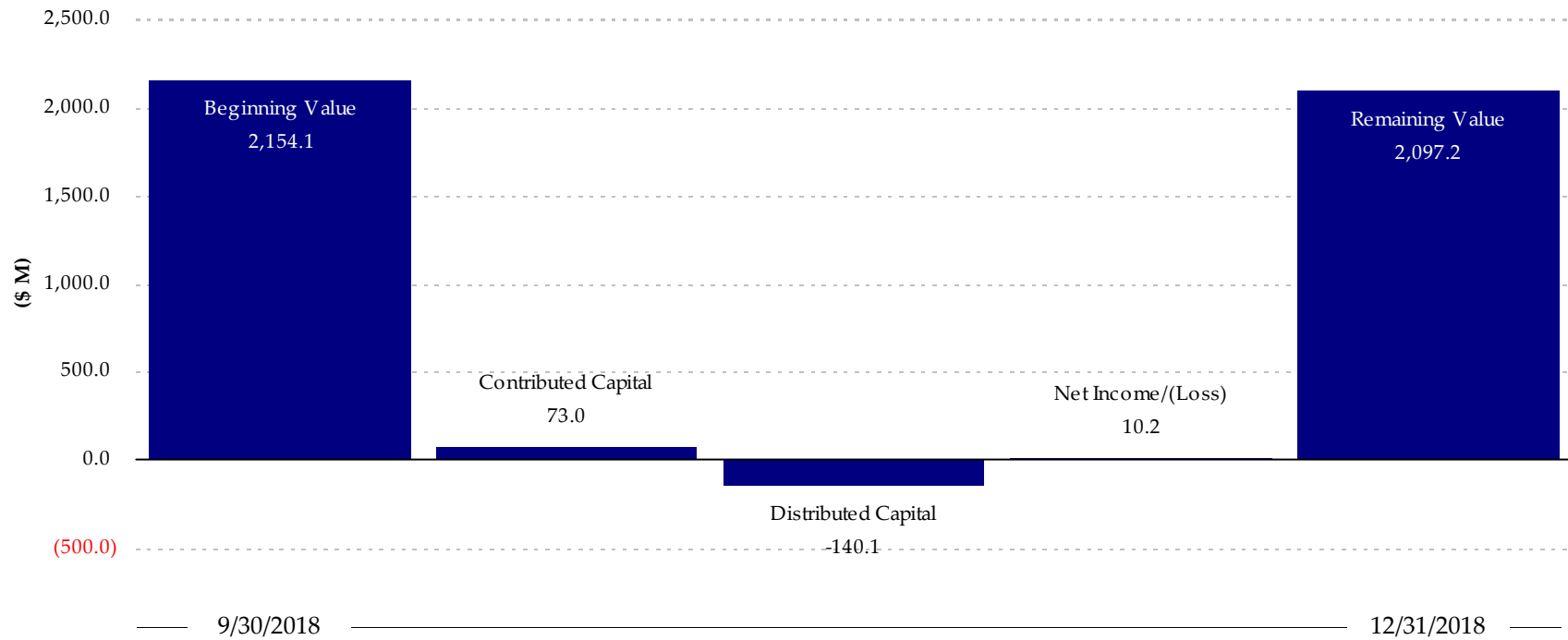


2018 (\$)		
Distributed	Contributed	Net Cash Flow
463,793,189	-302,593,274	161,199,916

▫ Cash flow data was compiled through the Report Date.

Capital Account Change Since Prior Quarter

Quarterly Portfolio Activity



Percent Change in Value	0.5%
-------------------------	------

- 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, 2018

Fund	Strategy	Date	Commitment (\$)
Clearlake V	Buyout	Jan 2018	30,000,000
FP Intl 2018	Buyout	Feb 2018	25,000,000
Big River - Holdings Note 2023	Infrastructure	Mar 2018	12,000,000
FP Venture 2018	Venture Capital	Mar 2018	25,000,000
WNG II	Special Assets	Jun 2018	30,000,000
Riverside VI	Buyout	Jul 2018	30,000,000
SK Capital V	Buyout	Jul 2018	30,000,000
Highland Contingent Note	Hard Assets	Jul 2018	0
GTLA Holdings	Hard Assets	Aug 2018	20,000,000
Big River - Holdings Note 2023-2	Infrastructure	Sep 2018	5,150,000
Thoma Bravo XIII	Buyout	Sep 2018	30,000,000
Total			237,150,000

Year to Date Commitments as of May 21, 2019

Fund	Strategy	Date	Commitment (\$)
FP Intl 2019	Buyout	Mar 2019	30,000,000
American Industrial VII	Buyout	Mar 2019	30,000,000
Arlington V	Buyout	May 2019	25,000,000
Total			85,000,000

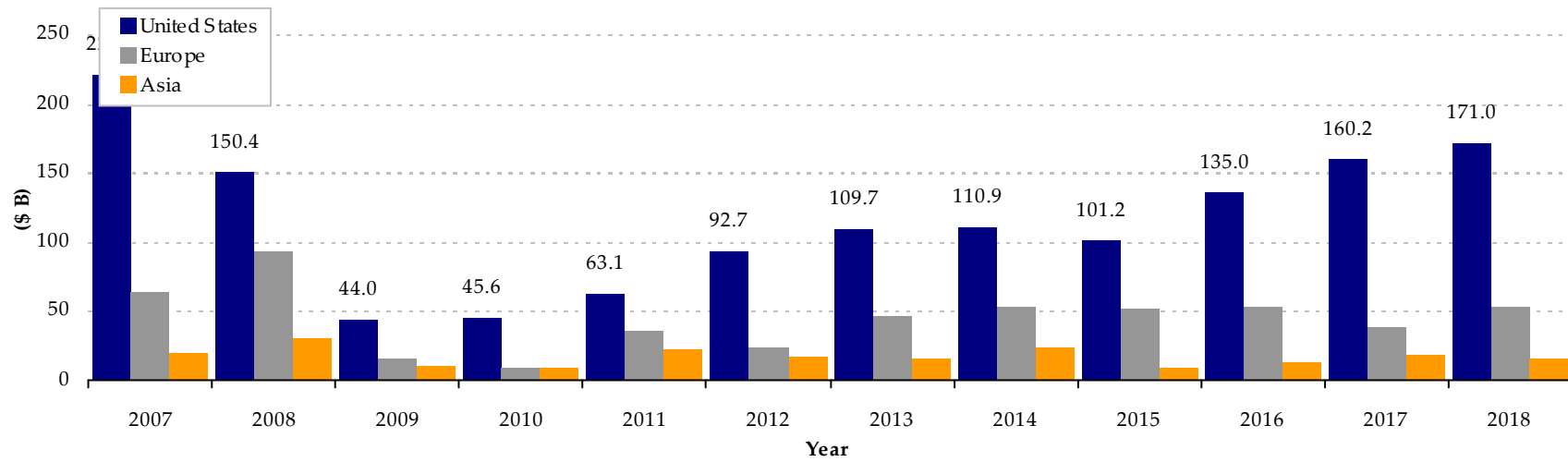
Approved and Pending Commitments as of May 21, 2019

Fund	Strategy	Date	Target Commitment (\$)
DW Healthcare V	Buyout	N/A	30,000,000
FP VC Access Fund	Venture Capital	N/A	30,000,000

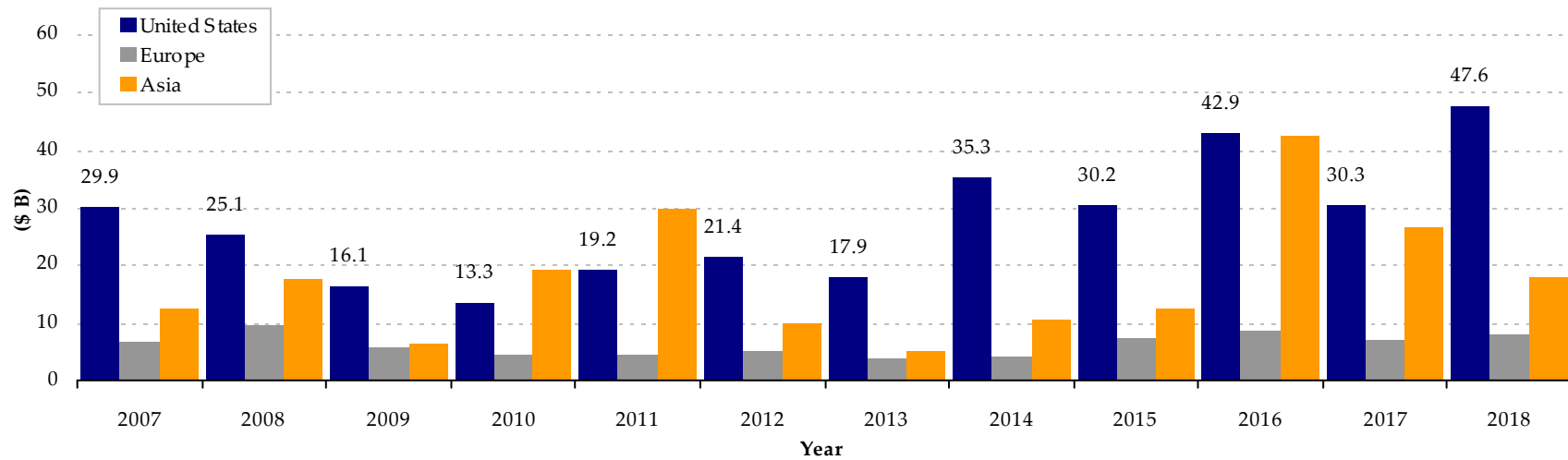
- Commitments made in a foreign currency have been converted into U.S. dollars using an exchange rate as of the Report Date, if applicable.
- ATRS committed an additional \$55.0 million to ATRS/FP Private Equity Fund as as part of the 2018 allocation. An additional \$30.0 million commitment to the Fund closed in March as part of the 2019 allocation, bringing the total capital commitments to \$293.8 million.

Market Update

Buyout Funds

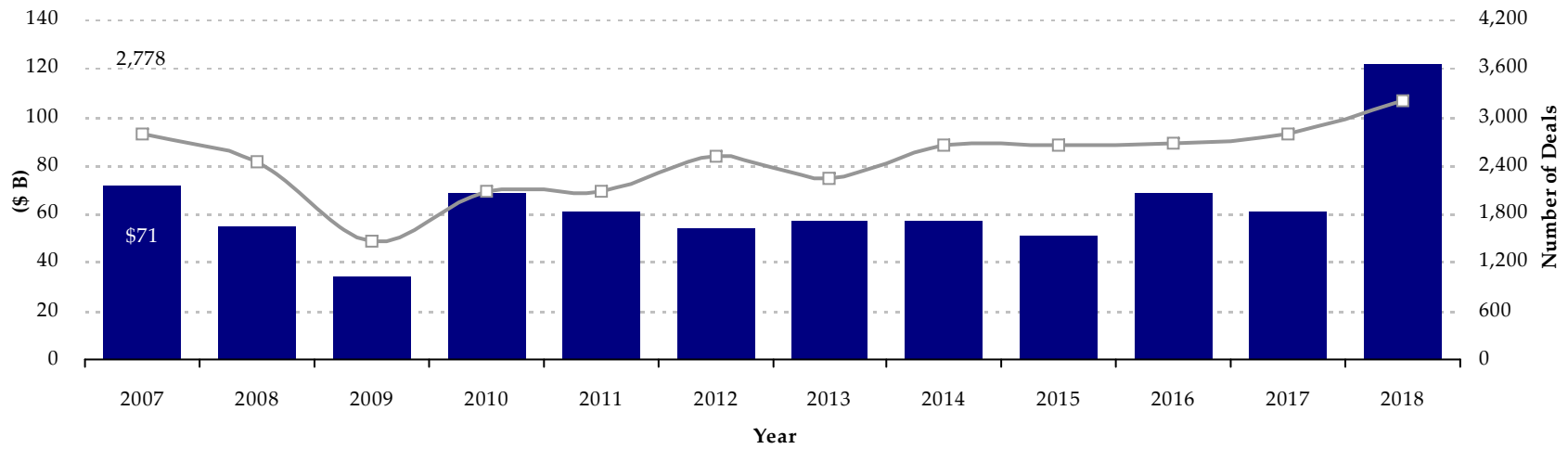


Venture Funds

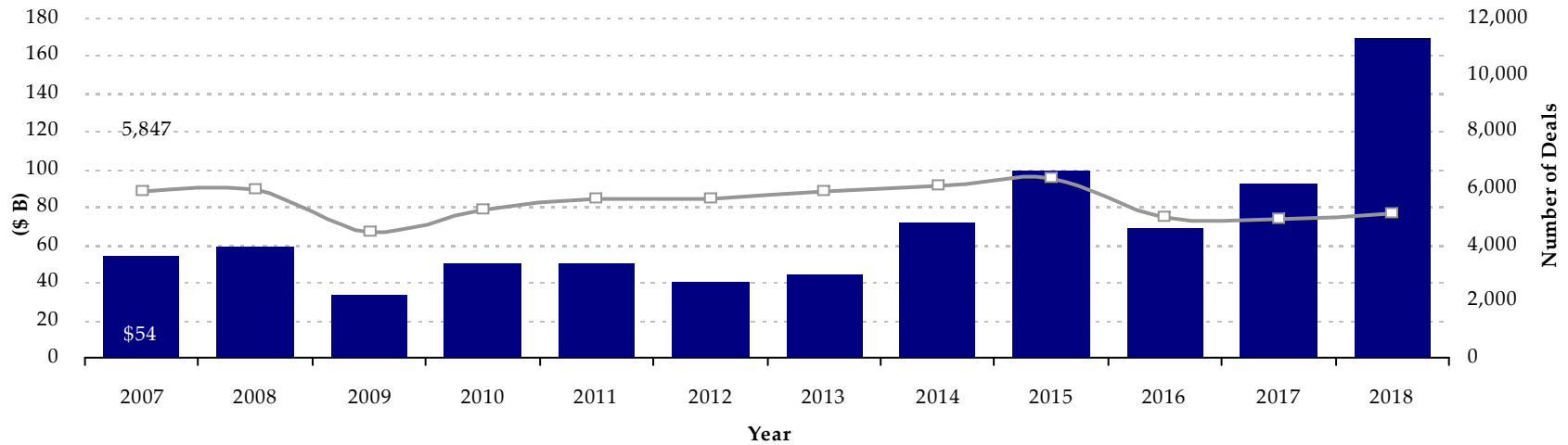


Source: Thomson One Private Equity.
Data compiled through 4Q 2018.

U.S. Buyout

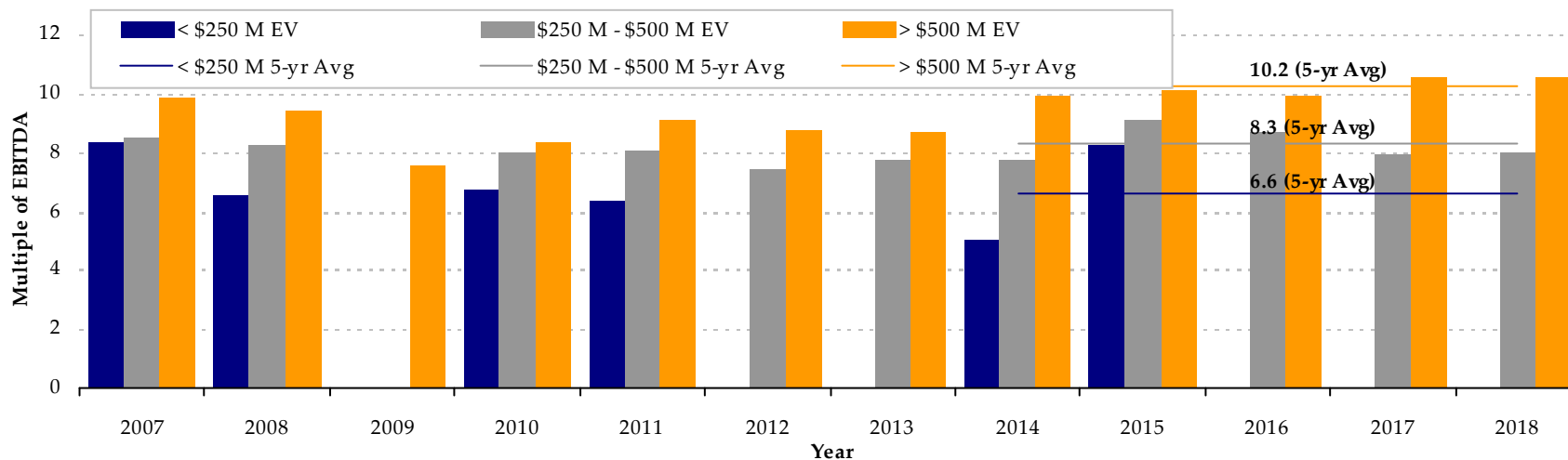


U.S. Venture

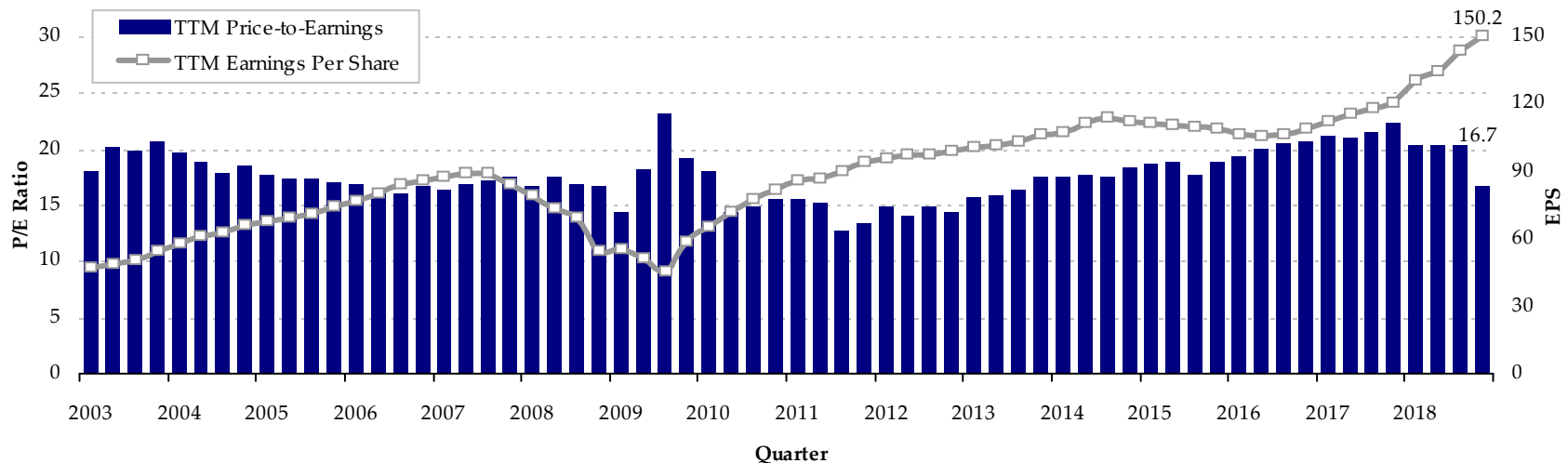


- Source: Thomson One Private Equity.
- Data compiled through 4Q 2018.

U.S. LBO Pricing Multiples

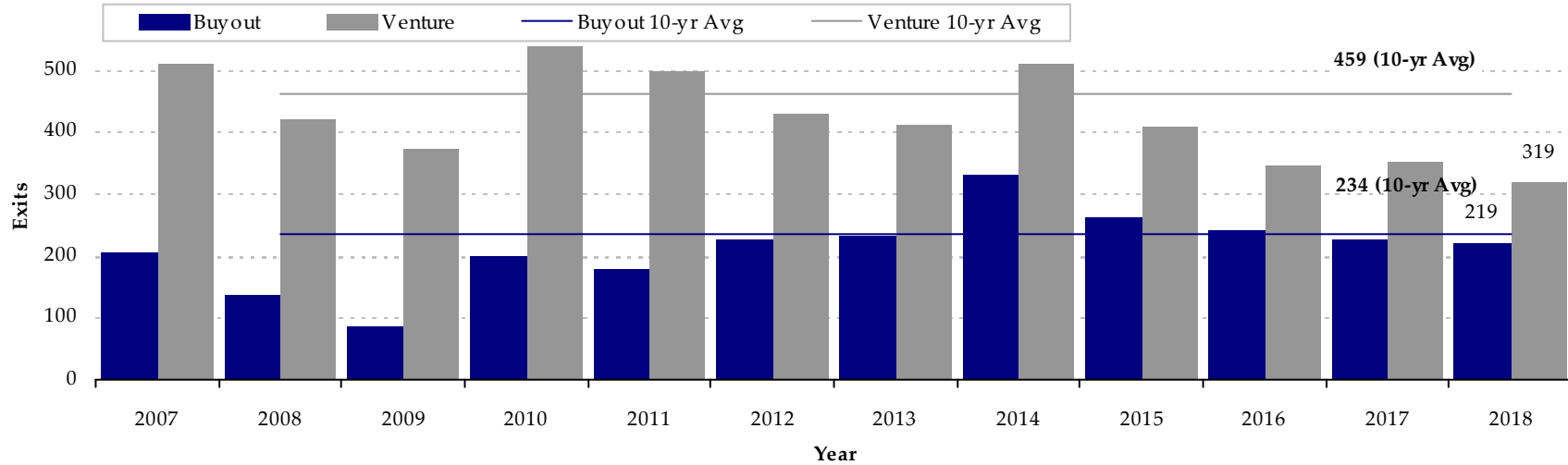


S&P 500 Valuation and Earnings

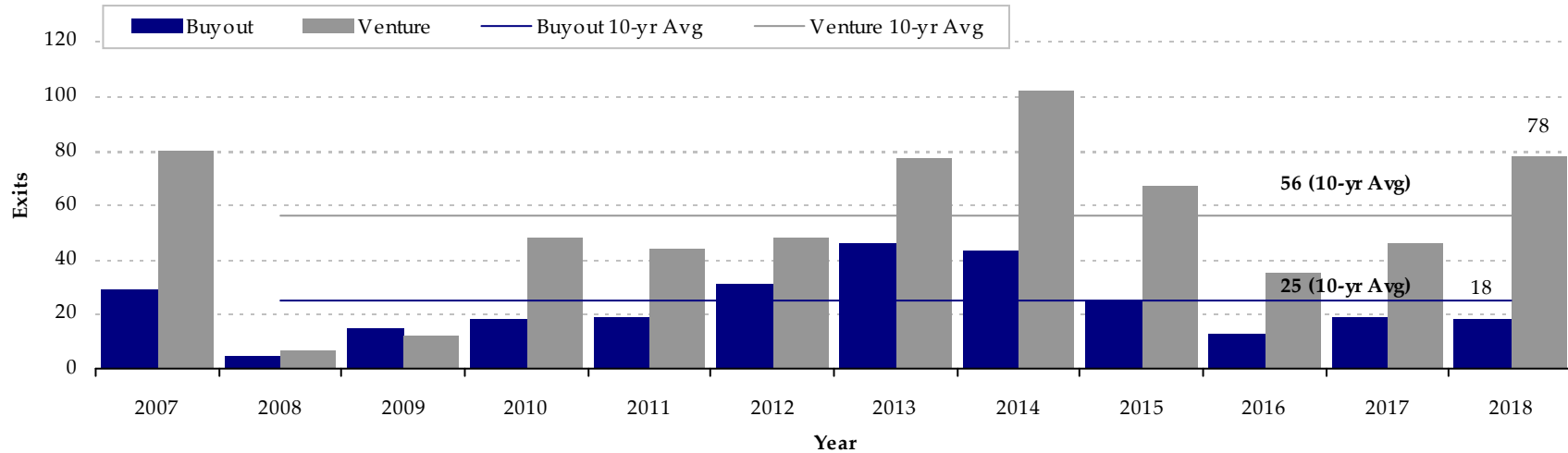


Source: Standard & Poor's Leveraged Commentary.

U.S. Mergers and Acquisitions



U.S. Initial Public Offerings



- Source: Thomson One Private Equity.
- Data compiled through 4Q 2018.

Vintage Returns

Group	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
U.S. All PE Median	9.9%	11.5%	15.6%	14.2%	15.4%	13.5%	13.1%	13.2%	13.0%	10.2%
U.S. All PE Top Quartile	14.0%	17.1%	22.4%	19.4%	21.3%	19.1%	18.4%	21.0%	20.2%	20.6%
U.S. Buyout Median	12.1%	13.7%	20.8%	16.9%	16.4%	16.5%	15.1%	16.6%	15.3%	8.7%
U.S. Buyout Top Quartile	16.0%	20.1%	26.5%	21.3%	22.9%	23.0%	20.1%	23.6%	24.2%	21.5%
U.S. Energy Median	7.9%	5.6%	10.3%	12.2%	5.8%	6.9%	8.8%	14.9%	16.6%	16.0%
U.S. Energy Top Quartile	14.7%	7.9%	18.0%	26.2%	9.6%	12.0%	23.2%	22.1%	27.0%	20.8%
U.S. Real Estate Median	6.0%	10.0%	15.4%	14.0%	16.8%	12.5%	12.8%	11.4%	11.1%	10.9%
U.S. Real Estate Top Quartile	8.6%	13.1%	19.9%	19.6%	21.5%	18.6%	15.9%	14.8%	15.3%	15.0%
U.S. Venture Median	10.5%	6.1%	13.4%	14.2%	15.9%	13.9%	13.0%	12.3%	14.8%	10.8%
U.S. Venture Top Quartile	17.5%	17.6%	21.3%	23.2%	23.9%	19.9%	21.3%	23.5%	22.6%	22.0%

◦ Source: Cambridge Associates.
 ◦ Data compiled through September 30, 2018.

Performance Analysis

Investment Performance by Strategy



Investment	Vintage	Fund Size	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
Buyout									
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	75,866,905	8,963,527	2.1 x	17.1%
Altaris Constellation	2017	\$165,000,000	20,000,000	16,225,389	4,766,723	991,694	18,402,295	1.2 x	NMF
Altaris IV	2018	\$1,085,000,000	24,000,000	5,048,912	18,951,088	0	5,925,344	1.2 x	NMF
Altus Capital II	2010	\$200,000,000	20,000,000	17,977,469	4,806,151	19,060,271	7,767,174	1.5 x	11.9%
American Industrial VI	2016	\$1,845,000,000	20,000,000	18,495,617	4,196,816	2,692,432	16,538,232	1.0 x	3.3%
Arlington IV	2016	\$700,000,000	23,000,000	12,951,377	10,048,623	0	15,275,451	1.2 x	16.7%
Boston Ventures VII	2006	\$434,507,010	50,000,000	43,016,769	8,258,947	43,590,045	18,023,641	1.4 x	6.3%
BV IX	2017	\$750,000,000	30,000,000	5,679,508	24,320,492	0	5,853,554	1.0 x	NMF
BV VIII	2012	\$486,800,000	30,000,000	26,447,466	3,833,720	26,560,909	25,221,511	2.0 x	62.9%
Clearlake V	2018	\$3,623,125,000	30,000,000	11,987,974	18,014,468	117,056	14,985,011	1.3 x	NMF
Court Square III	2012	\$3,173,449,997	40,000,000	39,798,125	5,068,476	18,149,920	37,002,965	1.4 x	17.7%
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	35,694,363	4,305,637	40,738,290	20,254,983	1.7 x	18.4%
DW Healthcare IV	2016	\$294,274,000	30,000,000	19,160,799	12,368,167	11,273,132	21,571,613	1.7 x	54.6%
FP Intl 2011	2011	\$45,000,000	25,000,000	21,946,200	3,302,237	12,069,593	18,318,416	1.4 x	8.4%
FP Intl 2012	2012	\$70,000,000	25,000,000	16,069,500	9,079,917	5,582,077	14,999,298	1.3 x	9.6%
FP Intl 2013	2013	\$97,000,000	20,000,000	11,815,260	8,294,720	422,502	14,482,399	1.3 x	8.6%
FP Intl 2014	2014	\$97,000,000	25,000,000	12,809,181	12,271,571	4,221,159	15,991,565	1.6 x	23.7%
FP Intl 2015	2015	\$113,000,000	25,000,000	11,615,100	13,445,978	439,802	12,171,212	1.1 x	6.2%
FP Intl 2016	2016	\$97,000,000	25,000,000	11,082,475	13,985,901	255,094	12,111,572	1.1 x	10.0%
FP Intl 2017	2017	\$98,000,000	25,000,000	4,974,490	20,090,698	0	5,537,409	1.1 x	NMF
FP Intl 2018	2018	\$65,500,000	25,000,000	1,335,878	23,732,962	0	1,075,880	0.8 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	43,327,958	670,088	36,058,155	29,470,133	1.5 x	12.7%
JF Lehman IV	2016	\$833,000,000	30,000,000	18,425,201	11,574,800	1,985,953	26,550,085	1.5 x	30.4%
Mason Wells III	2010	\$525,000,000	30,000,000	28,553,580	1,446,420	31,530,265	26,126,284	2.0 x	15.0%
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	9,203,158	20,796,842	0	8,654,942	0.9 x	NMF
Riverside IV	2009	\$406,091,370	40,000,000	31,433,665	10,099,013	71,757,551	4,796,458	2.4 x	21.8%
Riverside V	2013	\$561,224,490	35,000,000	31,890,468	4,903,949	17,364,328	25,164,913	1.3 x	9.4%
Riverside VI	2019	\$600,000,000	30,000,000	0	30,000,000	0	0	N/A	NMF

Investment Performance by Strategy



Investment	Vintage	Fund Size	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
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	25,634,216	8,429,750	15,776,129	12,989,086	1.1 x	8.8%
Siris IV	2019	\$3,452,454,000	30,000,000	0	30,000,000	0	-198,925	N/A	NMF
SK Capital V	2018	\$2,013,000,000	30,000,000	3,947,905	26,052,095	0	3,780,811	1.0 x	NMF
Thoma Bravo Discover	2016	\$1,074,000,000	10,000,000	11,350,409	1,767,370	4,168,807	11,479,986	1.4 x	25.3%
Thoma Bravo Discover II	2018	\$2,402,685,000	17,000,000	2,799,624	14,200,376	0	2,531,072	0.9 x	NMF
Thoma Bravo XI	2014	\$3,662,000,000	20,000,000	20,634,595	2,286,609	13,935,717	27,156,964	2.0 x	24.0%
Thoma Bravo XII	2016	\$7,603,860,000	30,000,000	27,482,266	3,436,942	921,362	29,341,006	1.1 x	7.6%
Thoma Bravo XIII	2019	\$12,575,745,000	30,000,000	0	30,000,000	0	-29,634	N/A	NMF
Vista Equity III	2007	\$1,287,129,725	50,000,000	54,150,087	3,794,138	122,989,153	12,460,613	2.5 x	28.9%
Vista Foundation II	2013	\$1,145,000,000	15,000,000	14,565,134	8,569,502	10,905,347	13,173,074	1.7 x	16.4%
Vista Foundation III	2016	\$2,950,561,226	30,000,000	14,968,831	15,068,884	4,739	15,450,765	1.0 x	2.6%
Wellspring V	2011	\$1,194,387,756	40,000,000	44,025,808	16,239,345	49,762,956	18,116,098	1.5 x	16.7%
Wicks IV	2011	\$414,000,000	40,000,000	41,715,427	5,092,249	36,714,154	30,089,646	1.6 x	18.5%
Total Buyout			2,067,390,461	1,698,648,077	467,571,664	2,134,849,382	607,576,429	1.6 x	11.0%
Distressed Debt									
Castlelake II	2011	\$996,762,000	35,000,000	32,656,036	2,625,461	27,004,696	17,590,069	1.4 x	7.0%
Castlelake III	2014	\$1,421,000,000	25,000,000	23,149,741	1,864,884	11,464,196	19,898,178	1.4 x	8.3%
Tennenbaum VI	2010	\$530,000,000	40,000,000	38,075,687	15,562,264	34,222,941	15,730,104	1.3 x	6.8%
Total Distressed Debt			100,000,000	93,881,464	20,052,609	72,691,833	53,218,351	1.3 x	7.2%
Growth Equity									
LLR III	2008	\$803,000,000	50,000,000	48,504,590	4,357,033	73,695,045	20,615,987	1.9 x	15.3%
TA XI	2010	\$4,000,100,000	40,000,000	39,300,000	700,000	61,483,852	30,638,969	2.3 x	22.8%
Total Growth Equity			90,000,000	87,804,590	5,057,033	135,178,897	51,254,956	2.1 x	18.1%

Investment Performance by Strategy



Investment	Vintage	Fund Size	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
Hard Assets									
EnCap IX	2013	\$5,154,639,175	25,000,000	27,735,347	1,722,263	19,381,205	17,314,148	1.3 x	13.2%
EnCap VIII	2010	\$3,608,247,422	47,500,000	52,059,909	2,281,089	30,296,066	15,496,890	0.9 x	-4.4%
EnCap X	2015	\$6,701,030,928	30,000,000	24,475,007	7,399,968	4,730,364	25,144,395	1.2 x	13.7%
EnCap XI	2017	\$6,961,190,722	35,000,000	3,752,471	31,247,529	0	2,886,672	0.8 x	NMF
GTLA Holdings	2018	\$20,000,000	20,000,000	20,000,000	0	0	20,000,000	1.0 x	NMF
Highland Contingent Note	2018	\$150,000,000	0	0	0	15,000,000	0	N/A	NMF
Highland Equity	2016	\$25,000,000	25,000,000	25,000,000	0	106,250	25,054,571	1.0 x	0.3%
Highland Note	2017	\$26,000,000	26,000,000	28,250,000	2,750,000	15,000,000	15,625,236	1.1 x	NMF
Lime Rock Resources III	2014	\$762,000,000	25,000,000	25,393,445	503,175	4,024,422	21,587,926	1.0 x	0.2%
NGP IX	2007	\$4,000,000,000	50,000,000	54,032,339	384,617	75,990,653	1,193,502	1.4 x	10.8%
NGP X	2012	\$3,586,000,000	35,000,000	35,066,759	1,626,971	24,580,797	14,411,040	1.1 x	3.5%
NGP XI	2014	\$5,325,000,000	30,000,000	27,087,387	4,145,014	5,125,737	29,174,348	1.3 x	14.8%
NGP XII	2017	\$4,304,081,633	30,000,000	9,756,714	20,243,286	34,744	9,724,128	1.0 x	NMF
Total Hard Assets			378,500,000	332,609,379	72,303,912	194,270,238	197,612,856	1.2 x	7.1%
Infrastructure									
Big River - Equity	2014	\$93,090,000	93,090,000	93,090,000	0	19,160,000	317,000,000	3.6 x	33.0%
Big River - Funding *	2017	\$3,750,000	3,750,000	3,750,000	0	3,812,795	0	1.0 x	NMF
Big River - Holdings Note *	2017	\$12,000,000	12,000,000	12,000,000	0	13,343,726	0	1.1 x	NMF
Big River - Holdings Note 2023	2018	\$12,000,000	12,000,000	12,000,000	0	0	12,529,698	1.0 x	NMF
Big River - Holdings Note 2023-2	2018	\$5,150,000	5,150,000	5,150,000	0	62,323	5,241,430	1.0 x	NMF
Big River - Preferred Equity	2017	\$41,980,449	41,980,449	41,980,449	0	0	46,425,960	1.1 x	NMF
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	4,717,993	0	0.2 x	-50.5%
Total Infrastructure			212,880,449	214,676,670	0	76,796,402	381,197,088	2.1 x	26.2%
Mezzanine									
Audax Mezzanine III	2011	\$1,002,250,000	25,000,000	23,167,746	6,825,000	24,452,945	5,100,372	1.3 x	9.0%
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	60,455,204	0	1.4 x	10.3%
Greyrock IV	2017	\$275,000,000	30,000,000	18,052,882	12,130,667	183,549	17,883,260	1.0 x	NMF
Insight Mezzanine I	2009	\$94,678,011	10,000,000	9,928,853	522,124	9,779,671	3,348,849	1.3 x	6.6%
Total Mezzanine			250,000,000	173,117,705	19,477,791	199,825,686	26,332,481	1.3 x	10.1%

Investment Performance by Strategy



Investment	Vintage	Fund Size	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
Multi-Strategy									
ATRS-FP PE	2012	\$265,576,988	263,823,718	189,733,356	127,818,749	76,911,658	186,979,898	1.4 x	14.5%
CSFB-ATRS 2005-1 Series	2005	\$252,525,253	250,000,000	279,602,567	8,170,232	351,814,745	57,879,958	1.5 x	7.1%
CSFB-ATRS 2006-1 Series	2006	\$406,331,658	404,300,000	405,764,690	61,309,793	536,739,647	117,501,239	1.6 x	10.2%
DH Tech I	2000	\$236,700,000	50,000,000	61,471,034	0	20,514,606	450,427	0.3 x	-23.2%
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	\$30,288,900	4,000,000	3,517,000	483,000	3,172,000	6,138,208	2.6 x	12.5%
Total Multi-Strategy			974,123,718	942,088,646	197,781,774	992,249,856	368,949,730	1.4 x	7.5%
Special Assets									
WNG II	2019	\$438,350,000	30,000,000	0	30,000,000	0	0	N/A	NMF
Total Special Assets			30,000,000	0	30,000,000	0	0	N/A	NMF
Structured Capital									
Bison V	2017	\$384,132,653	35,000,000	12,854,560	22,647,678	502,238	13,755,344	1.1 x	NMF
Levine Leichtman V	2013	\$1,644,081,633	20,000,000	24,198,651	3,076,026	12,321,057	18,979,064	1.3 x	11.4%
PineBridge Structured III	2016	\$600,000,000	30,000,000	18,732,361	13,000,925	1,800,775	15,643,321	0.9 x	-6.5%
Total Structured Capital			85,000,000	55,785,572	38,724,629	14,624,070	48,377,729	1.1 x	7.9%
Turnaround									
Atlas Capital II	2014	\$900,000,000	15,000,000	14,343,953	6,753,160	9,211,568	11,705,312	1.5 x	24.7%
Insight Equity II	2009	\$429,735,291	30,000,000	29,917,319	1,995,336	24,807,229	24,734,654	1.7 x	11.0%
KPS III Supplemental	2009	\$816,326,531	40,000,000	37,681,881	15,912,653	61,756,395	13,835,895	2.0 x	22.1%
KPS IV	2014	\$3,571,428,571	25,000,000	12,555,543	13,348,889	5,433,344	10,257,839	1.2 x	20.6%
Sycamore Partners II	2014	\$2,700,000,000	25,000,000	22,097,266	4,029,476	4,097,332	20,595,416	1.1 x	7.6%
Sycamore Partners III	2018	\$4,870,000,000	25,000,000	3,113,179	21,886,821	0	2,529,584	0.8 x	NMF
Total Turnaround			160,000,000	119,709,141	63,926,335	105,305,868	83,658,700	1.6 x	16.5%

Investment Performance by Strategy



Investment	Vintage	Fund Size	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
Venture Capital									
FP Venture 2008	2008	\$102,000,000	30,000,000	29,704,100	432,835	31,510,858	29,350,105	2.0 x	15.3%
FP Venture 2009	2009	\$58,000,000	25,000,000	23,834,300	1,328,563	26,792,256	28,201,734	2.3 x	17.8%
FP Venture 2010	2010	\$80,000,000	25,000,000	15,656,250	1,945,994	8,548,191	21,933,660	1.9 x	14.6%
FP Venture 2011	2011	\$70,000,000	25,000,000	23,714,760	1,418,108	15,236,608	66,285,085	3.4 x	34.0%
FP Venture 2012	2012	\$80,000,000	25,000,000	21,250,000	3,841,314	11,173,717	32,825,595	2.1 x	20.8%
FP Venture 2013	2013	\$87,000,000	20,000,000	16,621,047	3,435,092	5,155,544	25,089,959	1.8 x	22.6%
FP Venture 2014	2014	\$93,000,000	25,000,000	21,505,600	3,551,006	2,382,246	32,252,862	1.6 x	18.6%
FP Venture 2015	2015	\$113,000,000	25,000,000	19,358,500	5,693,726	363,891	24,101,856	1.3 x	16.1%
FP Venture 2016	2016	\$82,000,000	25,000,000	11,585,366	13,457,596	198,529	13,373,428	1.2 x	15.4%
FP Venture 2017	2017	\$113,000,000	25,000,000	3,871,681	21,154,797	0	3,908,775	1.0 x	NMF
FP Venture 2018	2018	\$80,500,000	25,000,000	1,863,354	23,170,584	217	1,710,115	0.9 x	NMF
Total Venture Capital			275,000,000	188,964,958	79,429,615	101,362,057	279,033,174	2.0 x	19.8%
Total Portfolio			4,622,894,628	3,907,286,203	994,325,362	4,027,154,288	2,097,211,494	1.6 x	10.8%

- 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.

Investment Performance by Vintage Year



Investment	Strategy	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
1996								
HMTF III *	Buyout	76,743,018	76,799,039	0	87,834,289	0	1.1 x	1.8%
Total 1996		76,743,018	76,799,039	0	87,834,289	0	1.1 x	1.8%
1997								
Doughty Hanson III *	Buyout	100,000,000	99,374,207	0	197,482,184	0	2.0 x	13.5%
Total 1997		100,000,000	99,374,207	0	197,482,184	0	2.0 x	13.5%
1998								
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%
Total 1998		165,281,010	163,291,025	0	171,831,140	0	1.1 x	0.9%
1999								
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	60,455,204	0	1.4 x	10.3%
Oak Hill I *	Buyout	50,000,000	50,786,497	0	91,264,962	0	1.8 x	10.6%
Total 1999		282,000,000	222,055,598	0	302,386,613	0	1.4 x	7.7%
2000								
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	20,514,606	450,427	0.3 x	-23.2%
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%
Total 2000		482,366,433	509,156,369	0	880,205,696	450,427	1.7 x	14.8%
2005								
CSFB-ATRS 2005-1 Series	Multi-Strategy	250,000,000	279,602,567	8,170,232	351,814,745	57,879,958	1.5 x	7.1%
Total 2005		250,000,000	279,602,567	8,170,232	351,814,745	57,879,958	1.5 x	7.1%

Investment Performance by Vintage Year



Investment	Strategy	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
2006								
Boston Ventures VII	Buyout	50,000,000	43,016,769	8,258,947	43,590,045	18,023,641	1.4 x	6.3%
CSFB-ATRS 2006-1 Series	Multi-Strategy	404,300,000	405,764,690	61,309,793	536,739,647	117,501,239	1.6 x	10.2%
Total 2006		454,300,000	448,781,459	69,568,740	580,329,692	135,524,880	1.6 x	9.8%
2007								
Diamond State II	Multi-Strategy	4,000,000	3,517,000	483,000	3,172,000	6,138,208	2.6 x	12.5%
NGP IX	Hard Assets	50,000,000	54,032,339	384,617	75,990,653	1,193,502	1.4 x	10.8%
Vista Equity III	Buyout	50,000,000	54,150,087	3,794,138	122,989,153	12,460,613	2.5 x	28.9%
Total 2007		104,000,000	111,699,426	4,661,755	202,151,806	19,792,323	2.0 x	20.9%
2008								
Advent GPE VI-A	Buyout	40,000,000	40,167,228	0	75,866,905	8,963,527	2.1 x	17.1%
FP Venture 2008	Venture Capital	30,000,000	29,704,100	432,835	31,510,858	29,350,105	2.0 x	15.3%
LLR III	Growth Equity	50,000,000	48,504,590	4,357,033	73,695,045	20,615,987	1.9 x	15.3%
Total 2008		120,000,000	118,375,918	4,789,868	181,072,808	58,929,619	2.0 x	15.9%
2009								
FP Venture 2009	Venture Capital	25,000,000	23,834,300	1,328,563	26,792,256	28,201,734	2.3 x	17.8%
Insight Equity II	Turnaround	30,000,000	29,917,319	1,995,336	24,807,229	24,734,654	1.7 x	11.0%
Insight Mezzanine I	Mezzanine	10,000,000	9,928,853	522,124	9,779,671	3,348,849	1.3 x	6.6%
KPS III Supplemental	Turnaround	40,000,000	37,681,881	15,912,653	61,756,395	13,835,895	2.0 x	22.1%
Riverside IV	Buyout	40,000,000	31,433,665	10,099,013	71,757,551	4,796,458	2.4 x	21.8%
Total 2009		145,000,000	132,796,018	29,857,689	194,893,102	74,917,590	2.0 x	17.7%
2010								
Altus Capital II	Buyout	20,000,000	17,977,469	4,806,151	19,060,271	7,767,174	1.5 x	11.9%
EnCap VIII	Hard Assets	47,500,000	52,059,909	2,281,089	30,296,066	15,496,890	0.9 x	-4.4%
FP Venture 2010	Venture Capital	25,000,000	15,656,250	1,945,994	8,548,191	21,933,660	1.9 x	14.6%
Mason Wells III	Buyout	30,000,000	28,553,580	1,446,420	31,530,265	26,126,284	2.0 x	15.0%
TA XI	Growth Equity	40,000,000	39,300,000	700,000	61,483,852	30,638,969	2.3 x	22.8%
Tennenbaum VI	Distressed Debt	40,000,000	38,075,687	15,562,264	34,222,941	15,730,104	1.3 x	6.8%
Total 2010		202,500,000	191,622,895	26,741,918	185,141,586	117,693,081	1.6 x	12.0%

Investment Performance by Vintage Year



Investment	Strategy	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
2011								
Audax Mezzanine III	Mezzanine	25,000,000	23,167,746	6,825,000	24,452,945	5,100,372	1.3 x	9.0%
Castlelake II	Distressed Debt	35,000,000	32,656,036	2,625,461	27,004,696	17,590,069	1.4 x	7.0%
FP Intl 2011	Buyout	25,000,000	21,946,200	3,302,237	12,069,593	18,318,416	1.4 x	8.4%
FP Venture 2011	Venture Capital	25,000,000	23,714,760	1,418,108	15,236,608	66,285,085	3.4 x	34.0%
JF Lehman III	Buyout	39,000,000	43,327,958	670,088	36,058,155	29,470,133	1.5 x	12.7%
Wellspring V	Buyout	40,000,000	44,025,808	16,239,345	49,762,956	18,116,098	1.5 x	16.7%
Wicks IV	Buyout	40,000,000	41,715,427	5,092,249	36,714,154	30,089,646	1.6 x	18.5%
Total 2011		229,000,000	230,553,935	36,172,488	201,299,107	184,969,819	1.7 x	15.7%
2012								
ATRS-FP PE	Multi-Strategy	263,823,718	189,733,356	127,818,749	76,911,658	186,979,898	1.4 x	14.5%
BV VIII	Buyout	30,000,000	26,447,466	3,833,720	26,560,909	25,221,511	2.0 x	62.9%
Court Square III	Buyout	40,000,000	39,798,125	5,068,476	18,149,920	37,002,965	1.4 x	17.7%
DW Healthcare III	Buyout	40,000,000	35,694,363	4,305,637	40,738,290	20,254,983	1.7 x	18.4%
FP Intl 2012	Buyout	25,000,000	16,069,500	9,079,917	5,582,077	14,999,298	1.3 x	9.6%
FP Venture 2012	Venture Capital	25,000,000	21,250,000	3,841,314	11,173,717	32,825,595	2.1 x	20.8%
NGP X	Hard Assets	35,000,000	35,066,759	1,626,971	24,580,797	14,411,040	1.1 x	3.5%
Total 2012		458,823,718	364,059,569	155,574,784	203,697,368	331,695,290	1.5 x	16.1%
2013								
EnCap IX	Hard Assets	25,000,000	27,735,347	1,722,263	19,381,205	17,314,148	1.3 x	13.2%
FP Intl 2013	Buyout	20,000,000	11,815,260	8,294,720	422,502	14,482,399	1.3 x	8.6%
FP Venture 2013	Venture Capital	20,000,000	16,621,047	3,435,092	5,155,544	25,089,959	1.8 x	22.6%
Levine Leichtman V	Structured Capital	20,000,000	24,198,651	3,076,026	12,321,057	18,979,064	1.3 x	11.4%
Riverside V	Buyout	35,000,000	31,890,468	4,903,949	17,364,328	25,164,913	1.3 x	9.4%
Vista Foundation II	Buyout	15,000,000	14,565,134	8,569,502	10,905,347	13,173,074	1.7 x	16.4%
Total 2013		135,000,000	126,825,908	30,001,552	65,549,983	114,203,557	1.4 x	13.3%

Investment Performance by Vintage Year



Investment	Strategy	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
2014								
Atlas Capital II	Turnaround	15,000,000	14,343,953	6,753,160	9,211,568	11,705,312	1.5 x	24.7%
Big River - Equity	Infrastructure	93,090,000	93,090,000	0	19,160,000	317,000,000	3.6 x	33.0%
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	4,717,993	0	0.2 x	-50.5%
Castlelake III	Distressed Debt	25,000,000	23,149,741	1,864,884	11,464,196	19,898,178	1.4 x	8.3%
FP Intl 2014	Buyout	25,000,000	12,809,181	12,271,571	4,221,159	15,991,565	1.6 x	23.7%
FP Venture 2014	Venture Capital	25,000,000	21,505,600	3,551,006	2,382,246	32,252,862	1.6 x	18.6%
KPS IV	Turnaround	25,000,000	12,555,543	13,348,889	5,433,344	10,257,839	1.2 x	20.6%
Lime Rock Resources III	Hard Assets	25,000,000	25,393,445	503,175	4,024,422	21,587,926	1.0 x	0.2%
NGP XI	Hard Assets	30,000,000	27,087,387	4,145,014	5,125,737	29,174,348	1.3 x	14.8%
Sycamore Partners II	Turnaround	25,000,000	22,097,266	4,029,476	4,097,332	20,595,416	1.1 x	7.6%
Thoma Bravo XI	Buyout	20,000,000	20,634,595	2,286,609	13,935,717	27,156,964	2.0 x	24.0%
Total 2014		331,090,000	297,410,397	48,753,784	91,999,004	505,620,410	2.0 x	22.7%
2015								
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	24,475,007	7,399,968	4,730,364	25,144,395	1.2 x	13.7%
FP Intl 2015	Buyout	25,000,000	11,615,100	13,445,978	439,802	12,171,212	1.1 x	6.2%
FP Venture 2015	Venture Capital	25,000,000	19,358,500	5,693,726	363,891	24,101,856	1.3 x	16.1%
Siris III	Buyout	25,000,000	25,634,216	8,429,750	15,776,129	12,989,086	1.1 x	8.8%
Total 2015		131,910,000	108,049,045	34,969,422	57,009,751	74,406,549	1.2 x	12.9%
2016								
American Industrial VI	Buyout	20,000,000	18,495,617	4,196,816	2,692,432	16,538,232	1.0 x	3.3%
Arlington IV	Buyout	23,000,000	12,951,377	10,048,623	0	15,275,451	1.2 x	16.7%
DW Healthcare IV	Buyout	30,000,000	19,160,799	12,368,167	11,273,132	21,571,613	1.7 x	54.6%
FP Intl 2016	Buyout	25,000,000	11,082,475	13,985,901	255,094	12,111,572	1.1 x	10.0%
FP Venture 2016	Venture Capital	25,000,000	11,585,366	13,457,596	198,529	13,373,428	1.2 x	15.4%
Highland Equity	Hard Assets	25,000,000	25,000,000	0	106,250	25,054,571	1.0 x	0.3%
JF Lehman IV	Buyout	30,000,000	18,425,201	11,574,800	1,985,953	26,550,085	1.5 x	30.4%
PineBridge Structured III	Structured Capital	30,000,000	18,732,361	13,000,925	1,800,775	15,643,321	0.9 x	-6.5%
Thoma Bravo Discover	Buyout	10,000,000	11,350,409	1,767,370	4,168,807	11,479,986	1.4 x	25.3%
Thoma Bravo XII	Buyout	30,000,000	27,482,266	3,436,942	921,362	29,341,006	1.1 x	7.6%
Vista Foundation III	Buyout	30,000,000	14,968,831	15,068,884	4,739	15,450,765	1.0 x	2.6%
Total 2016		278,000,000	189,234,701	98,906,024	23,407,073	202,390,030	1.2 x	13.3%

Investment Performance by Vintage Year



Investment	Strategy	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
2017								
Altaris Constellation	Buyout	20,000,000	16,225,389	4,766,723	991,694	18,402,295	1.2 x	NMF
Big River - Funding *	Infrastructure	3,750,000	3,750,000	0	3,812,795	0	1.0 x	NMF
Big River - Holdings Note *	Infrastructure	12,000,000	12,000,000	0	13,343,726	0	1.1 x	NMF
Big River - Preferred Equity	Infrastructure	41,980,449	41,980,449	0	0	46,425,960	1.1 x	NMF
Bison V	Structured Capital	35,000,000	12,854,560	22,647,678	502,238	13,755,344	1.1 x	NMF
BV IX	Buyout	30,000,000	5,679,508	24,320,492	0	5,853,554	1.0 x	NMF
EnCap XI	Hard Assets	35,000,000	3,752,471	31,247,529	0	2,886,672	0.8 x	NMF
FP Intl 2017	Buyout	25,000,000	4,974,490	20,090,698	0	5,537,409	1.1 x	NMF
FP Venture 2017	Venture Capital	25,000,000	3,871,681	21,154,797	0	3,908,775	1.0 x	NMF
Greyrock IV	Mezzanine	30,000,000	18,052,882	12,130,667	183,549	17,883,260	1.0 x	NMF
Highland Note	Hard Assets	26,000,000	28,250,000	2,750,000	15,000,000	15,625,236	1.1 x	NMF
NGP XII	Hard Assets	30,000,000	9,756,714	20,243,286	34,744	9,724,128	1.0 x	NMF
One Rock II	Buyout	30,000,000	9,203,158	20,796,842	0	8,654,942	0.9 x	NMF
Total 2017		343,730,449	170,351,302	180,148,712	33,868,747	148,657,575	1.1 x	NMF
2018								
Altaris IV	Buyout	24,000,000	5,048,912	18,951,088	0	5,925,344	1.2 x	NMF
Big River - Holdings Note 2023	Infrastructure	12,000,000	12,000,000	0	0	12,529,698	1.0 x	NMF
Big River - Holdings Note 2023-2	Infrastructure	5,150,000	5,150,000	0	62,323	5,241,430	1.0 x	NMF
Clearlake V	Buyout	30,000,000	11,987,974	18,014,468	117,056	14,985,011	1.3 x	NMF
FP Intl 2018	Buyout	25,000,000	1,335,878	23,732,962	0	1,075,880	0.8 x	NMF
FP Venture 2018	Venture Capital	25,000,000	1,863,354	23,170,584	217	1,710,115	0.9 x	NMF
GTLA Holdings	Hard Assets	20,000,000	20,000,000	0	0	20,000,000	1.0 x	NMF
Highland Contingent Note	Hard Assets	0	0	0	15,000,000	0	N/A	NMF
SK Capital V	Buyout	30,000,000	3,947,905	26,052,095	0	3,780,811	1.0 x	NMF
Sycamore Partners III	Turnaround	25,000,000	3,113,179	21,886,821	0	2,529,584	0.8 x	NMF
Thoma Bravo Discover II	Buyout	17,000,000	2,799,624	14,200,376	0	2,531,072	0.9 x	NMF
Total 2018		213,150,000	67,246,826	146,008,394	15,179,596	70,308,945	1.3 x	NMF
2019								
Riverside VI	Buyout	30,000,000	0	30,000,000	0	0	N/A	NMF
Siris IV	Buyout	30,000,000	0	30,000,000	0	-198,925	N/A	NMF
Thoma Bravo XIII	Buyout	30,000,000	0	30,000,000	0	-29,634	N/A	NMF
WNG II	Special Assets	30,000,000	0	30,000,000	0	0	N/A	NMF
Total 2019		120,000,000	0	120,000,000	0	-228,559	N/A	NMF

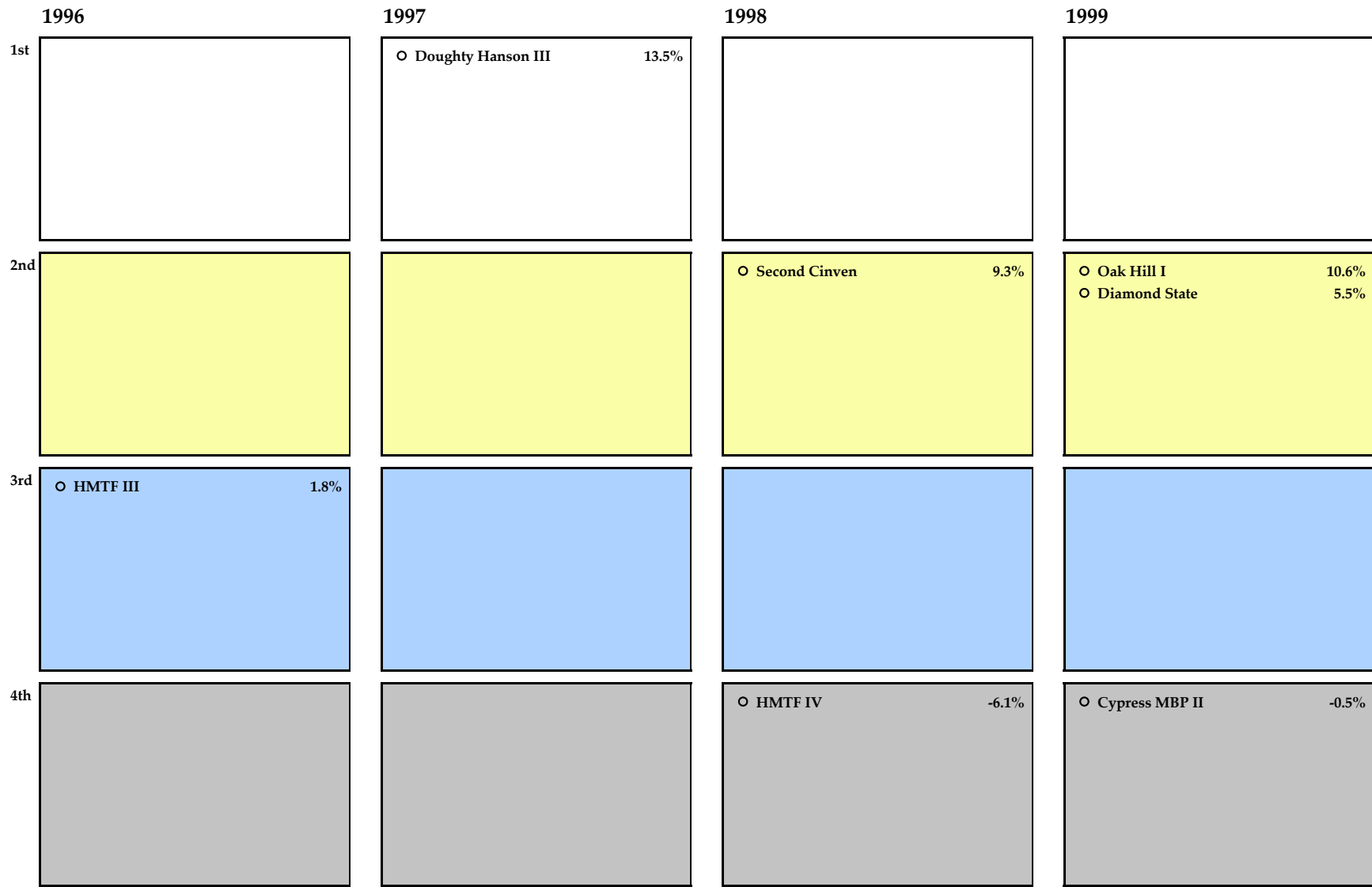
Investment Performance by Vintage Year



Investment	Strategy	Committed Capital (\$)	Contributed Capital (\$)	Unfunded Commitment (\$)	Distributed Capital (\$)	Remaining Value (\$)	TVPI	Net IRR
Total Portfolio		4,622,894,628	3,907,286,203	994,325,362	4,027,154,288	2,097,211,494	1.6 x	10.8%

- 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.

Performance by Vintage Year and Quartile Group



● Venture ○ Non-venture

BOLD = Realized

Performance by Vintage Year and Quartile Group

	2000	2005	2006	2007
1st				○ Vista Equity III 28.9%
2nd	○ DLJ MBP III 19.4% ○ HMTF V 17.6%	○ CSFB-ATRS 2005-1 Series 7.1%	○ CSFB-ATRS 2006-1 Series 10.2%	○ Diamond State II 12.5% ○ NGP IX 10.8%
3rd			○ Boston Ventures VII 6.3%	
4th	○ 21st Century Group I -3.8% ○ DH Tech I -23.2%			

● Venture ○ Non-venture

BOLD = Realized

Performance by Vintage Year and Quartile Group

	2008	2009	2010	2011
1st			○ TA XI 22.8%	● FP Venture 2011 34.0%
2nd	<ul style="list-style-type: none"> ○ Advent GPE VI-A 17.1% ○ LLR III 15.3% ● FP Venture 2008 15.3% 	<ul style="list-style-type: none"> ○ KPS III Supplemental 22.1% ○ Riverside IV 21.8% ● FP Venture 2009 17.8% 	<ul style="list-style-type: none"> ● FP Venture 2010 14.6% 	<ul style="list-style-type: none"> ○ Wicks IV 18.5% ○ Wellspring V 16.7%
3rd			<ul style="list-style-type: none"> ○ Mason Wells III 15.0% ○ Altus Capital II 11.9% 	
4th		○ Insight Equity II 11.0%	○ EnCap VIII -4.4%	<ul style="list-style-type: none"> ○ JF Lehman III 12.7% ○ FP Intl 2011 8.4%

● Venture ○ Non-venture

BOLD = Realized

Performance by Vintage Year and Quartile Group

	2012	2013	2014	2015
1st	<ul style="list-style-type: none"> ○ BV VIII 62.9% ● FP Venture 2012 20.8% 	<ul style="list-style-type: none"> ● FP Venture 2013 22.6% 	<ul style="list-style-type: none"> ○ Atlas Capital II 24.7% ○ Thoma Bravo XI 24.0% ○ FP Intl 2014 23.7% 	
2nd	<ul style="list-style-type: none"> ○ DW Healthcare III 18.4% ○ Court Square III 17.7% 	<ul style="list-style-type: none"> ○ Vista Foundation II 16.4% ○ EnCap IX 13.2% 	<ul style="list-style-type: none"> ○ KPS IV 20.6% ● FP Venture 2014 18.6% 	<ul style="list-style-type: none"> ● FP Venture 2015 16.1%
3rd	<ul style="list-style-type: none"> ○ ATRS-FP PE 14.5% 		<ul style="list-style-type: none"> ○ NGP XI 14.8% 	<ul style="list-style-type: none"> ○ EnCap X 13.7%
4th	<ul style="list-style-type: none"> ○ FP Intl 2012 9.6% ○ NGP X 3.5% 	<ul style="list-style-type: none"> ○ Riverside V 9.4% ○ FP Intl 2013 8.6% 	<ul style="list-style-type: none"> ○ Sycamore Partners II 7.6% ○ Lime Rock Resources III 0.2% 	<ul style="list-style-type: none"> ○ Siris III 8.8% ○ FP Intl 2015 6.2%

● Venture ○ Non-venture

BOLD = Realized

2016

1st

○ DW Healthcare IV	54.6%
○ JF Lehman IV	30.4%
○ Thoma Bravo Discover	25.3%

2nd

○ Arlington IV	16.7%
● FP Venture 2016	15.4%
○ FP Intl 2016	10.0%

3rd

○ Thoma Bravo XII	7.6%
○ American Industrial VI	3.3%
○ Vista Foundation III	2.6%

4th

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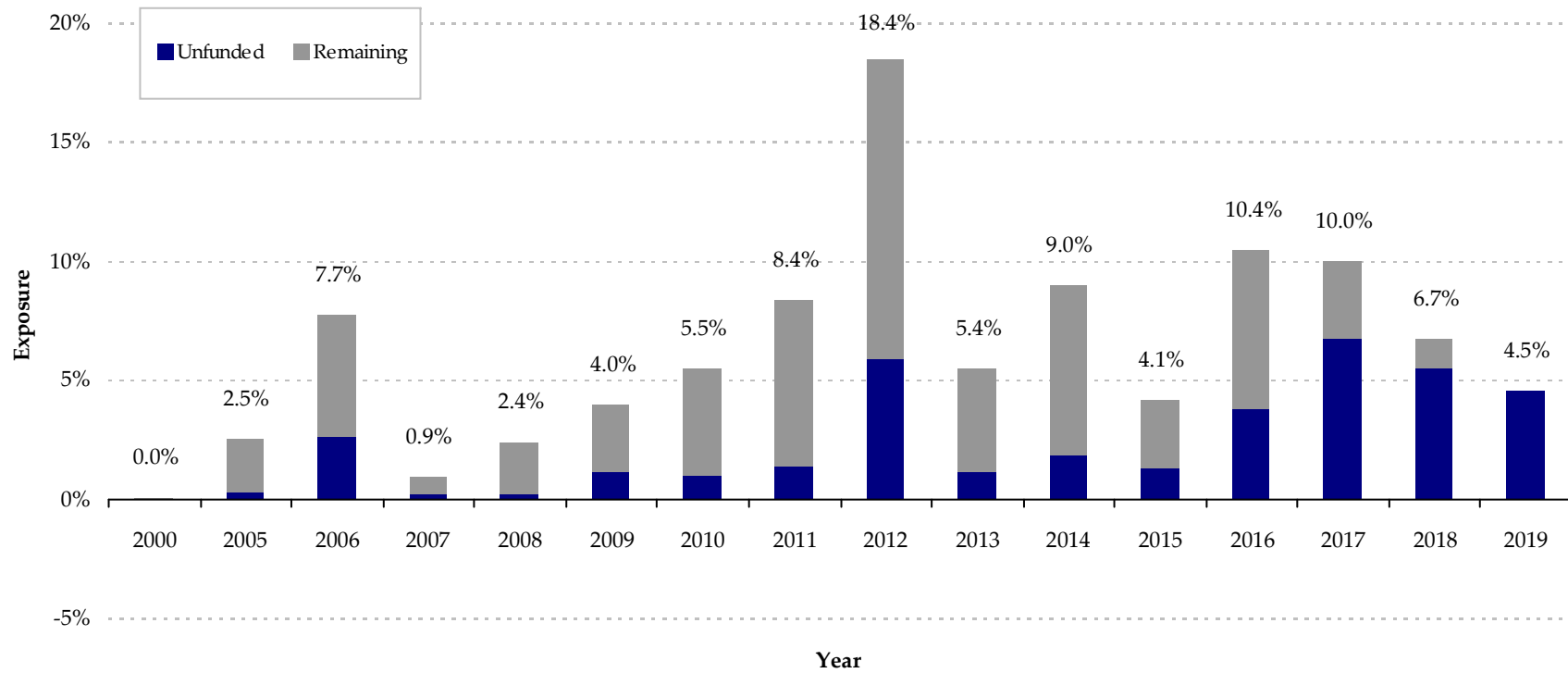
● Venture ○ Non-venture

BOLD = Realized

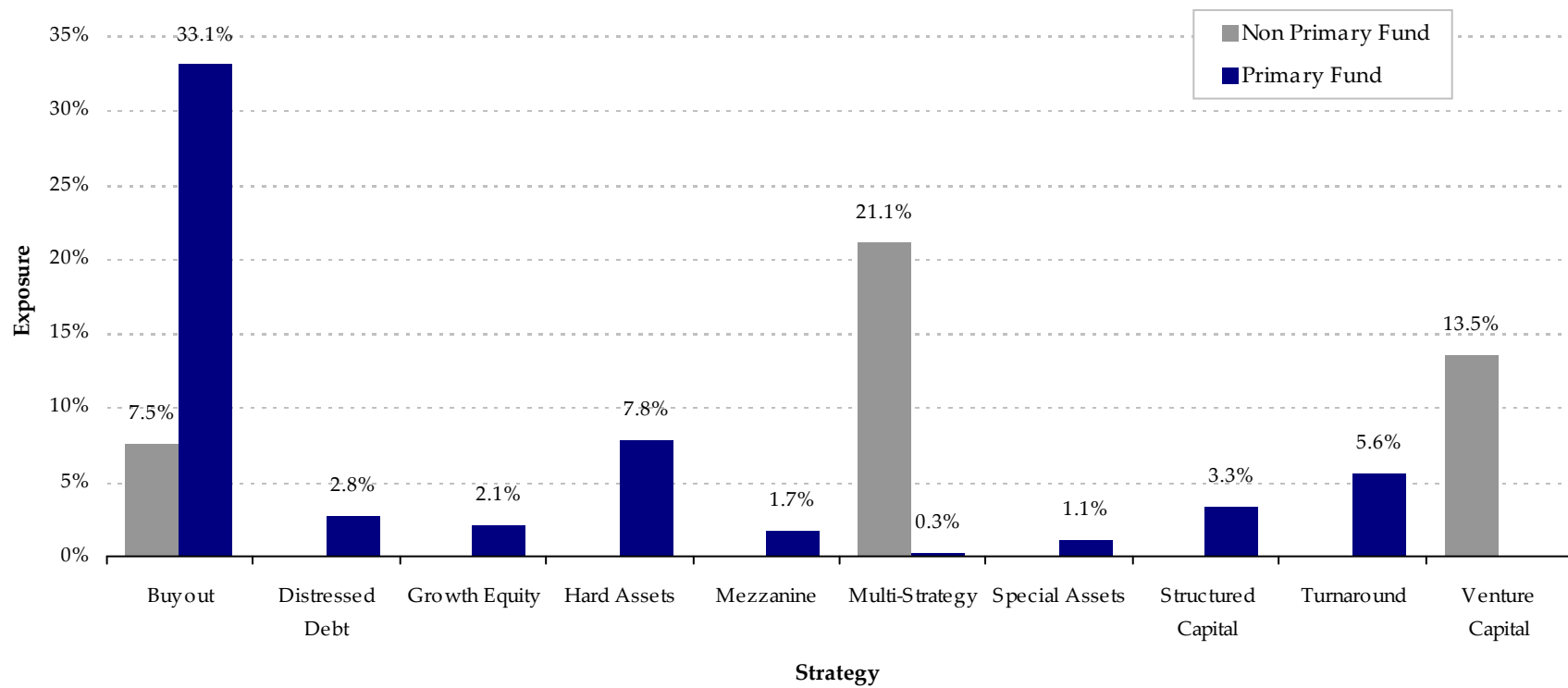
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- The analysis compares each fund's Net IRR versus its respective peer group by vintage year and strategy. Funds with a corporate finance strategy, excluding private debt, are compared to Cambridge Associates, U.S. Buyout. Funds with a venture capital 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 September 30, 2018. Hard Assets benchmark data for Vintage Years prior to 2005 is not available.

Diversification Analysis

Exposure By Vintage Year

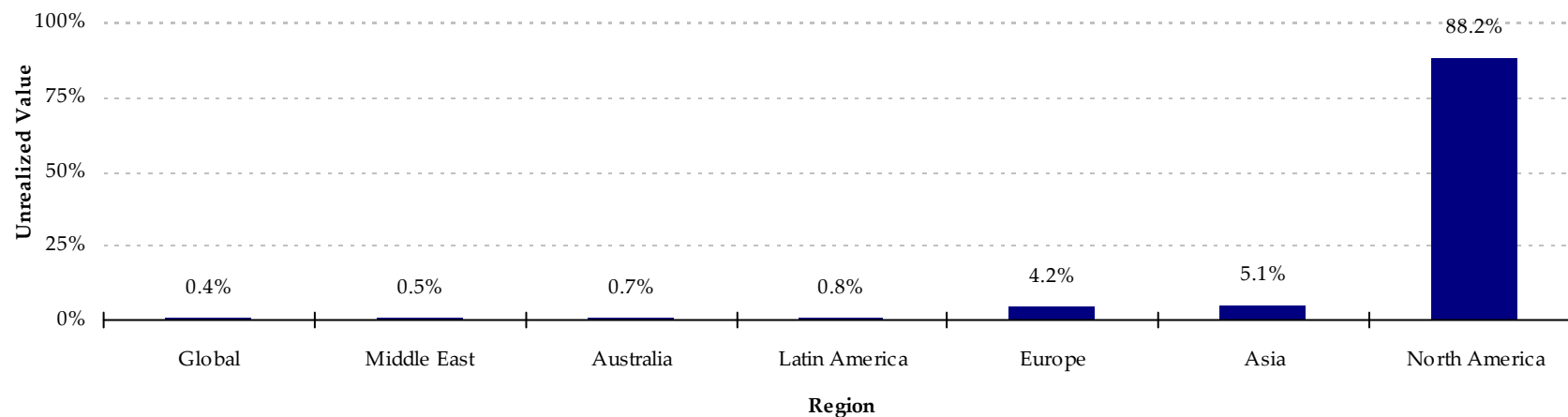


- Exposure is defined as the sum of an investor's Remaining Value plus Unfunded Commitment.
- Data includes commitments through the Report Date.

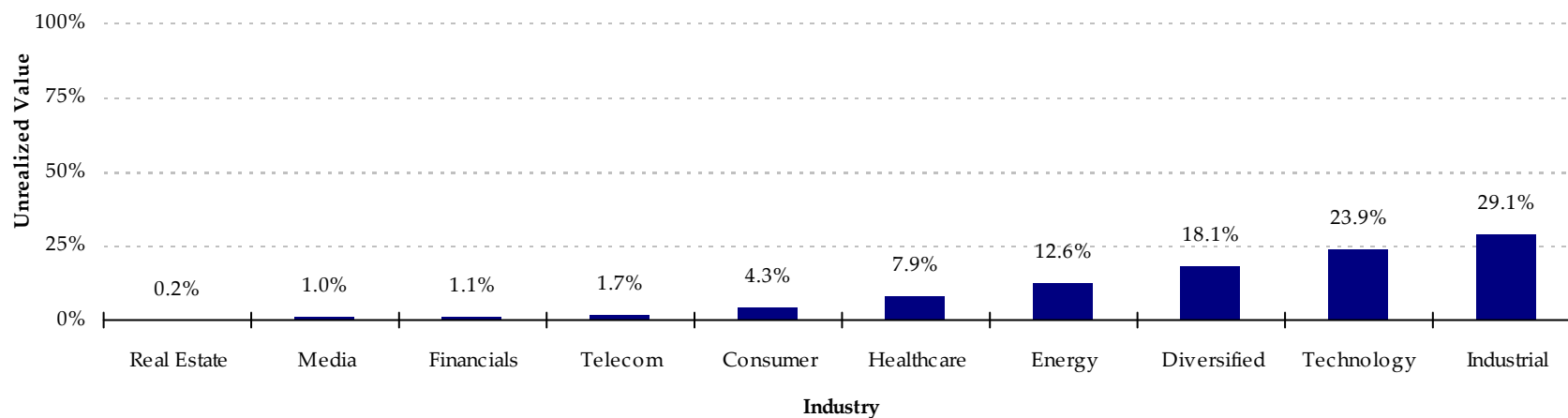


- Exposure is defined as the sum of an investor's Remaining Value plus Unfunded Commitment.
- Primary Fund represents interests in private equity funds acquired directly from the seller (i.e. fund manager). Non Primary Fund represents interests in private equity funds acquired through a commitment to a fund-of-funds or secondary fund-of-funds.

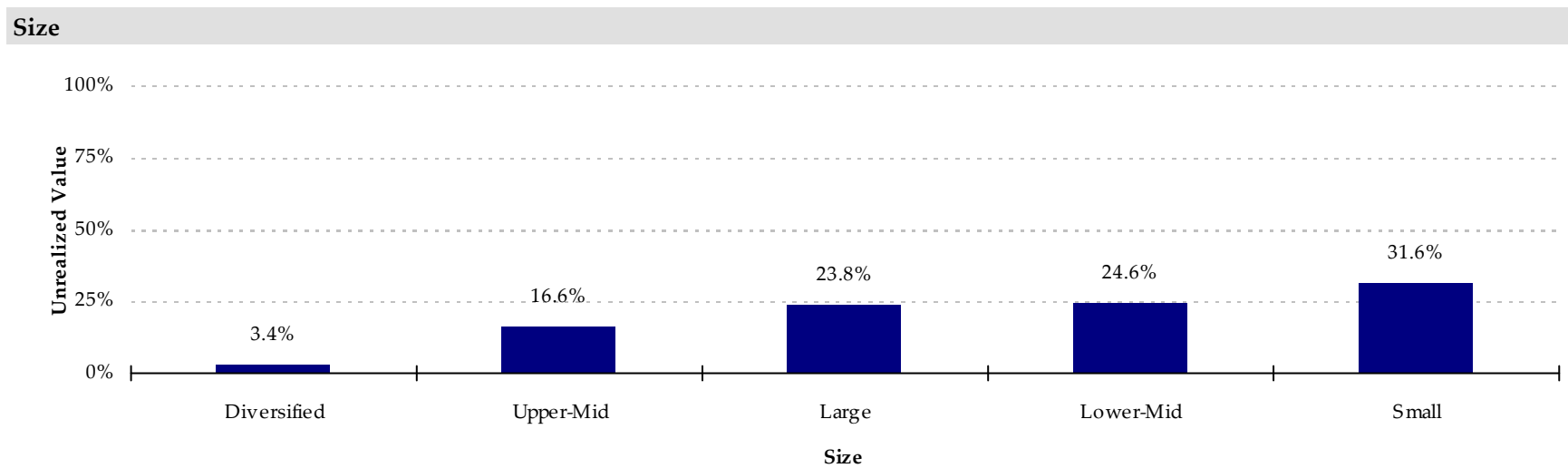
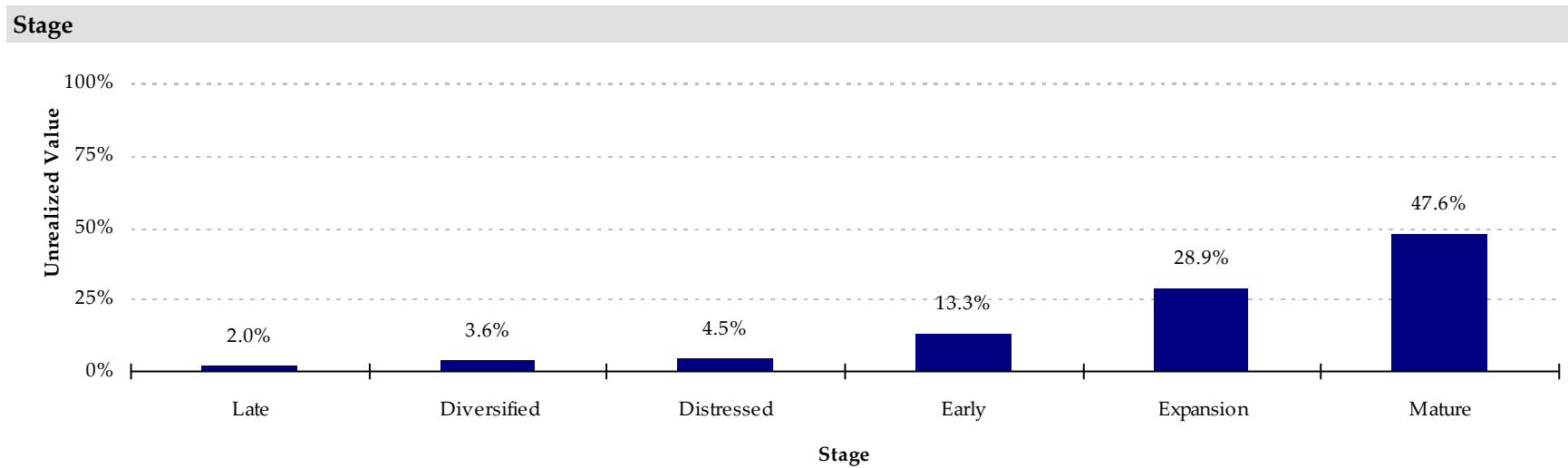
Region



Industry

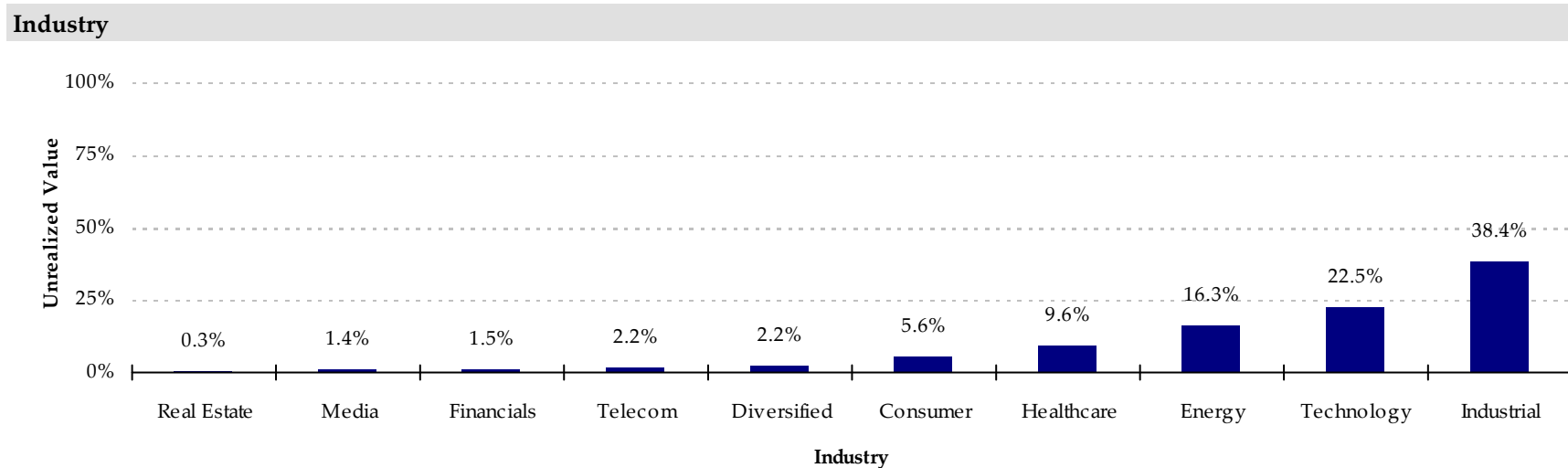
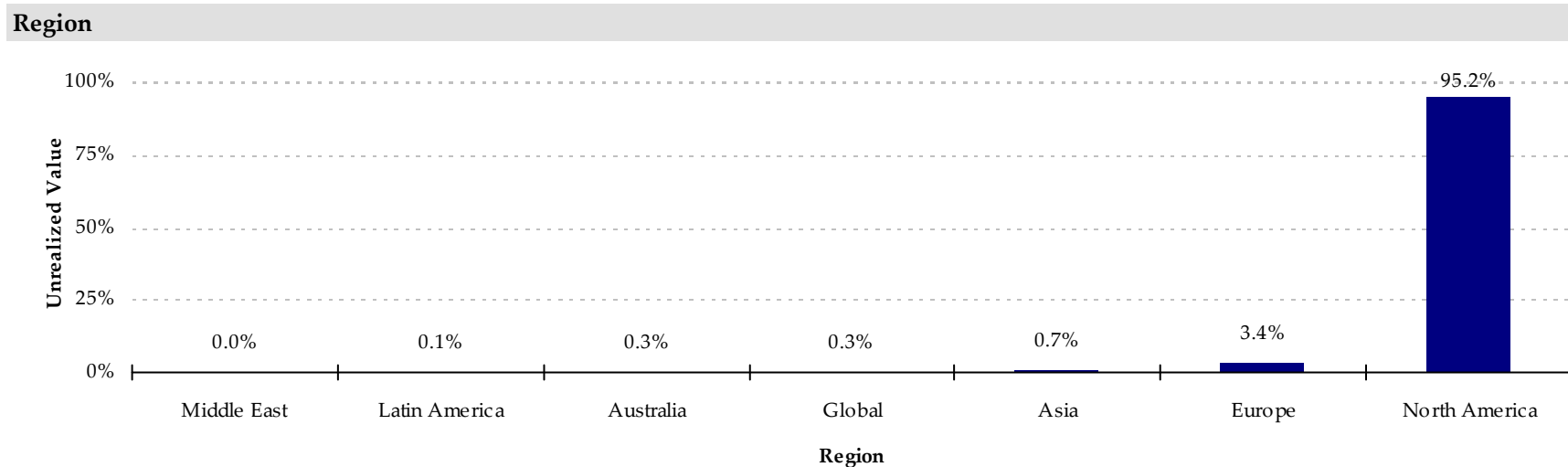


- Unrealized Value represents the value of portfolio holdings as reported by fund managers.
- Values are estimated based on the investor's percent interest in each fund's portfolio holdings.
- Values are converted to the investor's currency, when applicable, as of the Report Date.



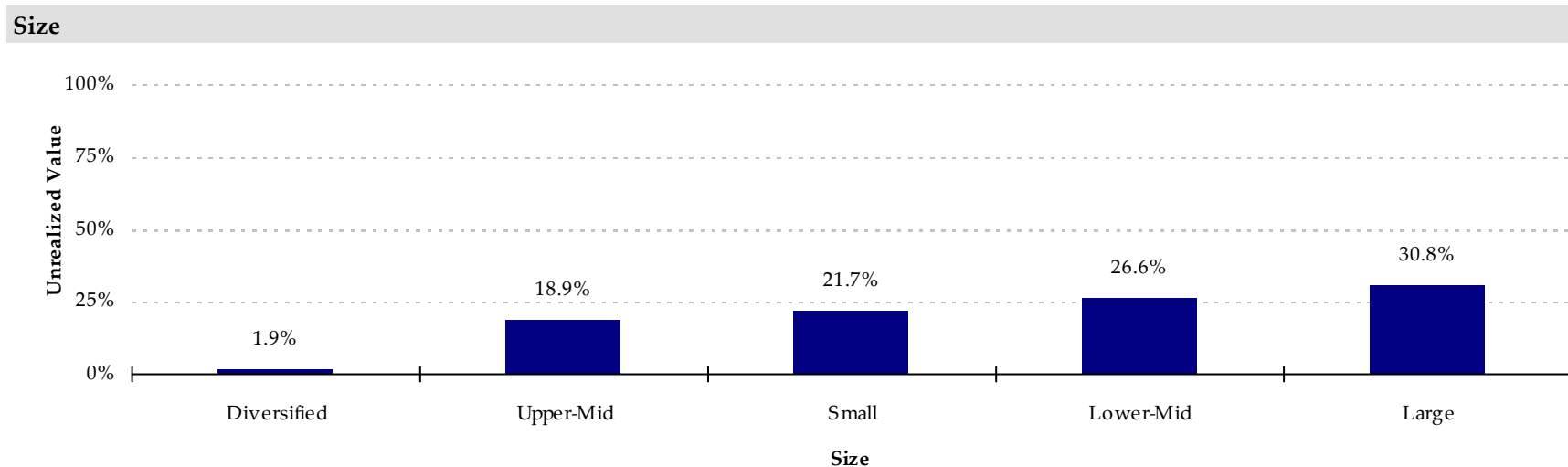
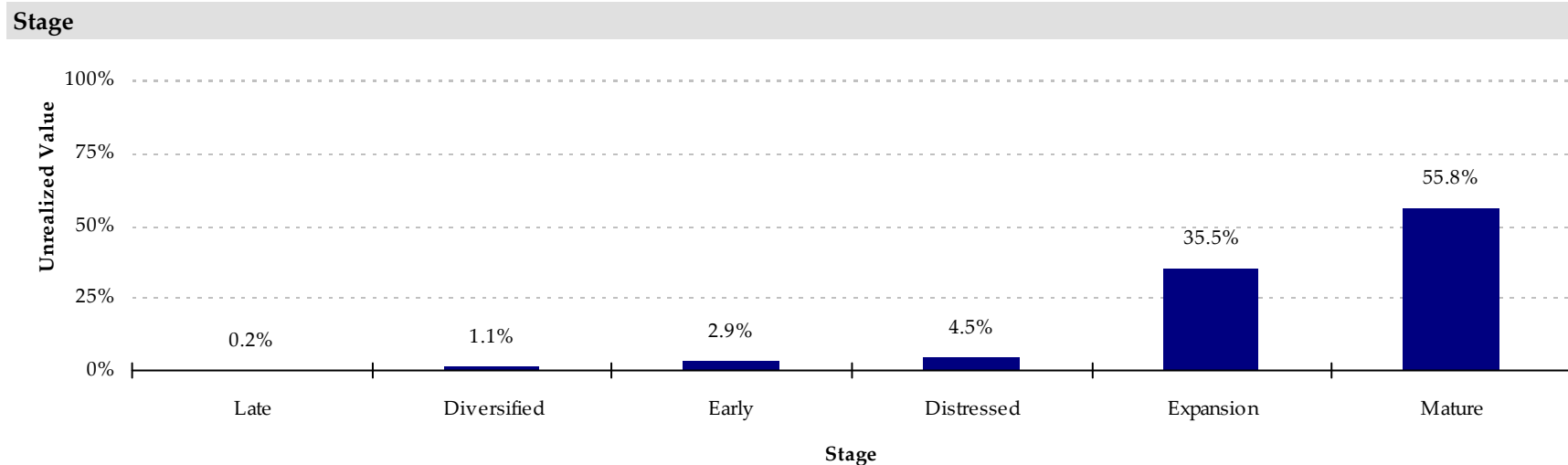
- Unrealized Value is the value of portfolio holdings as reported by the fund manager.
- Values are estimated based on the investor's percent interest in each fund's portfolio holdings.
- Values converted to the investor's currency, when applicable, as of the Report Date.

Holdings by Region and Industry (ex Fund Holdings)



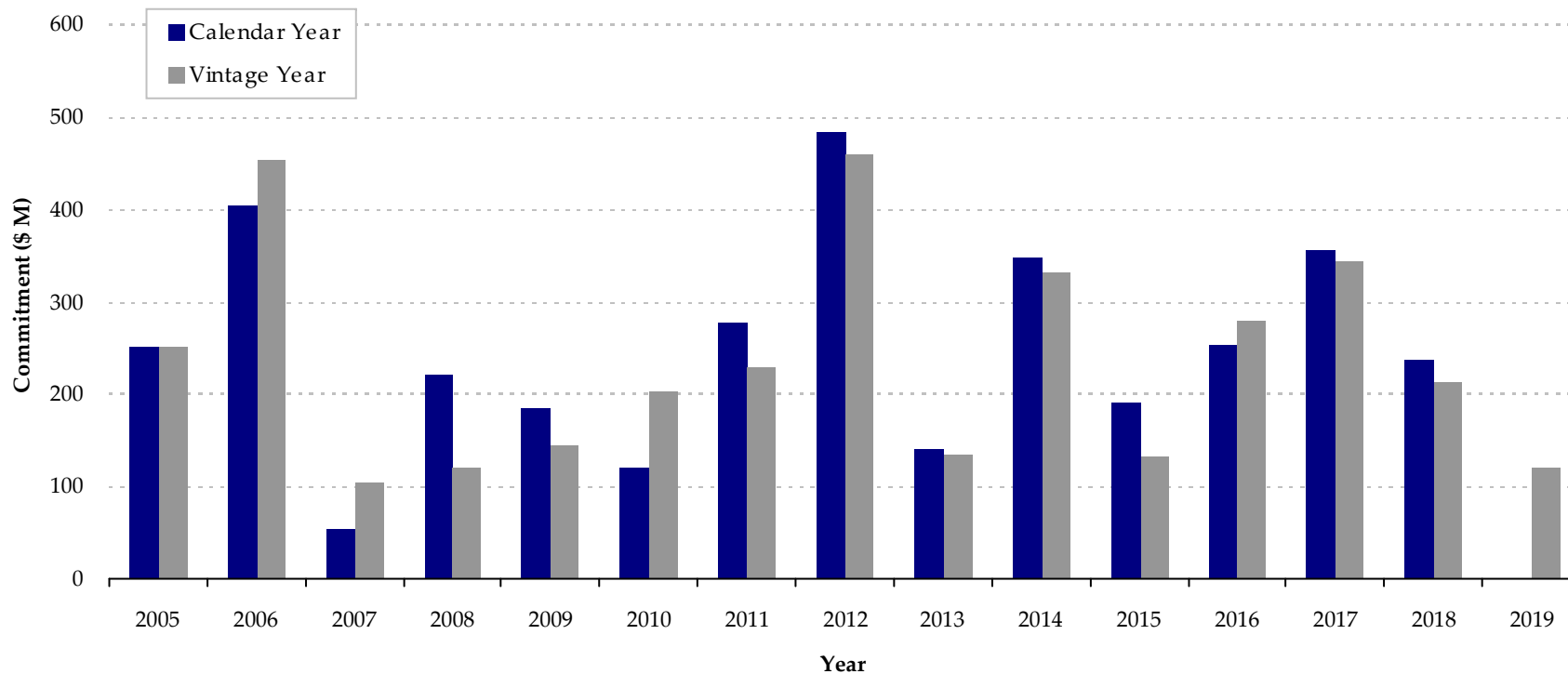
- Fund investments in other funds were excluded from this analysis.
- Unrealized Value represents the value of portfolio holdings as reported by fund managers.
- Values are estimated based on the investor's percent interest in each fund's portfolio holdings.
- Values are converted to the investor's currency, when applicable, as of the Report Date.

Holdings by Stage and Size (ex Fund Holdings)



- 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.

Recent Activity



- 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.

Glossary

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"> • Distressed Trading – Fund whose strategy is to invest and trade debt of financially stressed companies • Distressed Restructuring – Fund whose strategy is to acquire and restructure debt of financially stressed companies • 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 • Structured Capital – Fund whose strategy is to issue hybrid debt and equity securities to mature companies 	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"> • Sponsored Mezzanine – Fund whose strategy is to issue subordinated loans to companies owned by private equity fund sponsors • Non-Sponsored Mezzanine – Fund whose strategy is to issue subordinated loans to companies not owned by private equity fund sponsors 	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"> • Healthcare Royalties – Fund whose strategy is to acquire royalty or revenue interests, or issue loans, backed by approved life science products • Music Royalties – Fund whose strategy is to acquire royalty or revenue interests, or issue loans, backed by music copyright assets • Aircraft Leasing – Fund whose strategy is to acquire and lease commercial aircraft • Life Settlement - Fund whose strategy is to acquire life insurance policies • Shipping – Fund whose strategy is to acquire and charter commercial shipping vessels • Asset Backed Securities – Fund whose strategy is to acquire or structure securities that are backed by income-producing assets
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"> • Direct Lending – Fund whose strategy is to issue senior loans to mature companies • Unitranche – Fund whose strategy is to issue hybrid senior and subordinated loans to mature companies • Venture Debt – Fund whose strategy is to issue loans to venture stage companies • 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 • Rescue Financing – Fund whose strategy is to issue loans to financially stressed companies 	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

Term	Definition
Vintage Year	The calendar year in which an investor first contributes capital to a fund

End Notes

The information contained in this report is confidential and may contain proprietary information. The information contained herein 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.

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.

◦ 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.



Executive Summary
JFL Equity Investors V, L.P.

Executive Summary

Fund	JFL Equity Investors V, L.P. (the “Fund”)
General Partner	JF Lehman & Co. (the “General Partner” or “JFL”)
Report Date	May 2019
Fundraising	The General Partner is targeting capital commitments of \$1 billion. The General Partner expects to hold a first close in June 2019.
Source	Franklin Park sourced the fund offering from the General Partner. Franklin Park serves on the prior fund limited partner advisory committee. The General Partner has retained Credit Suisse and OnCor Capital to assist with fundraising.
Investment Strategy	The Fund will make control investments in companies in the defense, aerospace, maritime and environmental industries and related businesses. The Fund will target middle market companies in the U.S. and U.K that serve government and/or commercial end markets. The Fund will target corporate divestitures and acquisitions of entrepreneur-owned companies.
Management Team	<p>The General Partner was founded in 1992 by John Lehman, Donald Glickman and George Sawyer (the “Co-Founders”) and originally provided financial advisory services to companies in the defense and aerospace sectors. The firm’s advisory business was terminated in 1997 upon the formation of its first institutional private equity partnership.</p> <p>Today, the General Partner is led by Louis Mintz, Stephen Brooks, Alex Harman and Glenn Shor (the “Principals”) and is headquartered in New York, NY with satellite offices in Washington, D.C. and London. The Principals are assisted by four mid-level investment professionals, two Managing Directors of Operations, a staff of junior professionals and a 13 person Operating Executive Board.</p>
Track Record	The General Partner’s track record consists of four prior funds plus a portfolio of investments completed on a pledge basis prior to forming partnerships. The table below summarizes performance for JFL’s last three funds as of December 31, 2018 (\$s in millions).

Aggregate Performance Summary¹

Fund (Vintage)	Rlzd Deals /			Unrealized	Gross	Gross
	# Deals	Invested	Realized		ROI	IRR
Fund II (2005)	5 / 5	238	472	0	2.0x	35.3%
Fund III (2011)	4 / 7	467	483	485	2.1x	22.4%
Fund IV (2016)	0 / 9	582	53	922	1.7x	33.7%
Total	9 / 21	1,287	1,007	1,408	1.9x	30.2%

Note: unrealized investments were valued by the General Partner based on comparable transactions and companies, DCF and comparable yield.

Investment Evaluation

1. **The Fund will pursue a compelling investment strategy.** The Fund will target acquisitions of small and lower middle market companies, which often attract less attention from larger strategic and financial buyers, and consequently can be purchased at more attractive prices, often on a non-auctioned basis. Further, companies in these segments tend to be under-managed, carry excess costs, and suffer from insufficient resources. As a result, managerial, operational, and financial improvements are readily identifiable. Such inefficiencies can lead to compelling returns.

The Fund is subject to industry concentration risks. The Fund will target sectors in which companies provide products and services to the U.S. government as well as commercial customers. Companies in these sectors are subject to regulation by, and are dependent on budgets of, federal and state agencies. Changing regulatory schemes and budget priorities may have a materially negative impact on the Fund.

2. **The General Partner is well-positioned competitively in its target market.** JFL has developed a brand as a skilled investor in the aerospace, defense, maritime and environmental sectors. Further, through its focus on the target sectors, JFL has developed an extensive network of relationships for deal flow.
3. **The General Partner has an experienced and cohesive team.** The Principals average 19 years of private equity experience in the target sectors and three of the four Principals have been investing together since 1999.
4. **JFL's track record is attractive.** In the last three funds, JFL has invested \$1.3 billion, generating a 30% gross IRR and 1.9x gross return on invested capital. The realized portfolio of the last three funds has generated a 32.5% gross IRR.

However, Fund III has generated a modest net return. As of December 31, 2018, Fund III has generated a 22.4% gross IRR and a 12.6% net IRR, which ranks in the 4th quartile for buyout funds formed in 2011. The General Partner attributes the modest net IRR to (1) a budget-based transaction fee offset combined with a higher than normal number of broken deals and (2) longer holding periods for investments. However, there are no impairments and four realized or substantially realized investments have generated an aggregate ROI of 2.3x.

Recommendation

Franklin Park recommends a commitment of up to \$30 million to the Fund, subject to satisfactory negotiation of final documentation, based on the following:

- The Fund will pursue a compelling strategy;
- The General Partner is well-positioned in its target market;
- The team is highly experienced and cohesive; and
- The General Partner's overall track record is attractive.

Appendix I Principals' Biographies

Louis Mintz (53) is a Partner based in New York, NY. Prior to joining in 1997, he was a member of the Private Equity Investment Group at Odyssey Partners. Prior to that, he was a Vice President at Rosecliff, Inc. He began his career at Drexel Burnham Lambert in the corporate finance department. Mr. Mintz is a graduate of Duke University with a Bachelor of Arts degree in Economics and Public Policy.

Stephen Brooks (47) is a Partner based in New York, NY. Prior to joining in 1998, he was a founding member of the Aerospace and Defense Group at Bowles Hollowell Conner & Company where he focused on private equity-related middle market mergers and acquisitions. Mr. Brooks is a graduate of the Cox School of Business at Southern Methodist University with a Bachelor of Arts degree in Finance.

Alex Harman (43) is a Partner based in New York, NY. Prior to joining in 1999, he was in the Global Energy Group of J.P. Morgan & Company where he was focused on natural resources and utility-related sectors. He is a graduate of Williams College with a degree in History.

Glenn Shor (38) is a Partner based in New York, NY. Prior to joining in 2010, he worked at DE Shaw and Providence Equity Partners, as well as in investment banking at Morgan Stanley. Mr. Shor received a Bachelor of Science degree from New York University.

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

**RESOLUTION
No. 2019- 27**

Approving Investment in JFL Equity Investors V, 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 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 **JFL Equity Investors V, L.P.**, a fund that seeks to make investments in the defense, aerospace, and maritime industries and related businesses.

THEREFORE, BE IT RESOLVED, that the ATRS Board approves an investment of up to **\$30 million dollars (\$30,000,000.00)** in **JFL Equity Investors V, 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 3rd day of June, 2019.

Mr. Jeff Stubblefield, *Chair*
Arkansas Teacher Retirement System

Arkansas Teacher Retirement System Franklin Park Vehicles Update

JUNE 2019

Background

In December 2018, ATRS' board approved the following commitments:

- ▶ \$30m to Franklin Park Venture Capital Access Fund, L.P. ("FP VC Access")
 - ATRS has historically made annual commitments to FP VC vehicles
 - Since 2008, ATRS has committed \$275m to 11 FP VC vehicles (19.8% net IRR as of 12/31/18)
 - FP VC Access is being formed to commit to FP VC vehicles raised over 3 years (2019-2021)
 - ATRS to serve as anchor LP with special economic terms (no management fees or carry)
 - FP to raise capital for FP VC Access from other LPs (with market terms)

- ▶ \$30m to ATRS/FP Private Equity Fund, L.P. ("ATRS/FP")
 - ATRS/FP primarily makes co-investments (+select fund commitments & appraisal rights investments)
 - Since 2012, ATRS has committed \$293m to ATRS/FP (14.9% net IRR as of 12/31/18)
 - ATRS/FP planned to commit \$30m to Franklin Park Corporate Finance Access Fund, L.P. ("FP CF Access")
 - FP CF Access is being formed to commit to U.S. buyout, growth & turnaround funds generally sized <\$1b
 - ATRS to serve as anchor LP with special economic terms (no management fees or carry)
 - FP to raise capital for FP CF Access from other LPs (with market terms)

Proposed Changes

FP proposes the following changes:

- ▶ ATRS to commit \$30m to Franklin Park Venture Fund Series 2019, L.P. instead of FP VC Access
 - FP does not intend to have a closing on FP VC Access until later in 2019
 - FP to seek approval from ATRS for a commitment to FP VC Access in 4Q19
 - FP VC Access will commit to FP VC vehicles raised over 3 years (2020-2022)

- ▶ ATRS to commit \$30m directly to FP CF Access instead of through ATRS/FP
 - FP plans to have a first closing on FP CF Access in June/July 2019
 - Committing directly to FP CF Access is more efficient and will allow for more timely quarterly reporting

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

RESOLUTION
No. 2019-28

**Approving Investment in Franklin Park Venture Fund
Series 2019, 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, at its regular meeting on December 3, 2018 approved an investment of up to \$30 million dollars in Franklin Park Venture Capital Access Fund, a fund designed to provide more flexibility to invest in high quality venture funds over a multi-year period; 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 the transfer of the commitment made (but not closed) in Franklin Park Venture Capital Access Fund to the Franklin Park Venture Fund Series 2019, L.P. after consideration of the timing of the closing of the Franklin Park Venture Capital Access Fund and in order to take advantage of ongoing opportunities in the venture capital space.

THEREFORE, BE IT RESOLVED, that the ATRS Board approves an investment of up to **\$30 million dollars (\$30,000,000.00)** in **Franklin Park Venture Fund Series 2019, 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 3rd day of June 2019.

Mr. Jeff Stubblefield, *Chair*
Arkansas Teacher Retirement System

Arkansas Teacher Retirement System Franklin Park Vehicles Update

JUNE 2019

Background

In December 2018, ATRS' board approved the following commitments:

- ▶ \$30m to Franklin Park Venture Capital Access Fund, L.P. ("FP VC Access")
 - ATRS has historically made annual commitments to FP VC vehicles
 - Since 2008, ATRS has committed \$275m to 11 FP VC vehicles (19.8% net IRR as of 12/31/18)
 - FP VC Access is being formed to commit to FP VC vehicles raised over 3 years (2019-2021)
 - ATRS to serve as anchor LP with special economic terms (no management fees or carry)
 - FP to raise capital for FP VC Access from other LPs (with market terms)

- ▶ \$30m to ATRS/FP Private Equity Fund, L.P. ("ATRS/FP")
 - ATRS/FP primarily makes co-investments (+select fund commitments & appraisal rights investments)
 - Since 2012, ATRS has committed \$293m to ATRS/FP (14.9% net IRR as of 12/31/18)
 - ATRS/FP planned to commit \$30m to Franklin Park Corporate Finance Access Fund, L.P. ("FP CF Access")
 - FP CF Access is being formed to commit to U.S. buyout, growth & turnaround funds generally sized <\$1b
 - ATRS to serve as anchor LP with special economic terms (no management fees or carry)
 - FP to raise capital for FP CF Access from other LPs (with market terms)

Proposed Changes

FP proposes the following changes:

- ▶ ATRS to commit \$30m to Franklin Park Venture Fund Series 2019, L.P. instead of FP VC Access
 - FP does not intend to have a closing on FP VC Access until later in 2019
 - FP to seek approval from ATRS for a commitment to FP VC Access in 4Q19
 - FP VC Access will commit to FP VC vehicles raised over 3 years (2020-2022)

- ▶ ATRS to commit \$30m directly to FP CF Access instead of through ATRS/FP
 - FP plans to have a first closing on FP CF Access in June/July 2019
 - Committing directly to FP CF Access is more efficient and will allow for more timely quarterly reporting

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

**RESOLUTION
No. 2019-29**

**Approving Investment in Franklin Park Corporate Finance
Access 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, at its regular meeting on December 3, 2018 approved an investment of up to \$30 million dollars in ATRS/FP Private Equity Fund, an open-end fund of underlying private equity portfolio companies, next generation manager funds and appraisal right opportunities, that was formed to enhance the overall performance of the entire private equity portfolio; 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 the transfer of the commitment made in ATRS/FP Private Equity Fund to the Franklin Park Corporate Finance Access Fund, L.P., a fund of high quality smaller managers, in order to simplify the accounting and monitoring of the ATRS/FP Private Equity Fund.

THEREFORE, BE IT RESOLVED, that the ATRS Board approves an investment of up to **\$30 million dollars (\$30,000,000.00)** in **Franklin Park Corporate Finance Access 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 3rd day of June 2019.

Mr. Jeff Stubblefield, *Chair*
Arkansas Teacher Retirement System

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

RESOLUTION
No. 2019-30

Extension of ATRS CASH Program for Fiscal Year 2020

WHEREAS, The CASH Program was established by the Arkansas Teacher Retirement System (ATRS) Board of Trustees (Board) to allow inactive, vested non-contributory members to obtain an immediate one-time payment from ATRS instead of waiting until age 60 to draw monthly benefits; and

WHEREAS, The CASH Program is beneficial to ATRS by allowing ATRS to reduce its unfunded liabilities while providing inactive members an opportunity to obtain a CASH Program payment to benefit the member; and

WHEREAS, The CASH Program was established in November 2013 with significant participation from inactive, vested non-contributory members since its effective date; and

WHEREAS, Inactive, vested members with contributory service and inactive, vested members with mixed contributory and non-contributory service have not been eligible for the CASH Program prior to this time; and

WHEREAS, Act 647 of 2017 allows the Board to extend, modify, or expand the CASH Program by Board Resolution; and

WHEREAS, The CASH Program was extended, modified and expanded by Board Resolution 2017-18 on May 10, 2017 to include all inactive, vested ATRS members; and

WHEREAS, The extension of the CASH Program would enhance the benefit of the CASH Program to ATRS while providing the opportunity to obtain a CASH Program payment to all inactive, vested ATRS members;

NOW, THEREFORE, BE IT RESOLVED, That this resolution establishes the ATRS Rule 16 CASH Program for the Fiscal Year 2020 for Inactive Vested Members as set forth herein:

The Fiscal Year 2020 CASH Program for Inactive, Vested Members

I. Applicable to Inactive, Vested Members Only

- A. This offering is limited to vested members that are inactive. The CASH Program payment, once the CASH Program Election Form is properly submitted to ATRS, will be paid within a reasonable time or rolled out to another administrator at the direction of the member. The acceptance of a CASH Program payment by the member does not make the member a retiree.
- B. This offering is limited to members of ATRS who:
 - i. Have vested in ATRS; and
 - ii. Are currently inactive and have remained inactive for at least one (1) fiscal year after the last fiscal year that the member rendered actual service to a covered employer, but not retired, during the offering period set forth in this Resolution.

II. The Offering Period

The offering period for this CASH Program opportunity begins July 1, 2019 and ends June 30, 2020.

III. The CASH Program Formula

- A. Final Average Salary is defined under A.C.A. § 24-7-202(18) and calculated using the formula set in A.C.A. § 24-7-736.
- B. The member's age shall be the age attained as July 1, 2019.
- C. The CASH Program Payment is calculated on the following formula:

Step 1: (Final Average Salary) x (Years and partial years of Non-contributory Service) x (ATRS Non-contributory multiplier of 1.39%) + (Final Average Salary) x (Years and partial years of Contributory Service) x (ATRS Contributory multiplier of 2.15%) = Assumed Annual Benefit. The benefit stipend and lump sum death benefit are not part of the Assumed Annual Benefit.

Step 2: Assumed Annual Benefit ÷ 12 = Assumed Monthly Benefit Amount.

Step 3: Assumed Monthly Benefit Amount x Applicable Accrued Liability Factor for the Member as listed in the Accrued Liability Factor Table = Assumed Current Value.

Step 4: (Member Contributions + Interest on Member Contributions) x (101% for 1st Year of Eligibility OR 102% for 2nd Year of Eligibility OR 105% for 3rd Year of Eligibility OR 110% for the 4th the Year of Eligibility and beyond) = Premium Residue.

Step 5: Highest value of (Assumed Current Value x 30%) or Premium Residue = CASH Program payment.

VIII. ACCRUED LIABILITY FACTOR TABLE

Sample Attained Ages	Accrued Liability Factor	Sample Attained Ages	Accrued Liability Factor
20	6.97	56	113.97
21	7.53	57	123.39
22	8.13	58	133.63
23	8.79	59	144.78
24	9.49	60	156.92
25	10.25	61	154.09
26	11.07	62	151.18
27	11.96	63	148.18
28	12.92	64	145.12
29	13.96	65	141.98
30	15.08	66	138.76
31	16.29	67	135.50
32	17.60	68	132.15
33	19.01	69	128.70
34	20.54	70	125.17
35	22.19	71	121.55
36	23.98	72	117.85
37	25.91	73	114.07
38	28.00	74	110.20
39	30.26	75	106.28
40	32.70	76	102.30
41	35.33	77	98.25
42	38.19	78	94.21
43	41.27	79	90.17
44	44.61	80	86.13
45	48.21	81	82.11
46	52.11	82	78.14
47	56.33	83	74.24
48	60.90	84	70.37
49	65.83	85	66.60
50	71.18	86	62.92
51	76.95	87	59.38
52	83.21	88	56.07
53	89.99	89	52.97

54	97.35	90	50.09
55	105.31		

The mortality table used was the RP-2000 Mortality table for males and females projected 25 years with scale AA (95% for men and 87% for women).

Adopted this 3rd day of June, 2019.

Mr. Jeff Stubblefield, *Chair*
Arkansas Teacher Retirement System Board

ATRS Board Policy 1

BOARD GOVERNANCE

A.C.A. § 24-7-301 et seq., A.C.A. § 24-7-401 et seq.,
and A.C.A. § 25-16-901 et seq.

I. Board Plan Administration

- A. The authority and responsibility for the administration, management, and control of the Retirement System, and for the construing and carrying out the provisions of the plan is vested in the Board of Trustees (hereinafter the “Board”). The Board is responsible for the governance of ATRS. It is accountable for establishing policies and for supervising the implementation of those policies in compliance with all applicable legal mandates.
- B. The function of the Board is to make certain contributions that lead the Retirement System toward the desired performance and ensure that it occurs. The Board’s specific contributions are unique to its trusteeship role and necessary for appropriate governance and management. Board decisions are to be based on facts and expert opinions.
- C. The Board will approach its task with a style that emphasizes outward vision rather than an internal preoccupation; encouragement of diversity of viewpoints; strategic leadership more than administrative detail; clear distinction of Board and staff roles; future rather than past or present; and proactive rather than reactive.
- D. Consequently, the contributions of the Board shall be:
1. The link between the Retirement System and its members.¹
 2. Written governing policies that, at the broadest levels, address:
 - a. **Governance Process**

Specification of how the Board conceives, carries out, and monitors its own task.
 - b. **Board-Staff Relationship**

How authority is delegated and its appropriate use is monitored.
 - c. **Ends**

Retirement system products, impacts, benefits, and outcomes (what good for which needs at what cost).
 - d. **Limitations**

Constraints on executive authority that establish the prudence and ethics boundaries within which executive activity, decisions, and organizational matters shall be carried out.

3. The assurance of Executive Director performance against Ends and Limitations policies above.

II. Board Guiding Principles

- A. The Board of Trustees is dedicated to the proposition that its paramount purpose is that of providing an adequate and equitable retirement plan for the members of the teaching profession, to protect this group in the event total and permanent disability causes them to be unable to continue employment in their profession, and to provide in part for their dependents in case of death.
- B. The Board is responsible for the prudent investment of System funds. The two paramount considerations in fund investment are safety and yield, with yield being of first importance, provided such investments comply with legally mandated safeguards.
- C. The Board should be fully informed of its financial liabilities, not only to the retirants and beneficiaries, but also to active members of the teaching profession, and to make those liabilities known to members of the state legislature, to other state officials, and to education-related organizations.
- D. The Board should provide all interested citizens with information regarding ATRS's procedures for investing system funds, as well as the budgeting, control, and disbursement of those funds.
- E. The Board will actively promote the enactment of state and federal legislation that may improve the economic welfare of ATRS members.
- F. The Board endorses programs of counseling and information designed to assist members who are approaching retirement.
- G. The Board should be knowledgeable of the most current information regarding effective, efficient governance and operation of state retirement systems that could augment prudent decisions for the benefit of members. To this end, Board members are encouraged to participate actively in regional and national retirement organization programs that offer such information and training.

III. Board Code Of Conduct

The Board expects of itself and its members ethical and business-like conduct.

- A. Board members, as fiduciaries, shall discharge their duties solely in the best interest of ATRS members for the exclusive purpose of providing

optimum benefits.

- B. Board members must avoid any conflict of interest with respect to their fiduciary responsibility. Board members must not use their positions to obtain favorable treatment for themselves, family members, or close employees.
- C. Board members who desire specific information from firms employed by ATRS should make the request through the Executive Director.
- D. Board members shall not, directly or indirectly, solicit or accept any gift of value as defined by the Arkansas Ethics Commission.
- E. Board members shall decline any offer and shall not have any contact with anyone associated with a firm that the Board is considering employing after requests for proposals (RFP's) or requests for qualifications (RFQ's) have been sent.
- F. Board members shall not attempt to exercise individual authority over the operation of the retirement system or staff members except as explicitly set forth in Board policies. Board members' interaction with the staff, public, press, or other entities must recognize the inability of any Board member or Board members to speak for the Board.
- G. Board members shall report violations of any of these policies of conduct in writing to the Board Chair.

IV. Board Member Development

The Board is responsible for its own readiness for Board work and the performance of that work.

- A. The Board determines appropriate issues for Board work and appropriate issues to be addressed, as well as the education and data required to address those issues wisely.
- B. The Board determines the need and mechanisms for Board development.
 - 1. Among the mechanisms will be membership in the National Council on Teacher Retirement, Board-approved consultants, and seminars provided by employees of ATRS.
 - 2. The Board's annual plan will include expected outcomes, costs, and scheduling of the Board development effort.
 - 3. The Board will set forth the educational experiences it determines appropriate for a new Board member.
- C. The Board may enlist assistance from the Executive Director in any phase of its own development.

V. Board Meetings

The Board shall hold regular meetings at least quarterly. Additional meetings may be called by the Chair or scheduled by action of the Board in a regular meeting. The Board shall adopt its own rules of procedure, which shall be subject to the following:

- A. The Board shall elect a Chair and Vice Chair from its own membership. The election will be in the odd numbered years at the first regular meeting after the beginning of the fiscal year. The Chair and Vice Chair shall be elected for a term of two years and may be reelected for two additional two-year terms. The Chair and Vice Chair shall be either an active member or retirant trustee. A Board member must have served at least one full year as a member of the Board to be eligible for election to the position of Chair or Vice Chair.
- B. In the event a vacancy of the Chair or Vice Chair occurs for any reason other than completion of a term, the Board shall fill said vacancy by election from the existing Board members for the remainder of the unexpired term at its next regular meeting. A trustee elected to fill an unexpired term of the Chair or Vice Chair shall be eligible for two additional two-year terms.
- C. Quorum: Eight trustees shall constitute a quorum at any meeting of the Board.
- D. Each trustee shall be entitled to one vote on each question before the Board, and at least eight affirmative votes shall be required for a decision by the Board at any meeting.
- E. *Robert's Rules of Order* shall be followed in the conduct of all meetings except when a departure from Robert's is authorized by action of the Board.
- F. Agenda**

The Board shall adopt an agenda at the beginning of each meeting. By a majority vote of the Board, items may be added to the agenda before it is adopted.

1. The Executive Director shall prepare a tentative agenda and submit it to all trustees at least ~~30~~ **ten (10)** days prior to a regularly scheduled meeting. The meeting agenda and materials will be submitted to trustees no later than ~~five~~ **three (3)** days before the regularly scheduled meeting.
2. Trustees who want item(s) to be considered for the agenda should notify the Executive Director no later than ~~20~~ **seven (7)** days prior to a regularly scheduled meeting.
3. Members or individuals who wish to have an item placed on the

agenda at a regularly scheduled Board meeting should submit their request in writing to the Executive Director no later than twenty (20) days prior to the meeting.

4. Members or individuals who wish to make comments during a regularly scheduled Board meeting should indicate on forms provided the subject on which they intend to speak.

5. A time limit of five (5) minutes will be allowed members and individuals for presentation, unless extended by majority vote of the Board.

G. Minutes

The Board shall keep an official record of the proceedings of each meeting, the final draft of which must be approved by the Board and signed by the Chair and the Executive Director. The Board minutes are to contain only the action of the Board, information required by case law, and the vote thereon.

H. Public Meetings

All meetings of the Board shall be public and in compliance with the Freedom of Information Act. Representatives of the Little Rock news media shall be notified of each meeting.

VI. Duties Of Chair And Vice Chair

A. Duties of the Chair

The duty of the Chair is to ensure the integrity of the Board's process and to represent the Board to outside parties.

1. The Chair will see that the Board operates consistent with its own rules and those legitimately imposed on it from outside ATRS.

a. Meeting discussion content will be only those issues that, according to Board policy, clearly belong to the Board to decide.

b. Deliberation will be timely, fair, orderly, and thorough, but also efficient, limited in time, and kept to the point.

2. The authority of the Chair consists only in making decisions on behalf of the Board that fall within and are consistent with Board policies.

a. The Chair is empowered to chair Board meetings with all the commonly accepted power of that position (e.g., ruling, recognizing, etc.).

b. The Chair may also:

i. Convene meetings of the Board, or committees thereof, as prescribed by law.

- ii. Certify actions taken by the Board.
- iii. Serve as the official spokesperson for the Board.
- iv. Name Board members to committees.
- v. Perform other duties specifically requested by the Board that are deemed necessary and appropriate for the Board to fulfill its duties and responsibilities under law.

B. Duties of the Vice Chair

The duties of the Vice Chair are to act as temporary chair in the absence of the regular chair.

VII. Reimbursement Of Expenses

- A. The Board, by majority vote of the total membership cast at the first regularly scheduled meeting of each calendar year, may authorize expense reimbursement for each trustee for performing official Board duties. Official Board duties are defined as follows:
 - 1. Attending regular and called Board meetings.
 - 2. Attending committee meetings of the Board or any specially appointed committee comprised in whole or in part of Board members.
 - 3. Attending conferences approved by the Board of Trustees.
 - 4. Attending legislative committee meetings when acting as spokesperson for the Board.
 - 5. Attending legislative sessions at the request of the Board or Executive Director.
- B. Board members are subject to the same reimbursable expenses as state employees.
- C. Board officers are authorized payment for personal expenses, not otherwise reimbursed, incurred in the performance of their ATRS related duties. Such reimbursement is to cover (1) any losses in salary or compensation that would otherwise result from their attendance at Board or committee meetings, and will be paid to the officer's employer; and (2) the costs of communication (long-distance telephone calls, postage, etc.) with other trustees or staff members.

VIII. Procurement of Services

- A. ATRS shall utilize an equitable and open system of awarding contracts to providers of all contractual, management, and consultant services, including, but not limited to: (1) construction architects, engineers, and contractors; (2) building mangers; (3) real estate, legal, and investment

consultants; and (4) actuaries and auditors.

B. The system of awarding contracts will assure that all bona fide providers of such services will have equal opportunity to submit competitive bids or competitive proposals for consideration.

1. Consistent with the Prudent Investor Rule and pursuant to A.C.A. § 24-2-618, ATRS has a statutory goal to recruit and hire emerging managers and emerging investment funds.

2. For purposes of this Rule, "emerging managers" and "emerging investment funds" means a managing group or fund that is predominately owned by black or African American, Hispanic American, American Indian or Native American, Asian, or Pacific Islander.

3. Each investment consultant retained by ATRS to recommend investment managers or investment funds shall submit an annual report to ATRS consistent with the requirements in A.C.A. § 24-2-618 that addresses the goal of ATRS to recruit and hire emerging managers and emerging investment funds.

C. The Executive Director shall develop procurement procedures and a plan for implementing the process of awarding contracts.

D. The Board of Trustees shall approve all procedures and contracts related to the procurement of services.

IX. Board Self-Evaluation

The Board will regularly evaluate its own performance, taking whatever action is necessary to govern with excellence. The Board will review these policies of conduct at least annually and discuss the degree to which it complies.

X. Board Committee Principles

The Board may establish committees to help carry out its responsibilities.

A. Board committees may not speak or act for the Board except when formally given such authority.

B. Committees ordinarily will assist the Board by preparing policy alternatives and implications for Board deliberation.

C. Board committees may not exercise authority over staff.

D. All members of the Board shall be notified as to the time and place of all committee meetings. A Board member may attend any committee meeting, but only committee members may vote on committee matters.

E. Appointments to committees shall be for four-year terms unless otherwise noted. Initial appointments for less than four years may be reappointed to

one full four-year term.

- F. A quorum of each committee and the number of affirmative votes needed for a motion to carry shall be a majority of the designated size of the committee.
- G. Board committees shall elect their own Chair and Vice Chair unless otherwise indicated by Board policy.
- H. The Executive Director shall serve as secretary and ex officio nonvoting member of Board committees or shall delegate another member of the staff to serve in this capacity.
- I. Committees shall report to the Board following each of their meetings.

XI. Investment Committee Charter

- A. There shall be an Investment Committee composed of eight members. The Board Chair shall appoint five members from the Board, and the Board Chair shall serve as an ex officio voting member. The remaining two members shall be the State Treasurer and the State Bank Commissioner upon their acceptance of the position.
- B. The committee shall meet on call by the committee chair and/or the Executive Director, but not less than on a quarterly basis.
- C. The purposes of the committee shall be:
 - 1. To consider investment policies and procedures for recommendation to the Board for adoption.
 - 2. To consider asset allocations for recommendation to the Board for adoption.
 - 3. To consider all investment proposals for approval or rejection, unless the Board assigns the proposals to other committees.
 - 4. To monitor all phases of the investment program and to recommend any changes that need to be made to the full Board.
- D. The agenda will be set by the committee chair after conferring with the Executive Director and will be furnished in advance when practical.
- E. The committee may act by majority consent of all the committee members.
- F. The actions taken by the committee shall be reported at the next regularly scheduled meeting of the Board.
- G. All public Board disclosures and the Code of Ethics are applicable to all members of this committee.

XII. Operations Committee Charter

- A. There shall be an Operations Committee composed of up to eight members. The Board Chair shall appoint five members from the Board, and the Board Chair shall serve as an ex officio voting member. The remaining two members shall be the State Auditor and the Commissioner of Education upon their acceptance of the position.
- B. The committee shall meet on call by the committee chair and/or the Executive Director.
- C. The purposes of the committee shall be:
 - 1. To receive and consider proposals for the adoption of new or revised policy to recommend to the Board for adoption.
 - 2. To receive and consider legislative proposals to recommend to the Board for adoption.
 - 3. To suggest and develop legislative proposals for the benefit of ATRS and its members to recommend to the Board for adoption.
 - 4. To make recommendations to the Board for initiating, supporting, or opposing legislation.
 - 5. To recommend and oversee the Board and Executive Director evaluation process.
 - 6. To recommend and oversee the Board's training and conference schedules.
- D. All matters that are not within the jurisdiction/purposes of the Investment or Audit Committees shall be within the jurisdiction/purposes of the Operations Committee.
- E. The agenda will be set by the committee chair after conferring with the Executive Director and will be furnished in advance when practical.
- F. The committee may act by majority consent of all the committee members.
- G. The actions taken by the committee shall be reported at the next regularly scheduled meeting of the Board.
- H. All public Board disclosures and the Code of Ethics are applicable to all members of this committee.

XIII. Audit Committee Charter

- A. There shall be an Audit Committee composed of three members of the ATRS Board of Trustees appointed by the Board Chair and two at-large members from the public with extensive auditing experience approved by the Board. The at-large members must be independent and have no affiliation with ATRS.

- B. The committee shall meet as needed on call by either the committee chair or the ATRS Internal Auditor. Actions taken by the committee shall be reported to the ATRS Board of Trustees.
- C. The committee has authority to conduct or authorize investigations into any matters within its scope of responsibility and to seek any information it requires from employees, all of who are directed to cooperate with the committee's request. In the event the committee has difficulty obtaining the necessary information from an employee or employees, the committee may seek assistance from the Executive Director or the Board of Trustees as the circumstances dictate.
- D. The committee may invite members of management, auditors, employees, or others to attend meetings and provide pertinent information as necessary.
- E. The committee will assist the Board of Trustees in fulfilling the Board's oversight responsibility relating to:
 - 1. The financial reporting processes
 - 2. The system of internal controls
 - 3. The internal audit process
 - 4. ATRS's compliance with laws and regulatory requirements and ethics policies
- F. Meeting agendas will be prepared and provided in advance to committee members , along with appropriate briefing material when practical.
- G. The committee may act by majority consent of all the members of the committee.
- H. Minutes of the meeting will be prepared and presented at the next scheduled Audit Committee meeting for review and approval.
- I. The committee will carry out the following responsibilities:
 - 1. **Financial Statements**
 - a. Review with management and auditors the results of audits which have significant findings and recommendations, together with management's responses to findings and follow up on corrective actions.
 - 2. **Internal Control**
 - a. Review the risk assessment to consider the effectiveness of ATRS's internal controls.
 - b. Review with management and auditors any significant findings and

recommendations on internal controls over financial reporting, together with management's responses.

3. Internal Audit

- a. Review with management and the Internal Auditor the charter, activities, staffing, and organizational structure of the internal audit function.
- b. Review and approve the audit plan and all major changes to the plan.
- c. Review Internal Audit's reports and follow up on findings and recommendations.

4. Compliance

- a. Review the findings of any examinations by regulatory agencies, and any auditor observations.

5. Reporting Responsibilities

- a. Regularly report to the Board of Trustees on the committee's activities and issues that arise with respect to the quality or integrity of ATRS's financial statement, compliance with legal or regulatory requirements, and the performance of the internal audit function.

6. Other Responsibilities

- a. Perform other activities related to this charter or the audit functions as requested by the Board of Trustees.
- b. Resolve any disagreements between management and the Internal Auditor regarding financial reporting.
- c. Review and assess the adequacy of the committee charter, and propose recommended changes as needed, and request Board of Trustees approval for recommended changes.
- d. Approve decisions regarding the appointment and removal of the Internal Auditor. (Per ATRS Board Policy 3.II.C.4, the ATRS Executive Director will notify the Board Chair of changes in the Internal Auditor position prior to requesting Committee approval.)
- e. Perform an annual employee evaluation of the Internal Auditor of ATRS. The audit committee shall:
 - i. Meet in executive session, with or without the Internal Auditor, for the purpose of conducting, reviewing, and discussing an employee evaluation of the internal auditor;
 - ii. Gather information as it deems necessary, including input from

the Executive director or other persons with direct knowledge of the Internal Auditor's performance, for the purpose of conducting a fair and thorough annual employee evaluation of the Internal Auditor;

iii. Report to the Board of Trustees when the Committee has completed the annual evaluation that the evaluation has been completed. If a Trustee requests by motion and second to learn the specific results of the Internal Auditor evaluation, and the majority of the Board votes in favor of such motion, the Board of Trustees may meet in executive session to hear the Committee's findings and recommendation on the employee evaluation.

J. The committee may periodically evaluate itself and report the results to the Board of Trustees. The effective date for the start of any evaluation process and frequency of evaluations may be determined by the committee.

1 "Members" as used in the Board policies means plan participants of the Arkansas Teacher Retirement System.

ATRS Board Policy 2

BOARD OBJECTIVES

A.C.A. § 24-7-401

I. Board Financial Objectives

A. Sustain actuarial soundness. The goals are for:

1. The funded ratio to increase and the funding period to decrease unless knowingly modified by Board action or as a result of events over which the Board has no control.
2. The actuarial methodology and economic assumptions to be comparable to other teacher retirement systems.¹

B. Manage contributions effectively. The goals are for:

1. Employer contributions to be collected and invested in a timely manner.
2. Receivables of more than 30, 60, and 90 days to be reported to the Board.

C. Maximize investment returns within the bounds of prudence.

1. Asset Allocation

Investments shall be within the minimum and maximum ranges established by the Board and will approximate the targeted levels unless the Board is advised as to reasons for a deviation.

2. Investment Return

Total Fund - The overall goal is to achieve, over a period of years, the actuarial interest assumption rate with due consideration being given to preservation of capital and its purchasing power and to maintaining the element of risk at a prudent investor level.

D. Ensure budget credibility

The goals are for:

1. Total operating expenses (excluding investment expenses) of existing programs and services to be maintained or reduced in relation to the five-year rolling average of increases in members and inflation.
2. Investment related expenses to be maintained or reduced in relation to investment assets once each asset category reaches its target allocation.

3. Proposed programs or services to have a "business plan" that includes:
 - a. A description of the need to be met.
 - b. The method by which the need will be met.
 - c. The method by which members will learn about the program or services.
 - d. Staffing requirements.
 - e. Other resources that are needed.
 - f. The method by which the programs or services will be evaluated.

II. Board Objectives for Members

- A. Promote contribution rates, benefits, and services comparable to other teacher retirement systems.¹ The goals are for:
 1. Employer contribution rates to be comparable to other teacher retirement systems.
 2. Total benefits paid to be comparable to other teacher retirement systems.
 - a. Average regular benefits paid to be comparable to other teacher retirement systems.
 - b. Average disability benefits paid to be comparable to other teacher retirement systems.
 - c. Average survivor benefits paid to be comparable to other teacher retirement systems.
 3. Age and length of service requirements for unreduced retirement benefits to be comparable to other teacher retirement systems.
 4. Plan of payment options for regular benefits to be comparable to other teacher retirement systems.
- B. Increase awareness of trust fund stewardship. The goals are for:
 1. ATRS to receive the "Certificate of Achievement for Excellence in Financial Reporting" each year as presented by the Government Finance Officers Association of the United States and Canada.
 2. ATRS to receive the Public Pension Coordinating Council's "Public Pension Principles Achievement Award" each year it is available.
 3. A comprehensive annual financial report, or abstract thereof, to be provided to each employer of ATRS, the Legislative Council, and the Governor [A.C.A. §§ 24-2-702 and 24-7-305(d)].

C. Promote retirement education and communications. The goals are for:

1. Special programming for new ATRS members (those with less than five years of service) to be developed and disseminated to increase awareness of ATRS and its benefits.
2. The number and percentage of members participating in retirement education events sponsored by the ATRS to increase or remain the same from one year to the next.
3. Printed communications from ATRS to be judged as well written, attractively formatted, and helpful by a sample of the members targeted by the communication.

D. Improve overall service level. The goals are for:

1. The overall service level of ATRS to be above the median for its peer group² and at a cost that is comparable to its peer group.³
2. The overall service level to include the following functions within ATRS:
 - a. Paying pensions
 - b. Pension inceptions
 - c. Pension estimates
 - d. Counseling
 - e. Member telephone calls
 - f. Communication
 - i. Group presentations
 - ii. Website and E-mail
 - iii. Newsletters
 - iv. Other written material
 - g. Collections
 - i. Annual member statements
 - ii. Employer services
 - h. Refunds, terminating payments
 - i. Service credit purchases
 - j. Disability pensions
 - k. Financial control & governance

i. The Annual Report

III. Board Governance Objectives

A. Administer retirement laws in a timely, accurate, and consistent manner.

The goals are for:

1. The average turn-around time for processing retirement to improve or remain the same from the previous year.
2. Retirement benefits to be calculated accurately and consistently.

B. Provide member benefits and services (1) at a level that promotes member satisfaction and (2) in a cost effective manner. The goals are for:

1. The satisfaction level of members regarding benefits and services to increase from one year to the next.

C. Process improvement. The goals are for:

1. "Business critical" processes to be identified.
2. "Business critical" processes to be analyzed and redesigned as needed.
3. Processes to be continually reevaluated.

D. Effectively manage new projects and initiatives. The goals are for:

1. New projects and initiatives to be undertaken with a detailed plan, including projected completion dates and resource requirements.
2. Periodic progress reports to be made to the Board on major projects or initiatives.

E. Promote effective communication. The goal is for:

1. Communications with the Board, members, and employees that are clear, concise, and timely.

F. Promote knowledge-based decision-making. The goal is for:

1. Management decisions based on facts and expert opinions.

IV. Staff Learning and Growth Objectives

A. Foster a positive, innovative work environment. The goal is for:

1. Professional and support staff responses to an organizational climate survey to indicate a stable or more positive and innovative work environment from one year to the next.

B. Employ and retain highly capable employees. The goals are for:

1. The average educational level of the professional and support staffs to

increase or at least remain the same from one year to the next.

2. The net turnover rate ⁴ of the professional and support staffs to decrease or at least remain the same from one year to the next.

C. Recruit and retain a diverse work force. The goal is for:

1. The gender, race, and age of the professional and support staffs to show progress toward approximating the respective work forces in the Little Rock Metropolitan Statistical Area from one year to the next.

D. Enhance training and development opportunities. The goals are for:

1. The average number of days spent in training by the professional and support staffs to increase or at least remain the same from one year to the next.

2. The number and percentage of professional and support staff having recognized job-specific or job-related credentials to increase or at least remain the same from one year to the next.

1 "Other teacher retirement systems" as used here includes those statewide retirement systems in the United States whose: (a) membership is predominately teachers, (b) members contribute to Social Security, (c) membership is within ±50% of ATRS, and (d) assets are within ±50% of ATRS.

2 "Peer group" as used here refers to a number of retirement systems selected by Cost Effective Measurement, Inc., that are most like ATRS.

3 It is understood that the first time data will be collected for this and the following goal will be in 2003 for the 2002-2003 fiscal year.

4 The net turnover rate is the total separations less retirements, disabilities, and deaths divided by the average number of employees during the year.

ATRS Board Policy 3 **EXECUTIVE DIRECTOR**

A.C.A. § 24-7-303

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 Consultant, and (c) Real Estate Manager 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. 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. 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. 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

<u>Policy</u>	<u>Method</u>	<u>Responsibility</u>	<u>Frequency</u>	<u>Month Expected</u>
<u>Sustain actuarial soundness</u>	<u>External Report</u>	<u>Actuary</u>	<u>Annual</u>	<u>Dec.</u>
<u>Manage contributions effectively</u>	<u>Internal Report</u>	<u>Executive Director</u>	<u>Annual</u>	<u>June</u>
<u>Maximize investment returns</u>	<u>External Report</u>	<u>Investment Consultant</u>	<u>Quarterly</u>	<u>Apr., July, Oct., Jan.</u>
<u>Ensure budget credibility</u>	<u>Internal Report</u>	<u>Executive Director</u>	<u>Annual</u>	<u>June</u>

Ends Policies - Customer Perspective

<u>Policy</u>	<u>Method</u>	<u>Responsibility</u>	<u>Frequency</u>	<u>Month Expected</u>
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

<u>Policy</u>	<u>Method</u>	<u>Responsibility</u>	<u>Frequency</u>	<u>Month Expected</u>
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

<u><i>Policy</i></u>	<u><i>Method</i></u>	<u><i>Responsibility</i></u>	<u><i>Frequency</i></u>	<u><i>Month Expected</i></u>
<u>Foster a positive, innovative work environment</u>	<u>Internal Report</u>	<u>Executive Director</u>	<u>Annual</u>	<u>June</u>
<u>Employ and retain highly capable employees</u>	<u>Internal Report</u>	<u>Executive Director</u>	<u>Annual</u>	<u>June</u>
<u>Recruit and retain a diverse work force</u>	<u>Internal Report</u>	<u>Executive Director</u>	<u>Annual</u>	<u>June</u>
<u>Enhance training and development opportunities</u>	<u>Internal Report</u>	<u>Executive Director</u>	<u>Annual</u>	<u>June</u>

Ends Policies - Executive Director Limitations

<u><i>Policy</i></u>	<u><i>Method</i></u>	<u><i>Responsibility</i></u>	<u><i>Frequency</i></u>	<u><i>Month Expected</i></u>
<u>General Executive Constraints</u>	<u>Internal Report</u>	<u>Executive Director</u>	<u>Annual</u>	<u>June</u>
<u>Communication and Counsel to the Board</u>	<u>Direct Board Inspection</u>	<u>Board</u>	<u>Annual</u>	<u>June</u>
<u>Code of Ethics</u>	<u>Internal Report</u>	<u>Executive Director</u>	<u>Annual</u>	<u>June</u>
<u>Compensation and Benefits</u>	<u>Internal Audit Report</u>	<u>Internal Auditor</u>	<u>Annual</u>	<u>June</u>
<u>Staff Treatment</u>	<u>Internal Report</u>	<u>Executive Director</u>	<u>Annual</u>	<u>June</u>
<u>Operations</u>	<u>Internal Report</u>	<u>Executive Director</u>	<u>Annual</u>	<u>June</u>
<u>Risk Management</u>	<u>Internal Report</u>	<u>Executive Director</u>	<u>Annual</u>	<u>June</u>

* Every five years another independent actuary will review the actuarial soundness of ATRS. (The last five-year actuarial audit was conducted for FY 2006 2015.)

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 **G124 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](#)

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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 1:30 p.m. on May 22, 2019. Those members present were Dr. Eddie Phillips and Dr. Hoyte Pyle. Anne Marie Lehman of the Teacher Retirement System was also in attendance. *Berardi*

A total of twenty disability applications were considered. Of the twenty applicants, sixteen were approved. One was denied. Three had more information requested.

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 1:30 p.m. on May 29, 2019. Those members present were Dr. Eddie Phillips and Dr. Hoyte Pyle. Anne Marie Lehman Berardi of the Teacher Retirement System was also in attendance.

A total of twenty three disability applications were considered. Of the twenty three applicants, fifteen were approved. Three were denied. Five had more information requested.

Respectfully Submitted,



Eddie Phillips, CMO
Medical Committee Chairman

Respectfully Submitted,



Anne Marie Lehman Berardi
Retirement Benefits Counselor