



# ND STATE INVESTMENT BOARD MEETING

Friday, February 23, 2018, 8:30 a.m.  
State Capitol, Peace Garden Room  
600 E Blvd, Bismarck, ND

## AGENDA

### I. CALL TO ORDER AND ACCEPTANCE OF AGENDA

### II. BOARD ACCEPTANCE OF MINUTES (January 26, 2018)

### III. INVESTMENTS

- A. Asset and Performance Overview - Mr. Hunter (enclosed) *15 minutes*
- B. Callan Associates - Mr. Alex Browning & Mr. Harshal Shah (enclosed) **Board Acceptance** *50 minutes*
  - 1. Market Update - 12/31/17 (enclosed)
  - 2. Pension Trust, Insurance Trust, Legacy Fund Review - 12/31/17 (enclosed)
- C. Investment Policies - TFFR, Grand Forks Park District - Mr. Hunter (enclosed) **Board Action** *10 minutes*
- D. Callan National Conference - SIB Attendees *Informational 5 minutes*
- E. Securities Litigation Charter & Standing Committee Policy - Mr. Hunter (enclosed) **Board Action** *10 minutes*
- F. Investment Work Plan Update (Fixed Income) - Mr. Schulz *Informational 5 minutes*
- G. SIB Investment Manager Summary - Mr. Hunter (enclosed) **Board Action** *10 minutes*

===== Break from 10:15 to 10:30 a.m. =====

### IV. GOVERNANCE (*30 minutes*)

- A. Board Self-Assessment - SIB Chair and Vice Chair (enclosed) **Board Acceptance**
- B. SIB Audit Committee - Ms. Sauter (enclosed) **Board Acceptance**
  - 1. February 22, 2018, Meeting Report
  - 2. Executive Limitations Audit
- C. Executive Review Committee Appt - Lt. Governor Sanford (enclosed)
- D. Bank of North Dakota Match Loan CD Program Background - Mr. Hunter (enclosed)

### V. BOARD EDUCATION

- A. LSV Asset Management (enclosed) (1 hour)
  - Josef Lakonishok, Ph.D. (CEO, CIO & Founding Partner) and James Owens (Partner & Director)

### VI. OTHER

Next Meetings: SIB Securities Litigation Committee meeting - March 14, 2018, 3:00 p.m. - Retirement and Investment Office  
SIB meeting - March 23, 2018, 8:30 a.m. - State Capitol, Peace Garden Room  
SIB Audit Committee meeting - May 24, 2018, 3:00 p.m. - Retirement and Investment Office

### VII. ADJOURNMENT

**NORTH DAKOTA STATE INVESTMENT BOARD  
MINUTES OF THE  
JANUARY 26, 2018, BOARD MEETING**

**MEMBERS PRESENT:** Brent Sanford, Lt. Governor, Chair  
Rob Lech, TFFR Board, Vice Chair  
Mike Gessner, TFFR Board  
Adam Miller, PERS Board  
Mel Olson, TFFR Board  
Kelly Schmidt, State Treasurer  
Troy Seibel, PERS Board  
Jodi Smith, Commissioner of Trust Lands  
Yvonne Smith, PERS Board  
Cindy Ternes, WSI Designee

**MEMBERS ABSENT:** Jon Godfread, Insurance Commissioner

**STAFF PRESENT:** Eric Chin, Senior Investment Officer  
Connie Flanagan, Fiscal & Invt Ops Mgr  
Bonnie Heit, Assist to the SIB  
David Hunter, ED/CIO  
Fay Kopp, Dep ED/CRA  
Sara Sauter, Audit Svs Suprv  
Cody Schmidt, Compliance Officer  
Darren Schulz, Dep CIO  
Susan Walcker, Invt Acct

**OTHERS PRESENT:** Patrick Brooke, Attorney General's Office  
Mike Burton, TFFR Board  
Jeanna Cullins, Aon Hewitt  
Sharon Schiermeister, PERS  
Kim Wassim, PERS Board

**CALL TO ORDER:**

Lt. Governor Sanford, Chair, called the State Investment Board (SIB) regular meeting to order at 8:30 a.m. on Friday, January 26, 2018, at the State Capitol, Peace Garden Room, Bismarck, ND.

**AGENDA:**

**IT WAS MOVED BY MR. LECH AND SECONDED BY MR. GESSNER AND CARRIED BY A VOICE VOTE TO ACCEPT THE AGENDA FOR THE JANUARY 26, 2018, MEETING.**

**AYES: MS. TERNES, COMMISSIONER SMITH, MR. GESSNER, MS. SMITH, MR. SEIBEL, MR. MILLER, MR. LECH, MR. OLSON, TREASURER SCHMIDT, AND LT. GOVERNOR SANFORD**

**NAYS: NONE**

**MOTION CARRIED**

**ABSENT: COMMISSIONER GODFREAD**

**MINUTES:**

IT WAS MOVED BY TREASURER SCHMIDT AND SECONDED BY MR. OLSON AND CARRIED BY A VOICE VOTE TO ACCEPT THE MINUTES OF THE NOVEMBER 17, 2017, MEETING AS DISTRIBUTED.

AYES: MR. GESSNER, COMMISSIONER SMITH, MS. SMITH, TREASURER SCHMIDT, MR. LECH, MR. OLSON, MR. SEIBEL, MR. MILLER, MS. TERNES, AND LT. GOVERNOR SANFORD

NAYS: NONE

MOTION CARRIED

ABSENT: COMMISSIONER GODFREAD

**INVESTMENTS/GOVERNANCE/EDUCATION:**

Asset and Performance Overview - Mr. Hunter briefly highlighted client investment assets under management, investment beliefs, education and governance, strategic investment plan, and an agency update. The information was previously reviewed with the board at their November 17, 2017, but given the governance educational segment on the agenda, Mr. Hunter felt it was important to do a quick review.

Governance Discussion Points - Mr. Hunter reviewed SIB governance discussion points previously discussed at the SIB's November 17, 2017, meeting. The Board deferred action until the January 26, 2018, meeting when Ms. Jeanna Cullins, Aon Hewitt, could provide further board governance education. Specific points for discussion included the SIB's current governance structure and oversight of investment manager hiring and firing decisions.

Fiduciary Trends in Public Pension Plan Governance - Ms. Jeanna Cullins, Aon Hewitt, reviewed the following topics with the board - length/frequency of meetings, delegation, requiring continuing education, and conducting an annual board self-assessment.

The Board recessed at 10:51 a.m. and reconvened at 11:11 a.m.

Governance Affirmation/Amendment - After Ms. Cullins presentation, the board discussed establishing a securities litigation committee and conducting an annual board self-assessment.

Mr. Hunter requested the SIB establish a securities litigation committee to assist the SIB in carrying out its fiduciary duty by selectively considering the use of additional legal actions in securities litigation cases.

IT WAS MOVED BY TREASURER SCHMIDT AND SECONDED BY MR. LECH AND CARRIED BY A ROLL CALL VOTE TO ESTABLISH A SECURITIES LITIGATION COMMITTEE BASED ON SIB GOVERNANCE POLICY - GOVERNANCE PROCESS/BOARD COMMITTEE PRINCIPLES B-5. THE COMMITTEE WILL BE APPOINTED BY THE SIB AND WILL BE STRUCTURED SIMILAR TO THE SIB AUDIT COMMITTEE PER SIB GOVERNANCE POLICY - GOVERNANCE PROCESS/STANDING COMMITTEES B-6.

AYES: MR. OLSON, MR. GESSNER, MR. MILLER, MS. SMITH, MR. SEIBEL, MS. TERNES, COMMISSIONER SMITH, MR. LECH, TREASURER SCHMIDT, AND LT. GOVERNOR SANFORD

NAYS: NONE

MOTION CARRIED

ABSENT: COMMISSIONER GODFREAD

The Securities Litigation Committee shall operate under the terms of a Charter approved by the SIB. The Committee consists of the following members: Mr. Seibel, Treasurer Schmidt, Mr. Brooke, Mr. Hunter, and Ms. Flanagan. The Committee members' terms will be for one year and the Committee will meet on a quarterly basis.

The Board discussed conducting an annual board self-assessment with the assistance of Aon Hewitt. After discussion,

**IT WAS MOVED BY MR. LECH AND SECONDED BY MS. SMITH AND CARRIED BY A ROLL CALL VOTE TO CONDUCT A BOARD SELF-ASSESSMENT ON AN ANNUAL BASIS.**

**AYES: MS. TERNES, MR. OLSON, TREASURER SCHMIDT, COMMISSIONER SMITH, MR. SEIBEL, MR. LECH, MR. MILLER, MS. SMITH, MR. GESSNER, AND LT. GOVERNOR SANFORD**

**NAYS: NONE**

**MOTION CARRIED**

**ABSENT: COMMISSIONER GODFREAD**

The Board directed staff to begin the process of conducting the self-assessment in order to have it completed prior to the Executive Director's annual review. At the March 23, 2018, meeting, the Board, per their Governance Policy - Board-Staff Relationship/Monitoring Executive Performance C-4, will select an Executive Review Committee. Mr. Hunter will discuss the self-assessment with Aon-Hewitt and will report back to Lt. Governor Sanford and Vice Chairman Lech.

Board Meeting Schedule - Mr. Hunter presented options for the 2018-19 meeting schedule for the board's consideration. After discussion,

**IT WAS MOVED BY MS. TERNES AND SECONDED BY MR. LECH AND CARRIED BY A ROLL CALL VOTE TO SELECT "OPTION A" WHEREBY 10 MEETINGS WOULD BE SCHEDULED FOR THE YEAR INCLUDING APRIL AS WELL AS A TENTATIVE DECEMBER 21, 2018, MEETING.**

**AYES: MS. TERNES, MR. OLSON, MR. MILLER, TREASURER SCHMIDT, MR. GESSNER, MS. SMITH, COMMISSIONER SMITH, MR. LECH, MR. SEIBEL, AND LT. GOVERNOR SANFORD**

**NAYS: NONE**

**MOTION CARRIED**

**ABSENT: COMMISSIONER GODFREAD**

Investment Policy Statements - Mr. Hunter requested the SIB accept investment policy statement changes, approved by the PERS Board, for the PERS Pension Plan, Retiree Health Insurance Fund, Job Service, and reaffirm the investment policy statement for the Group Insurance Fund.

**IT WAS MOVED BY MS. SMITH AND SECONDED BY MR. OLSON AND CARRIED BY A ROLL CALL VOTE TO ACCEPT THE PERS INVESTMENT POLICY STATEMENTS AS PRESENTED.**

**AYES: MR. LECH, TREASURER SCHMIDT, MR. OLSON, COMMISSIONER SMITH, MR. SEIBEL, MR. MILLER, MR. GESSNER, MS. SMITH, MS. TERNES, AND LT. GOVERNOR SANFORD**

**NAYS: NONE**

**MOTION CARRIED**

**ABSENT: COMMISSIONER GODFREAD**

Agency Employee Survey Results - Mr. Hunter shared the results of a survey initiated by the Governor's Office in December 2017. The purpose of the survey was to evaluate state employees on how they feel about various aspects of their workplace. The survey was administered through the state Human Resource Management Services division via survey monkey. RIO's results indicate focus needs to be placed on improving employee communication, compensation, and teamwork. Mr. Hunter will be meeting with RIO personnel to identify ways to improve in these areas. The Board directed Mr. Hunter to conduct a post follow-up to ensure the changes initiated are making a difference.

Environmental Social and Governance - Mr. Hunter reviewed Environmental, Social, and Governance Investing and how these factors influence the management of the SIB's



portfolio. Governance Policy - Investments/Proxy Voting E-7 addresses the SIB's practices. The policy has been in effect since September 20, 1995.

**MONITORING:**

Per Governance Policy, Board/Staff Relationship/Monitoring Executive Performance C-4, the following monitoring reports for the quarter ending December 31, 2017, were provided to the SIB for their consideration: Budget/Financial Conditions, Executive Limitations/Staff Relations, Investment Program, and Retirement Program.

Also included was the Watch List for the same time period.

**IT WAS MOVED BY MR. LECH AND SECONDED BY MS. SMITH AND CARRIED BY A VOICE VOTE TO ACCEPT THE MONITORING REPORTS FOR THE QUARTER ENDING DECEMBER 31, 2017.**

**AYES: TREASURER SCHMIDT, MR. GESSNER, MS. TERNES, COMMISSIONER SMITH, MS. SMITH, MR. LECH, MR. MILLER, MR. SEIBEL, MR. OLSON, AND LT. GOVERNOR SANFORD**

**NAYS: NONE**

**MOTION CARRIED**

**ABSENT: COMMISSIONER GODFREAD**

**OTHER:**

Discussion took place on the Legacy Fund's upcoming Asset Liability Study. The Bank of North Dakota has requested an increase to the Match Loan CD Program. This request will be considered once the Asset Liability Study is completed by Callan sometime in May 2018.

The next regular meeting of the SIB Audit Committee is scheduled for February 22, 2018, at 3:00 p.m. at the Retirement and Investment Office.

The next regular meeting of the SIB is scheduled for February 23, 2018, at 8:30 a.m. at the State Capitol, Peace Garden Room.

**ADJOURNMENT:**

With no further business to come before the SIB, Lt. Governor Sanford adjourned the meeting at 11:51 p.m.

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Lt. Governor Sanford, Chairman  
State Investment Board

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Bonnie Heit  
Assistant to the Board

**Informational Purposes Only**

# **Asset and Performance Overview**

February 16, 2018

Dave Hunter, Executive Director / CIO

Darren Schulz, Deputy Chief Investment Officer

Connie Flanagan, Fiscal and Investment Operations Manager

Eric Chin, Senior Investment Analyst

ND Retirement & Investment Office (RIO)

State Investment Board (SIB)

# State Investment Board – Client Assets Under Management

As of 12/31/17, 6/30/17 and 12/31/16

<u>Fund Name</u>	<u>Market Values</u> <u>as of 12/31/17 <sup>(1)</sup></u>	<u>Market Values</u> <u>as of 6/30/17 <sup>(2)</sup></u>	<u>Market Values</u> <u>as of 12/31/16 <sup>(1)</sup></u>
<b>Pension Trust Fund</b>			
Public Employees Retirement System (PERS)	2,994,979,615	2,781,347,059	2,563,018,948
Teachers' Fund for Retirement (TFFR)	2,473,097,233	2,318,214,336	2,147,574,445
City of Bismarck Employees Pension	98,190,912	91,954,163	85,523,410
City of Grand Forks Employees Pension	65,631,836	63,392,385	58,008,561
City of Bismarck Police Pension	39,669,311	38,136,784	35,374,745
Grand Forks Park District	6,632,313	6,160,568	5,871,117
<b>Subtotal Pension Trust Fund</b>	<b>5,678,201,220</b>	<b>5,299,205,294</b>	<b>4,895,371,226</b>
<b>Insurance Trust Fund</b>			
Workforce Safety & Insurance (WSI)	1,941,922,235	1,894,614,793	1,825,110,509
City of Fargo FargoDome Permanent Fund	44,602,637	41,634,919	33,312,203
Budget Stabilization Fund	38,399,123	6,127,845	103,537,937
PERS Group Insurance Account	35,284,686	37,500,315	36,834,347
State Fire and Tornado Fund	23,591,124	22,008,326	22,545,969
Petroleum Tank Release Compensation Fund	6,493,334	6,396,410	6,842,054
State Risk Management Fund	5,298,651	5,781,004	6,246,768
State Risk Management Workers Comp Fund	5,335,413	5,534,627	5,748,688
ND Association of Counties (NDACo) Fund	5,937,947	4,383,922	4,164,771
State Bonding Fund	3,428,672	3,374,398	3,292,172
ND Board of Medicine	2,242,647	2,179,911	2,258,841
Insurance Regulatory Trust Fund	1,254,637	5,289,165	1,477,615
Bismarck Deferred Sick Leave Account	733,682	698,132	661,093
Cultural Endowment Fund	459,249	431,471	406,389
<b>Subtotal Insurance Trust Fund</b>	<b>2,114,984,037</b>	<b>2,035,955,239</b>	<b>2,052,439,356</b>
<b>Legacy Trust Fund</b>			
Legacy Fund	5,252,300,943	4,687,963,730	4,189,334,992
PERS Retiree Insurance Credit Fund	125,251,245	116,150,947	106,879,605
Job Service of North Dakota Pension	98,324,290	97,332,819	95,685,427
ND Tobacco Prevention and Control Trust Fund	58,139,612	57,462,736	50,509,542
<b>Total Assets Under SIB Management</b>	<b>13,327,201,347</b>	<b>12,294,070,765</b>	<b>11,390,220,148</b>

<sup>(1)</sup> Market values are unaudited and subject to change.

<sup>(2)</sup> 6/30/17 market values as stated in the Comprehensive Annual Financial Report.

- ▶ SIB client assets grew by 17% or \$1.9 billion in 2017 largely due to \$1.7 billion of net investment income including \$635 million for Legacy, \$440 million for PERS, \$360 million for TFFR and \$195 million for WSI.
- ▶ The Pension Trust posted a net return of 17.1% in the last year. During the last 5-years, the Pension Trust generated a net annualized return of 9.3%, exceeding the performance benchmark of 8.2%.
- ▶ The Insurance Trust generated a net return of 10.5% in the last year. During the last 5-years, the Insurance Trust posted a net annualized return of 5.5%, exceeding the performance benchmark of 4.1%.
- ▶ Legacy Fund generated a net return of 14.6% last year, exceeding its policy benchmark. During the last 5-years, Legacy Fund earned a net annualized return of 6.0%, exceeding the performance benchmark of 5.0%.
- ▶ SIB client assets totaled approximately \$13.3 billion as of December 31, 2017, based on unaudited valuations.

# Investment Performance Evaluation – Dec. 31, 2017

## Investment Performance Criteria :

SIB clients should receive investment returns consistent with their investment policies and market variables (pursuant to Section D.3 of the SIB Governance Manual). The “Ends” for investment performance is evaluated based on comparison of each client’s actual rate of return (net of fees), risk levels and risk adjusted returns, versus the client’s policy benchmark over 5 years.

## Pension Trust:

Every Pension Trust client posted positive Excess Returns of at least 0.75% per annum over the last 5-years, while adhering to approved risk levels and generating at least 0.40% of positive Risk Adjusted Excess Return (over the last 5-years).

TFFR and PERS each earned over 9% for the 5-years ended December 31, 2017. Global equities were the primary performance driver and earned 12% over the last 5-years with U.S. Equities up 16% and International Equity up 9%. Private equity returns were disappointing at only 1.3% per annum the last 5-years. Fixed Income earned 3.7% annualized over the last 5-years with U.S. Fixed Income up 4.5% and International Debt down 0.2%. Global Real Assets also performed well and gained earned over 8% per annum for the 5-years ended December 31, 2017, with Real Estate up 12% and Infrastructure up 5.5%, while Timber returns were disappointing at -0.35% per annum the last 5-years.

## Non-Pension Trust:

Every Non-Pension Trust client generated positive Excess Return of at least 0.75% per annum and positive Risk Adjusted Excess Returns for the 5-years ended December 31, 2017, with two exceptions for PERS Retiree Health Insurance Credit Fund (-0.10%) and PERS Group Insurance (-0.05%).

Legacy Fund earned 14.6% for the 1-year ended Dec. 31, 2017, which translates into \$640 million of net investment income (including unrealized gains). Legacy’s U.S. Equity portfolio earned nearly 18% last year, while International Equities earned 29%. U.S. Fixed Income also performed well with a 6.5% return versus 3.5% for the Bloomberg Aggregate Index. Diversified Real Assets and Real Estate returns exceeded their performance benchmarks and earned 9% and 8%, respectively, in the last year. Our second largest non-Pension Trust client, WSI, also generated strong returns by earning approximately 10.9% and 6.7% for the 1- and 5-years ended December 31, 2017, respectively.

Risk, as measured by standard deviation, was within approved levels for all SIB clients for the 5-years ended Dec. 31, 2017.

*Actual asset allocations are within Target ranges and guidelines as confirmed by Callan Associates as of Dec. 31, 2017.*

# Pension Trust Return & Risk Summary – Dec. 31, 2017

**KEY POINT for Returns and Risk:** Every Pension Trust client portfolio generated positive “Excess Return” for the 3- and 5-year periods ended December 31, 2017, while adhering to prescribed risk levels (e.g. within 115% of the Policy Benchmark for the 5-years ended 12/31/2017).

	Current FYTD 12/31/2017	1 Yr Ended 12/31/2017	3 Yrs Ended 12/31/2017	5 Yrs Ended 12/31/2017	Risk 5 Yrs Ended 12/31/2017	Risk Adj Excess Return 5 Yrs Ended 12/31/2017
<b>PERS</b>						
Total Fund Return - Net	8.02%	17.20%	8.07%	9.29%	4.9%	0.51%
Policy Benchmark Return	6.58%	14.21%	7.00%	8.24%	4.6%	
Excess Return	1.44%	3.00%	1.08%	1.06%	106%	
<b>TEACHERS' FUND FOR RETIREMENT (TFFR)</b>						
Total Fund Return - Net	7.88%	16.98%	8.00%	9.29%	4.8%	0.52%
Policy Benchmark Return	6.63%	14.24%	6.96%	8.24%	4.6%	
Excess Return	1.25%	2.74%	1.04%	1.04%	106%	
<b>BISMARCK EMPLOYEES</b>						
Total Fund Return - Net	6.73%	14.76%	7.29%	8.33%	4.2%	0.50%
Policy Benchmark Return	5.65%	12.17%	6.32%	7.29%	3.9%	
Excess Return	1.08%	2.60%	0.98%	1.04%	107%	

# Pension Trust Return & Risk Summary – Dec. 31, 2017

	Current FYTD 12/31/2017	1 Yr Ended 12/31/2017	3 Yrs Ended 12/31/2017	5 Yrs Ended 12/31/2017	Risk 5 Yrs Ended 12/31/2017	Risk Adj Excess Return 5 Yrs Ended 12/31/2017
<b>CITY OF BISMARCK POLICE PENSION</b>						
Total Fund Return - Net	7.11%	15.47%	7.50%	8.63%	4.5%	0.47%
Policy Benchmark Return	6.06%	13.02%	6.60%	7.64%	4.2%	
Excess Return	1.05%	2.45%	0.90%	0.99%	107%	
<b>JOB SERVICE PENSION PLAN</b>						
Total Fund Return - Net	3.42%	7.70%	5.47%	7.07%	3.7%	0.42%
Policy Benchmark Return	3.70%	8.29%	4.95%	6.16%	3.4%	
Excess Return	-0.28%	-0.59%	0.52%	0.91%	108%	
<b>CITY OF GRAND FORKS PENSION PLAN</b>						
Total Fund Return - Net	7.84%	16.51%	7.73%	9.28%	4.9%	0.43%
Policy Benchmark Return	6.87%	14.41%	7.03%	8.51%	4.8%	
Excess Return	0.98%	2.11%	0.70%	0.77%	104%	
<b>GRAND FORKS PARK DISTRICT PENSION PLAN</b>						
Total Fund Return - Net	8.19%	16.87%	7.84%	9.66%	4.9%	0.62%
Policy Benchmark Return	7.01%	14.63%	6.92%	8.77%	4.8%	
Excess Return	1.18%	2.25%	0.91%	0.89%	103%	

**Risk Adjusted Excess Returns for the 5-years ended Dec. 31, 2017, were positive for all Pension Trust clients ranging from 0.42% for Job Service to 0.62% for City of Grand Forks Park District.**

**Job Service is 140+% funded & significantly de-risked its portfolio (to 30% equity / 70% debt) in recent years.**

**Risk Adjusted Excess Return** measures actual portfolio results versus a benchmark adjusted by its risk relative to a benchmark portfolio. This metric is positive if excess returns are due to “smart” investment decisions or negative if driven by excess risk.

# Non-Pension Trust Return & Risk Summary – Dec. 31, 2017

	Current FYTD 12/31/2017	1 Yr Ended 12/31/2017	3 Yrs Ended 12/31/2017	5 Yrs Ended 12/31/2017	Risk 5 Yrs Ended 12/31/2017	Risk Adj Excess Return 5 Yrs Ended 12/31/2017
<b>WSI</b>						
Total Fund Return - Net	4.99%	10.91%	6.24%	6.68%	3.2%	1.31%
Policy Benchmark Return	3.92%	8.28%	4.65%	4.93%	2.9%	
Excess Return	1.07%	2.63%	1.59%	1.76%	OK	
<b>LEGACY FUND</b>						
Total Fund Return - Net	7.21%	14.61%	7.74%	5.99%	4.1%	0.49%
Policy Benchmark Return	6.20%	12.81%	6.42%	4.94%	3.7%	
Excess Return	1.01%	1.80%	1.32%	1.05%	OK	
<b>BUDGET STABILIZATION</b>						
Total Fund Return - Net	0.25%	0.58%	1.39%	1.44%	0.68%	0.49%
Policy Benchmark Return	0.12%	0.68%	0.85%	0.68%	0.53%	
Excess Return	0.13%	-0.10%	0.54%	0.76%	OK	
<b>FIRE &amp; TORNADO FUND</b>						
Total Fund Return - Net	5.47%	11.34%	6.43%	7.32%	3.6%	0.64%
Policy Benchmark Return	4.39%	9.16%	4.88%	5.82%	3.1%	
Excess Return	1.08%	2.19%	1.55%	1.51%	OK	

**KEY POINT for Returns and Risk:**  
**Thirteen out of Fifteen Non-Pension Trust clients generated positive Excess Return and Risk Adjusted Excess Return for the 5-year period ended Dec. 31, 2017. These returns were achieved while adhering to reasonable risk levels which were generally within 1% of policy levels.**

**Risk Adjusted Excess Return** measures a portfolio's excess return adjusted by its risk relative to a benchmark portfolio. This metric is positive if returns are due to "smart" investment decisions or negative if driven by excess risk.

# Non-Pension Trust Return & Risk Summary – Dec. 31, 2017

	Current FYTD 12/31/2017	1 Yr Ended 12/31/2017	3 Yrs Ended 12/31/2017	5 Yrs Ended 12/31/2017	Risk 5 Yrs Ended 12/31/2017	Risk Adj Excess Return 5 Yrs Ended 12/31/2017
<b>STATE BONDING FUND</b>						
Total Fund Return - Net	1.61%	4.17%	2.61%	2.37%	1.8%	0.97%
Policy Benchmark Return	0.93%	2.34%	1.43%	1.28%	1.7%	
Excess Return	0.68%	1.83%	1.18%	1.09%	OK	
<b>INSURANCE REG TRUST FUND</b>						
Total Fund Return - Net	4.47%	8.97%	4.88%	5.63%	2.9%	0.30%
Policy Benchmark Return	3.74%	7.65%	3.97%	4.68%	2.6%	
Excess Return	0.73%	1.32%	0.91%	0.94%	OK	
<b>PETROL TANK RELEASE COMP FUND</b>						
Total Fund Return - Net	1.51%	3.88%	2.41%	2.18%	1.6%	0.88%
Policy Benchmark Return	0.90%	2.20%	1.33%	1.19%	1.5%	
Excess Return	0.62%	1.69%	1.07%	0.99%	OK	
<b>STATE RISK MANAGEMENT</b>						
Total Fund Return - Net	5.06%	10.08%	6.40%	7.52%	3.2%	0.76%
Policy Benchmark Return	4.03%	8.12%	4.84%	5.96%	2.9%	
Excess Return	1.04%	1.96%	1.56%	1.56%	OK	

## SIB Client Commentary:

The State Bonding Fund, Insurance Regulatory Trust Fund, Petroleum Tank Release Compensation Fund, and State Risk Management Fund have all posted positive Risk Adjusted Excess Returns for the 5-years ended December 31, 2017, including Excess Returns of 0.94% or more.



# Non-Pension Trust Return & Risk Summary – Dec. 31, 2017

	Current FYTD 12/31/2017	1 Yr Ended 12/31/2017	3 Yrs Ended 12/31/2017	5 Yrs Ended 12/31/2017	Risk 5 Yrs Ended 12/31/2017	Risk Adj Excess Return 5 Yrs Ended 12/31/2017
<b>RISK MGMT WORKERS COMP</b>						
Total Fund Return - Net	5.70%	10.96%	6.97%	8.44%	3.6%	0.72%
Policy Benchmark Return	4.71%	9.30%	5.51%	6.93%	3.3%	
Excess Return	1.00%	1.67%	1.46%	1.51%	OK	
<b>NDACO</b>						
Total Fund Return - Net	5.01%	10.55%	5.92%	6.58%	3.3%	0.61%
Policy Benchmark Return	3.97%	8.35%	4.41%	5.12%	2.9%	
Excess Return	1.04%	2.20%	1.51%	1.46%	OK	
<b>BISMARCK DEFERRED SICK LEAVE</b>						
Total Fund Return - Net	5.14%	11.14%	6.34%	6.96%	3.5%	0.78%
Policy Benchmark Return	3.95%	8.50%	4.54%	5.26%	3.0%	
Excess Return	1.18%	2.64%	1.80%	1.70%	OK	
<b>FARGODOME PERMANENT</b>						
Total Fund Return - Net	7.15%	14.03%	7.62%	9.02%	4.8%	0.83%
Policy Benchmark Return	6.02%	12.08%	6.18%	7.53%	4.4%	
Excess Return	1.13%	1.95%	1.45%	1.49%	OK	

## SIB Client Commentary:

The State Risk Management Workers Compensation Fund, Association of Counties, City of Bismarck Deferred Sick Leave Account and Fargo Dome Permanent Fund have all posted positive Risk Adjusted Excess Returns for the 5-years ended Dec. 31, 2017, including Excess Returns of 1.46% or more.

# Non-Pension Trust Return & Risk Summary – Dec. 31, 2017

	Current FYTD 12/31/2017	1 Yr Ended 12/31/2017	3 Yrs Ended 12/31/2017	5 Yrs Ended 12/31/2017	Risk 5 Yrs Ended 12/31/2017	Risk Adj Excess Return 5 Yrs Ended 12/31/2017
<b>CULTURAL ENDOWMENT FUND</b>						
Total Fund Return - Net	7.37%	14.09%	8.36%	10.34%	4.8%	0.61%
Policy Benchmark Return	6.47%	12.82%	7.13%	9.01%	4.5%	
Excess Return	0.90%	1.26%	1.23%	1.33%	OK	
<b>BOARD OF MEDICINE</b>						
Total Fund Return - Net	2.90%	5.93%	3.97%			
Policy Benchmark Return	2.47%	5.33%	3.07%			
Excess Return	0.43%	0.59%	0.90%			
<b>PERS RETIREE HEALTH</b>						
Total Fund Return - Net	7.26%	14.68%	7.09%	8.97%	5.2%	-0.72%
Policy Benchmark Return	6.85%	13.99%	7.18%	9.07%	4.8%	
Excess Return	0.41%	0.70%	-0.09%	-0.10%	OK	
<b>PERS GROUP INSURANCE</b>						
Total Fund Return - Net	0.30%	0.86%	0.62%	0.40%	0.60%	-0.05%
Policy Benchmark Return	0.20%	0.90%	0.71%	0.45%	0.56%	
Excess Return	0.10%	-0.04%	-0.09%	-0.04%	OK	
<b>TOBACCO CONTROL AND PREVENTION</b>						
Total Fund Return - Net	1.19%	2.48%				
Policy Benchmark Return	1.19%	2.47%				
Excess Return	0.00%	0.01%				

## SIB Client Specific Commentary:

The Cultural Endowment Fund has generated the highest absolute level of net investment returns (of 10.34%) over the last 5-years.

The Board of Medicine became an SIB client three years ago noting they were previously investing in Certificates of Deposit.

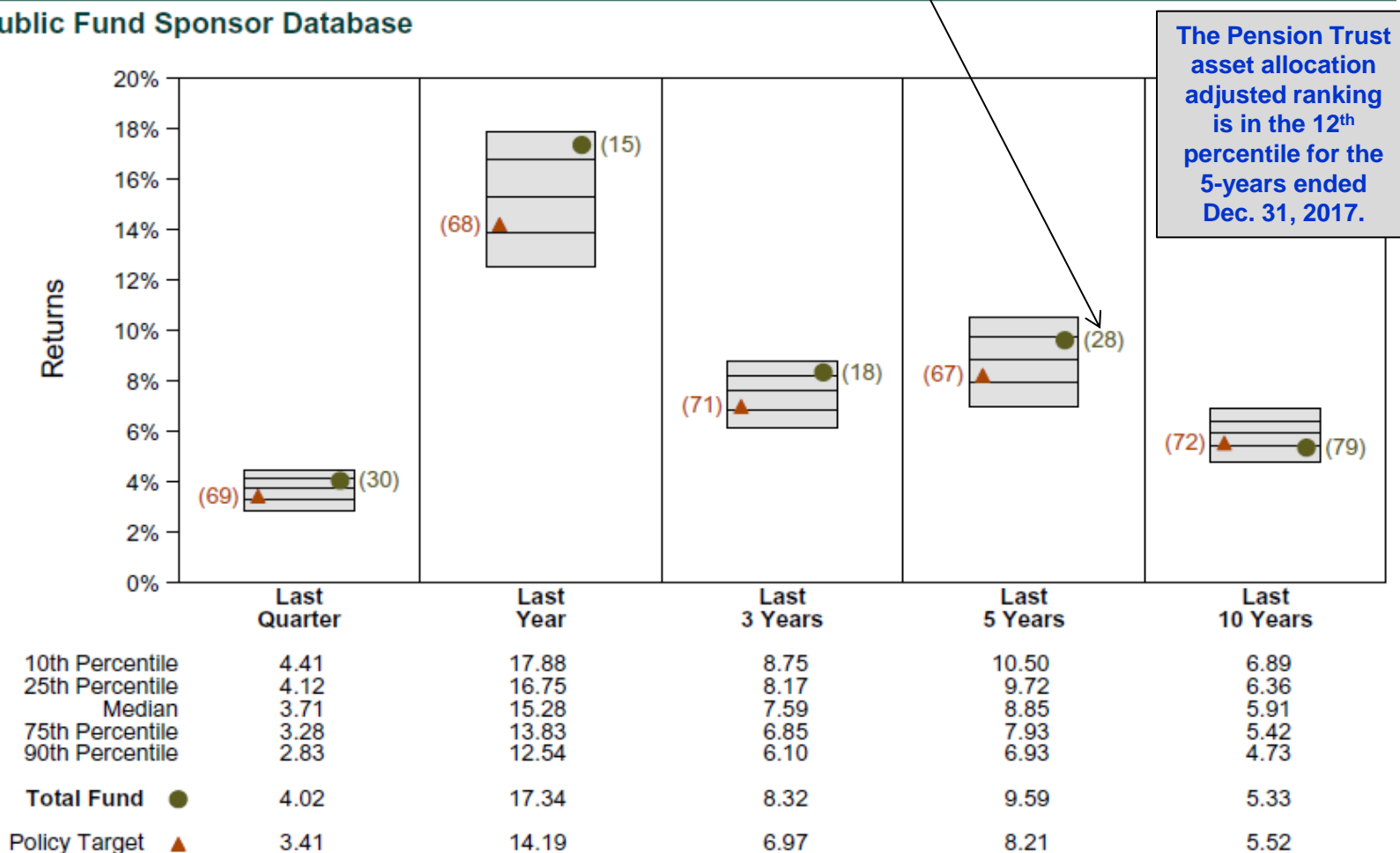
**PERS Retiree Health absolute returns have been reasonable the last 5-years (8.97%) but disappointing on a risk adjusted excess return basis of -0.72%.**

**PERS Group Insurance returns for the fiscal year ended Dec. 31, 2017 is disappointing but within -0.05% of the Policy Benchmark and on a Risk Adjusted Excess Return basis the last 5-years.**

The Tobacco Prevention and Control Trust Fund was transferred to OMB regulatory oversight on July 1, 2017.

# Pension Trust “gross” returns were ranked in the 28<sup>th</sup> percentile for the 5-years ended December 31, 2017, based on Callan’s “Public Fund Sponsor Database”.

## Callan Public Fund Sponsor Database



\* Current Quarter Target = 16.1% Russell 1000 Index, 16.0% MSCI World, 13.2% Bimbg Aggregate, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 6.5% NDSIB PEN - Private Equity, 5.6% CPI-W, 5.4% Bimbg Glob Agg ex USD, 4.9% Russell 2000 Index, 4.6% Bimbg HY 2% Iss Cap, 3.1% MSCI EM, 2.5% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

# Investment Manager Meetings – *Forward Calendar*

RIO generally meets with 10 to 12 existing investment managers each quarter in addition to numerous prospective firms. Most meetings are conducted via conference call, although we also visit with our managers in their offices or host them in Bismarck. In 2017, the SIB and RIO hosted manager meetings with Adams Street, Ares, Axiom, Cerberus, Invesco, JPMorgan, LA Capital, LSV, PIMCO, Prudential, Western Asset Management and Wells Capital.

During the first half of 2018, RIO intends to host investment updates with at least 6 of our 12 largest managers including: 1) LSV - \$1.4 billion; 2) LA Capital - \$1.3 billion; 3) Western Asset - \$1.3 billion; 4) JPMorgan - \$1 billion; 5) PIMCO - \$800 million; 6) William Blair - \$700 million; 7) Northern Trust - \$600 million; and 8) Epoch - \$400 million.

On February 23, LSV CEO, CIO and Founding Partner, Mr. Josef Lakonishok, Ph.D., is scheduled to present at our SIB meeting (at 11:00am). LSV manages \$1.4 billion for the SIB including \$500 million of Global Equities in the Pension Trust, \$150 million of U.S. Large Cap & International Equities in the Insurance Trust and \$750 million of U.S. Large Cap and International Equities for the Legacy Fund. *LSV has a 20-year investment relationship with the SIB.*

On March 7, Western Asset Management has been invited (at 9:00am) to provide a performance update on our \$800 million Core Fixed Income portfolio and \$500 million Global Inflation Linked strategy (both held within the Legacy Fund and Insurance Trust). *WAMCO has a 27-year investment relationship with the SIB.*

On March 27, PIMCO has been invited (at 10:30am) to provide a performance update on fixed income portfolio. PIMCO/Research Associates manages \$800 million for our SIB clients including \$600 million in fixed income. *PIMCO has a 10-year investment relationship with the SIB.*

On April 4, Mr. Bill Booth, Epoch Partners Co-CIO & Portfolio Manager is scheduled to provide an investment update (at 9:00am) on our \$400 million Global Equity portfolio (Pension Trust). *Epoch has a 7-year relationship with the SIB.*

SIB members attended manager meetings with firms responsible for externally managing over \$7 billion\* of investments in the past year. RIO conducted portfolio reviews with firms responsible for managing over \$12 billion of SIB client assets in 2017 (with a heavy focus on firms utilizing active management).

\* SIB attendance included JPM (\$1 billion), WAMCO (\$1.3 billion), PIMCO (\$800 million), LA Capital (\$1.3 billion), Invesco (\$600 million), Prudential (\$300 million), Wells Capital (\$800 million), Adams Street / Ares / Cerberus (\$100+ million) and LSV (\$1.4 billion).

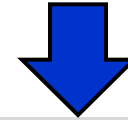
## INVESTMENT WORK PLAN UPDATE - February 23, 2018

	<u>Board Education / Manager Meetings</u>	<u>Governance / Policies</u>	<u>Performance / Monitoring</u>
July 2017	Investment Education - Callan College Plan Board Education for 2017-18	IPS - Legacy, BSF, Grand Forks Review of Fundamental Investment Beliefs	Annual Code of Conduct Affirmation
Aug. 2017	Manager Interview - PIMCO (\$300 million) Manager Interview - Adams Street (\$60 million)	Election of Officers New Client - ND Parks and Rec.	Annual Investment Review (Callan) Quarterly Monitoring / Watch List
Sept. 2017	Manager Interview - Wells (\$300 million)	Annual Review of Board Governance ALS - Legacy and WSI      IPS - TFFR	SIB Audit Committee Update Annual Compliance Update
Oct. 2017	Investment Education - Committee Trends Callan - Ron Peyton and Paul Erlendson	IPS - PERS, NDAC, TPC, Parks & Rec SIB Client Satisfaction Survey (3.6 out of 4.0)	Annual Evaluation of RIO vs. Ends Quarterly Monitoring / Watch List
Nov. 2017	Manager Interview - Prudential (\$300 million) Consultant Interview - Mercer (Infrastructure)	RIO Financial Audit Approval (Audit Comm.) Securities Litigation Monitoring (FRT)	Quarterly Investment Review (Callan)
Jan. 2018	Governance Education - Aon Hewitt Approve Board Meeting Schedule	Appoint Sec. Litigation Committee IPS - PERS, RHIC, Job Service, Group Insur.	RIO Employee Survey Quarterly Monitoring / Watch List / ESG Update
Feb. 2018	Manager Meeting / LSV (\$1.4 billion) Investment Work Plan Update	Appoint Executive Review Committee Review Securities Litigation Charter	Quarterly Investment Review (Callan) Executive Limitations Review (Audit)
Mar. 2018	Board Education - Risk Management Investment Risk Dashboard Overview	Complete Board Self-Evaluation Review Real Asset Benchmarks	Securities Litigation Update Review Biennial Agenda
April 2018	Manager Interviews - Real Assets Infrastructure and/or Real Estate	Review "Ends" Policies Review Strategic Plan	Review Budget Guidelines for 2019-2020 Quarterly Monitoring / Watch List
May 2018	Legacy Asset Allocation Review (Callan)	Annual ED/CIO Review Review Investment Ends	Quarterly Investment Review (Callan)

# Annual Board Planning Cycle – Biennial Agenda

## SIB Approved on April 28, 2017

### Annual Board Planning Cycle Biennial Agenda



Fiscal 2017-18	July 2017	August	September	October	November	December	January 2018	February	March	April	May
	<b>Board</b> <b>Education</b> <b>(BSC Offsite)</b>	<b>Annual</b> <b>Investment</b> <b>Performance</b>	<b>Annual</b> <b>Review of</b> <b>Gov. Manual</b>	<b>Annual</b> <b>Evaluation</b> <b>of RIO vs.</b> <b>Ends policies</b>	<b>Investment</b> <b>Director</b> <b>Report on</b> <b>Investment</b> <b>Work Plan</b>	No Meeting Scheduled	<b>Board</b> <b>Education</b> <b>Risk</b> <b>Management</b>	<b>Investment</b> <b>Director</b> <b>Report on</b> <b>Investment</b> <b>Work Plan</b> - Executive Limitations Review	<b>Review</b> <b>Budget</b> <b>Guidelines</b> for next Biennium	<b>Review</b> <b>"Ends"</b> <b>Policies,</b> <b>Biennial</b> <b>Agenda,</b> <b>Strategic</b> <b>Plan and</b> <b>Budget</b> <b>Guidelines</b>	<b>Investment</b> <b>Director</b> <b>Report on</b> <b>Investment</b> <b>Work Plan</b> <b>ED/CIO</b> <b>Review</b> - Investment Guidelines
	- Election of Officers* - Appoint Audit Comm.* - Plan Annual Agenda * May be delayed	- Establish Investment Work Plan - Add Invest. Education	- New Board Member Orientation Complete	- Annual Board Evaluation	<b>Board</b> <b>Education</b> <b>Investments</b>						
Fiscal 2018-19	July 2018	August	September	October	November	December	January 2019	February	March	April	May
	<b>Plan Board</b> <b>Education</b> <b>Offsite</b>	<b>Annual</b> <b>Investment</b> <b>Performance</b>	<b>Annual</b> <b>Review of</b> <b>Gov. Manual</b>	<b>Annual</b> <b>Evaluation</b> <b>of RIO vs.</b> <b>Ends policies</b>	<b>Investment</b> <b>Director</b> <b>Report on</b> <b>Investment</b> <b>Work Plan</b>	<b>Reserved</b> <b>for a</b> <b>potential</b> <b>SIB meeting</b> <b>in advance of</b> <b>Legislative</b> <b>Session</b> <b>(Preview RIO</b> <b>Budget)</b>	<b>Board</b> <b>Education</b> <b>Risk</b> <b>Management</b>	<b>Investment</b> <b>Director</b> <b>Report on</b> <b>Investment</b> <b>Work Plan</b> - Executive Limitations Review	<b>Confirm</b> <b>Budget</b> <b>Guidelines</b> - Legislative Update	<b>Review</b> <b>Biennial</b> <b>Agenda,</b> <b>End Policies,</b> <b>Strategic</b> <b>Investment</b> <b>Plan and</b> <b>Budget</b> <b>Guidelines</b>	<b>Investment</b> <b>Director</b> <b>Report on</b> <b>Investment</b> <b>Work Plan</b> <b>ED/CIO</b> <b>Review</b> - Investment Guidelines
<i>The SIB Meeting Agenda has not been established for Fiscal 2018-19</i>	- Election of Officers, - Appoint Audit Comm. - Plan Annual Agenda	- Establish Investment Work Plan - Add Invest. Education	- New Board Member Orientation Complete	- Annual Board Evaluation	<b>Board</b> <b>Education</b> <b>Investments</b>		- Legislative Update				

- 1.) SIB Governance Policy B-7 on Governance Process states that "the Board will follow a biennial agenda which (a) completes a re-exploration of Ends policies annually (April) (which is also referred to as "RIO's Mission Statement") and (b) continually improves its performance through attention to board education and to enriched input and deliberation."
- 2.) "In the first three months of the new cycle, the Board will develop its agenda for the ensuing year. Scheduled monitoring will be used to evaluate and adjust the annual agenda as needed."
- 3.) "The Board will identify areas of education and input needed to increase the level of wisdom forethought it can give to subsequent choices. A board education plan will be developed during July and August of each year."
- 4.) Budget Guidelines: RIO will prepare and submit a biennial budget pursuant to OMB guidelines as established by the Governor which will not reduce the level of service provided by RIO. Expenditures for budget items will not exceed the appropriation without approval of the State Investment Board.

Date: April 21, 2017



# Strategic Investment Plan – SIB Approved April 28, 2017

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## Fundamental Investment Beliefs

Asset allocation decisions are the primary driver of investment returns, but the prudent use of active investment management is an important contributor towards ensuring our clients attain their stated investment objectives. SIB clients generated over **\$300 million** of incremental income via the prudent use of active investment management the last five years including **\$120 million** of incremental income (or excess return) in **2017**.

## Strategic Investment Plan

1. Reaffirm our organizational commitment to the importance of **continuing board education and strong board governance**.
2. Enhance understanding of our core goals and beliefs while enhancing overall transparency.
  - a. Remain steadfast in our commitment to the prudent use of active investment management.
  - b. Expand awareness to downside risk management which is essential to achieving our long term investment goals.
  - c. Given actual and projected growth of SIB client assets and the heightened public awareness of the Legacy Fund, align our investment platforms to promote greater clarity and efficiency in reporting and implementing client investment policies.
3. Expand RIO's influence and ability to create positive and sustainable change by building deeper relationships with existing clients, organizations and legislative leaders.
  - a. Enhance community outreach to build upon public awareness and confidence.
  - b. Develop concise presentations which highlight our overall risk, return and cost control framework including our progress towards attaining our long-term goals.
4. Heighten employee engagement by promoting an open and collaborative work environment while encouraging employee participation in staff meetings, offer team members more opportunities to impact RIO's change initiatives **and improve the office environment for staff and clients**.
  - a. RIO's ability to continue to deliver strong results is dependent on the combined efforts of our highly valuable team members.
5. Enhance our internal control environment by improving use of proven risk management solutions relating to fraud risk assessments, investment risk management and overall enterprise risk management.
  - a. A robust risk management framework serves as a foundation to support a sound internal control environment and lessen downside risks.
  - b. Broaden stakeholder awareness of the challenges faced in estimating Legacy Fund earnings for any given period. A deeper understanding may serve to change the basic methodology used for determining budget estimates in future biennia.
6. Evaluate and expand the efficient use of technology in our investment program activities including risk management, compliance monitoring, client satisfaction surveys, website design and communications in order to increase overall efficiency and effectiveness.



# Fundamental Investment Beliefs of the NDSIB

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**Asset allocation is the # 1 driver of investment returns, but the prudent use of active management can improve performance and contribute towards our clients attaining their stated investment objectives. (See example below.)**

- a) SIB clients earned approximately \$1.7 billion of net investment income (after all fees and expenses) for the 1-year ended December 31, 2017.**
- b) RIO estimates that active management enhanced net investment returns by at least 1% or \$120 million during the last year noting total Assets Under Management (AUM) exceeded \$12 billion, while net investment returns exceeded their benchmarks by 1% last year (e.g. \$12 billion x 1% = \$120 million).**
- c) Based on the above estimates, “asset allocation” was responsible for \$1.58 billion (or 93%) of the net investment income, while “active management” was responsible for \$120 million (or 7%) of net investment income in 2017.**
- d) SIB governance policies reinforce our fundamental investment beliefs by monitoring actual versus target asset allocation levels every quarter and comparing actual net investment returns versus approved benchmarks.**
- e) Based on AUM, nearly 98% of our clients benefitted from the use of active management for the 1-, 3- and 5-years ended Dec. 31, 2017. This translates into over \$300 million of incremental investment income the last 5-years.**



# RIO Survey Comparison to Cabinet Agencies

			% Favorable	% Neutral	% Unfavorable	% Skipped
Category: <b>How I feel about my job</b> <i>My Job</i>	<b>RIO Average</b>		85%	7%	5%	3%
	<i>Cabinet Level Agency Category Average</i>		74%	13%	10%	3%
<b>How I feel about my teammates</b> <i>My Team</i>	<b>RIO Average</b>		72%	10%	18%	0%
	<i>Cabinet Level Agency Category Average</i>		72%	15%	10%	3%
<b>How I feel about my immediate supervisor</b> <i>My Supervisor</i>	<b>RIO Average</b>		83%	7%	10%	0%
	<i>Cabinet Level Agency Category Average</i>		78%	12%	7%	3%
<b>How I feel about my agency's senior leadership</b> <i>My Leadership</i>	<b>RIO Average</b>		65%	15%	15%	5%
	<i>Cabinet Level Agency Category Average</i>		54%	26%	16%	4%
<b>How I feel about the workplace culture</b> <i>My Workplace</i>	<b>RIO Average</b>		73%	9%	18%	0%
	<i>Cabinet Level Agency Category Average</i>		65%	19%	12%	4%
<b>Overall, how I feel</b> <i>Overall</i>	<b>RIO Average</b>		68%	8%	16%	18%
	<i>Cabinet Level Agency Category Average</i>		71%	15%	8%	6%

**RIO Agency Update:** The Executive Director reviewed RIO's Employee Survey Results with RIO Management and Staff in addition to the State's Chief People Officer (Cheri Schoenfish) in early-2018. RIO's management team intends to work with all team members to enhance communication and teamwork opportunities in 2018 noting the vast majority of staff deem overall communication to be above average, if not strong. Audit Services has also requested all team members to provide examples of ways to improve communication in the future.



February 23, 2018

**North Dakota  
State Investment Board**

Performance Evaluation

as of December 31, 2017

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**Paul Erlendson**

Senior Vice President

**Alex Browning**

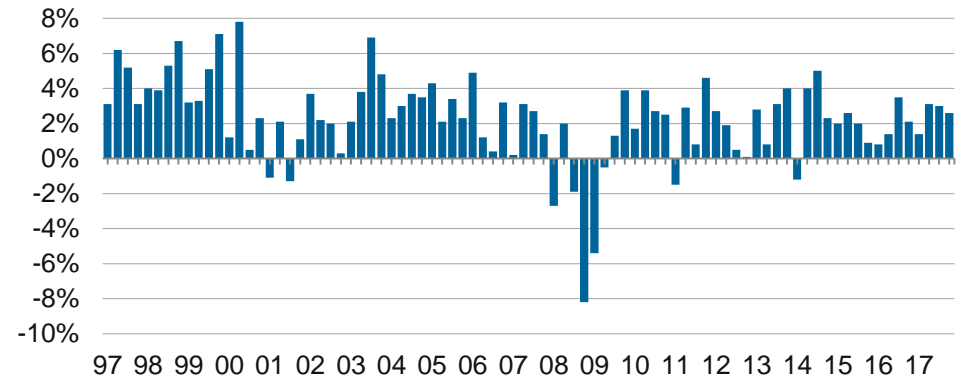
Senior Vice President

# Global Economic Update

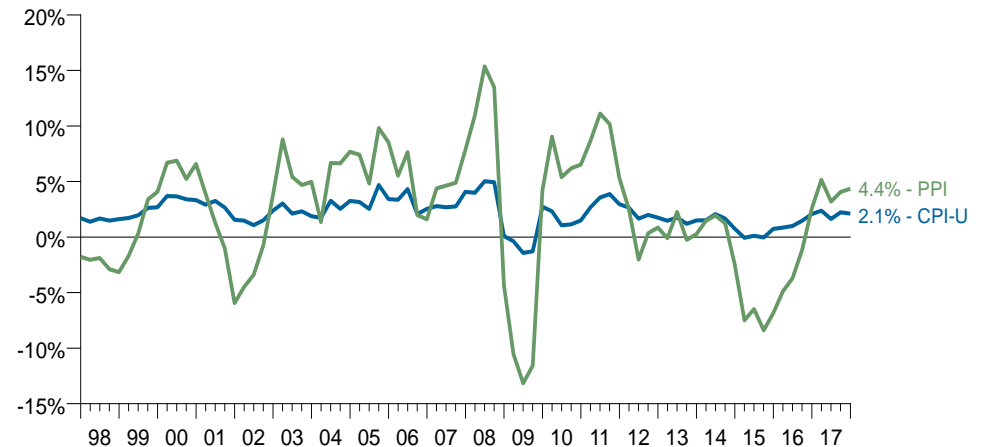
## The Big Picture

- In the U.S., initial fourth quarter real GDP growth was 2.6% (annualized) following robust second and third quarter growth. The estimate for the full year is 2.3%.
- Headline CPI increased 0.1% in December, and 2.1% year-over-year. Core CPI, which excludes food and energy prices, increased 0.3% in December, and 1.8% over the trailing 12 months.
- The unemployment rate held steady at 4.1% in December even though the number of unemployed actively looking for work rose slightly.
- Non-U.S. developed economies continued to gain momentum. Third quarter GDP growth in the Euro zone was 2.6% (year-over-year) while inflation remained low (1.5% year-over-year as of November).
- The Fed hiked the Fed Funds target by 25 basis points at its December meeting to 1.25% - 1.50%. This move marked the third increase of 25 basis points during the year.
- Markets are pricing in an additional three hikes in 2018, while Fed projections are for rates to end 2018 between 2.00% and 2.25%.
- As expected, the ECB kept its interest rates on hold in the fourth quarter, but it confirmed that it plans to reduce asset purchases to €30bn a month in January 2018, down from €60bn.

U.S. Quarterly Real GDP Growth (20 Years)



Inflation Year-Over Year



# Asset Class Performance

**Periodic Table of Investment Returns  
for Periods Ended December 31, 2017**

Best



Worst

Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
MSCI:EM Gross 7.5%	MSCI:EM Gross 37.8%	S&P:500 11.4%	S&P:500 15.8%	Russell:2000 Index 8.7%	MSCI:EM Gross 12.7%
S&P:500 6.6%	MSCI:EAFE 25.0%	Russell:2000 Index 10.0%	Russell:2000 Index 14.1%	S&P:500 8.5%	Russell:2000 Index 11.2%
Blmbg:Commodity Price Idx 4.4%	S&P:500 21.8%	MSCI:EM Gross 9.5%	MSCI:EAFE 7.9%	Blmbg:Aggregate 4.0%	S&P:500 9.9%
MSCI:EAFE 4.2%	Russell:2000 Index 14.6%	MSCI:EAFE 7.8%	MSCI:EM Gross 4.7%	MSCI:EM Gross 2.0%	MSCI:EAFE 8.1%
Russell:2000 Index 3.3%	Blmbg:Aggregate 3.5%	Blmbg:Aggregate 2.2%	Blmbg:Aggregate 2.1%	MSCI:EAFE 1.9%	Blmbg:Aggregate 4.1%
Blmbg:Aggregate 0.4%	3 Month T-Bill 0.9%	3 Month T-Bill 0.4%	3 Month T-Bill 0.3%	3 Month T-Bill 0.4%	3 Month T-Bill 1.3%
3 Month T-Bill 0.3%	Blmbg:Commodity Price Idx 0.7%	Blmbg:Commodity Price Idx (5.5%)	Blmbg:Commodity Price Idx (8.7%)	Blmbg:Commodity Price Idx (7.1%)	Blmbg:Commodity Price Idx (1.5%)

# U.S. Equity Market

## Periods Ending December 31, 2017

- The U.S. equity market continued its upward trajectory in the 4<sup>th</sup> quarter, closing out a strong year marked by low volatility despite U.S. political turbulence and global catastrophes.
- Large Cap outperformed Small Cap across styles for the quarter. Risk assets continued to lead the equity market in the quarter.
- Consumer Discretionary (+9.9%) and Tech (+9.0%) were the strongest performers with Apple, Amazon and Microsoft posting 10-20% returns.
- Growth outperformed Value in 4Q across the market cap range: The overweight to Tech and Consumer Discretionary in the Growth indices drove outperformance.
- Momentum-oriented stocks (MSCI Momentum Index +37.8%) posted their biggest annual gain since 1999, leaving valuations stretched in the space; MSCI Defensive Index returned 12.3% for 2017.

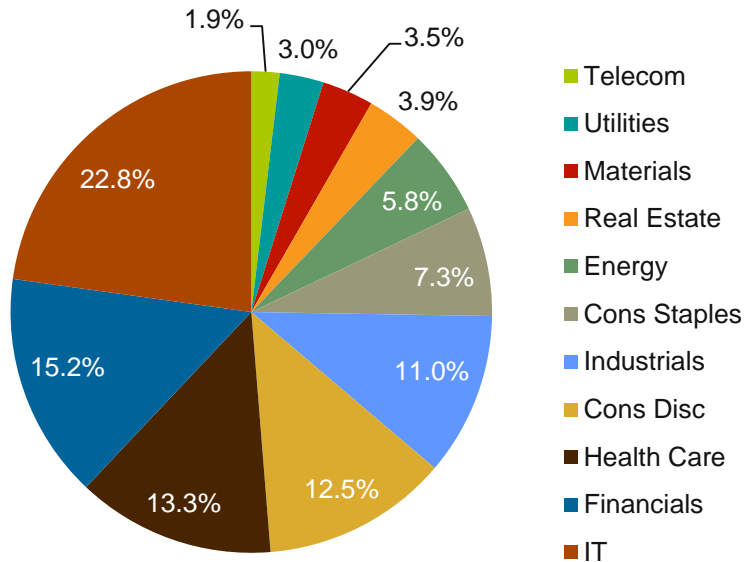
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
Large Cap Equity						
Russell 1000 Growth	7.86	30.21	13.79	17.33	10.00	10.70
Russell 1000 Value	5.33	13.66	8.65	14.04	7.10	9.55
Mid Cap Equity						
Russell Midcap Growth	6.81	25.27	10.30	15.30	9.10	11.96
Russell Midcap Value	5.50	13.34	9.00	14.68	9.10	11.96
Small Cap Equity						
Russell 2000 Growth	4.59	22.17	10.28	15.21	9.19	11.57
Russell 2000 Value	2.05	7.84	9.55	13.01	8.17	10.66

Source: Callan, Russell Investment Group

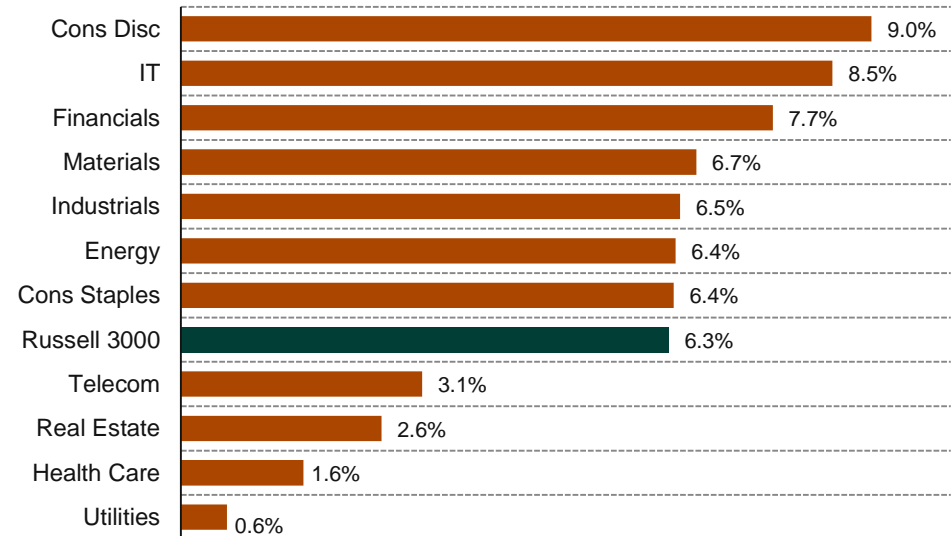
# U.S. Equity Returns

Periods Ending December 31, 2017

Economic Sector Exposure (Russell 3000)



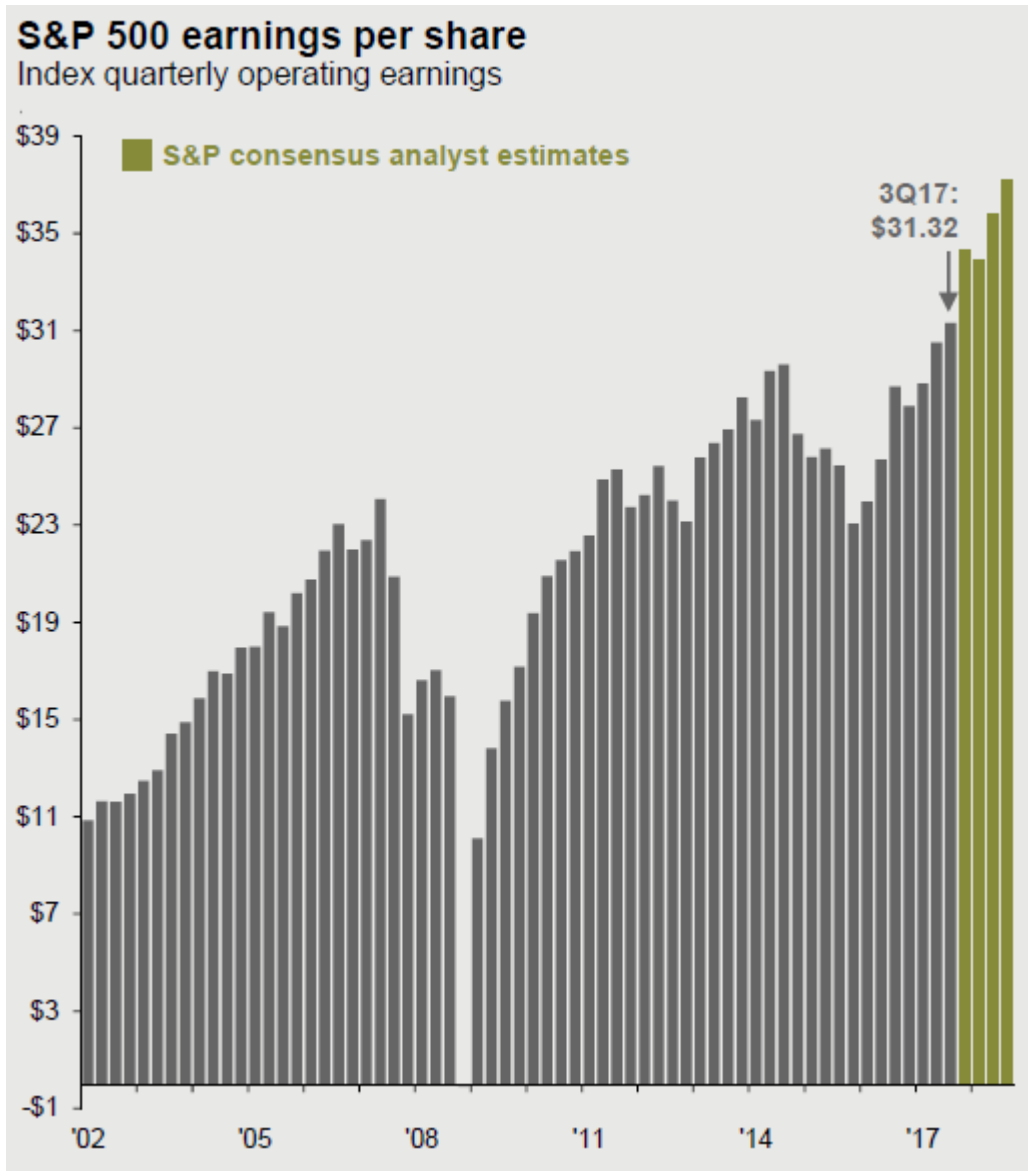
Quarterly Returns (Russell 3000)



Source: Barrow Hanley Quarterly Benchmark Review

- The RU 1000 was up 6.6% - Consumer Discretionary (+9.1%) and Information Technology (+8.9%) were the best performing sectors.
- The RU 2000 was up 3.3% - Consumer Discretionary (+7.7%) and Consumer Staples (+7.2%) were the best performing sectors.

# S&P 500 Earnings



Source: JP Morgan Guide to the Markets, 1Q 2018 As of December 31, 2017

- Through 2/2, 50% of companies in the S&P 500 have reported actual results for the fourth quarter.
- 75% of S&P 500 companies have reported positive EPS surprises and 80% have reported positive sales surprises.
- The blended earnings growth rate for the S&P 500 is 13.4%.
- All 11 sectors are reporting earnings growth for the quarter, led by the Energy sector.
- Energy (+111%) and Materials \*+41%) show the highest year-over-year earnings growth gains (Energy from a low base).

Source: FACTSET; Earnings Insights February 2, 2018

# Valuations are Getting Rich – Prospects for Future Returns

Current P/E as % of 15-year avg. P/E*			
	Value	Blend	Growth
Large	123.0%	125.6%	126.7%
Mid	117.6%	117.3%	118.6%
Small	110.9%	120.6%	132.6%

**Forward P/E and subsequent 5-yr. annualized returns**  
S&P 500 Total Return Index



Source: JP Morgan Guide to the Markets®, 1Q 2018 As of December 31, 2017.



# Non-U.S. Equity Market

Periods Ending December 31, 2017

- Non-U.S. developed equity (MSCI EAFE Index +4.2%) trailed U.S. (MSCI USA +6.4%) after beating in the previous three quarters. The U.S. benefited late in the quarter from much anticipated tax reform and a strong consumer/holiday period.
- The U.S. Dollar fell against the EUR and GBP, boosting USD returns, but was flat to the JPY.
- Emerging Markets (MSCI Emerging Markets Index +7.4%) outpaced Developed Markets for the fourth consecutive quarter (MSCI EAFE Index +4.2%), fueled by a soft dollar, synchronized global growth, and strong oil and commodity prices.
- China (+7.6%) performed in line with broader EM. Chinese technology continued to perform well but was less of a performance outlier than in previous quarters. China's growing and less-visible debt is an increasing concern.
- Developed non-U.S. small cap outperformed its large/mid cap counterparts modestly, led by Asia. Australian SC (+11.6%) and Japan SC (+8.7%) led the segments. Sectors were all positive for the quarter with only moderate dispersion.

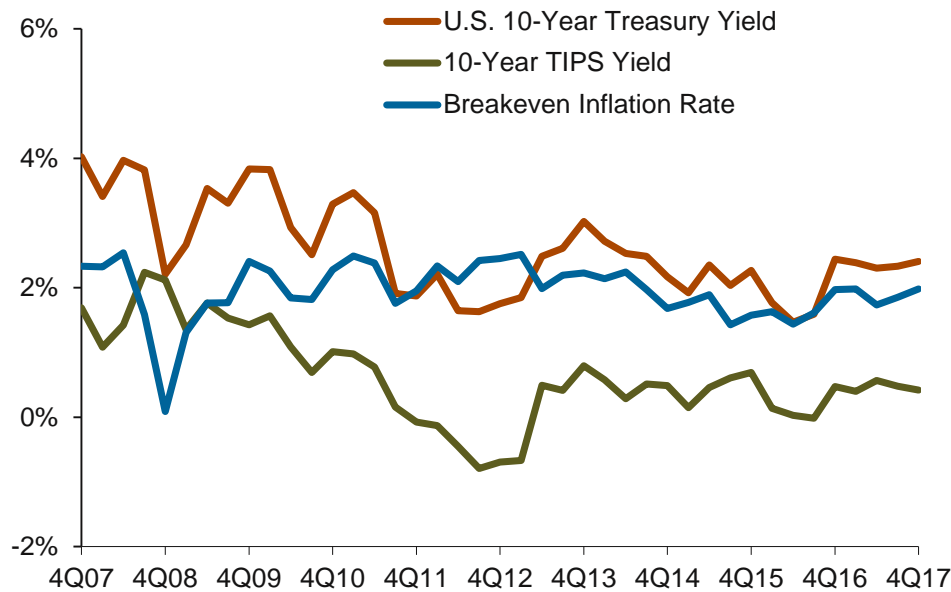
Non-U.S. Equity	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
MSCI ACWI ex USA	5.00	27.19	7.83	6.80	1.84	8.75
MSCI ACWI ex USA Growth	5.77	32.01	9.29	7.97	2.40	8.66
MSCI ACWI ex USA Value	4.23	22.66	6.31	5.58	1.23	8.78
MSCI EAFE	4.23	25.03	7.80	7.90	1.94	8.11
MSCI EAFE (local)	3.66	15.23	8.54	11.44	3.30	7.39
Regional Equity						
MSCI Europe	2.21	25.51	6.69	7.37	1.34	8.04
MSCI Europe (local)	1.27	13.06	8.34	10.10	3.52	7.59
MSCI Japan	8.49	23.99	11.62	11.16	3.17	6.97
MSCI Japan (local)	8.57	19.75	9.33	17.20	3.25	6.60
MSCI Pacific ex Japan	7.01	25.88	7.51	5.46	3.55	11.64
MSCI Pacific ex Japan (loc)	7.09	19.43	8.61	9.53	4.14	9.68
Emerging/Frontier Markets						
MSCI Emerging Markets	7.44	37.28	9.10	4.35	1.68	12.31
MSCI Emerging Markets (loc)	5.68	30.55	10.51	7.98	4.14	12.56
MSCI Frontier Markets	5.61	31.86	5.01	9.27	-1.35	8.56
Non-U.S. Small Cap Equity						
MSCI EAFE Small Cap	6.05	33.01	14.20	12.85	5.77	12.24
MSCI Em Mkts Small Cap	9.23	33.84	8.44	5.41	2.78	13.32

Source: Callan, MSCI

# Yield Curve Changes

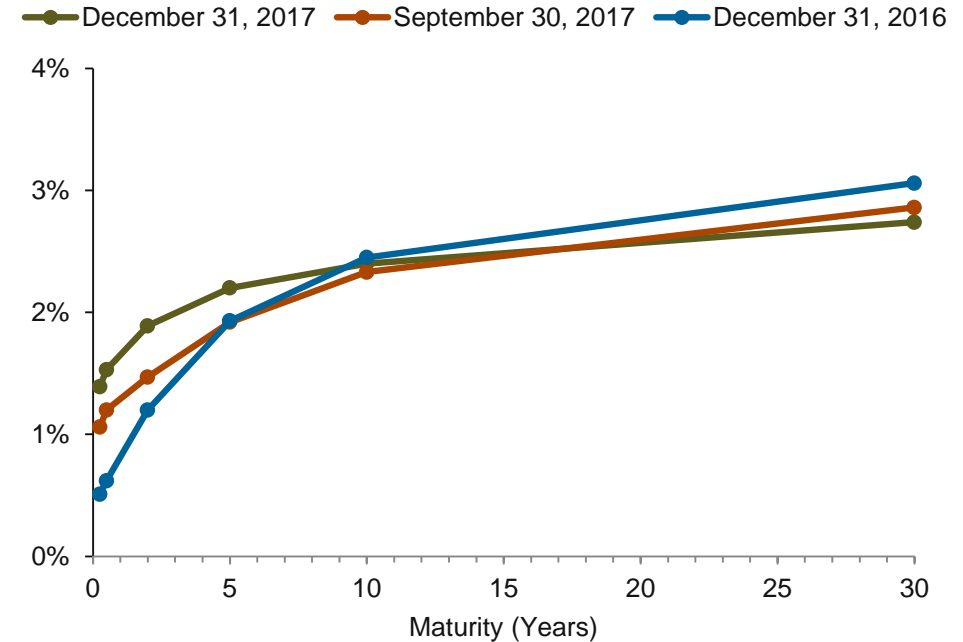
Periods Ending December 31, 2017

## Historical 10-Year Yields



Source: Bloomberg

## U.S. Treasury Yield Curves



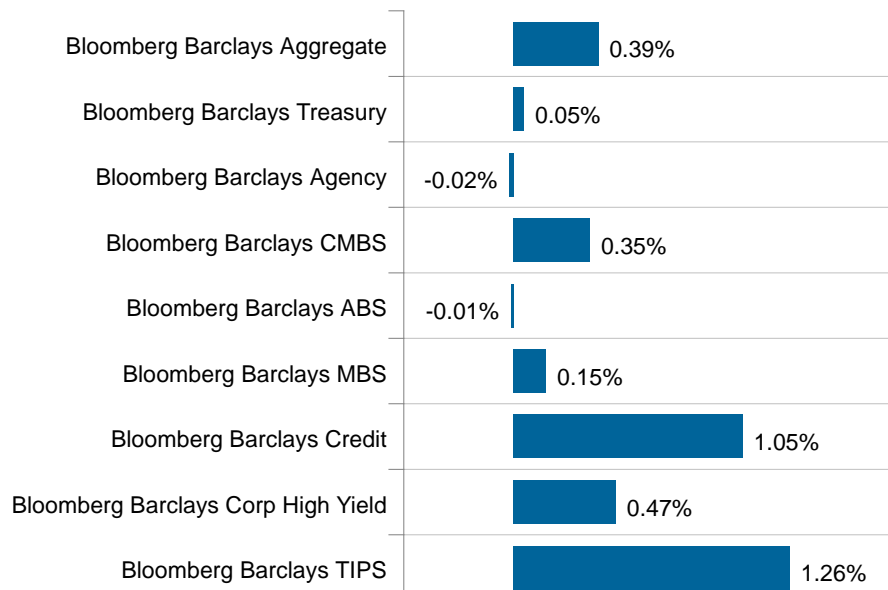
Source: U.S. Department of the Treasury

- The Treasury yield curve flattened during the quarter. The yield on the 3-month rose 33 bps while the yield on the 30-year fell 12 bps.
- Breakeven inflation rose in the quarter but is flat for the year.

# Total Rates of Return by Bond Sector

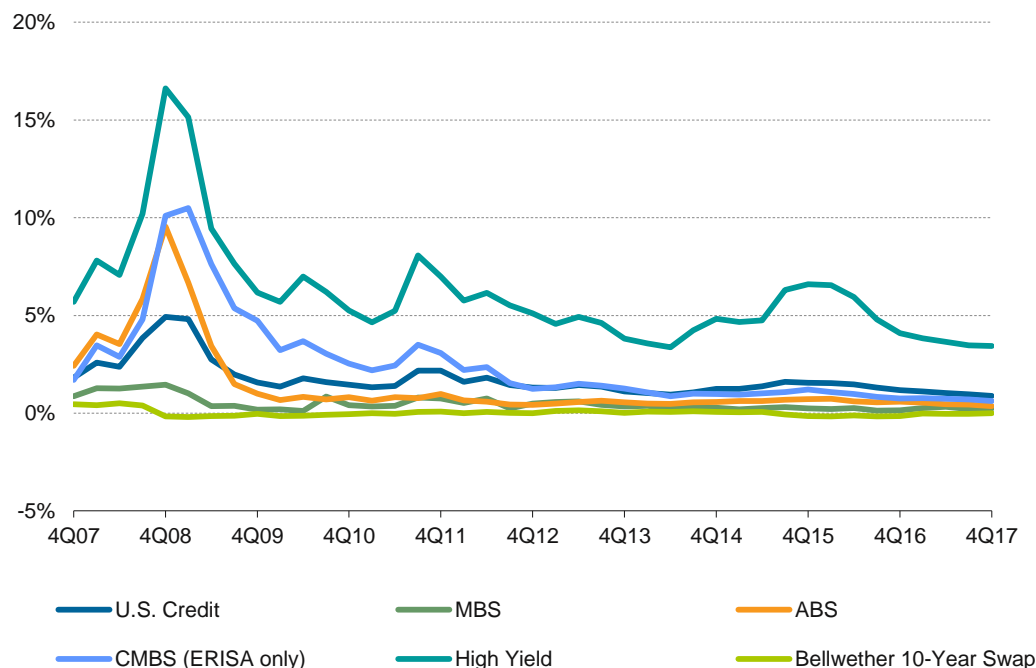
Periods Ending December 31, 2017

## Total Returns



Source: Bloomberg Barclays

## Effective Yield Over Treasuries

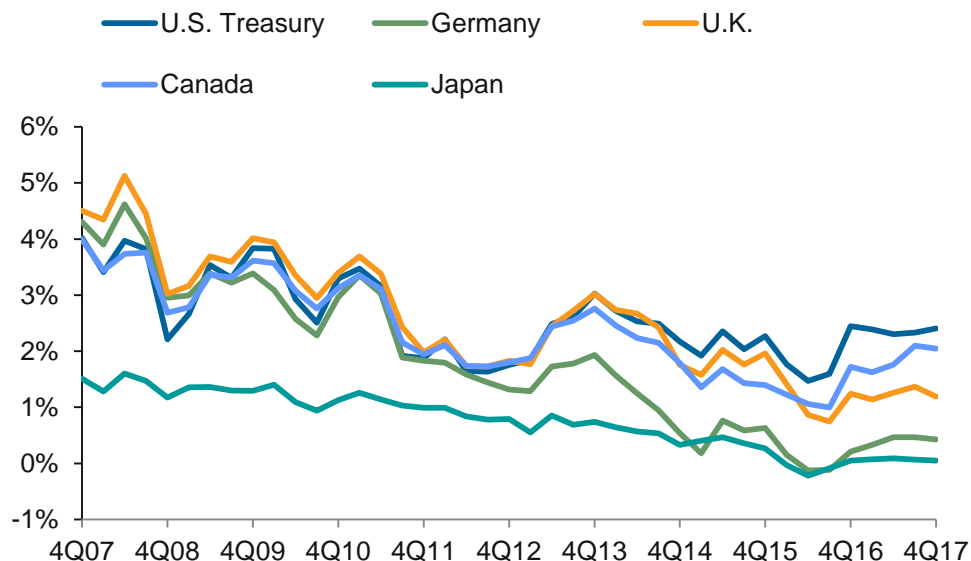


- Increasing inflation expectations provided a tailwind to TIPS and the sector was the best performer for the quarter (+1.3%).
- Demand for yield saw spreads contract in Credit, overcoming rising rates to post a return of 1.1%.
- High yield spreads have contracted by 66 bps since 4Q 2016, helping the sector return 7.5% for the year.

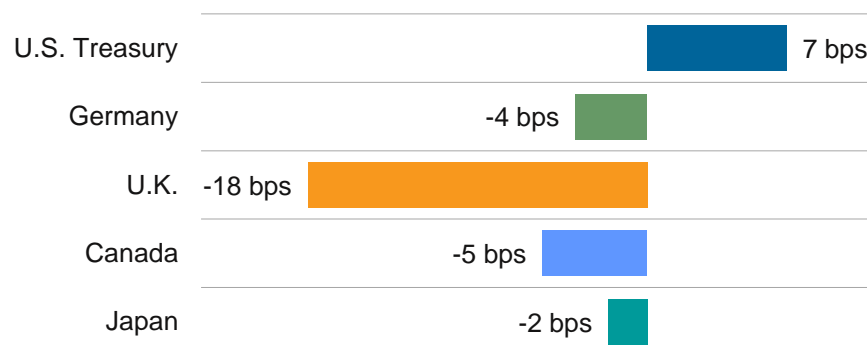
# Global Fixed Income

Periods Ending December 31, 2017

10-Year Global Government Bond Yields



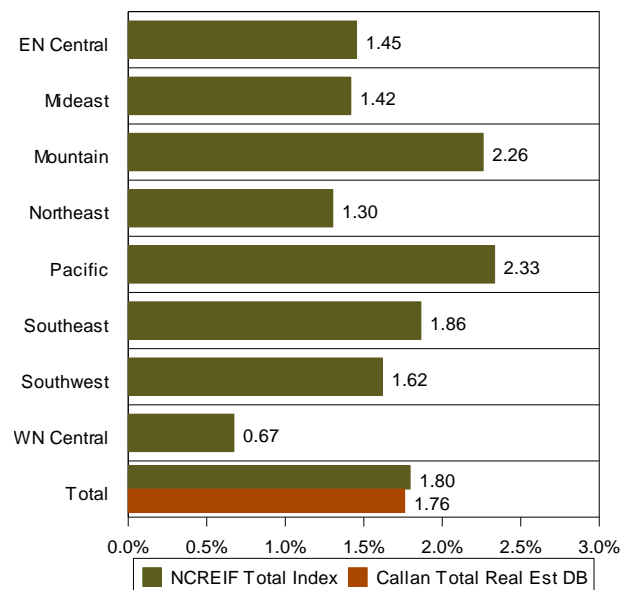
Change in 10-year Yields from 3Q17 to 4Q17



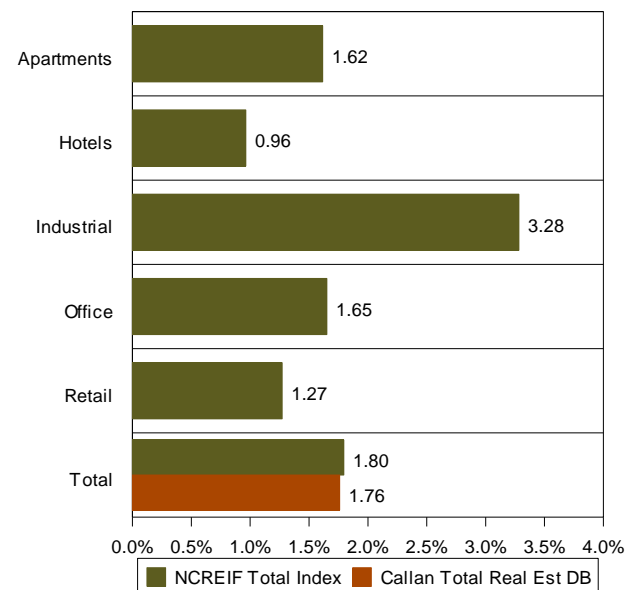
- Worldwide, rates remain low.
- The U.S. saw the yield on the 10-year increase seven basis points during the quarter. Yields in other global developed economies fell.

# Real Estate Overview

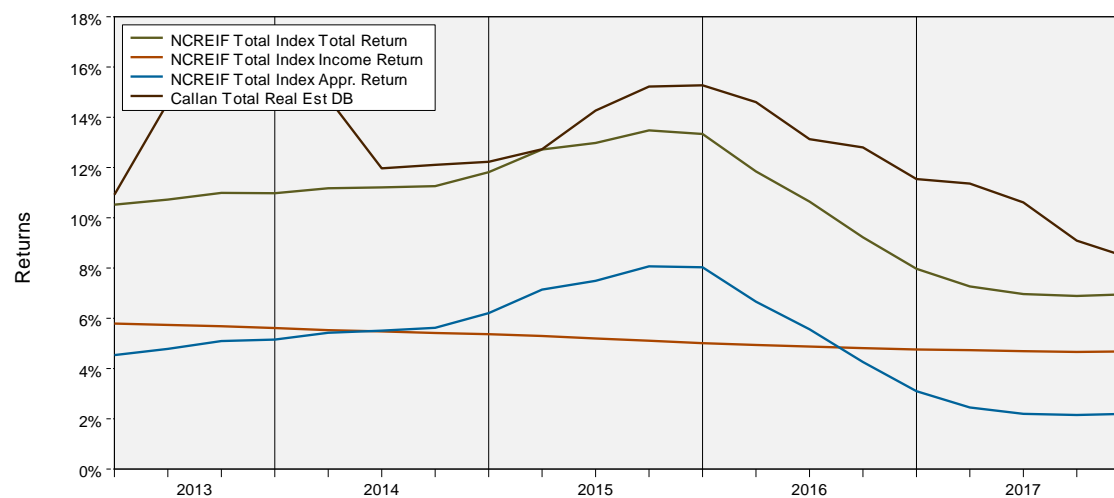
**NCREIF Total Index Returns by Geographic Area**  
Quarter Ended December 31, 2017



**NCREIF Total Index Returns by Property Type**  
Quarter Ended December 31, 2017



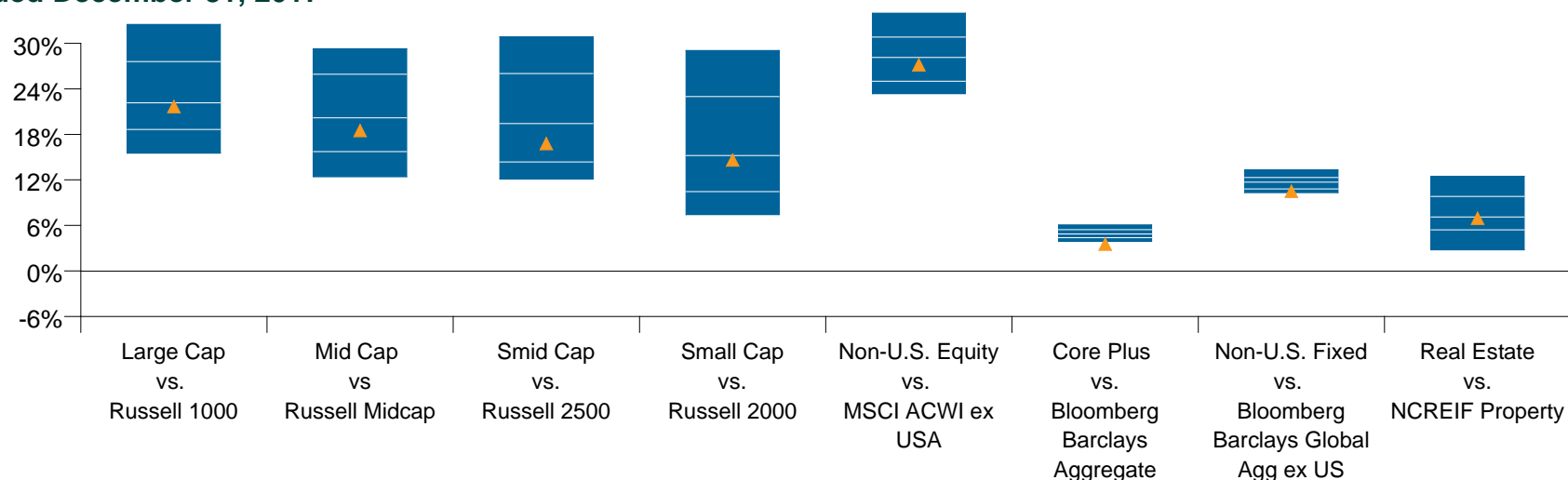
**Rolling 1 Year Returns**



# Active Management vs. Index Returns

## Range of Separate Account Manager Returns by Asset Class

One Year ended December 31, 2017



- Active management has improved relative to the passive index over the trailing year.

Sources: Bloomberg Barclays, Callan, MSCI, NCREIF, Russell. All style group returns presented gross of fees.



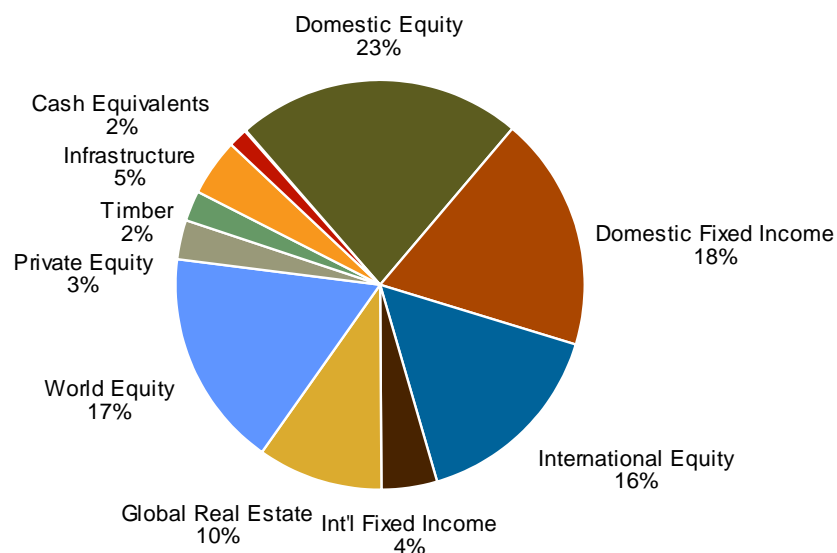
### **Consolidated Pension Trusts Quarterly Review**

- Public Employees Retirement System
- Teachers' Fund for Retirement

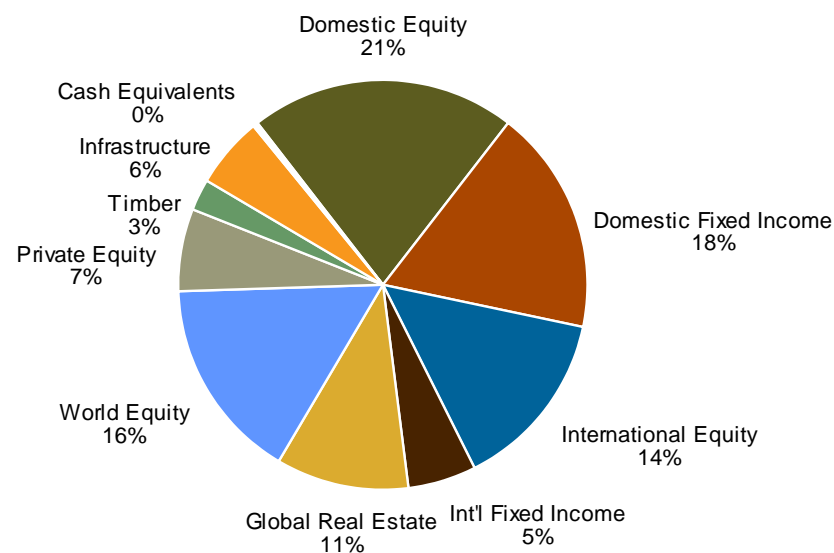
# Consolidated Pension Trust Allocation

As of December 31, 2017

**Actual Asset Allocation**



**Target Asset Allocation**



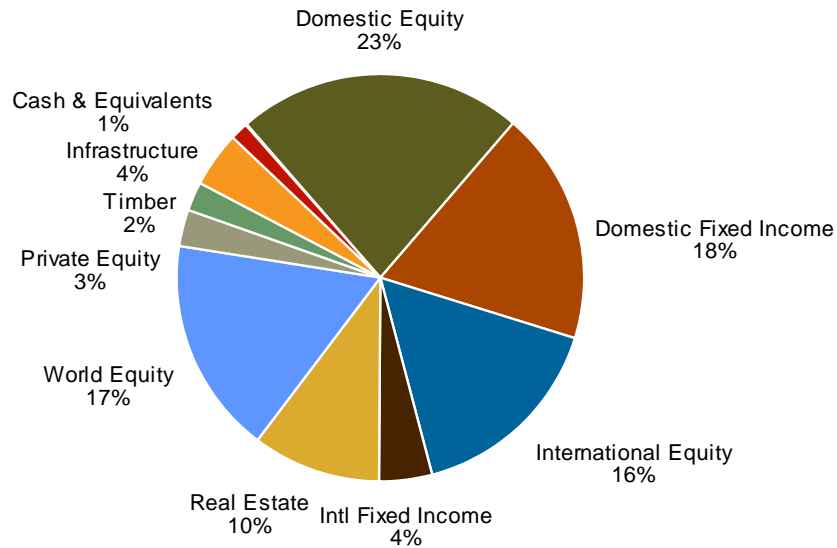
Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	1,285,912	22.6%	21.0%	1.6%	93,489
Domestic Fixed Income	1,049,948	18.5%	17.8%	0.7%	39,228
International Equity	898,988	15.8%	14.3%	1.5%	87,005
Int'l Fixed Income	252,569	4.4%	5.4%	(1.0%)	(54,054)
Global Real Estate	560,283	9.9%	10.5%	(0.6%)	(35,928)
World Equity	975,646	17.2%	16.0%	1.2%	67,134
Private Equity	175,836	3.1%	6.5%	(3.4%)	(193,247)
Timber	134,861	2.4%	2.5%	(0.1%)	(7,094)
Infrastructure	257,039	4.5%	5.6%	(1.1%)	(60,940)
Cash Equivalents	87,121	1.5%	0.4%	1.1%	64,408
Total	5,678,203	100.0%	100.0%		



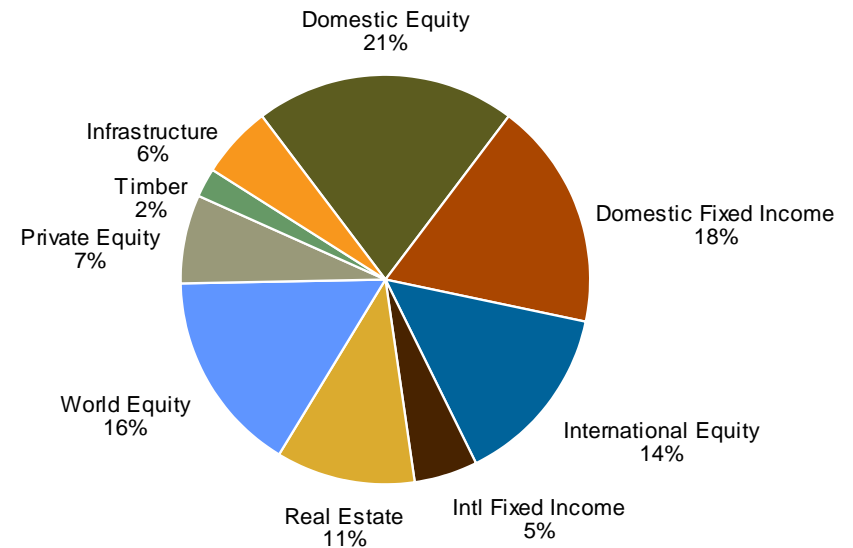
# PERS Allocation

As of December 31, 2017

**Actual Asset Allocation**



**Target Asset Allocation**

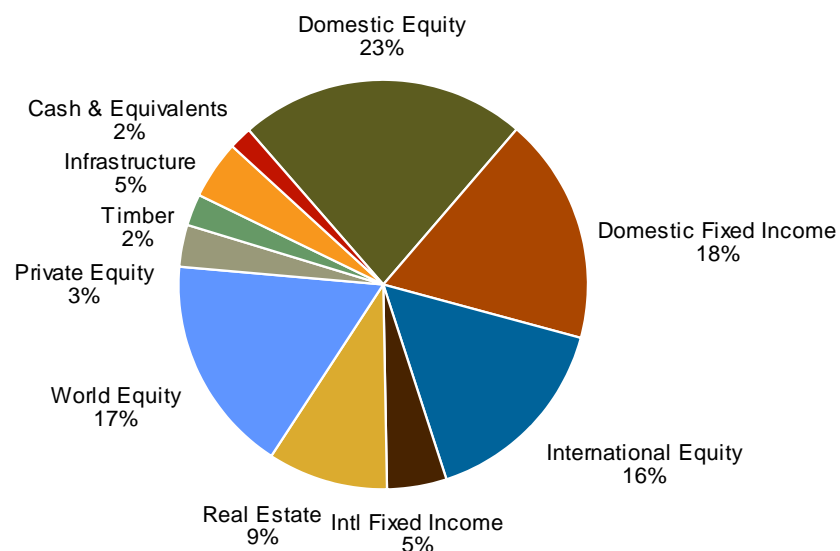


Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	680,883	22.7%	20.6%	2.1%	63,917
Domestic Fixed Income	553,855	18.5%	18.0%	0.5%	14,758
International Equity	483,305	16.1%	14.4%	1.7%	52,028
Intl Fixed Income	126,539	4.2%	5.0%	(0.8%)	(23,210)
Real Estate	305,218	10.2%	11.0%	(0.8%)	(24,230)
World Equity	516,339	17.2%	16.0%	1.2%	37,142
Private Equity	88,214	2.9%	7.0%	(4.1%)	(121,434)
Timber	68,121	2.3%	2.3%	(0.0%)	(764)
Infrastructure	131,633	4.4%	5.7%	(1.3%)	(39,081)
Cash & Equivalents	40,874	1.4%	0.0%	1.4%	40,874
Total	2,994,980	100.0%	100.0%		

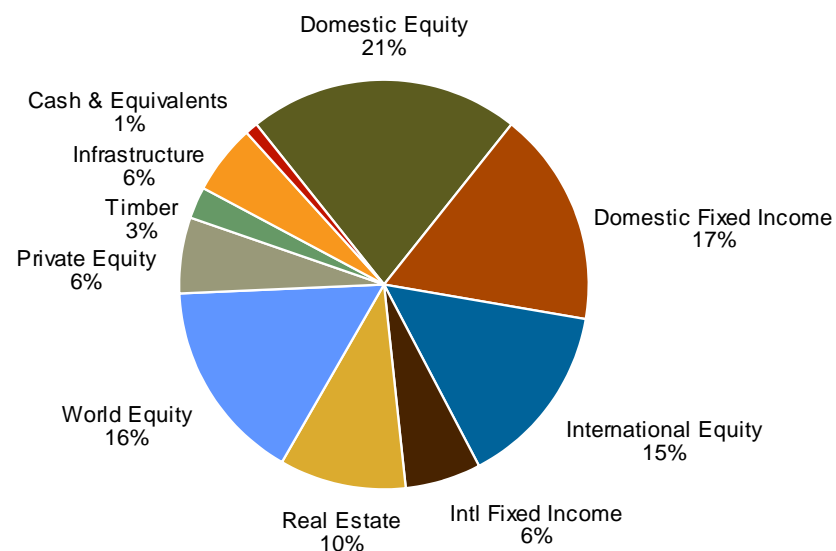
# TFFR Allocation

As of December 31, 2017

**Actual Asset Allocation**



**Target Asset Allocation**

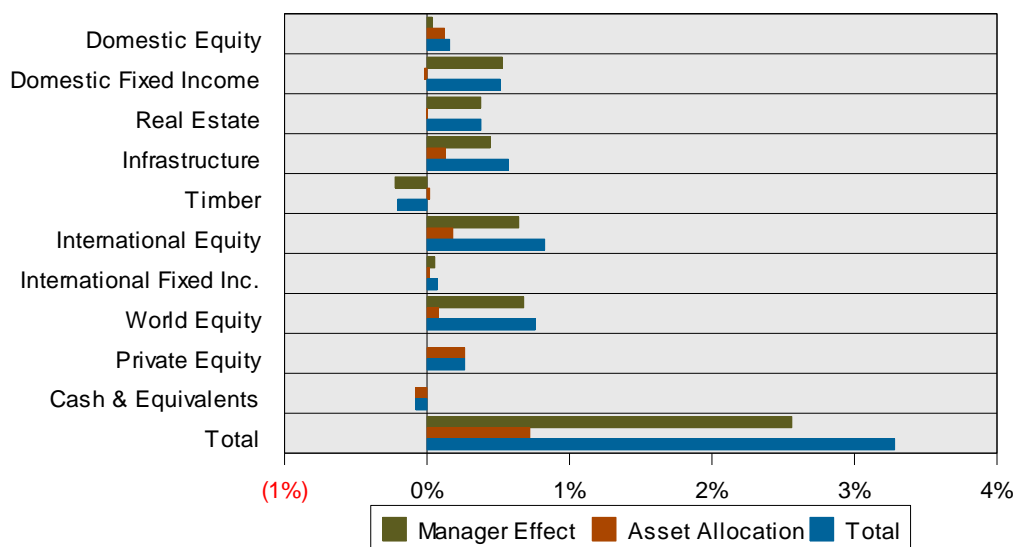


Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	561,368	22.7%	21.4%	1.3%	32,125
Domestic Fixed Income	442,704	17.9%	17.0%	0.9%	22,277
International Equity	390,935	15.8%	14.6%	1.2%	29,863
Intl Fixed Income	117,286	4.7%	6.0%	(1.3%)	(31,100)
Real Estate	234,196	9.5%	10.0%	(0.5%)	(13,114)
World Equity	425,202	17.2%	16.0%	1.2%	29,506
Private Equity	80,971	3.3%	6.0%	(2.7%)	(67,415)
Timber	60,875	2.5%	2.5%	(0.0%)	(952)
Infrastructure	114,631	4.6%	5.5%	(0.9%)	(21,389)
Cash & Equivalents	44,930	1.8%	1.0%	0.8%	20,199
Total	2,473,098	100.0%	100.0%		

# PERS Performance and Attribution

As of December 31, 2017

## One Year Relative Attribution Effects



1 Year Ended 12/31/2017

Gross: 17.50%

Net of fees: 17.20%

Target: 14.22%

Net Added: 2.98%

## One Year Relative Attribution Effects

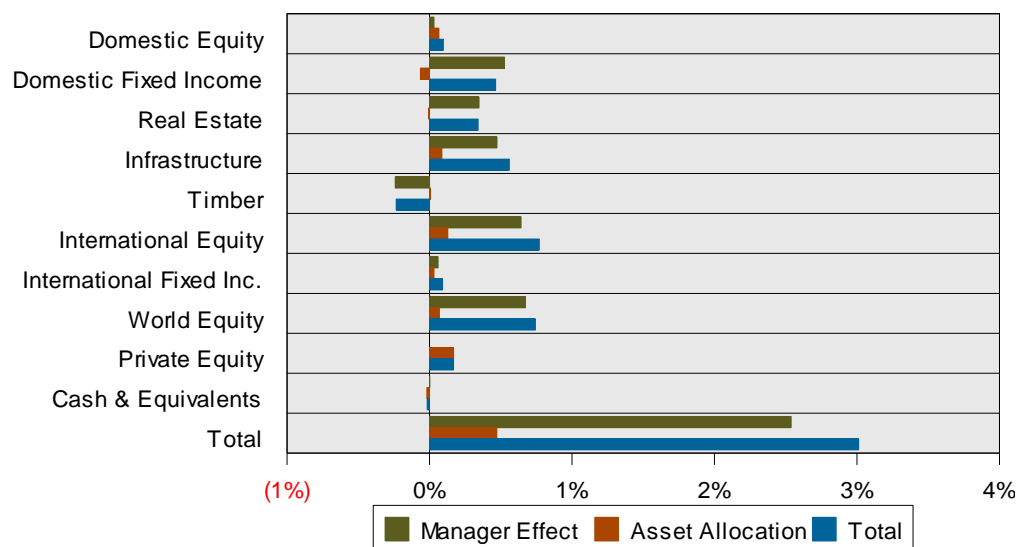
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	20.24%	20.06%	0.04%	0.12%	0.16%
Domestic Fixed Income	18%	18%	7.34%	4.63%	0.53%	(0.02%)	0.51%
Real Estate	11%	11%	10.26%	6.96%	0.38%	0.00%	0.38%
Infrastructure	4%	5%	11.99%	2.18%	0.44%	0.13%	0.57%
Timber	3%	3%	(3.98%)	3.63%	(0.22%)	0.02%	(0.20%)
International Equity	16%	14%	31.69%	27.22%	0.64%	0.18%	0.83%
International Fixed Inc.	5%	5%	11.56%	10.51%	0.05%	0.02%	0.07%
World Equity	17%	16%	26.69%	22.40%	0.68%	0.08%	0.76%
Private Equity	3%	7%	7.43%	7.43%	0.00%	0.26%	0.26%
Cash & Equivalents	1%	0%	1.07%	1.07%	0.00%	(0.08%)	(0.08%)

<b>Total</b>	<b>17.50% = 14.22% + 2.56% + 0.72%</b>	<b>3.28%</b>
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# TFFR Performance and Attribution

As of December 31, 2017

## One Year Relative Attribution Effects



## 1 Year Ended 12/31/2017

Gross: 17.27%  
 Net of fees: 16.98%  
 Target: 14.26%  
 Net Added: 2.72%

## One Year Relative Attribution Effects

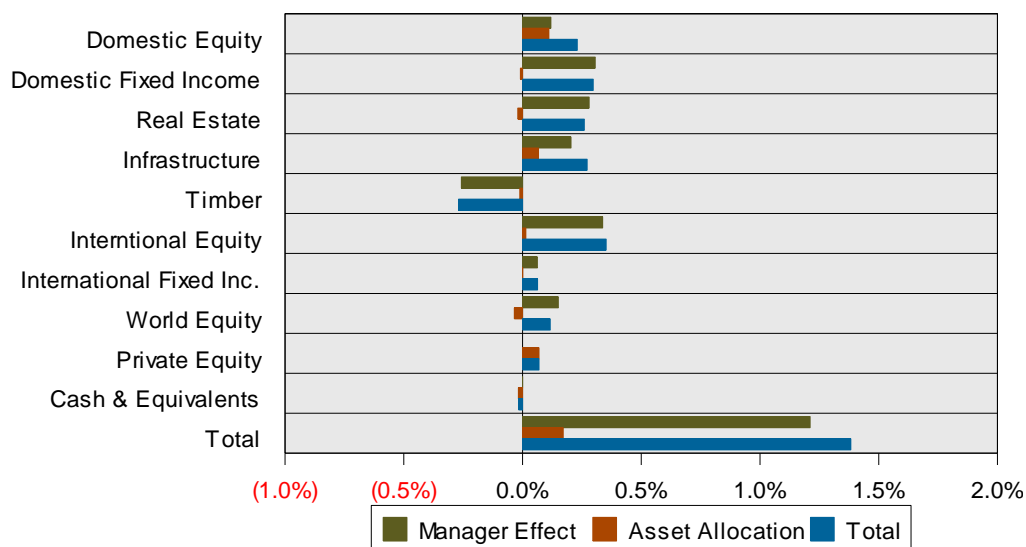
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	20.28%	20.12%	0.03%	0.07%	0.10%
Domestic Fixed Income	18%	17%	7.25%	4.47%	0.53%	(0.06%)	0.46%
Real Estate	10%	10%	10.26%	6.96%	0.35%	(0.01%)	0.34%
Infrastructure	5%	5%	11.99%	2.18%	0.47%	0.09%	0.56%
Timber	3%	3%	(3.98%)	3.63%	(0.24%)	0.01%	(0.23%)
International Equity	16%	15%	31.14%	26.65%	0.64%	0.13%	0.77%
International Fixed Inc.	5%	6%	11.56%	10.51%	0.06%	0.03%	0.09%
World Equity	17%	16%	26.69%	22.40%	0.67%	0.07%	0.74%
Private Equity	3%	6%	7.43%	7.43%	0.00%	0.17%	0.17%
Cash & Equivalents	1%	1%	1.07%	0.86%	0.00%	(0.02%)	(0.02%)

**Total** **17.27% = 14.26% + 2.54% + 0.47%** **3.01%**

# PERS Performance and Attribution

As of December 31, 2017

## Five Year Annualized Relative Attribution Effects



5 Years Ended 12/31/2017

Gross: 9.62%

Net of fees: 9.29%

Target: 8.23%

Net Added: 1.06%

## Five Year Annualized Relative Attribution Effects

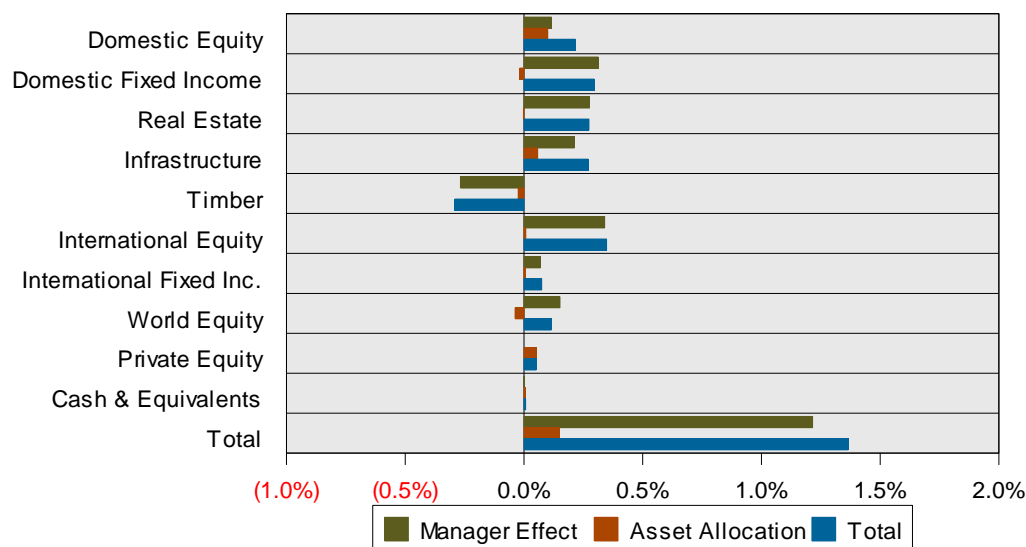
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	15.99%	15.42%	0.12%	0.11%	0.23%
Domestic Fixed Income	18%	17%	4.83%	3.17%	0.31%	(0.01%)	0.30%
Real Estate	10%	10%	13.05%	10.19%	0.28%	(0.02%)	0.26%
Infrastructure	4%	5%	6.11%	1.26%	0.20%	0.07%	0.27%
Timber	4%	4%	(0.35%)	6.22%	(0.26%)	(0.01%)	(0.27%)
International Equity	15%	15%	9.29%	7.05%	0.34%	0.01%	0.35%
International Fixed Inc.	5%	5%	0.99%	(0.20%)	0.06%	0.00%	0.06%
World Equity	16%	16%	12.44%	11.64%	0.15%	(0.03%)	0.12%
Private Equity	4%	6%	1.34%	1.34%	0.00%	0.07%	0.07%
Cash & Equivalents	1%	1%	0.36%	0.32%	0.00%	(0.02%)	(0.02%)

**Total** **9.62% = 8.23% + 1.21% + 0.17%** **1.38%**

# TFFR Performance and Attribution

As of December 31, 2017

## Five Year Annualized Relative Attribution Effects



## 5 Years Ended 12/31/2017

Gross: 9.61%  
 Net of fees: 9.29%  
 Target: 8.24%  
 Net Added: 1.05%

## Five Year Annualized Relative Attribution Effects

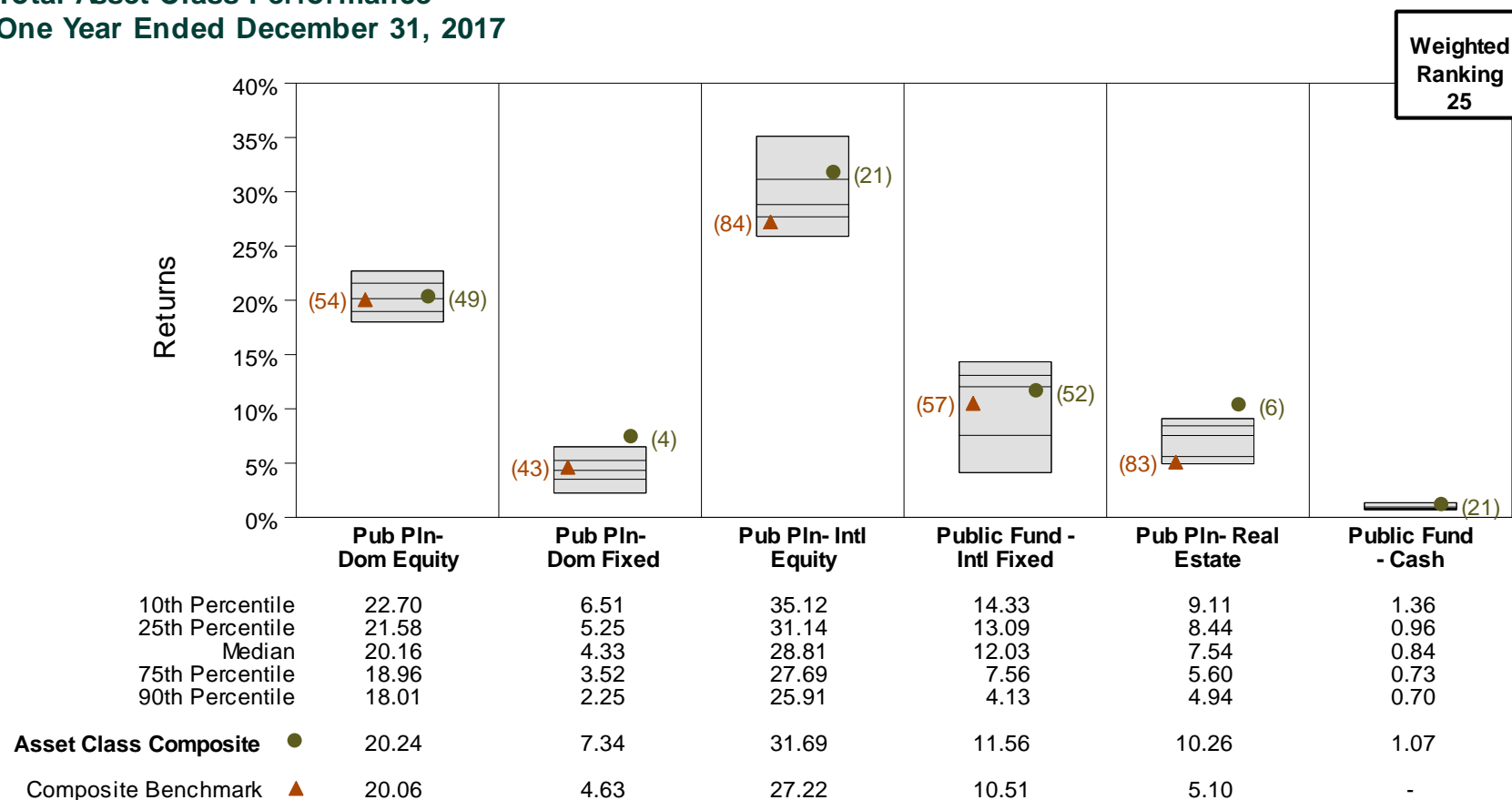
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	15.98%	15.42%	0.12%	0.10%	0.22%
Domestic Fixed Income	18%	17%	4.77%	3.05%	0.31%	(0.02%)	0.30%
Real Estate	10%	10%	13.05%	10.19%	0.28%	(0.00%)	0.27%
Infrastructure	4%	5%	6.11%	1.26%	0.21%	0.06%	0.27%
Timber	4%	4%	(0.35%)	6.22%	(0.27%)	(0.02%)	(0.29%)
International Equity	15%	15%	9.46%	7.21%	0.34%	0.01%	0.35%
International Fixed Inc.	5%	5%	0.99%	(0.20%)	0.07%	0.01%	0.07%
World Equity	16%	16%	12.44%	11.64%	0.15%	(0.04%)	0.11%
Private Equity	4%	5%	1.35%	1.35%	0.00%	0.05%	0.05%
Cash & Equivalents	1%	1%	0.36%	0.27%	0.00%	0.01%	0.01%

**Total** **9.61% = 8.24% + 1.22% + 0.15%** **1.36%**

# Asset Class Composite Results

## Consolidated Pension Trust Asset Class Results vs. Other Public Pension Funds

**Total Asset Class Performance**  
**One Year Ended December 31, 2017**

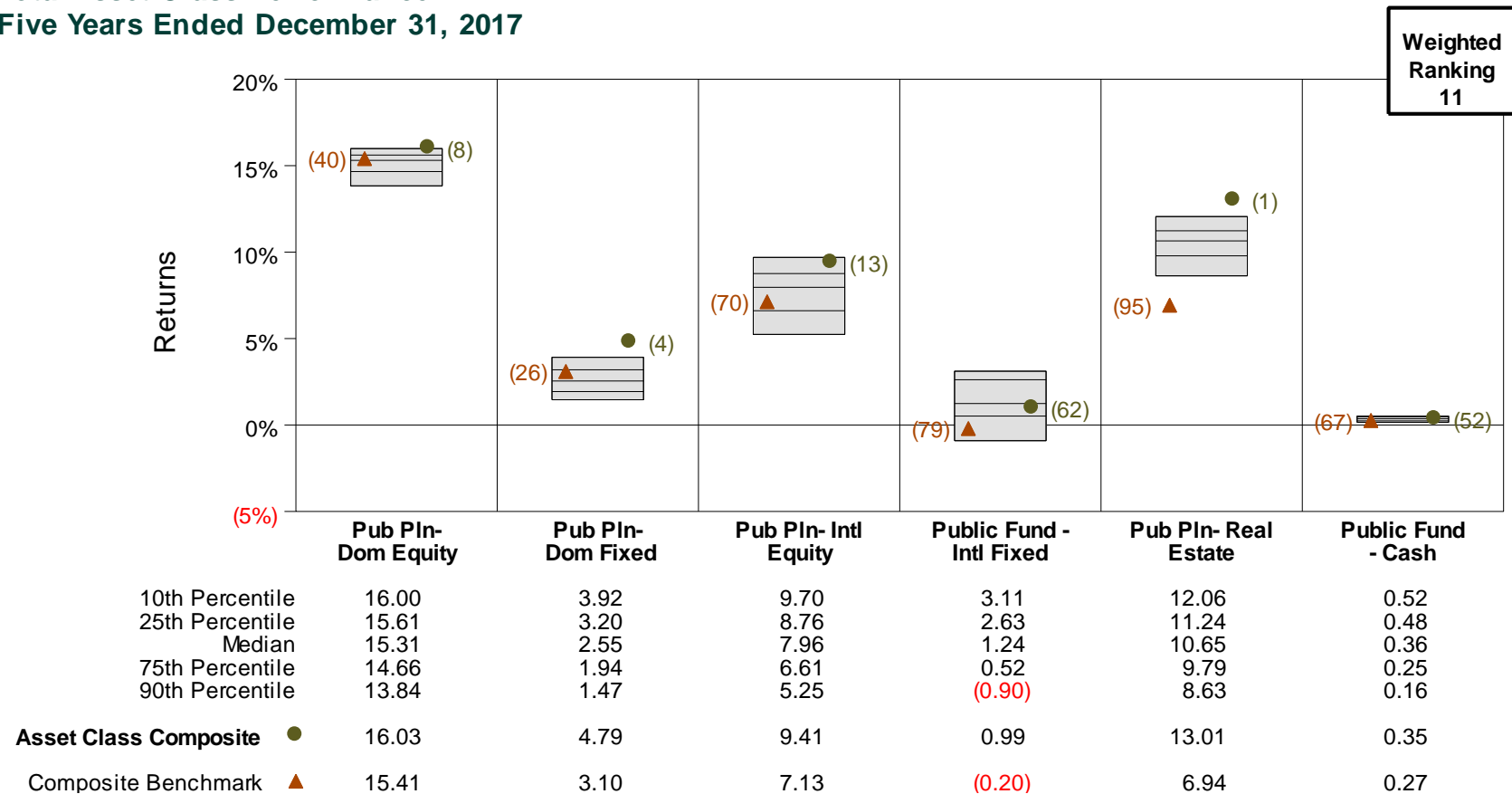


- All asset classes outperformed their respective benchmarks over the last year.
- Domestic fixed income and real estate placed in the top decile over the last year.

# Asset Class Composite Results

## Consolidated Pension Trust Asset Class Results vs. Other Public Pension Funds

Total Asset Class Performance  
Five Years Ended December 31, 2017



- All asset classes lead their respective benchmarks over the last five years.
- Domestic equity and fixed income, and real estate are all in the top decile over the last five years.





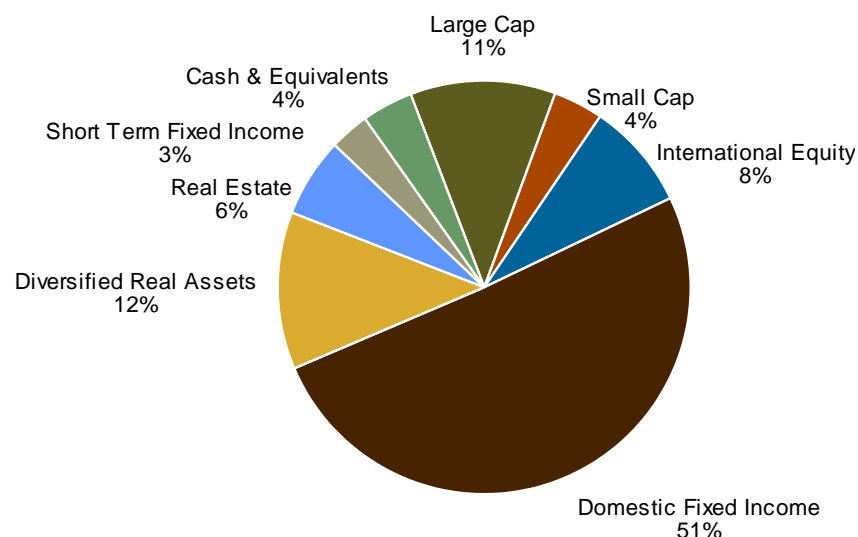
### **Consolidated Insurance Trust Quarterly Review**

- Workforce Safety & Insurance  
Legacy Fund
- Budget Stabilization Fund

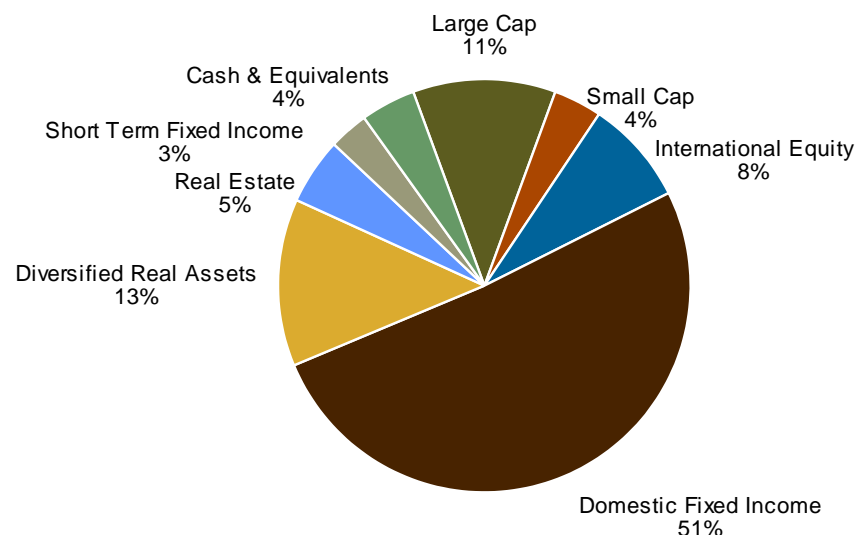
# Consolidated Insurance Trust Allocation

As of December 31, 2017

**Actual Asset Allocation**



**Target Asset Allocation**

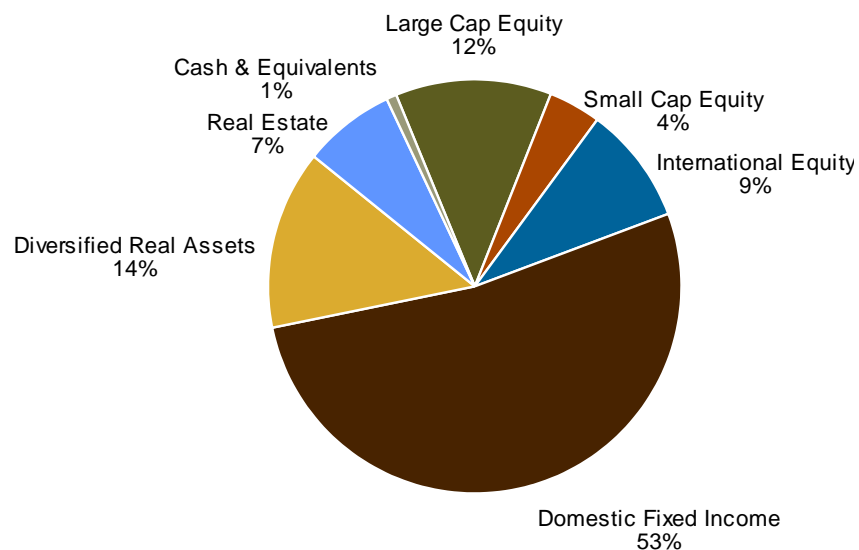


Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Large Cap	256,752	11.4%	11.2%	0.2%	4,645
Small Cap	87,918	3.9%	3.8%	0.1%	2,382
International Equity	188,156	8.4%	8.2%	0.2%	3,577
Domestic Fixed Income	1,141,555	50.7%	51.1%	(0.4%)	(8,684)
Diversified Real Assets	275,878	12.3%	13.1%	(0.8%)	(18,998)
Real Estate	139,446	6.2%	5.2%	1.0%	22,396
Short Term Fixed Income	70,615	3.1%	3.1%	0.0%	835
Cash & Equivalents	90,638	4.0%	4.3%	(0.3%)	(6,153)
Total	2,250,959	100.0%	100.0%		

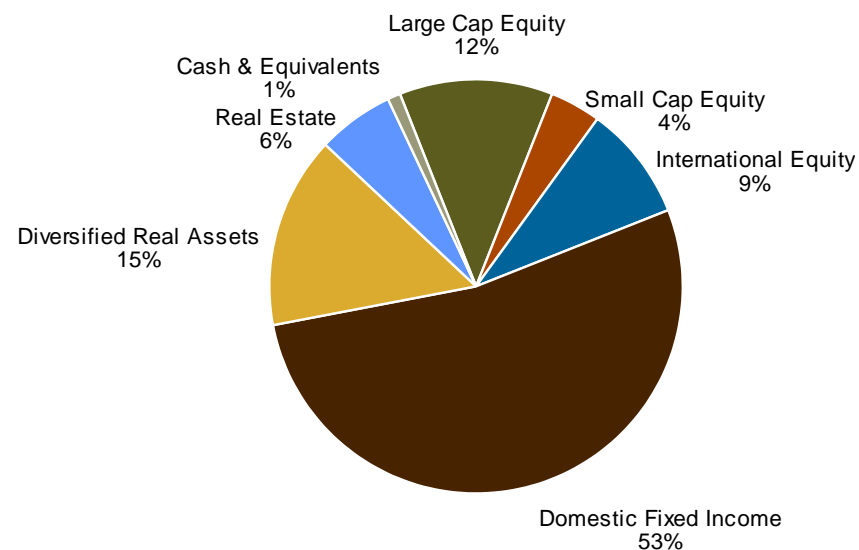
# WSI Allocation

As of December 31, 2017

**Actual Asset Allocation**



**Target Asset Allocation**

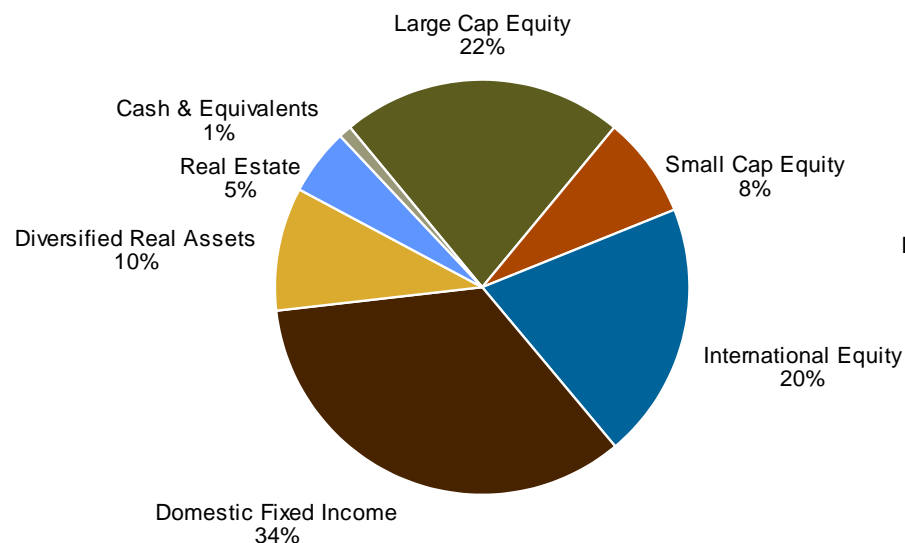


Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Large Cap Equity	237,527	12.2%	12.0%	0.2%	4,496
Small Cap Equity	79,731	4.1%	4.0%	0.1%	2,054
International Equity	178,036	9.2%	9.0%	0.2%	3,263
Domestic Fixed Income	1,019,674	52.5%	53.0%	(0.5%)	(9,544)
Diversified Real Assets	271,420	14.0%	15.0%	(1.0%)	(19,869)
Real Estate	139,379	7.2%	6.0%	1.2%	22,864
Cash & Equivalents	16,155	0.8%	1.0%	(0.2%)	(3,264)
Total	1,941,922	100.0%	100.0%		

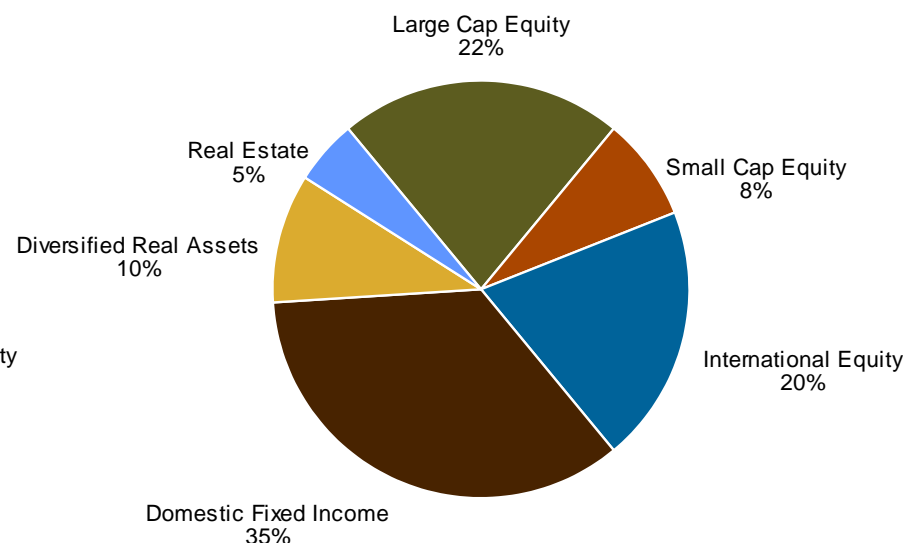
# Legacy Fund Allocation

As of December 31, 2017

**Actual Asset Allocation**



**Target Asset Allocation**

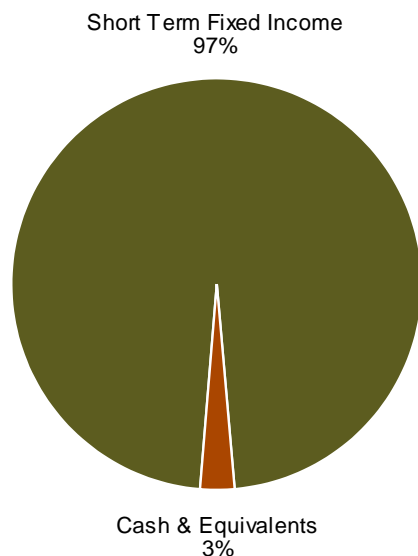


Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Large Cap Equity	1,153,566	22.0%	22.0%	(0.0%)	(1,941)
Small Cap Equity	415,195	7.9%	8.0%	(0.1%)	(4,989)
International Equity	1,049,343	20.0%	20.0%	(0.0%)	(1,117)
Domestic Fixed Income	1,803,653	34.3%	35.0%	(0.7%)	(34,652)
Diversified Real Assets	506,526	9.6%	10.0%	(0.4%)	(18,705)
Real Estate	271,421	5.2%	5.0%	0.2%	8,806
Cash & Equivalents	52,598	1.0%	0.0%	1.0%	52,598
Total	5,252,301	100.0%	100.0%		

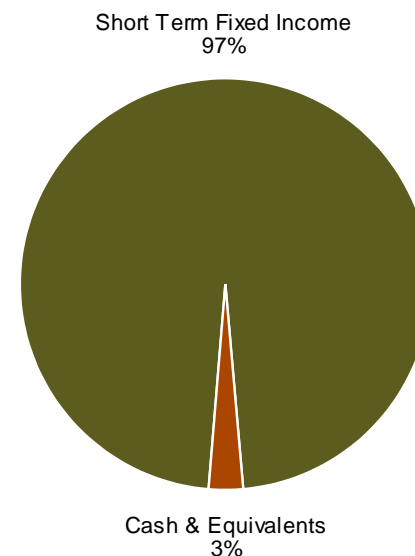
# Budget Stabilization Fund Allocation

As of December 31, 2017

**Actual Asset Allocation**



**Target Asset Allocation**

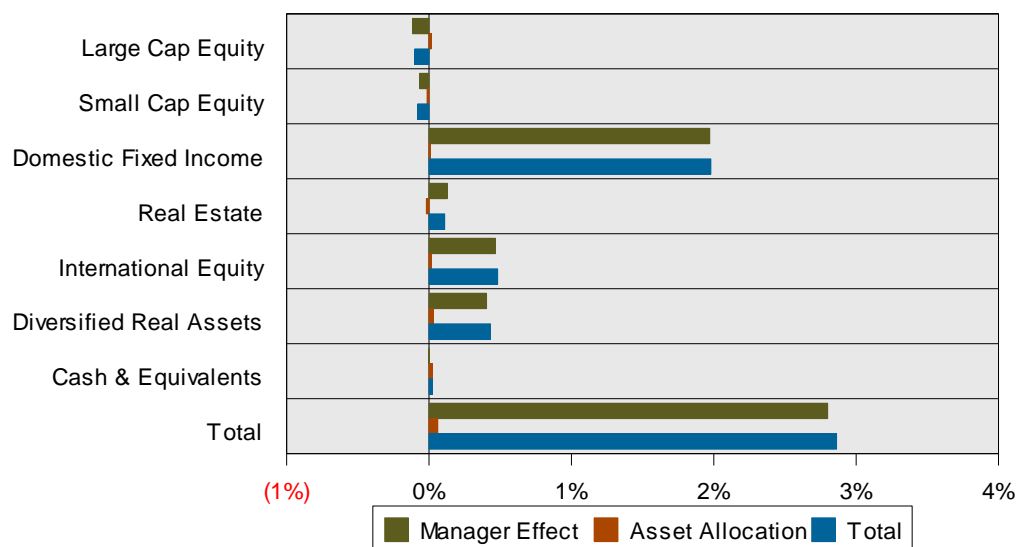


Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Short Term Fixed Income	37,356	97.3%	97.3%	0.0%	1
Cash & Equivalents	1,043	2.7%	2.7%	(0.0%)	(1)
Total	38,399	100.0%	100.0%		

# WSI Performance and Attribution

As of December 31, 2017

## One Year Relative Attribution Effects



1 Year Ended 12/31/2017

Gross: 11.13%

Net of fees: 10.91%

Target: 8.27%

Net Added: 2.64%

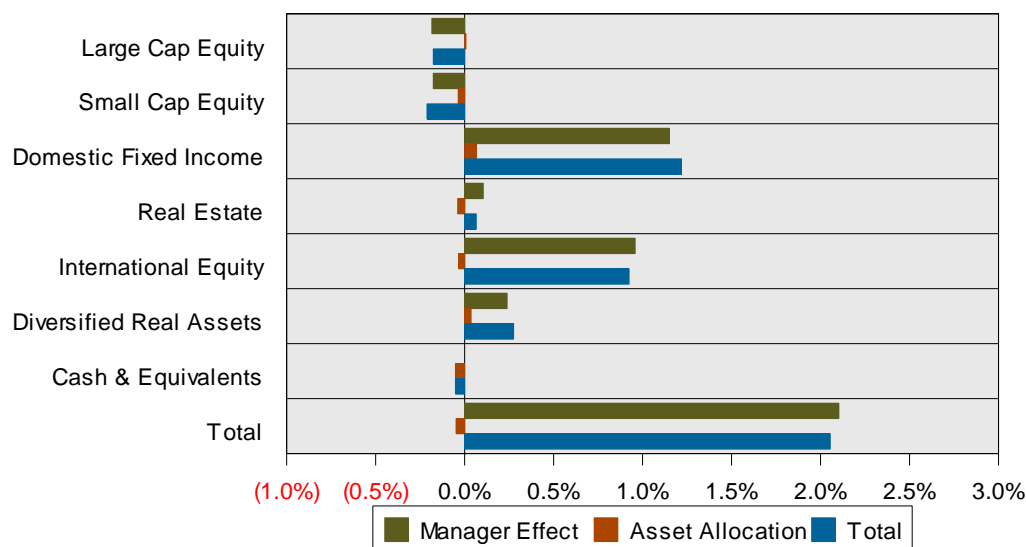
## One Year Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	12%	12%	20.62%	21.69%	(0.12%)	0.02%	(0.10%)
Small Cap Equity	4%	4%	12.85%	14.65%	(0.07%)	(0.01%)	(0.08%)
Domestic Fixed Income	53%	53%	7.15%	3.54%	1.97%	0.01%	1.98%
Real Estate	7%	6%	8.67%	6.96%	0.13%	(0.02%)	0.11%
International Equity	9%	9%	30.10%	24.21%	0.47%	0.02%	0.48%
Diversified Real Assets	14%	15%	8.27%	5.41%	0.40%	0.03%	0.43%
Cash & Equivalents	1%	1%	0.80%	0.86%	(0.00%)	0.02%	0.02%
<b>Total</b>			<b>11.13%</b>	<b>8.27%</b>	<b>+ 2.80%</b>	<b>+ 0.06%</b>	<b>2.86%</b>

# Legacy Fund Performance and Attribution

As of December 31, 2017

## One Year Relative Attribution Effects



1 Year Ended 12/31/2017

Gross: 14.84%

Net of fees: 14.61%

Target: 12.79%

Net Added: 1.82%

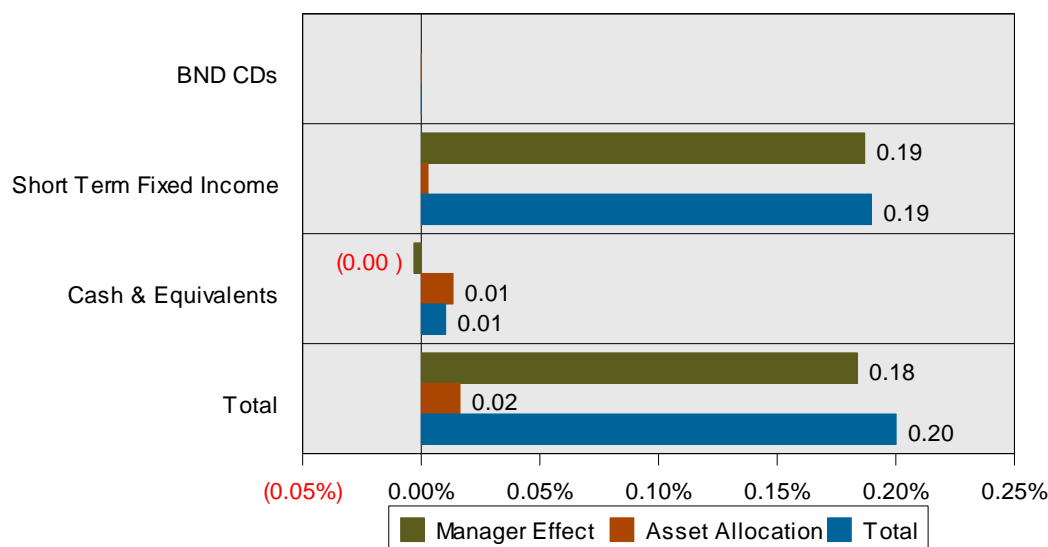
## One Year Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	22%	22%	20.84%	21.69%	(0.18%)	0.01%	(0.18%)
Small Cap Equity	8%	8%	12.53%	14.65%	(0.18%)	(0.04%)	(0.21%)
Domestic Fixed Income	34%	35%	6.68%	3.54%	1.15%	0.07%	1.22%
Real Estate	6%	5%	8.65%	6.96%	0.10%	(0.04%)	0.07%
International Equity	20%	20%	29.55%	24.21%	0.96%	(0.03%)	0.92%
Diversified Real Assets	9%	10%	9.26%	6.81%	0.24%	0.04%	0.28%
Cash & Equivalents	0%	0%	0.79%	0.79%	0.00%	(0.05%)	(0.05%)
<b>Total</b>			<b>14.84%</b>	<b>12.79%</b>	<b>+ 2.10%</b>	<b>+ (0.05%)</b>	<b>2.05%</b>

# Budget Stabilization Fund Performance and Attribution

As of December 31, 2017

## One Year Relative Attribution Effects



1 Year Ended 12/31/2017

Gross: 0.90%

Net of fees: 0.58%

Target: 0.70%

Net Added: **-0.12%**

## One Year Relative Attribution Effects

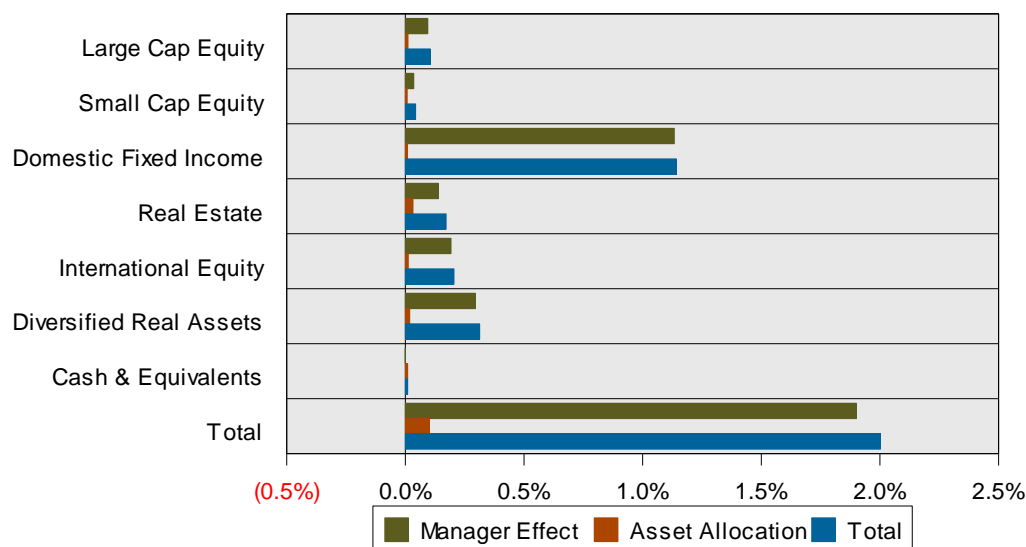
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
BND CDs	3%	3%	-	-	0.00%	0.00%	0.00%
Short Term Fixed Income	92%	92%	0.90%	0.72%	0.19%	0.00%	0.19%
Cash & Equivalents	5%	6%	0.79%	0.86%	(0.00%)	0.01%	0.01%
<b>Total</b>			<b>0.90%</b>	<b>0.70%</b>	<b>+ 0.18%</b>	<b>+ 0.02%</b>	<b>0.20%</b>



# WSI Performance and Attribution

As of December 31, 2017

## Five Year Annualized Relative Attribution Effects



5 Years Ended 12/31/2017

Gross: 6.93%

Net of fees: 6.68%

Target: 4.93%

Net Added: 1.75%

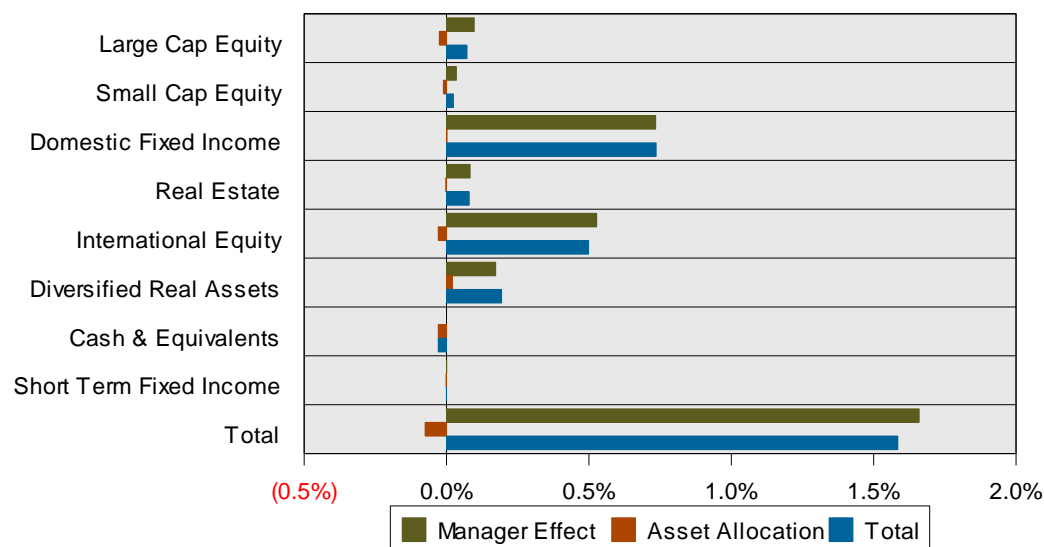
## Five Year Annualized Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	11%	11%	16.65%	15.71%	0.09%	0.01%	0.11%
Small Cap Equity	4%	4%	15.17%	14.12%	0.04%	0.01%	0.04%
Domestic Fixed Income	52%	52%	4.26%	2.10%	1.13%	0.01%	1.14%
Real Estate	7%	6%	12.34%	10.19%	0.14%	0.03%	0.17%
International Equity	8%	8%	10.08%	7.80%	0.19%	0.01%	0.21%
Diversified Real Assets	17%	17%	3.72%	2.09%	0.30%	0.02%	0.31%
Cash & Equivalents	1%	1%	0.24%	0.27%	(0.00%)	0.01%	0.01%
<b>Total</b>			<b>6.93%</b>	<b>4.93%</b>	<b>+ 1.90%</b>	<b>+ 0.10%</b>	<b>2.00%</b>

# Legacy Fund Performance and Attribution

As of December 31, 2017

## Three Year Annualized Relative Attribution Effects



## 3 Years Ended 12/31/2017

Gross: 7.99%  
 Net of fees: 7.74%  
 Target: 6.41%  
 Net Added: 1.33%

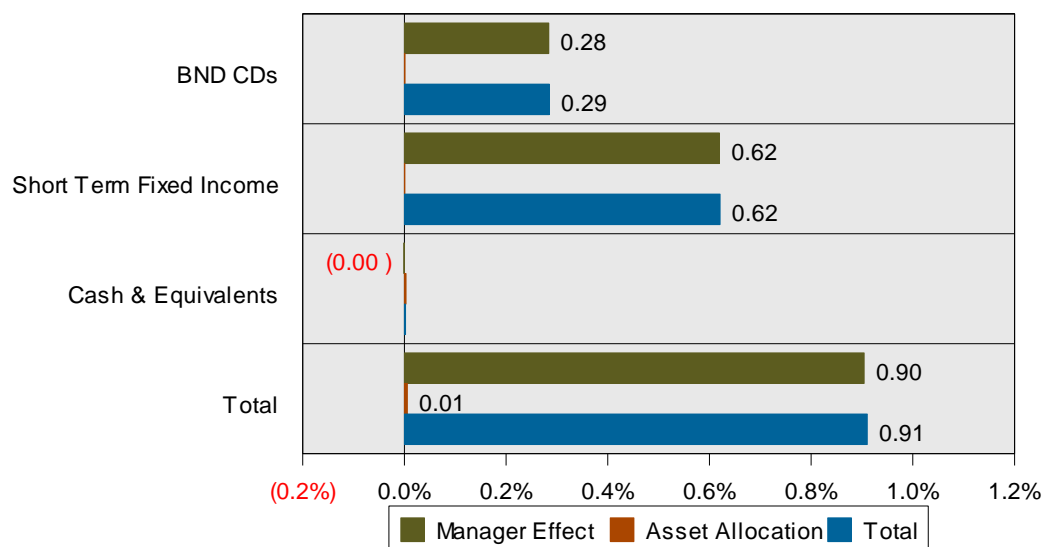
## Three Year Annualized Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	22%	22%	11.72%	11.23%	0.10%	(0.03%)	0.07%
Small Cap Equity	8%	8%	10.48%	9.96%	0.04%	(0.01%)	0.02%
Domestic Fixed Income	35%	35%	4.34%	2.24%	0.73%	0.00%	0.74%
Real Estate	6%	5%	11.01%	9.38%	0.08%	(0.00%)	0.08%
International Equity	20%	20%	10.32%	7.64%	0.53%	(0.03%)	0.50%
Diversified Real Assets	10%	10%	3.85%	2.05%	0.17%	0.02%	0.19%
Cash & Equivalents	0%	0%	0.35%	0.35%	0.00%	(0.03%)	(0.03%)
Short Term Fixed Income	0%	0%	-	-	0.00%	(0.00%)	(0.00%)
<b>Total</b>			<b>7.99%</b>	<b>6.41%</b>	<b>+ 1.66%</b>	<b>+ (0.08%)</b>	<b>1.58%</b>

# Budget Stabilization Fund Performance and Attribution

As of December 31, 2017

## Five Year Annualized Relative Attribution Effects



5 Years Ended 12/31/2017

Gross: 1.59%

Net of fees: 1.44%

Target: 0.68%

Net Added: 0.76%

## Five Year Annualized Relative Attribution Effects

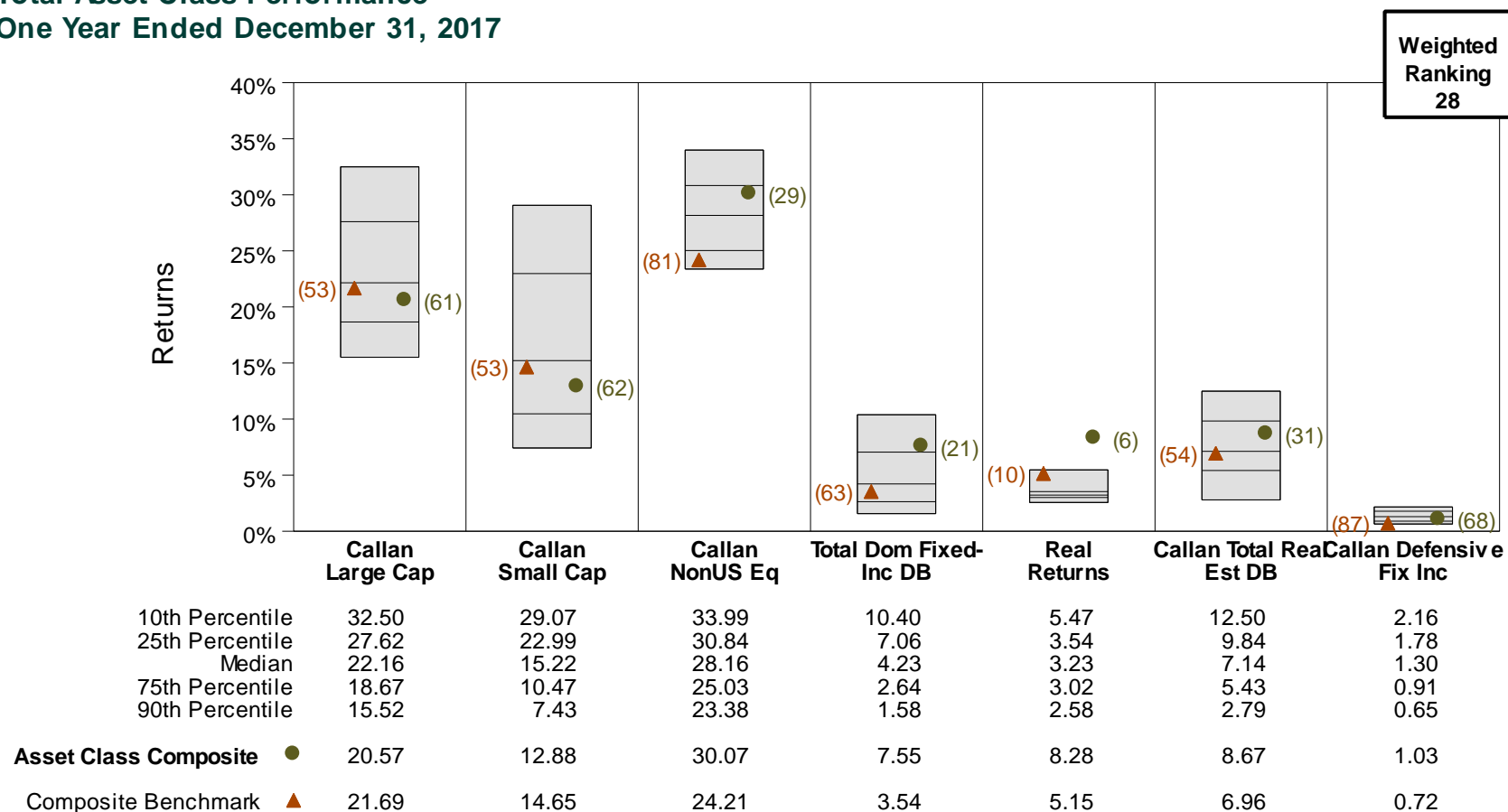
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
BND CDs	15%	15%	-	-	0.28%	0.00%	0.29%
Short Term Fixed Income	82%	82%	1.39%	0.63%	0.62%	0.00%	0.62%
Cash & Equivalents	3%	3%	0.24%	0.27%	(0.00%)	0.00%	0.00%

<b>Total</b>	<b>1.59% = 0.68% + 0.90% + 0.01%</b>	<b>0.91%</b>
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# Asset Class Composite Results

## Consolidated Insurance Trust Asset Class Results vs. Callan Style Groups

**Total Asset Class Performance**  
One Year Ended December 31, 2017

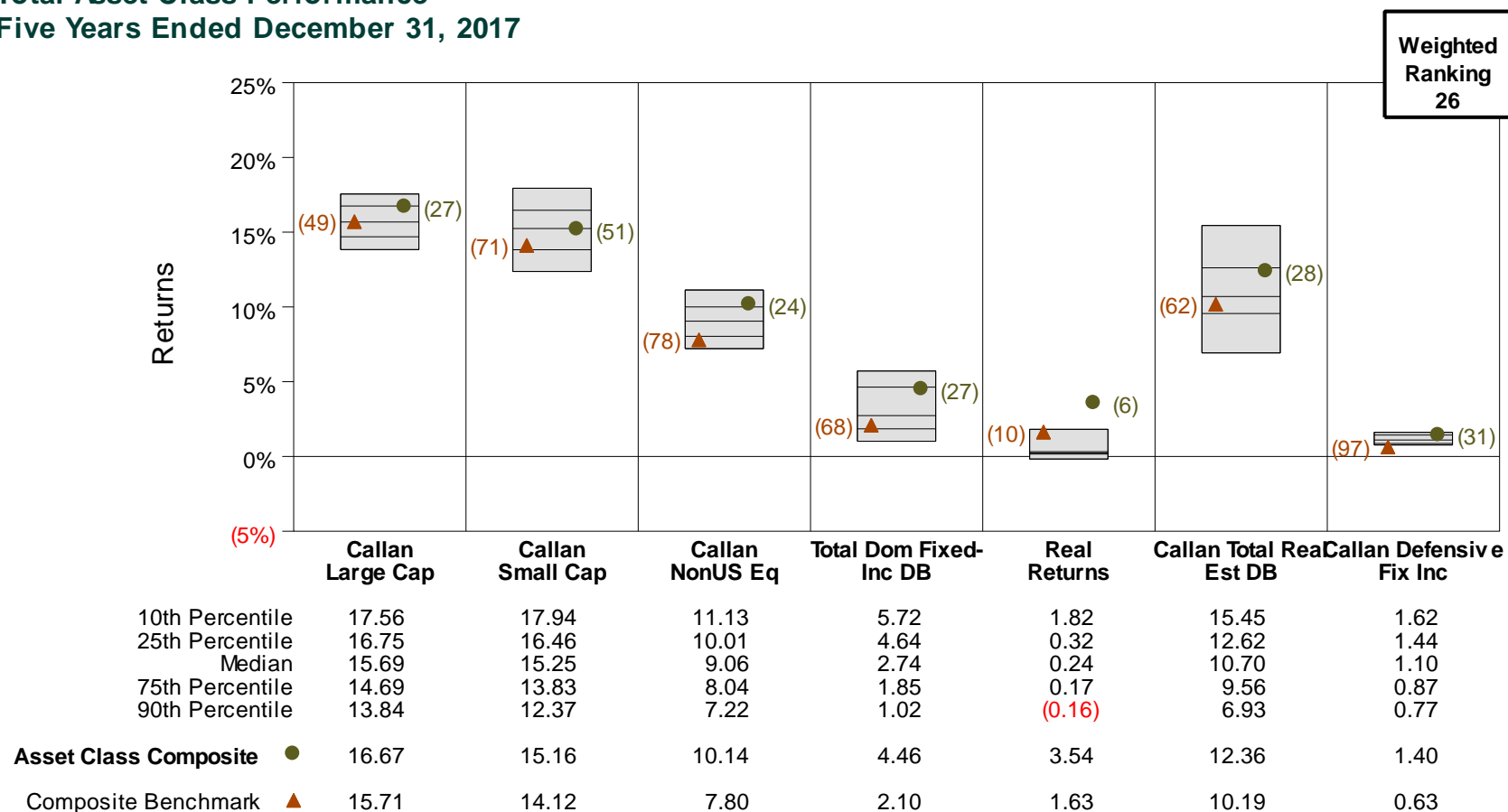


- Large and small cap domestic equity trailed their benchmarks over the last year.
- Non-U.S. equity provided strong returns on both an absolute and relative basis.

# Asset Class Composite Results

## Consolidated Insurance Trust Asset Class Results vs. Callan Style Groups

**Total Asset Class Performance**  
**Five Years Ended December 31, 2017**



- All public market asset classes outperformed their respective benchmarks over the last five years.
- Domestic fixed income and real estate placed in the top decile over the last five years.



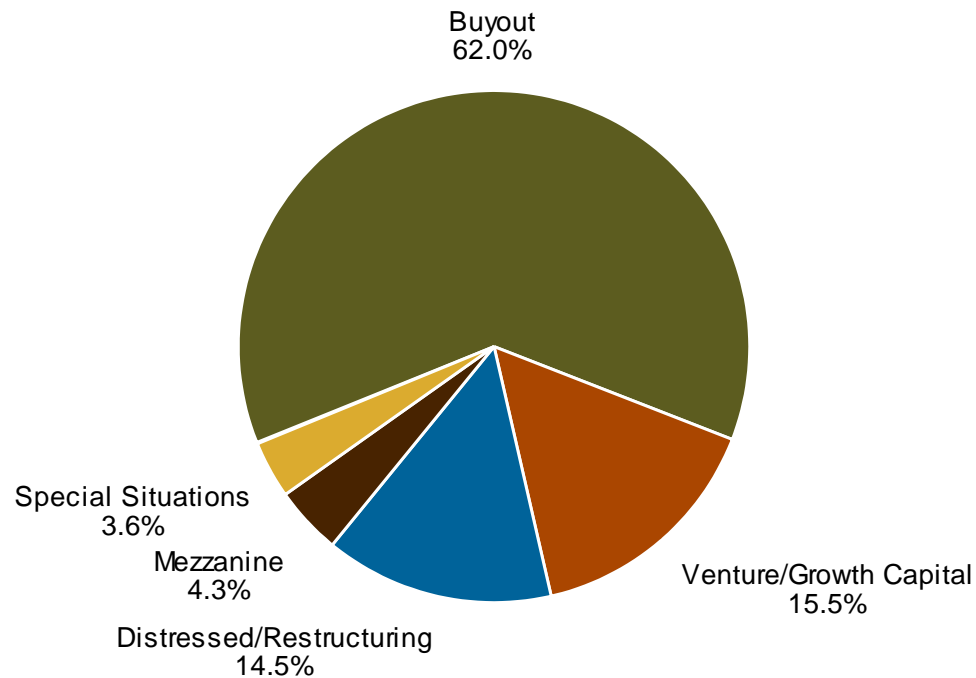
## Private Equity Summary

# Private Equity Portfolio Summary

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As of December 31, 2017

Strategy Mix by Net Asset Value

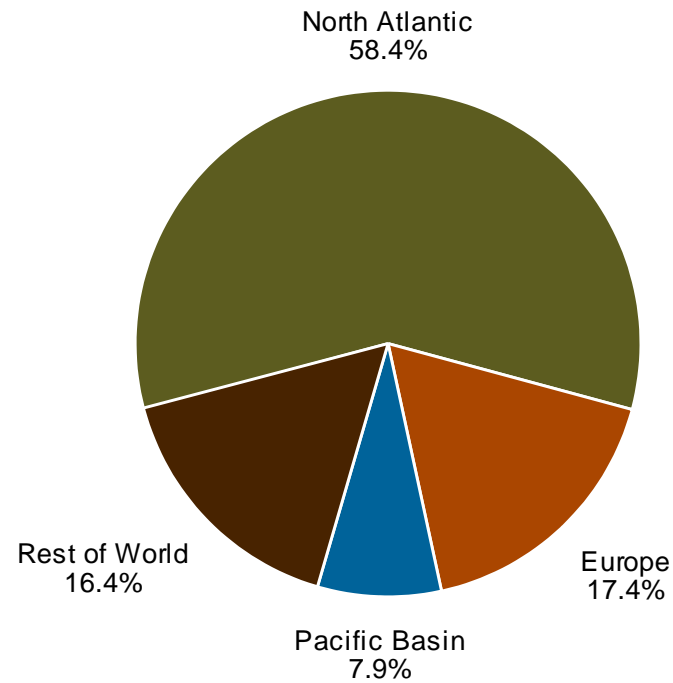


# Private Equity Portfolio Summary

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As of December 31, 2017

## Geographic Mix by Net Asset Value

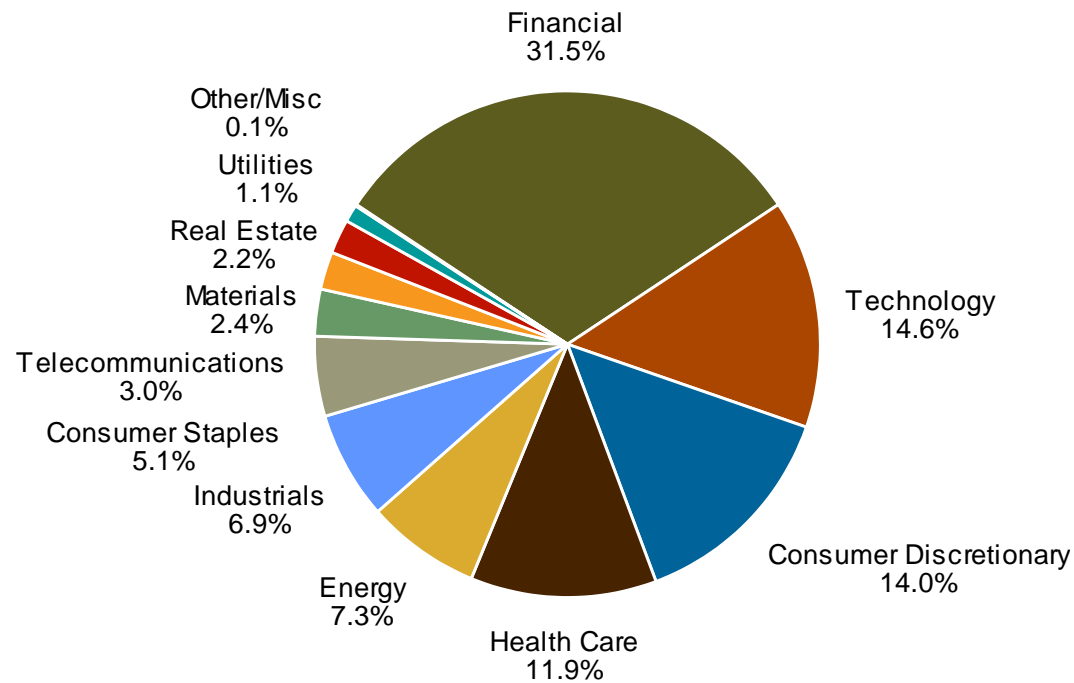




# Private Equity Portfolio Summary

As of December 31, 2017

Industry Mix by Net Asset Value



# Private Equity Portfolio Summary

## Total Private Equity Period Ended December 31, 2017

	December 31, 2017	Quarter Change	September 30, 2017
<b>Summary</b>			
Vintage Years	16 in 1998-2017		16 in 1998-2017
<b>Changes in Value</b>			
Capital Commitments	\$897,722,311	-	\$897,722,311
Paid-In Capital	\$731,752,369	\$12,958,006	\$718,794,363
Uncalled Capital	\$323,446,027	\$47,041,994	\$276,404,033
% Paid-In	81.51%	1.44%	80.07%
Distributed Capital	\$668,076,596	\$12,947,533	\$655,129,063
Net Asset Value	\$176,364,510	\$10,473	\$176,354,036
<b>Total Realized and Unrealized Value</b>	<b>\$844,441,105</b>	<b>\$12,958,006</b>	<b>\$831,483,099</b>
<b>Ratios and Performance</b>			
Distributions to Paid-In Capital (DPI)	0.91x	0.00x	0.91x
Residual Value to Paid-In Capital (RVPI)	0.24x	(0.00)x	0.25x
Total Value to Paid-In Capital (TVPI)	1.15x	(0.00)x	1.16x
Quartile Ranking	3 <sup>rd</sup>		3 <sup>rd</sup>
Net IRR	4.21%	(0.05%)	4.26%
<b>Additional Performance Metrics</b>			
Distribution Rate, as % of Beginning NAV		7.34%	
Unrealized Gain/(Loss), Dollars		\$(0)	
Unrealized Gain/(Loss), %		(0.00%)	

# Private Equity Portfolio Summary

## North Dakota State Investment Board Private Equity - Manager Detail as of December 31, 2017

The following table summarizes changes in each manager's aggregated cash flows and valuation information as of December 31, 2017.

Manager	Vintage Year	Capital Commitments (\$000s)	Paid-In Capital (\$000s)	Uncalled Capital (\$000s)	% Paid-In	Distributed Capital (\$000s)	Net Asset Value (\$000s)	DPI	RVPI	TVPI	Net IRR
Adams St 1998 Partnership	1998	\$5,230	5,236	27	100.12%	7,726	125	1.48x	0.02x	1.50x <sup>2nd</sup>	7.24%
Adams St 1999 Partnership	1999	\$9,041	8,664	377	95.83%	10,937	325	1.26x	0.04x	1.30x <sup>2nd</sup>	4.27%
Adams St 1999 Non-US	1999	\$3,812	3,572	240	93.69%	6,925	71	1.94x	0.02x	1.96x <sup>1st</sup>	12.46%
Adams St BVCF IV Fund	1999	\$25,000	25,000	0	100.00%	43,736	3,343	1.75x	0.13x	1.88x <sup>1st</sup>	7.61%
Adams St 2000 Partnership	2000	\$17,195	17,511	844	101.84%	25,883	561	1.48x	0.03x	1.51x <sup>2nd</sup>	7.16%
Adams St 2000 Non-US	2000	\$4,538	4,538	0	100.00%	8,251	534	1.82x	0.12x	1.94x <sup>1st</sup>	13.19%
Adams St 2001 Partnership	2001	\$9,530	9,121	410	95.70%	13,535	1,043	1.48x	0.11x	1.60x <sup>2nd</sup>	7.18%
Adams St 2001 Non-US	2001	\$3,354	3,354	0	100.00%	6,115	161	1.82x	0.05x	1.87x <sup>2nd</sup>	13.44%
Adams St 2002 Partnership	2002	\$5,318	5,150	167	96.85%	9,390	161	1.82x	0.03x	1.85x <sup>2nd</sup>	13.07%
Adams St 2002 Non-US	2002	\$5,834	6,038	0	103.49%	11,413	261	1.89x	0.04x	1.93x <sup>2nd</sup>	15.23%
Adams St 2003 Partnership	2003	\$1,877	1,780	97	94.84%	2,883	231	1.62x	0.13x	1.75x <sup>2nd</sup>	11.40%
Adams St 2003 Non-US	2003	\$4,741	4,507	234	95.07%	10,125	198	2.25x	0.04x	2.29x <sup>1st</sup>	23.23%
Adams St 2004 Non-US	2004	\$2,244	2,139	105	95.33%	3,234	274	1.51x	0.13x	1.64x <sup>2nd</sup>	10.04%
Adams St Direct Co-Invest	2006	\$20,000	19,100	900	95.50%	27,031	1,461	1.42x	0.08x	1.49x <sup>2nd</sup>	5.52%
Adams St 2008 Non-US	2008	\$10,000	8,900	1,100	89.00%	5,512	7,833	0.62x	0.88x	1.50x <sup>2nd</sup>	9.93%
Adams St 2010 Direct Fund	2010	\$1,500	1,420	80	94.66%	1,358	957	0.96x	0.67x	1.63x <sup>2nd</sup>	12.35%
Adams St 2010 Partnership	2010	\$7,500	6,608	892	88.10%	3,552	6,291	0.54x	0.95x	1.49x <sup>3rd</sup>	12.94%
Adams St 2010 Non-US Dev	2010	\$4,500	3,751	749	83.35%	2,061	3,072	0.55x	0.82x	1.37x <sup>3rd</sup>	10.27%
Adams St 2010 Non-US EM	2010	\$1,500	1,302	198	86.80%	264	1,547	0.20x	1.19x	1.39x <sup>3rd</sup>	9.95%
Adams St 2015 Global Fd	2015	\$30,000	8,715	21,285	29.05%	1,603	9,438	0.18x	1.08x	1.27x <sup>1st</sup>	30.45%
Adams St 2016 Global Fd	2016	\$30,000	4,980	25,020	16.60%	0	5,428	0.00x	1.09x	1.09x <sup>2nd</sup>	9.07%
Adams St 2017 Global Fd	2017	\$60,000	2,626	57,374	4.38%	0	2,626	0.00x	1.00x	1.00x	0.00%
BlackRock	2017	\$200,000	20,701	179,299	10.35%	0	20,445	0.00x	0.99x	0.99x <sup>1st</sup>	(2.51%)
Capital International V	2007	\$35,279	41,221	5,786	116.84%	37,629	1,673	0.91x	0.04x	0.95x <sup>4th</sup>	(1.54%)
Capital International VI	2011	\$38,092	35,709	4,931	93.75%	7,144	25,838	0.20x	0.72x	0.92x <sup>4th</sup>	(2.80%)
Corsair III	2007	\$25,133	33,159	1,778	131.94%	13,914	14,071	0.42x	0.42x	0.84x <sup>4th</sup>	(2.94%)
Corsair IV	2010	\$32,200	40,956	6,151	127.19%	27,479	24,604	0.67x	0.60x	1.27x <sup>3rd</sup>	9.46%
EIG Energy Fund XIV	2007	\$45,000	59,496	1,243	132.21%	49,840	5,543	0.84x	0.09x	0.93x <sup>4th</sup>	(3.12%)
Hearthstone Advisors MSII	1999	\$3,500	26,576	3,500	759.31%	36,855	-24	1.39x	-0.00x	1.39x <sup>2nd</sup>	
Hearthstone Advisors MSIII	2003	\$8,750	37,058	4,475	423.52%	45,026	2,300	1.22x	0.06x	1.28x <sup>3rd</sup>	24.65%
MatlinPatterson II	2004	\$40,000	59,254	1	148.13%	33,246	1,124	0.56x	0.02x	0.58x <sup>4th</sup>	(22.21%)
MatlinPatterson III	2007	\$40,000	49,410	1,498	123.53%	38,323	22,840	0.78x	0.46x	1.24x <sup>3rd</sup>	4.68%
Lewis & Clark, LP	2002	\$7,500	6,750	750	90.00%	5,488	1,582	0.81x	0.23x	1.05x <sup>3rd</sup>	0.52%
Lewis & Clark II	2009	\$15,000	13,578	1,422	90.52%	5,274	6,620	0.39x	0.49x	0.88x <sup>4th</sup>	(2.45%)
Quantum Energy Partners	2007	\$15,000	15,130	1,005	100.87%	14,707	3,808	0.97x	0.25x	1.22x <sup>3rd</sup>	5.83%
<b>Total Private Equity</b>		<b>\$897,722</b>	<b>731,752</b>	<b>323,446</b>	<b>81.51%</b>	<b>668,077</b>	<b>176,365</b>	<b>0.91x</b>	<b>0.24x</b>	<b>1.15x<sup>3rd</sup></b>	<b>4.21%</b>



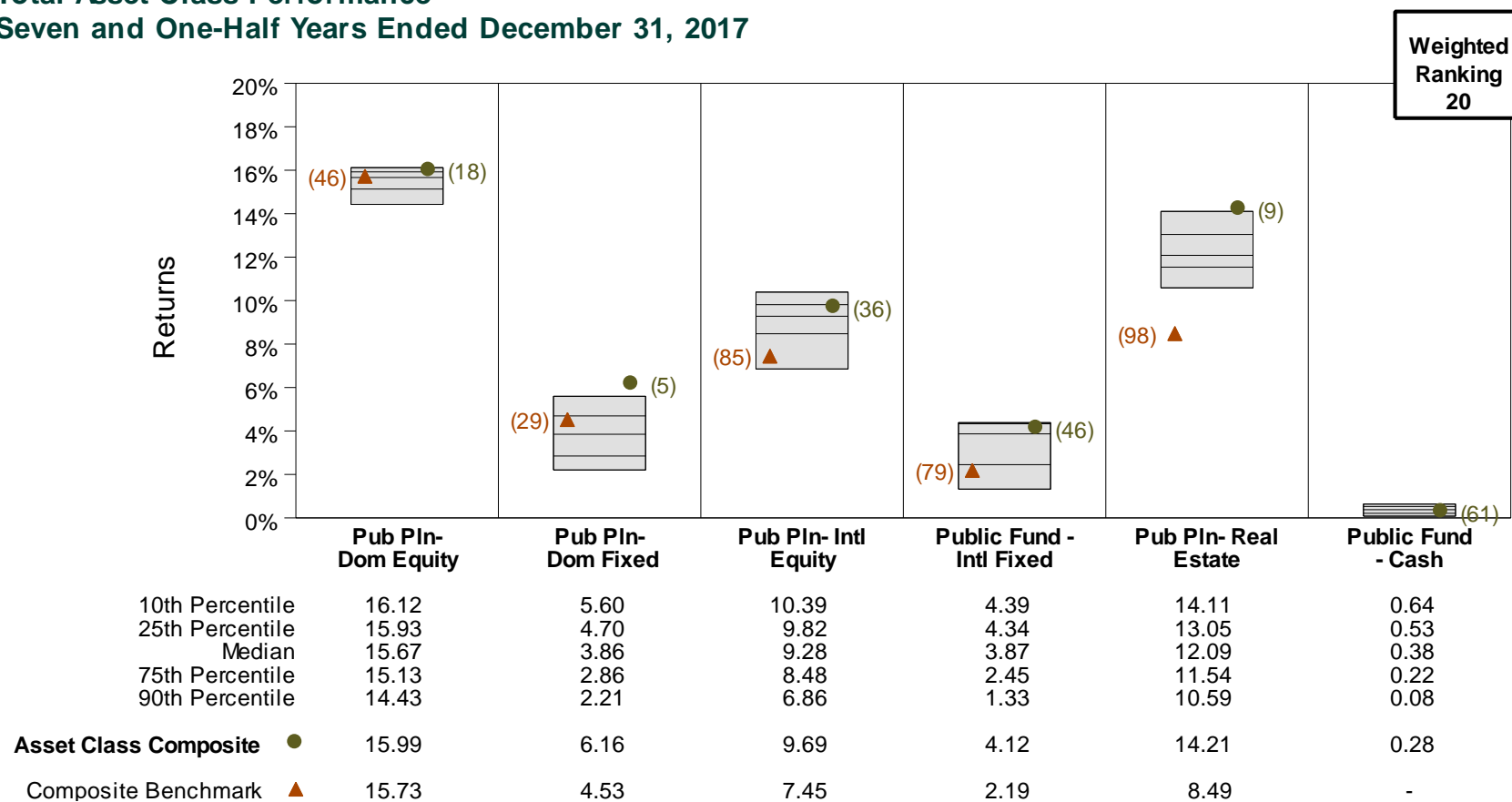
## Appendix

Consolidated Asset Class Rankings

# Asset Class Composite Results

## PERS' Asset Class Results vs. Other Public Pension Funds

**Total Asset Class Performance**  
Seven and One-Half Years Ended December 31, 2017

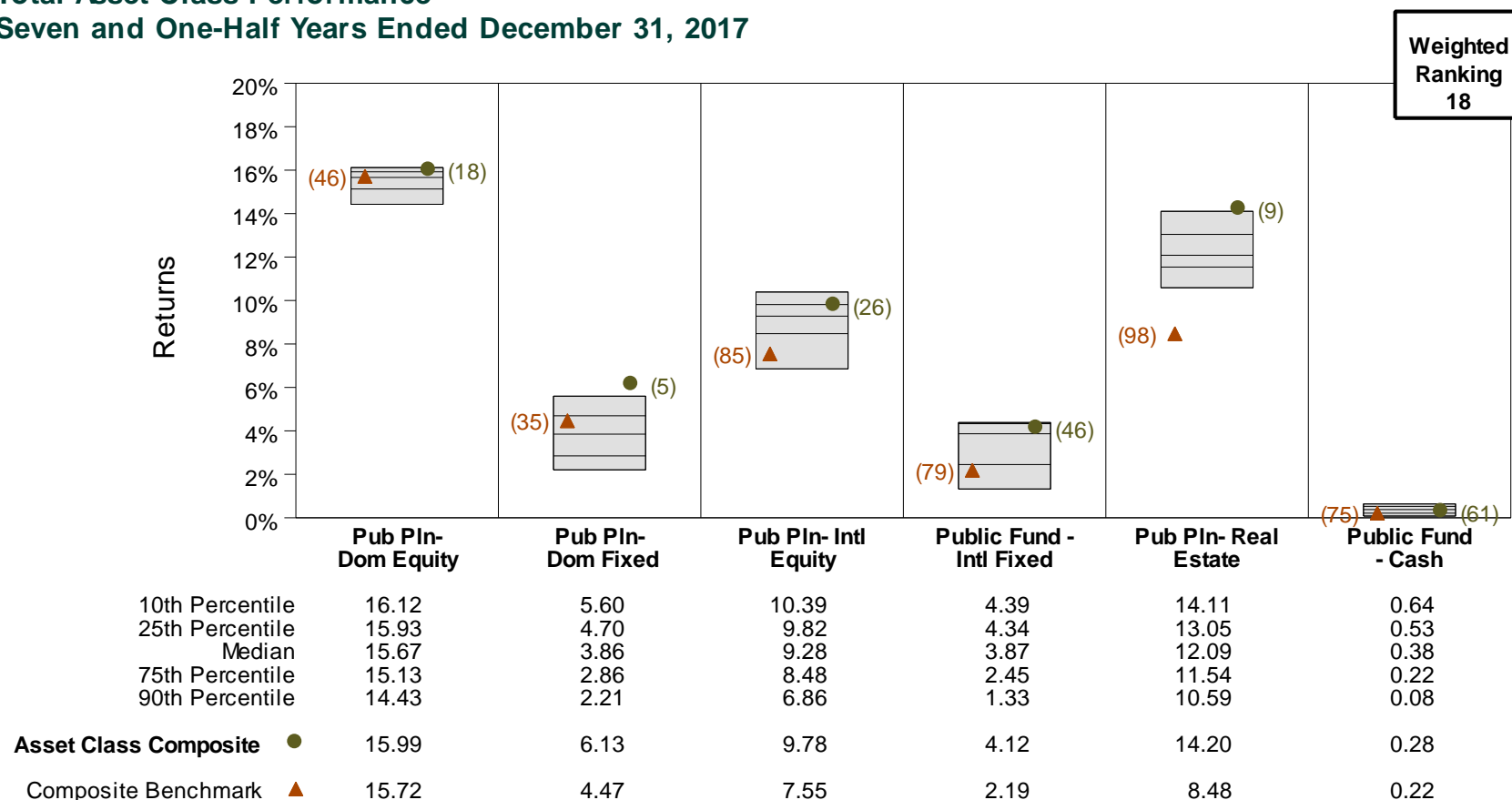


- Public market asset classes have outperformed their respective benchmarks over the last 7½ years.
- Domestic fixed income and real estate returns in top quartile.

# Asset Class Composite Results

## TFFR's Asset Class Results vs. Other Public Pension Funds

Total Asset Class Performance  
Seven and One-Half Years Ended December 31, 2017

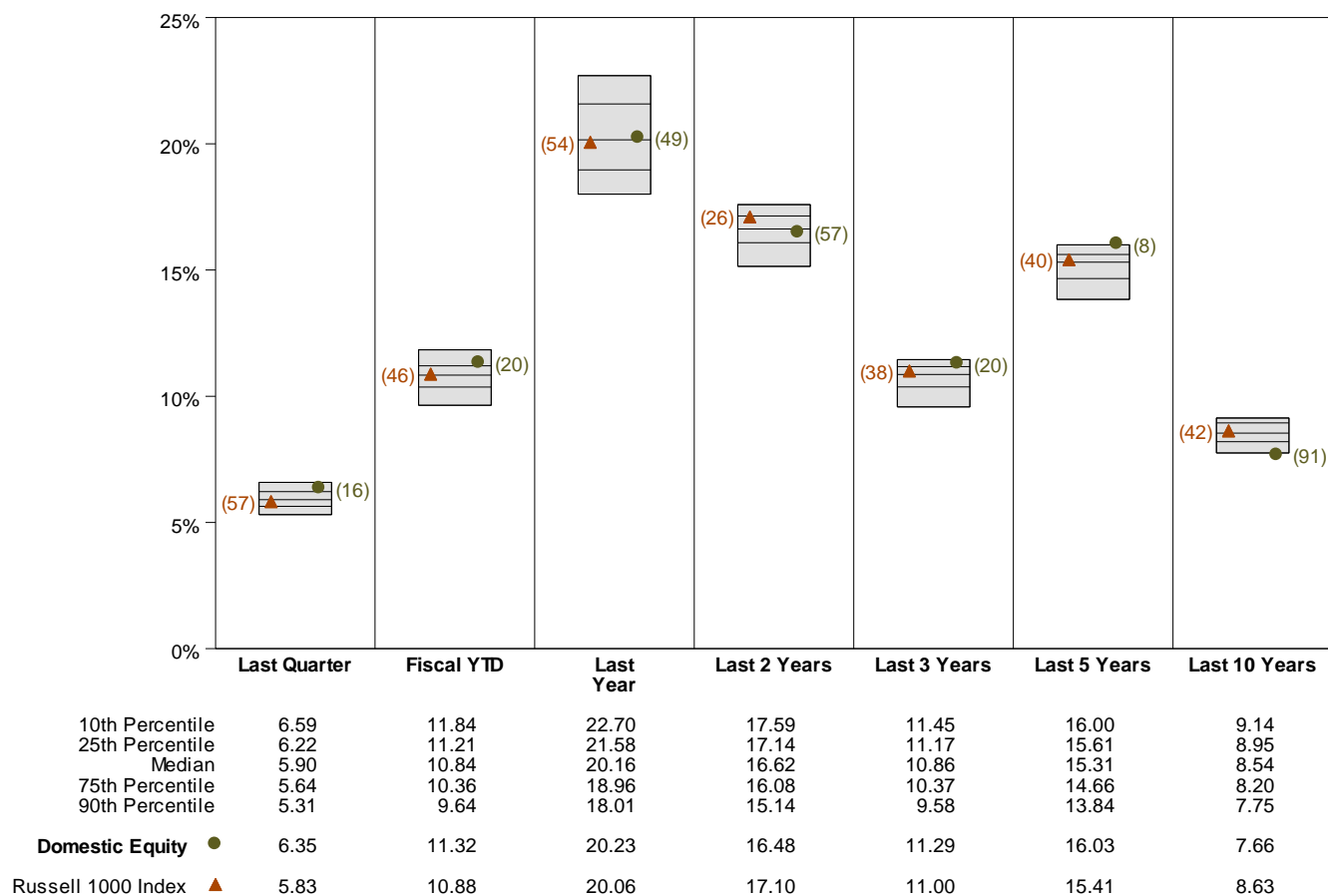


- Public market asset classes are above median over the last 7½ years.
- Domestic fixed income and real estate returns in top decile; domestic equity in top quartile.

# Consolidated Pension Trust: Domestic Equity

As of December 31, 2017

Performance vs Public Fund - Domestic Equity (Gross)

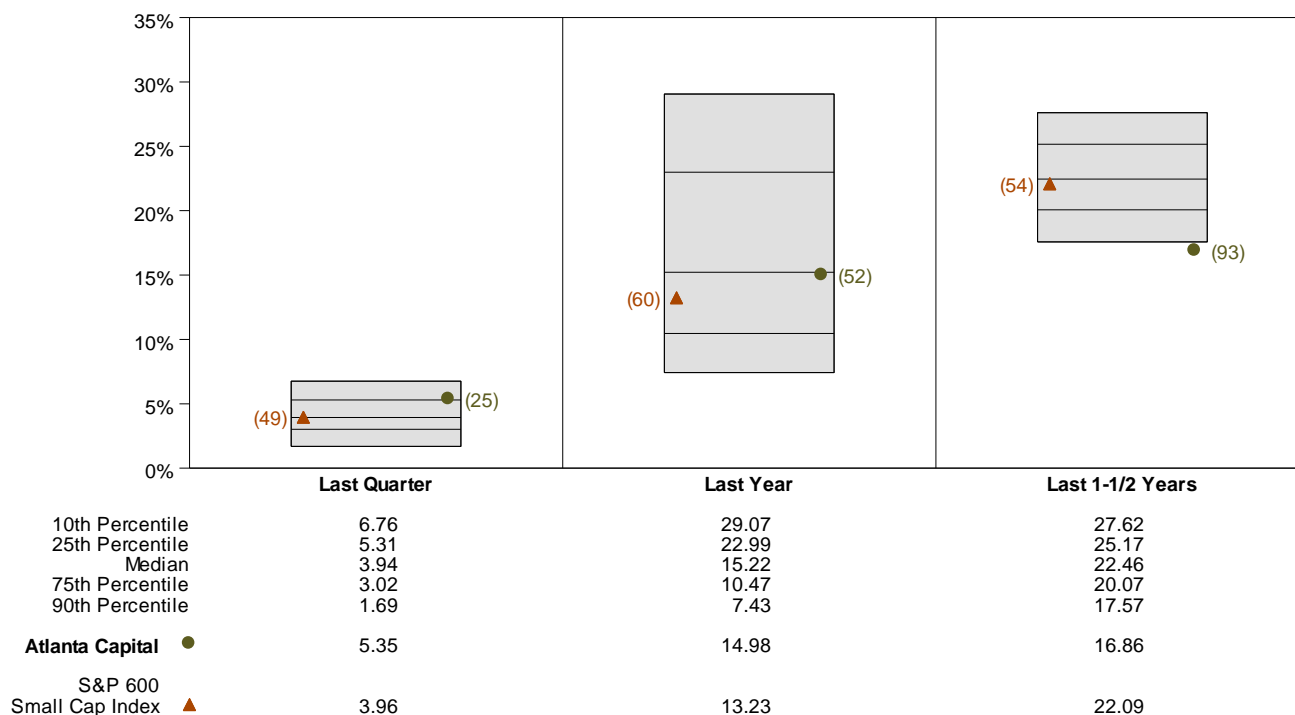


- Domestic equity rebounded in 2017 after struggling in recent years.
- Over the last 10 years, the domestic equity is trailing its benchmark by 97 basis points.

# Consolidated Pension Trust: Atlanta Capital

As of December 31, 2017

Performance vs Callan Small Capitalization (Gross)



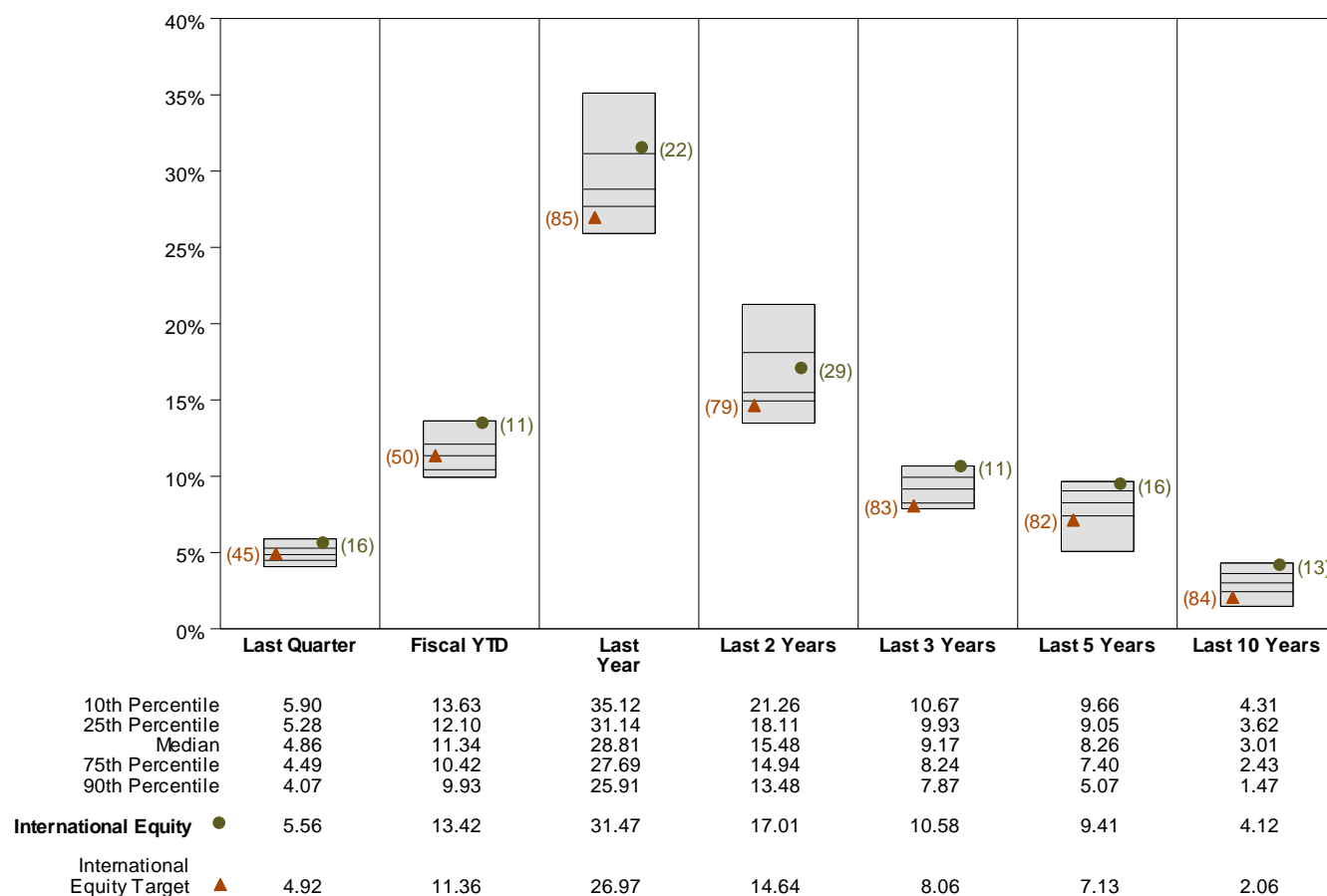
- Atlanta Capital performed well in 2017, after struggling in the later half of 2016.
- The portfolio's growth and larger capitalization biases were tailwinds for the quarter and year.



# Consolidated Pension Trust: International Equity

As of December 31, 2017

Performance vs Public Fund - International Equity (Gross)

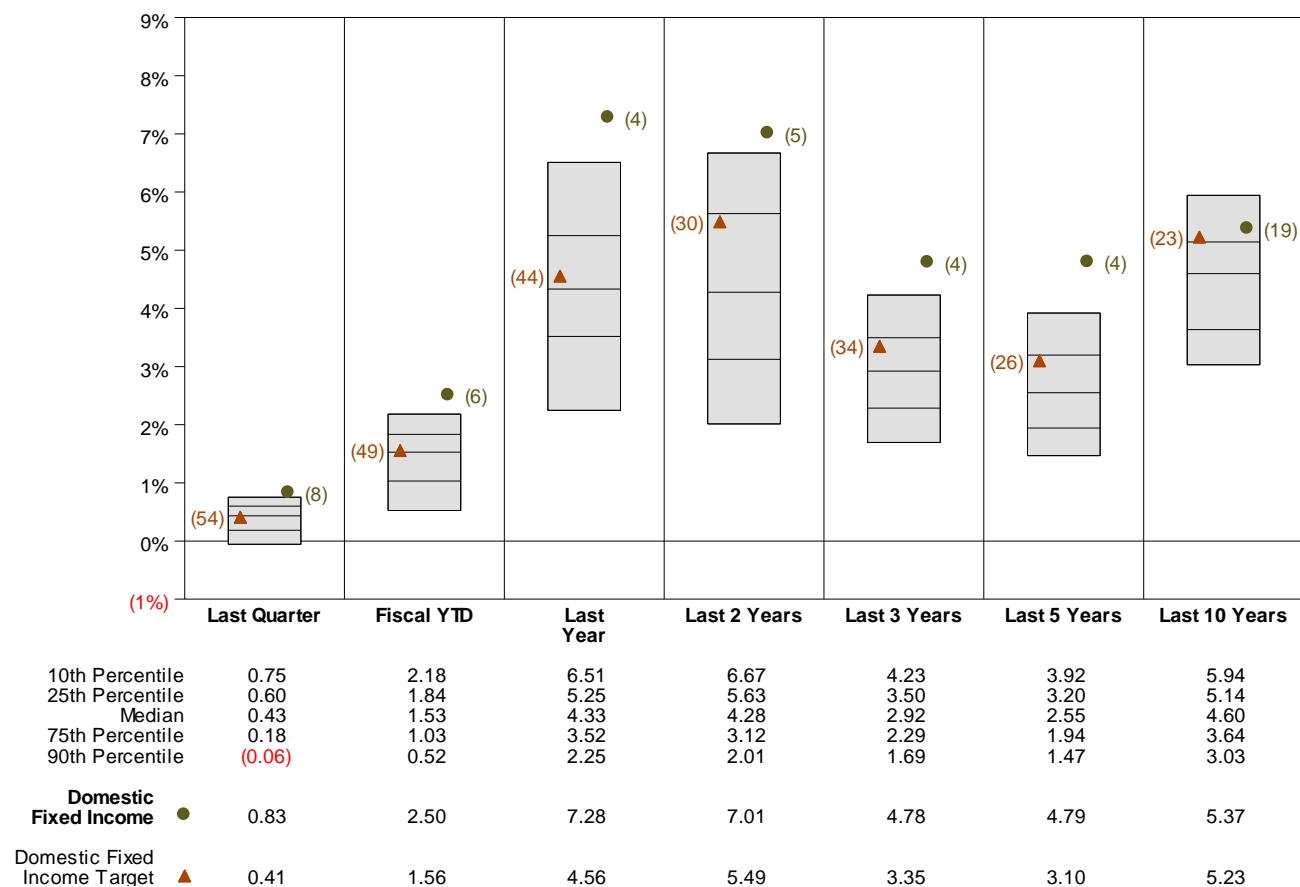


- International equity returns placed in the top decile last quarter, and have generally been strong over the last ten years.

# Consolidated Pension Trust: Domestic Fixed Income

As of December 31, 2017

Performance vs Public Fund - Domestic Fixed (Gross)

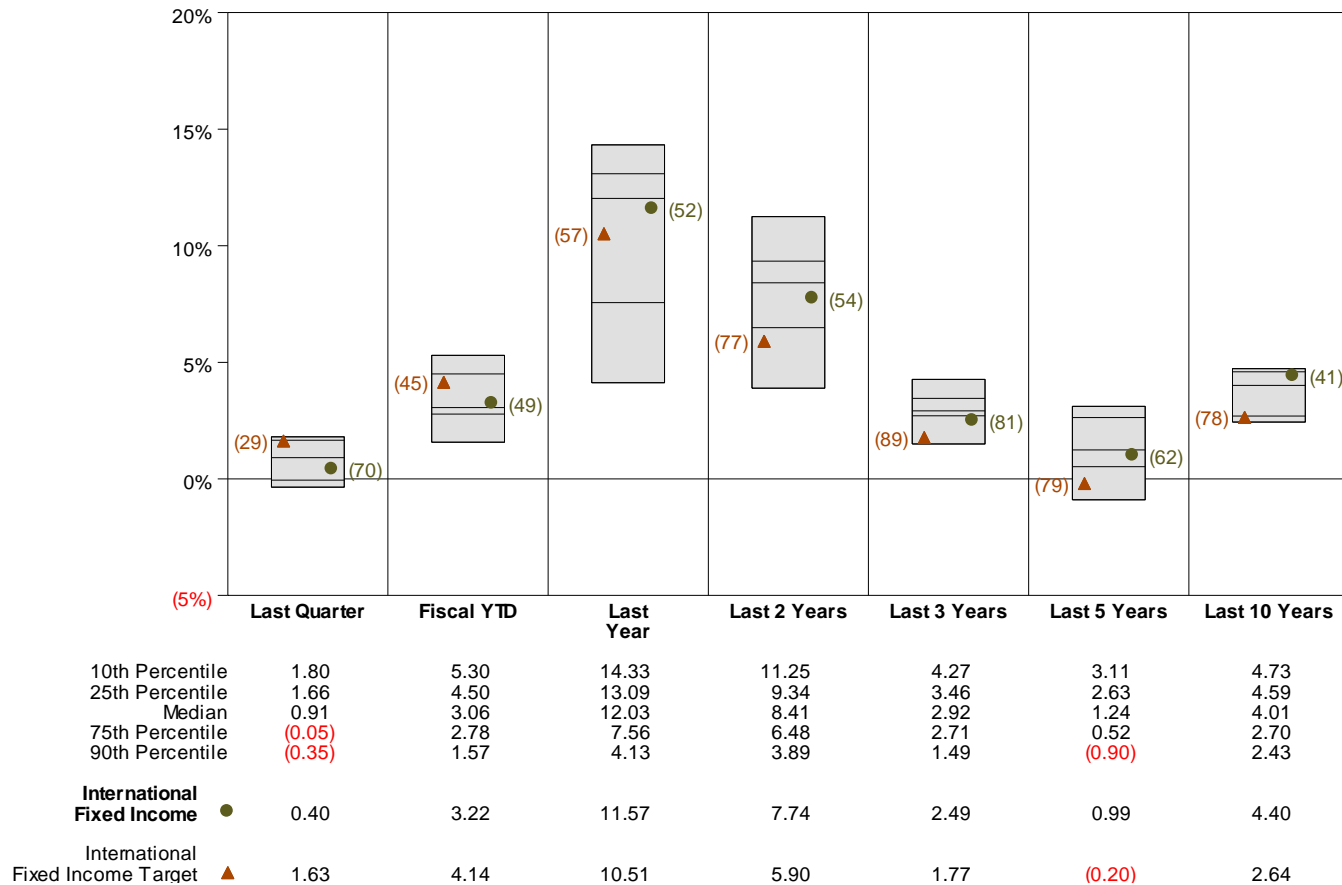


- The domestic fixed income program placed in the quartile over the last ten years.

# Consolidated Pension Trust: International Fixed Income

As of December 31, 2017

Performance vs Public Fund - International Fixed (Gross)

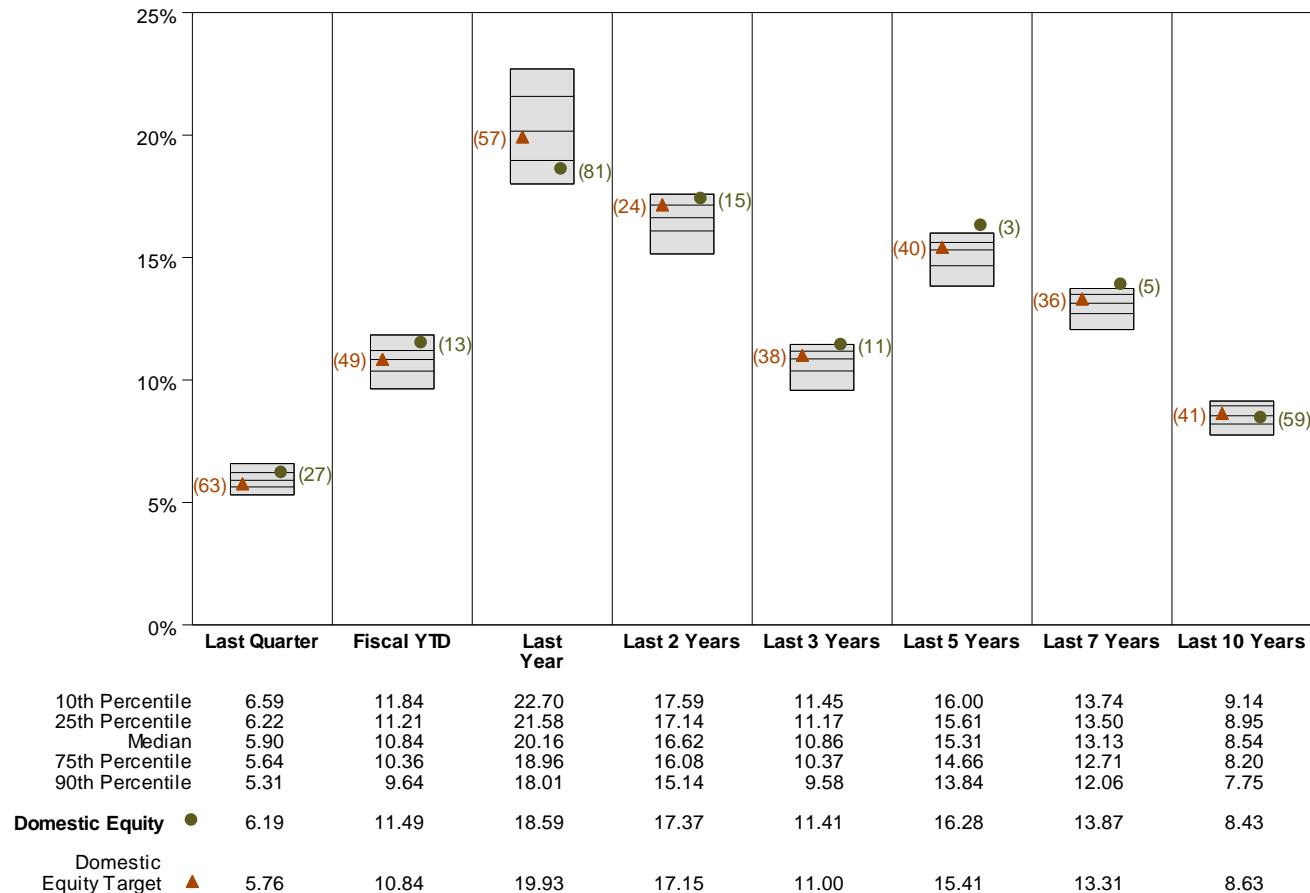


- The international fixed income program has struggles recently, but has outperformed the benchmark over longer time periods.

# Consolidated Insurance Trust: Domestic Equity

As of December 31, 2017

Performance vs Public Fund - Domestic Equity (Gross)

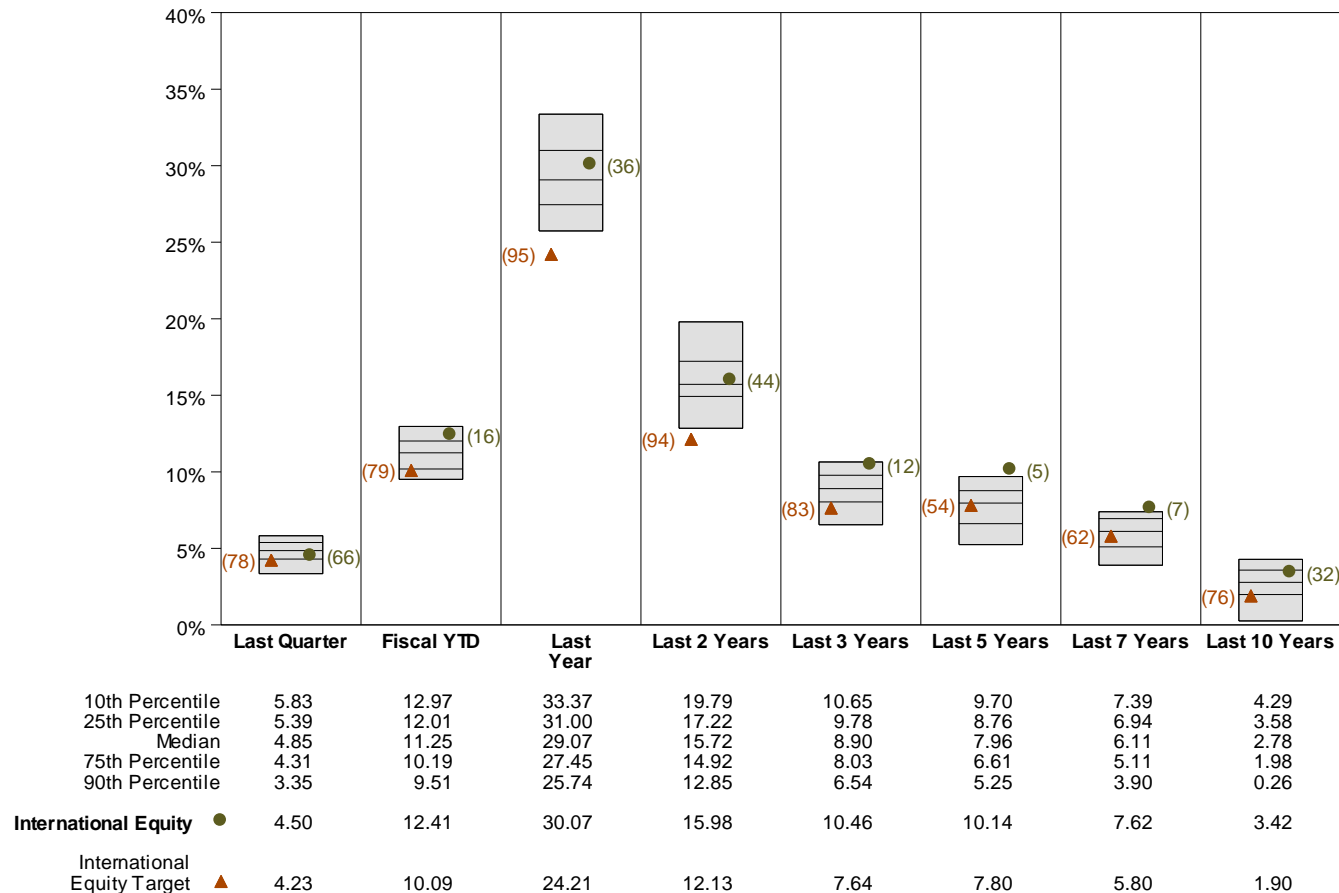


- Domestic equity performed well on an absolute basis in 2017, but trailed the benchmark.
- For the last quarter, domestic equity outperformed the benchmark and placed above median.

# Consolidated Insurance Trust: International Equity

As of December 31, 2017

Performance vs Public Fund - International Equity (Gross)

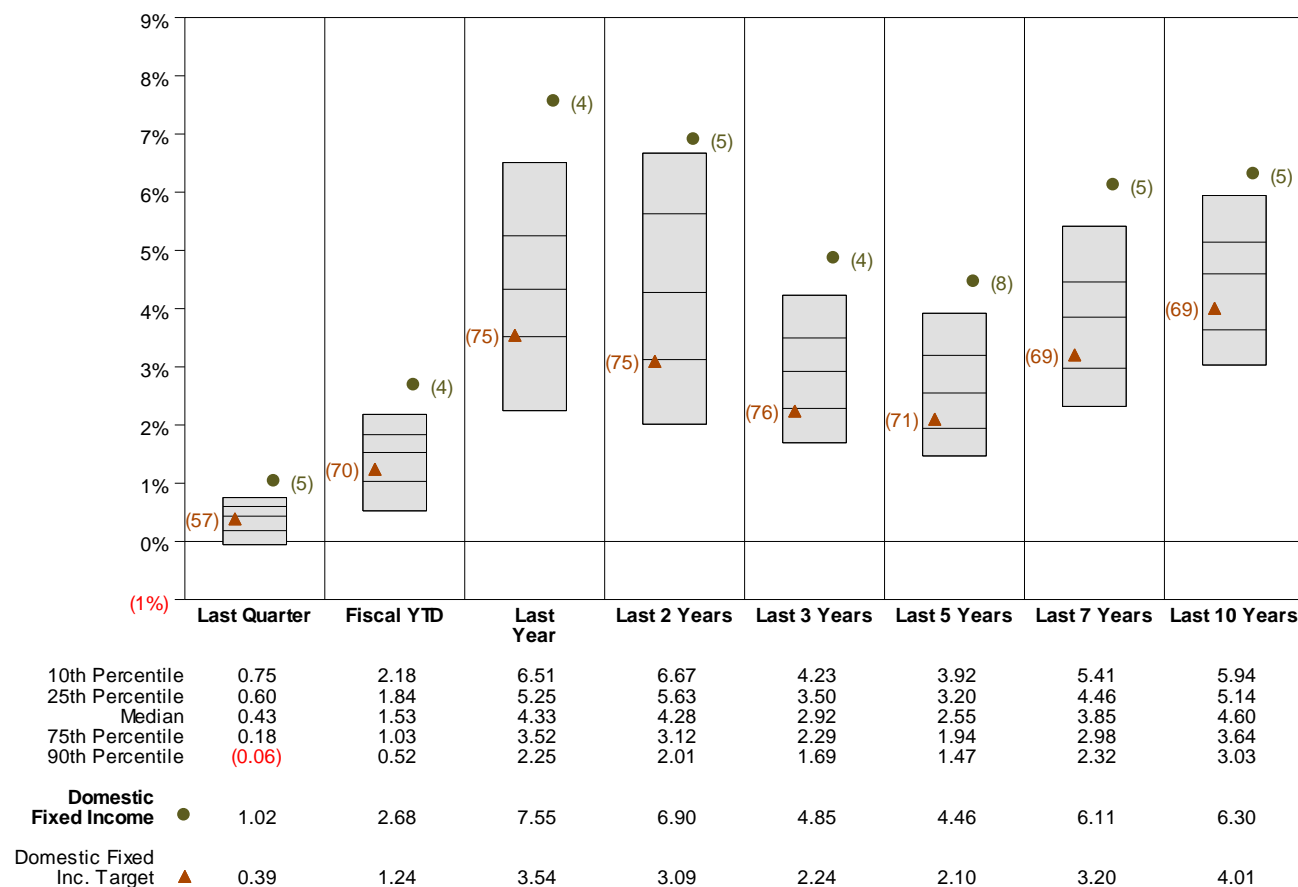


- International equity has performed well over longer time periods, but placed below the median in the fourth quarter.

# Consolidated Insurance Trust: Domestic Fixed Income

As of December 31, 2017

Performance vs Public Fund - Domestic Fixed (Gross)



- The domestic fixed income program has consistently provided strong returns over the last ten years.

December 31, 2017



## **North Dakota State Investment Board Pension Funds**

**Investment Measurement Service  
Quarterly Review**

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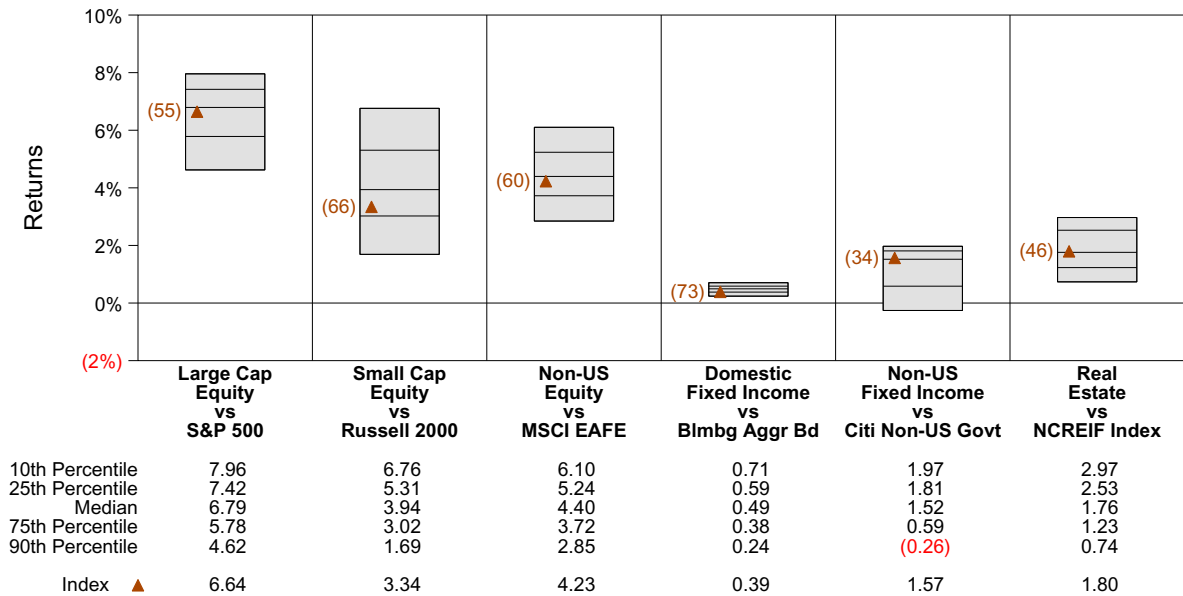
## Market Overview

### Active Management vs Index Returns

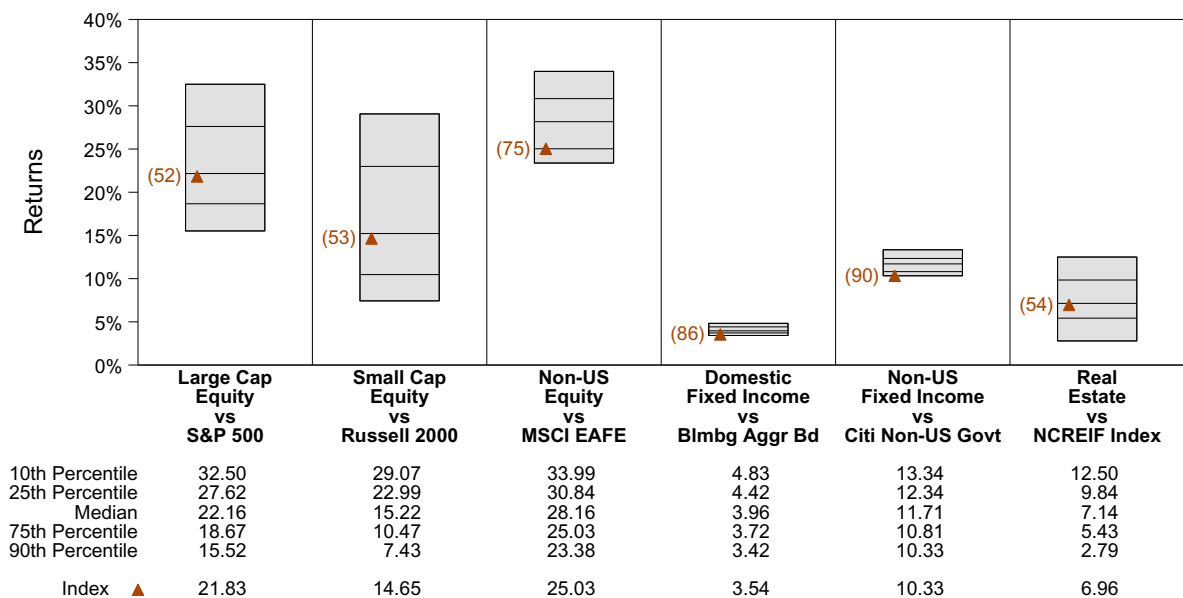
#### Market Overview

The charts below illustrate the range of returns across managers in Callan's Separate Account database over the most recent one quarter and one year time periods. The database is broken down by asset class to illustrate the difference in returns across those asset classes. An appropriate index is also shown for each asset class for comparison purposes. As an example, the first bar in the upper chart illustrates the range of returns for domestic equity managers over the last quarter. The triangle represents the S&P 500 return. The number next to the triangle represents the ranking of the S&P 500 in the Large Cap Equity manager database.

#### Range of Separate Account Manager Returns by Asset Class One Quarter Ended December 31, 2017



#### Range of Separate Account Manager Returns by Asset Class One Year Ended December 31, 2017



Fourth Quarter 2017

## Sentiment Restored. Is It Time to Worry?

### ECONOMY

**2** The U.S. economy ended 2017 with a 2.6% gain in GDP in the fourth quarter, averaging 2.3% for the year, up from 1.5% in 2016. That is especially impressive given the damage from severe hurricanes in the third quarter. Enthusiasm for growth is apparent, but is now the time to worry?

## Non-U.S. Bias Rewarded Plans

### FUND SPONSOR

**4** Endowments and foundations (+3.8%) performed best last quarter, followed by public plans (+3.7%), Taft-Hartley plans (+3.6%), and corporate plans (+3.5%). By fund size, plans with assets under \$100 million performed best, thanks to larger allocations to non-U.S. equity.

## Synchronicity Powers Global Markets

### EQUITY

**6** A strong quarter closed out a strong year for markets around the world, powered by synchronized global economic growth, a new tax law in the U.S., and low interest rates and inflation. Emerging markets outpaced developed markets for the fourth straight quarter.

## Tight Spreads in U.S.; Developed Returns Flat

### FIXED INCOME

**9** In the U.S., longer-term bonds topped short-term and intermediate-maturity bonds. Investment-grade corporate debt was the best-performing fixed income sector. Returns were mostly flat in developed markets; emerging market debt delivered more muted returns than in earlier quarters.

## Europe Best Region for REITs

### REAL ESTATE

**11** The **NCREIF Property Index** notched its 36th straight quarter of positive returns, rising 1.8%, while the **NCREIF Open End Diversified Core Equity Index** was up 2.1%. European REITs were the best performers; U.S. REITs generated positive returns.

## 2017 Fundraising Sets New Record

### PRIVATE EQUITY

**13** Investor enthusiasm abounds for private equity as evidenced by record fundraising. However, rising valuations, increasing borrowing costs, and the yet-to-be-determined impact of tax reform on borrowing levels and valuations bear vigilance moving forward.

## Risk Takers See Less as More

### HEDGE FUNDS/MACs

**14** The **Credit Suisse Hedge Fund Index** rose 2.3%, while the **Callan Hedge Fund-of-Funds Database** advanced 1.8%. The **Callan Multi-Asset Class Database** was up 3.6%. In general, hedge funds experienced positive but more modest results than market indices.

## DC Plans on Track to Win Big in 2017

### DEFINED CONTRIBUTION

**15** The **Callan DC Index™** recorded a solid 3.8% gain during the third quarter, its eighth straight quarter of positive performance. And the Index is up 11.9% year to date, which marks its best showing for the first three quarters of a year since 2013.

## Broad Market Quarterly Returns

U.S. Equity  
Russell 3000

**+6.3%**

Non-U.S. Equity  
MSCI ACWI ex USA

**+5.0%**

U.S. Fixed Income  
Bloomberg Barclays Agg

**+0.4%**

Non-U.S. Fixed Income  
Bloomberg Barclays GBI ex US

**+1.6%**

Sources: Bloomberg Barclays, MSCI, Russell Investment Group

# Sentiment Restored. Is It Time to Worry?

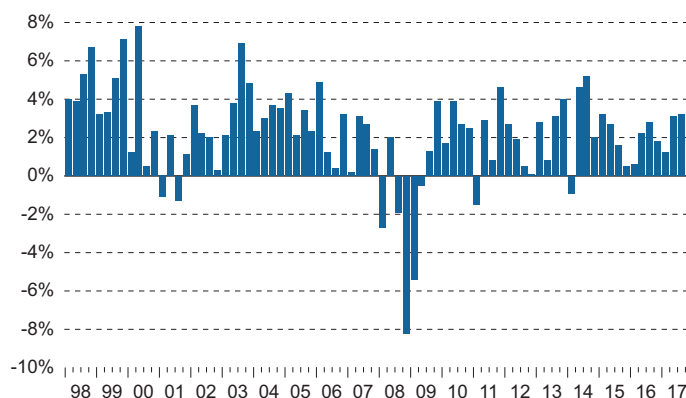
ECONOMY | Jay Kloepper

The U.S. economy closed out 2017 with decent momentum, recording a solid 2.6% gain in GDP in the fourth quarter after growth above 3% in each of the prior two quarters. Investor sentiment felt disconnected as the year unfolded; the underlying global economy appeared to be steadily improving and capital markets reported robust results, while unease around geopolitics and the impact of multiple natural disasters stoked anxiety about the future. By midyear, 2017 felt like the culmination of the unhappiest bull market we'd ever seen. Stock markets then proceeded to hit a number of record highs as the year concluded, the job market continued to improve, unemployment reached a generational low in the U.S., and retail sales rose. A historic revision to the tax code became law at the end of the year, which included a substantial corporate tax cut. After perhaps jumping the gun in the first part of the year, then held back by frustration after not getting expected tax and regulatory changes enacted during the middle quarters, the "animal spirits" of the economy and the capital markets appear to have been unleashed once again. Enthusiasm for growth and risk-taking seem apparent. Is now the time to worry, as phrases like a market "melt-up" enter the popular lexicon?

GDP growth averaged 2.3% for the year, up from 1.5% in 2016. The result for 2017 was impressive given the damage caused by severe hurricanes in the third quarter. Since the Global Financial Crisis (GFC), GDP has increased at a very modest 2.2% annual average, far below the growth typically seen following a recession and below the 3% long-term average since the early 1960s. While gains have been slow and steady, they have gone on now for a sustained period of time, one of the longest expansions on record, and as a result the unemployment rate has been pushed to a generational low of 4.1%. The job market keeps chugging along, creating over 2.1 million new jobs in 2017, or 183,000 per month. The peak years of job creation in the current cycle were 2014 (3 million) and 2015 (2.7 million). While the monthly rate of 183,000 is still robust, and well in excess of the 100,000 needed to keep the market at

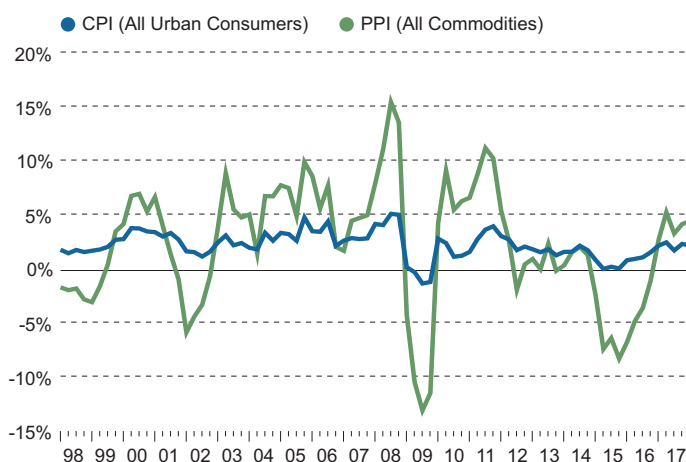
Quarterly Real GDP Growth

(20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

a steady state, the rate of job creation is tailing off, suggesting we might be reaching the limits of full employment. Despite this tight labor market, wage gains remain remarkably subdued, with annual gains in hourly earnings in the 2%-2.5% range for each of the last four years. The rate of growth in total compensation has begun to rise; the employment cost index has inched up from 2% growth to hit 3% in several quarters during 2017.

Confidence in the sustainability of the current spate of growth rose with the release of the aforementioned animal spirits. The impact of the tax cut is expected to be modest, perhaps adding 0.2 to 0.3 percentage points to GDP growth in 2018, and most if not all of the investment gains are already built into the stock market. The wild card is how corporations plan to “spend” the tax cut. The optimistic outcome is that the extra money goes into capital expansion and job growth. Other outcomes include returning the capital to owners through dividends and share buybacks, to existing workers through wage gains, or to consumers in the form of price cuts. Longer term, the \$1.5 trillion increase in the deficit is viewed as a potential drag on growth.

One other potential stimulus still to take shape is the proposed program of substantial infrastructure spending. This spending could spur further growth when the economy is already running hot, and therefore stimulate inflation beyond the current benign levels. The tight labor market suggests we might already be facing limitations on growth from the existing set of labor and capital inputs available in the U.S. economy.

Inflation remains remarkably benign, clipping along at 2.1% in December (year-over-year). Oil prices have recovered from the sharp decline of several years ago, which spurred top-line inflation, but core inflation (net of food and energy) remains below the Fed’s target of 2%. The tight labor market, the impact of the corporate tax cut, and the potential for substantial infrastructure spending all suggest that inflation could finally be poised to move. Another potential impetus for inflation is the improving outlook for the global economy, which appears to be moving into synchronized growth across disparate regions.

### The Long-Term View

Index	2017 4th Qtr	Periods ended Dec. 31, 2017			
		Year	5 Yrs	10 Yrs	25 Yrs
U.S. Equity					
Russell 3000	6.34	21.13	15.58	8.60	9.72
S&P 500	6.64	21.83	15.79	8.50	9.69
Russell 2000	3.34	14.65	14.12	8.71	9.54
Non-U.S. Equity					
MSCI ACWI ex USA	5.00	27.19	6.80	1.84	--
MSCI Emerging Markets	7.44	37.28	4.35	1.68	7.76
MSCI ACWI ex USA Small Cap	6.56	31.65	10.03	4.69	--
Fixed Income					
Bloomberg Barclays Agg	0.39	3.54	2.10	4.01	5.48
90-Day T-Bill	0.28	0.86	0.27	0.39	2.60
Bloomberg Barclays Long G/C	2.84	10.71	4.43	7.26	7.67
Bloomberg Barclays GI Agg ex US	1.63	10.51	-0.20	2.40	5.02
Real Estate					
NCREIF Property	1.70	6.85	10.16	6.07	9.11
FTSE NAREIT Equity	1.51	5.23	9.46	7.44	10.76
Alternatives					
CS Hedge Fund	2.30	7.12	4.23	3.24	--
Cambridge PE*	--	9.25	12.76	9.39	15.38
Bloomberg Commodity	4.71	1.70	-8.45	-6.83	2.47
Gold Spot Price	1.91	13.68	-4.82	4.56	5.63
Inflation – CPI-U	-0.12	2.11	1.43	1.61	2.23

\*Most recent quarterly data not available, annual returns as of 9/30/2017

Sources: Bloomberg Barclays, Bloomberg, Credit Suisse, FTSE, MSCI, NCREIF, Russell Investment Group, Standard & Poor’s, Thomson Reuters/Cambridge, Bureau of Economic Analysis

### Recent Quarterly Economic Indicators

	4Q17	3Q17	2Q17	1Q17	4Q16	3Q16	2Q16	1Q16
Employment Cost–Total Compensation Growth	2.6%	2.5%	2.4%	2.4%	2.2%	2.3%	2.3%	1.9%
Nonfarm Business–Productivity Growth	-0.1%	2.7%	1.5%	0.1%	1.3%	2.5%	0.8%	-1.2%
GDP Growth	2.6%	3.2%	3.1%	1.2%	1.8%	2.8%	2.2%	0.6%
Manufacturing Capacity Utilization	76.4%	75.2%	75.7%	75.4%	75.1%	74.9%	75.1%	75.4%
Consumer Sentiment Index (1966=100)	98.4	95.1	96.4	97.2	93.2	90.3	92.4	91.5

Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve, IHS Economics, Reuters/University of Michigan

# Non-U.S. Bias Rewarded Plans in 2017

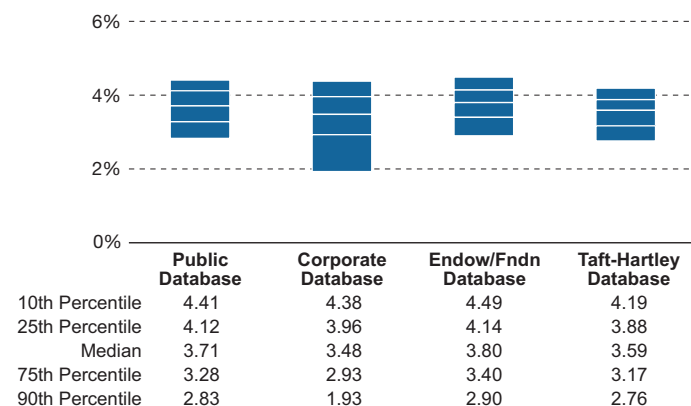
## FUND SPONSOR

Endowments/foundations (+3.8%) performed best last quarter, followed by public plans (+3.7%), Taft-Hartley plans (+3.6%), and corporate plans (+3.5%). For all funds, the return was +3.7%, according to Callan's database. Plans with assets below \$100 million performed best by fund size, up 3.7%, compared to 3.6% for both medium plans (\$100 million-\$1 billion) and large plans. A quarterly rebalanced 60% S&P 500/40% Bloomberg Barclays U.S. Aggregate Bond Index portfolio rose 4.1% during the quarter.

Marking a turn of events, the **MSCI ACWI ex USA Index** outperformed U.S. equity markets over the past year, rewarding funds that have taken steps to diversify away from a home-country bias. Over longer periods of time, Taft-Hartley plans did best over the last five years, up 9.3% annualized. Corporate plans (+5.9%) did best over the last 10 years.

Plans continue to focus on an environment marked by low interest rates, low return expectations, and frustration with the seemingly high cost of diversification while the public equity market has enjoyed such a strong run. Many fund sponsors feel compelled to take on substantial market risk to reach

## Callan Fund Sponsor Returns for the Quarter

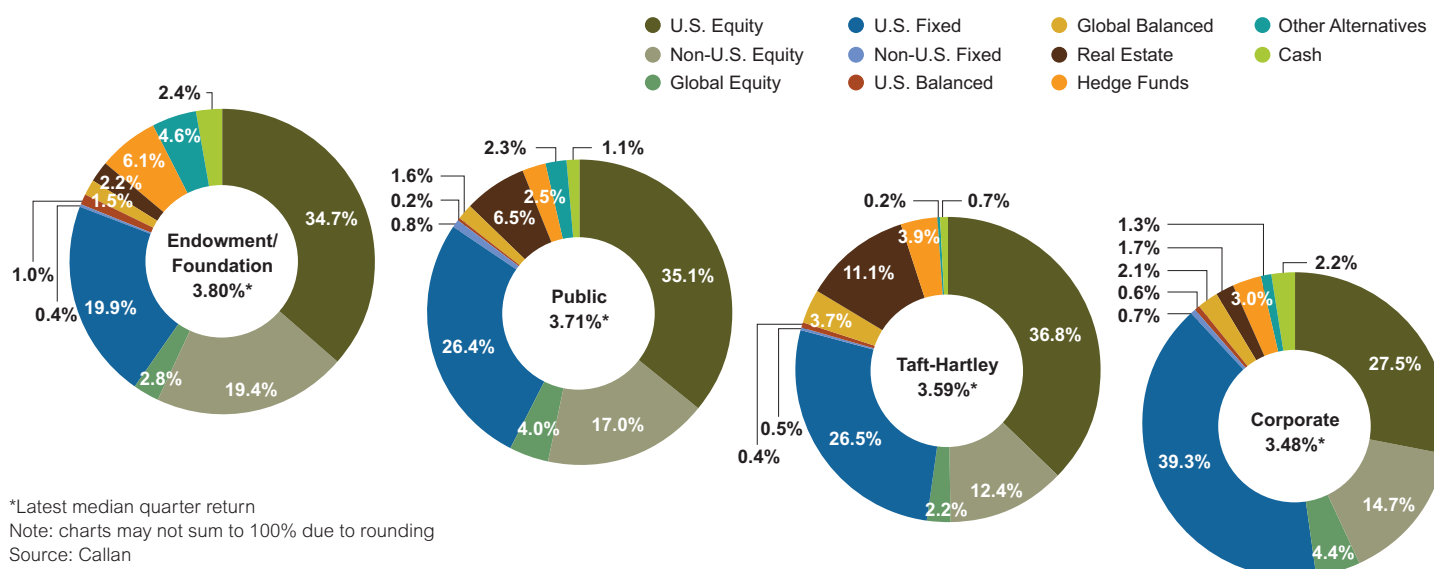


Source: Callan

return targets, and are now focusing on finding sources of diversification within the growth bucket of their asset allocation. Sponsors are examining if there is anything more they can do to tamp down the risk within the growth allocation, short of actually reducing the allocation to growth assets.

Asset owners continue to be skeptical of the value of active management, particularly in U.S. large cap equity. Pressure

## Callan Fund Sponsor Average Asset Allocation



to reduce fees or show the ability to generate consistent alpha has been building for quite some time. Some fund sponsors have undertaken structure work to consider the amount of active versus passive management and to see if there is a way to simplify their manager rosters to gain economies of scale in an effort to reduce costs.

As in past quarters, funds have adjusted their allocations in these ways over the last five years:

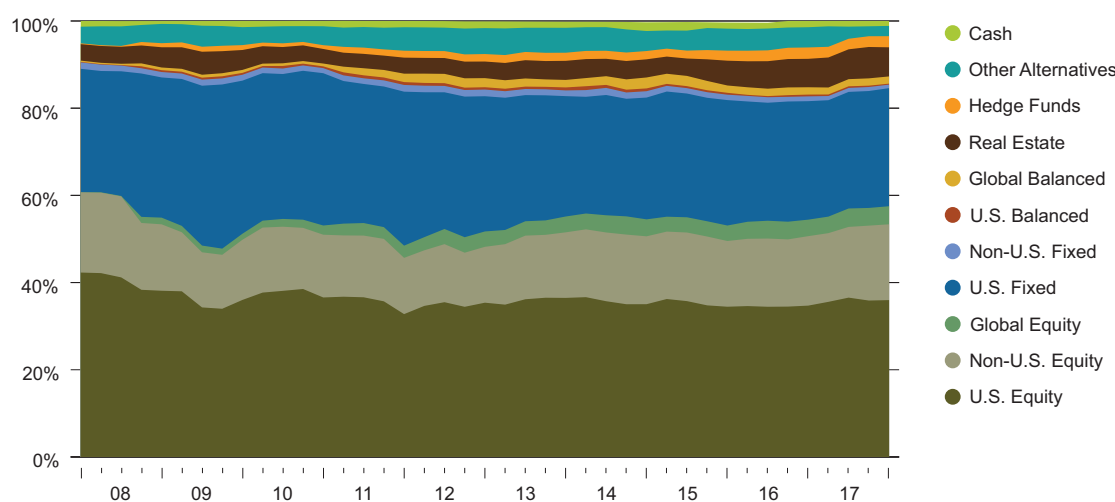
- Corporate plans have widened their range of U.S. fixed income allocations, as they are in different stages of efforts to de-risk plan assets.
- Many public funds have increased their allocation to non-U.S. equity and real estate at the expense of fixed income. Simultaneously, some of the fixed income exposure has become more equity-like in nature.
- Endowments and foundations continue to shift from fixed income to asset classes with higher return expectations, such as global equity, non-U.S. equity, and real estate.

The regulatory environment continues to drive the decision-making process for defined contribution (DC) plan sponsors. Heightened fee sensitivity and litigation have resulted in little traction for non-traditional asset classes such as liquid alternatives. DC plans are also focused on the best ways to reduce/eliminate revenue sharing, as well as obtaining even lower fees from investment managers. They are also looking for opportunities to continue streamlining investment fund lineups to achieve sufficient diversification while minimizing participant confusion—including white label options.

Public plans continue to seek return enhancement and further diversification. Reduced capital market return expectations and funding challenges have created a difficult situation for many public DB plans, and some plans are simply constrained by their circumstances. Alternative beta, MACs, and other liquid strategies are being used in a wide range of capacities and are experiencing increased interest.

### Callan Public Fund Database Average Asset Allocation

(10 Years)



Source: Callan. Callan's database includes the following groups: public defined benefit, corporate defined benefit, endowments/foundations, and Taft-Hartley plans. Approximately 10% to 15% of the database constituents are Callan's clients. All database group returns presented gross of fees. Past performance is no guarantee of future results. Reference to or inclusion in this report of any product, service, or entity should not be construed as a recommendation, approval, affiliation, or endorsement of such product, service, or entity by Callan.



# Global Equity

## U.S. Stocks: Accelerating Growth Spurs Equities

**+6.3%**

RUSSELL 3000

The U.S. equity market continued its upward trajectory in the fourth quarter, closing out a very strong year marked by continued low volatility despite a turbulent U.S. political landscape and a record year in terms of global catastrophes. Investors embraced accelerating global economic growth as well as low interest rates and inflation. Corporate earnings registered double-digit growth for the quarter, receiving a boost from the U.S. tax overhaul bill, which was signed into law in late December.

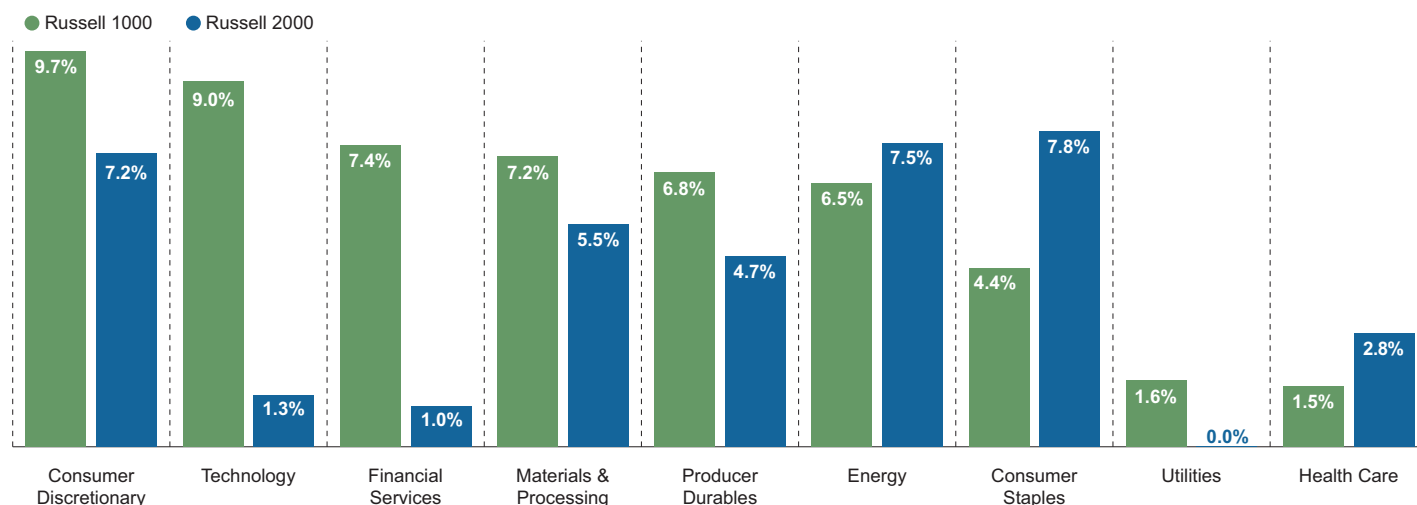
The **S&P 500 Index** rose 6.6% in the fourth quarter, and its 21.8% gain for the year was its best since 2013. The Index hit 62 record highs during the year and had only eight days of 1% or more fluctuations, the lowest number since 1964. The **S&P 500 Price Index** has nearly tripled (+295%) since its low in March 2009. Valuations are stretched by most measures, but estimates for future earnings are also strong. Large cap stocks (**Russell 1000**: +6.6%) outperformed small cap (**Russell 2000**: +3.3%) across styles for the quarter.

Riskier assets continued to lead the equity market. Consumer Discretionary (+9.9%) and Technology (+9.0%) were the strongest performers, with Apple, Amazon, and Microsoft posting 10%-20% returns due to ongoing exceptional cash flow generation and growth in global markets. The Tech sector now accounts for 24% of the S&P 500 and 38% of the **Russell 1000 Growth Index**; returns for the FAAMG stocks (Facebook, Apple, Amazon, Microsoft, Google) ranged from 36% to 56% for 2017.

Consumer Discretionary benefited from strong year-end retail sales as well as positive tax reform expectations as the retail industry carries the highest industry effective tax rate at 35%. The “Amazon Effect,” however, continues to threaten the sector as many large retailers have been forced to close stores or lower prices to unsustainable levels.

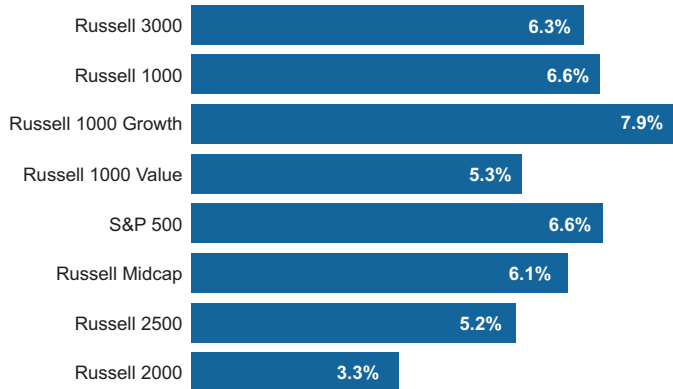
The Energy sector (+6.0%) continued to improve in the fourth quarter although it closed out the year among the worst performers (-1.0%). A combination of optimism and improvements in the global economy has spurred demand in recent months. More near-term volatility is anticipated in the price of oil as U.S.

## Quarterly Performance of Select Sectors



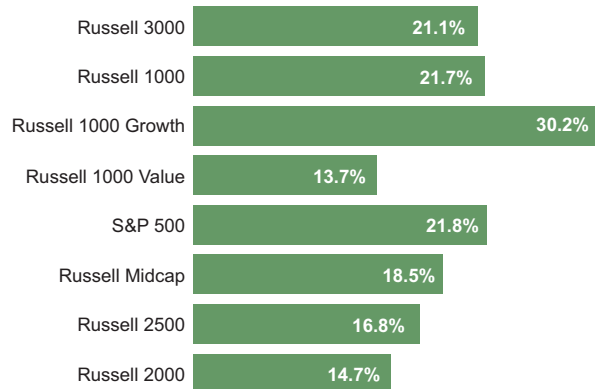
Source: Russell Investment Group

### U.S. Equity: Quarterly Returns



Sources: Russell Investment Group and Standard & Poor's

### U.S. Equity: One-Year Returns



Sources: Russell Investment Group and Standard & Poor's

output is expected to surpass production out of Saudi Arabia for the first time since the early 1990s.

Growth outperformed value during the quarter across the market cap range (**Russell 1000 Growth**: +7.9% vs. **Russell 1000 Value**: +5.3%; **Russell 2000 Growth**: +4.6% vs. **Russell 2000 Value**: +2.0%). The overweight to Tech and Consumer Discretionary in the growth indices drove the outperformance. Investors favored the stronger earnings and top-line growth outlook in the Tech sector, which also benefited from positive investor sentiment following tax reform.

Momentum-oriented stocks (**MSCI Momentum Index**: +37.8%) posted their biggest annual gain since 1999, leaving valuations

stretched; the **MSCI Defensive Index** rose 12.3% for 2017. Anecdotally, some momentum-oriented managers are finding their bench of ideas shrinking as they take profits on winners while defensively oriented managers continue to sit on cash waiting for more favorable opportunities.

### Global Stocks: Markets in Sync Around the World

**+5.0%**

MSCI ACWI ex USA

Major non-U.S. markets performed largely in line with each other during the quarter, which saw a bit of an inflection point as investors were more willing to capitalize on synchronized global growth and began to rotate out of momentum winners into more cyclical areas such as Financials, Energy, and Materials. Cyclical led as tax reform, improving commodity prices, and growth projections overcame Brexit fears and election uncertainty in Germany in a risk-on quarter.

Non-U.S. developed (**MSCI EAFE** and **MSCI World ex USA**: +4.2%) trailed U.S. (**MSCI USA**: +6.4%) after beating it in the previous three quarters. Within MSCI EAFE, the U.K. notched a record high in the fourth quarter and was up 22.3% for the year.

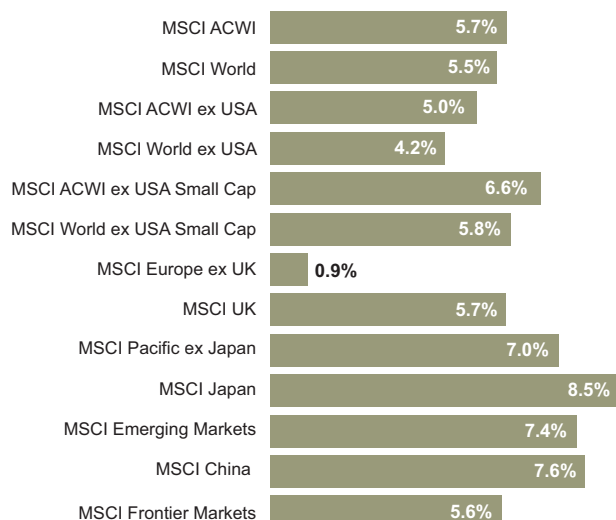
Europe, which led markets in the third quarter on earnings growth and political stability, reverted and trailed other developed regions (**MSCI Europe**: +2.2%) on Brexit negotiation concerns and political uncertainty following German elections. The European Central Bank also announced plans to curb quantitative easing in January 2018. Japan (**MSCI Japan**: +8.6%) was the best performer on its election results and improved inflation expectations.

Markets favored economically sensitive sectors: IT (+8.3%), Materials (+7.8%), and Discretionary (+7.6%). Energy was also positive (6.8%) as commodity prices were supported by distribution disruptions and high liquid natural gas usage with winter's arrival. Defensive sectors lagged as markets continued to rise: Utilities (-0.4%), Health Care (+0.9%), and Telecom (+1.7%).

It was another difficult quarter for value; factor performance favored strong growth (forecasted), earnings and price momentum, high quality, and beta (**MSCI World Value**: +4.6% vs.

## Non-U.S. Equity: Quarterly Returns

(U.S. Dollar)



Source: MSCI

**MSCI World Growth:** +6.4%). Valuation factors were mixed with price-to-book ratios and yield detracting from performance, while earnings-based multiples contributed.

## Emerging Markets: Asian Stocks Power Strong Quarter, Driven by China and Korea

**+7.4%**

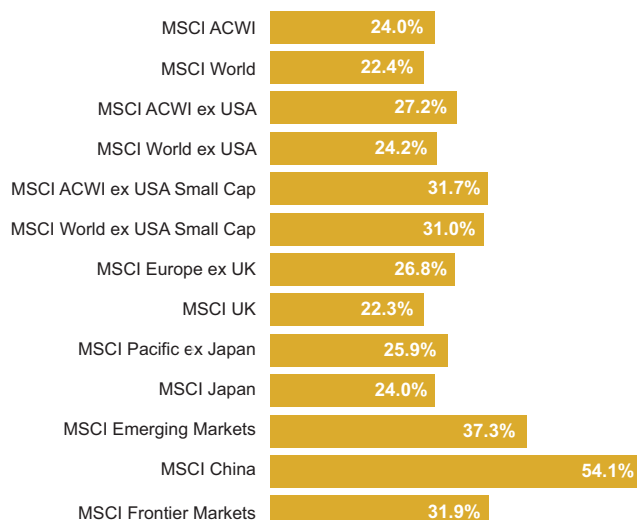
MSCI EM

Emerging market equities outperformed developed in the quarter and for the year (**MSCI Emerging Markets (USD):** +7.4%; +37.3%). Latin America was the only weak spot in the quarter (-2.3%) but was up a robust 23.7% for the year. Emerging Asia performed the best for the quarter and the year (+8.4%; +42.8%) driven by strong results from China (+7.6%; +54.1%) and Korea (+11.4%; +47.3%).

Local China A shares did even better (**MSCI China A 50 Index:** +13.7%). October's 19th National Congress of the Communist Party solidified power around Xi Jinping, reconfirming key policy objectives. Chinese technology continued to perform well but was less of a performance outlier than in previous quarters. China's increasing and less-visible debt is a growing concern, while expectations for stronger growth are buoying the market.

## Non-U.S. Equity: One-Year Returns

(U.S. Dollar)



Source: MSCI

South Africa (**MSCI South Africa:** +21.4%) was the best performer as commodity prices firmed and investors cheered a leadership change. Mexico (**MSCI Mexico:** -8.0%) was the worst-performing emerging market country as the peso sold off on NAFTA negotiation concerns.

Economically sensitive sectors sold off (Discretionary: -23.6%, Financials: -21.2%). Emerging market Health Care (+16.6%) saw very good performance with outsized contribution from China and South Korea as changing demographics continued to drive demand. Value factors struggled in emerging markets while growth, earnings momentum, price momentum, volatility, and beta were positive.

## Non-U.S. Small Cap: Health Care Powers EM Gains

**+6.6%**

MSCI ACWI ex USA SC

Developed non-U.S. small cap (**MSCI World ex USA Small Cap:** +5.8%) outperformed its large/mid counterpart modestly, led by Asia. Australia (+11.6%) and Japan (+8.7%) led the segment.

Emerging market small cap (**MSCI Emerging Market Small Cap:** +9.2%) was the best-performing segment of the equity markets in the fourth quarter, led by Health Care (+28%); Real Estate (-0.1%) was the laggard.

# Global Fixed Income

## U.S. Bonds: Strong Fundamentals Tighten Spreads

**+0.4%**

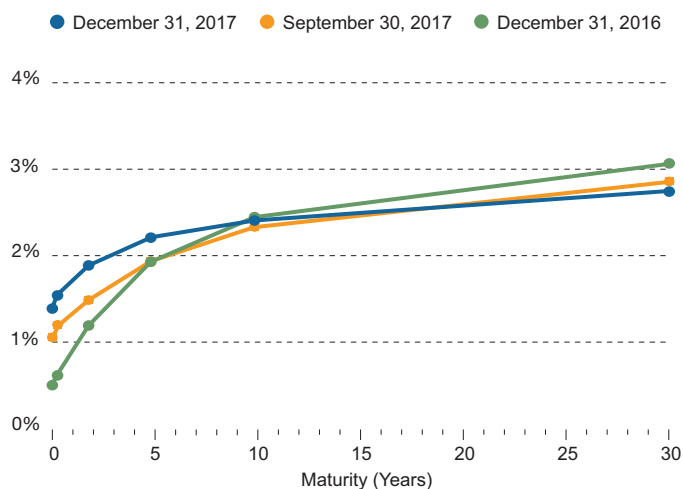
BB AGGREGATE

The U.S. yield curve continued its flat-trending trend in the fourth quarter. The 2-year U.S. Treasury yield climbed 42 basis points to close at 1.89%, up 69 bps from the end of 2016. At the long end of the yield curve, the 30-year U.S. Treasury yield fell 12 bps during the quarter, ending the year at 2.74%, 32 bps lower than its close in 2016. This trend reflects the Fed's bias to be less accommodative through monetary policy, as well as benign inflation in the face of a strong labor market. As a result, longer-term bonds sharply outperformed short-term and intermediate-maturity bonds for the quarter and the year.

Volatility in fixed income as well as equity markets sits near historical lows. The overall risk appetite remains elevated, driven in part by globally strong growth and loose monetary policy from central banks, as well as business and consumer confidence. The market is pricing in three Fed rate hikes for 2018, not far from the Fed's own expectation of where rates will end up in the longer run. Yields on 10-year Treasuries rose modestly from 2.33% at the end of the third quarter to 2.41%.

The **Bloomberg Barclays Long U.S. Treasury Index** gained 2.4% in the quarter and 8.5% in 2017 versus a -0.4% quarterly and

## U.S. Treasury Yield Curves

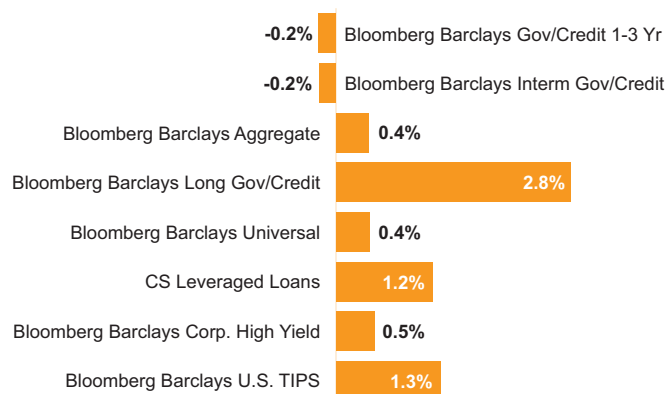


Source: Bloomberg

+1.1% annual return for the **Bloomberg Barclays Intermediate Treasury Index**. Consistent with the low volatility theme evident in the equity markets, the U.S. Treasury 10-year traded in a narrow 60 bps band for the year, the lowest since 2000.

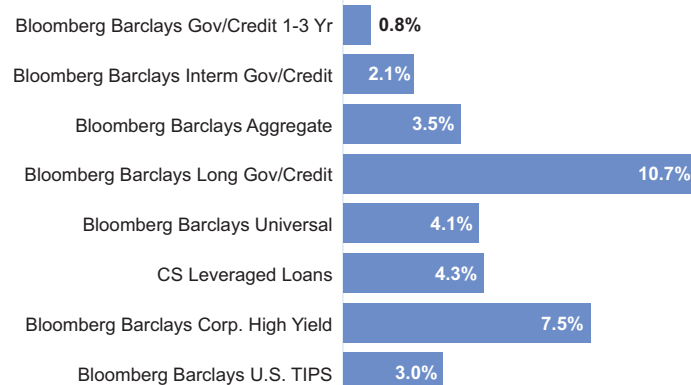
The **Bloomberg Barclays U.S. Aggregate Bond Index** rose 0.4% during the quarter. Corporate bonds outperformed for the quarter and the year, and yield spreads were the tightest since the Global Financial Crisis, hitting 93 bps over Treasuries.

## U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg Barclays and Credit Suisse

## U.S. Fixed Income: One-Year Returns



Sources: Bloomberg Barclays and Credit Suisse

## GLOBAL FIXED INCOME (Continued)

Investment-grade corporate credit was the strongest-performing fixed income sector; tax reform may boost the sector by improving profitability and reducing issuance.

High yield corporates also did well, with the **Bloomberg Barclays U.S. Corporate High Yield Index** up 0.5% for the quarter and 7.5% for the year. The annual default rate was the lowest since 2013. Issuance was robust in the fourth quarter at \$68 billion, but tax reform could negatively impact issuance.

TIPS outperformed nominal U.S. Treasuries as expectations for inflation rose. The **Bloomberg Barclays U.S. TIPS Index** rose 1.3% for the quarter and 3.0% for the year, and the 10-year breakeven spread (the difference between nominal and real yields) rose to 1.96%.

The municipal bond market performed well in 2017 as rates were steady and demand remained strong. The tax overhaul package is expected to have mixed effects. The change in personal income rates is too small to have a meaningful impact, while the decrease in corporate tax rates is expected to reduce demand for munis from certain corporations. Limiting state and local tax deductions could increase demand for in-state munis in high tax states. Issuance spiked in anticipation of changing regulations, setting a record \$62.5 billion for December supply, but the market absorbed it well. The **Bloomberg Barclays Municipal Bond Index** returned 0.7% for the quarter and 5.4% for the year.

### Global Bonds: Flat Returns in Developed Markets; EM Returns Muted

**+2.5%**  
BB GBL AGG ex US

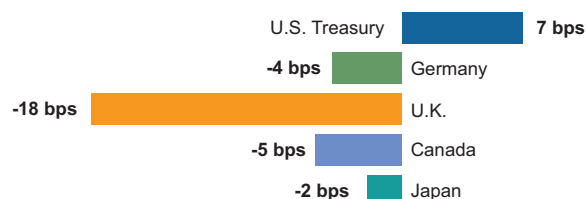
Quarterly returns were mostly flat in developed markets. The **Bloomberg Barclays Global Aggregate Bond Index** rose +1.1% (unhedged) and 0.8% (hedged).

Emerging market debt delivered more muted returns than in earlier quarters. Higher commodity prices and global growth supported the asset class broadly. The **JPM EMBI Global Diversified Index** (\$ denominated) gained 1.2% in the quarter and 10.3% for the year. Returns were mixed, but beleaguered Venezuela was the outlier for the quarter (-29%) and the year

(-34%). The local currency **JPM GBI-EM Global Diversified Index** increased +0.8% in the quarter and +15.2% for the year. In the quarter, Asian countries (+5%) performed best while Latin America sank nearly 5%.

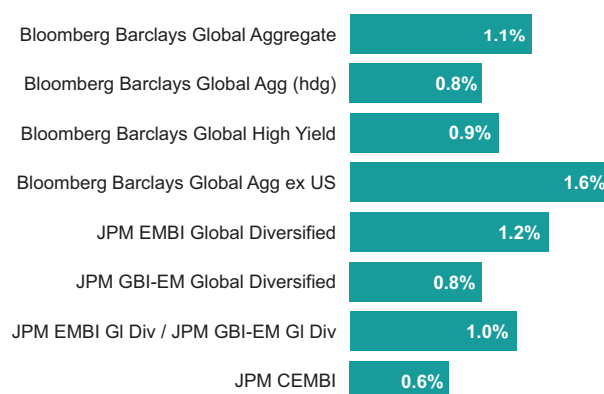
### Change in 10-year Global Government Bond Yields

3Q17 to 4Q17



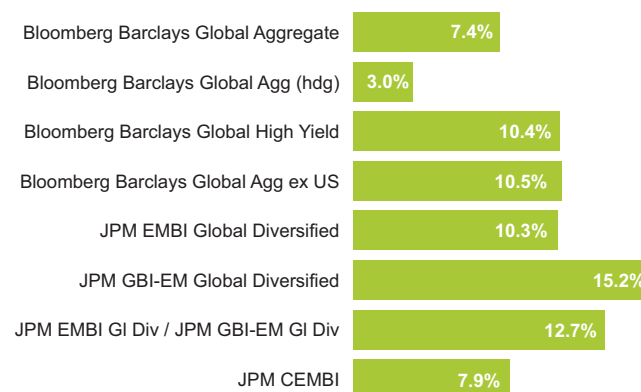
Source: Bloomberg Barclays

### Non-U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg Barclays and JP Morgan

### Non-U.S. Fixed Income: One-Year Returns



Sources: Bloomberg Barclays and JP Morgan

# Steady Returns in U.S.; Europe Best Region for REITs

REAL ESTATE | Kevin Nagy

The **NCREIF Property Index** advanced 1.8% during the fourth quarter (1.2% from income and 0.6% from appreciation). This marked the 36th consecutive quarter of positive returns for the Index.

Industrial (+3.3%) was the best-performing sector for the seventh consecutive quarter. Office (+1.7%) and Apartments (+1.6%) also did well. Hotels (+1.0%) were the worst performer and the only property type to experience a negative appreciation return. Hotels only had one quarter of positive appreciation during 2017. The West region was the strongest performer for the fifth quarter in a row, returning 2.3%, and the Midwest lagged with a 1.3% return. The West also had the strongest appreciation return at 1.2%; all other regions had appreciation below 0.5%. Transaction volume fell slightly to \$11.5 billion, a 3% decrease from the third quarter and an 18% decline from the fourth quarter of 2016. Appraisal capitalization rates rose 16 basis points to 4.55%. Transaction capitalization increased even more, rising 59 bps to 5.85%. The spread between appraisal and transactional rates increased to 130 bps.

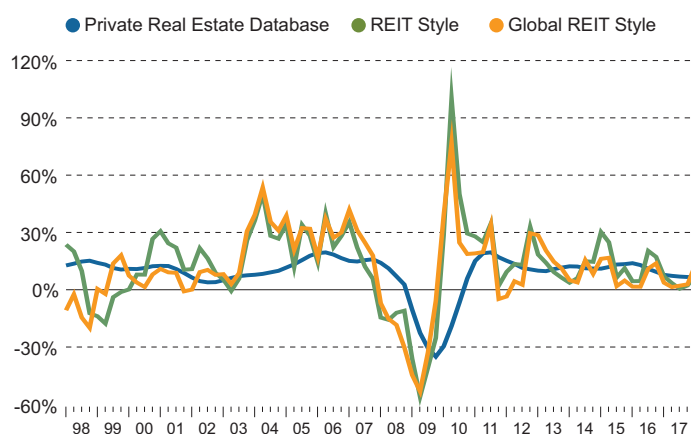
Occupancy rates increased to 93.6%, up 20 bps from the third quarter and 37 bps from the fourth quarter of 2016. Industrial and Retail occupancy rates increased slightly while Apartment and Office rates decreased.

The **NCREIF Open End Diversified Core Equity Index** rose 2.1% (1.1% from income and 1.0% from appreciation), a 20 bps increase from the third quarter. The appreciation return increased for the second quarter in a row. Leverage ticked up 1 basis point to 21.4%.

Global real estate investment trusts (REITs) tracked by the **FTSE EPRA/NAREIT Developed REIT Index (USD)** outperformed U.S. REITs and posted a 3.8% return. The median active global REIT manager, as measured by the **Callan Global REIT Style Group**, gained 4.6%, beating the Index. U.S. REITs, as measured by the **FTSE NAREIT Equity REITs Index**, advanced 1.5% for the quarter. The median active U.S. REIT manager, as measured by **Callan's U.S. REIT Style Group**, returned 2.4%, also beating the Index.

In the U.S., a strong November helped REITs overcome negative performance in October and December. Infrastructure (+8.8%), Hotels (+5.4%), and Timber (+4.9%) made solid gains, while Health Care (-5.3%), Diversified (-2.0%), Specialty (-1.9%), and Residential (-0.2%) were the worst performers. Retail (+6.8%) bounced back from a dismal second and third quarter on the back of high M&A activity and a strong holiday shopping season.

## Rolling One-Year Returns



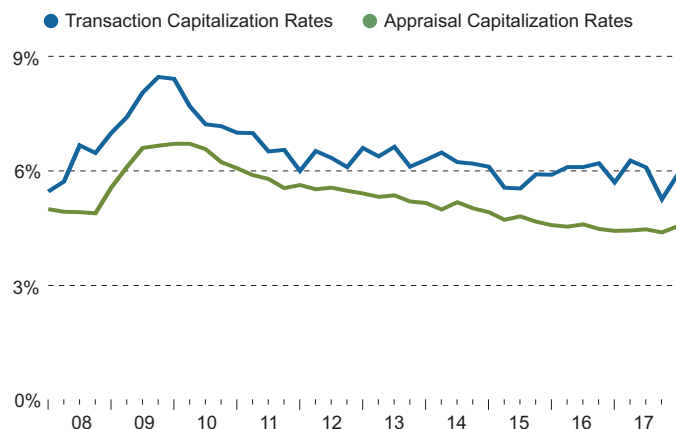
Source: Callan

## REAL ESTATE (Continued)

Europe, as represented by the **FTSE EPRA/NAREIT Europe Index**, was the strongest-performing region for the third consecutive quarter, returning 7.6% in U.S. dollar terms. U.K. REITs outperformed their continental counterparts due to optimism over a “soft Brexit” and better than expected earnings from London-centric real estate proxies. Continental Europe continued to benefit from robust economic growth that was not fazed by the Catalan election results, among other political surprises.

The Asia-Pacific region, represented by the **FTSE EPRA/NAREIT Asia Index**, jumped 5.5% in U.S. dollar terms, besting the U.S. but lagging Europe. Singapore was the strongest performer, helped by a rally in the broader Singaporean stock market. Hong Kong and Australia also had good quarters. Japan lagged behind, but was still positive.

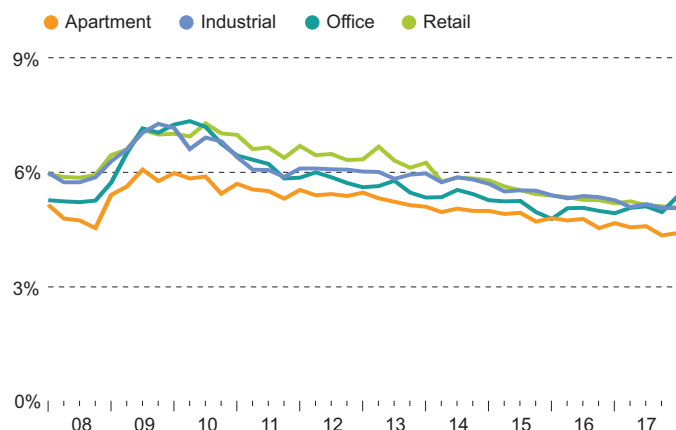
## NCREIF Transaction and Appraisal Capitalization Rates



Source: NCREIF

Note: Transaction capitalization rate is equal weighted.

## NCREIF Capitalization Rates by Property Type



Source: NCREIF

Note: Capitalization rates are appraisal-based.



# 2017 Fundraising Sets New Record

PRIVATE EQUITY | Harshal Shah

The preliminary fundraising total and number of funds formed in 2017 set a record, according to *Private Equity Analyst*, up 20% and 32%, respectively, to \$376 billion and 1,150. In the fourth quarter, new commitments hit \$126 billion and 311 new partnerships were formed. Dollar volume rose by 51% over the third quarter; the number of new funds formed grew 37%.

According to *Buyouts* newsletter, there were 1,649 disclosed deals in 2017, an increase of 25% from 2016. The year's disclosed dollar volume was \$184.2 billion, up 8% from \$170.1 billion in 2016 and hitting a nine-year high. While the disclosed dollar volume has recovered from 2009's low of \$37.3 billion, it is still well shy of the 2007 record high of \$597.4 billion. However, while general partners may be more discerning in putting capital to work, according to Standard & Poor's LCD data, the median purchase and net debt multiples in 2017 remained elevated at 10.6x and 5.8x, respectively.

Regarding exits, *Buyouts* reports that 2017's 607 private M&A exits of buyout-backed companies is up 9% from the 557 in 2016. The year's aggregate disclosed M&A exit values of \$106.7 billion is up 12.7% from 2016's \$94.6 billion. In the fourth quarter, there were 124 M&A exits, and announced value totaled \$38.1 billion. Ten M&A exits had values over \$1 billion compared to only four in the fourth quarter of 2016. There were

## Funds Closed January 1 to December 31, 2017

Strategy	No. of Funds	Amt (\$mm)	Percent
Venture Capital	510	35,945	10%
Buyouts	392	249,747	67%
Subordinated Debt	77	34,174	9%
Distressed Debt	42	29,332	8%
Secondary and Other	35	13,075	3%
Fund-of-funds	94	13,244	4%
<b>Totals</b>	<b>1,150</b>	<b>375,516</b>	<b>100%</b>

Source: Private Equity Analyst  
Figures may not total due to rounding.

only four buyout-backed IPOs in the fourth quarter last year, with a total value of \$860 million. However for the full year, there were 18 buyout-backed IPOs with a total value of \$6.5 billion, an increase of 125% and 60%, respectively, over 2016.

Venture-backed M&A exits for the year totaled 711 with announced values totaling \$41.2 billion, down from 816 exits and \$50.0 billion in announced value in 2016. The fourth quarter had 144 exits with announced values totaling \$6.7 billion, down from 173 exits and \$11.5 billion of announced value in the third quarter. The year produced 58 venture-backed IPOs raising \$9.9 billion, up from 41 IPOs in 2016 raising \$2.9 billion. The fourth quarter had 23 IPOs, raising \$3.1 billion, up significantly from the third quarter's nine IPOs raising \$730 million.

## Private Equity Performance Database (%) (Pooled Horizon IRRs through September 30, 2017\*)

Strategy	3 Months	Year	3 Years	5 Years	10 Years	15 Years	20 Years
All Venture	3.52	8.82	12.30	15.51	9.47	9.00	17.94
Growth Equity	4.90	15.83	10.68	13.21	10.06	12.60	13.13
All Buyouts	4.63	19.33	12.61	14.35	8.78	14.39	12.53
Mezzanine	4.16	13.07	9.43	10.15	9.02	9.47	8.64
Distressed	2.39	14.92	9.03	11.35	9.13	11.33	11.34
<b>All Private Equity</b>	<b>4.31</b>	<b>16.19</b>	<b>11.93</b>	<b>14.08</b>	<b>9.06</b>	<b>12.75</b>	<b>13.01</b>
S&P 500	4.48	18.61	10.81	14.22	7.44	10.04	7.00

Private equity returns are net of fees.

Sources: Standard & Poor's and Thomson Reuters/Cambridge

\*Most recent data available at time of publication

Note: Transaction count and dollar volume figures across all private equity measures are preliminary figures and are subject to update in subsequent versions of *Capital Market Review* and other Callan publications.



# Risk Takers See Less as More

HEDGE FUNDS/MACs | Jim McKee

Given the quarter's surge of raw equity beta, alpha-seeking hedge funds saw positive but more modest results. Representing a paper portfolio of hedge fund interests without implementation costs, the **Credit Suisse Hedge Fund Index** (CS HFI) rose 2.3% in the fourth quarter. Actual hedge fund portfolios represented by the median manager in the **Callan Hedge Fund-of-Funds Database** advanced 1.5%, net of all fees and expenses.

Within CS HFI, the best-performing strategy was *Managed Futures* (+6.6%), followed by *Emerging Markets* (+3.4%) and *Long/Short Equity* (+3.3%). Less fortunate was *Risk Arb* (+0.1%); some major pending deals met regulatory resistance, causing those deal spreads to widen significantly. Within Callan's Hedge FOF Database, market exposures marginally affected performance in the fourth quarter. With the added momentum from equity markets, the median *Callan Long/Short Equity FOF* (+1.8%) beat the *Callan Absolute Return FOF* (+1.5%). The *Core Diversified FOF* gained 1.5%.

The **Credit Suisse Neuberger Multi-Asset Risk Premia Index**, a proxy for liquid alternative beta, slipped 0.6% based upon a 5% volatility target. Within the Index's underlying styles, winners were *Equity Momentum* (+7.6%) and *Commodity Momentum* (+4.8%). The **Callan Multi-Asset Class Database** group's median manager rose 3.6%, gross of fees. Within this group, the median *Callan Risk Premia MAC* gained 4.0%, aided by equity and commodity momentum. Typically targeting equal risk-weighted allocations to major asset classes with leverage, the *Callan Risk Parity MAC* gained 4.7%, beating a 60% stock/40% bond benchmark (+4.1%). The *Callan Long-Biased MAC* (+3.4%) performed well, given its dynamic asset allocation mandate with a typically long equity bias, but trailed the 60/40 benchmark. Focused on non-directional strategies of long and short asset class exposures, the *Callan Absolute Return MAC* added 0.9%.

## Callan Database Median and Index Returns\* for Periods ended December 31, 2017

Hedge Fund Universe	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Callan Fund-of-Funds Database	1.53	6.98	2.90	5.01	3.04	5.22
Callan Absolute Return FOF Style	1.47	5.11	3.20	4.59	3.00	4.90
Callan Core Diversified FOF Style	1.51	6.42	2.36	4.79	2.77	5.18
Callan Long/Short Equity FOF Style	1.81	11.25	3.76	6.00	3.20	5.84
Credit Suisse Hedge Fund Index	2.30	7.12	2.50	4.23	3.24	6.01
HFRI Asset Wtd Composite	1.99	6.52	3.06	4.60	3.34	--
HFRI Fund Wtd Comp	2.65	8.68	4.25	4.95	3.23	6.10
HFRI Equity Hedge (Total)	3.51	13.46	5.82	6.63	3.19	6.09
HFRI Event-Driven (Total)	2.04	7.73	4.73	5.49	4.17	7.26
HFRI Macro (Total) Index	2.42	2.21	0.65	1.40	1.95	4.65
HFRI Relative Value (Total)	1.05	5.11	4.11	4.68	4.81	6.02
90-Day T-Bill + 5%	1.50	5.86	5.41	5.27	5.39	6.28
Liquid Alternative Universe	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Callan Absolute Return MAC	0.90	5.07	3.27	4.46	5.16	--
Callan Risk Premia MAC	3.95	5.51	2.04	3.57	7.16	--
Callan Long-Biased MAC	3.35	13.87	5.46	6.39	5.76	8.70
Callan Risk Parity MAC	4.66	11.88	6.47	5.81	6.75	--
60% S&P 500/40% BB Agg	4.14	14.26	7.76	10.25	7.09	7.90
CS NB MARP Index (5%v)	-0.63	-1.61	2.05	3.55	7.15	--
SG Trend Index	7.70	2.19	-1.36	3.35	3.15	4.21

\*Gross of fees. Sources: Bloomberg Barclays, Callan, Credit Suisse, Hedge Fund Research, Societe Generale, and Standard and Poor's

# DC Plans on Track to Win Big in 2017

## DEFINED CONTRIBUTION | Tom Szkwarla

The Callan DC Index™ recorded a solid 3.8% gain during the third quarter, its eighth straight quarter of positive performance. And the Index is up 11.9% year to date—its best showing for the first three quarters of a year since 2013.

The Index benefited from strong U.S. equity performance, but a lack of diversification to non-U.S. equity markets continued to hinder DC plan performance. The typical DC participant has less than 6% in non-U.S. equity exposure, compared to 20.1% for the typical Age 45 target date fund (TDF).

Accordingly, the Age 45 TDF outpaced the DC Index by about 50 basis points for the third quarter and 200 bps year to date. Plan balances rose 3.78%, driven by return growth (3.76%) rather than inflows (plan sponsor and participant contributions), which contributed a meager 0.02%.

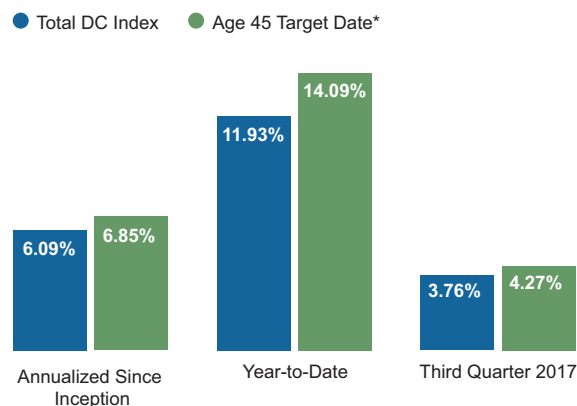
U.S. large cap and small/mid cap equities experienced significant outflows during the quarter. Non-U.S. and emerging market stocks represented the only equity asset classes to witness inflows. As usual, TDFs accounted for the majority of inflow activity during the third quarter, capturing 72 cents of every dollar moving within DC plans.

Turnover within the Index (i.e., net transfer activity) ticked up from last quarter to 0.58%, but remained below the historical average of 0.63%.

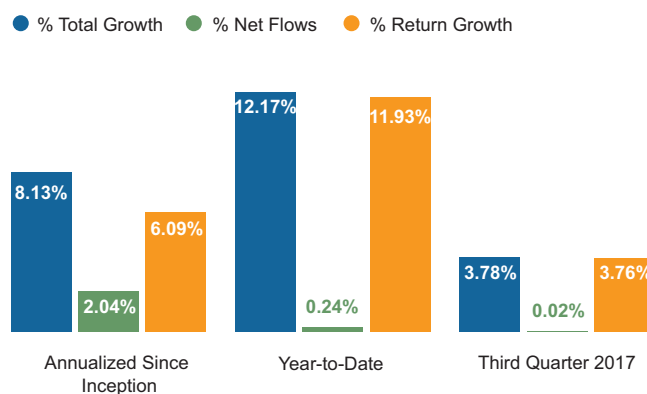
The DC Index's overall equity allocation increased to over 70% in the most recent period, but it remains below its 2007 peak of 73%. TDFs grew to their largest allocation yet, holding 30.8% of total DC assets in the third quarter. U.S. large cap equity commands the second-largest portion of participant assets (22.7%).

*The Callan DC Index is an equally weighted index tracking the cash flows and performance of nearly 90 plans, representing more than one million DC participants and over \$135 billion in assets. The Index is updated quarterly and is available on Callan's website, as is the quarterly DC Observer newsletter.*

## Investment Performance



## Growth Sources



## Net Cash Flow Analysis (Third Quarter 2017) (Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Target Date Funds	71.56%
Non-U.S. Equity	12.99%
U.S. Small/Mid Cap	-28.25%
U.S. Large Cap	-40.72%
Total Turnover**	0.58%

Data provided here is the most recent available at time of publication.

Source: Callan DC Index

Note: DC Index inception date is January 2006.

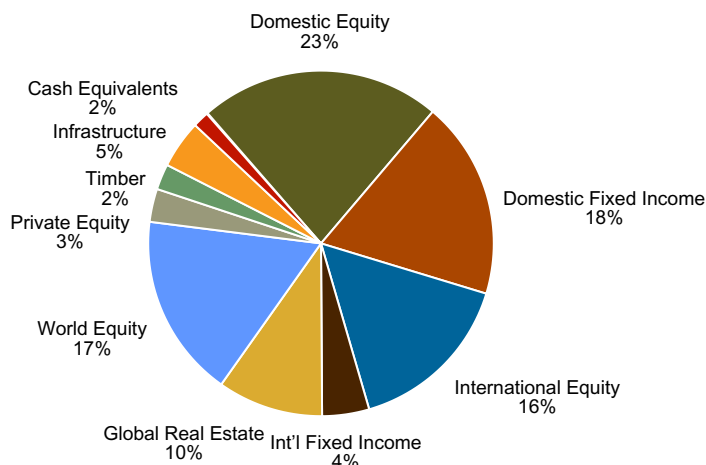
\* The Age 45 Fund transitioned from the average 2030 TDF to the 2035 TDF in June 2013.

\*\* Total Index "turnover" measures the percentage of total invested assets (transfers only, excluding contributions and withdrawals) that moved between asset classes.

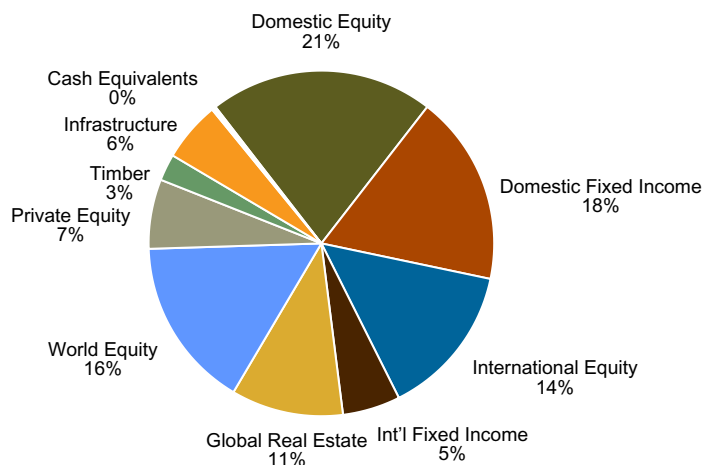
## Actual vs Target Asset Allocation As of December 31, 2017

The top left chart shows the Fund's asset allocation as of December 31, 2017. The top right chart shows the Fund's target asset allocation as outlined in the investment policy statement. The bottom chart ranks the fund's asset allocation and the target allocation versus the Callan Public Fund Sponsor Database.

**Actual Asset Allocation**

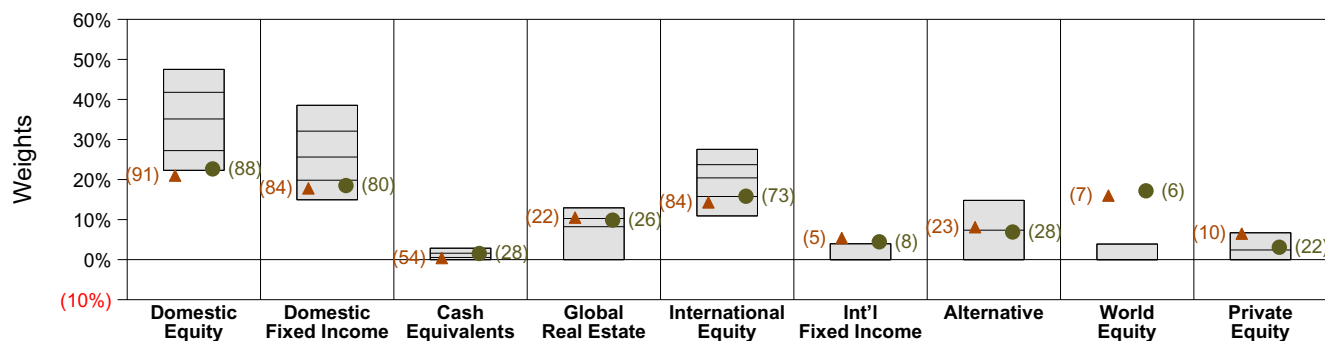


**Target Asset Allocation**



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	1,285,912	22.6%	21.0%	1.6%	93,489
Domestic Fixed Income	1,049,948	18.5%	17.8%	0.7%	39,228
International Equity	898,988	15.8%	14.3%	1.5%	87,005
Int'l Fixed Income	252,569	4.4%	5.4%	(1.0%)	(54,054)
Global Real Estate	560,283	9.9%	10.5%	(0.6%)	(35,928)
World Equity	975,646	17.2%	16.0%	1.2%	67,134
Private Equity	175,836	3.1%	6.5%	(3.4%)	(193,247)
Timber	134,861	2.4%	2.5%	(0.1%)	(7,094)
Infrastructure	257,039	4.5%	5.6%	(1.1%)	(60,940)
Cash Equivalents	87,121	1.5%	0.4%	1.1%	64,408
Total	5,678,203	100.0%	100.0%		

### Asset Class Weights vs Callan Public Fund Sponsor Database



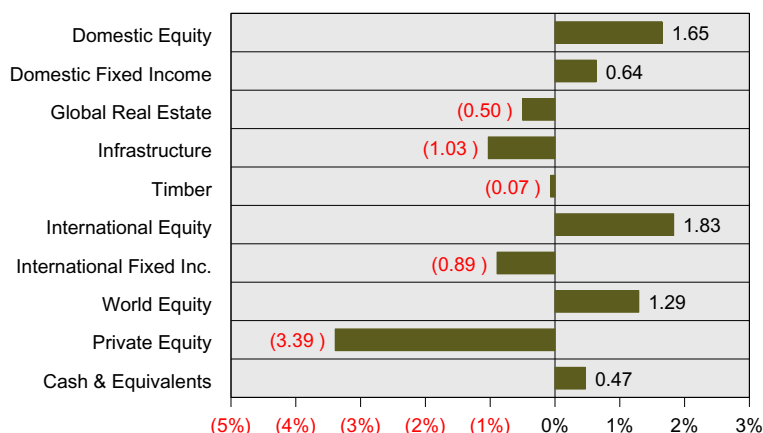
10th Percentile	47.51	38.54	2.85	12.93	27.54	3.96	14.80	3.89	6.71
25th Percentile	41.78	32.09	1.60	10.27	23.71	0.00	7.35	0.00	2.41
Median	35.13	25.62	0.54	8.22	20.41	0.00	0.00	0.00	0.00
75th Percentile	27.22	19.83	0.00	0.00	15.76	0.00	0.00	0.00	0.00
90th Percentile	22.30	14.94	0.00	0.00	10.92	0.00	0.00	0.00	0.00
<b>Fund</b>	22.65	18.49	1.53	9.87	15.83	4.45	6.90	17.18	3.10
<b>Target</b>	21.00	17.80	0.40	10.50	14.30	5.40	8.10	16.00	6.50
% Group Invested	95.14%	96.53%	72.92%	68.75%	90.97%	16.67%	14.58%	11.81%	31.25%

\* Current Quarter Target = 16.1% Russell 1000 Index, 16.0% MSCI World, 13.2% Blmbg Aggregate, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 6.5% NDSIB PEN - Private Equity, 5.6% CPI-W, 5.4% Blmbg Glob Agg ex USD, 4.9% Russell 2000 Index, 4.6% Blmbg HY 2% Iss Cap, 3.1% MSCI EM, 2.5% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

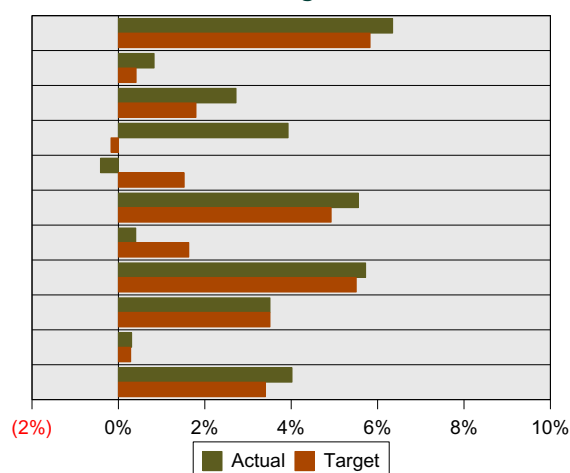
## Quarterly Total Fund Relative Attribution - December 31, 2017

The following analysis approaches Total Fund Attribution from the perspective of relative return. Relative return attribution separates and quantifies the sources of total fund excess return relative to its target. This excess return is separated into two relative attribution effects: Asset Allocation Effect and Manager Selection Effect. The Asset Allocation Effect represents the excess return due to the actual total fund asset allocation differing from the target asset allocation. Manager Selection Effect represents the total fund impact of the individual managers excess returns relative to their benchmarks.

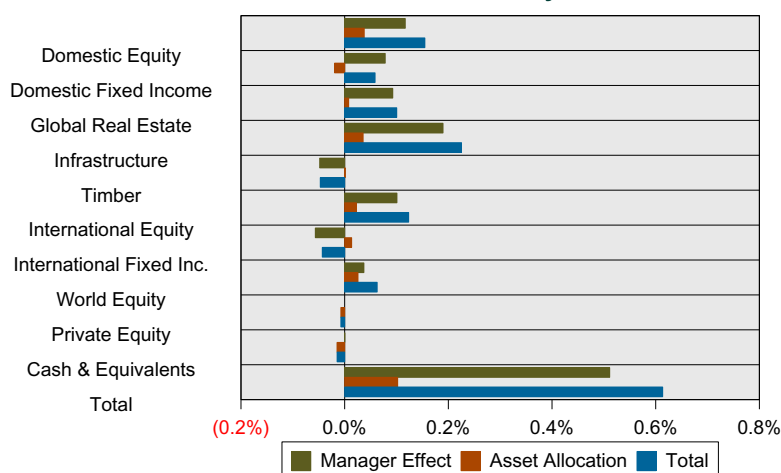
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended December 31, 2017

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	6.35%	5.83%	0.12%	0.04%	0.15%
Domestic Fixed Income	18%	18%	0.83%	0.41%	0.08%	(0.02%)	0.06%
Global Real Estate	10%	10%	2.72%	1.80%	0.09%	0.01%	0.10%
Infrastructure	5%	6%	3.93%	(0.17%)	0.19%	0.04%	0.23%
Timber	2%	3%	(0.42%)	1.52%	(0.05%)	0.00%	(0.05%)
International Equity	16%	14%	5.56%	4.92%	0.10%	0.02%	0.12%
International Fixed Inc.	5%	5%	0.40%	1.63%	(0.06%)	0.01%	(0.04%)
World Equity	17%	16%	5.72%	5.51%	0.04%	0.03%	0.06%
Private Equity	3%	6%	3.51%	3.51%	0.00%	(0.01%)	(0.01%)
Cash & Equivalents	1%	0%	0.31%	0.28%	0.00%	(0.01%)	(0.01%)

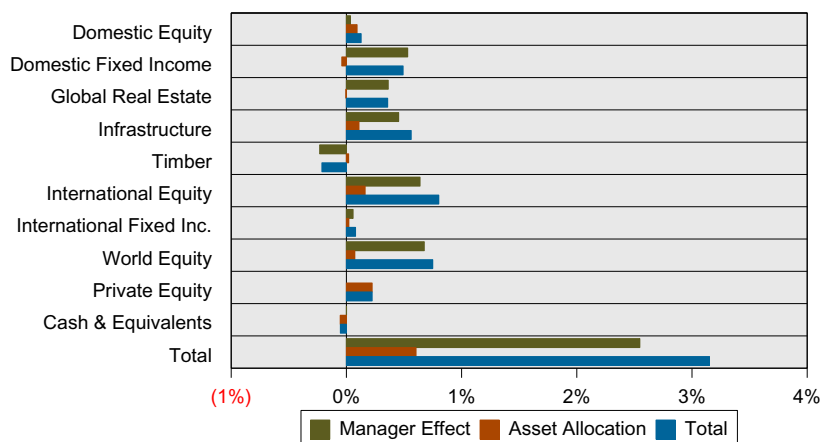
**Total** **4.02% = 3.41% + 0.51% + 0.10%** **0.61%**

\* Current Quarter Target = 16.1% Russell 1000 Index, 16.0% MSCI World, 13.2% Blmbg Aggregate, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 6.5% NDSIB PEN - Private Equity, 5.6% CPI-W, 5.4% Blmbg Glob Agg ex USD, 4.9% Russell 2000 Index, 4.6% Blmbg HY 2% Iss Cap, 3.1% MSCI EM, 2.5% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

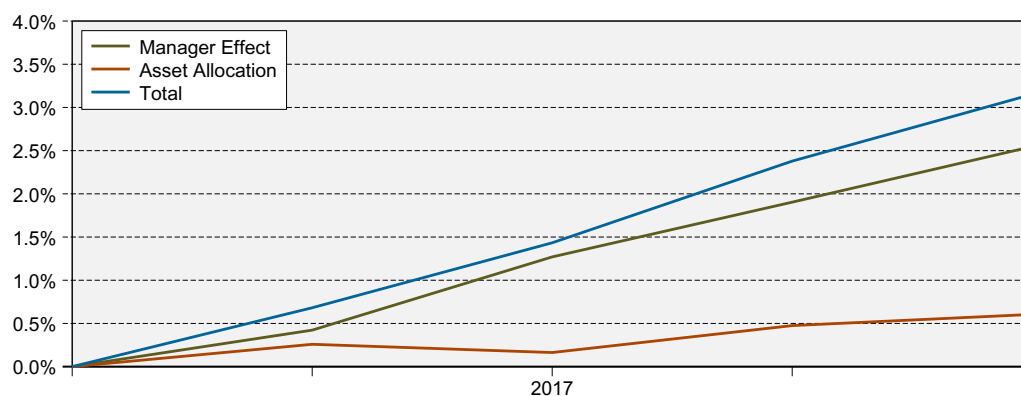
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### One Year Relative Attribution Effects



### Cumulative Relative Attribution Effects



### One Year Relative Attribution Effects

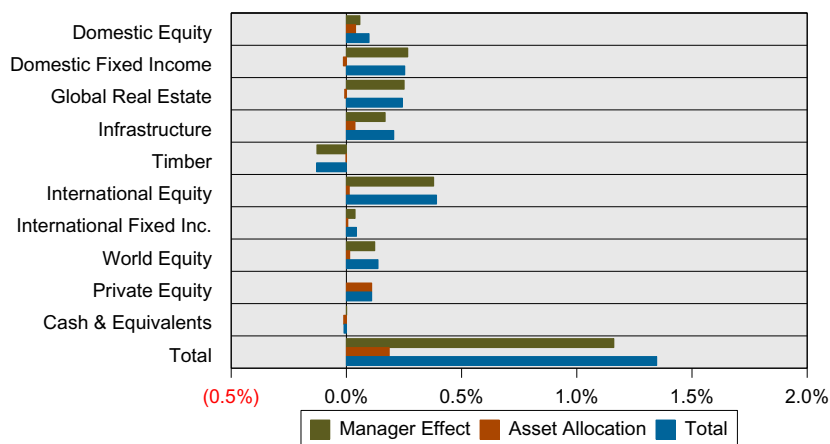
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	20.23%	20.06%	0.04%	0.09%	0.13%
Domestic Fixed Income	18%	18%	7.28%	4.56%	0.53%	(0.04%)	0.49%
Global Real Estate	10%	10%	10.26%	6.96%	0.36%	(0.01%)	0.36%
Infrastructure	4%	5%	11.99%	2.18%	0.45%	0.11%	0.56%
Timber	3%	3%	(3.98%)	3.63%	(0.23%)	0.02%	(0.21%)
International Equity	16%	14%	31.47%	26.97%	0.64%	0.16%	0.80%
International Fixed Inc.	5%	5%	11.57%	10.51%	0.06%	0.02%	0.08%
World Equity	17%	16%	26.70%	22.40%	0.68%	0.07%	0.75%
Private Equity	3%	6%	7.41%	7.41%	0.00%	0.22%	0.22%
Cash & Equivalents	1%	0%	1.04%	0.86%	0.00%	(0.05%)	(0.05%)
<b>Total</b>			<b>17.34%</b>	<b>14.19%</b>	<b>+ 2.55%</b>	<b>+ 0.60%</b>	<b>3.15%</b>

\* Current Quarter Target = 16.1% Russell 1000 Index, 16.0% MSCI World, 13.2% Blmbg Aggregate, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 6.5% NDSIB PEN - Private Equity, 5.6% CPI-W, 5.4% Blmbg Glob Agg ex USD, 4.9% Russell 2000 Index, 4.6% Blmbg HY 2% Iss Cap, 3.1% MSCI EM, 2.5% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

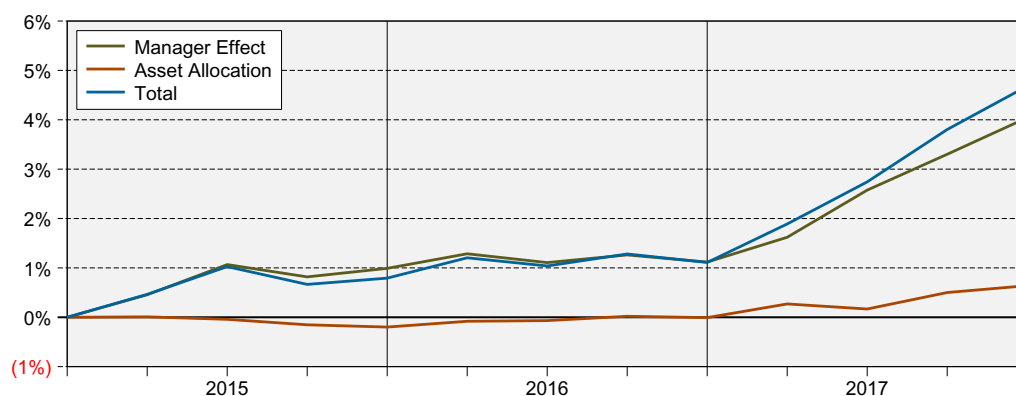
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Three Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Three Year Annualized Relative Attribution Effects

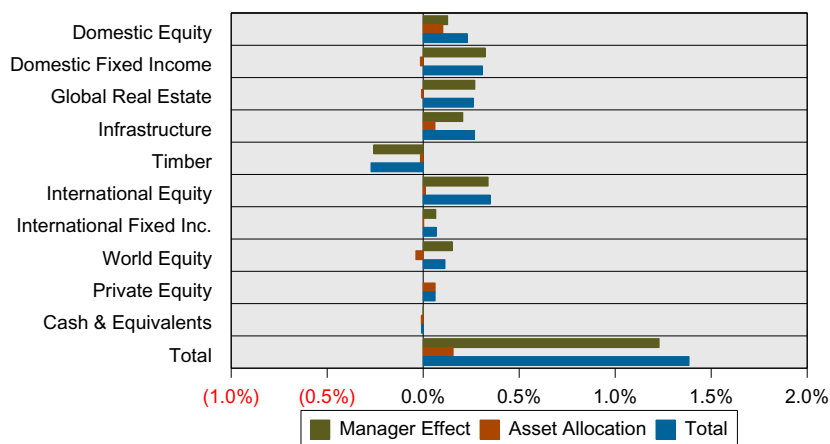
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	11.29%	11.00%	0.06%	0.04%	0.10%
Domestic Fixed Income	18%	18%	4.78%	3.35%	0.27%	(0.01%)	0.25%
Global Real Estate	10%	10%	11.89%	9.38%	0.25%	(0.01%)	0.24%
Infrastructure	4%	5%	5.17%	1.52%	0.17%	0.04%	0.21%
Timber	3%	4%	(0.85%)	3.73%	(0.13%)	(0.00%)	(0.13%)
International Equity	15%	14%	10.58%	8.06%	0.38%	0.01%	0.39%
International Fixed Inc.	5%	5%	2.49%	1.77%	0.04%	0.01%	0.04%
World Equity	16%	16%	9.95%	9.26%	0.12%	0.01%	0.14%
Private Equity	3%	6%	(0.38%)	(0.38%)	0.00%	0.11%	0.11%
Cash & Equivalents	1%	1%	0.55%	0.41%	0.00%	(0.01%)	(0.01%)
<b>Total</b>			<b>8.32%</b>	<b>6.97%</b>	<b>+ 1.16%</b>	<b>+ 0.19%</b>	<b>1.35%</b>

\* Current Quarter Target = 16.1% Russell 1000 Index, 16.0% MSCI World, 13.2% Blmbg Aggregate, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 6.5% NDSIB PEN - Private Equity, 5.6% CPI-W, 5.4% Blmbg Glob Agg ex USD, 4.9% Russell 2000 Index, 4.6% Blmbg HY 2% Iss Cap, 3.1% MSCI EM, 2.5% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

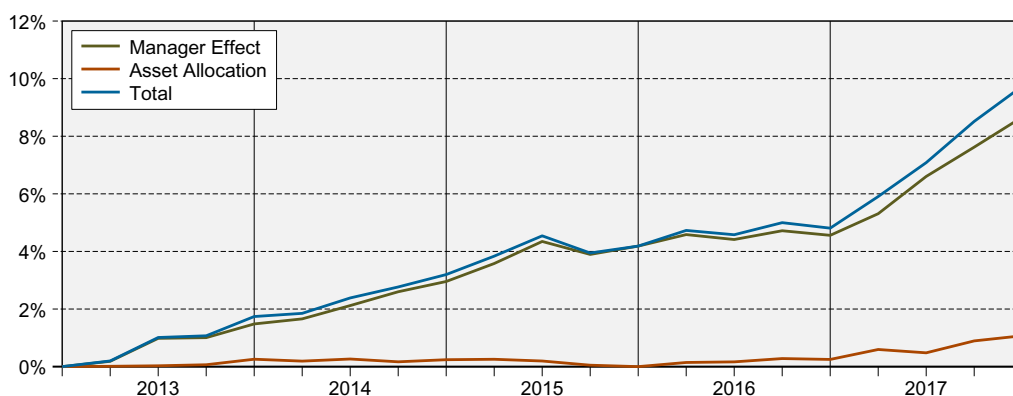
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Five Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Five Year Annualized Relative Attribution Effects

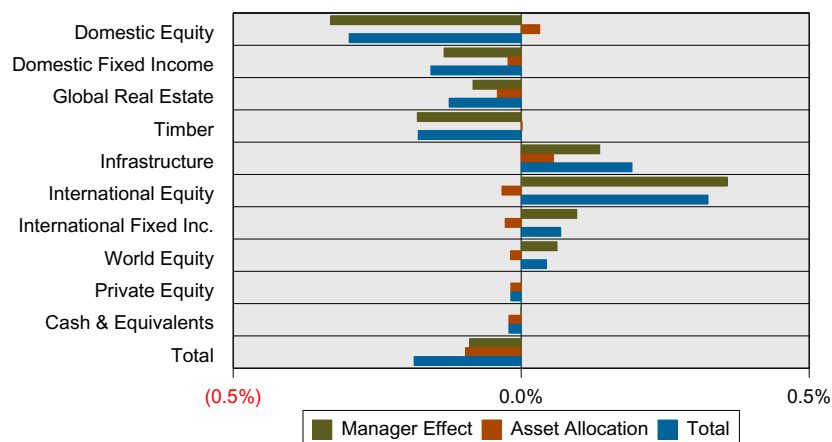
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	16.03%	15.41%	0.13%	0.10%	0.23%
Domestic Fixed Income	18%	18%	4.79%	3.10%	0.32%	(0.01%)	0.31%
Global Real Estate	10%	10%	13.01%	10.19%	0.27%	(0.01%)	0.26%
Infrastructure	4%	5%	6.10%	1.26%	0.21%	0.06%	0.27%
Timber	4%	4%	(0.35%)	6.22%	(0.26%)	(0.01%)	(0.27%)
International Equity	15%	14%	9.41%	7.13%	0.34%	0.01%	0.35%
International Fixed Inc.	5%	5%	0.99%	(0.20%)	0.07%	0.00%	0.07%
World Equity	16%	16%	12.44%	11.64%	0.15%	(0.04%)	0.11%
Private Equity	4%	5%	1.38%	1.38%	0.00%	0.06%	0.06%
Cash & Equivalents	1%	1%	0.35%	0.27%	0.00%	(0.01%)	(0.01%)
<b>Total</b>			<b>9.59%</b>	<b>8.21%</b>	<b>1.23%</b>	<b>0.16%</b>	<b>1.38%</b>

\* Current Quarter Target = 16.1% Russell 1000 Index, 16.0% MSCI World, 13.2% Blmbg Aggregate, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 6.5% NDSIB PEN - Private Equity, 5.6% CPI-W, 5.4% Blmbg Glob Agg ex USD, 4.9% Russell 2000 Index, 4.6% Blmbg HY 2% Iss Cap, 3.1% MSCI EM, 2.5% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

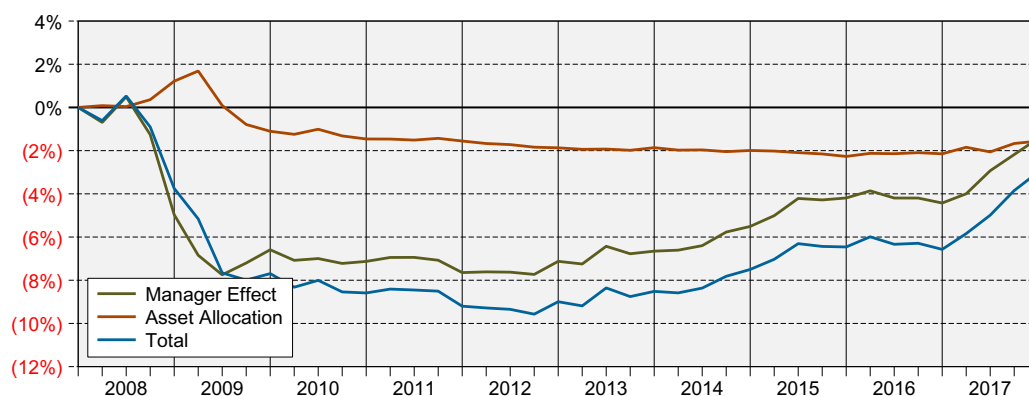
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Ten Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Ten Year Annualized Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	29%	29%	7.66%	8.63%	(0.33%)	0.03%	(0.30%)
Domestic Fixed Income	22%	21%	5.37%	5.23%	(0.13%)	(0.02%)	(0.16%)
Global Real Estate	9%	9%	5.00%	6.08%	(0.08%)	(0.04%)	(0.13%)
Timber	3%	3%	-	-	(0.18%)	0.00%	(0.18%)
Infrastructure	3%	3%	-	-	0.14%	0.06%	0.19%
International Equity	16%	16%	4.12%	2.06%	0.36%	(0.03%)	0.32%
International Fixed Inc.	5%	5%	4.40%	2.64%	0.10%	(0.03%)	0.07%
World Equity	9%	9%	-	-	0.06%	(0.02%)	0.04%
Private Equity	4%	5%	(0.36%)	(0.36%)	0.00%	(0.02%)	(0.02%)
Cash & Equivalents	1%	1%	0.31%	0.39%	(0.00%)	(0.02%)	(0.02%)
<b>Total</b>			<b>5.33%</b>	<b>5.52%</b>	<b>(0.09%)</b>	<b>(0.10%)</b>	<b>(0.19%)</b>

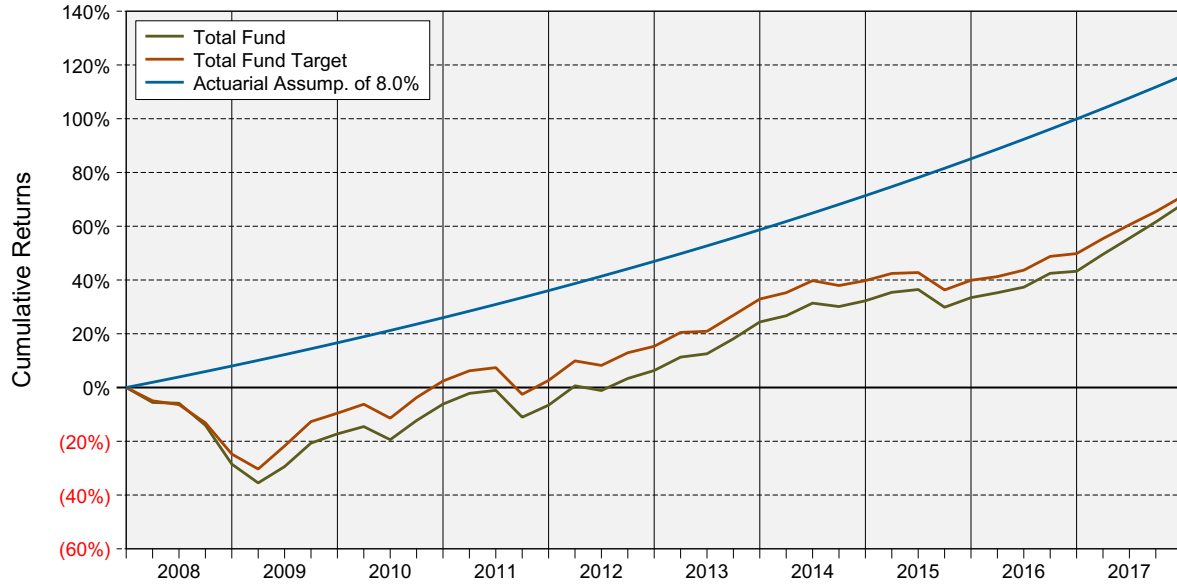
\* Current Quarter Target = 16.1% Russell 1000 Index, 16.0% MSCI World, 13.2% Blmbg Aggregate, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 6.5% NDSIB PEN - Private Equity, 5.6% CPI-W, 5.4% Blmbg Glob Agg ex USD, 4.9% Russell 2000 Index, 4.6% Blmbg HY 2% Iss Cap, 3.1% MSCI EM, 2.5% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.



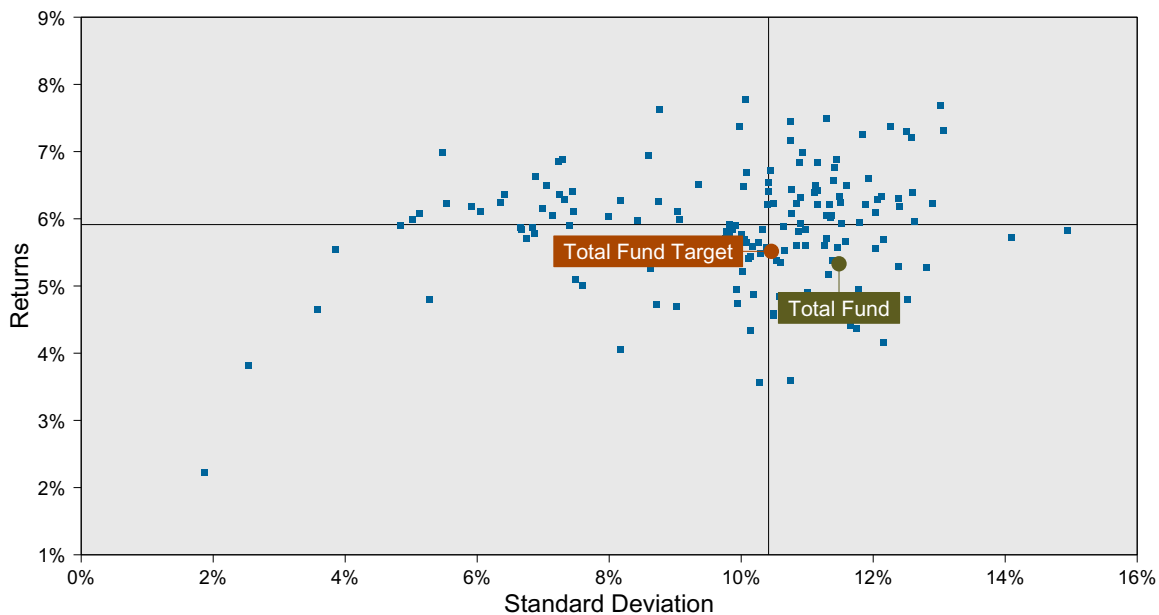
## Cumulative Performance Relative to Target

The first chart below illustrates the cumulative performance of the Total Fund relative to the cumulative performance of the Fund's Target Asset Mix. The Target Mix is assumed to be rebalanced each quarter with no transaction costs. The second chart below shows the return and the risk of the Total Fund and the Target Mix, contrasted with the returns and risks of the funds in the Callan Public Fund Sponsor Database.

### Cumulative Returns Actual vs Target



### Ten Year Annualized Risk vs Return



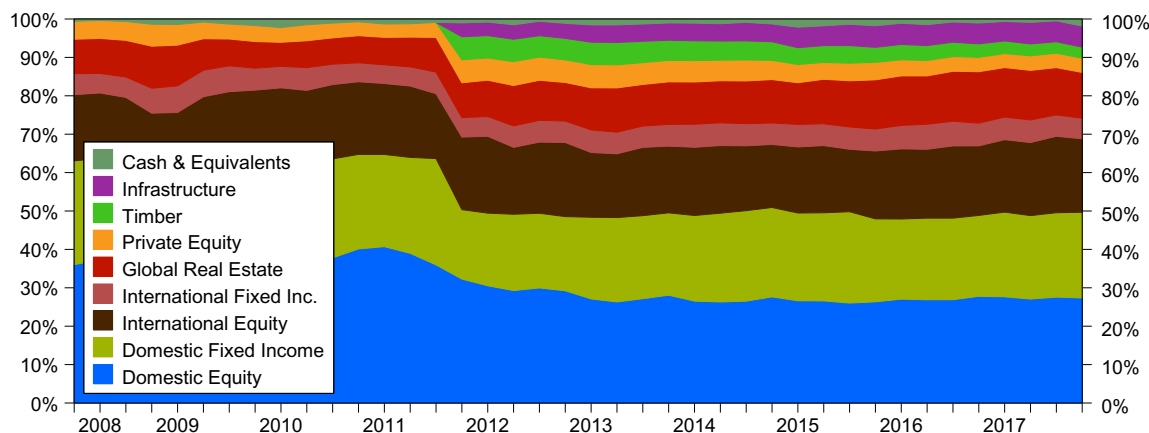
Squares represent membership of the Callan Public Fund Sponsor Database

\* Current Quarter Target = 16.1% Russell 1000 Index, 16.0% MSCI World, 13.2% Blmbg Aggregate, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 6.5% NDSIB PEN - Private Equity, 5.6% CPI-W, 5.4% Blmbg Glob Agg ex USD, 4.9% Russell 2000 Index, 4.6% Blmbg HY 2% Iss Cap, 3.1% MSCI EM, 2.5% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

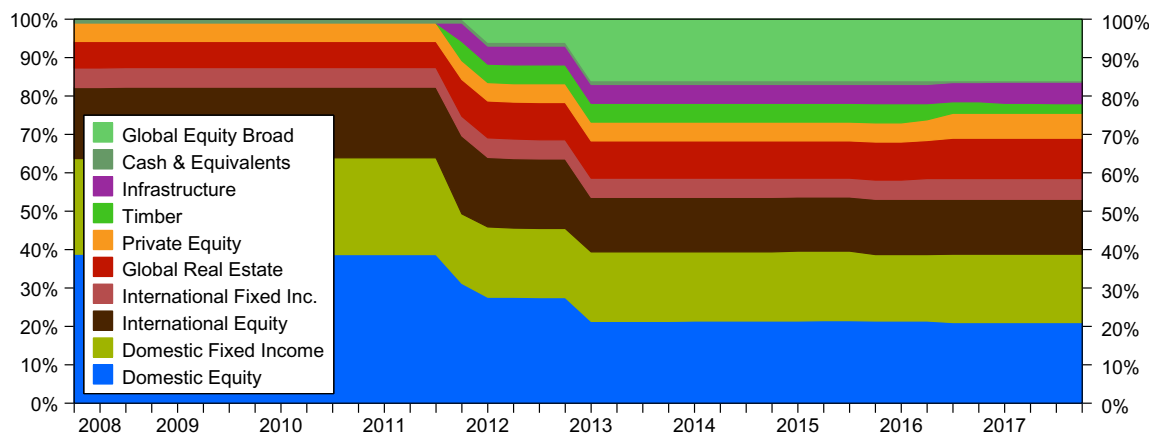
## Actual vs Target Historical Asset Allocation

The Historical asset allocation for a fund is by far the largest factor explaining its performance. The charts below show the fund's historical actual asset allocation, the fund's historical target asset allocation, and the historical asset allocation of the average fund in the Callan Public Fund Sponsor Database.

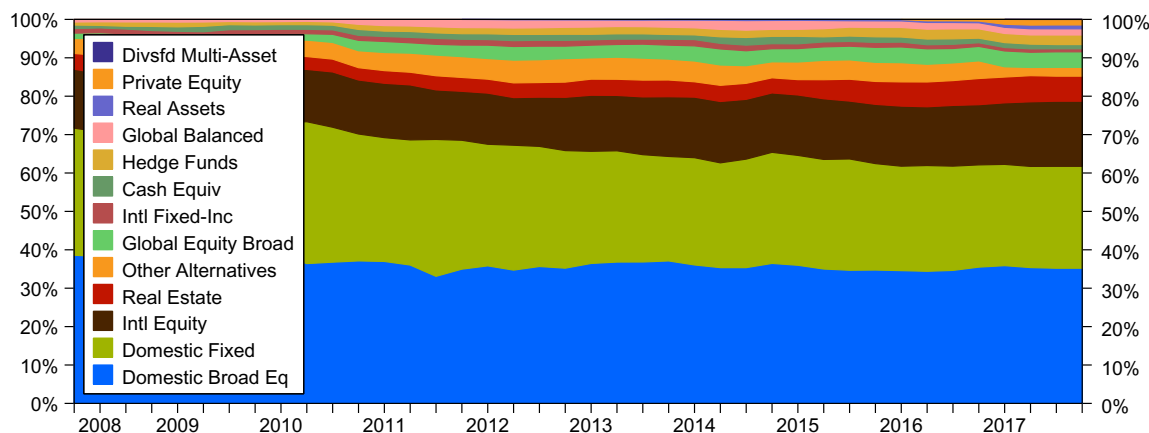
### Actual Historical Asset Allocation



### Target Historical Asset Allocation



### Average Callan Public Fund Sponsor Database Historical Asset Allocation

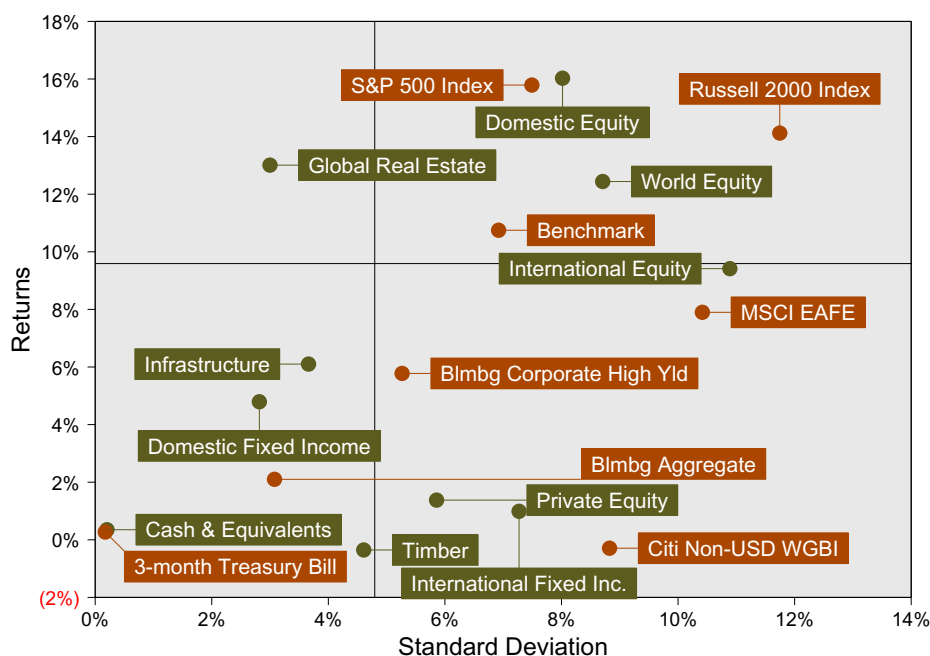


\* Current Quarter Target = 16.1% Russell 1000 Index, 16.0% MSCI World, 13.2% Blmbg Aggregate, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 6.5% NDSIB PEN - Private Equity, 5.6% CPI-W, 5.4% Blmbg Glob Agg ex USD, 4.9% Russell 2000 Index, 4.6% Blmbg HY 2% Iss Cap, 3.1% MSCI EM, 2.5% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

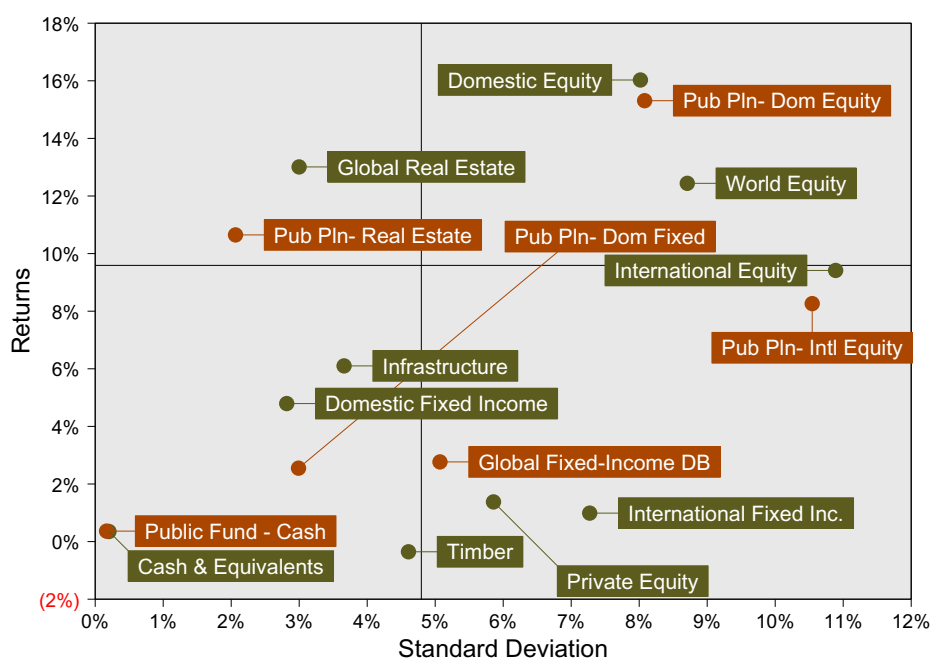
## Asset Class Risk and Return

The charts below show the five year annualized risk and return for each asset class component of the Total Fund. The first graph contrasts these values with those of the appropriate index for each asset class. The second chart contrasts them with the risk and return of the median portfolio in each of the appropriate CAI comparative databases. In each case, the crosshairs on the chart represent the return and risk of the Total Fund.

### Five Year Annualized Risk vs Return Asset Classes vs Benchmark Indices



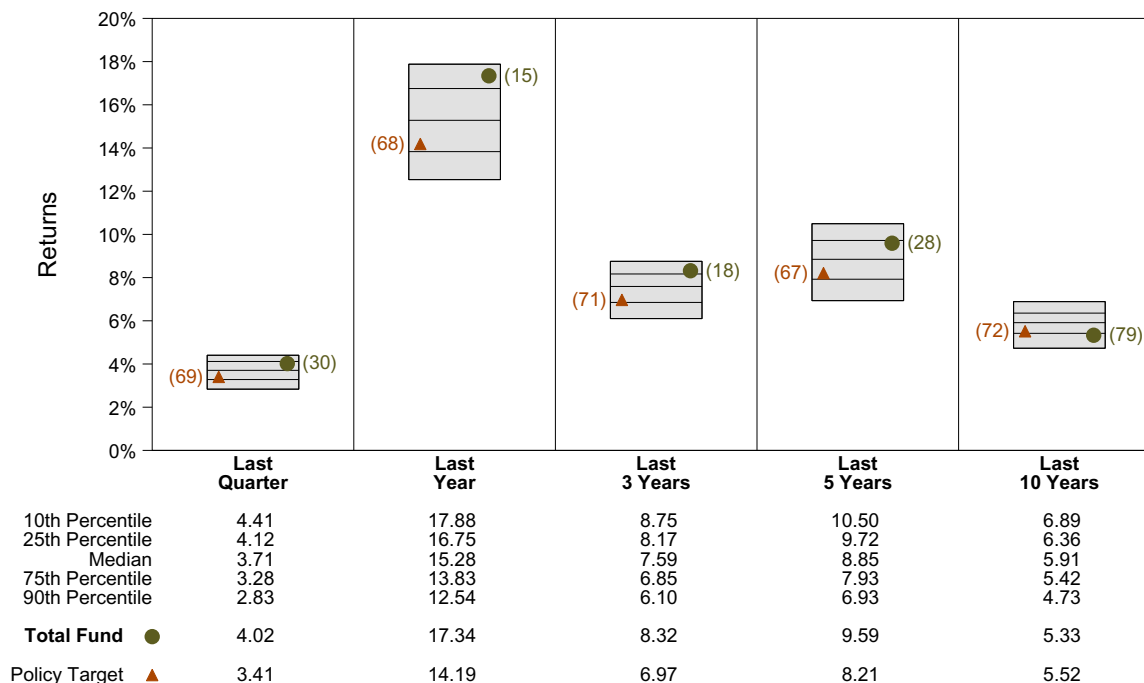
### Five Year Annualized Risk vs Return Asset Classes vs Asset Class Median



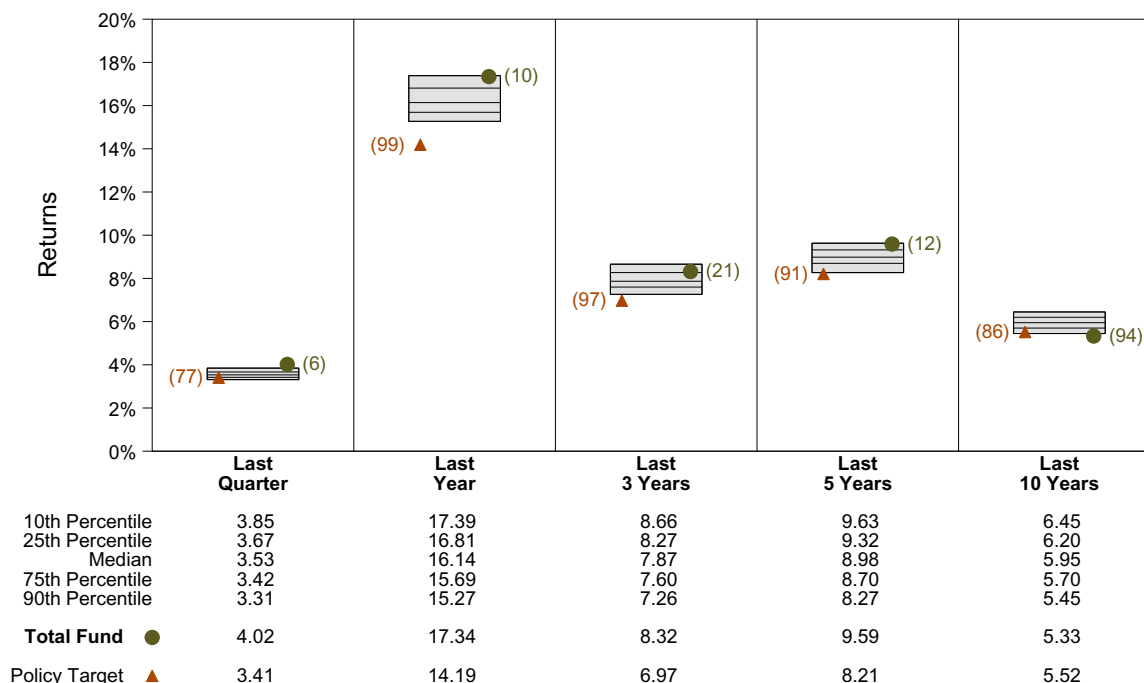
## Total Fund Ranking

The first two charts show the ranking of the Total Fund's performance relative to that of the Callan Public Fund Sponsor Database for periods ended December 31, 2017. The first chart is a standard unadjusted ranking. In the second chart each fund in the database is adjusted to have the same historical asset allocation as that of the Total Fund.

### Callan Public Fund Sponsor Database



### Asset Allocation Adjusted Ranking

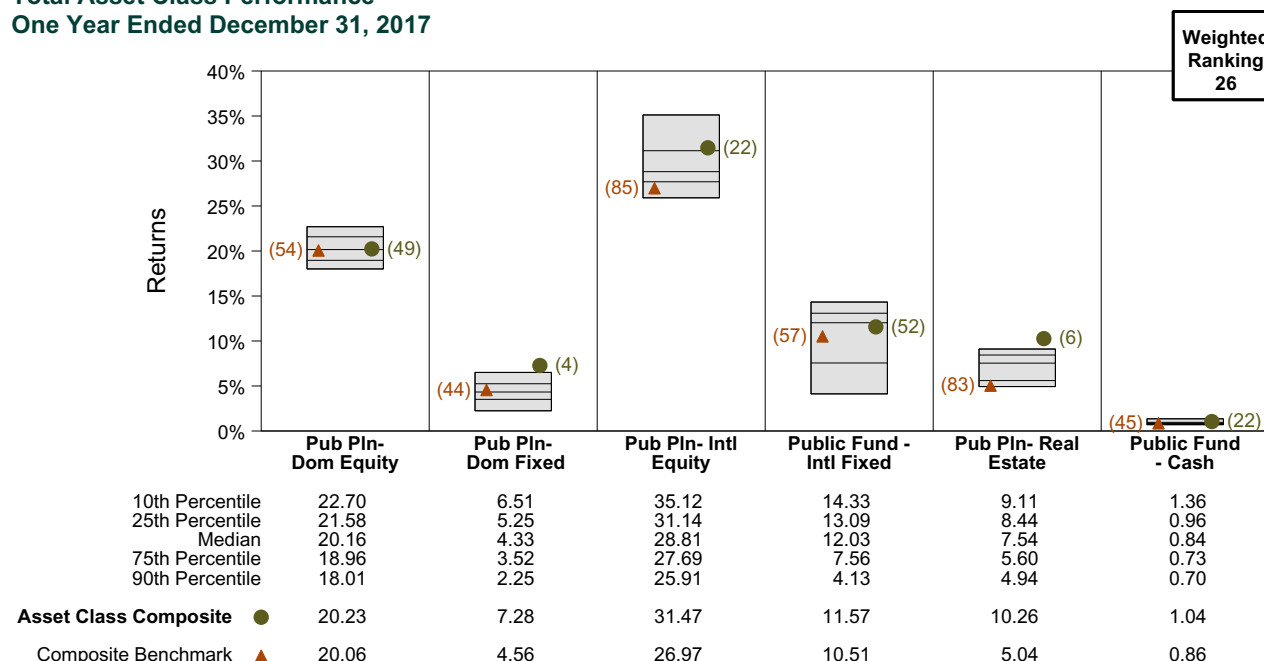


\* Current Quarter Target = 16.1% Russell 1000 Index, 16.0% MSCI World, 13.2% BImbg Aggregate, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 6.5% NDSIB PEN - Private Equity, 5.6% CPI-W, 5.4% BImbg Glob Agg ex USD, 4.9% Russell 2000 Index, 4.6% BImbg HY 2% Iss Cap, 3.1% MSCI EM, 2.5% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

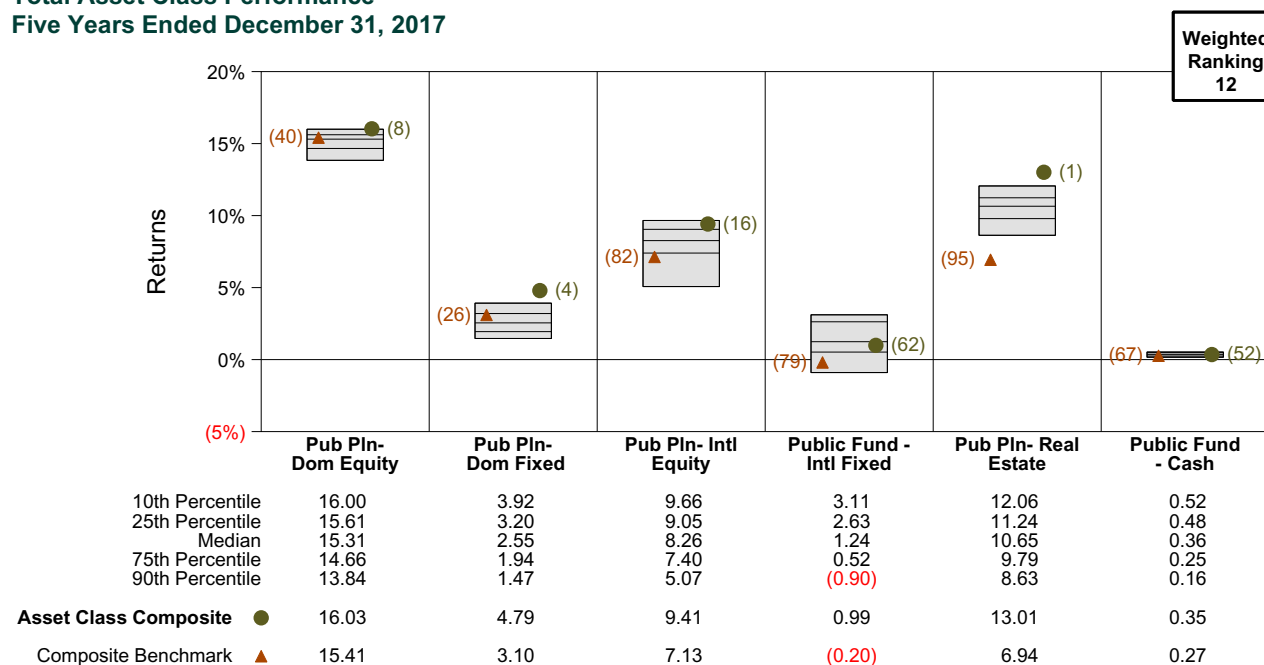
## Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases. In the upper right corner of each graph is the weighted average of the rankings across the different asset classes. The weights of the fund's actual asset allocation are used to make this calculation. The weighted average ranking can be viewed as a measure of the fund's overall success in picking managers and structuring asset classes.

### Total Asset Class Performance One Year Ended December 31, 2017



### Total Asset Class Performance Five Years Ended December 31, 2017



\* Current Quarter Target = 16.1% Russell 1000 Index, 16.0% MSCI World, 13.2% Blmbg Aggregate, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 6.5% NDSIB PEN - Private Equity, 5.6% CPI-W, 5.4% Blmbg Glob Agg ex USD, 4.9% Russell 2000 Index, 4.6% Blmbg HY 2% Iss Cap, 3.1% MSCI EM, 2.5% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

## Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2017, with the distribution as of September 30, 2017. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

### Asset Distribution Across Investment Managers

	December 31, 2017		Net New Inv.	Inv. Return	September 30, 2017	
	Market Value	Weight			Market Value	Weight
<b>GLOBAL EQUITY</b>	<b>\$3,336,381,888</b>	<b>58.76%</b>	<b>\$(118,151,079)</b>	<b>\$186,012,891</b>	<b>\$3,268,520,075</b>	<b>59.69%</b>
<b>Domestic Equity</b>	<b>\$1,285,911,681</b>	<b>22.65%</b>	<b>\$(40,476,386)</b>	<b>\$77,631,988</b>	<b>\$1,248,756,078</b>	<b>22.80%</b>
<b>Large Cap Domestic Equity</b>	<b>\$995,929,026</b>	<b>17.54%</b>	<b>\$(15,236,980)</b>	<b>\$65,116,110</b>	<b>\$946,049,896</b>	<b>17.28%</b>
L.A. Capital	387,173,355	6.82%	(184,944)	26,154,569	361,203,730	6.60%
LACM Enhanced Index	210,670,704	3.71%	(10,052,036)	12,231,285	208,491,454	3.81%
Northern Trust AM Enh S&P 500	188,791,493	3.32%	0	13,246,835	175,544,658	3.21%
Parametric Clifton Enh S&P 500	209,293,474	3.69%	(5,000,000)	13,483,421	200,810,053	3.67%
<b>Small Cap Domestic Equity</b>	<b>\$289,982,655</b>	<b>5.11%</b>	<b>\$(25,239,406)</b>	<b>\$12,515,878</b>	<b>\$302,706,183</b>	<b>5.53%</b>
Atlanta Capital	141,557,762	2.49%	(239,406)	7,193,429	134,603,739	2.46%
Parametric Clifton Enh Small Cap	148,424,893	2.61%	(25,000,000)	5,322,450	168,102,443	3.07%
<b>International Equity</b>	<b>\$898,988,130</b>	<b>15.83%</b>	<b>\$(50,377,327)</b>	<b>\$48,594,781</b>	<b>\$900,770,675</b>	<b>16.45%</b>
<b>Developed Int'l Equity</b>	<b>\$677,635,955</b>	<b>11.93%</b>	<b>\$(30,377,327)</b>	<b>\$32,227,095</b>	<b>\$675,786,186</b>	<b>12.34%</b>
DFA Int'l Small Cap	92,677,130	1.63%	(5,000,000)	3,398,359	94,278,772	1.72%
Northern Trust AM World Ex US	330,682,069	5.82%	(25,077)	12,594,981	318,112,166	5.81%
Wellington Management Co.	88,439,466	1.56%	(25,211,435)	7,532,649	106,118,253	1.94%
William Blair	165,837,289	2.92%	(140,814)	8,701,107	157,276,996	2.87%
<b>Emerging Markets Equity</b>	<b>\$221,352,175</b>	<b>3.90%</b>	<b>\$(20,000,000)</b>	<b>\$16,367,686</b>	<b>\$224,984,489</b>	<b>4.11%</b>
Axiom	163,668,161	2.88%	(20,000,000)	11,807,377	171,860,784	3.14%
DFA	57,684,014	1.02%	0	4,560,309	53,123,705	0.97%
<b>World Equity</b>	<b>\$975,646,322</b>	<b>17.18%</b>	<b>\$(27,303,681)</b>	<b>\$53,747,321</b>	<b>\$949,202,682</b>	<b>17.33%</b>
EPOCH Investment Partners	431,430,062	7.60%	(17,171,527)	25,318,715	423,282,874	7.73%
LSV Asset Management	544,216,259	9.58%	(10,132,154)	28,428,606	525,919,808	9.60%

## Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2017, with the distribution as of September 30, 2017. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

### Asset Distribution Across Investment Managers

	December 31, 2017				September 30, 2017	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
<b>Private Equity</b>	<b>\$175,835,756</b>	<b>3.10%</b>	<b>\$6,314</b>	<b>\$6,038,801</b>	<b>\$169,790,640</b>	<b>3.10%</b>
Adams Street Direct Co-Invest Fd	1,461,202	0.03%	(331,014)	35,884	1,756,332	0.03%
Adams Street Direct Fund 2010	957,306	0.02%	(75,174)	79,125	953,355	0.02%
Adams Street 1998 Partnership	125,307	0.00%	0	216	125,091	0.00%
Adams Street 1999 Partnership	325,009	0.01%	0	85	324,924	0.01%
Adams Street 2000 Partnership	560,897	0.01%	0	14,411	546,486	0.01%
Adams Street 2001 Partnership	1,042,733	0.02%	0	(1,415)	1,044,148	0.02%
Adams Street 2002 Partnership	160,645	0.00%	0	5,579	155,066	0.00%
Adams Street 2003 Partnership	230,995	0.00%	(72,125)	13,926	289,194	0.01%
Adams Street 2010 Partnership	6,291,067	0.11%	(63,463)	203,056	6,151,474	0.11%
Adams Street 2008 Fund	7,833,305	0.14%	(329,218)	428,880	7,733,643	0.14%
Adams Street 1999 Non-US	70,956	0.00%	0	1,324	69,632	0.00%
Adams Street 2000 Non-US	533,931	0.01%	0	2,944	530,987	0.01%
Adams Street 2001 Non-US	161,111	0.00%	0	(1,382)	162,493	0.00%
Adams Street 2002 Non-US	261,392	0.00%	0	1,091	260,301	0.00%
Adams Street 2003 Non-US	197,996	0.00%	(130,748)	(9,992)	338,736	0.01%
Adams Street 2004 Non-US	274,074	0.00%	0	5,195	268,879	0.00%
Adams Street 2010 Non-US	3,071,595	0.05%	(218,974)	207,282	3,083,287	0.06%
Adams Street 2010 Non-US Emg	1,546,670	0.03%	35,082	70,791	1,440,797	0.03%
Adams Street 2015 Global Fd	9,437,827	0.17%	900,000	476,953	8,060,874	0.15%
Adams Street 2016 Global Fd	5,412,262	0.10%	2,055,000	94,427	3,262,835	0.06%
Adams Street 2017 Funds	2,610,000	0.05%	2,625,845	(15,845)	-	-
Adams Street BVCF IV Fund	3,342,854	0.06%	0	(824)	3,343,678	0.06%
BlackRock	20,444,646	0.36%	6,263,765	11,295	14,169,586	0.26%
Capital International V	1,646,251	0.03%	27,237	(394,319)	2,013,333	0.04%
Capital International VI	26,048,606	0.46%	(1,489,028)	954,438	26,583,196	0.49%
CorsAir III	13,709,311	0.24%	(787,836)	147,883	14,349,264	0.26%
CorsAir IV	24,514,994	0.43%	(1,514,883)	2,181,409	23,848,468	0.44%
EIG Energy Fund XIV	5,378,686	0.09%	0	(730,379)	6,109,065	0.11%
Hearthstone Advisors MS II	1	0.00%	0	0	1	0.00%
Hearthstone Advisors MS III	2,300,359	0.04%	0	7,674	2,292,685	0.04%
Lewis & Clark, LP	1,581,998	0.03%	0	(40,827)	1,622,825	0.03%
Lewis & Clark II	6,619,916	0.12%	(3,216,855)	717,989	9,118,782	0.17%
Matlin Patterson I	0	0.00%	(4,159)	4,159	-	-
Matlin Patterson II	1,123,574	0.02%	0	(32,500)	1,156,074	0.02%
Matlin Patterson III	22,750,749	0.40%	(2,493,418)	1,431,683	23,812,484	0.43%
Quantum Energy Partners	3,807,531	0.07%	(1,173,720)	168,586	4,812,665	0.09%

## Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2017, with the distribution as of September 30, 2017. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

### Asset Distribution Across Investment Managers

	December 31, 2017				September 30, 2017	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
<b>GLOBAL FIXED INCOME</b>	<b>\$1,302,517,444</b>	<b>22.94%</b>	<b>\$46,588,432</b>	<b>\$9,587,676</b>	<b>\$1,246,341,336</b>	<b>22.76%</b>
<b>Domestic Fixed Income</b>	<b>\$1,049,948,395</b>	<b>18.49%</b>	<b>\$46,824,322</b>	<b>\$8,578,422</b>	<b>\$994,545,652</b>	<b>18.16%</b>
<b>Inv. Grade Fixed Income</b>	<b>\$714,477,490</b>	<b>12.58%</b>	<b>\$(310,797)</b>	<b>\$5,134,407</b>	<b>\$709,653,880</b>	<b>12.96%</b>
Declaration Total Return	92,738,715	1.63%	(66,195)	752,973	92,051,937	1.68%
J. P. Morgan MBS	132,337,114	2.33%	(68,716)	142,738	132,263,091	2.42%
PIMCO DiSCO II	113,453,117	2.00%	0	1,519,859	111,933,258	2.04%
PIMCO MBS	874,133	0.02%	(184,045,081)	(370,149)	185,289,364	3.38%
PIMCO Unconstrained	253,420,260	4.46%	183,891,468	271,598	69,257,194	1.26%
SSgA Long US Treas Index	121,654,150	2.14%	(22,274)	2,817,389	118,859,035	2.17%
<b>Below Inv. Grade Fixed Income</b>	<b>\$335,470,905</b>	<b>5.91%</b>	<b>\$47,135,119</b>	<b>\$3,444,015</b>	<b>\$284,891,772</b>	<b>5.20%</b>
Ares ND Credit Strategies Fd	48,646,151	0.86%	26,400,000	46,151	22,200,000	0.41%
Cerberus ND Private Credit Fd	65,738,564	1.16%	42,600,000	1,538,564	21,600,000	0.39%
Goldman Sachs 2006 Offshore	119,485	0.00%	(282,779)	2,536	399,728	0.01%
Goldman Sachs Offshore V	780,859	0.01%	(612,366)	(73,540)	1,466,765	0.03%
Loomis Sayles	169,427,879	2.98%	(16,130,245)	1,362,211	184,195,913	3.36%
PIMCO Bravo II Fund	50,757,967	0.89%	(4,839,492)	568,093	55,029,366	1.00%
<b>International Fixed Income</b>	<b>\$252,569,049</b>	<b>4.45%</b>	<b>\$(235,889)</b>	<b>\$1,009,254</b>	<b>\$251,795,684</b>	<b>4.60%</b>
Brandywine	157,756,160	2.78%	(150,115)	(444,571)	158,350,846	2.89%
UBS Global Asset Mgmt.	94,812,889	1.67%	(85,775)	1,453,825	93,444,838	1.71%
<b>GLOBAL REAL ASSETS</b>	<b>\$952,182,745</b>	<b>16.77%</b>	<b>\$(11,052,306)</b>	<b>\$24,193,156</b>	<b>\$939,041,894</b>	<b>17.15%</b>
<b>Global Real Estate</b>	<b>\$560,282,827</b>	<b>9.87%</b>	<b>\$(12,106,648)</b>	<b>\$14,997,614</b>	<b>\$557,391,861</b>	<b>10.18%</b>
Invesco Core Real Estate	262,886,786	4.63%	(2,069,773)	5,815,605	259,140,953	4.73%
Invesco Fund II	189,322	0.00%	0	1,097	188,225	0.00%
Invesco Fund III	19,302,835	0.34%	(2,841,335)	329,057	21,815,113	0.40%
Invesco Asia RE Feeder	272,414	0.00%	0	(6,746)	279,160	0.01%
Invesco Asia RE Fund III	25,098,495	0.44%	567,832	3,216,189	21,314,475	0.39%
Invesco Value Added Fd IV	40,957,607	0.72%	(5,699,000)	2,360,133	44,296,474	0.81%
JP Morgan	201,026,863	3.54%	(2,020,826)	3,612,387	199,435,301	3.64%
JP Morgan Alternative Fd	293,492	0.01%	0	848	292,644	0.01%
JP Morgan China Property Fd	312,450	0.01%	(3,405)	3,849	312,006	0.01%
JP Morgan Greater European Opp Fd	9,942,564	0.18%	(40,142)	(334,805)	10,317,511	0.19%
<b>Timber</b>	<b>\$134,861,024</b>	<b>2.38%</b>	<b>\$0</b>	<b>\$(562,873)</b>	<b>\$135,423,897</b>	<b>2.47%</b>
TIR Teredo	31,027,299	0.55%	0	(418,138)	31,445,437	0.57%
TIR Springbank	103,833,725	1.83%	0	(144,735)	103,978,460	1.90%
<b>Infrastructure</b>	<b>\$257,038,894</b>	<b>4.53%</b>	<b>\$1,054,342</b>	<b>\$9,758,415</b>	<b>\$246,226,136</b>	<b>4.50%</b>
JP Morgan Asian Infrastructure	22,617,036	0.40%	207,158	(1,107,409)	23,517,287	0.43%
JP Morgan IIF	187,813,848	3.31%	(369,470)	9,204,226	178,979,091	3.27%
Grosvenor Cust. Infrastructure	33,753,732	0.59%	(1,714,332)	1,371,283	34,096,781	0.62%
Grosvenor Cust. Infrastructure II	12,854,278	0.23%	2,930,986	290,315	9,632,977	0.18%
<b>CASH &amp; CASH EQUIVALENTS</b>	<b>\$87,120,592</b>	<b>1.53%</b>	<b>\$64,918,389</b>	<b>\$170,642</b>	<b>\$22,031,561</b>	<b>0.40%</b>
Northern Trust Cash Account	77,007,463	1.36%	64,918,389	140,631	11,948,444	0.22%
Bank of ND	10,113,128	0.18%	0	30,011	10,083,117	0.18%
<b>Securities Lending Income</b>	<b>\$0</b>	<b>0.00%</b>	<b>\$(95,324)</b>	<b>\$95,324</b>	<b>-</b>	<b>-</b>
<b>Total Fund</b>	<b>\$5,678,202,669</b>	<b>100.0%</b>	<b>\$(17,791,888)</b>	<b>\$220,059,689</b>	<b>\$5,475,934,867</b>	<b>100.0%</b>



## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Global Equity</b>					
Gross	5.78%	24.24%	10.00%	12.28%	-
Net	5.73%	23.97%	9.71%	11.94%	-
Wtd Avg Global Equity Benchmark	5.26%	20.93%	8.72%	11.02%	-
<b>Domestic Equity</b>					
Gross	6.35%	20.23%	11.29%	16.03%	7.66%
Net	6.31%	20.03%	11.09%	15.78%	7.38%
Wtd Avg Domestic Equity Benchmark	5.83%	20.06%	11.00%	15.41%	8.63%
<b>Large Cap Equity</b>					
Gross	6.99%	21.84%	11.93%	16.62%	6.99%
Net	6.96%	21.72%	11.79%	16.44%	6.78%
Large Cap Benchmark (1)	6.59%	21.69%	11.23%	15.71%	8.50%
L.A. Capital - Gross	7.24%	24.25%	13.16%	17.30%	10.04%
L.A. Capital - Net	7.19%	24.01%	12.93%	17.06%	9.82%
Russell 1000 Growth Index	7.86%	30.21%	13.79%	17.33%	10.00%
LACM Enhanced Index - Gross	6.15%	18.27%	11.29%	16.13%	9.11%
LACM Enhanced Index - Net	6.13%	18.15%	11.17%	16.00%	8.95%
Russell 1000 Index	6.59%	21.69%	11.23%	15.71%	8.59%
Northern Tr AM Enh S&P500 - Gross	7.55%	20.91%	10.25%	16.00%	8.89%
Northern Tr AM Enh S&P500 - Net	7.55%	20.91%	10.17%	15.71%	8.71%
S&P 500 Index	6.64%	21.83%	11.41%	15.79%	8.50%
Parametric Clifton Enh S&P500 - Gross	6.88%	22.08%	11.66%	15.90%	-
Parametric Clifton Enh S&P500 - Net	6.88%	22.05%	11.57%	15.84%	-
S&P 500 Index	6.64%	21.83%	11.41%	15.79%	8.50%
<b>Small Cap Equity</b>					
Gross	4.40%	15.30%	9.05%	13.85%	9.23%
Net	4.31%	14.87%	8.69%	13.41%	8.71%
Russell 2000 Index	3.34%	14.65%	9.96%	14.12%	8.71%
Atlanta Capital - Gross	5.35%	14.98%	-	-	-
Atlanta Capital - Net	5.17%	14.16%	-	-	-
S&P 600 Small Cap Index	3.96%	13.23%	12.00%	15.99%	10.43%
Parametric Clifton Enh SmCap - Gross	3.38%	15.29%	10.90%	15.02%	-
Parametric Clifton Enh SmCap - Net	3.38%	15.17%	10.57%	14.60%	-
Russell 2000 Index	3.34%	14.65%	9.96%	14.12%	8.71%

(1) S&P 500 Index through 12/31/2011 and Russell 1000 Index thereafter.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>International Equity</b>					
Gross	5.56%	31.47%	10.58%	9.41%	4.12%
Net	5.51%	31.25%	10.38%	9.14%	3.78%
Wtd Avg Int'l Equity Benchmark	4.92%	26.97%	8.06%	7.13%	2.06%
<b>Developed Intl Equity</b>					
Gross	4.90%	28.86%	10.39%	10.16%	4.04%
Net	4.84%	28.58%	10.13%	9.87%	3.72%
Benchmark(1)	4.23%	24.21%	7.64%	7.80%	1.90%
DFA Int'l Small Cap Value - Net	3.83%	27.98%	12.86%	12.57%	5.77%
World ex US SC Value	5.20%	27.93%	11.72%	10.89%	5.19%
Northern Tr AM World ex US - Gross	3.96%	24.32%	7.66%	-	-
Northern Tr AM World ex US - Net	3.95%	24.28%	7.62%	-	-
MSCI World ex US	4.23%	24.21%	7.36%	7.46%	1.87%
Wellington Management - Gross	8.04%	40.06%	17.90%	15.96%	8.44%
Wellington Management - Net	7.83%	38.96%	16.94%	15.01%	7.52%
BMI, EPAC, <\$2 B	7.60%	31.31%	14.26%	12.18%	4.90%
William Blair - Gross	5.54%	32.05%	-	-	-
William Blair - Net	5.44%	31.57%	-	-	-
MSCI ACWI ex US IMI	5.23%	27.81%	8.38%	7.22%	2.20%
<b>Emerging Markets Equity</b>					
Gross	7.58%	39.80%	10.53%	5.99%	3.42%
Net	7.58%	39.80%	10.53%	5.76%	3.02%
Emerging Mkts - Net	7.44%	37.28%	9.10%	4.35%	1.68%
Axiom - Net	7.24%	41.35%	10.41%	-	-
Emerging Mkts - Net	7.44%	37.28%	9.10%	4.35%	1.68%
DFA - Net	8.58%	35.26%	11.06%	6.83%	4.71%
Emerging Mkts - Net	7.44%	37.28%	9.10%	4.35%	1.68%
<b>World Equity</b>					
Gross	5.72%	26.70%	9.95%	12.44%	-
Net	5.63%	26.22%	9.40%	11.78%	-
MSCI World Index	5.51%	22.40%	9.26%	11.64%	5.03%
EPOCH Investment - Gross(2)	6.05%	31.23%	9.45%	12.61%	-
EPOCH Investment - Net	5.88%	30.41%	8.75%	11.86%	-
MSCI World Index	5.51%	22.40%	9.26%	11.64%	5.03%
LSV Asset Management - Gross(3)	5.46%	23.30%	10.30%	-	-
LSV Asset Management - Net	5.43%	23.07%	9.85%	-	-
MSCI ACWI Idx	5.84%	24.62%	9.89%	11.40%	5.22%

(1) MSCI EAFE through 12/31/1996; 50% Hedged EAFE through 3/31/2011; MSCI EAFE again through 6/30/2016; MSCI World ex-US thereafter.

(2) EPOCH Investment was removed from the Domestic Equity Composite to the World Equity Composite as of 1/1/2012.

(3) LSV Asset Management was removed from the Domestic Equity and International Equity Composites to the World Equity Composite as of February 1, 2013.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Private Equity*</b>					
Net	3.51%	7.41%	(0.39%)	1.35%	(0.43%)
Adams Street Direct Co-Invest Fd	2.04%	(6.48%)	5.08%	12.17%	5.24%
Adams Street Direct Fund 2010	9.01%	14.33%	10.94%	14.07%	-
Adams Street 1998 Partnership	0.17%	0.10%	1.44%	3.00%	(3.03%)
Adams Street 1999 Partnership	0.03%	(2.32%)	(1.47%)	1.42%	0.66%
Adams Street 2000 Partnership	2.64%	3.65%	(0.35%)	0.09%	1.56%
Adams Street 2001 Partnership	(0.14%)	(2.21%)	(1.35%)	3.74%	3.46%
Adams Street 2002 Partnership	3.60%	9.16%	9.00%	6.75%	4.93%
Adams Street 2003 Partnership	5.23%	10.50%	8.70%	12.22%	5.54%
Adams Street 2010 Partnership	3.31%	9.79%	12.37%	13.13%	-
Adams Street 2008 Fund	5.79%	17.70%	13.32%	13.52%	3.99%
Adams Street 1999 Non-US	1.90%	3.26%	3.05%	4.21%	6.45%
Adams Street 2000 Non-US	0.55%	9.80%	3.43%	0.82%	0.39%
Adams Street 2001 Non-US	(0.85%)	8.28%	10.68%	13.63%	1.91%
Adams Street 2002 Non-US	0.42%	(3.16%)	6.07%	3.57%	0.27%
Adams Street 2003 Non-US	(4.80%)	16.52%	18.84%	14.36%	9.70%
Adams Street 2004 Non-US	1.93%	2.95%	3.39%	6.74%	2.90%
Adams Street 2010 Non-US	6.94%	24.05%	13.33%	11.27%	-
Adams Street 2010 Non-US Emg	4.86%	12.84%	12.86%	10.02%	-
Adams Street 2015 Global Fd	5.32%	24.05%	-	-	-
Adams Street 2016 Global Fd	1.78%	47.64%	-	-	-
Adams Street BVCF IV Fund	(0.02%)	0.98%	3.85%	18.88%	28.69%
BlackRock	0.06%	-	-	-	-
Capital International V	(19.32%)	(52.68%)	(35.33%)	(23.53%)	(10.78%)
Capital International VI	3.70%	13.01%	(1.06%)	(6.78%)	-
CorsAir III	1.15%	0.49%	9.03%	4.64%	2.86%
CorsAir IV	9.50%	26.44%	17.13%	17.08%	-
EIG Energy Fund XIV	(11.96%)	18.02%	(37.16%)	(25.27%)	(8.06%)
Hearthstone Advisors MS III	0.33%	(48.35%)	(14.09%)	277.41%	-
Lewis & Clark, LP	(2.52%)	18.96%	(26.67%)	(17.81%)	(6.68%)
Lewis & Clark II	11.14%	23.18%	2.44%	(0.88%)	-
Matlin Patterson II	(2.81%)	(30.55%)	(4.13%)	(7.78%)	(28.79%)
Matlin Patterson III	6.19%	7.47%	3.10%	3.53%	7.63%
Quantum Energy Partners	3.94%	(2.67%)	(16.56%)	(0.69%)	3.54%

\* Corsair III was taken out from the Private Equity Composite on July 1, 2009. It was then added back into the Private Equity Composite on October 1, 2011. At this time Corsair IV, Capital Intl and EIG were also added to this composite.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Global Fixed Income</b>					
Gross	0.74%	8.18%	4.31%	4.00%	-
Net	0.68%	7.93%	4.07%	3.76%	-
Wtd Avg Global FI Benchmark	0.73%	6.06%	3.10%	2.44%	-
<b>Domestic Fixed Income</b>					
Gross	0.83%	7.28%	4.78%	4.79%	5.37%
Net	0.78%	7.07%	4.57%	4.58%	5.11%
Wtd Avg Domestic FI Benchmark	0.41%	4.56%	3.35%	3.10%	5.23%
<b>Inv. Grade Fixed Income</b>					
Gross	0.72%	6.40%	3.97%	3.96%	4.64%
Net	0.69%	6.26%	3.84%	3.83%	4.42%
Blmbg Aggregate Index	0.39%	3.54%	2.24%	2.10%	4.01%
Declaration Total Return - Net	0.82%	5.67%	3.94%	4.29%	-
Libor-3 Month	0.36%	1.26%	0.77%	0.56%	0.79%
J.P. Morgan MBS - Gross	0.11%	3.04%	2.43%	-	-
J.P. Morgan MBS - Net	0.06%	2.83%	2.22%	-	-
Blmbg Mortgage	0.15%	2.47%	1.88%	2.04%	3.84%
PIMCO Unconstrained - Gross(1)	0.54%	8.04%	4.48%	2.76%	-
PIMCO Unconstrained - Net	0.51%	7.65%	4.13%	2.48%	-
Blended Benchmark(2)	0.36%	1.26%	0.77%	0.60%	-
PIMCO DiSCO II - Net	1.36%	15.22%	10.05%	9.80%	-
Blmbg Aggregate Index	0.39%	3.54%	2.24%	2.10%	4.01%
SSgA Long US Treas Idx - Gross	2.37%	8.53%	2.79%	-	-
SSgA Long US Treas Idx - Net	2.35%	8.48%	2.75%	-	-
Blmbg Long Treas	2.37%	8.53%	2.80%	3.48%	6.55%
<b>Below Inv. Grade Fixed Income</b>					
Gross	1.03%	9.49%	6.78%	6.89%	7.01%
Net	0.96%	9.08%	6.35%	6.45%	6.65%
Blmbg HY Corp 2% Issue	0.47%	7.50%	6.36%	5.78%	8.09%
Ares ND Credit Strategies Fd - Net	0.09%	-	-	-	-
Cerberus ND Private Credit Fd - Net	4.17%	-	-	-	-
S&P/LSTA Leveraged Loan B	1.09%	4.27%	4.64%	4.24%	4.94%
Goldman Sachs 2006 Offshore - Net	2.13%	48.22%	25.87%	26.07%	11.28%
Goldman Sachs Offshore V - Net	(7.29%)	(18.16%)	(5.83%)	2.36%	6.32%
PIMCO Bravo II Fund - Net	1.07%	10.40%	9.36%	-	-
Blmbg HY Corp 2% Issue	0.47%	7.50%	6.36%	5.78%	8.09%
Loomis Sayles - Gross	0.81%	9.25%	6.44%	6.33%	8.06%
Loomis Sayles - Net	0.67%	8.70%	5.90%	5.80%	7.69%
Blmbg HY Corp 2% Issue	0.47%	7.50%	6.36%	5.78%	8.09%

(1) The product changed from Commingled Fund to Separate Account in March 2014.

(2) Libor-3 month through Feb. 28, 2014; Fund's performance through March 31, 2014; Libor-3 month thereafter.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>International Fixed Income</b>					
Gross	0.40%	11.57%	2.49%	0.99%	4.40%
Net	0.31%	11.17%	2.13%	0.63%	4.14%
Wtd Avg Int'l FI Benchmark	1.63%	10.51%	1.77%	(0.20%)	2.64%
Brandywine - Gross	(0.28%)	12.33%	2.98%	2.37%	6.01%
Brandywine - Net	(0.38%)	11.91%	2.59%	1.98%	5.80%
Blmbg Global Aggregate	1.08%	7.39%	2.02%	0.79%	3.09%
UBS Global Asset Mgmt. - Gross	1.56%	10.60%	1.83%	(0.53%)	2.48%
UBS Global Asset Mgmt. - Net	1.46%	10.23%	1.49%	(0.84%)	2.17%
Blended Benchmark(1)	1.63%	10.51%	1.77%	(0.20%)	2.64%
<b>Global Real Assets</b>					
Gross	2.59%	8.40%	7.98%	8.49%	-
Net	2.49%	7.97%	7.53%	8.06%	-
Wtd Avg Global Real Assets Benchmark	1.16%	5.05%	6.01%	6.94%	-
<b>Global Real Estate</b>					
Gross	2.72%	10.26%	11.89%	13.01%	5.00%
Net	2.60%	9.74%	11.33%	12.46%	3.58%
NCREIF Total Index	1.80%	6.96%	9.38%	10.19%	6.08%
Invesco Core Real Estate - Gross	2.26%	8.38%	10.74%	12.23%	5.25%
Invesco Core Real Estate - Net	2.18%	8.02%	10.37%	11.80%	4.83%
Invesco Fund II - Net	0.58%	26.94%	10.05%	12.57%	(6.88%)
Invesco Fund III - Net	1.51%	6.38%	12.20%	15.25%	-
Invesco Asia RE Feeder - Net	(2.42%)	1488.81%	206.11%	95.16%	-
Invesco Asia RE Fund III - Net	15.10%	35.77%	-	-	-
Invesco Value Added Fd IV - Net	5.33%	10.95%	-	-	-
JP Morgan - Gross	1.83%	7.79%	11.01%	12.37%	5.34%
JP Morgan - Net	1.60%	6.83%	9.91%	11.29%	4.27%
JP Morgan Alternative Fd - Net	0.29%	5.90%	(6.93%)	(4.49%)	(5.77%)
JP Morgan China Property Fd - Net	1.25%	35.08%	22.74%	25.35%	11.17%
JPM Greater European Opp Fd - Net	(3.24%)	10.92%	10.81%	14.79%	-
NCREIF Total Index	1.80%	6.96%	9.38%	10.19%	6.08%
<b>Timber</b>					
Net	(0.42%)	(3.98%)	(0.85%)	(0.35%)	-
TIR Teredo	(1.33%)	(8.69%)	4.69%	4.05%	5.44%
TIR Springbank	(0.14%)	(2.51%)	(3.24%)	(2.44%)	(1.84%)
NCREIF Timberland Index	1.52%	3.63%	3.73%	6.22%	4.42%
<b>Infrastructure</b>					
Gross	3.93%	11.99%	5.17%	6.10%	-
Net	3.82%	11.49%	4.63%	5.52%	-
JP Morgan Asian Infrastructure - Net	(4.67%)	24.96%	4.44%	3.65%	-
JP Morgan IIF - Gross	5.14%	10.78%	4.84%	5.87%	4.10%
JP Morgan IIF - Net	5.00%	10.08%	4.04%	4.98%	2.89%
Grosvenor Cust. Infrastructure - Net	4.05%	10.87%	7.70%	9.33%	-
Grosvenor Cust. Infrastructure II - Net	2.40%	6.16%	-	-	-
CPI-W	(0.17%)	2.18%	1.52%	1.26%	1.57%
<b>Cash &amp; Cash Equivalents - Net</b>					
Cash Account - Net	0.31%	1.04%	0.55%	0.35%	0.31%
Bank of ND - Net	0.31%	1.06%	0.56%	0.36%	0.30%
Bank of ND - Net	0.30%	0.98%	-	-	-
3-month Treasury Bill	0.28%	0.86%	0.41%	0.27%	0.39%
<b>Total Fund</b>					
Gross	4.02%	17.34%	8.32%	9.59%	5.33%
Net	3.96%	17.05%	8.01%	9.26%	4.89%
Target*	3.41%	14.19%	6.97%	8.21%	5.52%

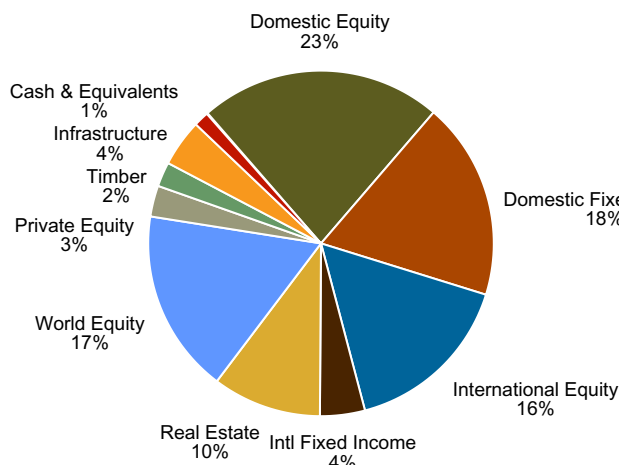
\* Current Quarter Target = 16.1% Russell 1000 Index, 16.0% MSCI World, 13.2% Blmbg Aggregate, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 6.5% NDSIB PEN - Private Equity, 5.6% CPI-W, 5.4% Blmbg Glob Agg ex USD, 4.9% Russell 2000 Index, 4.6% Blmbg HY 2% Iss Cap, 3.1% MSCI EM, 2.5% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

(1) Citigroup Non-US Govt through 12/31/2009 and the Bloomberg Global Aggregate Index ex US thereafter.

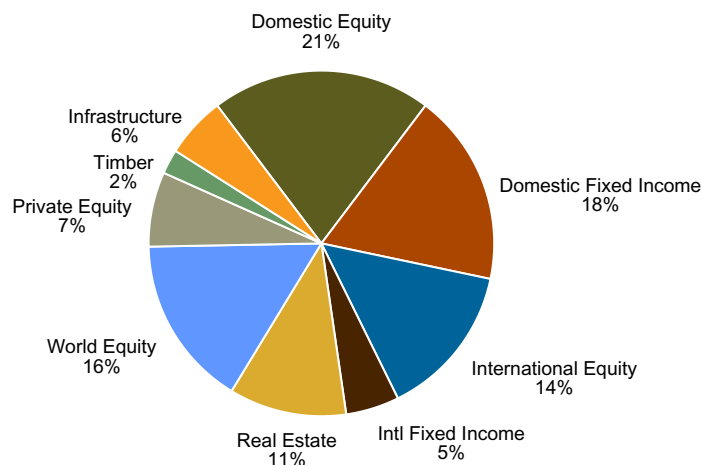
## Actual vs Target Asset Allocation As of December 31, 2017

The top left chart shows the Fund's asset allocation as of December 31, 2017. The top right chart shows the Fund's target asset allocation as outlined in the investment policy statement. The bottom chart ranks the fund's asset allocation and the target allocation versus the Callan Public Fund Sponsor Database.

**Actual Asset Allocation**

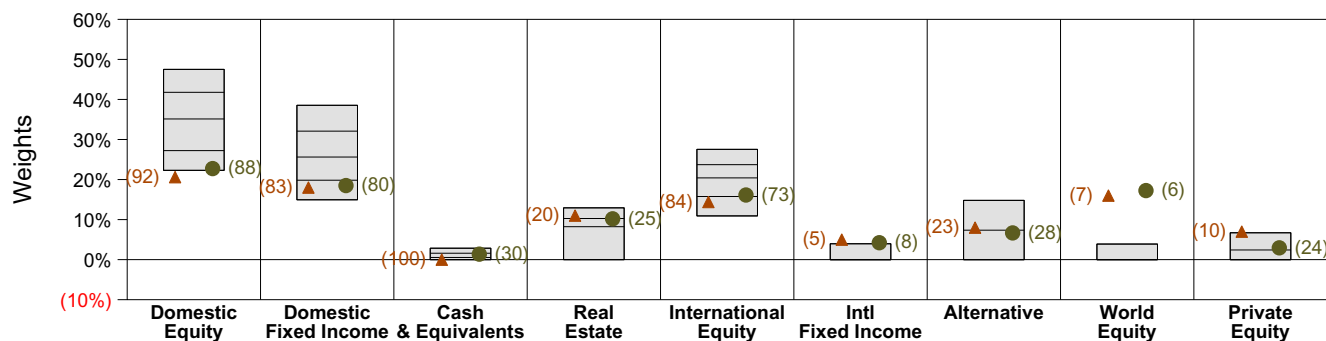


**Target Asset Allocation**



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	680,883	22.7%	20.6%	2.1%	63,917
Domestic Fixed Income	553,855	18.5%	18.0%	0.5%	14,758
International Equity	483,305	16.1%	14.4%	1.7%	52,028
Intl Fixed Income	126,539	4.2%	5.0%	(0.8%)	(23,210)
Real Estate	305,218	10.2%	11.0%	(0.8%)	(24,230)
World Equity	516,339	17.2%	16.0%	1.2%	37,142
Private Equity	88,214	2.9%	7.0%	(4.1%)	(121,434)
Timber	68,121	2.3%	2.3%	(0.0%)	(764)
Infrastructure	131,633	4.4%	5.7%	(1.3%)	(39,081)
Cash & Equivalents	40,874	1.4%	0.0%	1.4%	40,874
Total	2,994,980	100.0%	100.0%		

### Asset Class Weights vs Callan Public Fund Sponsor Database



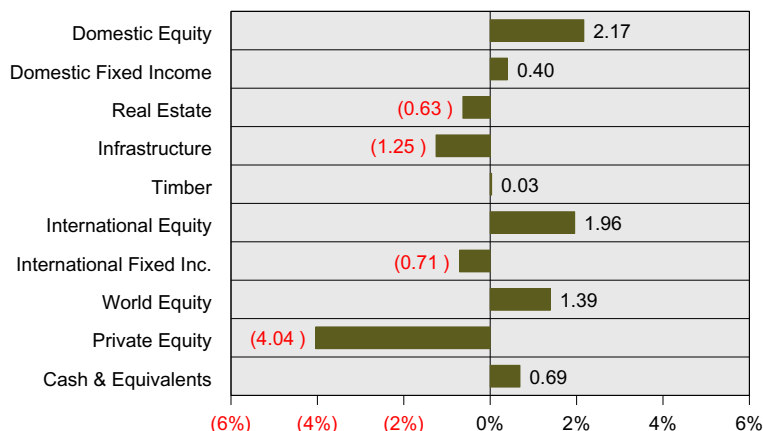
10th Percentile	47.51	38.54	2.85	12.93	27.54	3.96	14.80	3.89	6.71
25th Percentile	41.78	32.09	1.60	10.27	23.71	0.00	7.35	0.00	2.41
Median	35.13	25.62	0.54	8.22	20.41	0.00	0.00	0.00	0.00
75th Percentile	27.22	19.83	0.00	0.00	15.76	0.00	0.00	0.00	0.00
90th Percentile	22.30	14.94	0.00	0.00	10.92	0.00	0.00	0.00	0.00
<b>Fund</b>	<b>22.73</b>	<b>18.49</b>	<b>1.36</b>	<b>10.19</b>	<b>16.14</b>	<b>4.23</b>	<b>6.67</b>	<b>17.24</b>	<b>2.95</b>
<b>Target</b>	<b>20.60</b>	<b>18.00</b>	<b>0.00</b>	<b>11.00</b>	<b>14.40</b>	<b>5.00</b>	<b>8.00</b>	<b>16.00</b>	<b>7.00</b>
% Group Invested	95.14%	96.53%	72.92%	68.75%	90.97%	16.67%	14.58%	11.81%	31.25%

\* Current Quarter Target = 16.0% MSCI World, 15.8% Russell 1000 Index, 13.0% Blmbg Aggregate, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% NDSIB PERS - Private Equity, 5.7% CPI-W, 5.0% Blmbg HY 2% Iss Cap, 5.0% Blmbg Glob Agg ex USD, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.3% NCREIF Timberland Index.

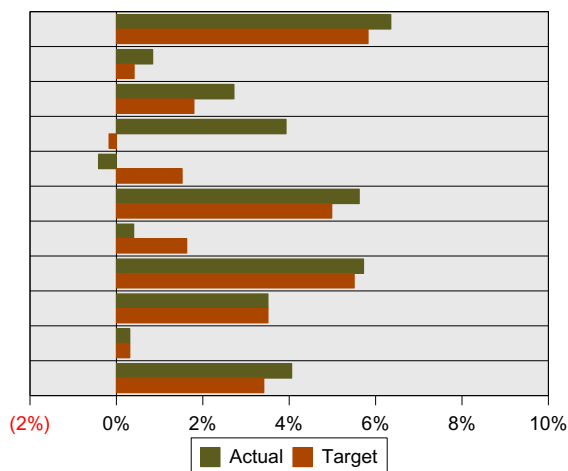
## Quarterly Total Fund Relative Attribution - December 31, 2017

The following analysis approaches Total Fund Attribution from the perspective of relative return. Relative return attribution separates and quantifies the sources of total fund excess return relative to its target. This excess return is separated into two relative attribution effects: Asset Allocation Effect and Manager Selection Effect. The Asset Allocation Effect represents the excess return due to the actual total fund asset allocation differing from the target asset allocation. Manager Selection Effect represents the total fund impact of the individual managers excess returns relative to their benchmarks.

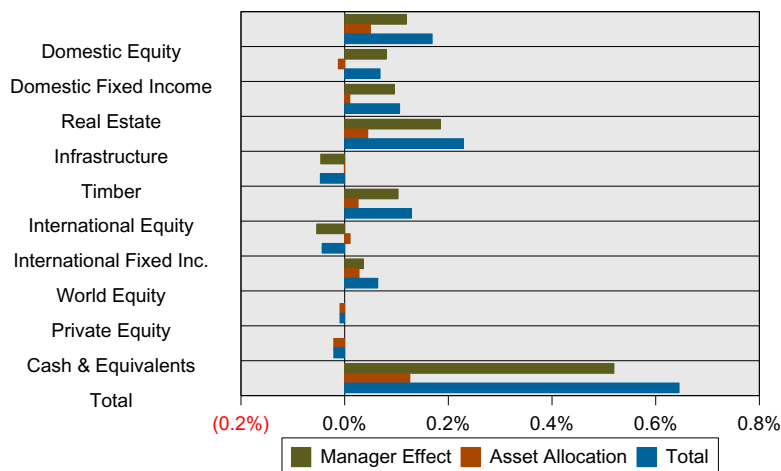
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended December 31, 2017

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	6.35%	5.83%	0.12%	0.05%	0.17%
Domestic Fixed Income	18%	18%	0.84%	0.41%	0.08%	(0.01%)	0.07%
Real Estate	10%	11%	2.72%	1.80%	0.10%	0.01%	0.11%
Infrastructure	4%	6%	3.93%	(0.17%)	0.18%	0.04%	0.23%
Timber	2%	2%	(0.42%)	1.52%	(0.05%)	(0.00%)	(0.05%)
International Equity	16%	14%	5.62%	4.99%	0.10%	0.03%	0.13%
International Fixed Inc.	4%	5%	0.40%	1.63%	(0.05%)	0.01%	(0.04%)
World Equity	17%	16%	5.72%	5.51%	0.04%	0.03%	0.06%
Private Equity	3%	7%	3.51%	3.51%	0.00%	(0.01%)	(0.01%)
Cash & Equivalents	1%	0%	0.31%	0.31%	0.00%	(0.02%)	(0.02%)

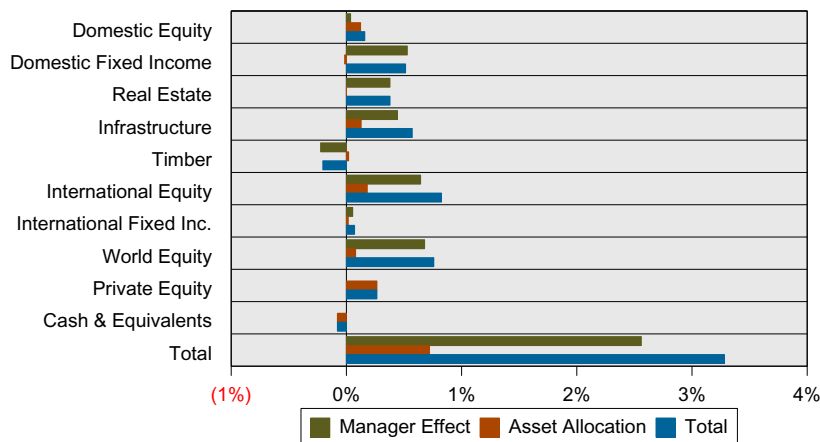
**Total** **4.06% = 3.41% + 0.52% + 0.13%** **0.65%**

\* Current Quarter Target = 16.0% MSCI World, 15.8% Russell 1000 Index, 13.0% Blmbg Aggregate, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% NDSIB PERS - Private Equity, 5.7% CPI-W, 5.0% Blmbg HY 2% Iss Cap, 5.0% Blmbg Glob Agg ex USD, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.3% NCREIF Timberland Index.

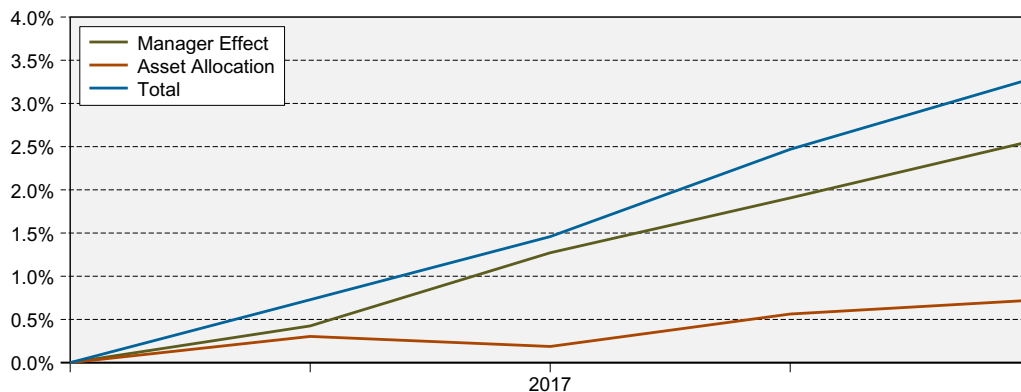
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### One Year Relative Attribution Effects



### Cumulative Relative Attribution Effects



### One Year Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	20.24%	20.06%	0.04%	0.12%	0.16%
Domestic Fixed Income	18%	18%	7.34%	4.63%	0.53%	(0.02%)	0.51%
Real Estate	11%	11%	10.26%	6.96%	0.38%	0.00%	0.38%
Infrastructure	4%	5%	11.99%	2.18%	0.44%	0.13%	0.57%
Timber	3%	3%	(3.98%)	3.63%	(0.22%)	0.02%	(0.20%)
International Equity	16%	14%	31.69%	27.22%	0.64%	0.18%	0.83%
International Fixed Inc.	5%	5%	11.56%	10.51%	0.05%	0.02%	0.07%
World Equity	17%	16%	26.69%	22.40%	0.68%	0.08%	0.76%
Private Equity	3%	7%	7.43%	7.43%	0.00%	0.26%	0.26%
Cash & Equivalents	1%	0%	1.07%	1.07%	0.00%	(0.08%)	(0.08%)
<b>Total</b>			<b>17.50%</b>	<b>14.22%</b>	<b>2.56%</b>	<b>0.72%</b>	<b>3.28%</b>

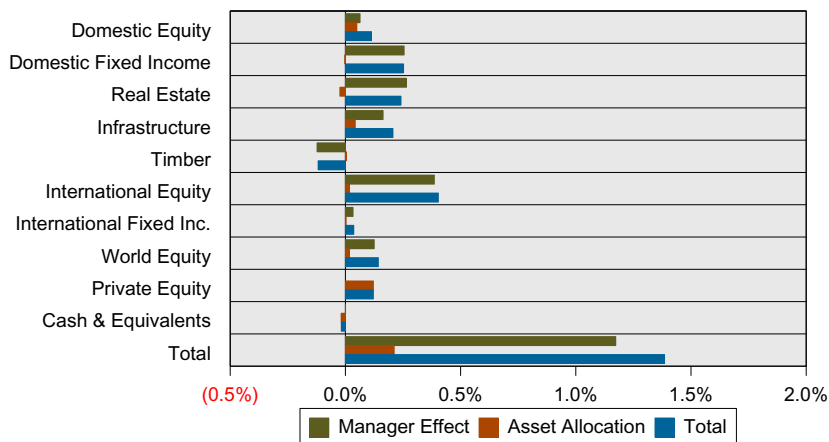
\* Current Quarter Target = 16.0% MSCI World, 15.8% Russell 1000 Index, 13.0% Blmbg Aggregate, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% NDSIB PERS - Private Equity, 5.7% CPI-W, 5.0% Blmbg HY 2% Iss Cap, 5.0% Blmbg Glob Agg ex USD, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.3% NCREIF Timberland Index.



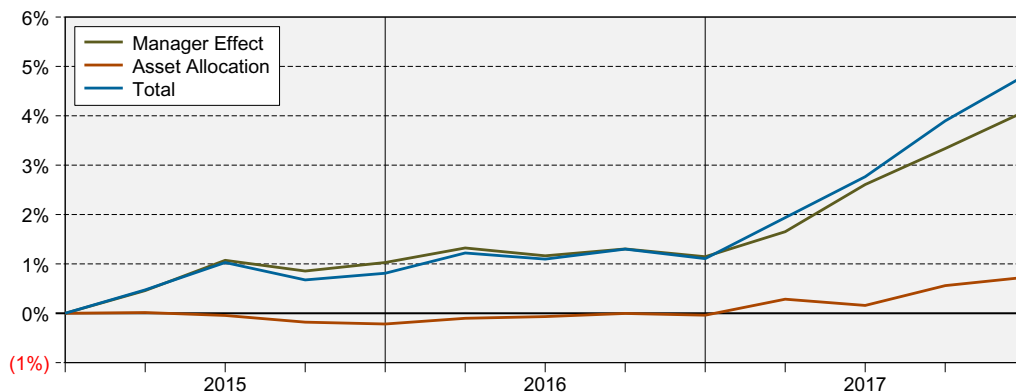
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Three Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Three Year Annualized Relative Attribution Effects

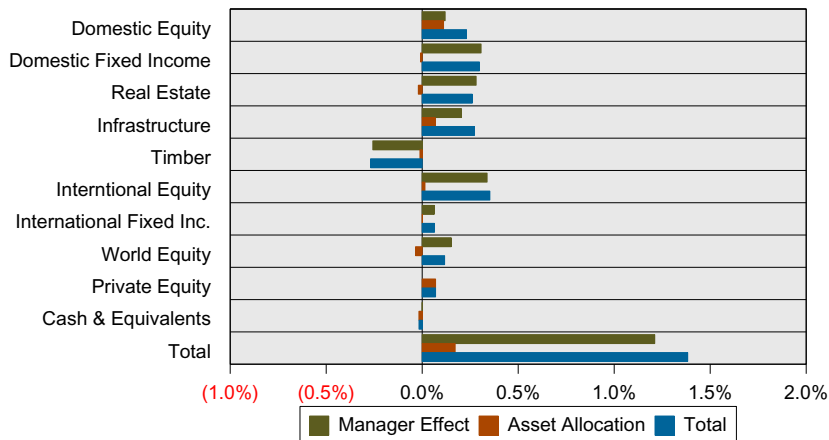
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	11.30%	11.00%	0.06%	0.05%	0.11%
Domestic Fixed Income	18%	17%	4.82%	3.42%	0.25%	(0.00%)	0.25%
Real Estate	11%	10%	11.94%	9.38%	0.27%	(0.02%)	0.24%
Infrastructure	4%	5%	5.18%	1.52%	0.16%	0.04%	0.21%
Timber	3%	4%	(0.85%)	3.73%	(0.12%)	0.00%	(0.12%)
International Equity	15%	15%	10.61%	8.08%	0.39%	0.02%	0.40%
International Fixed Inc.	5%	5%	2.49%	1.77%	0.03%	0.00%	0.04%
World Equity	16%	16%	9.96%	9.26%	0.13%	0.02%	0.14%
Private Equity	3%	6%	(0.37%)	(0.37%)	0.00%	0.12%	0.12%
Cash & Equivalents	1%	1%	0.56%	0.51%	0.00%	(0.02%)	(0.02%)
<b>Total</b>			<b>8.38%</b>	<b>6.99%</b>	<b>1.17%</b>	<b>0.21%</b>	<b>1.39%</b>

\* Current Quarter Target = 16.0% MSCI World, 15.8% Russell 1000 Index, 13.0% Blmbg Aggregate, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% NDSIB PERS - Private Equity, 5.7% CPI-W, 5.0% Blmbg HY 2% Iss Cap, 5.0% Blmbg Glob Agg ex USD, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.3% NCREIF Timberland Index.

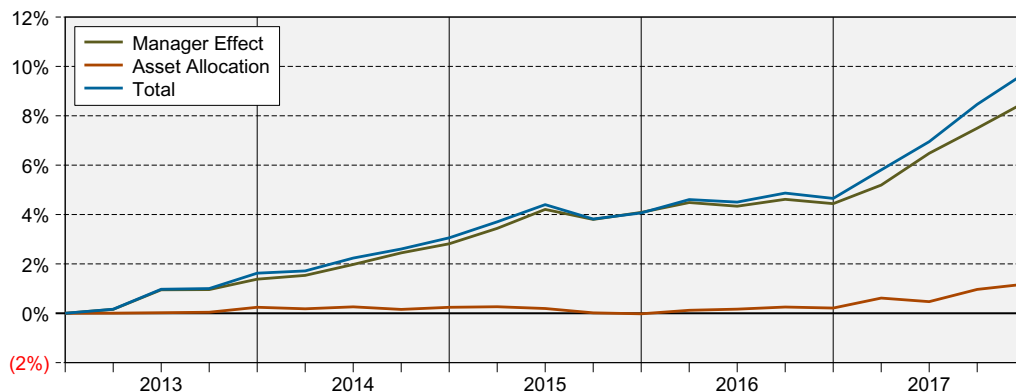
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Five Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Five Year Annualized Relative Attribution Effects

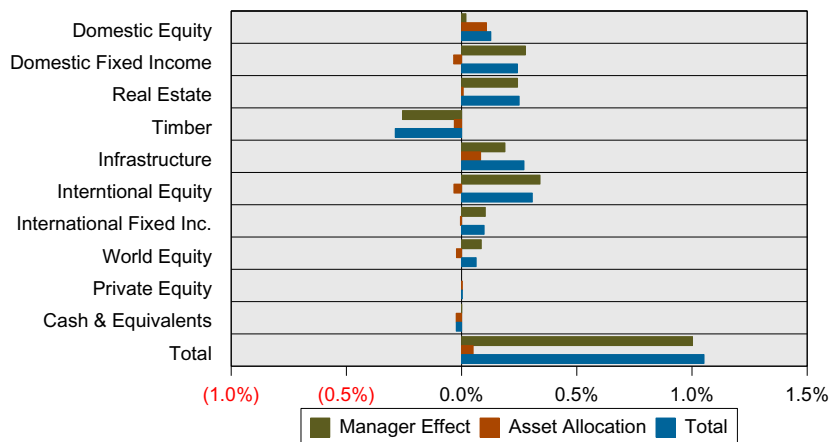
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	15.99%	15.42%	0.12%	0.11%	0.23%
Domestic Fixed Income	18%	17%	4.83%	3.17%	0.31%	(0.01%)	0.30%
Real Estate	10%	10%	13.05%	10.19%	0.28%	(0.02%)	0.26%
Infrastructure	4%	5%	6.11%	1.26%	0.20%	0.07%	0.27%
Timber	4%	4%	(0.35%)	6.22%	(0.26%)	(0.01%)	(0.27%)
International Equity	15%	15%	9.29%	7.05%	0.34%	0.01%	0.35%
International Fixed Inc.	5%	5%	0.99%	(0.20%)	0.06%	0.00%	0.06%
World Equity	16%	16%	12.44%	11.64%	0.15%	(0.03%)	0.12%
Private Equity	4%	6%	1.34%	1.34%	0.00%	0.07%	0.07%
Cash & Equivalents	1%	1%	0.36%	0.32%	0.00%	(0.02%)	(0.02%)
<b>Total</b>			<b>9.62%</b>	<b>8.23%</b>	<b>1.21%</b>	<b>0.17%</b>	<b>1.38%</b>

\* Current Quarter Target = 16.0% MSCI World, 15.8% Russell 1000 Index, 13.0% Blmbg Aggregate, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% NDSIB PERS - Private Equity, 5.7% CPI-W, 5.0% Blmbg HY 2% Iss Cap, 5.0% Blmbg Glob Agg ex USD, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.3% NCREIF Timberland Index.

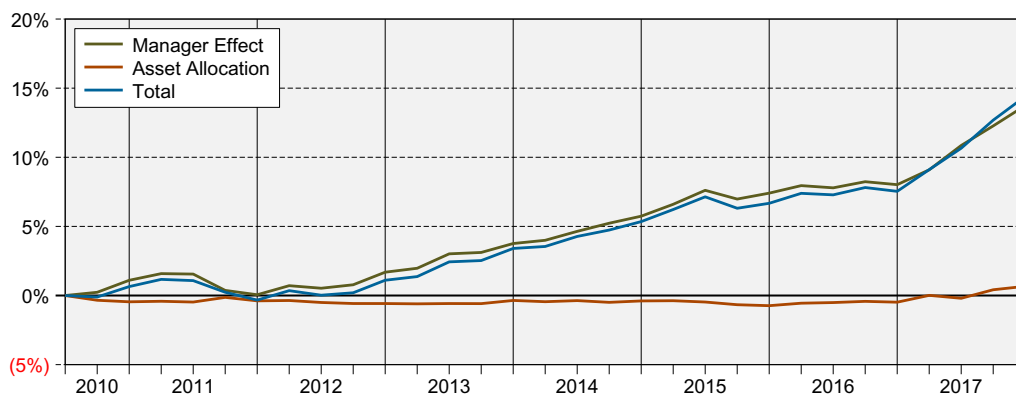
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Seven and One-Half Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Seven and One-Half Year Annualized Relative Attribution Effects

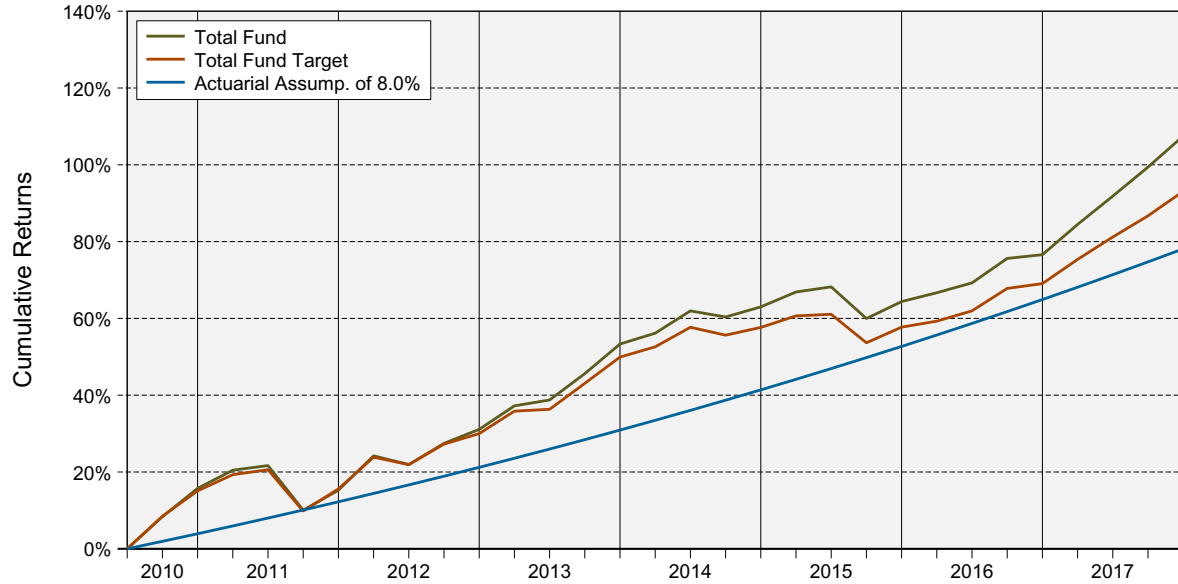
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	27%	25%	15.99%	15.73%	0.02%	0.11%	0.13%
Domestic Fixed Income	20%	19%	6.16%	4.53%	0.28%	(0.03%)	0.24%
Real Estate	9%	9%	14.21%	11.28%	0.24%	0.01%	0.25%
Timber	3%	4%	-	-	(0.26%)	(0.03%)	(0.29%)
Infrastructure	3%	4%	-	-	0.19%	0.08%	0.27%
International Equity	16%	15%	9.69%	7.45%	0.34%	(0.03%)	0.31%
International Fixed Inc.	5%	5%	4.12%	2.19%	0.10%	(0.01%)	0.10%
World Equity	12%	11%	-	-	0.09%	(0.02%)	0.06%
Private Equity	4%	5%	3.78%	3.78%	0.00%	0.00%	0.00%
Cash & Equivalents	1%	1%	0.28%	0.26%	0.00%	(0.02%)	(0.02%)
<b>Total</b>			<b>10.22%</b>	<b>9.17%</b>	<b>1.00%</b>	<b>0.05%</b>	<b>1.05%</b>

\* Current Quarter Target = 16.0% MSCI World, 15.8% Russell 1000 Index, 13.0% Blmbg Aggregate, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% NDSIB PERS - Private Equity, 5.7% CPI-W, 5.0% Blmbg HY 2% Iss Cap, 5.0% Blmbg Glob Agg ex USD, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.3% NCREIF Timberland Index.

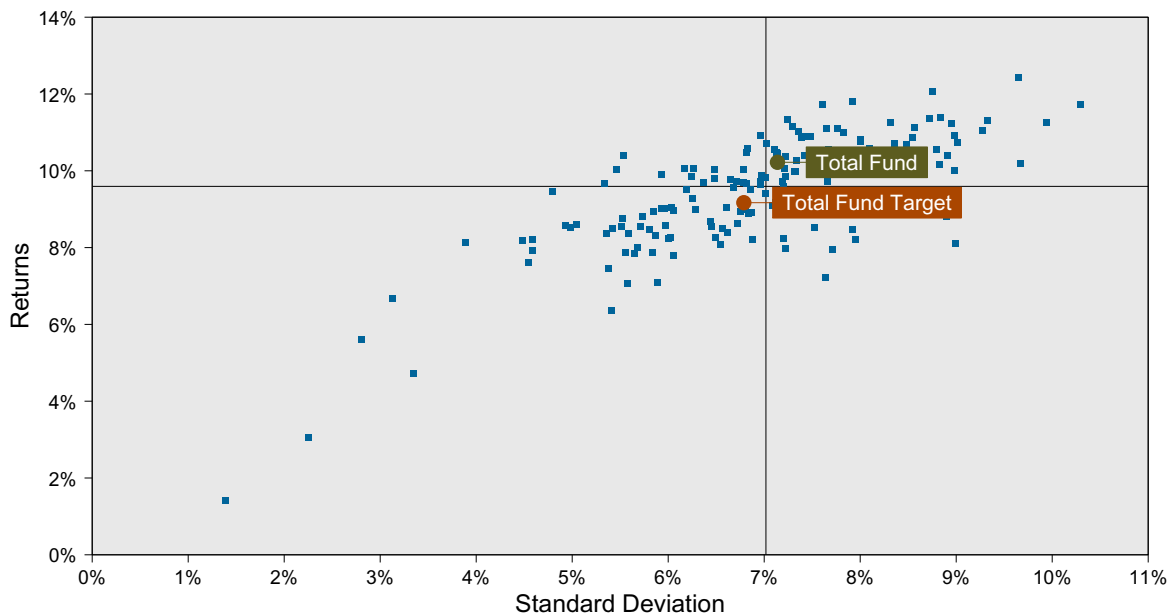
## Cumulative Performance Relative to Target

The first chart below illustrates the cumulative performance of the Total Fund relative to the cumulative performance of the Fund's Target Asset Mix. The Target Mix is assumed to be rebalanced each quarter with no transaction costs. The second chart below shows the return and the risk of the Total Fund and the Target Mix, contrasted with the returns and risks of the funds in the Callan Public Fund Sponsor Database.

### Cumulative Returns Actual vs Target



### Seven and One-Half Year Annualized Risk vs Return



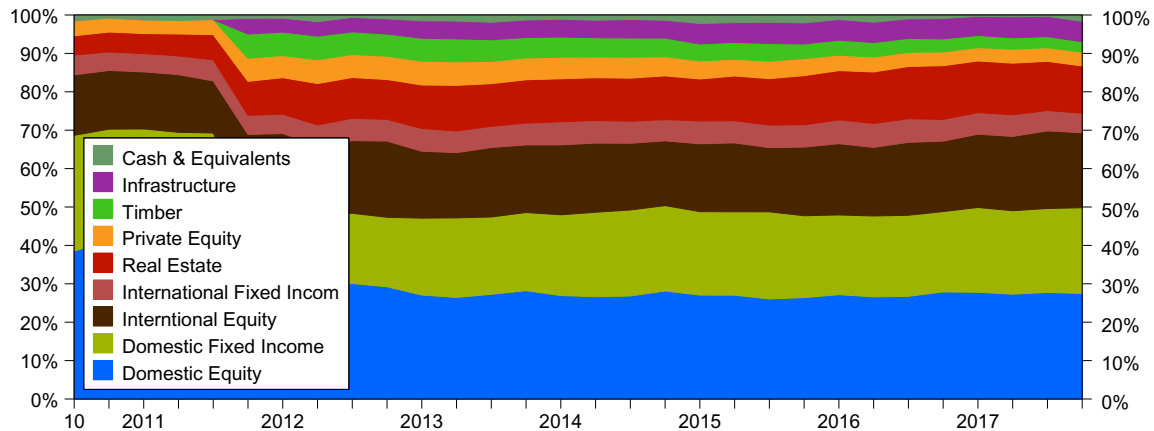
Squares represent membership of the Callan Public Fund Sponsor Database

\* Current Quarter Target = 16.0% MSCI World, 15.8% Russell 1000 Index, 13.0% Blmbg Aggregate, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% NDSIB PERS - Private Equity, 5.7% CPI-W, 5.0% Blmbg HY 2% Iss Cap, 5.0% Blmbg Glob Agg ex USD, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.3% NCREIF Timberland Index.

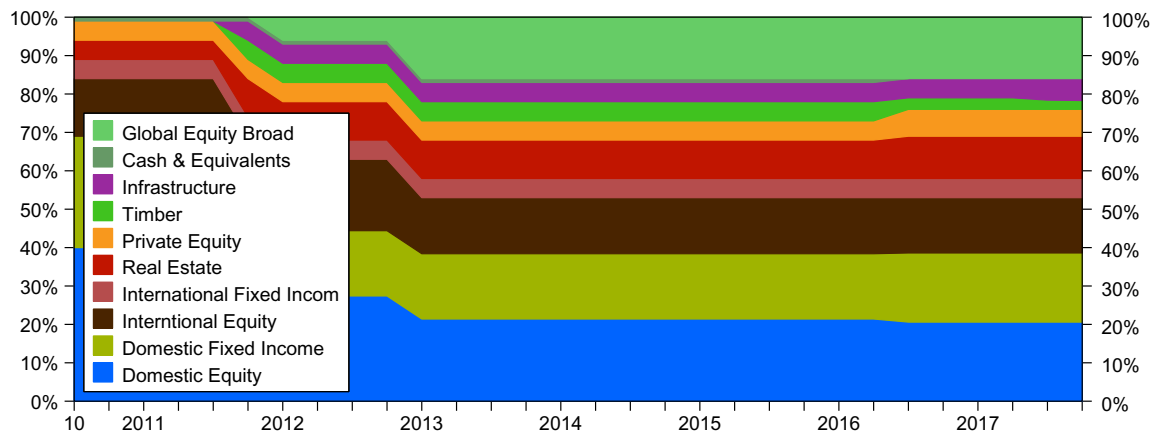
## Actual vs Target Historical Asset Allocation

The Historical asset allocation for a fund is by far the largest factor explaining its performance. The charts below show the fund's historical actual asset allocation, the fund's historical target asset allocation, and the historical asset allocation of the average fund in the Callan Public Fund Sponsor Database.

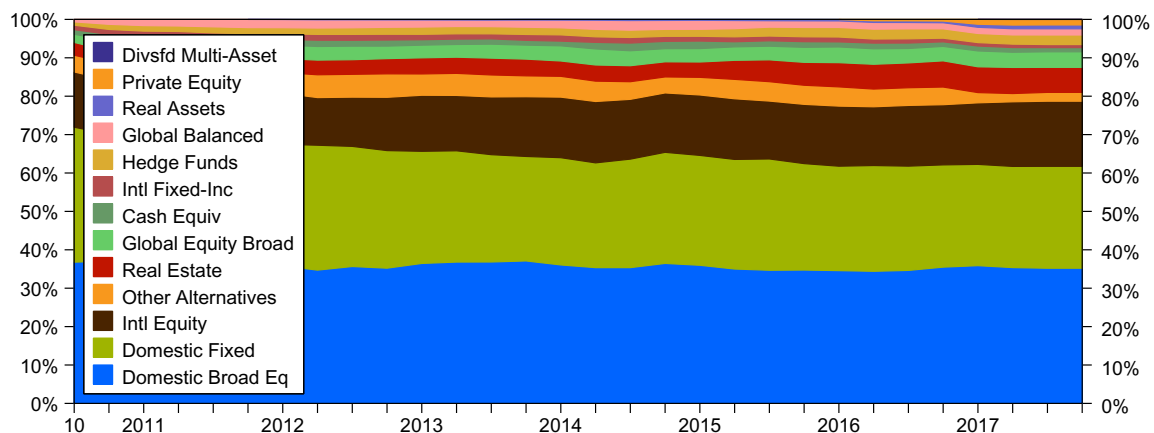
### Actual Historical Asset Allocation



### Target Historical Asset Allocation



### Average Callan Public Fund Sponsor Database Historical Asset Allocation

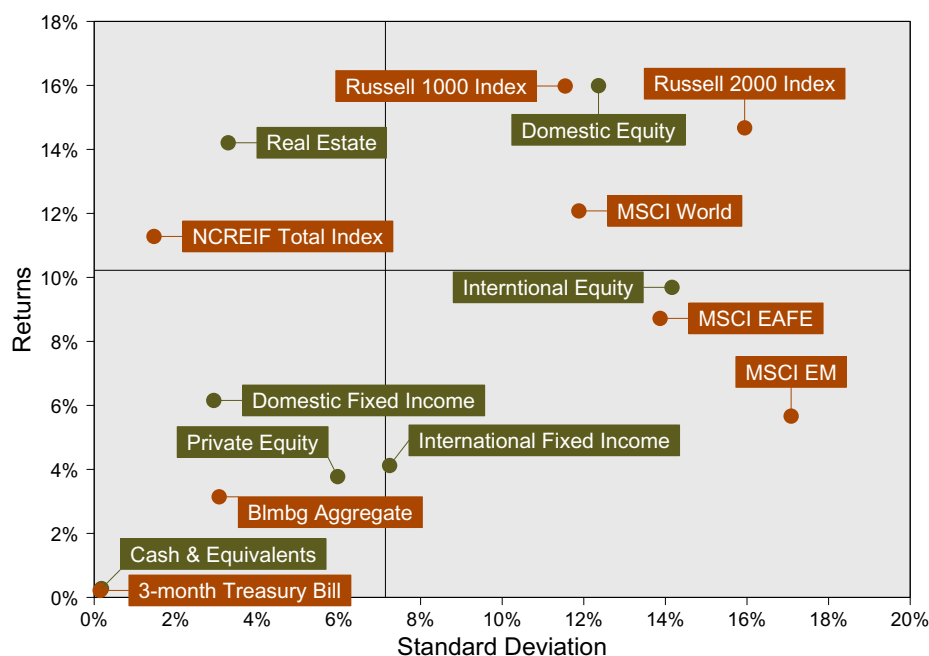


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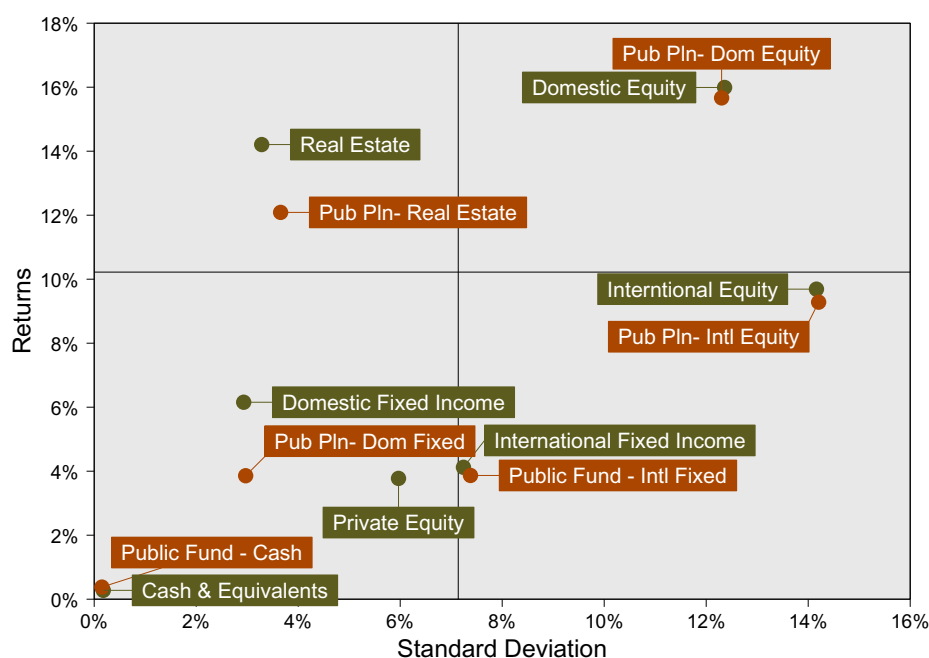
## Asset Class Risk and Return

The charts below show the seven and one-half year annualized risk and return for each asset class component of the Total Fund. The first graph contrasts these values with those of the appropriate index for each asset class. The second chart contrasts them with the risk and return of the median portfolio in each of the appropriate CAI comparative databases. In each case, the crosshairs on the chart represent the return and risk of the Total Fund.

### Seven and One-Half Year Annualized Risk vs Return Asset Classes vs Benchmark Indices



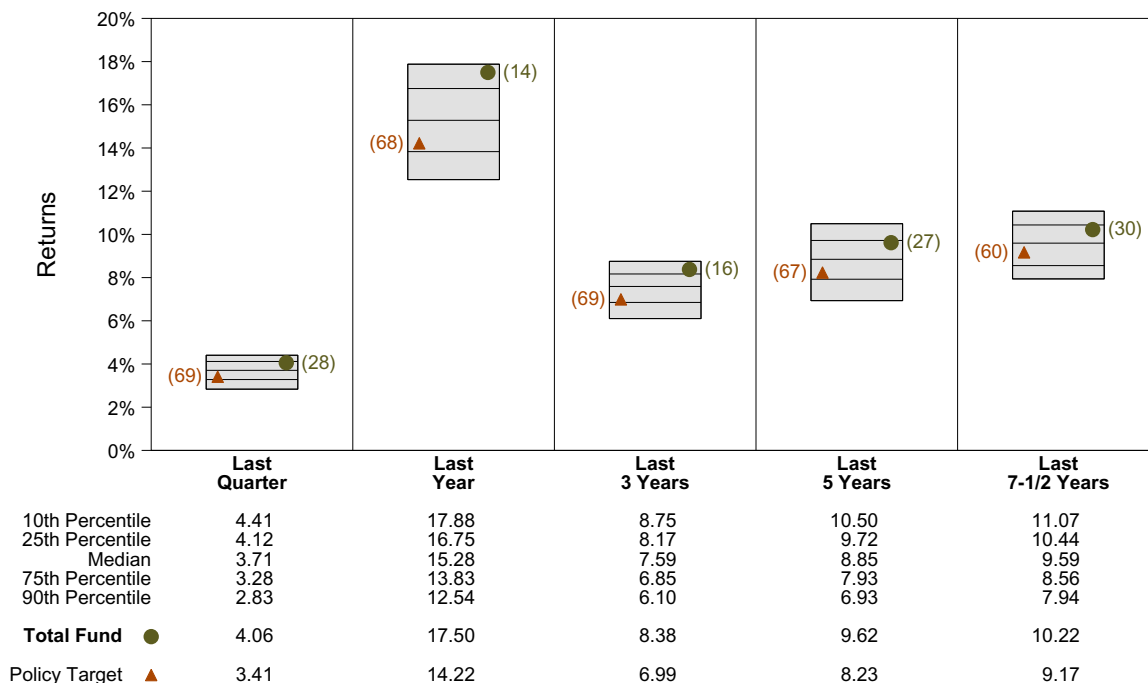
### Seven and One-Half Year Annualized Risk vs Return Asset Classes vs Asset Class Median



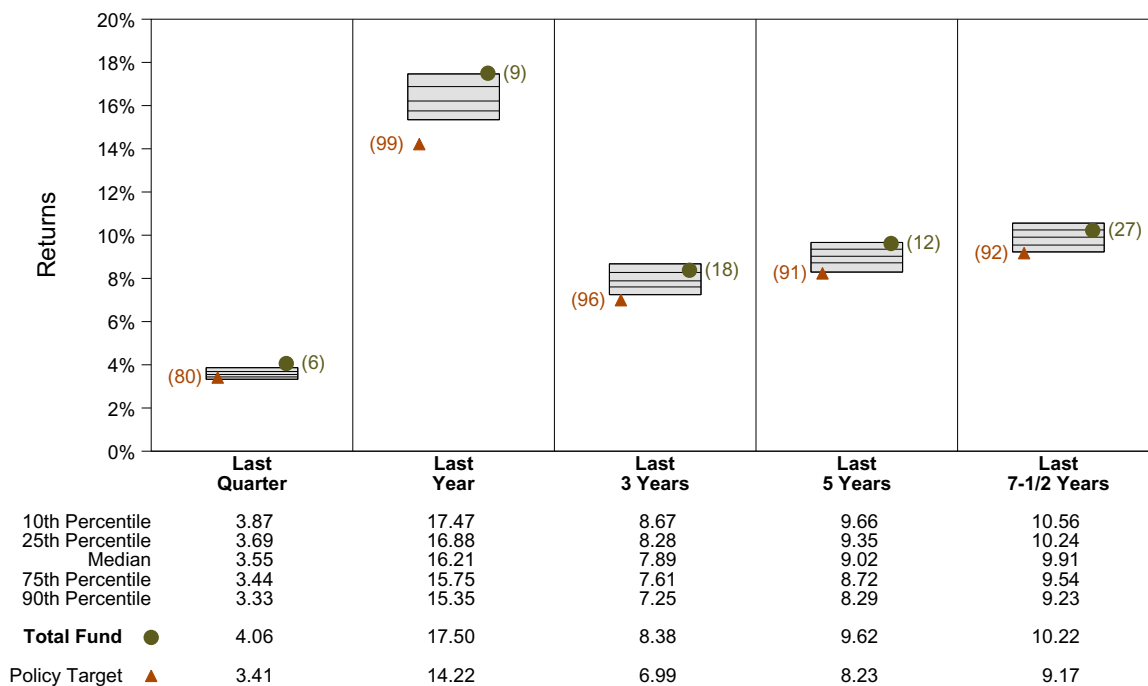
## Total Fund Ranking

The first two charts show the ranking of the Total Fund's performance relative to that of the Callan Public Fund Sponsor Database for periods ended December 31, 2017. The first chart is a standard unadjusted ranking. In the second chart each fund in the database is adjusted to have the same historical asset allocation as that of the Total Fund.

### Callan Public Fund Sponsor Database



### Asset Allocation Adjusted Ranking

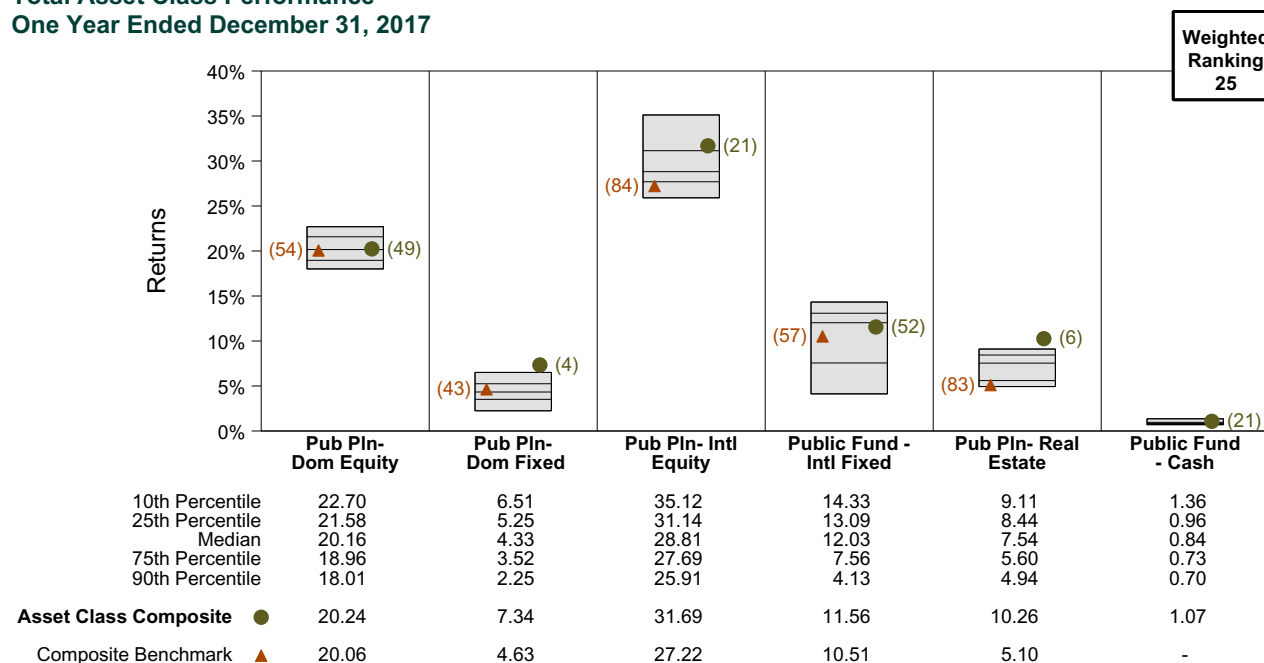


\* Current Quarter Target = 16.0% MSCI World, 15.8% Russell 1000 Index, 13.0% Blmbg Aggregate, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% NDSIB PERS - Private Equity, 5.7% CPI-W, 5.0% Blmbg HY 2% Iss Cap, 5.0% Blmbg Glob Agg ex USD, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.3% NCREIF Timberland Index.

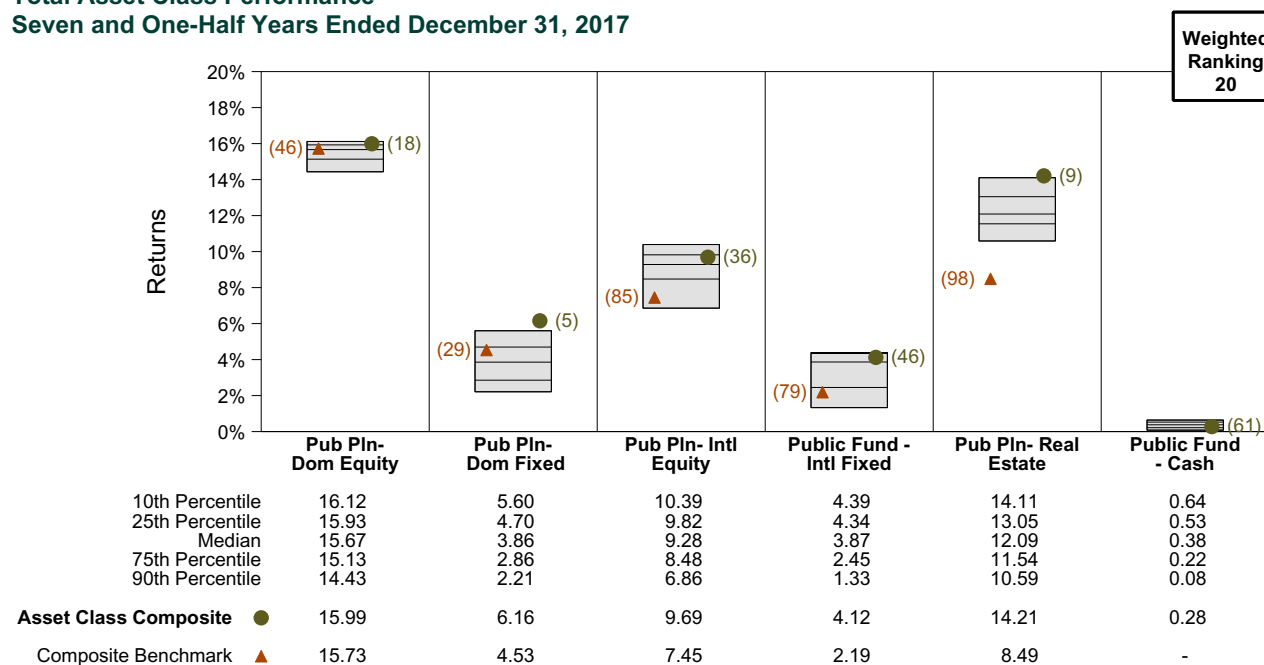
## Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases. In the upper right corner of each graph is the weighted average of the rankings across the different asset classes. The weights of the fund's actual asset allocation are used to make this calculation. The weighted average ranking can be viewed as a measure of the fund's overall success in picking managers and structuring asset classes.

### Total Asset Class Performance One Year Ended December 31, 2017



### Total Asset Class Performance Seven and One-Half Years Ended December 31, 2017



\* Current Quarter Target = 16.0% MSCI World, 15.8% Russell 1000 Index, 13.0% Blmbg Aggregate, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% NDSIB PERS - Private Equity, 5.7% CPI-W, 5.0% Blmbg HY 2% Iss Cap, 5.0% Blmbg Glob Agg ex USD, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.3% NCREIF Timberland Index.



## Asset Class Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2017, with the distribution as of September 30, 2017. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

### Asset Class Allocation

	December 31, 2017				September 30, 2017	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
<b>GLOBAL EQUITY</b>	<b>\$1,768,740,862</b>	<b>59.06%</b>	<b>\$(58,159,601)</b>	<b>\$98,944,776</b>	<b>\$1,727,955,687</b>	<b>59.94%</b>
<b>Domestic Equity</b>	<b>\$680,882,676</b>	<b>22.73%</b>	<b>\$(21,081,917)</b>	<b>\$41,126,567</b>	<b>\$660,838,025</b>	<b>22.92%</b>
Large Cap	529,400,303	17.68%	(6,480,755)	34,549,719	501,331,339	17.39%
Small Cap	151,482,372	5.06%	(14,601,162)	6,576,848	159,506,686	5.53%
<b>International Equity</b>	<b>\$483,305,233</b>	<b>16.14%</b>	<b>\$(24,456,803)</b>	<b>\$26,403,690</b>	<b>\$481,358,346</b>	<b>16.70%</b>
Developed Intl Equity	354,245,445	11.83%	(14,686,803)	16,816,755	352,115,493	12.21%
Emerging Markets	129,059,788	4.31%	(9,770,000)	9,586,935	129,242,853	4.48%
<b>World Equity</b>	<b>\$516,338,797</b>	<b>17.24%</b>	<b>\$(12,624,049)</b>	<b>\$28,384,943</b>	<b>\$500,577,902</b>	<b>17.36%</b>
<b>Private Equity</b>	<b>\$88,214,157</b>	<b>2.95%</b>	<b>\$3,168</b>	<b>\$3,029,576</b>	<b>\$85,181,414</b>	<b>2.95%</b>
<b>GLOBAL FIXED INCOME</b>	<b>\$680,393,199</b>	<b>22.72%</b>	<b>\$27,799,419</b>	<b>\$5,039,967</b>	<b>\$647,553,813</b>	<b>22.46%</b>
<b>Domestic Fixed Income</b>	<b>\$553,854,616</b>	<b>18.49%</b>	<b>\$28,337,601</b>	<b>\$4,540,897</b>	<b>\$520,976,119</b>	<b>18.07%</b>
Inv. Grade Fixed Income	368,029,765	12.29%	(225,110)	2,644,847	365,610,028	12.68%
Below Inv. Grade Fixed Income	185,824,851	6.20%	28,562,711	1,896,050	155,366,090	5.39%
<b>International Fixed Income</b>	<b>\$126,538,583</b>	<b>4.23%</b>	<b>\$(538,182)</b>	<b>\$499,071</b>	<b>\$126,577,694</b>	<b>4.39%</b>
<b>GLOBAL REAL ASSETS</b>	<b>\$504,972,102</b>	<b>16.86%</b>	<b>\$(7,143,013)</b>	<b>\$12,897,241</b>	<b>\$499,217,874</b>	<b>17.32%</b>
Real Estate	305,218,057	10.19%	(7,682,957)	8,184,141	304,716,872	10.57%
Timber	68,120,913	2.27%	0	(284,318)	68,405,231	2.37%
Infrastructure	131,633,132	4.40%	539,944	4,997,417	126,095,771	4.37%
<b>Cash &amp; Equivalents</b>	<b>\$40,874,222</b>	<b>1.36%</b>	<b>\$32,759,491</b>	<b>\$62,081</b>	<b>\$8,052,650</b>	<b>0.28%</b>
<b>Securities Lending Income</b>	<b>\$0</b>	<b>0.00%</b>	<b>\$(51,356)</b>	<b>\$51,356</b>	<b>-</b>	<b>-</b>
<b>Total Fund</b>	<b>\$2,994,980,385</b>	<b>100.0%</b>	<b>\$(4,795,060)</b>	<b>\$116,995,421</b>	<b>\$2,882,780,024</b>	<b>100.0%</b>

PLEASE REFER TO PAGES 30-32 FOR INVESTMENT MANAGER LEVEL ASSET ALLOCATION.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7-1/2 Years
<b>Global Equity</b>					
Gross	5.81%	24.37%	10.03%	12.22%	-
Net	5.76%	24.10%	9.75%	11.90%	-
Wtd Avg Global Equity Benchmark	5.29%	21.03%	8.67%	10.85%	-
<b>Domestic Equity</b>					
Gross	6.35%	20.24%	11.30%	15.99%	15.99%
Net	6.31%	20.03%	11.11%	15.78%	15.74%
Wtd Avg Domestci Equity Benchmark	5.83%	20.06%	11.00%	15.42%	15.73%
<b>Large Cap Equity</b>					
Gross	6.99%	21.85%	11.92%	16.59%	16.36%
Net	6.96%	21.73%	11.78%	16.42%	16.12%
Benchmark(1)	6.59%	21.69%	11.23%	15.71%	15.98%
<b>Small Cap Equity</b>					
Gross	4.40%	15.30%	9.04%	13.83%	14.69%
Net	4.31%	14.87%	8.69%	13.50%	14.38%
Russell 2000 Index	3.34%	14.65%	9.96%	14.12%	14.67%
<b>International Equity</b>					
Gross	5.62%	31.69%	10.61%	9.29%	9.69%
Net	5.58%	31.48%	10.41%	9.06%	9.38%
Wtd Avg Intl Equity Benchmark	4.99%	27.22%	8.08%	7.05%	7.45%
<b>Developed Intl Equity</b>					
Gross	4.89%	28.85%	10.40%	10.11%	10.11%
Net	4.83%	28.57%	10.14%	9.85%	9.79%
Benchmark(2)	4.23%	24.21%	7.64%	7.80%	7.88%
<b>Emerging Markets</b>					
Gross	7.58%	39.80%	10.53%	5.93%	7.80%
Net	7.58%	39.80%	10.53%	5.79%	7.52%
Benchmark(3)	7.44%	37.28%	9.10%	4.35%	5.71%
<b>World Equity</b>					
Gross	5.72%	26.69%	9.96%	12.44%	-
Net	5.63%	26.22%	9.40%	11.77%	-
MSCI World Index	5.51%	22.40%	9.26%	11.64%	12.08%
<b>Private Equity</b>					
Net	3.51%	7.43%	(0.38%)	1.32%	3.70%

(1) S&P 500 Index through 12/31/2011 and the Russell 1000 Index thereafter.

(2) 50% Hedged EAFE through 3/31/2011, MSCI EAFE through 6/30/2016; MSCI World ex-US thereafter.

(3) MSCI Emerging Mkts Idx (Gross) through 6/30/2011 and MSCI Emerging Mkts Idx Net thereafter.

PLEASE REFER TO PAGES 33-37 FOR INVESTMENT MANAGER LEVEL RETURNS.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7-1/2 Years
<b>Global Fixed Income</b>					
Gross	0.75%	8.19%	4.33%	4.00%	-
Net	0.69%	7.94%	4.08%	3.75%	-
Wtd Avg Global Fixed Income Benchmark	0.68%	5.90%	3.09%	2.43%	-
<b>Domestic Fixed Income</b>					
Gross	0.84%	7.34%	4.82%	4.83%	6.16%
Net	0.79%	7.13%	4.60%	4.62%	5.91%
Wtd Avg Domestic FI Benchmark	0.41%	4.63%	3.42%	3.17%	4.53%
<b>Inv. Grade Fixed Income</b>					
Gross	0.72%	6.41%	3.98%	3.96%	5.08%
Net	0.69%	6.27%	3.84%	3.84%	4.92%
Blmbg Aggregate Index	0.39%	3.54%	2.24%	2.10%	3.14%
<b>Below Inv. Grade Fixed Income</b>					
Gross	1.10%	9.57%	6.79%	6.90%	8.98%
Net	1.02%	9.18%	6.37%	6.46%	8.54%
Blmbg HY Corp 2% Issue	0.47%	7.50%	6.36%	5.78%	7.92%
<b>International Fixed Income</b>					
Gross	0.40%	11.56%	2.49%	0.99%	4.12%
Net	0.31%	11.16%	2.13%	0.63%	3.75%
Wtd Avg Intl Fixed Income Benchmark	1.63%	10.51%	1.77%	(0.20%)	2.19%
<b>Global Real Assets</b>					
Gross	2.60%	8.49%	8.12%	8.59%	-
Net	2.50%	8.06%	7.66%	8.15%	-
Wtd Avg Global Real Assets Benchmark	1.17%	5.10%	6.04%	6.96%	-
<b>Real Estate</b>					
Gross	2.72%	10.26%	11.94%	13.05%	14.21%
Net	2.60%	9.74%	11.39%	12.50%	13.64%
NCREIF Total Index	1.80%	6.96%	9.38%	10.19%	11.28%
<b>Timber</b>					
Net	(0.42%)	(3.98%)	(0.85%)	(0.35%)	-
NCREIF Timberland Index	1.52%	3.63%	3.73%	6.22%	5.24%
<b>Infrastructure</b>					
Gross	3.93%	11.99%	5.18%	6.11%	-
Net	3.82%	11.49%	4.63%	5.52%	-
CPI-W	(0.17%)	2.18%	1.52%	1.26%	1.58%
<b>Cash &amp; Equivalents - Net</b>	<b>0.31%</b>	<b>1.07%</b>	<b>0.56%</b>	<b>0.36%</b>	<b>0.28%</b>
3-month Treasury Bill	0.28%	0.86%	0.41%	0.27%	0.22%
<b>Total Fund</b>					
Gross	4.06%	17.50%	8.38%	9.62%	10.22%
Net	4.00%	17.20%	8.07%	9.29%	9.88%
Target*	3.41%	14.22%	6.99%	8.23%	9.17%

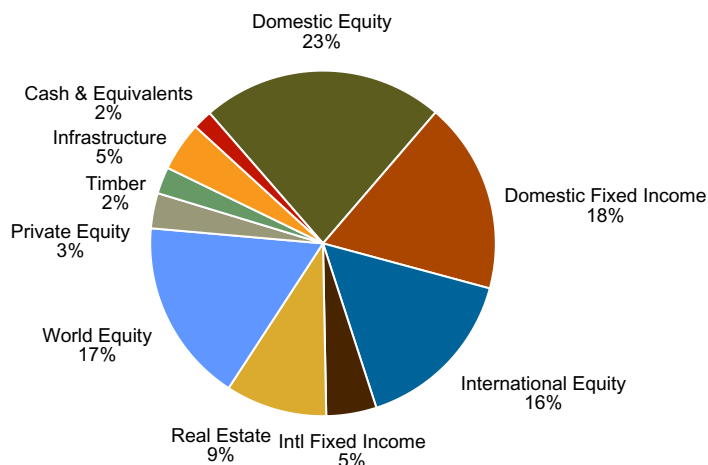
\* Current Quarter Target = 16.0% MSCI World, 15.8% Russell 1000 Index, 13.0% Blmbg Aggregate, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% NDSIB PERS - Private Equity, 5.7% CPI-W, 5.0% Blmbg HY 2% Iss Cap, 5.0% Blmbg Glob Agg ex USD, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.3% NCREIF Timberland Index.

PLEASE REFER TO PAGES 33-37 FOR INVESTMENT MANAGER LEVEL RETURNS.

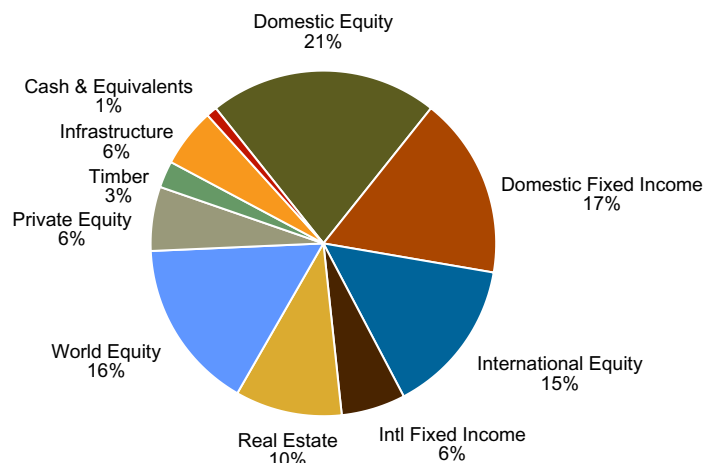
## Actual vs Target Asset Allocation As of December 31, 2017

The top left chart shows the Fund's asset allocation as of December 31, 2017. The top right chart shows the Fund's target asset allocation as outlined in the investment policy statement. The bottom chart ranks the fund's asset allocation and the target allocation versus the Callan Public Fund Sponsor Database.

**Actual Asset Allocation**

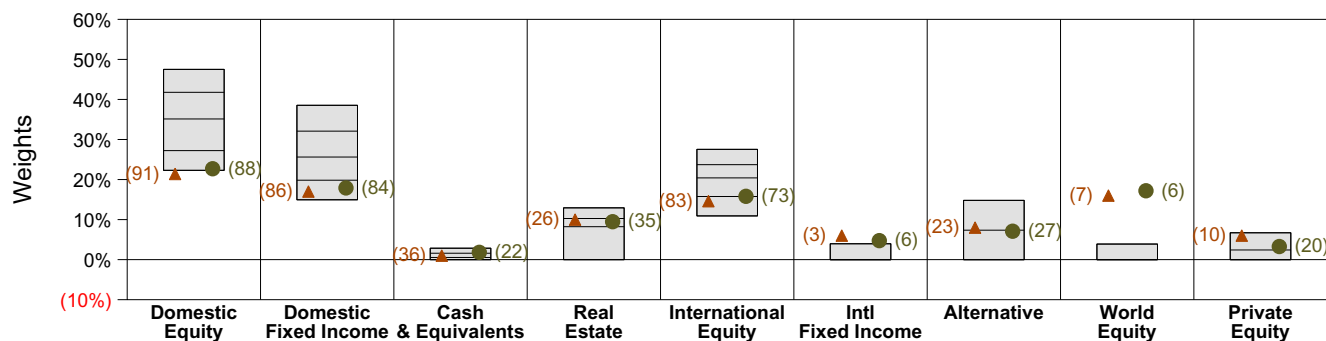


**Target Asset Allocation**



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	561,368	22.7%	21.4%	1.3%	32,125
Domestic Fixed Income	442,704	17.9%	17.0%	0.9%	22,277
International Equity	390,935	15.8%	14.6%	1.2%	29,863
Intl Fixed Income	117,286	4.7%	6.0%	(1.3%)	(31,100)
Real Estate	234,196	9.5%	10.0%	(0.5%)	(13,114)
World Equity	425,202	17.2%	16.0%	1.2%	29,506
Private Equity	80,971	3.3%	6.0%	(2.7%)	(67,415)
Timber	60,875	2.5%	2.5%	(0.0%)	(952)
Infrastructure	114,631	4.6%	5.5%	(0.9%)	(21,389)
Cash & Equivalents	44,930	1.8%	1.0%	0.8%	20,199
Total	2,473,098	100.0%	100.0%		

### Asset Class Weights vs Callan Public Fund Sponsor Database



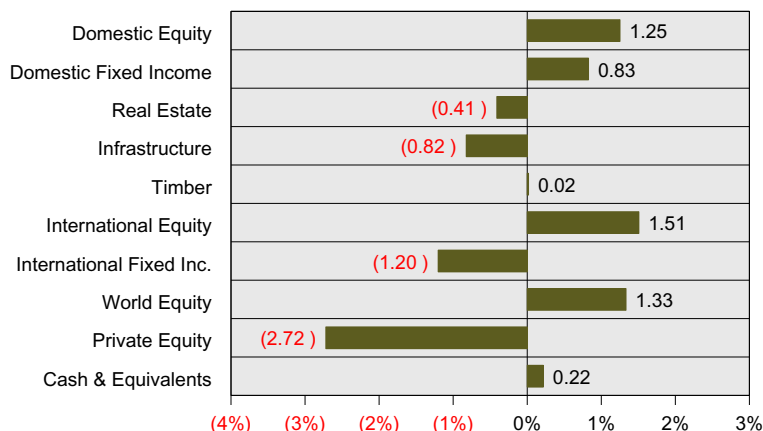
10th Percentile	47.51	38.54	2.85	12.93	27.54	3.96	14.80	3.89	6.71
25th Percentile	41.78	32.09	1.60	10.27	23.71	0.00	7.35	0.00	2.41
Median	35.13	25.62	0.54	8.22	20.41	0.00	0.00	0.00	0.00
75th Percentile	27.22	19.83	0.00	0.00	15.76	0.00	0.00	0.00	0.00
90th Percentile	22.30	14.94	0.00	0.00	10.92	0.00	0.00	0.00	0.00
Fund	22.70	17.90	1.82	9.47	15.81	4.74	7.10	17.19	3.27
Target	21.40	17.00	1.00	10.00	14.60	6.00	8.00	16.00	6.00
% Group Invested	95.14%	96.53%	72.92%	68.75%	90.97%	16.67%	14.58%	11.81%	31.25%

\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% MSCI World, 13.0% Blmbg Aggregate, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 6.0% Blmbg Glob Agg ex USD, 6.0% NDSIB TFFR - Private Equity, 5.5% CPI-W, 4.8% Russell 2000 Index, 4.0% Blmbg HY 2% Iss Cap, 2.8% MSCI EM, 2.5% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

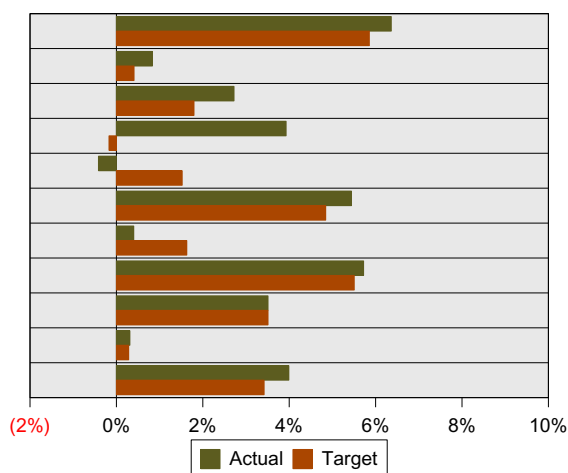
## Quarterly Total Fund Relative Attribution - December 31, 2017

The following analysis approaches Total Fund Attribution from the perspective of relative return. Relative return attribution separates and quantifies the sources of total fund excess return relative to its target. This excess return is separated into two relative attribution effects: Asset Allocation Effect and Manager Selection Effect. The Asset Allocation Effect represents the excess return due to the actual total fund asset allocation differing from the target asset allocation. Manager Selection Effect represents the total fund impact of the individual managers excess returns relative to their benchmarks.

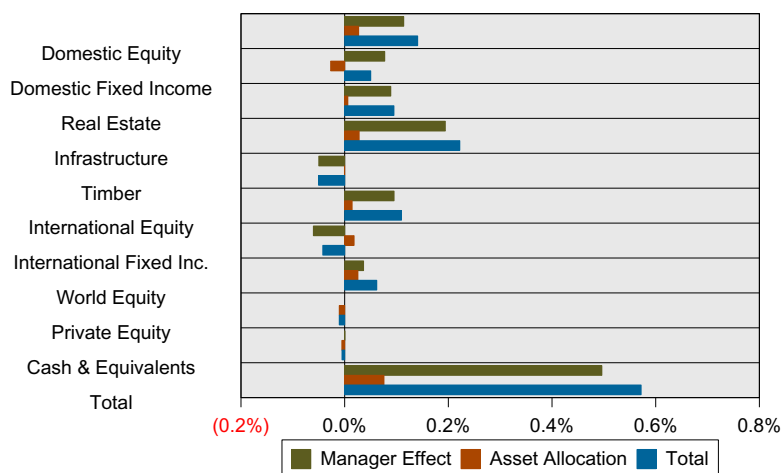
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended December 31, 2017

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	6.36%	5.85%	0.11%	0.03%	0.14%
Domestic Fixed Income	18%	17%	0.83%	0.41%	0.08%	(0.03)%	0.05%
Real Estate	10%	10%	2.72%	1.80%	0.09%	0.01%	0.10%
Infrastructure	5%	6%	3.93%	(0.17)%	0.19%	0.03%	0.22%
Timber	3%	3%	(0.42)%	1.52%	(0.05)%	(0.00)%	(0.05)%
International Equity	16%	15%	5.44%	4.84%	0.10%	0.01%	0.11%
International Fixed Inc.	5%	6%	0.40%	1.63%	(0.06)%	0.02%	(0.04)%
World Equity	17%	16%	5.72%	5.51%	0.04%	0.03%	0.06%
Private Equity	3%	6%	3.51%	3.51%	0.00%	(0.01)%	(0.01)%
Cash & Equivalents	1%	1%	0.31%	0.28%	0.00%	(0.01)%	(0.01)%

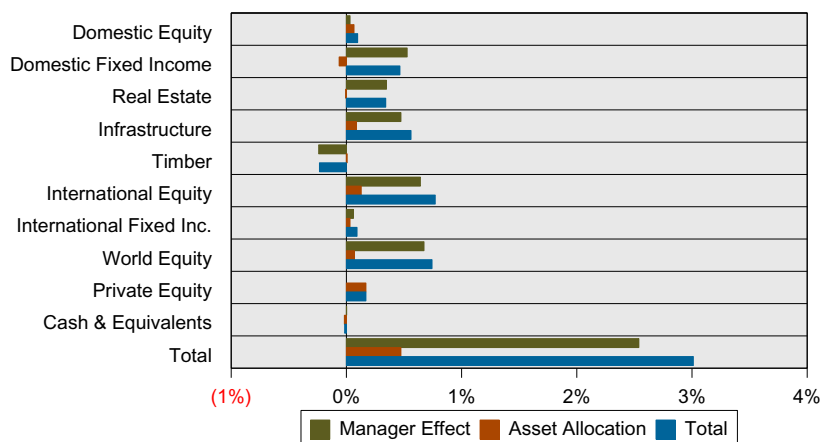
**Total** **3.99% = 3.42% + 0.50% + 0.08%** **0.57%**

\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% MSCI World, 13.0% Blmbg Aggregate, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 6.0% Blmbg Glob Agg ex USD, 6.0% NDSIB TFFR - Private Equity, 5.5% CPI-W, 4.8% Russell 2000 Index, 4.0% Blmbg HY 2% Iss Cap, 2.8% MSCI EM, 2.5% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

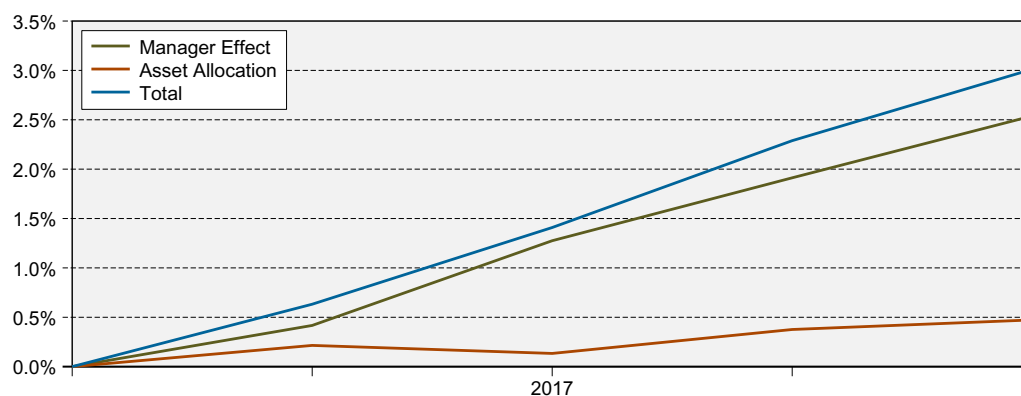
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### One Year Relative Attribution Effects



### Cumulative Relative Attribution Effects



### One Year Relative Attribution Effects

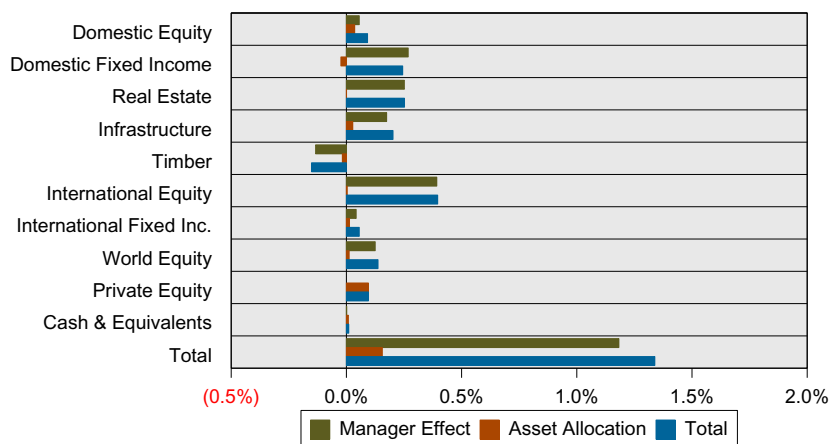
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	20.28%	20.12%	0.03%	0.07%	0.10%
Domestic Fixed Income	18%	17%	7.25%	4.47%	0.53%	(0.06%)	0.46%
Real Estate	10%	10%	10.26%	6.96%	0.35%	(0.01%)	0.34%
Infrastructure	5%	5%	11.99%	2.18%	0.47%	0.09%	0.56%
Timber	3%	3%	(3.98%)	3.63%	(0.24%)	0.01%	(0.23%)
International Equity	16%	15%	31.14%	26.65%	0.64%	0.13%	0.77%
International Fixed Inc.	5%	6%	11.56%	10.51%	0.06%	0.03%	0.09%
World Equity	17%	16%	26.69%	22.40%	0.67%	0.07%	0.74%
Private Equity	3%	6%	7.43%	7.43%	0.00%	0.17%	0.17%
Cash & Equivalents	1%	1%	1.07%	0.86%	0.00%	(0.02%)	(0.02%)
<b>Total</b>			<b>17.27%</b>	<b>14.26%</b>	<b>+ 2.54%</b>	<b>+ 0.47%</b>	<b>3.01%</b>

\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% MSCI World, 13.0% Blmbg Aggregate, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 6.0% Blmbg Glob Agg ex USD, 6.0% NDSIB TFFR - Private Equity, 5.5% CPI-W, 4.8% Russell 2000 Index, 4.0% Blmbg HY 2% Iss Cap, 2.8% MSCI EM, 2.5% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

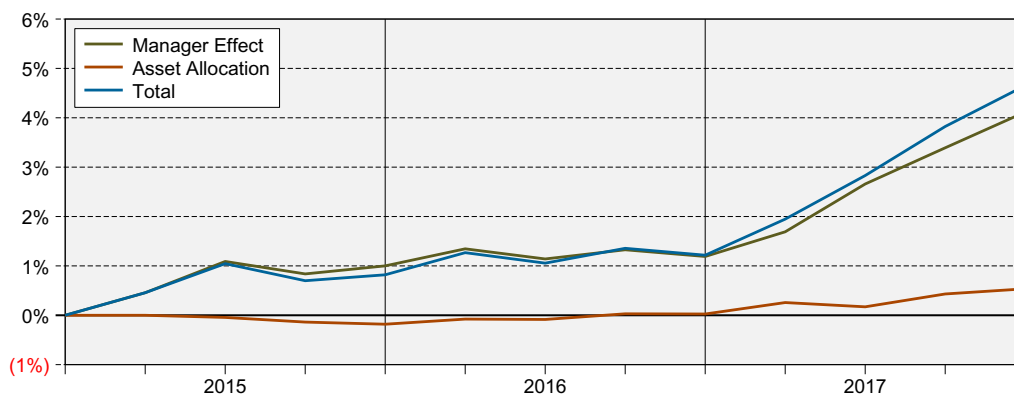
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Three Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Three Year Annualized Relative Attribution Effects

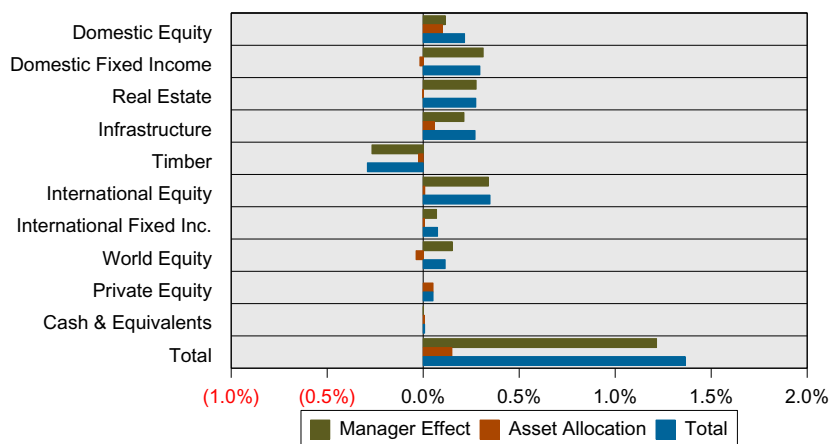
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	11.29%	11.00%	0.06%	0.04%	0.09%
Domestic Fixed Income	18%	17%	4.72%	3.22%	0.27%	(0.02%)	0.24%
Real Estate	10%	10%	11.94%	9.38%	0.25%	0.00%	0.25%
Infrastructure	5%	5%	5.18%	1.52%	0.17%	0.03%	0.20%
Timber	3%	4%	(0.85%)	3.73%	(0.13%)	(0.02%)	(0.15%)
International Equity	15%	15%	10.57%	8.00%	0.39%	0.00%	0.40%
International Fixed Inc.	5%	6%	2.49%	1.77%	0.04%	0.01%	0.06%
World Equity	16%	16%	9.96%	9.26%	0.13%	0.01%	0.14%
Private Equity	4%	6%	(0.37%)	(0.37%)	0.00%	0.10%	0.10%
Cash & Equivalents	1%	1%	0.56%	0.41%	0.00%	0.01%	0.01%
<b>Total</b>			<b>8.30%</b>	<b>6.96%</b>	<b>+ 1.18%</b>	<b>+ 0.16%</b>	<b>1.34%</b>

\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% MSCI World, 13.0% Blmbg Aggregate, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 6.0% Blmbg Glob Agg ex USD, 6.0% NDSIB TFFR - Private Equity, 5.5% CPI-W, 4.8% Russell 2000 Index, 4.0% Blmbg HY 2% Iss Cap, 2.8% MSCI EM, 2.5% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

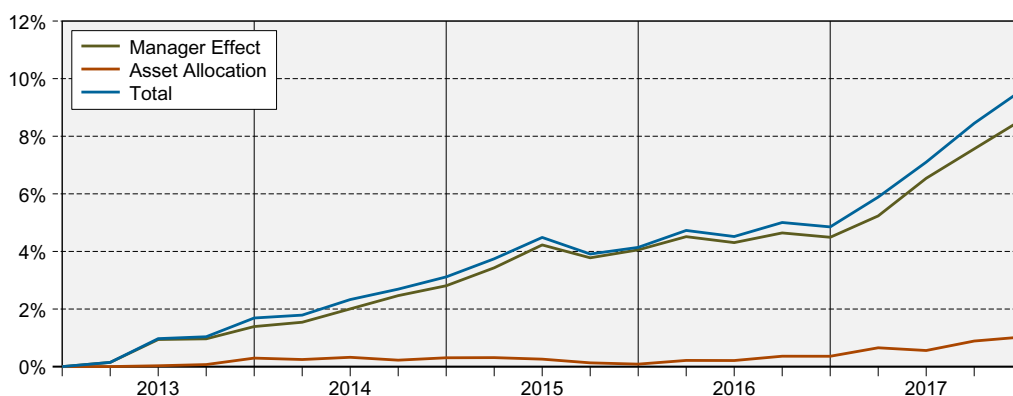
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Five Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Five Year Annualized Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	15.98%	15.42%	0.12%	0.10%	0.22%
Domestic Fixed Income	18%	17%	4.77%	3.05%	0.31%	(0.02%)	0.30%
Real Estate	10%	10%	13.05%	10.19%	0.28%	(0.00%)	0.27%
Infrastructure	4%	5%	6.11%	1.26%	0.21%	0.06%	0.27%
Timber	4%	4%	(0.35%)	6.22%	(0.27%)	(0.02%)	(0.29%)
International Equity	15%	15%	9.46%	7.21%	0.34%	0.01%	0.35%
International Fixed Inc.	5%	5%	0.99%	(0.20%)	0.07%	0.01%	0.07%
World Equity	16%	16%	12.44%	11.64%	0.15%	(0.04%)	0.11%
Private Equity	4%	5%	1.35%	1.35%	0.00%	0.05%	0.05%
Cash & Equivalents	1%	1%	0.36%	0.27%	0.00%	0.01%	0.01%
<b>Total</b>			<b>9.61%</b>	<b>8.24%</b>	<b>1.22%</b>	<b>0.15%</b>	<b>1.36%</b>

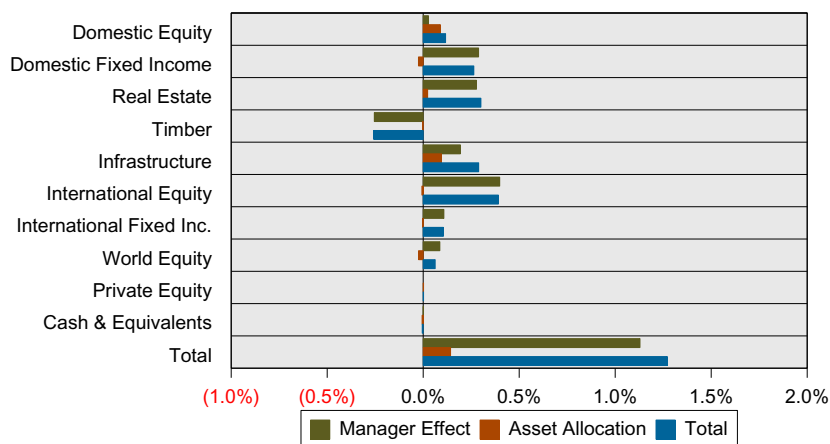
\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% MSCI World, 13.0% Blmbg Aggregate, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 6.0% Blmbg Glob Agg ex USD, 6.0% NDSIB TFFR - Private Equity, 5.5% CPI-W, 4.8% Russell 2000 Index, 4.0% Blmbg HY 2% Iss Cap, 2.8% MSCI EM, 2.5% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.



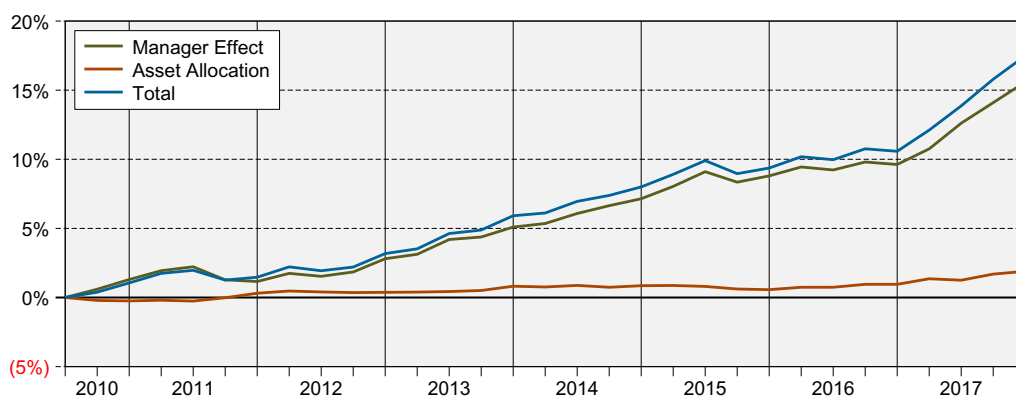
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Seven and One-Half Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Seven and One-Half Year Annualized Relative Attribution Effects

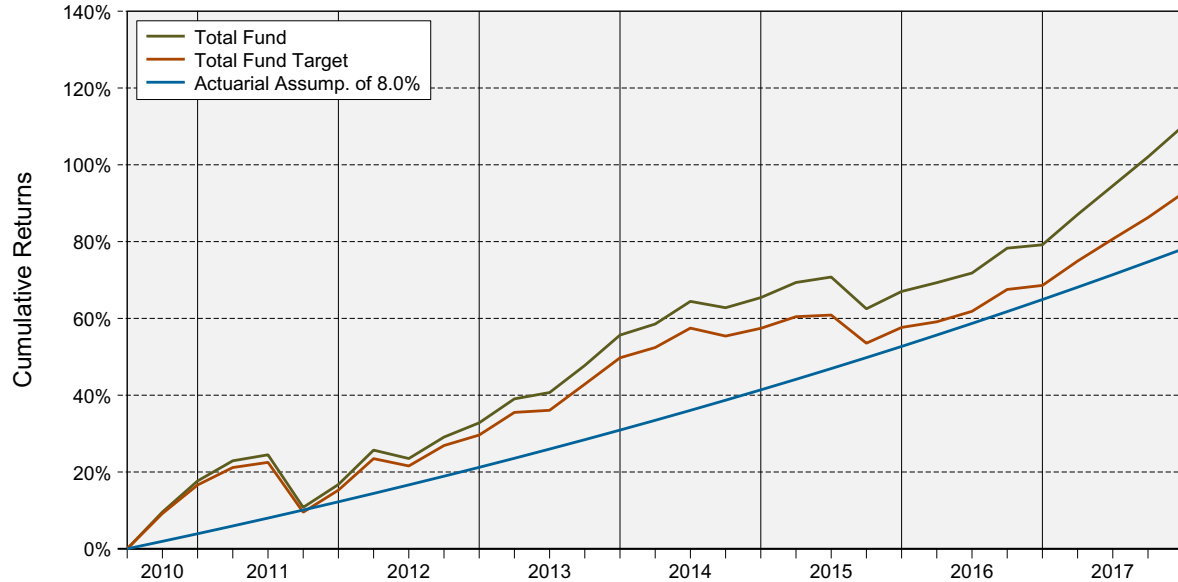
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	26%	25%	15.99%	15.72%	0.03%	0.09%	0.12%
Domestic Fixed Income	18%	17%	6.13%	4.47%	0.29%	(0.02%)	0.26%
Real Estate	10%	10%	14.20%	11.28%	0.28%	0.02%	0.30%
Timber	3%	4%	-	-	(0.25%)	(0.00%)	(0.26%)
Infrastructure	3%	4%	-	-	0.19%	0.10%	0.29%
International Equity	17%	17%	9.78%	7.55%	0.40%	(0.01%)	0.39%
International Fixed Inc.	5%	5%	4.12%	2.19%	0.11%	(0.00%)	0.11%
World Equity	11%	11%	-	-	0.09%	(0.02%)	0.06%
Private Equity	4%	5%	3.80%	3.80%	0.00%	0.00%	0.00%
Cash & Equivalents	1%	1%	0.28%	0.22%	0.00%	(0.01%)	(0.01%)
<b>Total</b>			<b>10.41%</b>	<b>9.13%</b>	<b>1.13%</b>	<b>0.14%</b>	<b>1.27%</b>

\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% MSCI World, 13.0% Blmbg Aggregate, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 6.0% Blmbg Glob Agg ex USD, 6.0% NDSIB TFFR - Private Equity, 5.5% CPI-W, 4.8% Russell 2000 Index, 4.0% Blmbg HY 2% Iss Cap, 2.8% MSCI EM, 2.5% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

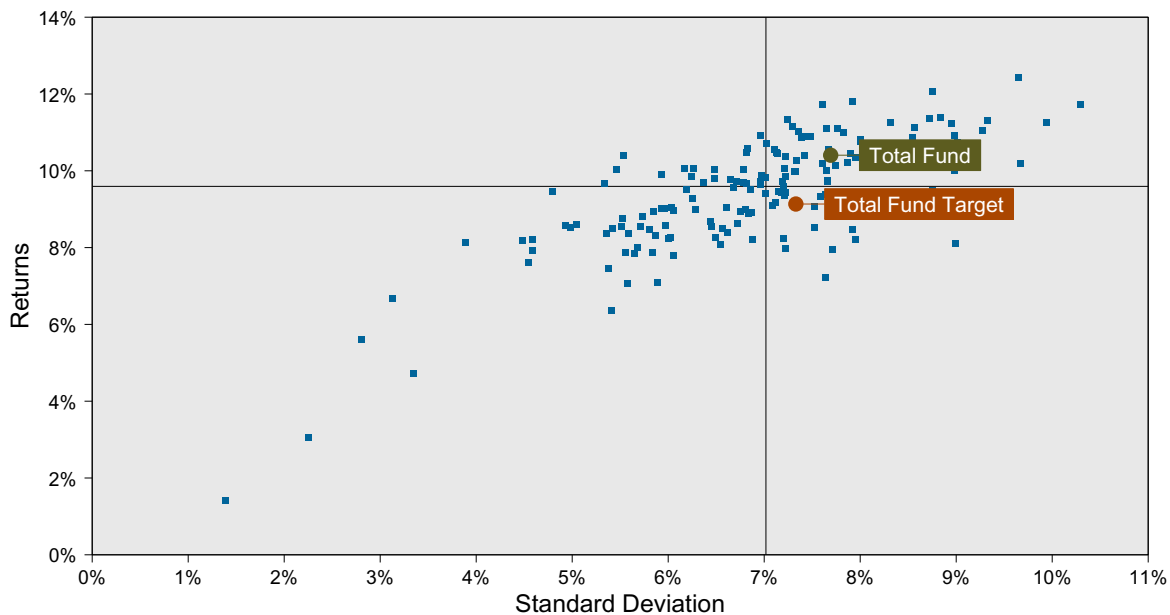
## Cumulative Performance Relative to Target

The first chart below illustrates the cumulative performance of the Total Fund relative to the cumulative performance of the Fund's Target Asset Mix. The Target Mix is assumed to be rebalanced each quarter with no transaction costs. The second chart below shows the return and the risk of the Total Fund and the Target Mix, contrasted with the returns and risks of the funds in the Callan Public Fund Sponsor Database.

### Cumulative Returns Actual vs Target



### Seven and One-Half Year Annualized Risk vs Return



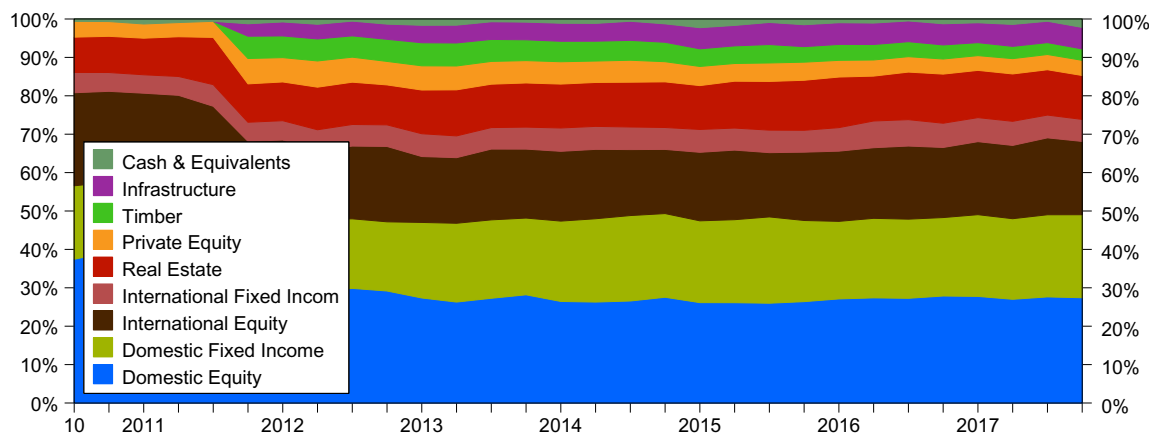
Squares represent membership of the Callan Public Fund Sponsor Database

\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% MSCI World, 13.0% Blmbg Aggregate, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 6.0% Blmbg Glob Agg ex USD, 6.0% NDSIB TFFR - Private Equity, 5.5% CPI-W, 4.8% Russell 2000 Index, 4.0% Blmbg HY 2% Iss Cap, 2.8% MSCI EM, 2.5% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

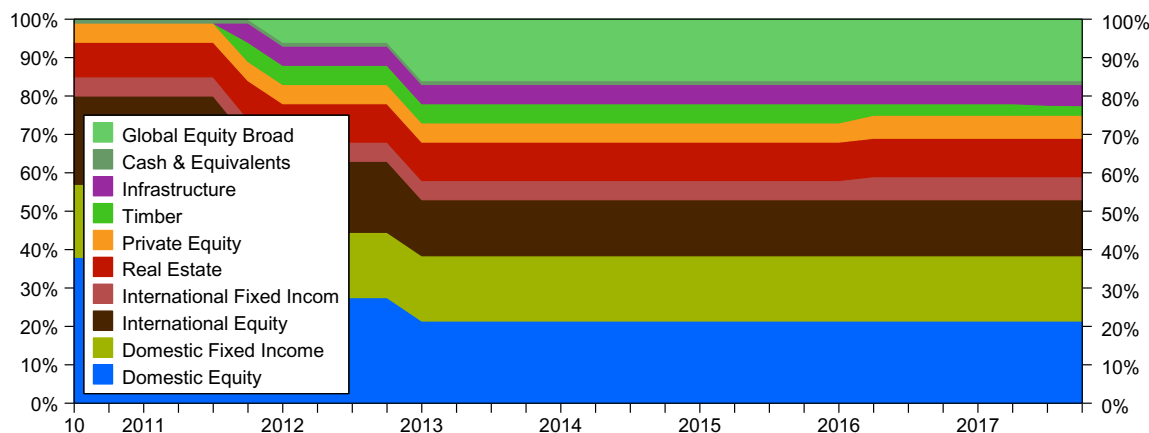
## Actual vs Target Historical Asset Allocation

The Historical asset allocation for a fund is by far the largest factor explaining its performance. The charts below show the fund's historical actual asset allocation, the fund's historical target asset allocation, and the historical asset allocation of the average fund in the Callan Public Fund Sponsor Database.

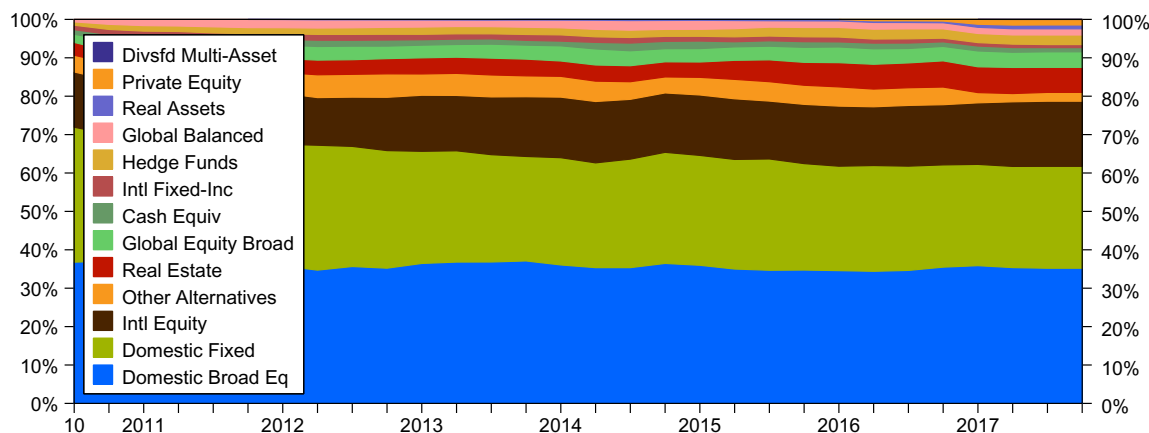
### Actual Historical Asset Allocation



### Target Historical Asset Allocation



### Average Callan Public Fund Sponsor Database Historical Asset Allocation

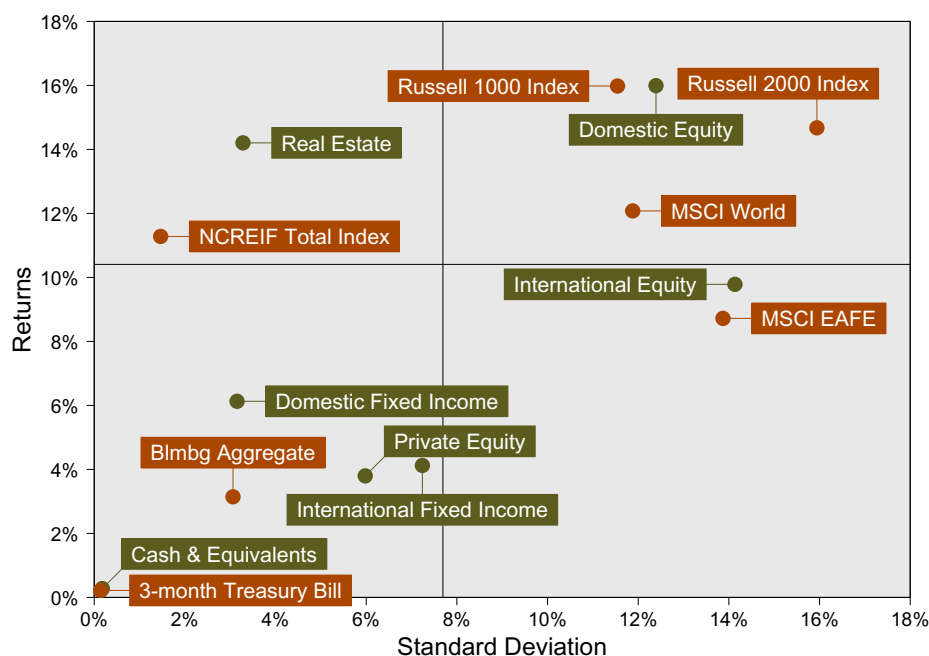


\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% MSCI World, 13.0% Blmbg Aggregate, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 6.0% Blmbg Glob Agg ex USD, 6.0% NDSIB TFFR - Private Equity, 5.5% CPI-W, 4.8% Russell 2000 Index, 4.0% Blmbg HY 2% Iss Cap, 2.8% MSCI EM, 2.5% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

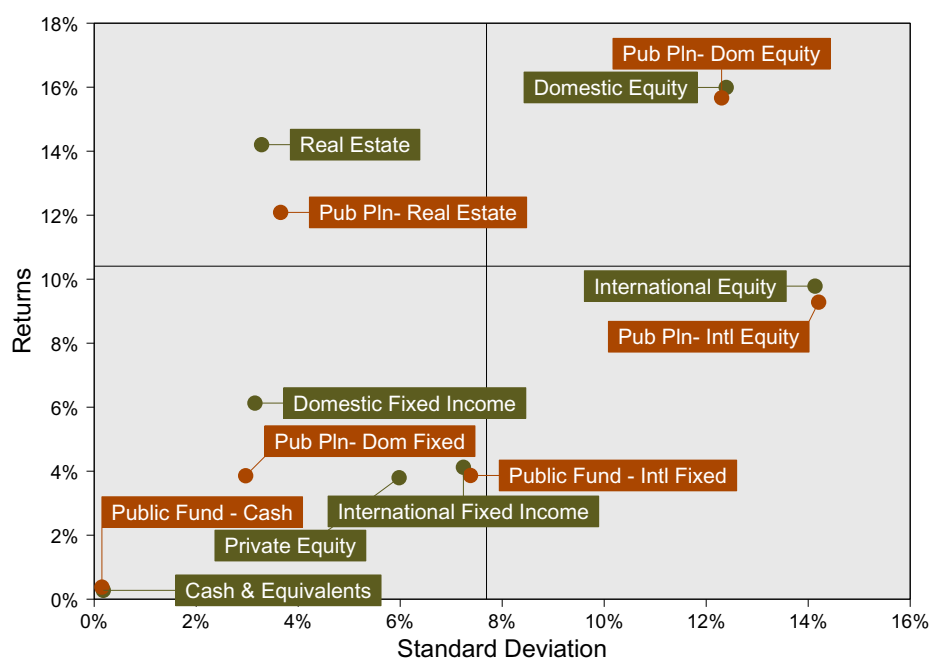
## Asset Class Risk and Return

The charts below show the seven and one-half year annualized risk and return for each asset class component of the Total Fund. The first graph contrasts these values with those of the appropriate index for each asset class. The second chart contrasts them with the risk and return of the median portfolio in each of the appropriate CAI comparative databases. In each case, the crosshairs on the chart represent the return and risk of the Total Fund.

**Seven and One-Half Year Annualized Risk vs Return  
Asset Classes vs Benchmark Indices**



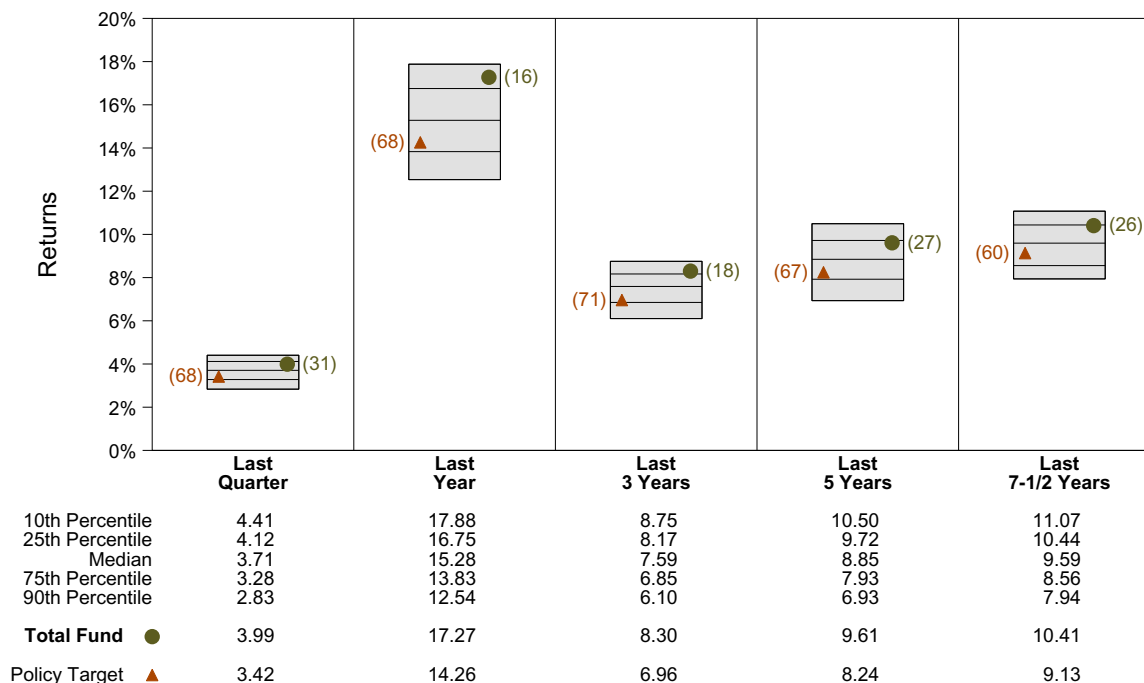
**Seven and One-Half Year Annualized Risk vs Return  
Asset Classes vs Asset Class Median**



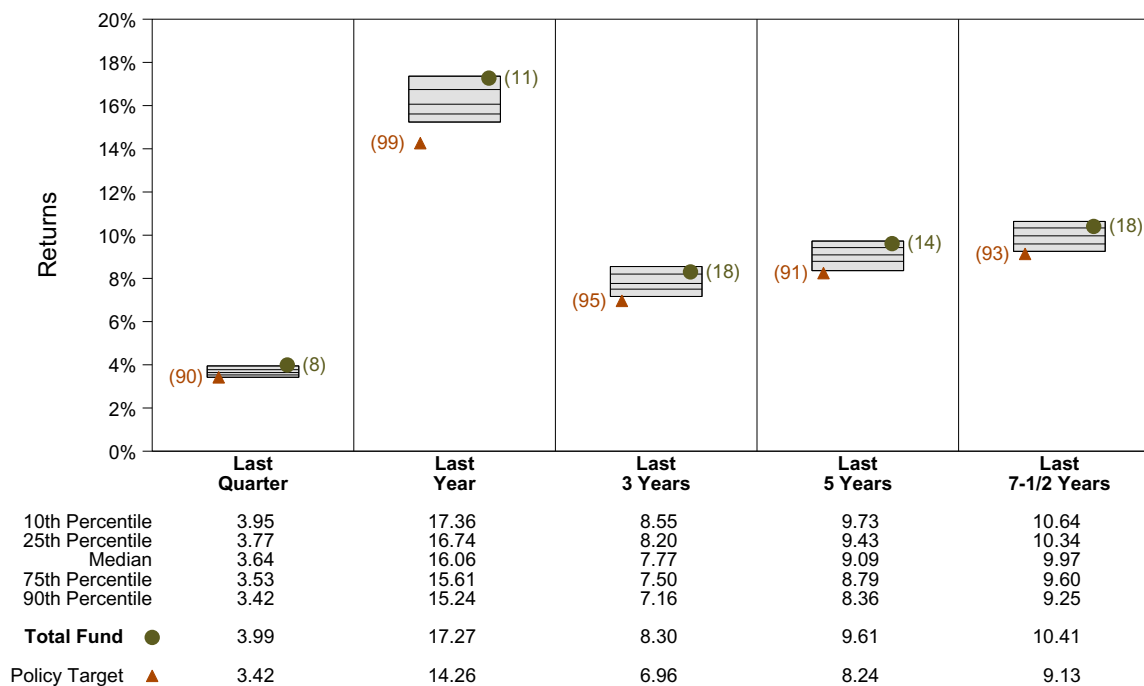
## Total Fund Ranking

The first two charts show the ranking of the Total Fund's performance relative to that of the Callan Public Fund Sponsor Database for periods ended December 31, 2017. The first chart is a standard unadjusted ranking. In the second chart each fund in the database is adjusted to have the same historical asset allocation as that of the Total Fund.

### Callan Public Fund Sponsor Database



### Asset Allocation Adjusted Ranking

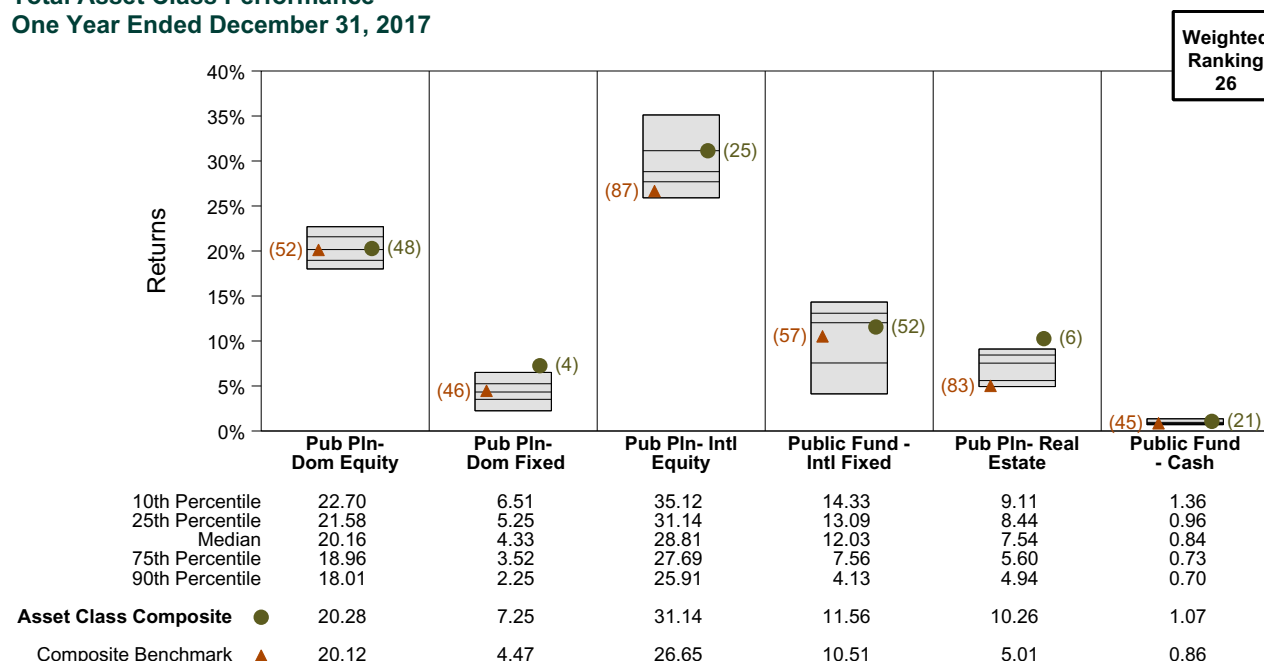


\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% MSCI World, 13.0% Blmbg Aggregate, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 6.0% Blmbg Glob Agg ex USD, 6.0% NDSIB TFFR - Private Equity, 5.5% CPI-W, 4.8% Russell 2000 Index, 4.0% Blmbg HY 2% Iss Cap, 2.8% MSCI EM, 2.5% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

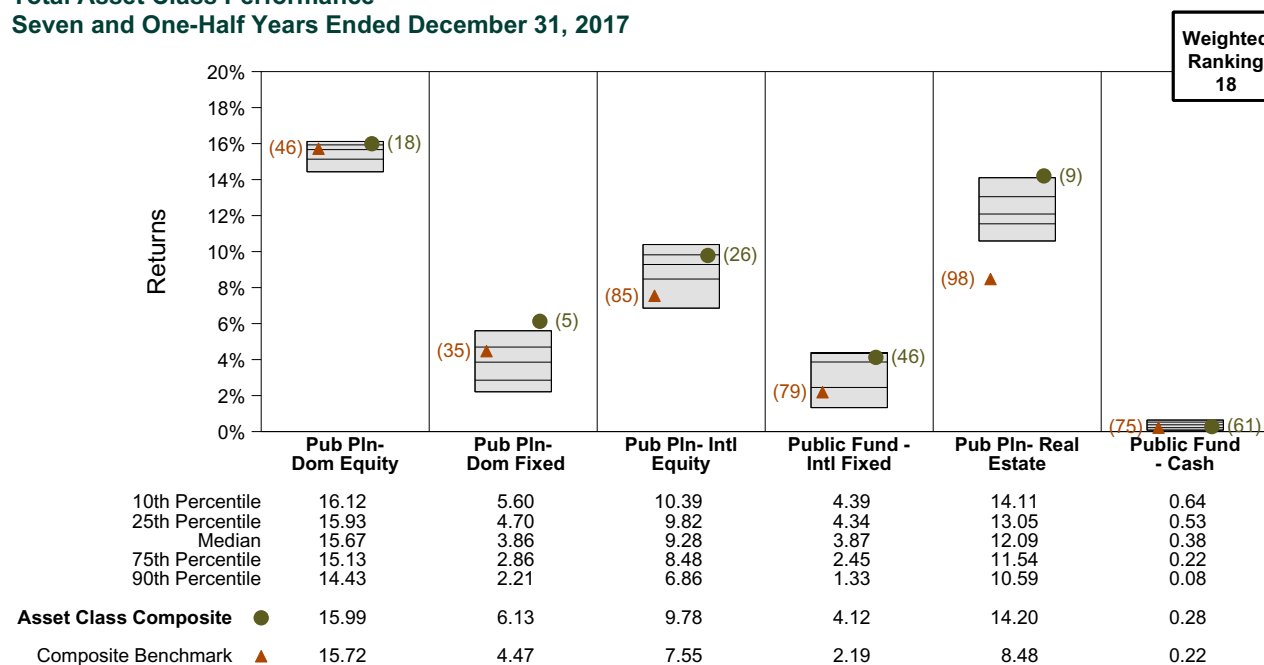
## Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases. In the upper right corner of each graph is the weighted average of the rankings across the different asset classes. The weights of the fund's actual asset allocation are used to make this calculation. The weighted average ranking can be viewed as a measure of the fund's overall success in picking managers and structuring asset classes.

### Total Asset Class Performance One Year Ended December 31, 2017



### Total Asset Class Performance Seven and One-Half Years Ended December 31, 2017



\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% MSCI World, 13.0% Blmbg Aggregate, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 6.0% Blmbg Glob Agg ex USD, 6.0% NDSIB TFFR - Private Equity, 5.5% CPI-W, 4.8% Russell 2000 Index, 4.0% Blmbg HY 2% Iss Cap, 2.8% MSCI EM, 2.5% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

## Asset Class Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2017, with the distribution as of September 30, 2017. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

### Asset Class Allocation

	December 31, 2017				September 30, 2017	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
<b>GLOBAL EQUITY</b>	<b>\$1,458,475,618</b>	<b>58.97%</b>	<b>\$(55,725,199)</b>	<b>\$80,923,522</b>	<b>\$1,433,277,296</b>	<b>60.02%</b>
<b>Domestic Equity</b>	<b>\$561,368,126</b>	<b>22.70%</b>	<b>\$(17,706,195)</b>	<b>\$33,927,248</b>	<b>\$545,147,073</b>	<b>22.83%</b>
Large Cap	436,907,647	17.67%	(7,604,005)	28,573,967	415,937,685	17.42%
Small Cap	124,460,479	5.03%	(10,102,190)	5,353,281	129,209,388	5.41%
<b>International Equity</b>	<b>\$390,935,293</b>	<b>15.81%</b>	<b>\$(25,171,319)</b>	<b>\$20,772,411</b>	<b>\$395,334,200</b>	<b>16.56%</b>
Developed Intl Equity	306,693,052	12.40%	(15,171,319)	14,616,085	307,248,285	12.87%
Emerging Markets	84,242,241	3.41%	(10,000,000)	6,156,326	88,085,915	3.69%
<b>World Equity</b>	<b>\$425,201,673</b>	<b>17.19%</b>	<b>\$(12,850,593)</b>	<b>\$23,443,057</b>	<b>\$414,609,208</b>	<b>17.36%</b>
<b>Private Equity</b>	<b>\$80,970,527</b>	<b>3.27%</b>	<b>\$2,908</b>	<b>\$2,780,805</b>	<b>\$78,186,815</b>	<b>3.27%</b>
<b>GLOBAL FIXED INCOME</b>	<b>\$559,989,808</b>	<b>22.64%</b>	<b>\$16,870,617</b>	<b>\$4,076,107</b>	<b>\$539,043,084</b>	<b>22.57%</b>
<b>Fixed Income Comp</b>	<b>\$442,703,933</b>	<b>17.90%</b>	<b>\$16,980,157</b>	<b>\$3,607,439</b>	<b>\$422,116,338</b>	<b>17.68%</b>
Investment Grade Fixed	305,818,673	12.37%	(133,031)	2,197,686	303,754,018	12.72%
Below Inv. Grade Fixed Income	136,885,260	5.53%	17,113,187	1,409,753	118,362,320	4.96%
<b>International Fixed Income</b>	<b>\$117,285,874</b>	<b>4.74%</b>	<b>\$(109,540)</b>	<b>\$468,669</b>	<b>\$116,926,746</b>	<b>4.90%</b>
<b>GLOBAL REAL ASSETS</b>	<b>\$409,702,574</b>	<b>16.57%</b>	<b>\$(4,590,328)</b>	<b>\$10,366,808</b>	<b>\$403,926,094</b>	<b>16.92%</b>
Real Estate	234,195,986	9.47%	(5,060,531)	6,268,943	232,987,574	9.76%
Timber	60,875,438	2.46%	0	(254,077)	61,129,515	2.56%
Infrastructure	114,631,151	4.64%	470,203	4,351,943	109,809,006	4.60%
<b>Cash &amp; Equivalents</b>	<b>\$44,929,868</b>	<b>1.82%</b>	<b>\$33,164,624</b>	<b>\$105,134</b>	<b>\$11,660,110</b>	<b>0.49%</b>
<b>Securities Lending Income</b>	<b>\$0</b>	<b>0.00%</b>	<b>\$(40,512)</b>	<b>\$40,512</b>	<b>-</b>	<b>-</b>
<b>Total Fund</b>	<b>\$2,473,097,868</b>	<b>100.0%</b>	<b>\$(10,320,799)</b>	<b>\$95,512,083</b>	<b>\$2,387,906,584</b>	<b>100.0%</b>

PLEASE REFER TO PAGES 30-32 FOR INVESTMENT MANAGER LEVEL ASSET ALLOCATION.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7-1/2 Years
<b>Global Equity</b>					
Gross	5.75%	24.14%	9.96%	12.22%	-
Net	5.69%	23.87%	9.68%	11.90%	-
Wtd Avg Global Equity Benchmark	5.27%	21.02%	8.66%	10.90%	-
<b>Domestic Equity</b>					
Gross	6.36%	20.28%	11.29%	15.98%	15.99%
Net	6.32%	20.08%	11.10%	15.77%	15.74%
Wtd Avg Domestic Equity Benchmark	5.85%	20.12%	11.00%	15.42%	15.72%
<b>Large Cap Equity</b>					
Gross	6.99%	21.85%	11.92%	16.57%	16.34%
Net	6.96%	21.73%	11.78%	16.40%	16.11%
Benchmark(1)	6.59%	21.69%	11.23%	15.71%	15.98%
<b>Small Cap Equity</b>					
Gross	4.39%	15.30%	9.04%	13.83%	14.71%
Net	4.31%	14.87%	8.69%	13.50%	14.40%
Russell 2000 Index	3.34%	14.65%	9.96%	14.12%	14.67%
<b>International Equity</b>					
Gross	5.44%	31.14%	10.57%	9.46%	9.78%
Net	5.40%	30.92%	10.37%	9.22%	9.48%
Wtd Avg Intl Equity Benchmark	4.84%	26.65%	8.00%	7.21%	7.55%
<b>Developed Intl Equity</b>					
Gross	4.89%	28.85%	10.40%	10.12%	10.15%
Net	4.83%	28.57%	10.14%	9.85%	9.84%
Benchmark(2)	4.23%	24.21%	7.64%	7.80%	7.88%
<b>Emerging Markets</b>					
Gross	7.58%	39.80%	10.53%	5.94%	7.77%
Net	7.58%	39.80%	10.53%	5.79%	7.49%
Benchmark(3)	7.44%	37.28%	9.10%	4.35%	5.71%
<b>World Equity</b>					
Gross	5.72%	26.69%	9.96%	12.44%	-
Net	5.63%	26.22%	9.40%	11.77%	-
MSCI World Index	5.51%	22.40%	9.26%	11.64%	12.08%
<b>Private Equity</b>					
Net	3.51%	7.43%	(0.38%)	1.33%	3.72%

(1) S&P 500 Index through 12/31/2011 and the Russell 1000 Index thereafter.

(2) 50% Hedged EAFE through 3/31/2011; MSCI EAFE through 6/30/16; MSCI World ex-US thereafter.

(3) MSCI Emerging Mkts Idx (Gross) through 6/30/2011 and MSCI Emerging Mkts Idx Net thereafter.

PLEASE REFER TO PAGES 33-37 FOR INVESTMENT MANAGER LEVEL RETURNS.



## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7-1/2 Years
<b>Global Fixed Income</b>					
Gross	0.73%	8.23%	4.21%	3.92%	-
Net	0.67%	7.98%	3.96%	3.67%	-
Wtd Avg Global Fixed Inc. Benchmark	0.73%	6.03%	2.90%	2.32%	-
<b>Domestic Fixed Income</b>					
Gross	0.83%	7.25%	4.72%	4.77%	6.13%
Net	0.79%	7.05%	4.51%	4.56%	5.98%
Wtd Avg Domestic FI Benchmark	0.41%	4.47%	3.22%	3.05%	4.47%
<b>Inv. Grade Fixed Income</b>					
Gross	0.72%	6.41%	3.97%	3.96%	5.09%
Net	0.69%	6.27%	3.84%	3.84%	4.92%
Blmbg Aggregate Index	0.39%	3.54%	2.24%	2.10%	3.14%
<b>Below Inv. Grade Fixed Income</b>					
Gross	1.10%	9.56%	6.78%	6.89%	8.97%
Net	1.03%	9.17%	6.37%	6.45%	8.54%
Blmbg HY Corp 2% Issue	0.47%	7.50%	6.36%	5.78%	7.92%
<b>International Fixed Income</b>					
Gross	0.40%	11.56%	2.49%	0.99%	4.12%
Net	0.31%	11.16%	2.13%	0.63%	3.75%
Wtd Avg Intl Fixed Income Benchmark	1.63%	10.51%	1.77%	(0.20%)	2.19%
<b>Global Real Assets</b>					
Gross	2.57%	8.29%	7.91%	8.47%	-
Net	2.48%	7.87%	7.47%	8.04%	-
Wtd Avg Global Real Assets Benchmark	1.15%	5.02%	6.01%	6.95%	-
<b>Real Estate</b>					
Gross	2.72%	10.26%	11.94%	13.05%	14.20%
Net	2.60%	9.74%	11.39%	12.50%	13.64%
NCREIF Total Index	1.80%	6.96%	9.38%	10.19%	11.28%
<b>Timber</b>					
Net	(0.42%)	(3.98%)	(0.85%)	(0.35%)	-
NCREIF Timberland Index	1.52%	3.63%	3.73%	6.22%	5.24%
<b>Infrastructure</b>					
Gross	3.93%	11.99%	5.18%	6.11%	-
Net	3.82%	11.49%	4.63%	5.52%	-
CPI-W	(0.17%)	2.18%	1.52%	1.26%	1.58%
<b>Cash &amp; Equivalents - Net</b>	<b>0.31%</b>	<b>1.07%</b>	<b>0.56%</b>	<b>0.36%</b>	<b>0.28%</b>
3-month Treasury Bill	0.28%	0.86%	0.41%	0.27%	0.22%
<b>Total Fund</b>					
Gross	3.99%	17.27%	8.30%	9.61%	10.41%
Net	3.93%	16.98%	8.00%	9.29%	10.06%
Target*	3.42%	14.26%	6.96%	8.24%	9.13%

\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% MSCI World, 13.0% Blmbg Aggregate, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 6.0% Blmbg Glob Agg ex USD, 6.0% NDSIB TFFR - Private Equity, 5.5% CPI-W, 4.8% Russell 2000 Index, 4.0% Blmbg HY 2% Iss Cap, 2.8% MSCI EM, 2.5% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

PLEASE REFER TO PAGES 33-37 FOR INVESTMENT MANAGER LEVEL RETURNS.

## Domestic Equity Period Ended December 31, 2017

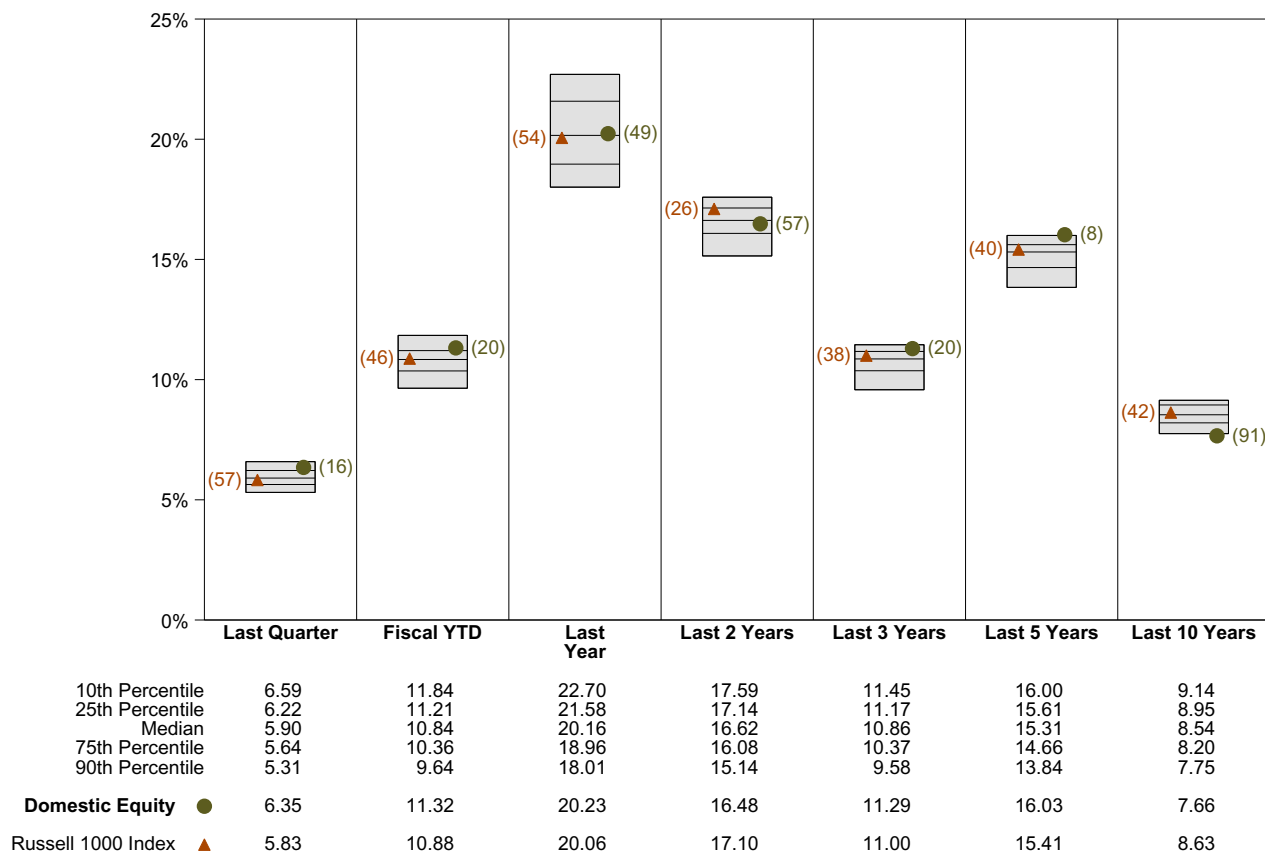
### Quarterly Summary and Highlights

- Domestic Equity's portfolio posted a 6.35% return for the quarter placing it in the 16 percentile of the Public Fund - Domestic Equity group for the quarter and in the 49 percentile for the last year.
- Domestic Equity's portfolio outperformed the Russell 1000 Index by 0.52% for the quarter and outperformed the Russell 1000 Index for the year by 0.17%.

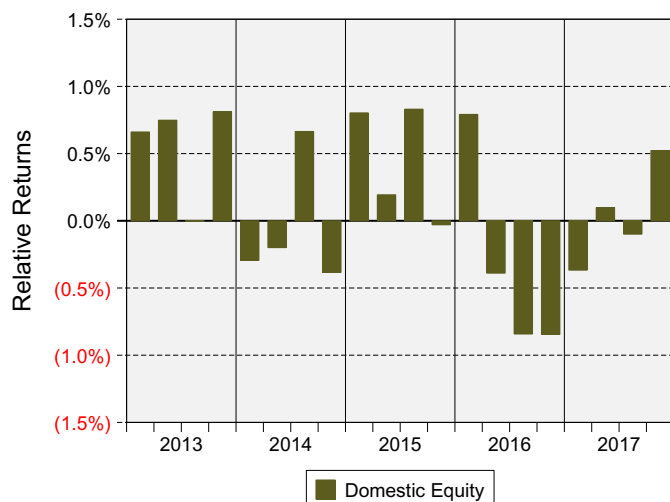
### Quarterly Asset Growth

Beginning Market Value	\$1,248,756,078
Net New Investment	\$-40,476,386
Investment Gains/(Losses)	\$77,631,988
Ending Market Value	\$1,285,911,681

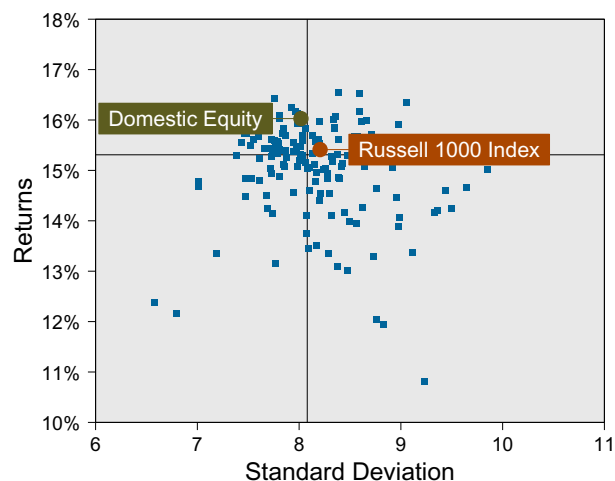
### Performance vs Public Fund - Domestic Equity (Gross)



### Relative Return vs Russell 1000 Index



### Public Fund - Domestic Equity (Gross) Annualized Five Year Risk vs Return



## L.A. Capital Period Ended December 31, 2017

### Investment Philosophy

The LA Capital Structured portfolio is a large growth portfolio benchmarked to the Russell 1000 Growth Index. It is an active assignment meaning that it targets a 2% alpha and constrains its risk budget (tracking error) to 4% relative to the benchmark. LA Capital believes that investment results are driven by Investor Preferences and thus recognize that when preferences shift a different posture related to that factor is warranted.

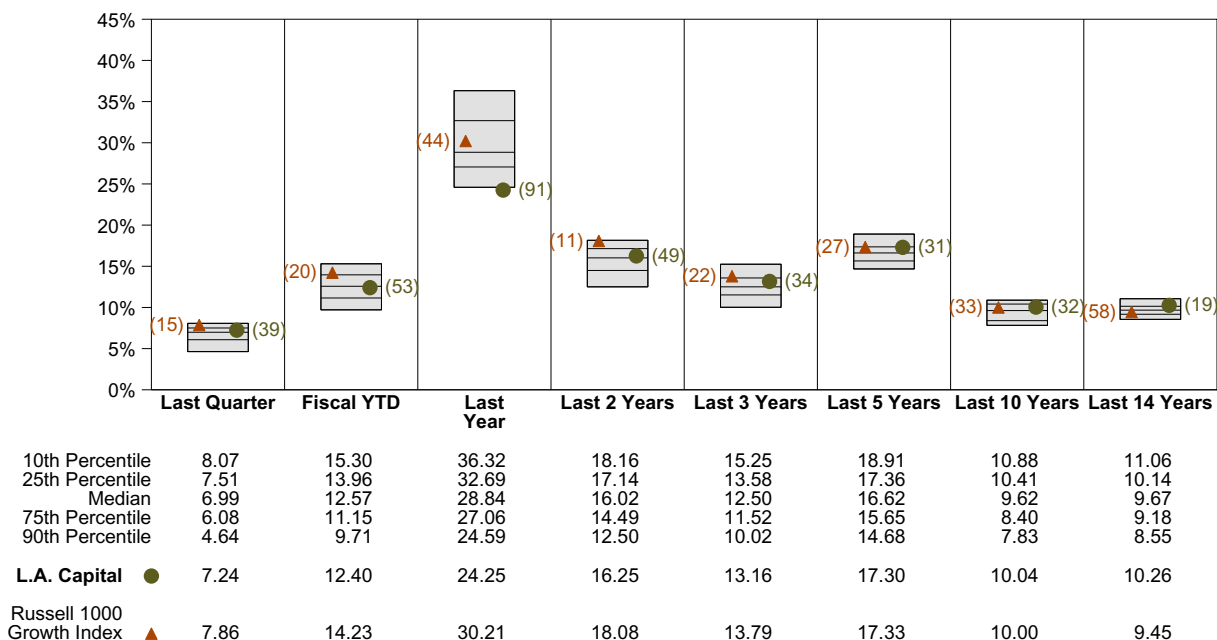
### Quarterly Summary and Highlights

- L.A. Capital's portfolio posted a 7.24% return for the quarter placing it in the 39 percentile of the Callan Large Cap Growth group for the quarter and in the 91 percentile for the last year.
- L.A. Capital's portfolio underperformed the Russell 1000 Growth Index by 0.62% for the quarter and underperformed the Russell 1000 Growth Index for the year by 5.96%.

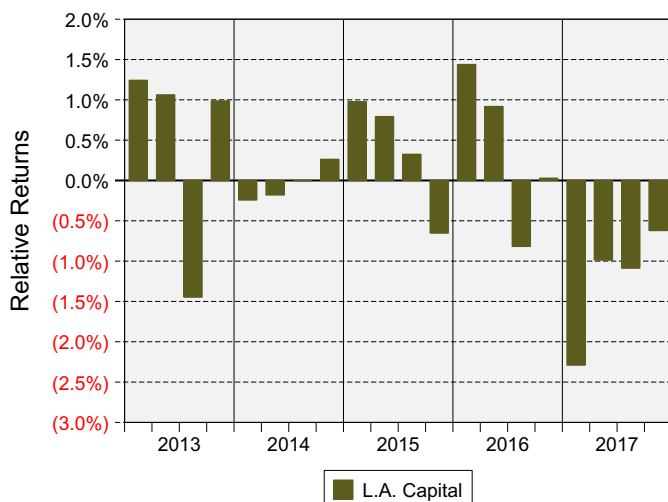
### Quarterly Asset Growth

Beginning Market Value	\$361,203,730
Net New Investment	\$-184,944
Investment Gains/(Losses)	\$26,154,569
Ending Market Value	\$387,173,355

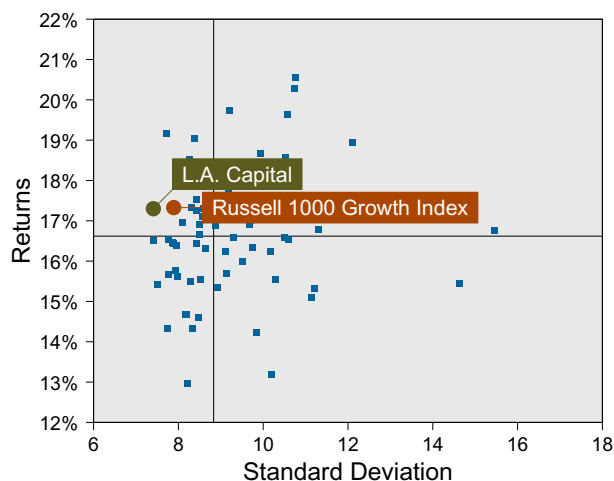
### Performance vs Callan Large Cap Growth (Gross)



### Relative Return vs Russell 1000 Growth Index



### Callan Large Cap Growth (Gross) Annualized Five Year Risk vs Return



## L.A. Capital Management Enhanced Index Period Ended December 31, 2017

### Investment Philosophy

The LA Capital Enhanced portfolio is a large core portfolio benchmarked to the Russell 1000 Index. Characterized as an enhanced index assignment, its objective is to track the benchmark with lower variability. The pension portfolio began in August of 2000 and the insurance portfolio was initiated in April of 2004. Since October of 2006 a small portion of each of the two core accounts was allocated into the Large Cap Alpha Fund with intent to add incremental alpha to the assignment given that the information ratio was expected to be higher.

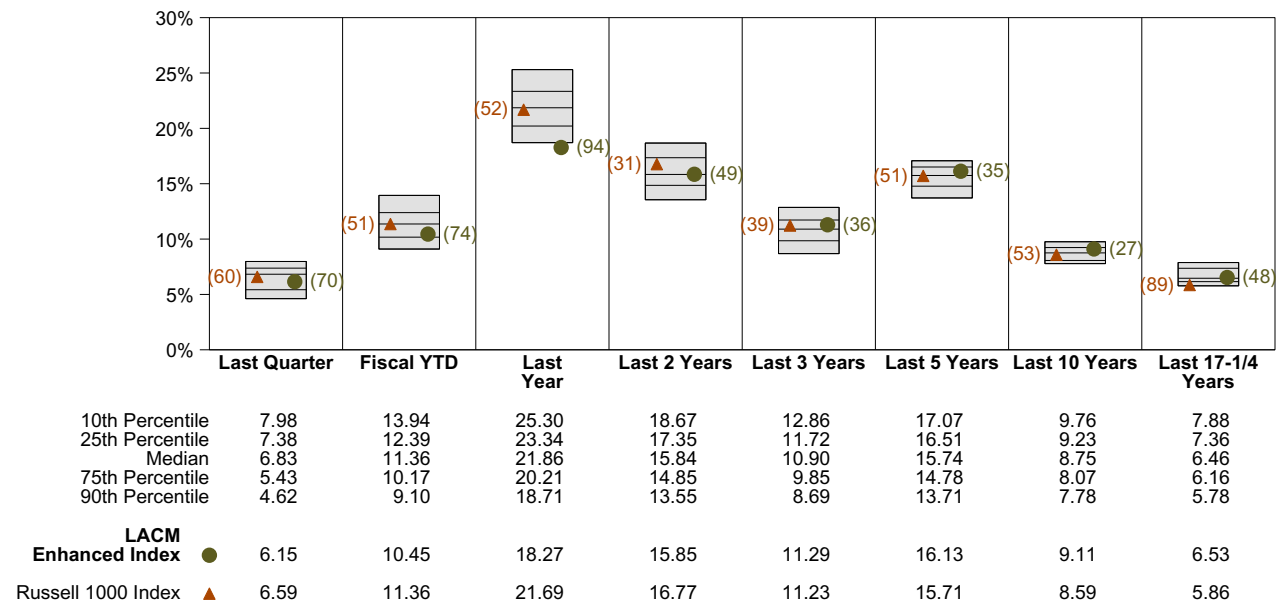
### Quarterly Summary and Highlights

- LACM Enhanced Index's portfolio posted a 6.15% return for the quarter placing it in the 70 percentile of the Callan Large Cap Core group for the quarter and in the 94 percentile for the last year.
- LACM Enhanced Index's portfolio underperformed the Russell 1000 Index by 0.44% for the quarter and underperformed the Russell 1000 Index for the year by 3.42%.

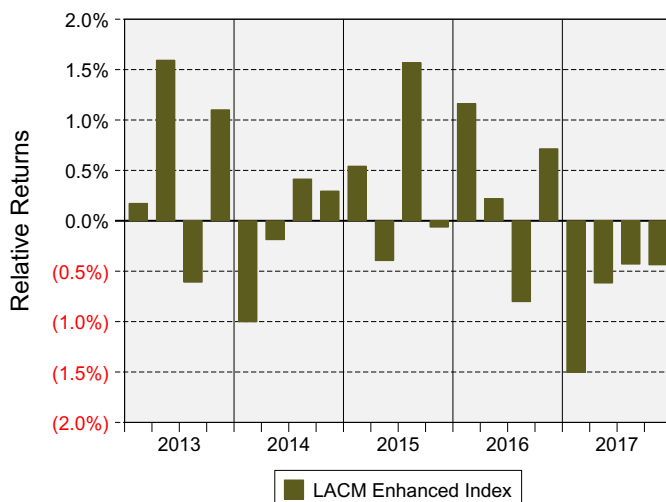
### Quarterly Asset Growth

Beginning Market Value	\$208,491,454
Net New Investment	\$-10,052,036
Investment Gains/(Losses)	\$12,231,285
Ending Market Value	\$210,670,704

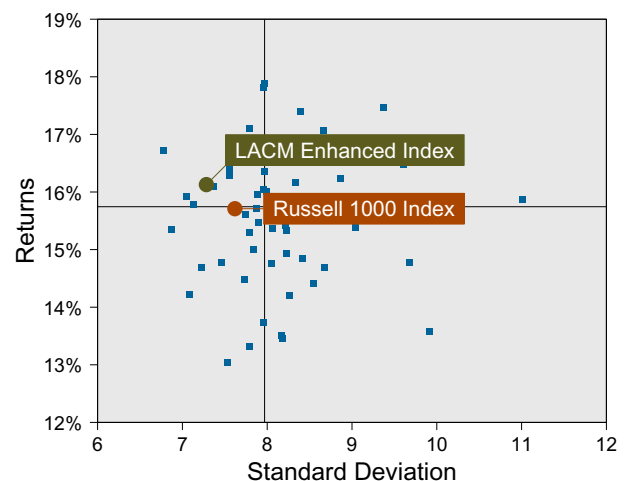
### Performance vs Callan Large Cap Core (Gross)



### Relative Return vs Russell 1000 Index



### Callan Large Cap Core (Gross) Annualized Five Year Risk vs Return



## Northern Trust AM Enh S&P500 Period Ended December 31, 2017

### Investment Philosophy

Northern Trust AM Enhanced S&P 500 employs a quantitative investment approach, focusing on the stock selection process as the principal source of value added. The account invests primarily in a broadly diversified portfolio of equity securities that include securities convertible into equity securities (including common stock), warrants, rights and units or shares in trusts, exchange traded funds and investment companies. The Investment Manager intends to use futures and options to manage market risk associated with the account's investments.

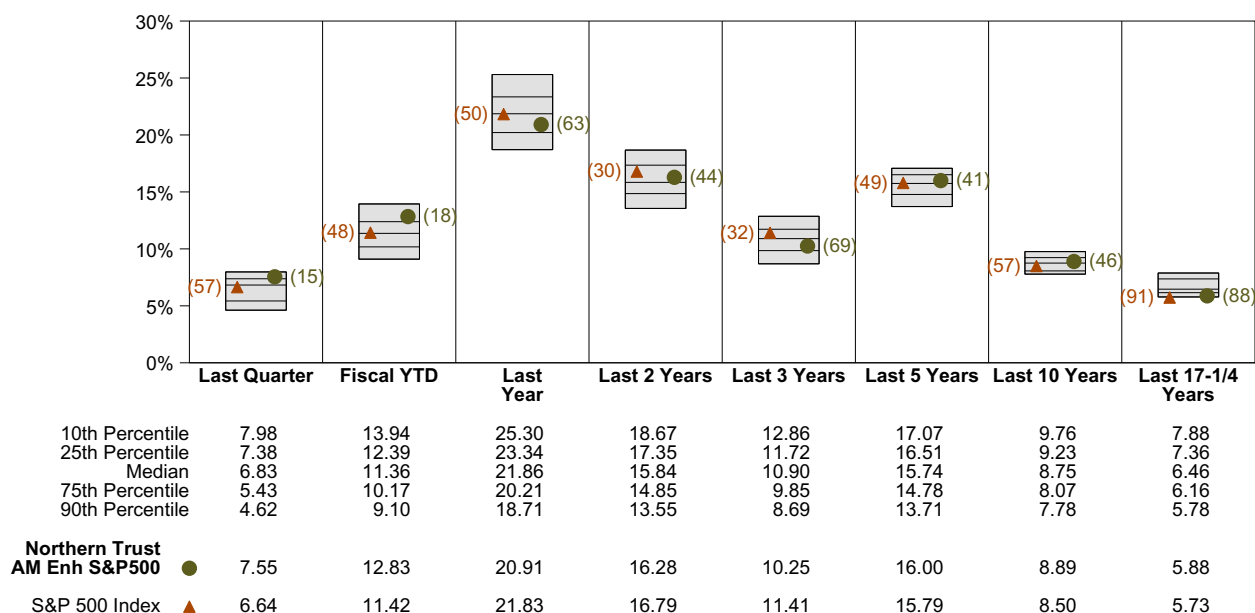
### Quarterly Summary and Highlights

- Northern Trust AM Enh S&P500's portfolio posted a 7.55% return for the quarter placing it in the 15 percentile of the Callan Large Cap Core group for the quarter and in the 63 percentile for the last year.
- Northern Trust AM Enh S&P500's portfolio outperformed the S&P 500 Index by 0.90% for the quarter and underperformed the S&P 500 Index for the year by 0.92%.

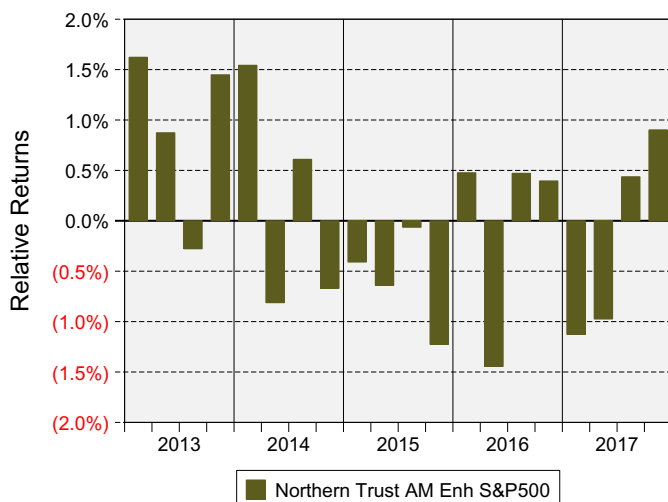
### Quarterly Asset Growth

Beginning Market Value	\$175,544,658
Net New Investment	\$0
Investment Gains/(Losses)	\$13,246,835
Ending Market Value	\$188,791,493

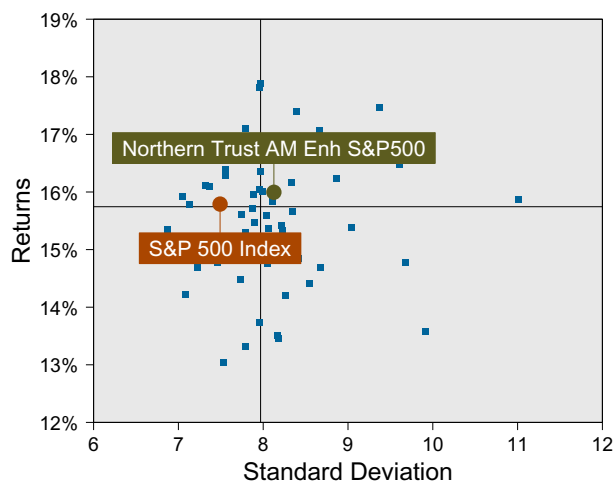
### Performance vs Callan Large Cap Core (Gross)



### Relative Return vs S&P 500 Index



### Callan Large Cap Core (Gross) Annualized Five Year Risk vs Return



## Parametric Clifton Enh S&P Period Ended December 31, 2017

### Investment Philosophy

Parametric Clifton utilizes equity futures to gain benchmark exposure in constructing the portfolio it believes provides the greatest likelihood of outperforming the index. In this construction the underlying cash portfolio is invested in a liquid, high quality short duration fixed income portfolio. Over market cycles excess return generated by the short duration portfolio, when added to the performance of futures is expected to allow the strategy to achieve 0.50% to 1.00% of gross excess annual performance.

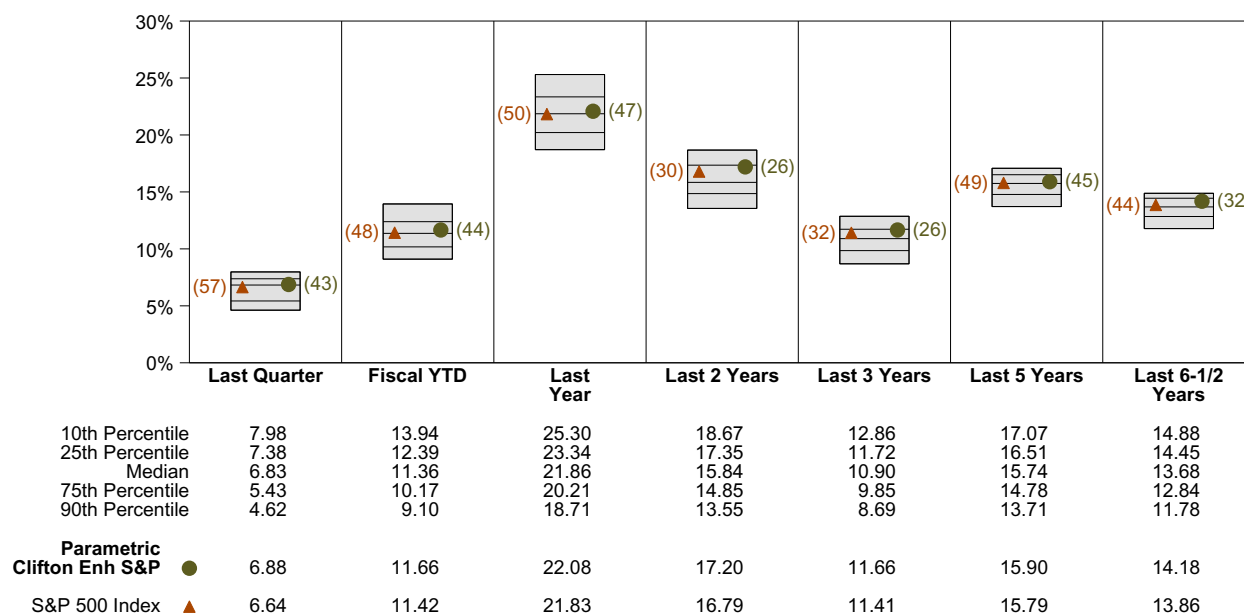
### Quarterly Summary and Highlights

- Parametric Clifton Enh S&P's portfolio posted a 6.88% return for the quarter placing it in the 43 percentile of the Callan Large Cap Core group for the quarter and in the 47 percentile for the last year.
- Parametric Clifton Enh S&P's portfolio outperformed the S&P 500 Index by 0.23% for the quarter and outperformed the S&P 500 Index for the year by 0.25%.

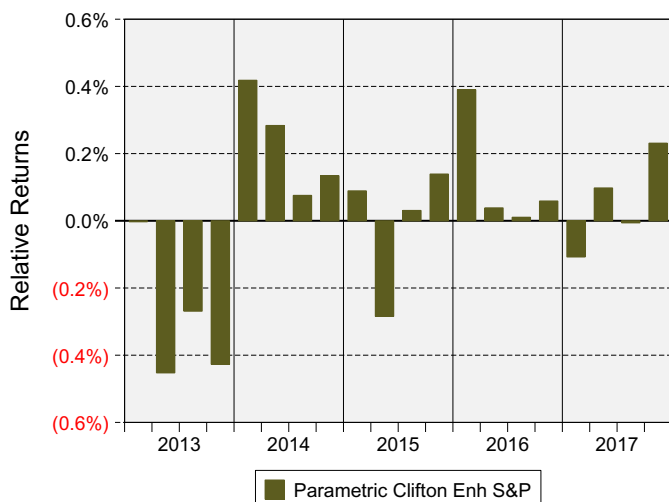
### Quarterly Asset Growth

Beginning Market Value	\$200,810,053
Net New Investment	\$-5,000,000
Investment Gains/(Losses)	\$13,483,421
Ending Market Value	\$209,293,474

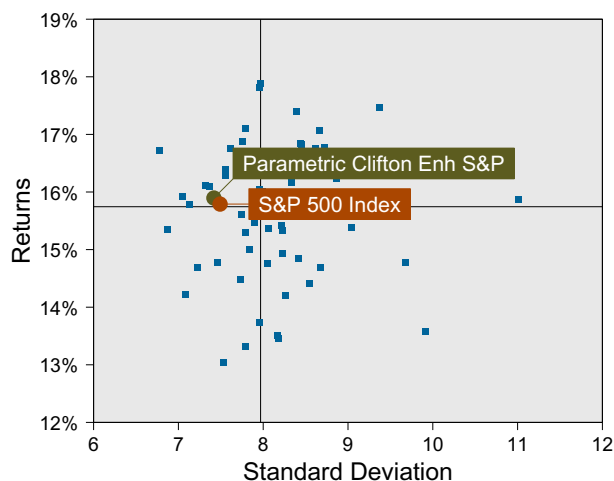
### Performance vs Callan Large Cap Core (Gross)



### Relative Return vs S&P 500 Index



### Callan Large Cap Core (Gross) Annualized Five Year Risk vs Return



# Atlanta Capital

## Period Ended December 31, 2017

### Investment Philosophy

Atlanta believes that high quality companies produce consistently increasing earnings and dividends, thereby providing attractive returns with moderate risk over the long-term.

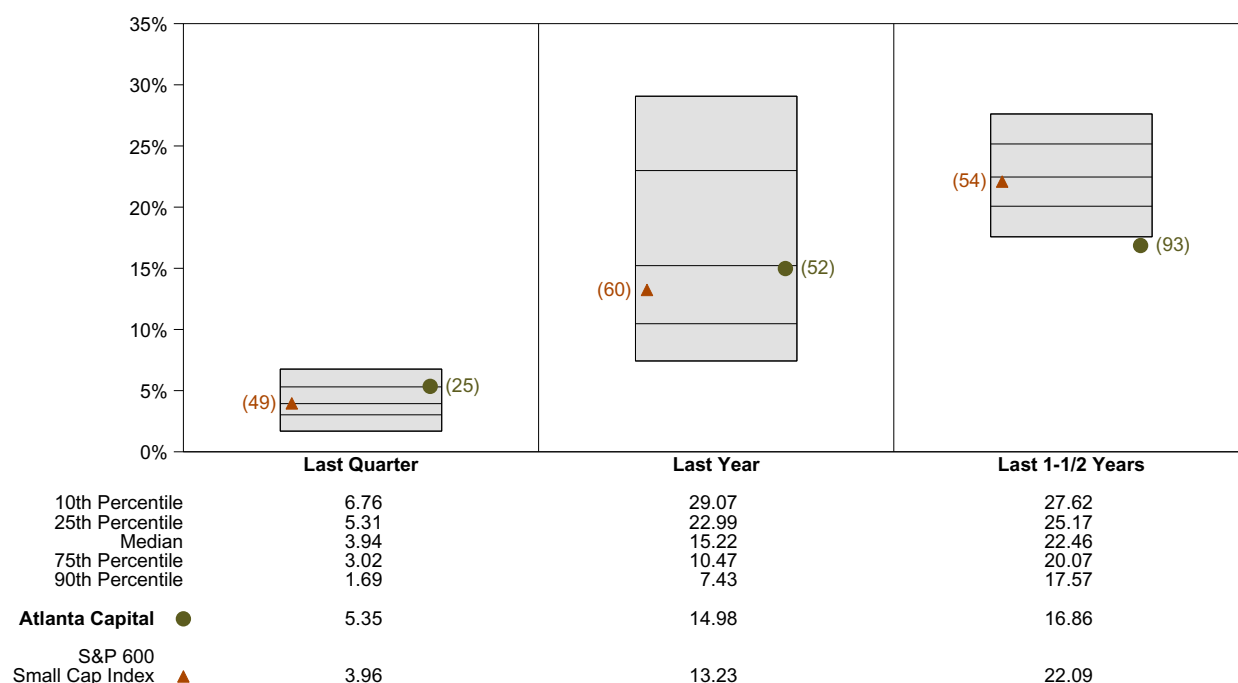
### Quarterly Summary and Highlights

- Atlanta Capital's portfolio posted a 5.35% return for the quarter placing it in the 25 percentile of the Callan Small Capitalization group for the quarter and in the 52 percentile for the last year.
- Atlanta Capital's portfolio outperformed the S&P 600 Small Cap Index by 1.39% for the quarter and outperformed the S&P 600 Small Cap Index for the year by 1.75%.

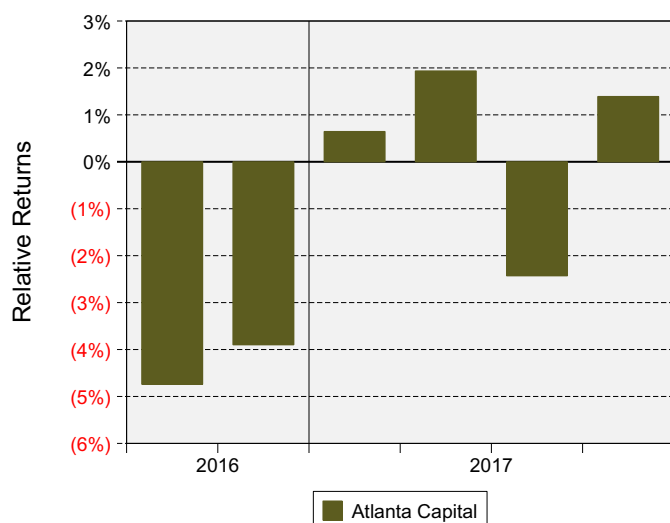
### Quarterly Asset Growth

Beginning Market Value	\$134,603,739
Net New Investment	\$-239,406
Investment Gains/(Losses)	\$7,193,429
Ending Market Value	\$141,557,762

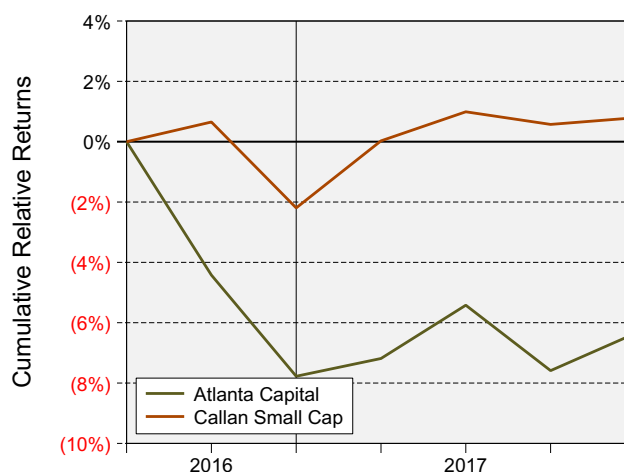
### Performance vs Callan Small Capitalization (Gross)



### Relative Return vs S&P 600 Small Cap Index



### Cumulative Returns vs S&P 600 Small Cap Index



## Parametric Clifton Enh SmCap Period Ended December 31, 2017

### Investment Philosophy

Parametric Clifton utilizes equity futures to gain benchmark exposure in constructing the portfolio it believes provides the greatest likelihood of outperforming the index. In this construction the underlying cash portfolio is invested in a liquid, high quality short duration fixed income portfolio. Over market cycles excess return generated by the short duration portfolio, when added to the performance of futures is expected to allow the strategy to achieve 0.50% to 1.00% of gross excess annual performance.

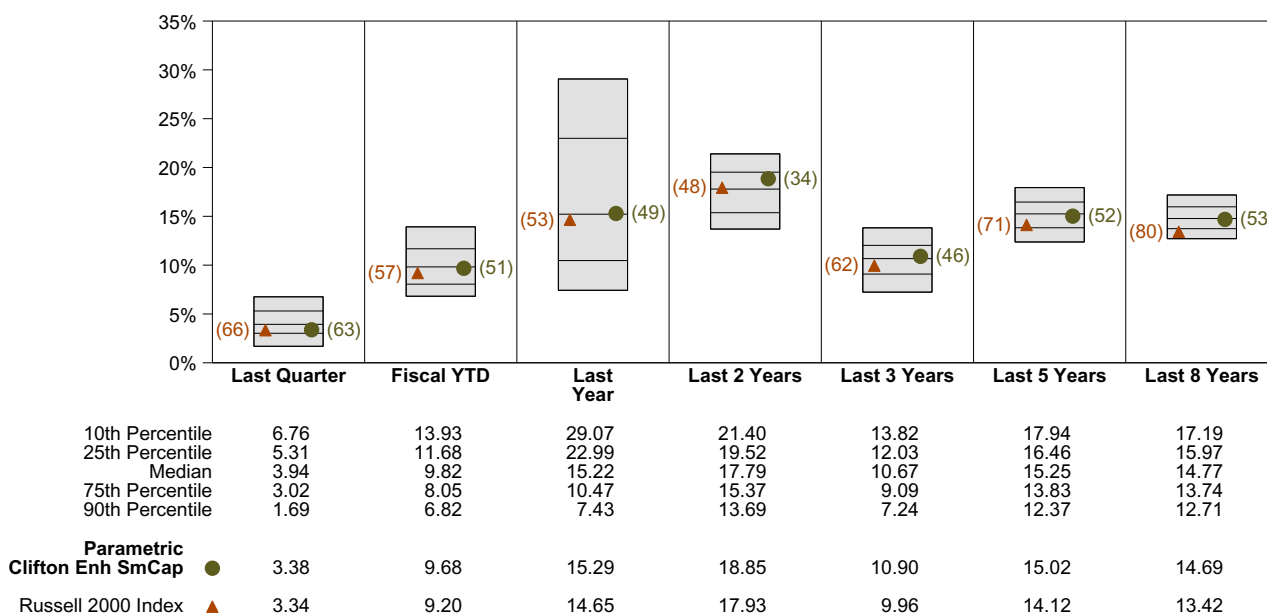
### Quarterly Summary and Highlights

- Parametric Clifton Enh SmCap's portfolio posted a 3.38% return for the quarter placing it in the 63 percentile of the Callan Small Capitalization group for the quarter and in the 49 percentile for the last year.
- Parametric Clifton Enh SmCap's portfolio outperformed the Russell 2000 Index by 0.04% for the quarter and outperformed the Russell 2000 Index for the year by 0.64%.

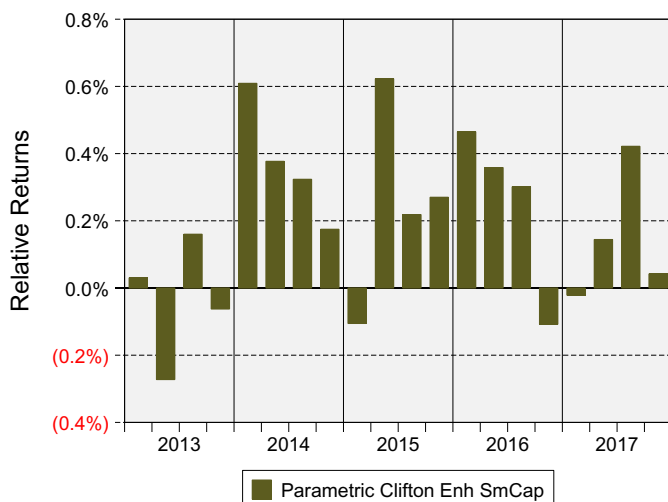
### Quarterly Asset Growth

Beginning Market Value	\$168,102,443
Net New Investment	\$-25,000,000
Investment Gains/(Losses)	\$5,322,450
Ending Market Value	\$148,424,893

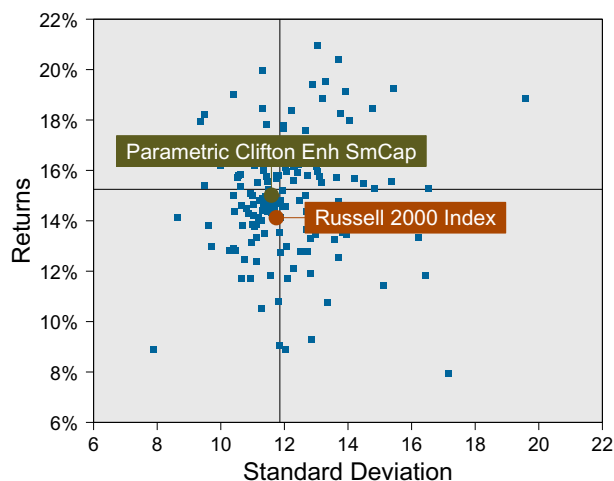
### Performance vs Callan Small Capitalization (Gross)



### Relative Return vs Russell 2000 Index



### Callan Small Capitalization (Gross) Annualized Five Year Risk vs Return





## International Equity Period Ended December 31, 2017

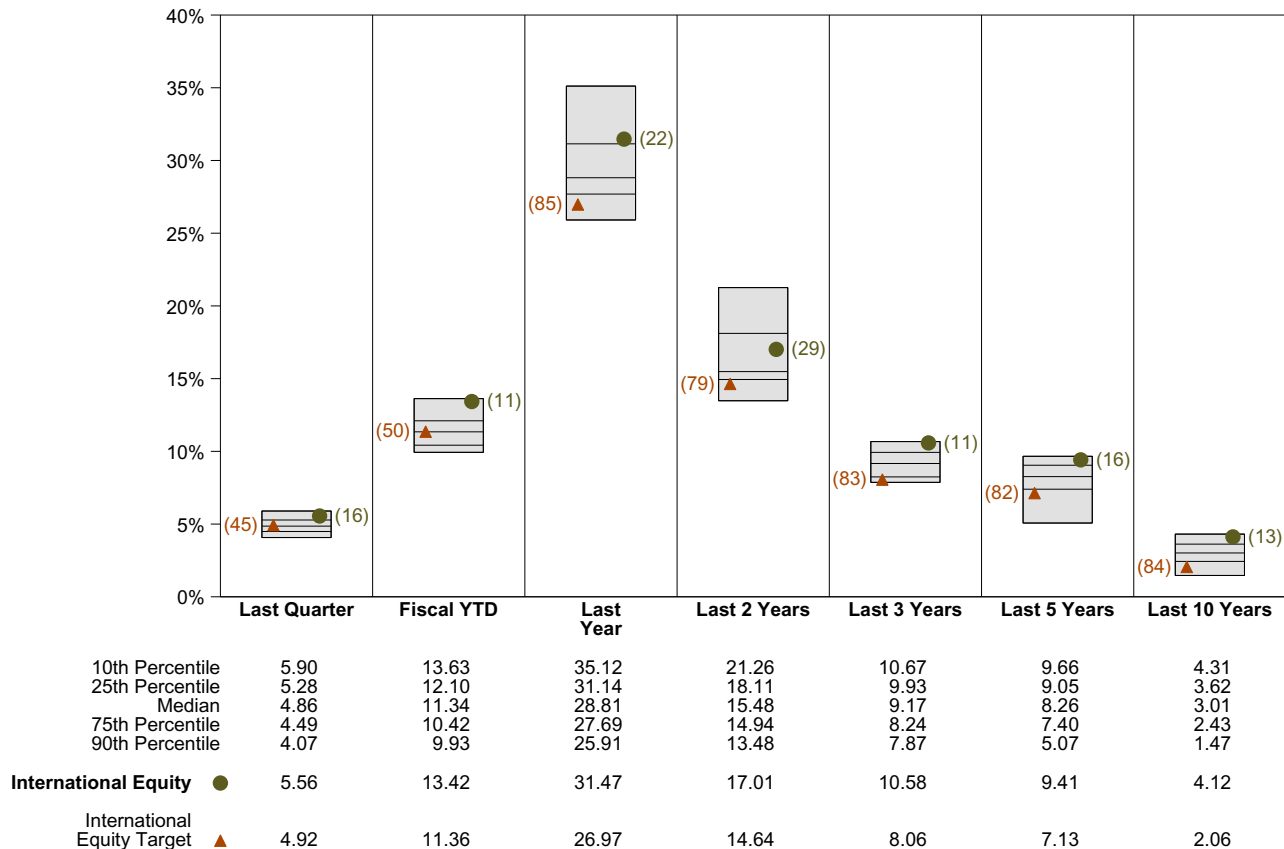
### Quarterly Summary and Highlights

- International Equity's portfolio posted a 5.56% return for the quarter placing it in the 16 percentile of the Public Fund - International Equity group for the quarter and in the 22 percentile for the last year.
- International Equity's portfolio outperformed the International Equity Target by 0.63% for the quarter and outperformed the International Equity Target for the year by 4.49%.

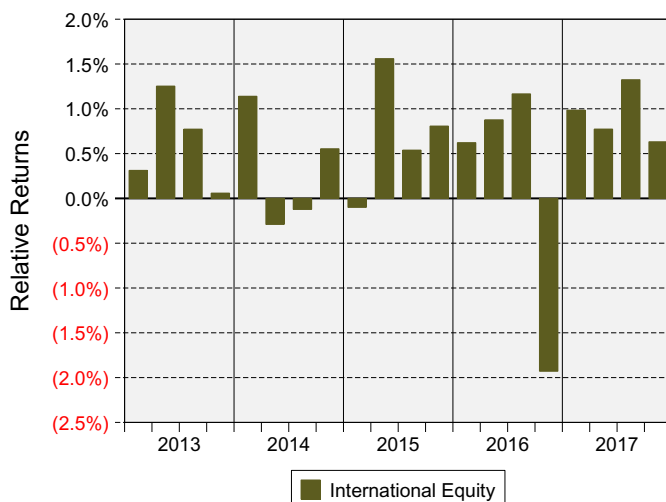
### Quarterly Asset Growth

Beginning Market Value	\$900,770,675
Net New Investment	\$-50,377,327
Investment Gains/(Losses)	\$48,594,781
Ending Market Value	\$898,988,130

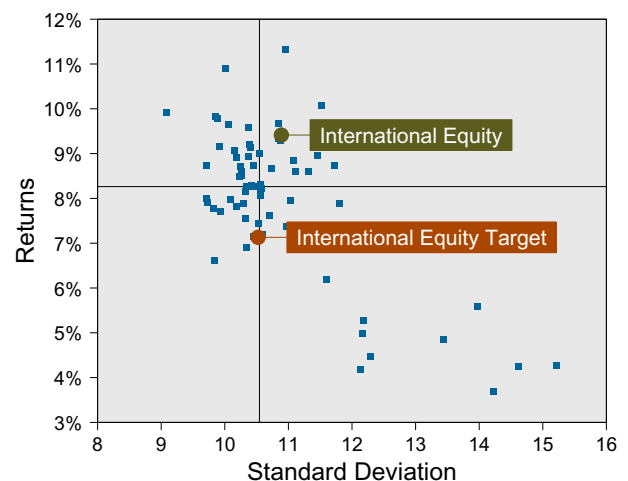
### Performance vs Public Fund - International Equity (Gross)



### Relative Return vs International Equity Target



### Public Fund - International Equity (Gross) Annualized Five Year Risk vs Return



## DFA International Small Cap Value Fund

### Period Ended December 31, 2017

#### Investment Philosophy

The International Small Cap Value Portfolio invests in the stocks of small, non-US developed markets companies that Dimensional believes to be value stocks at the time of purchase. Specifically, it looks at companies that fall within the smallest 8-10% of each country's market capitalization, and who's shares have a high book value in relation to their market value (BtM). It does not invest in emerging markets.

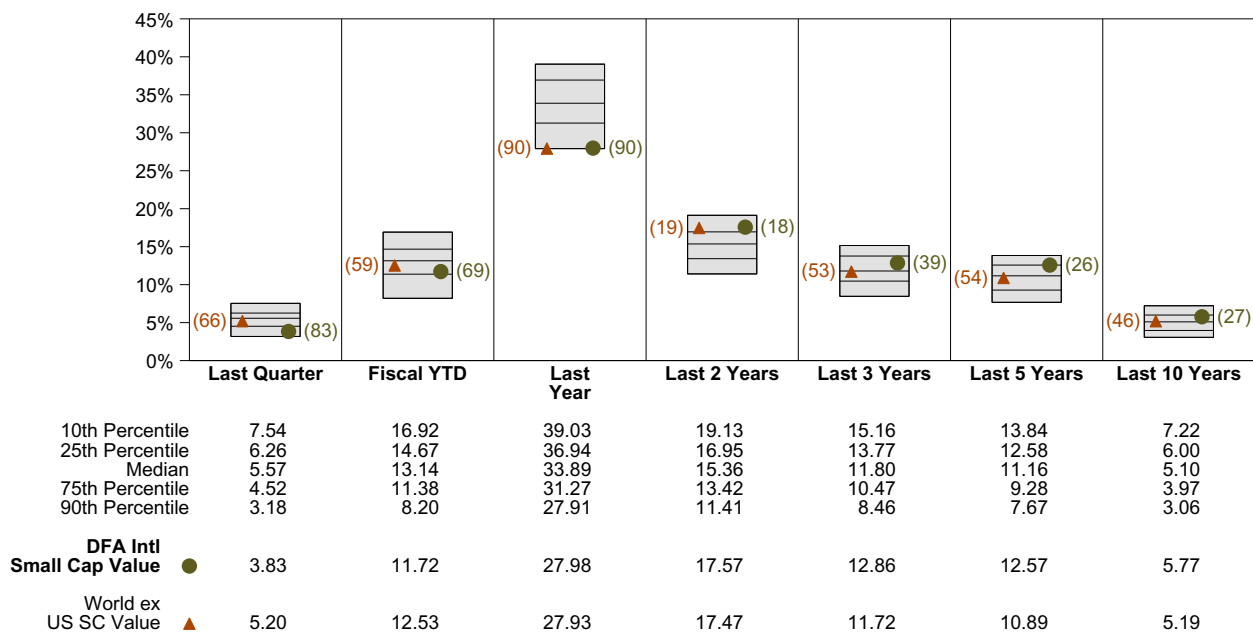
#### Quarterly Summary and Highlights

- DFA Intl Small Cap Value's portfolio posted a 3.83% return for the quarter placing it in the 83 percentile of the Callan International Small Cap Mut Funds group for the quarter and in the 90 percentile for the last year.
- DFA Intl Small Cap Value's portfolio underperformed the World ex US SC Value by 1.36% for the quarter and outperformed the World ex US SC Value for the year by 0.05%.

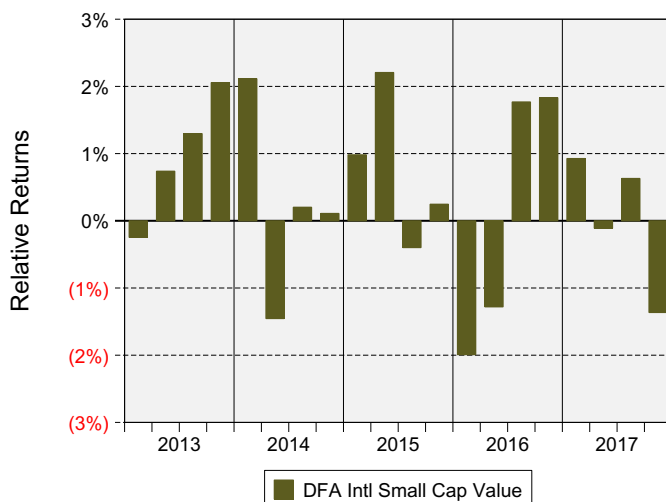
#### Quarterly Asset Growth

Beginning Market Value	\$94,278,772
Net New Investment	\$-5,000,000
Investment Gains/(Losses)	\$3,398,359
Ending Market Value	\$92,677,130

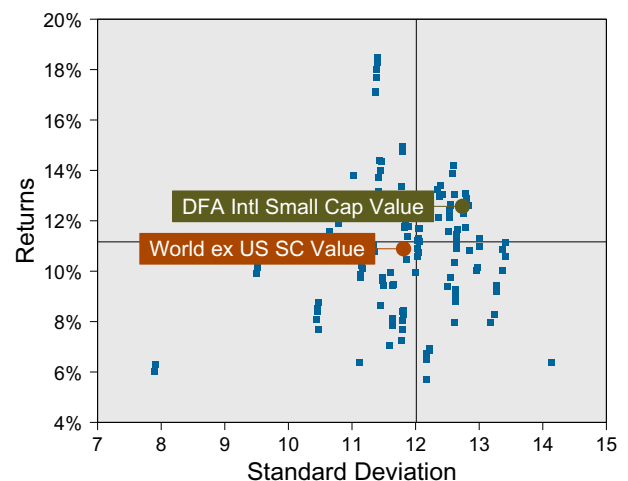
#### Performance vs Callan International Small Cap Mut Funds (Net)



#### Relative Return vs World ex US SC Value



#### Callan International Small Cap Mut Funds (Net) Annualized Five Year Risk vs Return



## Northern Tr AM Wrld ex US Period Ended December 31, 2017

### Investment Philosophy

The Fund's objective is to provide investment results that approximate the overall performance of the MSCI World ex-US Equity Index.

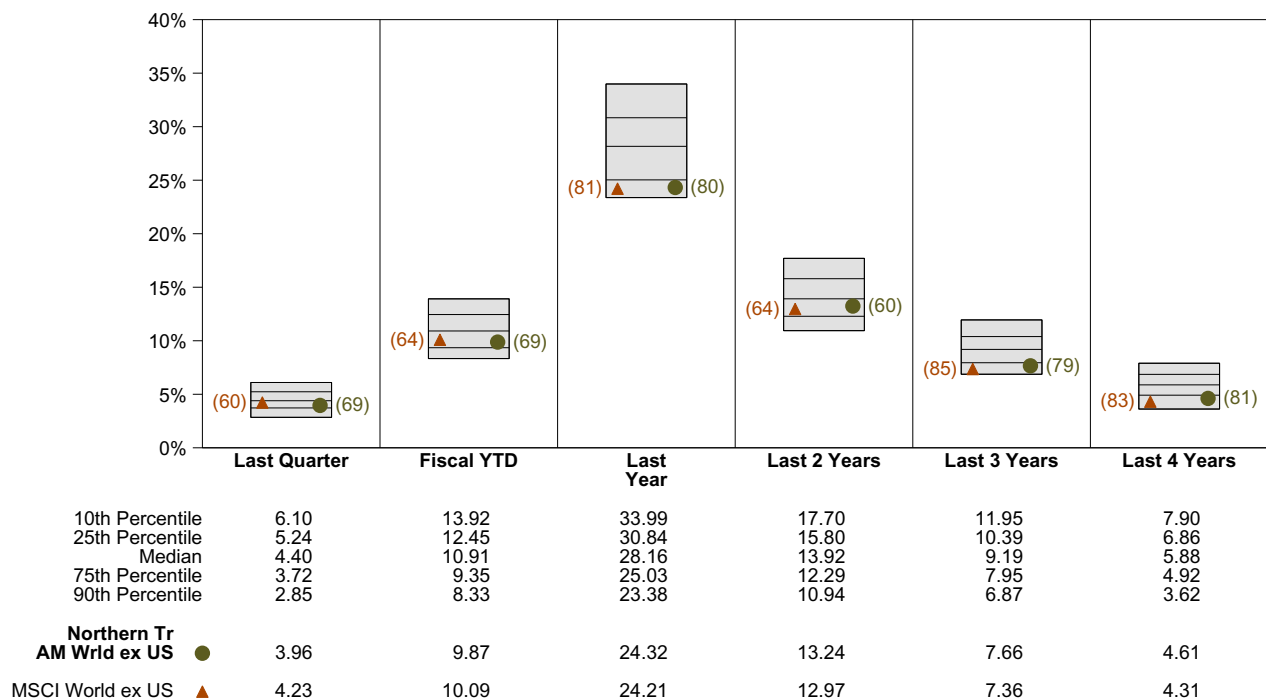
### Quarterly Summary and Highlights

- Northern Tr AM Wrld ex US's portfolio posted a 3.96% return for the quarter placing it in the 69 percentile of the Callan Non-US Equity group for the quarter and in the 80 percentile for the last year.
- Northern Tr AM Wrld ex US's portfolio underperformed the MSCI World ex US by 0.27% for the quarter and outperformed the MSCI World ex US for the year by 0.11%.

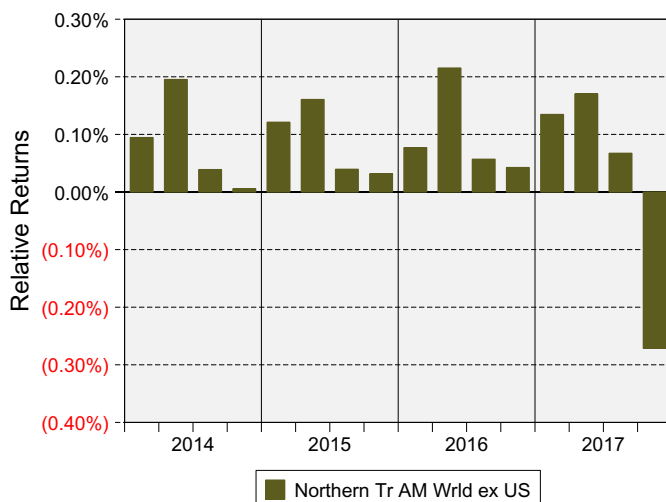
### Quarterly Asset Growth

Beginning Market Value	\$318,112,166
Net New Investment	\$-25,077
Investment Gains/(Losses)	\$12,594,981
Ending Market Value	\$330,682,069

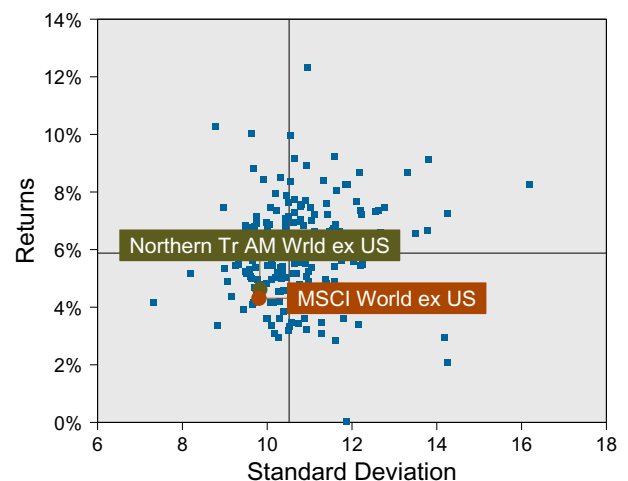
### Performance vs Callan Non-US Equity (Gross)



### Relative Return vs MSCI World ex US



### Callan Non-US Equity (Gross) Annualized Four Year Risk vs Return



## Wellington Management Period Ended December 31, 2017

### Investment Philosophy

The International Small Cap Opportunities investment approach is bottom-up focused, and leverages the global research resources at Wellington Management. In implementing purchase decisions, consideration is given to the size, liquidity, and volatility of these prospects. Sell decisions are based on changing fundamentals or valuations, or on finding better opportunities elsewhere. The assets are not hedged.

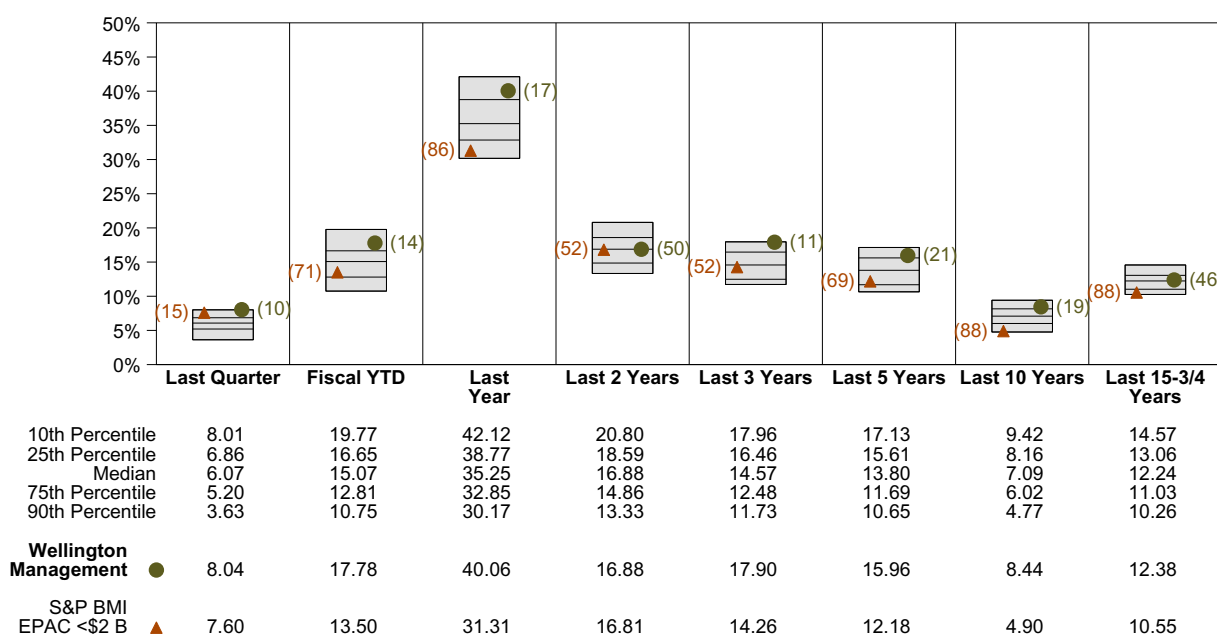
### Quarterly Summary and Highlights

- Wellington Management's portfolio posted a 8.04% return for the quarter placing it in the 10 percentile of the Callan International Small Cap group for the quarter and in the 17 percentile for the last year.
- Wellington Management's portfolio outperformed the S&P BMI EPAC <\$2 B by 0.43% for the quarter and outperformed the S&P BMI EPAC <\$2 B for the year by 8.75%.

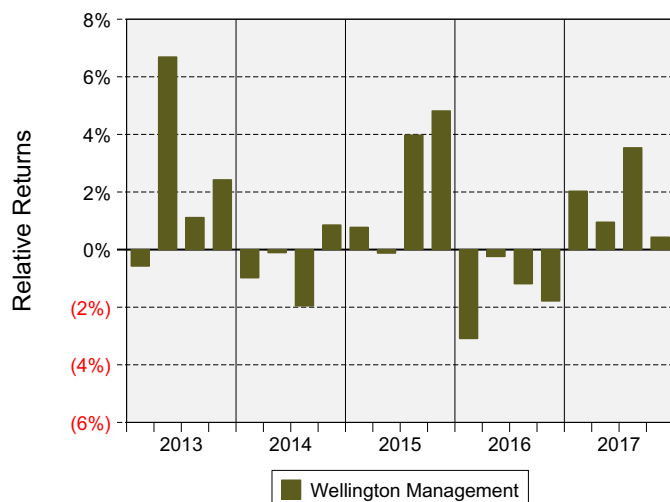
### Quarterly Asset Growth

Beginning Market Value	\$106,118,253
Net New Investment	\$-25,211,435
Investment Gains/(Losses)	\$7,532,649
Ending Market Value	\$88,439,466

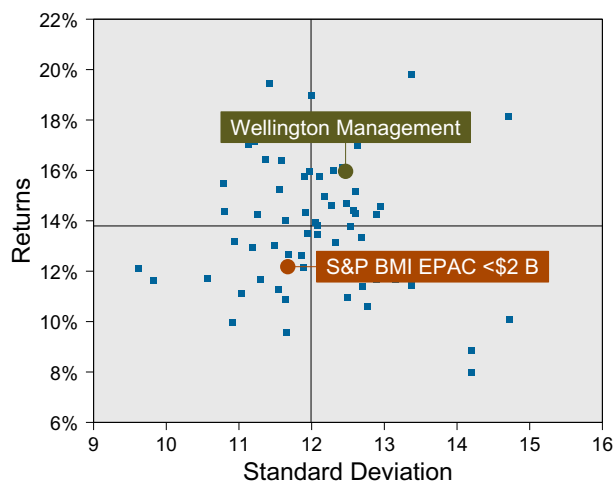
### Performance vs Callan International Small Cap (Gross)



### Relative Return vs S&P BMI EPAC <\$2 B



### Callan International Small Cap (Gross) Annualized Five Year Risk vs Return



## William Blair Period Ended December 31, 2017

### Investment Philosophy

One of the basic investment tenets of William Blair & Company has been its focus on quality growth companies. They believe that investing in quality growth companies will generate above average results with generally less risk than the market. This opportunity exists because they believe the market underestimates the durability and rate of growth in companies that have the following characteristics: strong management with a unique vision, competitive advantages that prolong the duration and size of earnings growth, and conservative financing. Internationally, they believe that this philosophy can be combined with strategic flexibility in managing geographic exposure, capitalization, sector emphasis, and relative growth and valuation at the portfolio level in order to provide an appropriate degree of adaptability to cyclical conditions.

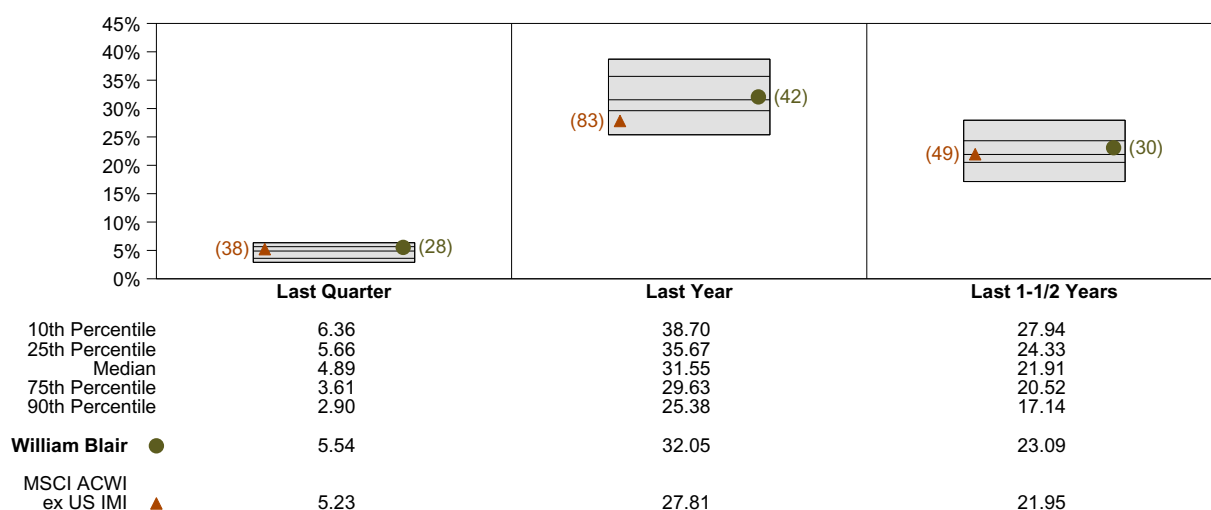
### Quarterly Summary and Highlights

- William Blair's portfolio posted a 5.54% return for the quarter placing it in the 28 percentile of the Callan Non-US All Country Growth Equity group for the quarter and in the 42 percentile for the last year.
- William Blair's portfolio outperformed the MSCI ACWI ex US IMI by 0.31% for the quarter and outperformed the MSCI ACWI ex US IMI for the year by 4.24%.

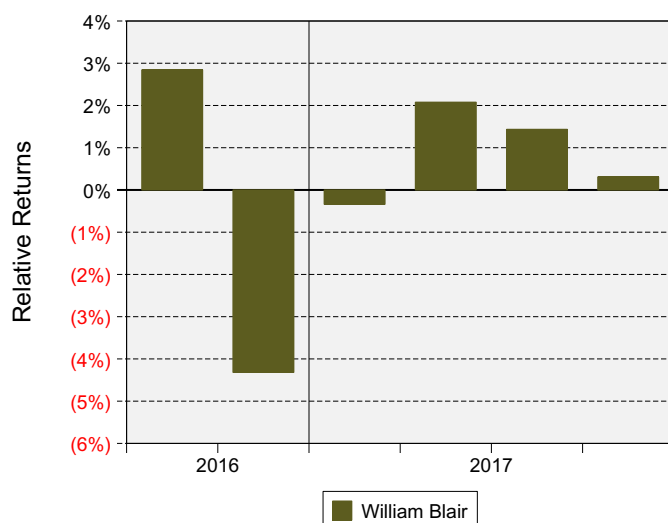
### Quarterly Asset Growth

Beginning Market Value	\$157,276,996
Net New Investment	\$-140,814
Investment Gains/(Losses)	\$8,701,107
Ending Market Value	\$165,837,289

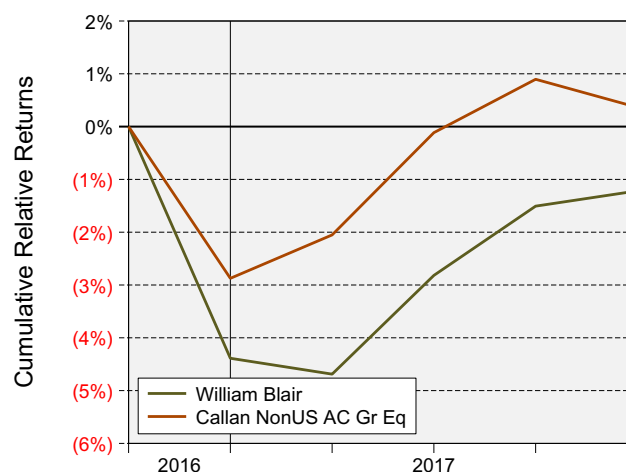
### Performance vs Callan Non-US All Country Growth Equity (Gross)



### Relative Return vs MSCI ACWI ex US IMI



### Cumulative Returns vs MSCI ACWI ex US IMI



## Axiom Emerging Markets Period Ended December 31, 2017

### Investment Philosophy

The Emerging Markets Equity strategy seeks to invest in emerging market securities issued by companies whose key business drivers are both improving and exceeding expectations, as determined by Axiom's stock selection techniques focused on fundamental company analysis. The strategy considers companies either (i) located in countries that are not included in the MSCI Developed Markets Index series or (ii) that derive a majority of their revenues or assets from a country or countries not included in the MSCI Developed Markets Index series, in each case at the time of investment. Although the Manager generally expects the strategy's investment portfolio to be geographically diverse, there are no prescribed limits on geographic distribution of the strategy's investments and the strategy has the authority to invest in securities traded in securities markets or any country in the world.

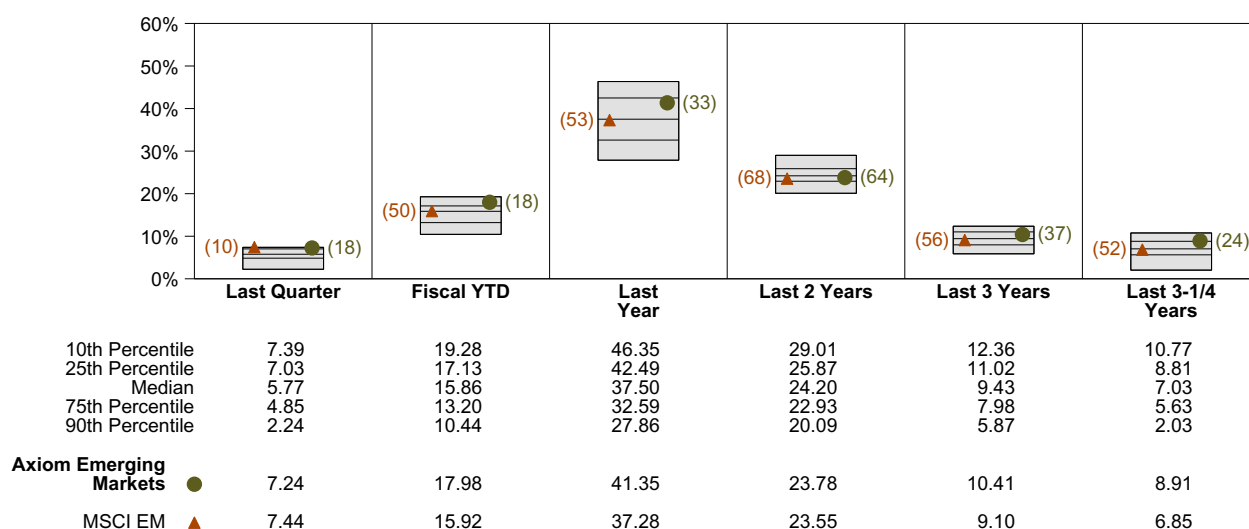
### Quarterly Summary and Highlights

- Axiom Emerging Markets's portfolio posted a 7.24% return for the quarter placing it in the 18 percentile of the Callan Emerging Markets Equity Mut Funds group for the quarter and in the 33 percentile for the last year.
- Axiom Emerging Markets's portfolio underperformed the MSCI EM by 0.19% for the quarter and outperformed the MSCI EM for the year by 4.07%.

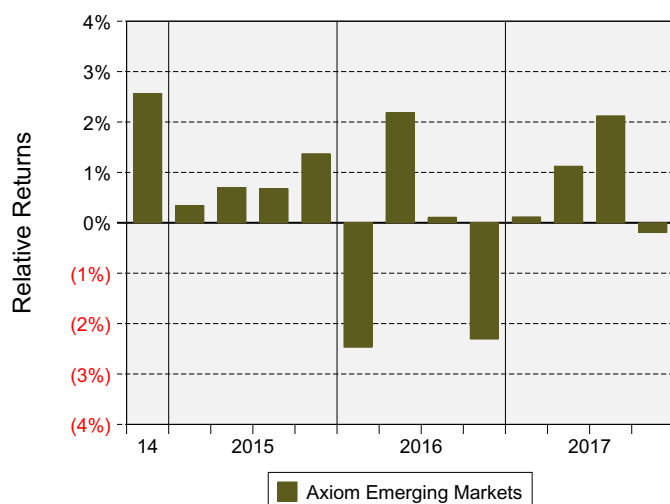
### Quarterly Asset Growth

Beginning Market Value	\$171,860,784
Net New Investment	\$-20,000,000
Investment Gains/(Losses)	\$11,807,377
Ending Market Value	\$163,668,161

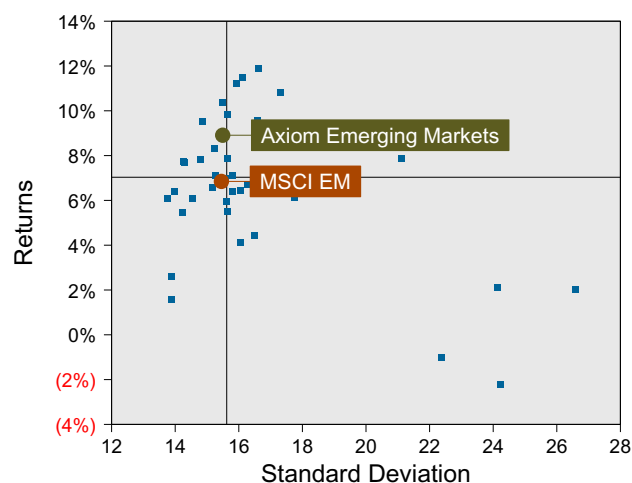
### Performance vs Callan Emerging Markets Equity Mut Funds (Net)



### Relative Return vs MSCI EM



### Callan Emerging Markets Equity Mut Funds (Net) Annualized Three and One-Quarter Year Risk vs Return



## DFA Emerging Markets Period Ended December 31, 2017

### Investment Philosophy

The Emerging Markets Small Cap Portfolio invests in small cap emerging markets companies. Presently, this means investment in companies whose market capitalization is less than \$2.3 billion at the time of purchase. Dimensional considers, among other things, information disseminated by the International Finance Corporation in determining and approving emerging market countries.

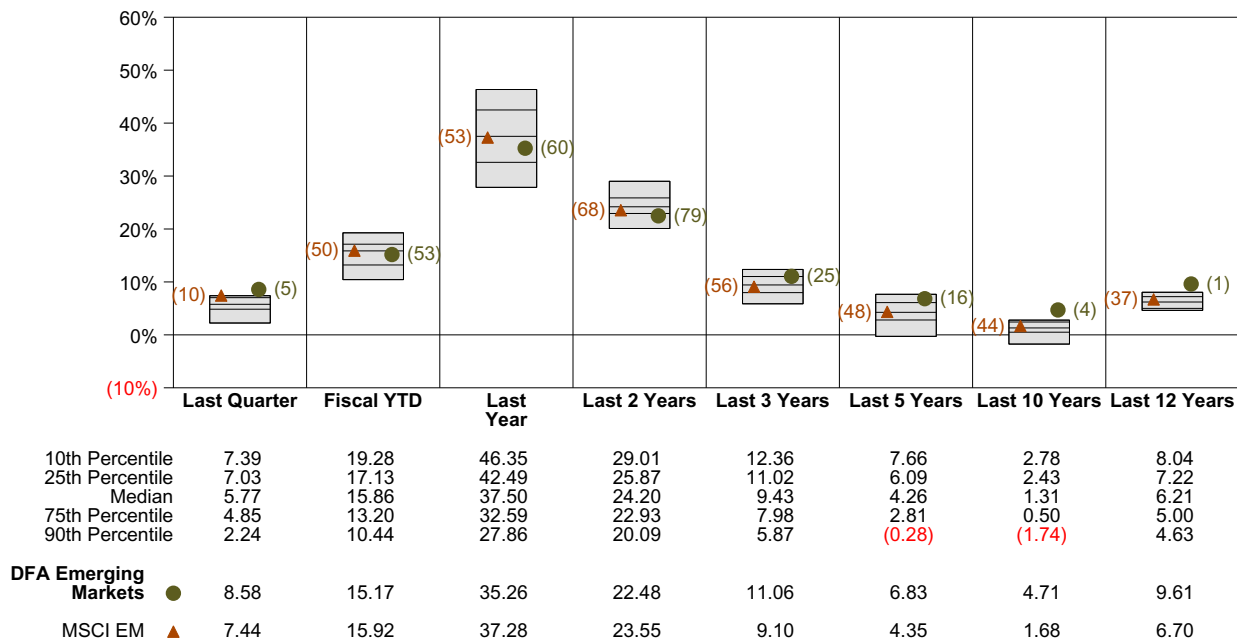
### Quarterly Summary and Highlights

- DFA Emerging Markets's portfolio posted a 8.58% return for the quarter placing it in the 5 percentile of the Callan Emerging Markets Equity Mut Funds group for the quarter and in the 60 percentile for the last year.
- DFA Emerging Markets's portfolio outperformed the MSCI EM by 1.15% for the quarter and underperformed the MSCI EM for the year by 2.03%.

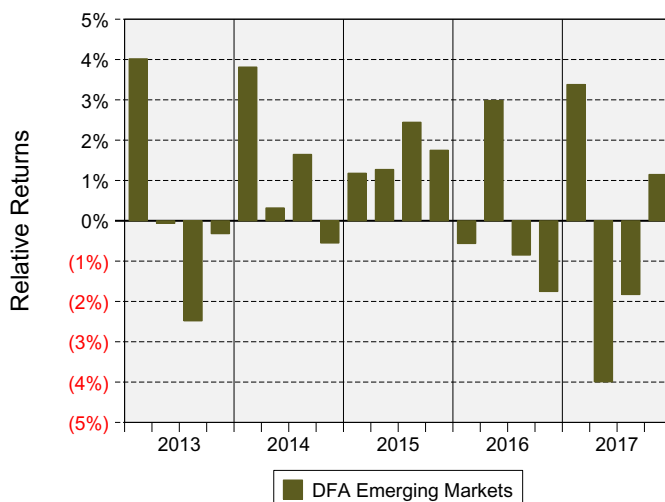
### Quarterly Asset Growth

Beginning Market Value	\$53,123,705
Net New Investment	\$0
Investment Gains/(Losses)	\$4,560,309
Ending Market Value	\$57,684,014

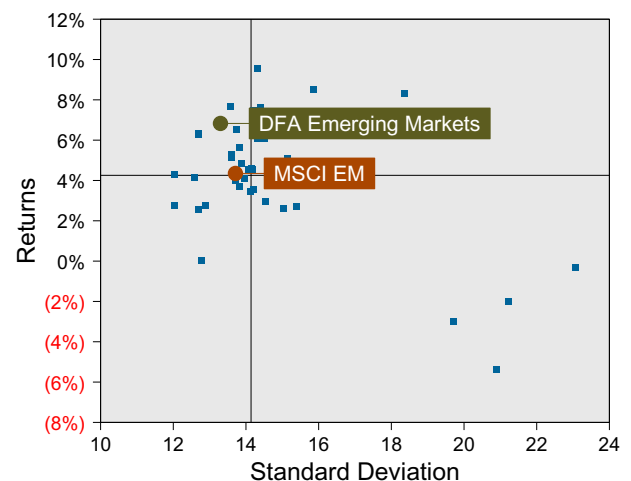
### Performance vs Callan Emerging Markets Equity Mut Funds (Net)



### Relative Return vs MSCI EM



### Callan Emerging Markets Equity Mut Funds (Net) Annualized Five Year Risk vs Return



## EPOCH Investment Period Ended December 31, 2017

### Investment Philosophy

Epoch seeks to produce superior risk adjusted returns by building portfolios of businesses with outstanding risk/reward profiles without running a high degree of capital risk. They analyze businesses in the same manner private investors would in looking to purchase the entire company. The strategy only invests in businesses that are understood and where they have confidence in the financial statements. They seek businesses that generate "free cash flow" and securities that have unrecognized potential yet possess a combination of above average yield, above average free cash flow growth, and/or below average valuation. Global Choice is a "best ideas" portfolio at Epoch with every stock held in other strategies managed by the firm.

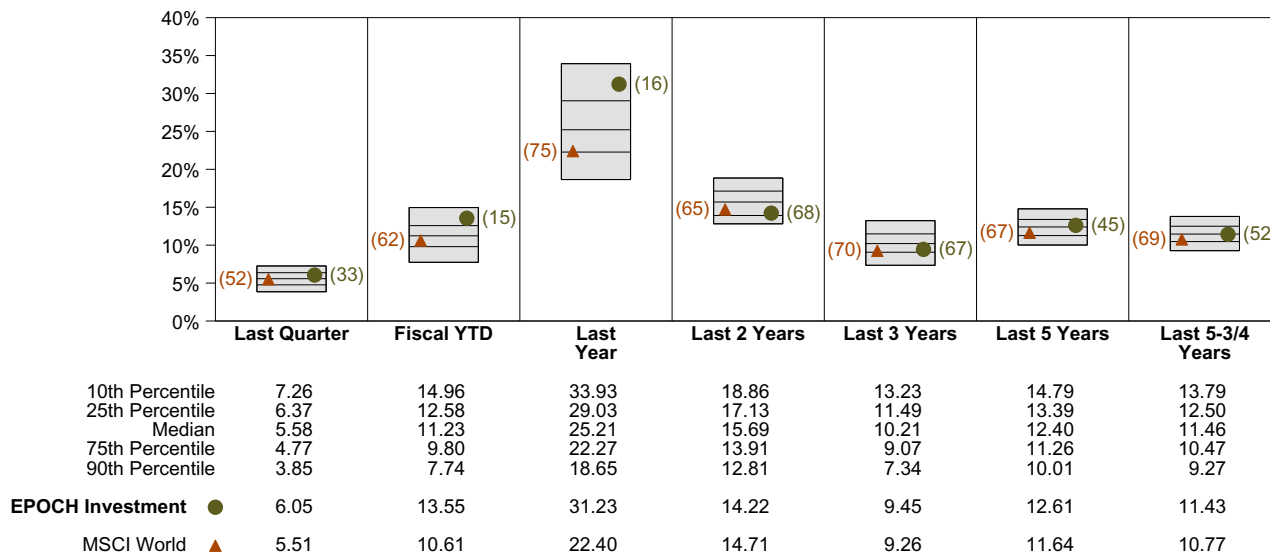
### Quarterly Summary and Highlights

- EPOCH Investment's portfolio posted a 6.05% return for the quarter placing it in the 33 percentile of the Callan Global Equity group for the quarter and in the 16 percentile for the last year.
- EPOCH Investment's portfolio outperformed the MSCI World by 0.54% for the quarter and outperformed the MSCI World for the year by 8.83%.

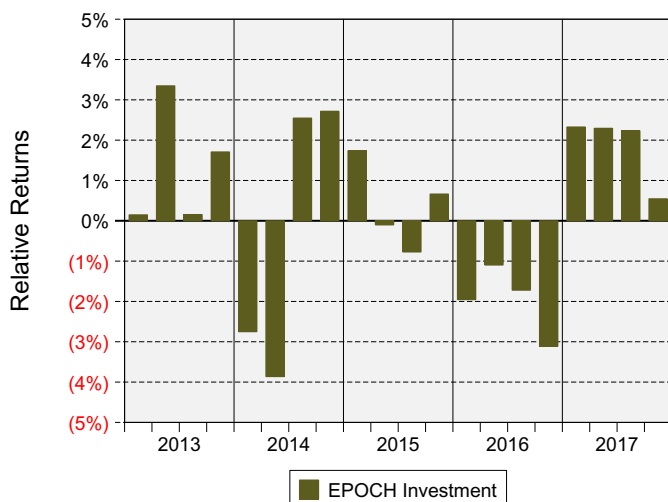
### Quarterly Asset Growth

Beginning Market Value	\$423,282,874
Net New Investment	\$-17,171,527
Investment Gains/(Losses)	\$25,318,715
Ending Market Value	\$431,430,062

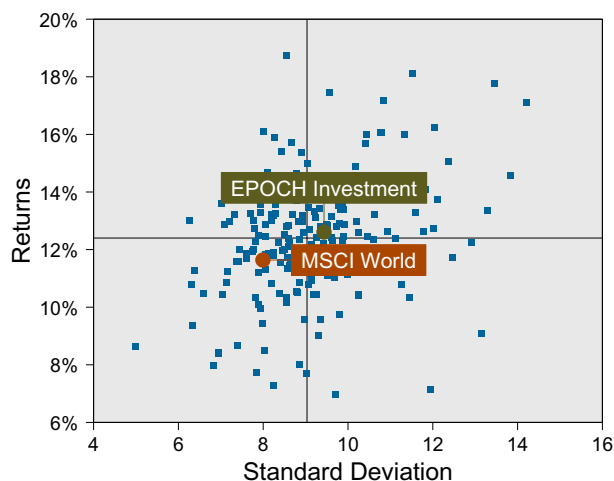
### Performance vs Callan Global Equity (Gross)



### Relative Return vs MSCI World



### Callan Global Equity (Gross) Annualized Five Year Risk vs Return





# LSV Asset Management

## Period Ended December 31, 2017

### Investment Philosophy

The Global Value (ACWI) Equity strategy is managed using quantitative techniques to select individual securities in a risk-controlled, bottom-up approach. Value factors and security selection dominate sector/industry factors as explanators of performance.

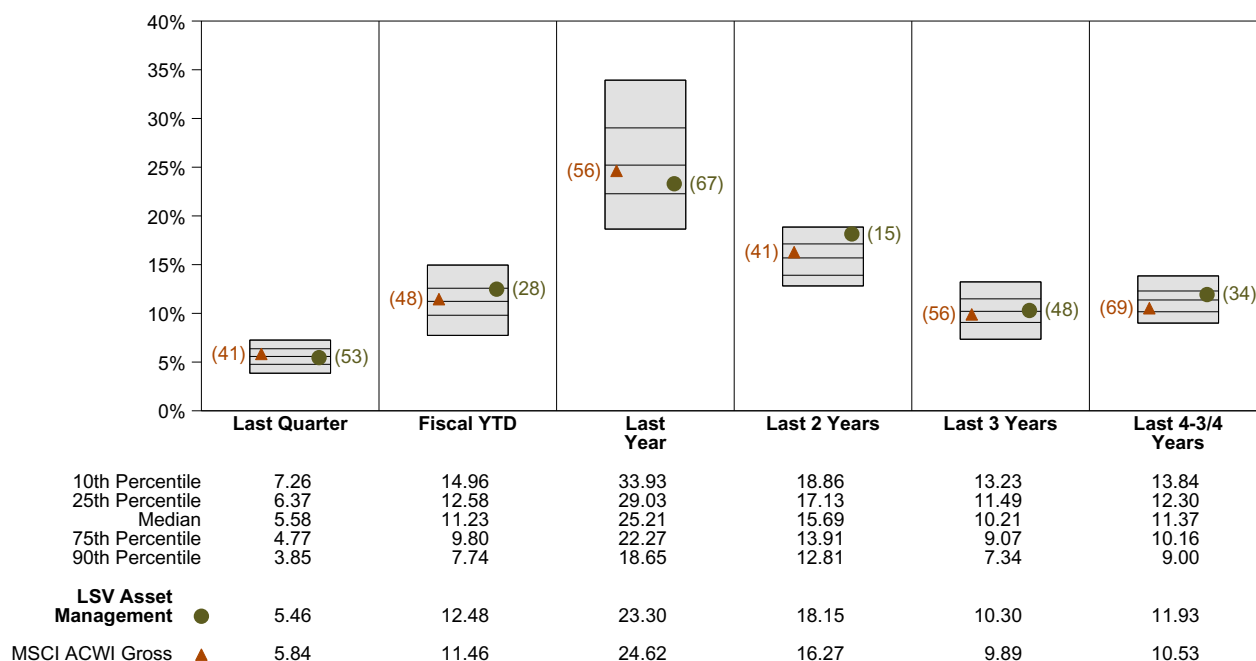
### Quarterly Summary and Highlights

- LSV Asset Management's portfolio posted a 5.46% return for the quarter placing it in the 53 percentile of the Callan Global Equity group for the quarter and in the 67 percentile for the last year.
- LSV Asset Management's portfolio underperformed the MSCI ACWI Gross by 0.38% for the quarter and underperformed the MSCI ACWI Gross for the year by 1.32%.

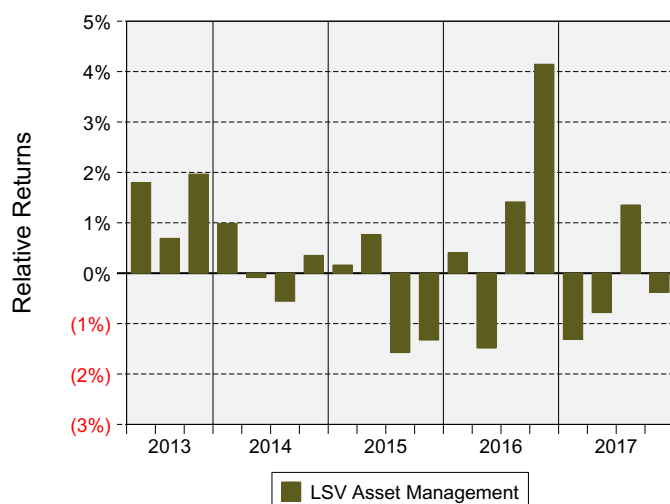
### Quarterly Asset Growth

Beginning Market Value	\$525,919,808
Net New Investment	\$-10,132,154
Investment Gains/(Losses)	\$28,428,606
Ending Market Value	\$544,216,259

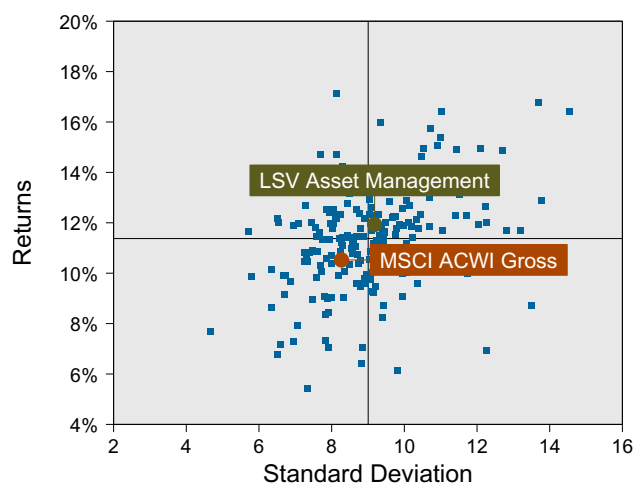
### Performance vs Callan Global Equity (Gross)



### Relative Return vs MSCI ACWI Gross



### Callan Global Equity (Gross) Annualized Four and Three-Quarter Year Risk vs Return



## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 17 Years
<b>Private Equity</b>	<b>3.51%</b>	<b>7.41%</b>	<b>(0.39%)</b>	<b>1.35%</b>	<b>2.35%</b>
Adams Street Direct Co-Invest Fd	2.04%	(6.48%)	5.08%	12.17%	-
Adams Street Direct Fd 2010	9.01%	14.33%	10.94%	14.07%	-
Adams Street 1998 Partnership	0.17%	0.10%	1.44%	3.00%	1.60%
Adams Street 1999 Partnership	0.03%	(2.32%)	(1.47%)	1.42%	2.44%
Adams Street 2000 Partnership	2.64%	3.65%	(0.35%)	0.09%	3.19%
Adams Street 2001 Partnership	(0.14%)	(2.21%)	(1.35%)	3.74%	3.41%
Adams Street 2002 Partnership	3.60%	9.16%	9.00%	6.75%	-
Adams Street 2003 Partnership	5.23%	10.50%	8.70%	12.22%	-
Adams Street 2010 Partnership	3.31%	9.79%	12.37%	13.13%	-
Adams Street 2008 Fund	5.79%	17.70%	13.32%	13.52%	-
Adams Street 1999 Non-US	1.90%	3.26%	3.05%	4.21%	6.14%
Adams Street 2000 Non-US	0.55%	9.80%	3.43%	0.82%	3.08%
Adams Street 2001 Non-US	(0.85%)	8.28%	10.68%	13.63%	-
Adams Street 2002 Non-US	0.42%	(3.16%)	6.07%	3.57%	-
Adams Street 2003 Non-US	(4.80%)	16.52%	18.84%	14.36%	-
Adams Street 2004 Non-US	1.93%	2.95%	3.39%	6.74%	-
Adams Street 2010 Non-US	6.94%	24.05%	13.33%	11.27%	-
Adams Street 2010 NonUS Emg	4.86%	12.84%	12.86%	10.02%	-
Adams Street 2015 Global Fd	5.32%	24.05%	-	-	-
Adams Street 2016 Global Fd	1.78%	47.64%	-	-	-
Adams Street BVCF IV Fund	(0.02%)	0.98%	3.85%	18.88%	17.11%
BlackRock	0.06%	-	-	-	-
Capital International V	(19.32%)	(52.68%)	(35.33%)	(23.53%)	-
Capital International VI	3.70%	13.01%	(1.06%)	(6.78%)	-
CorsAir III	1.15%	0.49%	9.03%	4.64%	-
CorsAir IV	9.50%	26.44%	17.13%	17.08%	-
EIG Energy Fund XIV	(11.96%)	18.02%	(37.16%)	(25.27%)	-
Hearthstone Advisors MS III	0.33%	(48.35%)	(14.09%)	277.41%	-
Lewis & Clark	(2.52%)	18.96%	(26.67%)	(17.81%)	-
Lewis & Clark II	11.14%	23.18%	2.44%	(0.88%)	-
Matlin Patterson II	(2.81%)	(30.55%)	(4.13%)	(7.78%)	-
Matlin Patterson III	6.19%	7.47%	3.10%	3.53%	-
Quantum Energy Partners	3.94%	(2.67%)	(16.56%)	(0.69%)	-
Russell 1000 Index	6.59%	21.69%	11.23%	15.71%	6.54%
Russell 2000 Index	3.34%	14.65%	9.96%	14.12%	8.48%

## Domestic Fixed Income Period Ended December 31, 2017

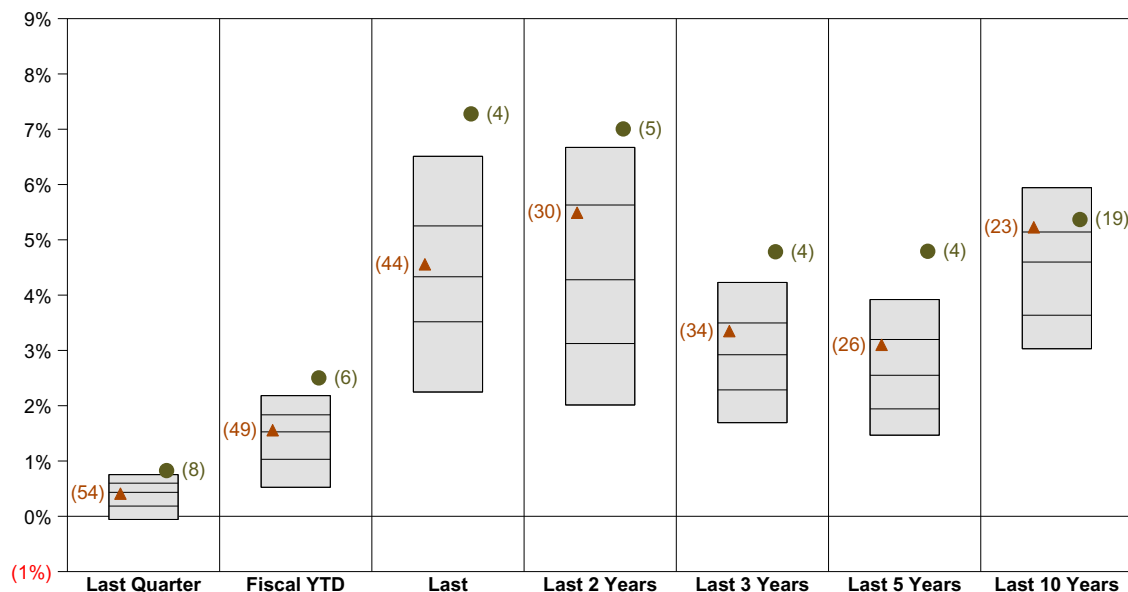
### Quarterly Summary and Highlights

- Domestic Fixed Income's portfolio posted a 0.83% return for the quarter placing it in the 8 percentile of the Public Fund - Domestic Fixed group for the quarter and in the 4 percentile for the last year.
- Domestic Fixed Income's portfolio outperformed the Domestic Fixed Income Target by 0.42% for the quarter and outperformed the Domestic Fixed Income Target for the year by 2.72%.

### Quarterly Asset Growth

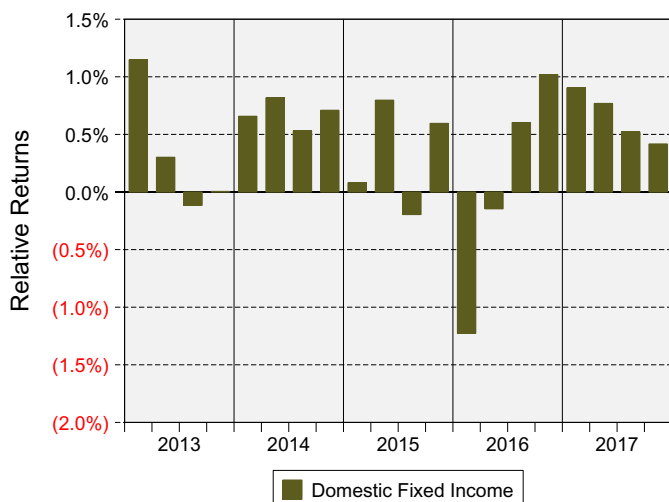
Beginning Market Value	\$994,545,652
Net New Investment	\$46,824,322
Investment Gains/(Losses)	\$8,578,422
Ending Market Value	\$1,049,948,395

### Performance vs Public Fund - Domestic Fixed (Gross)

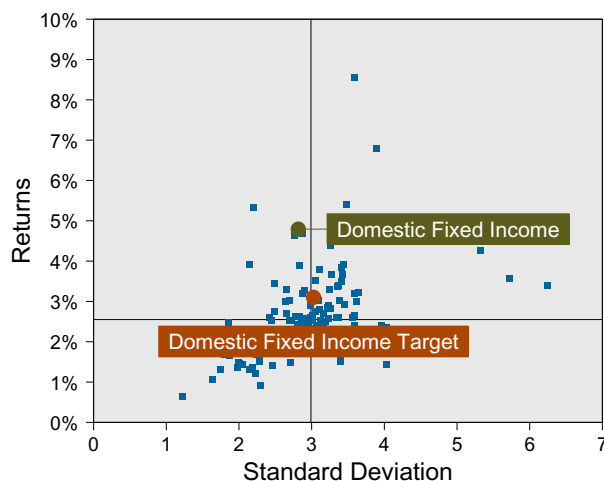


10th Percentile	0.75	2.18	6.51	6.67	4.23	3.92	5.94
25th Percentile	0.60	1.84	5.25	5.63	3.50	3.20	5.14
Median	0.43	1.53	4.33	4.28	2.92	2.55	4.60
75th Percentile	0.18	1.03	3.52	3.12	2.29	1.94	3.64
90th Percentile	(0.06)	0.52	2.25	2.01	1.69	1.47	3.03
<b>Domestic Fixed Income</b>	<b>0.83</b>	<b>2.50</b>	<b>7.28</b>	<b>7.01</b>	<b>4.78</b>	<b>4.79</b>	<b>5.37</b>
<b>Domestic Fixed Income Target</b>	<b>0.41</b>	<b>1.56</b>	<b>4.56</b>	<b>5.49</b>	<b>3.35</b>	<b>3.10</b>	<b>5.23</b>

### Relative Returns vs Domestic Fixed Income Target



### Public Fund - Domestic Fixed (Gross) Annualized Five Year Risk vs Return



## Declaration Total Return Period Ended December 31, 2017

### Investment Philosophy

The Fund's portfolio holdings consist primarily of RMBS issued by private sector companies (Non-Agency RMBS) and government agencies (Agency MBS) and CMBS issued by private sector companies. Agency MBS includes securities issued by the Federal National Mortgage Association (Fannie Mae), the Federal Home Loan Mortgage Corporation (Freddie Mac) and the Government National Mortgage Association (Ginnie Mae). Portfolio holdings may range from short tenure senior classes to stressed issues or subordinated securities with substantial risk of non-payment and correspondingly higher yields. Smaller portfolio allocations may include consumer asset-backed securities (ABS), or other structured credit securities and corporate bonds. As a diversification strategy and a potential hedge to credit risk, the Fund may invest in securities which tend to benefit from slow mortgage prepayments and economic growth, such as interest only (IO) MBS.

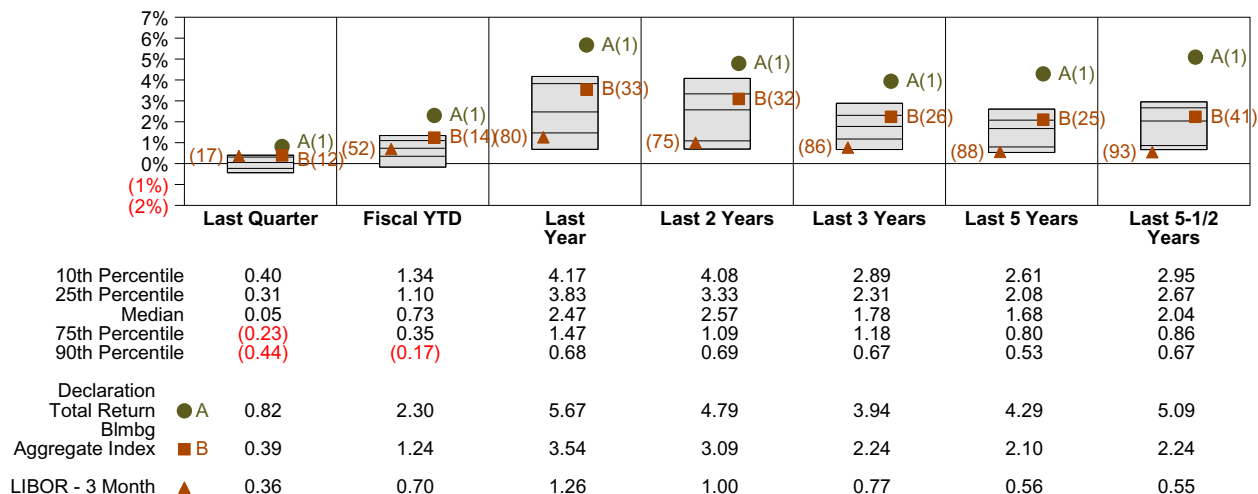
### Quarterly Summary and Highlights

- Declaration Total Return's portfolio posted a 0.82% return for the quarter placing it in the 1 percentile of the Callan Intermediate Fixed Inc Mut Funds group for the quarter and in the 1 percentile for the last year.
- Declaration Total Return's portfolio outperformed the LIBOR - 3 Month by 0.46% for the quarter and outperformed the LIBOR - 3 Month for the year by 4.42%.

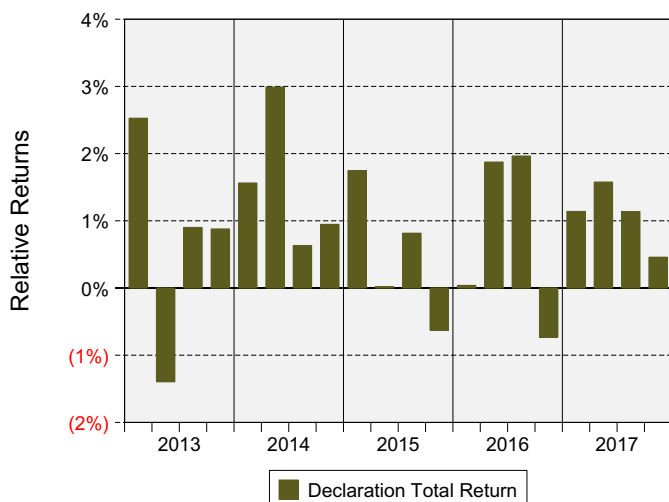
### Quarterly Asset Growth

Beginning Market Value	\$92,051,937
Net New Investment	\$-66,195
Investment Gains/(Losses)	\$752,973
Ending Market Value	\$92,738,715

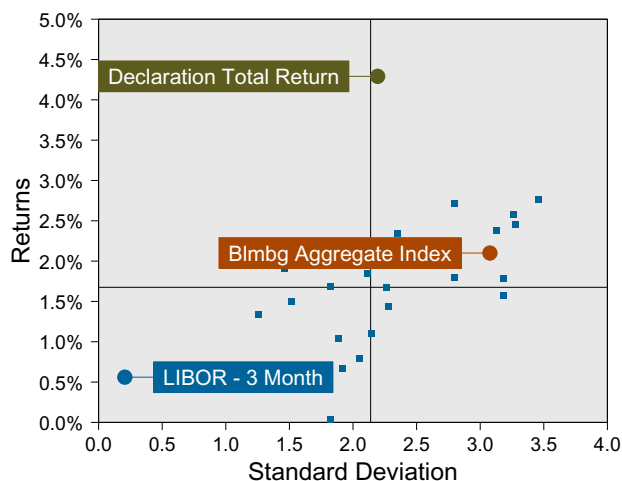
### Performance vs Callan Intermediate Fixed Inc Mut Funds (Net)



### Relative Return vs LIBOR - 3 Month



### Callan Intermediate Fixed Inc Mut Funds (Net) Annualized Five Year Risk vs Return



# J.P. Morgan MBS

## Period Ended December 31, 2017

### Investment Philosophy

JP Morgan seeks to outperform the benchmark over longer horizons regardless of the market environment.

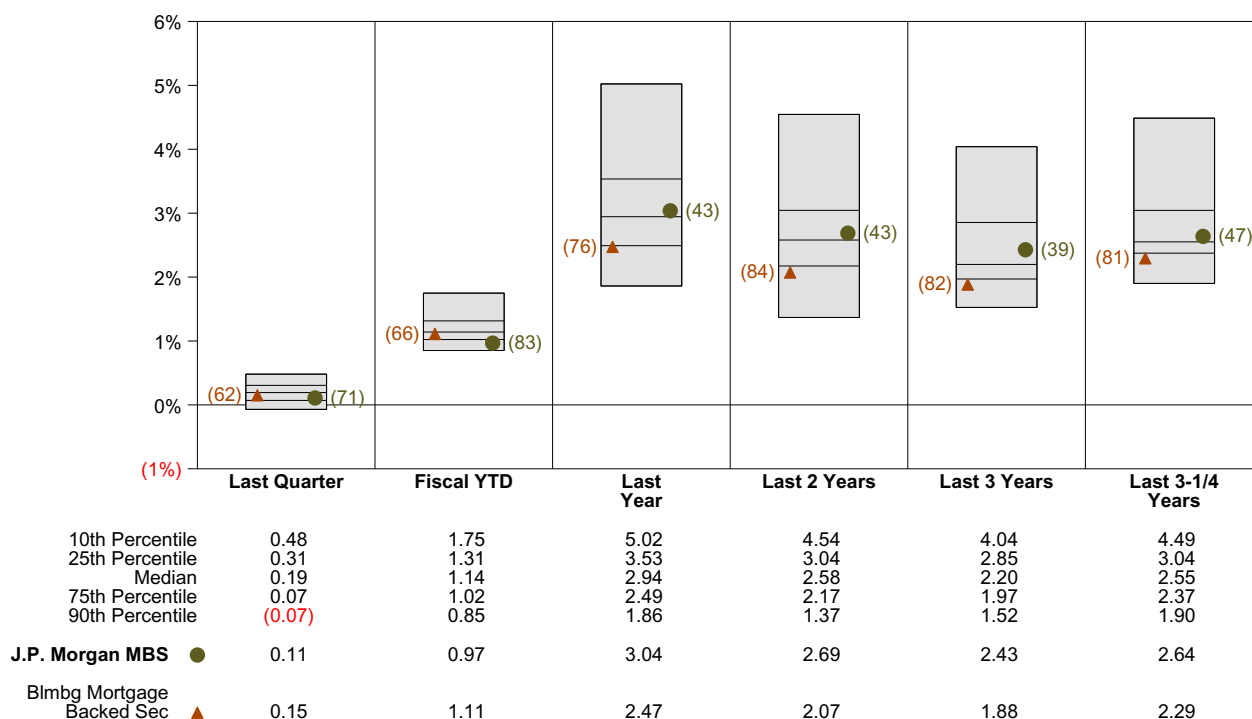
### Quarterly Summary and Highlights

- J.P. Morgan MBS's portfolio posted a 0.11% return for the quarter placing it in the 71 percentile of the Callan Mortgage Backed Fixed Income group for the quarter and in the 43 percentile for the last year.
- J.P. Morgan MBS's portfolio underperformed the Blmbg Mortgage Backed Sec by 0.04% for the quarter and outperformed the Blmbg Mortgage Backed Sec for the year by 0.56%.

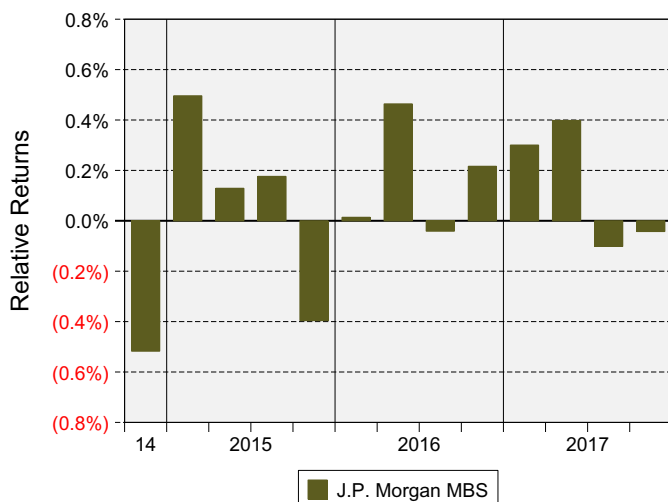
### Quarterly Asset Growth

Beginning Market Value	\$132,263,091
Net New Investment	\$-68,716
Investment Gains/(Losses)	\$142,738
Ending Market Value	\$132,337,114

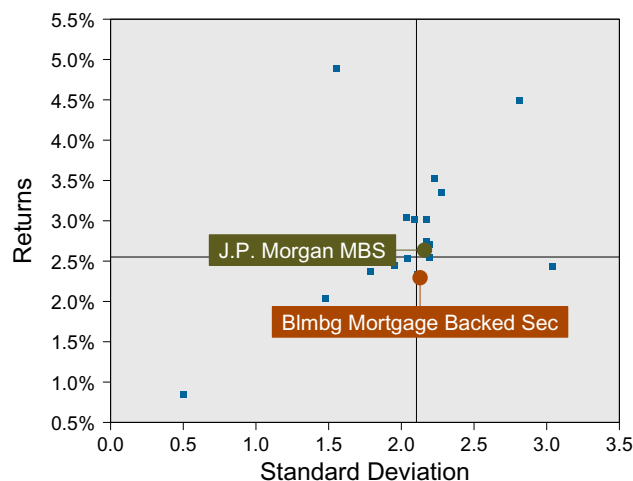
### Performance vs Callan Mortgage Backed Fixed Income (Gross)



### Relative Returns vs Blmbg Mortgage Backed Sec



### Callan Mortgage Backed Fixed Income (Gross) Annualized Three and One-Quarter Year Risk vs Return



## PIMCO DiSCO II

### Period Ended December 31, 2017

#### Investment Philosophy

The PIMCO Distressed Senior Credit Opportunities Fund is an opportunistic private-equity style Fund which seeks to provide investors enhanced returns principally through long-biased investments in undervalued senior and super senior structured credit securities that are expected to produce attractive levels of current income and that may also appreciate in value over the long term. The fund will look to capitalize on forced sales by liquidity constrained investors.

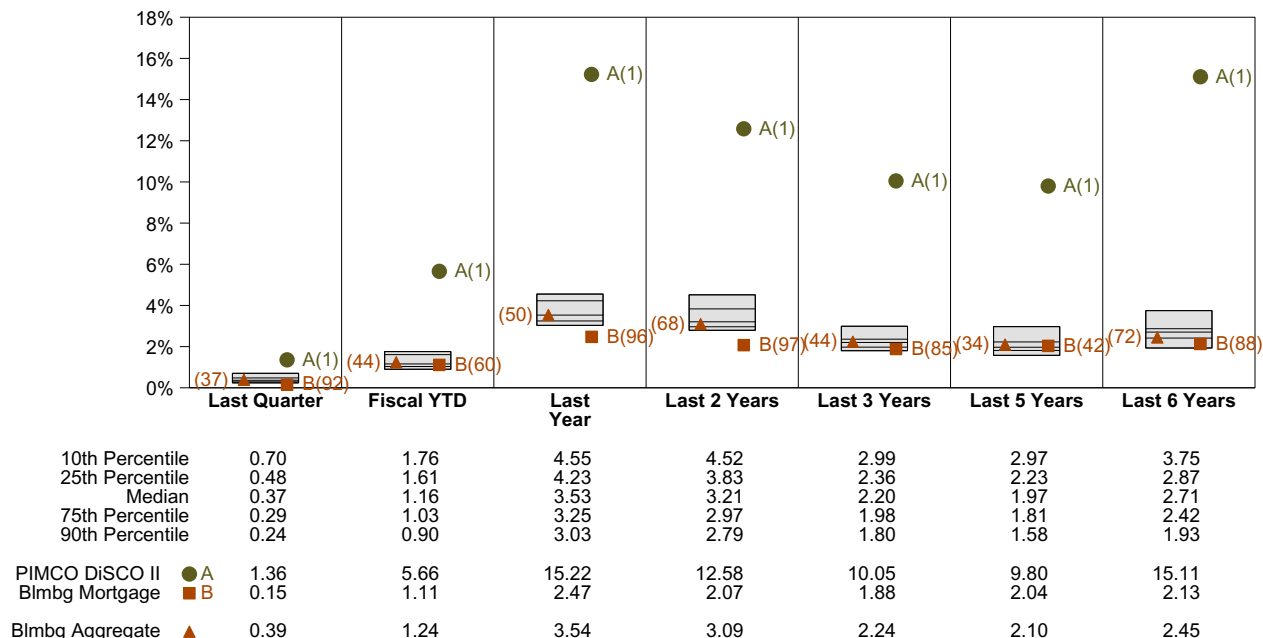
#### Quarterly Summary and Highlights

- PIMCO DiSCO II's portfolio posted a 1.36% return for the quarter placing it in the 1 percentile of the Callan Core Bond Mutual Funds group for the quarter and in the 1 percentile for the last year.
- PIMCO DiSCO II's portfolio outperformed the Blmbg Aggregate by 0.97% for the quarter and outperformed the Blmbg Aggregate for the year by 11.68%.

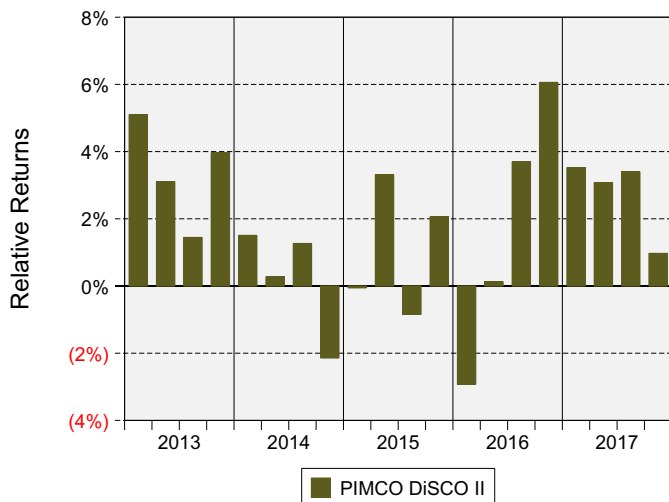
#### Quarterly Asset Growth

Beginning Market Value	\$111,933,258
Net New Investment	\$0
Investment Gains/(Losses)	\$1,519,859
Ending Market Value	\$113,453,117

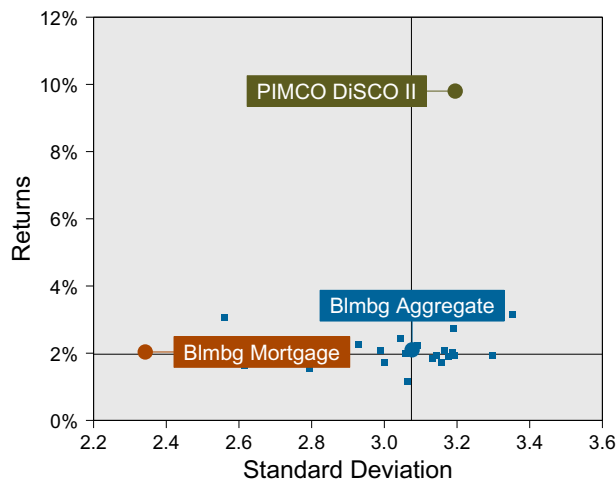
#### Performance vs Callan Core Bond Mutual Funds (Net)



#### Relative Return vs Blmbg Aggregate



#### Callan Core Bond Mutual Funds (Net) Annualized Five Year Risk vs Return



## PIMCO Unconstrained Period Ended December 31, 2017

### Investment Philosophy

The PIMCO Unconstrained Bond Strategy is an absolute return-oriented, investment grade quality fixed income strategy that leverages PIMCO's secular thinking, global themes, and integrated investment process without the constraints of a benchmark or significant sector/instrument limitations. The strategy focuses on long-term economic, social and political trends. Over shorter cyclical time frames, the unconstrained nature of the strategy allows PIMCO to take on more risk when tactical opportunities are identified, and it allows for reduction and diversification of risk at times when the outlook may be more challenging for traditional fixed income benchmarks. **The product changed from Commingled Fund to Separate Account in March 2014. \*Libor-3 month through February 28, 2014; Fund's performance through March 31, 2014; Libor-3 month thereafter.**

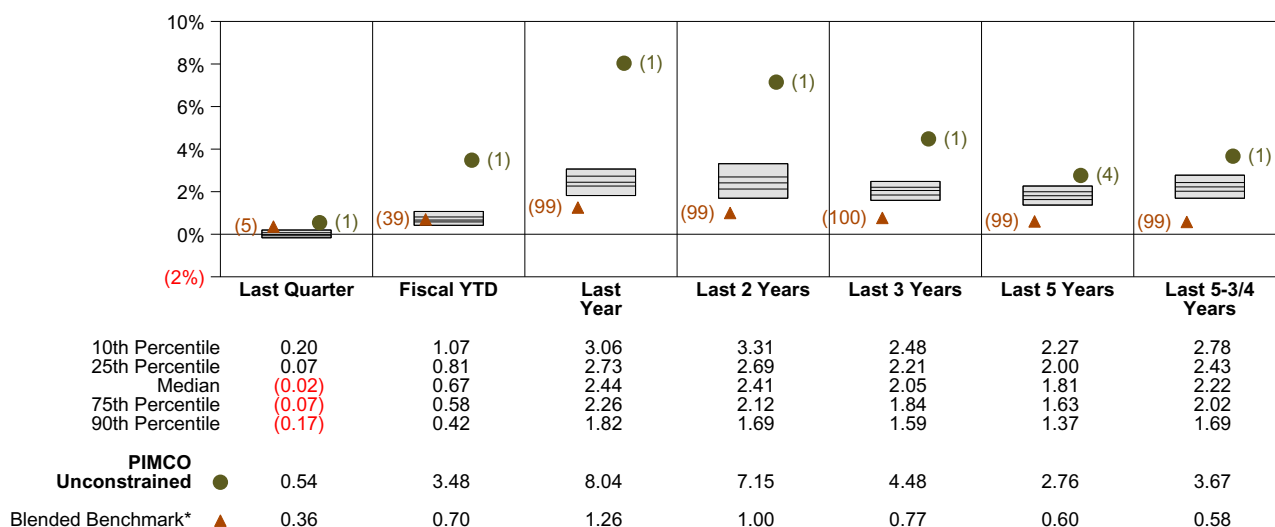
### Quarterly Summary and Highlights

- PIMCO Unconstrained's portfolio posted a 0.54% return for the quarter placing it in the 1 percentile of the Callan Intermediate Fixed Income group for the quarter and in the 1 percentile for the last year.
- PIMCO Unconstrained's portfolio outperformed the Blended Benchmark\* by 0.18% for the quarter and outperformed the Blended Benchmark\* for the year by 6.78%.

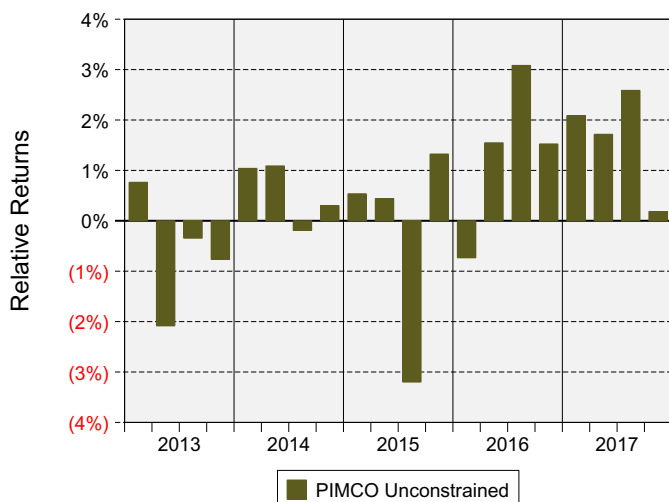
### Quarterly Asset Growth

Beginning Market Value	\$69,257,194
Net New Investment	\$183,891,468
Investment Gains/(Losses)	\$271,598
Ending Market Value	\$253,420,260

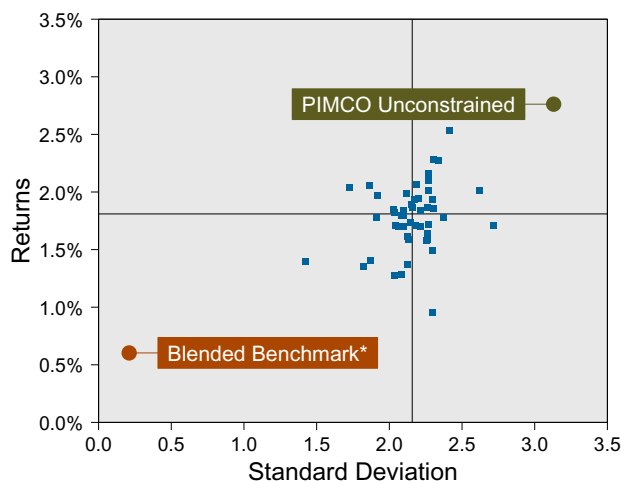
### Performance vs Callan Intermediate Fixed Income (Gross)



### Relative Return vs Blended Benchmark\*



### Callan Intermediate Fixed Income (Gross) Annualized Five Year Risk vs Return



## SSgA Long US Treas Index Period Ended December 31, 2017

### Investment Philosophy

The Fund seeks an investment return that approximates as closely as practicable, before expenses, the performance of the Barclays Capital U.S. Long Treasury Bond Index over the long term.

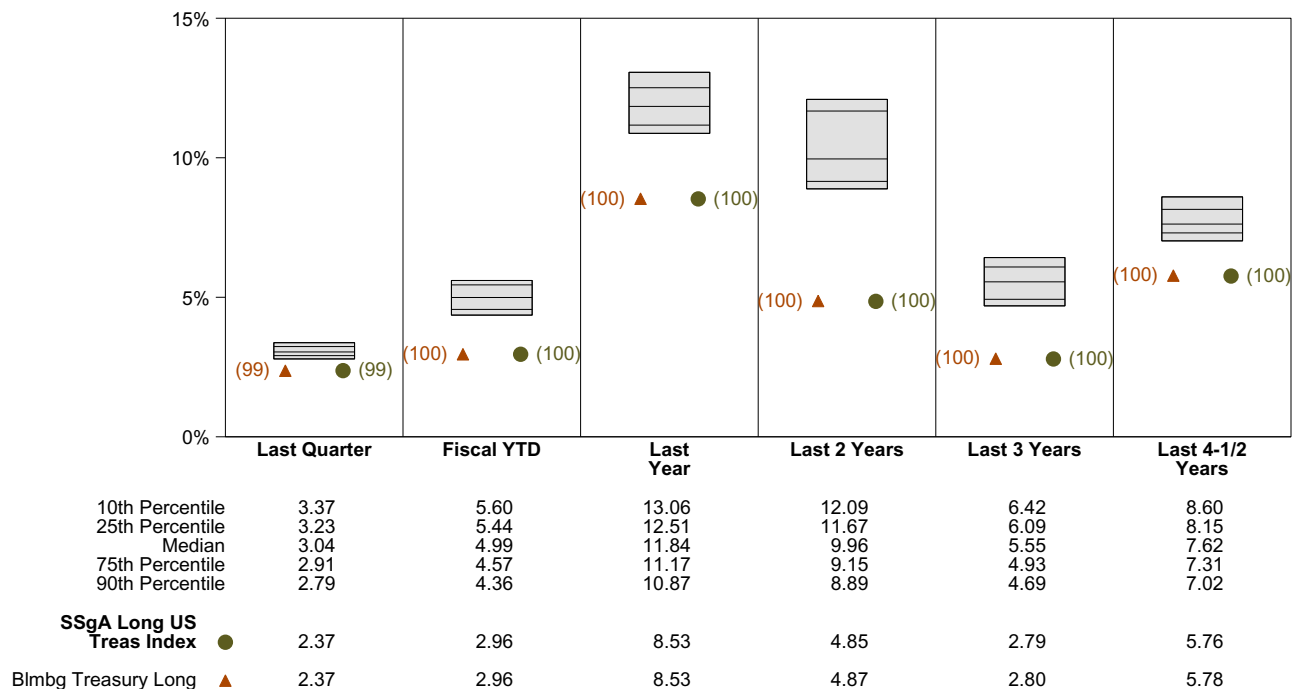
### Quarterly Summary and Highlights

- SSgA Long US Treas Index's portfolio posted a 2.37% return for the quarter placing it in the 99 percentile of the Callan Extended Maturity Fixed Income group for the quarter and in the 100 percentile for the last year.
- SSgA Long US Treas Index's portfolio outperformed the Blmbg Treasury Long by 0.00% for the quarter and underperformed the Blmbg Treasury Long for the year by 0.01%.

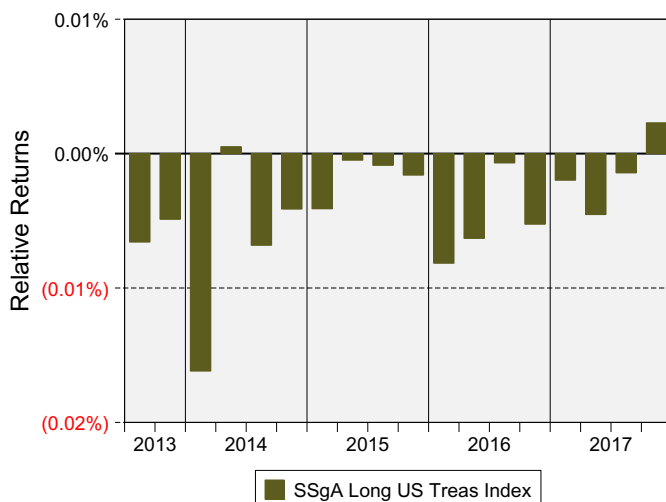
### Quarterly Asset Growth

Beginning Market Value	\$118,859,035
Net New Investment	\$-22,274
Investment Gains/(Losses)	\$2,817,389
Ending Market Value	\$121,654,150

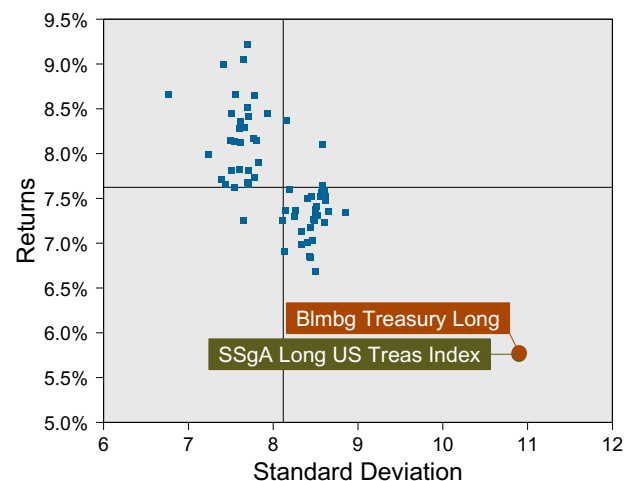
### Performance vs Callan Extended Maturity Fixed Income (Gross)



### Relative Return vs Blmbg Treasury Long



### Callan Extended Maturity Fixed Income (Gross) Annualized Four and One-Half Year Risk vs Return





## Goldman Sachs 2006 Offshore Period Ended December 31, 2017

### Investment Philosophy

GS Mezzanine Partners seeks large-sized mezzanine investments comprised generally of fixed income securities and an associated equity component. They focus on providing "private high yield" capital for mid- to large-sized leveraged and management buyout transactions, recapitalizations, financings, re-financings, acquisitions and restructurings for private equity firms, private family companies and corporate issuers.

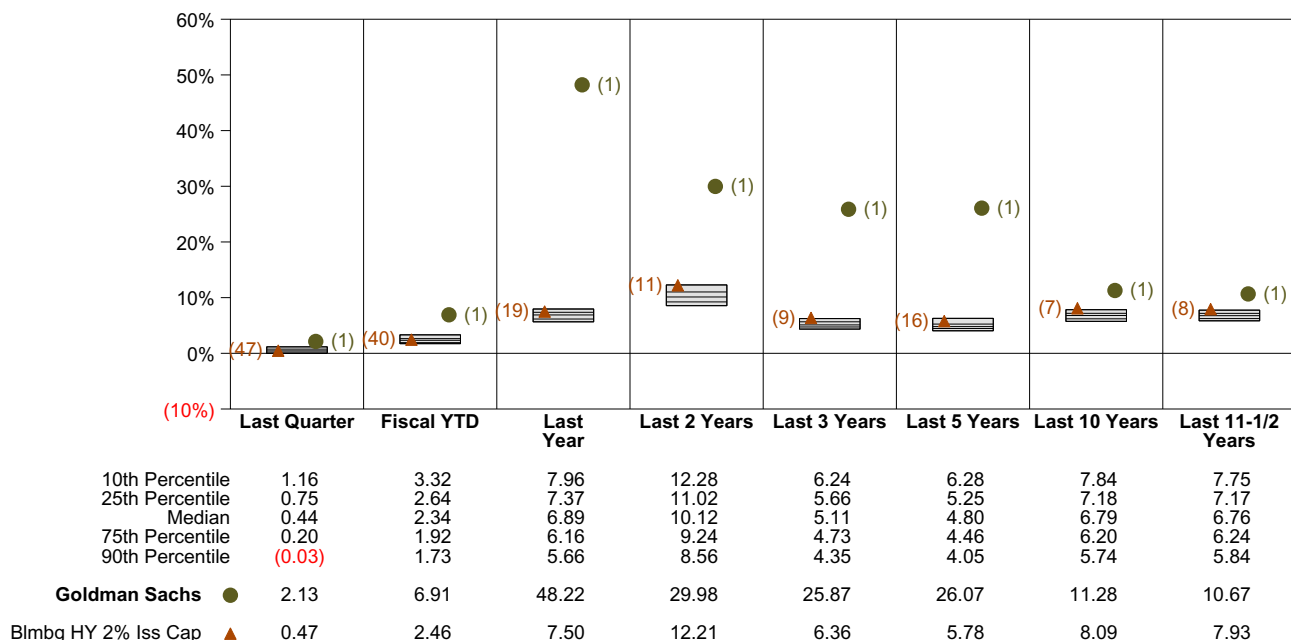
### Quarterly Summary and Highlights

- Goldman Sachs's portfolio posted a 2.13% return for the quarter placing it in the 1 percentile of the Callan High Yield Mutual Funds group for the quarter and in the 1 percentile for the last year.
- Goldman Sachs's portfolio outperformed the Blmbg HY 2% Iss Cap by 1.66% for the quarter and outperformed the Blmbg HY 2% Iss Cap for the year by 40.71%.

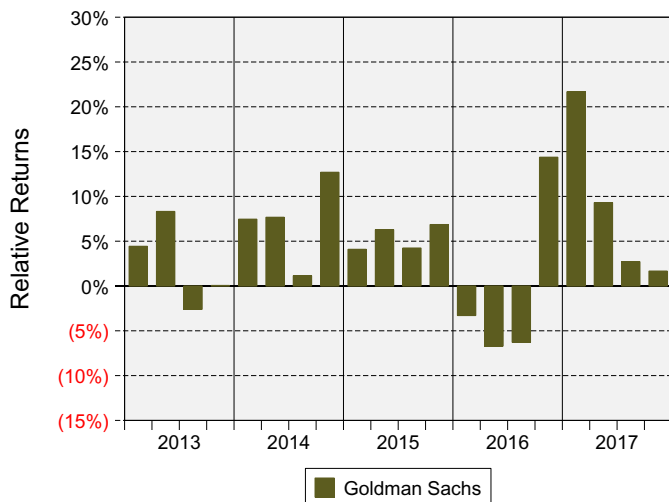
### Quarterly Asset Growth

Beginning Market Value	\$399,728
Net New Investment	\$-282,779
Investment Gains/(Losses)	\$2,536
Ending Market Value	\$119,485

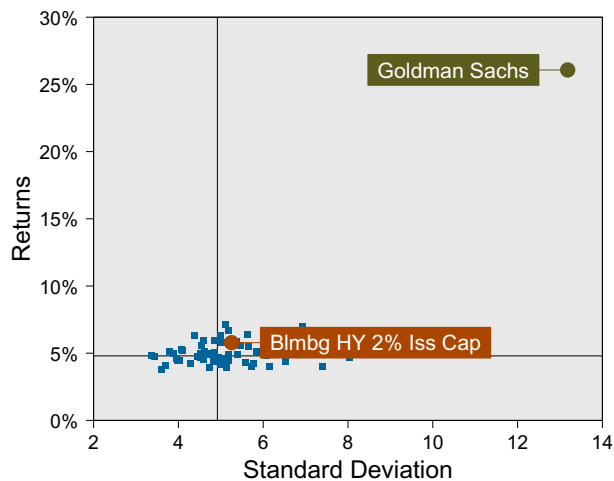
### Performance vs Callan High Yield Mutual Funds (Net)



### Relative Return vs Blmbg HY 2% Iss Cap



### Callan High Yield Mutual Funds (Net) Annualized Five Year Risk vs Return



# Goldman Sachs Offshore Fund V

## Period Ended December 31, 2017

### Investment Philosophy

GS Mezzanine Partners seeks large-sized mezzanine investments comprised generally of fixed income securities and an associated equity component. They focus on providing "private high yield" capital for mid- to large-sized leveraged and management buyout transactions, recapitalizations, financings, re-financings, acquisitions and restructurings for private equity firms, private family companies and corporate issuers.

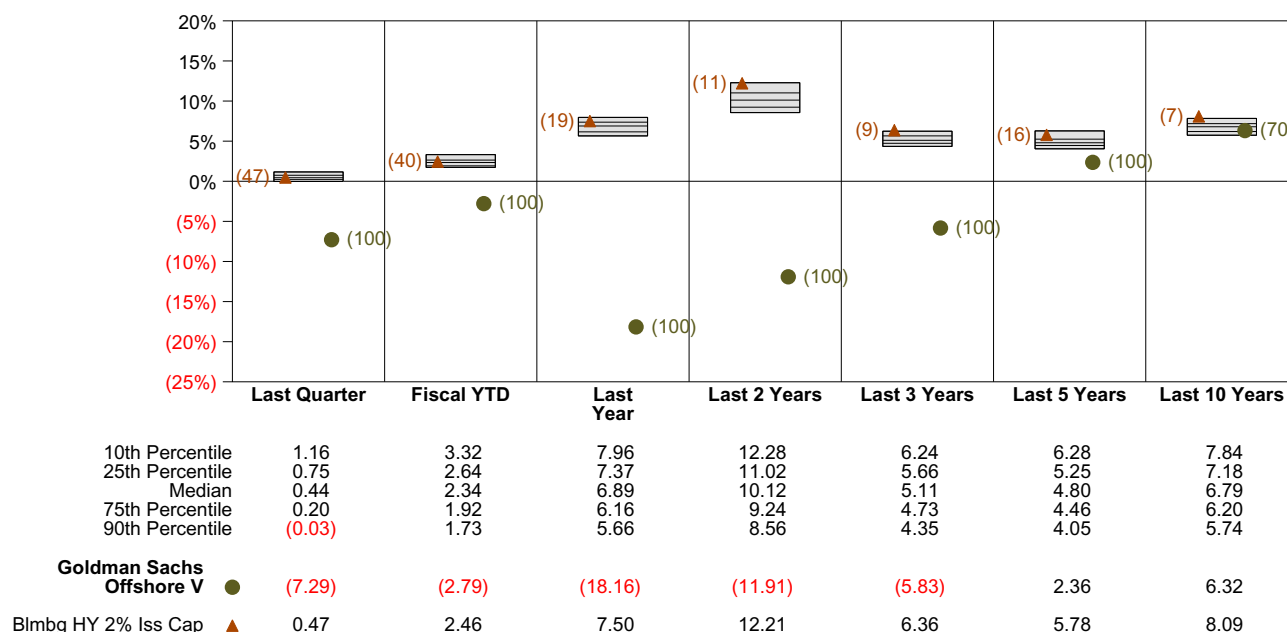
### Quarterly Summary and Highlights

- Goldman Sachs Offshore V's portfolio posted a (7.29)% return for the quarter placing it in the 100 percentile of the Callan High Yield Mutual Funds group for the quarter and in the 100 percentile for the last year.
- Goldman Sachs Offshore V's portfolio underperformed the Blmbg HY 2% Iss Cap by 7.76% for the quarter and underperformed the Blmbg HY 2% Iss Cap for the year by 25.66%.

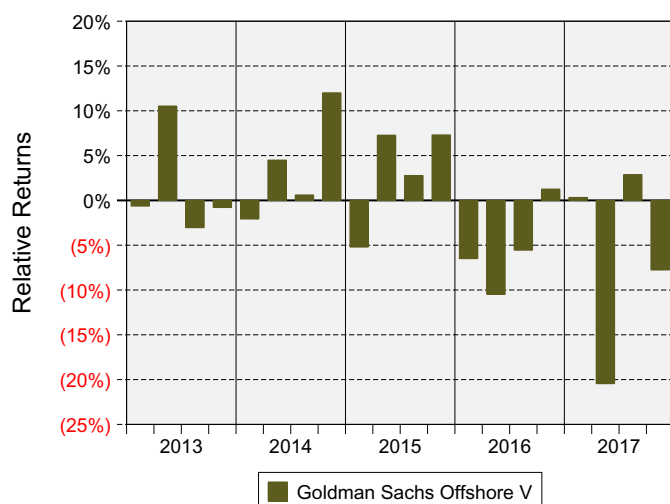
### Quarterly Asset Growth

Beginning Market Value	\$1,466,765
Net New Investment	\$-612,366
Investment Gains/(Losses)	\$-73,540
Ending Market Value	\$780,859

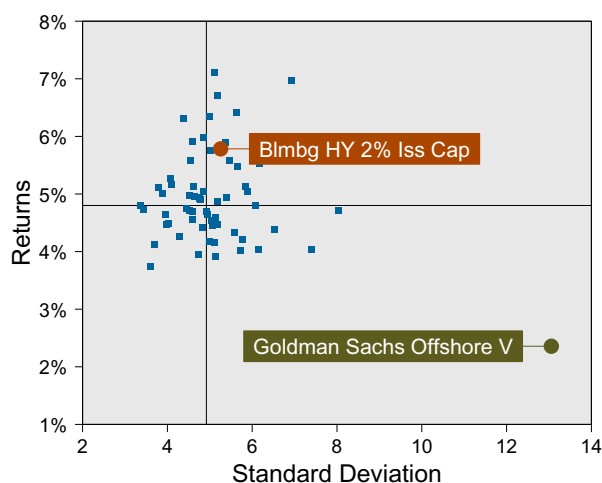
### Performance vs Callan High Yield Mutual Funds (Net)



### Relative Return vs Blmbg HY 2% Iss Cap



### Callan High Yield Mutual Funds (Net) Annualized Five Year Risk vs Return



## Loomis Sayles Period Ended December 31, 2017

### Investment Philosophy

The High Yield Full Discretion Strategy seeks to identify attractive sectors and specific investment opportunities primarily within the global fixed income market through a global economic and interest rate framework. Portfolio managers incorporate a long-term macroeconomic view along with a stringent bottom-up investment evaluation process that drives security selection and resulting sector allocations. Opportunistic investments in non-benchmark sectors including investment grade corporate, emerging market, and non-US dollar debt and convertible bonds help to manage overall portfolio risk and enhance total return potential.

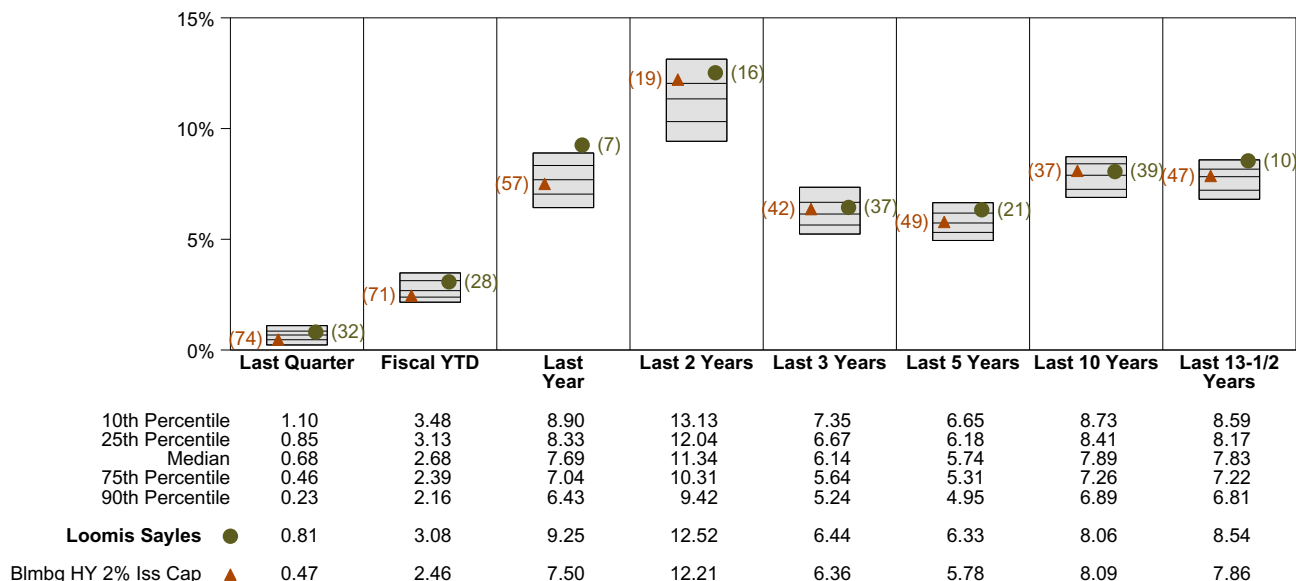
### Quarterly Summary and Highlights

- Loomis Sayles's portfolio posted a 0.81% return for the quarter placing it in the 32 percentile of the Callan High Yield Fixed Income group for the quarter and in the 7 percentile for the last year.
- Loomis Sayles's portfolio outperformed the Blmbg HY 2% Iss Cap by 0.34% for the quarter and outperformed the Blmbg HY 2% Iss Cap for the year by 1.75%.

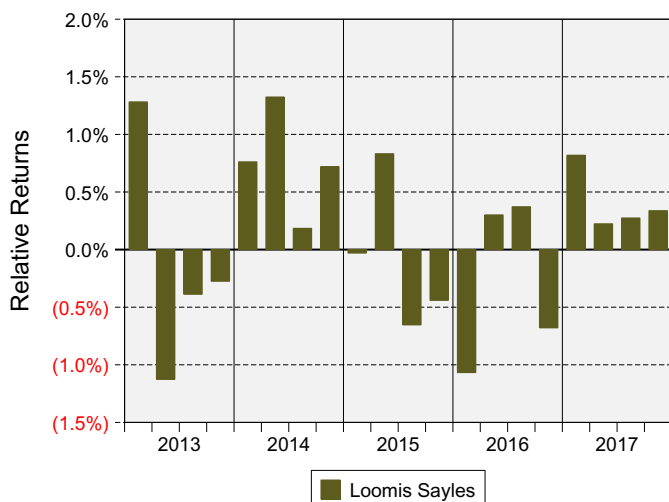
### Quarterly Asset Growth

Beginning Market Value	\$184,195,913
Net New Investment	\$-16,130,245
Investment Gains/(Losses)	\$1,362,211
Ending Market Value	\$169,427,879

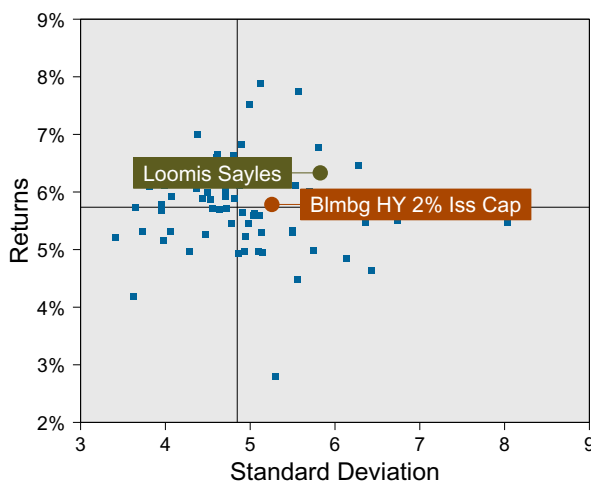
### Performance vs Callan High Yield Fixed Income (Gross)



### Relative Return vs Blmbg HY 2% Iss Cap



### Callan High Yield Fixed Income (Gross) Annualized Five Year Risk vs Return



## PIMCO Bravo II Fund Period Ended December 31, 2017

### Investment Philosophy

The BRAVO II Fund is a private equity style fund targeting an annualized IRR of 15-20% and multiple of 1.8-2x, net of fees and carried interest with an initial 5-year term. The fund will seek to capitalize on non-economic asset sale decisions by global financial institutions. The fund will have the flexibility to acquire attractively discounted, less liquid loans, structured credit and other assets tied to residential or commercial real estate markets in the U.S. and Europe.

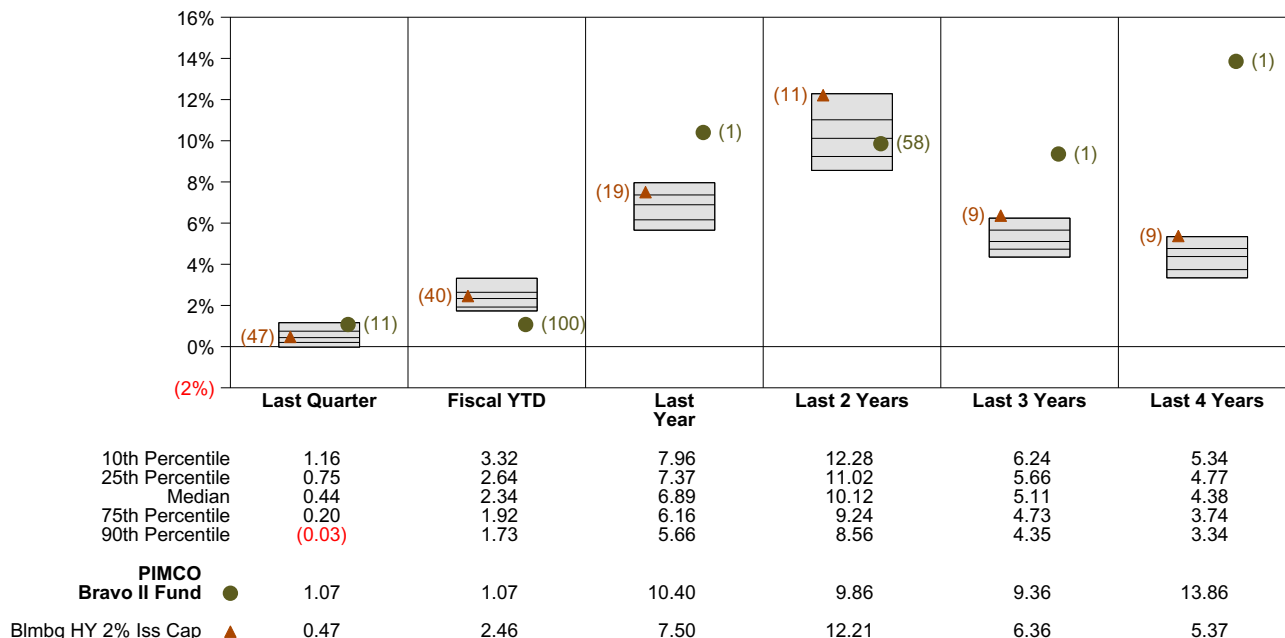
### Quarterly Summary and Highlights

- PIMCO Bravo II Fund's portfolio posted a 1.07% return for the quarter placing it in the 11 percentile of the Callan High Yield Mutual Funds group for the quarter and in the 1 percentile for the last year.
- PIMCO Bravo II Fund's portfolio outperformed the Blmbg HY 2% Iss Cap by 0.60% for the quarter and outperformed the Blmbg HY 2% Iss Cap for the year by 2.90%.

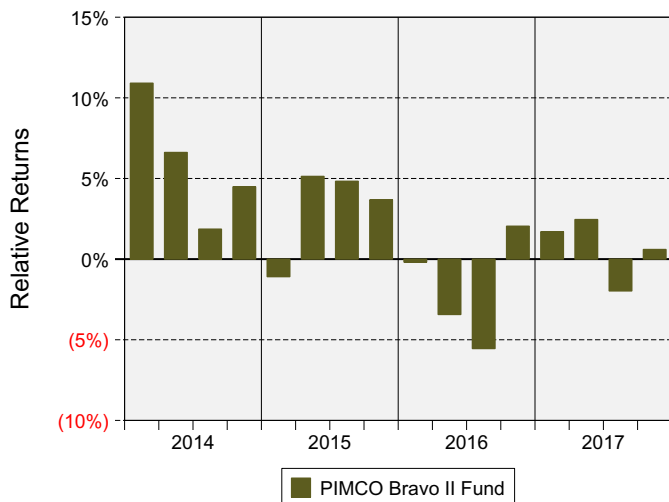
### Quarterly Asset Growth

Beginning Market Value	\$55,029,366
Net New Investment	\$-4,839,492
Investment Gains/(Losses)	\$568,093
Ending Market Value	\$50,757,967

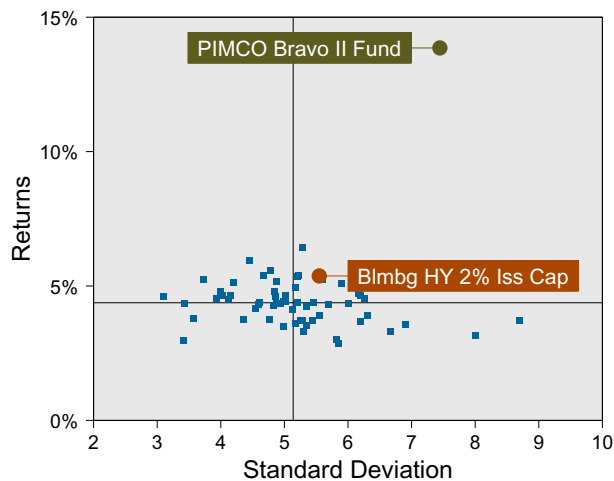
### Performance vs Callan High Yield Mutual Funds (Net)



### Relative Return vs Blmbg HY 2% Iss Cap



### Callan High Yield Mutual Funds (Net) Annualized Four Year Risk vs Return



## International Fixed Income Period Ended December 31, 2017

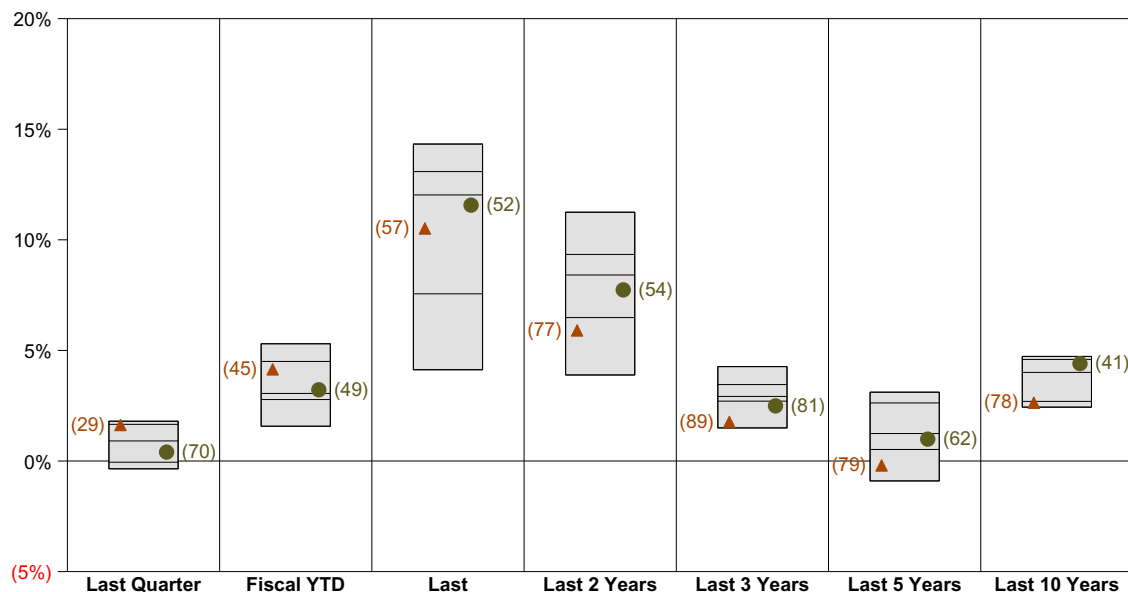
### Quarterly Summary and Highlights

- International Fixed Income's portfolio posted a 0.40% return for the quarter placing it in the 70 percentile of the Public Fund - International Fixed group for the quarter and in the 52 percentile for the last year.
- International Fixed Income's portfolio underperformed the International Fixed Income Target by 1.23% for the quarter and outperformed the International Fixed Income Target for the year by 1.05%.

### Quarterly Asset Growth

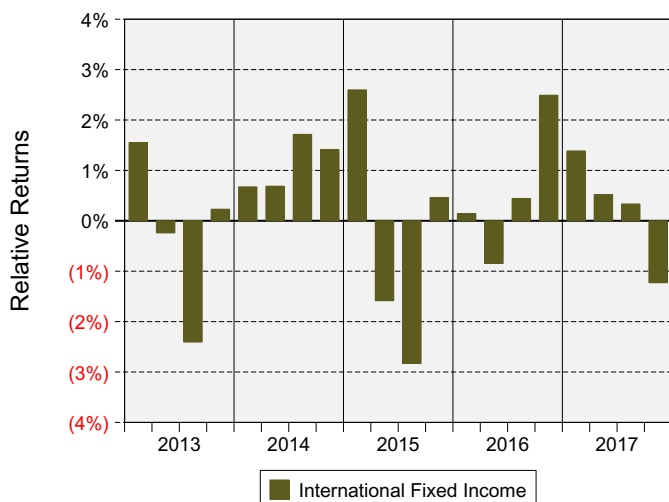
Beginning Market Value	\$251,795,684
Net New Investment	\$-235,889
Investment Gains/(Losses)	\$1,009,254
Ending Market Value	\$252,569,049

### Performance vs Public Fund - International Fixed (Gross)

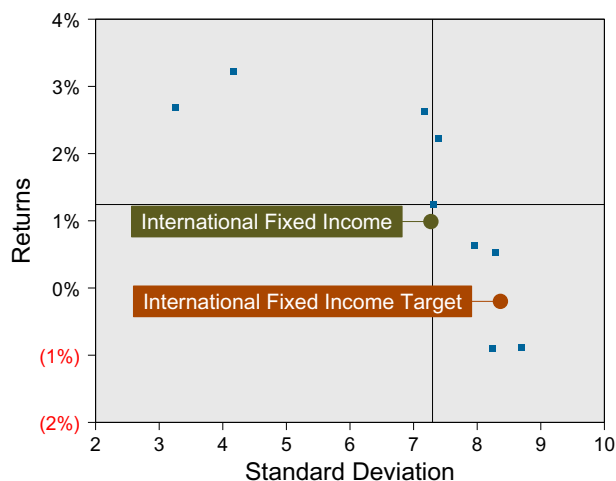


10th Percentile	1.80	5.30	14.33	11.25	4.27	3.11	4.73
25th Percentile	1.66	4.50	13.09	9.34	3.46	2.63	4.59
Median	0.91	3.06	12.03	8.41	2.92	1.24	4.01
75th Percentile	(0.05)	2.78	7.56	6.48	2.71	0.52	2.70
90th Percentile	(0.35)	1.57	4.13	3.89	1.49	(0.90)	2.43
International Fixed Income	0.40	3.22	11.57	7.74	2.49	0.99	4.40
International Fixed Income Target	1.63	4.14	10.51	5.90	1.77	(0.20)	2.64

### Relative Returns vs International Fixed Income Target



### Public Fund - International Fixed (Gross) Annualized Five Year Risk vs Return



## Brandywine Asset Management Period Ended December 31, 2017

### Investment Philosophy

Brandywine engages in a disciplined, active, value-driven, strategic approach. Their investment strategy concentrates on top-down analysis of macro-economic conditions in order to determine where the most attractive valuations exist. Specifically, they invest in bonds with the highest real yields globally. They manage currency to protect principal and increase returns, patiently rotated among countries and attempt to control risk by purchasing undervalued securities.

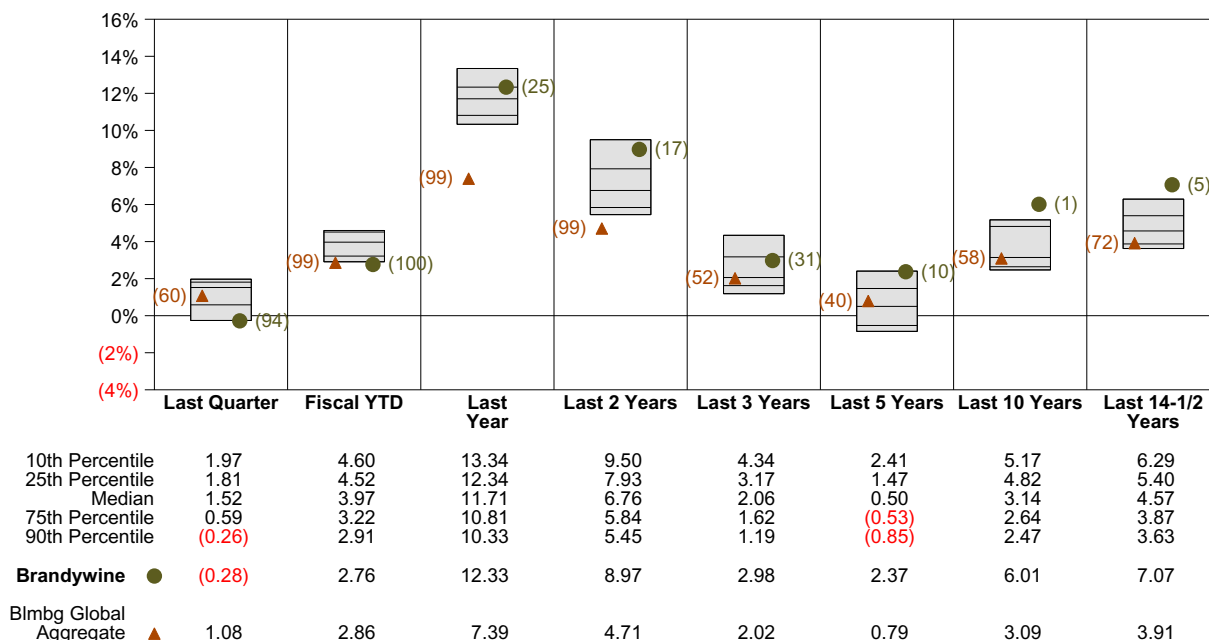
### Quarterly Summary and Highlights

- Brandywine's portfolio posted a (0.28)% return for the quarter placing it in the 94 percentile of the Callan Non US Fixed Income (Unhedged) group for the quarter and in the 25 percentile for the last year.
- Brandywine's portfolio underperformed the Blmbg Global Aggregate by 1.36% for the quarter and outperformed the Blmbg Global Aggregate for the year by 4.94%.

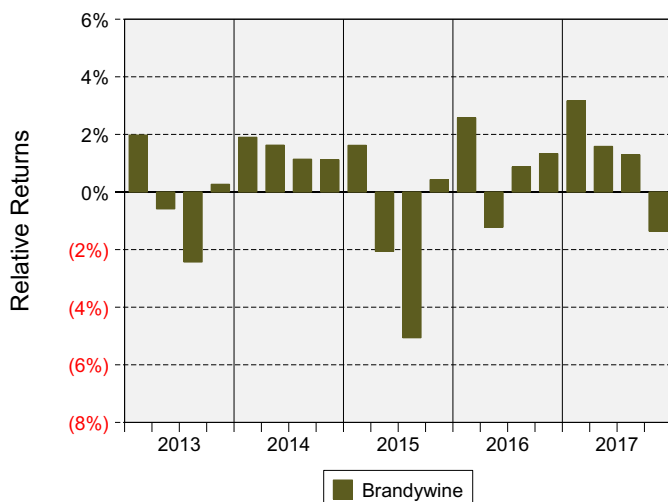
### Quarterly Asset Growth

Beginning Market Value	\$158,350,846
Net New Investment	\$-150,115
Investment Gains/(Losses)	\$-444,571
Ending Market Value	\$157,756,160

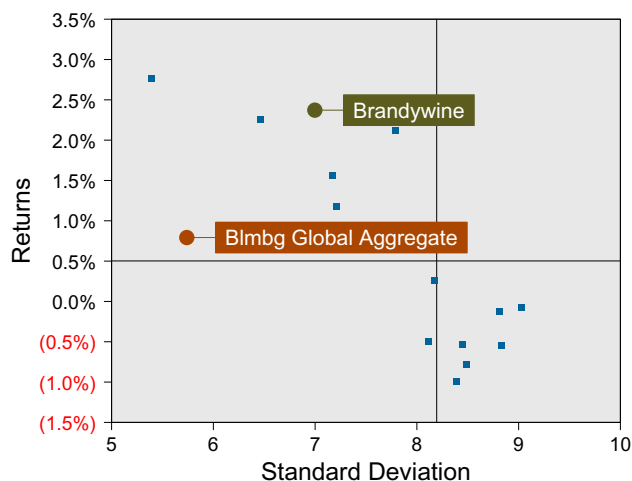
### Performance vs Callan Non US Fixed Income (Unhedged) (Gross)



### Relative Return vs Blmbg Global Aggregate



### Callan Non US Fixed Income (Unhedged) (Gross) Annualized Five Year Risk vs Return



## UBS Global Asset Management Period Ended December 31, 2017

### Investment Philosophy

UBS Global Asset Management's non-US fixed income portfolio's assets are invested in emerging markets debt on an opportunistic basis up to the stated maximum allocation of 5%. The account's non-US fixed income assets will be fully-invested at all times, but such assets may be invested in the UBS US Cash Management Prime Collective Fund for operational and risk management purposes. \*Citigroup Non-US Govt Index through 12/31/2009; Bloomberg Aggregate ex-US Index thereafter.

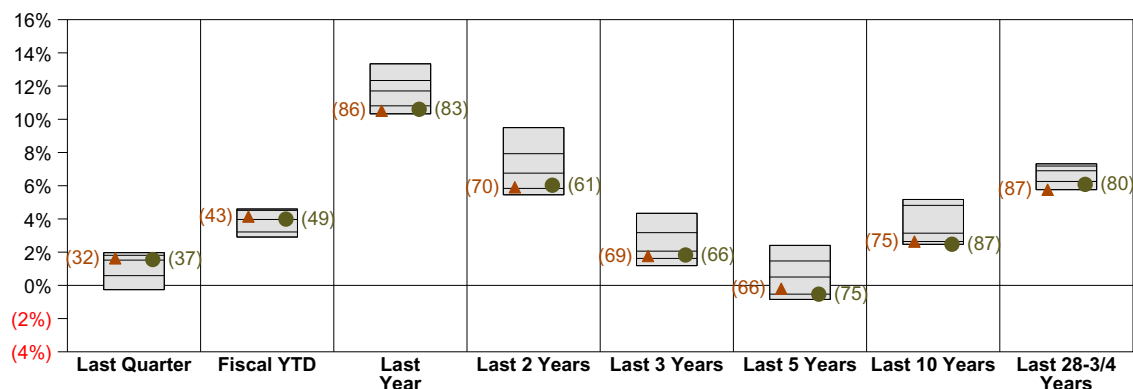
### Quarterly Summary and Highlights

- UBS Global Asset Management's portfolio posted a 1.56% return for the quarter placing it in the 37 percentile of the Callan Non US Fixed Income (Unhedged) group for the quarter and in the 83 percentile for the last year.
- UBS Global Asset Management's portfolio underperformed the Blended Benchmark\* by 0.07% for the quarter and outperformed the Blended Benchmark\* for the year by 0.09%.

### Quarterly Asset Growth

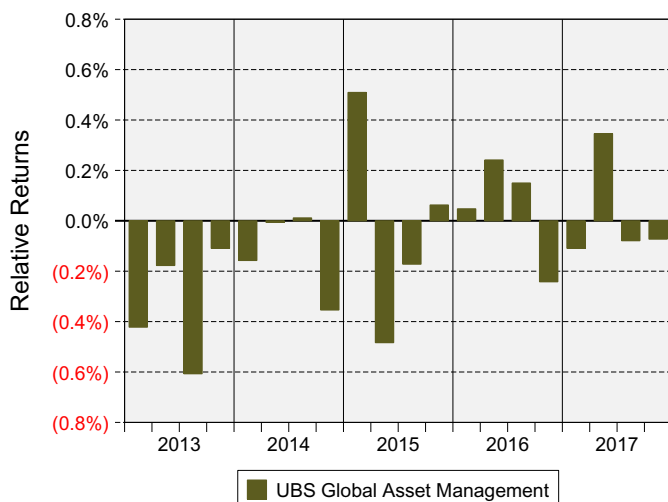
Beginning Market Value	\$93,444,838
Net New Investment	\$-85,775
Investment Gains/(Losses)	\$1,453,825
Ending Market Value	\$94,812,889

### Performance vs Callan Non US Fixed Income (Unhedged) (Gross)

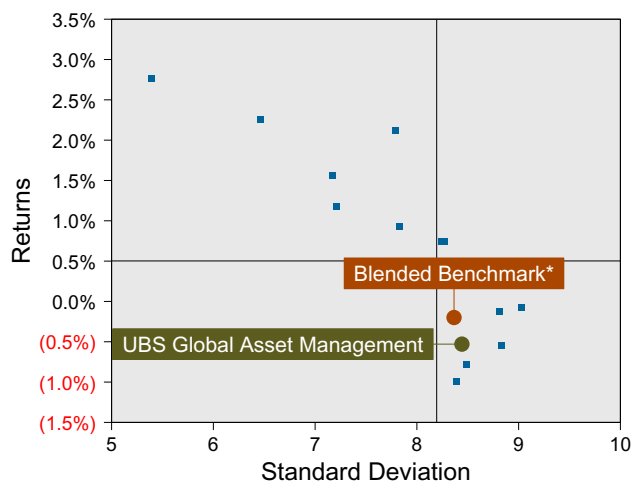


10th Percentile	1.97	4.60	13.34	9.50	4.34	2.41	5.17	7.32
25th Percentile	1.81	4.52	12.34	7.93	3.17	1.47	4.82	7.19
Median	1.52	3.97	11.71	6.76	2.06	0.50	3.14	6.90
75th Percentile	0.59	3.22	10.81	5.84	1.62	(0.53)	2.64	6.26
90th Percentile	(0.26)	2.91	10.33	5.45	1.19	(0.85)	2.47	5.76
<b>UBS Global Asset Management</b>	<b>1.56</b>	<b>3.99</b>	<b>10.60</b>	<b>6.03</b>	<b>1.83</b>	<b>(0.53)</b>	<b>2.48</b>	<b>6.08</b>
<b>Blended Benchmark*</b>	<b>1.63</b>	<b>4.14</b>	<b>10.51</b>	<b>5.90</b>	<b>1.77</b>	<b>(0.20)</b>	<b>2.64</b>	<b>5.76</b>

### Relative Return vs Blended Benchmark\*



### Callan Non US Fixed Income (Unhedged) (Gross) Annualized Five Year Risk vs Return



## Global Real Estate Composite Period Ended December 31, 2017

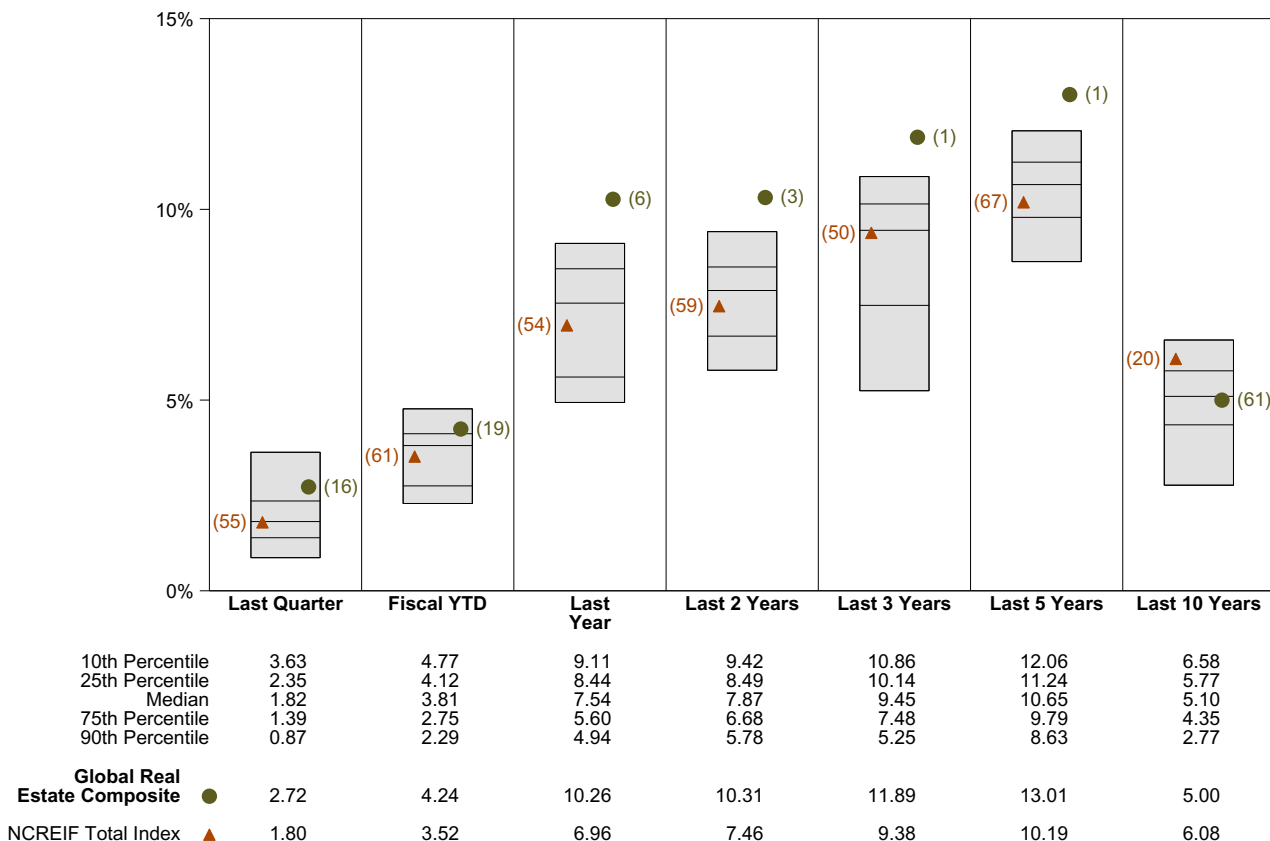
### Quarterly Summary and Highlights

- Global Real Estate Composite's portfolio posted a 2.72% return for the quarter placing it in the 16 percentile of the Public Fund - Real Estate group for the quarter and in the 6 percentile for the last year.
- Global Real Estate Composite's portfolio outperformed the NCREIF Total Index by 0.93% for the quarter and outperformed the NCREIF Total Index for the year by 3.31%.

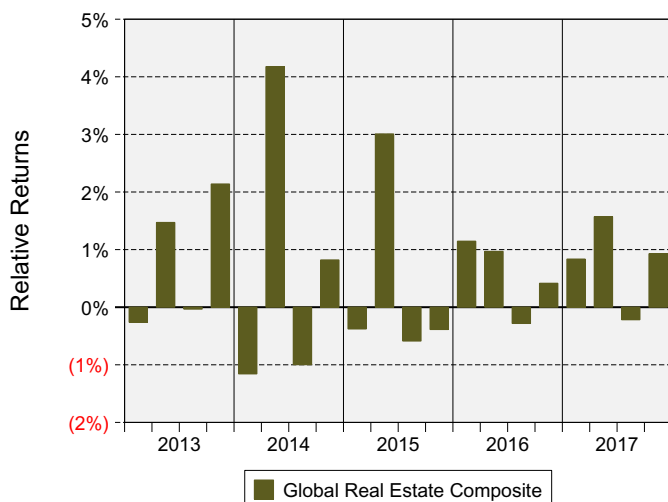
### Quarterly Asset Growth

Beginning Market Value	\$557,391,861
Net New Investment	\$-12,106,648
Investment Gains/(Losses)	\$14,997,614
Ending Market Value	\$560,282,827

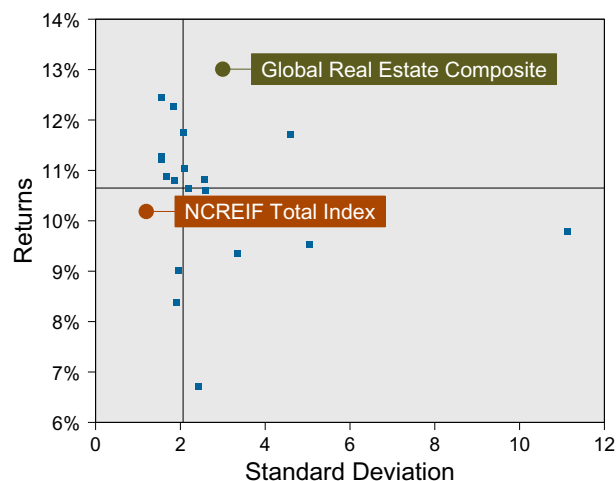
### Performance vs Public Fund - Real Estate (Gross)



### Relative Return vs NCREIF Total Index



### Public Fund - Real Estate (Gross) Annualized Five Year Risk vs Return

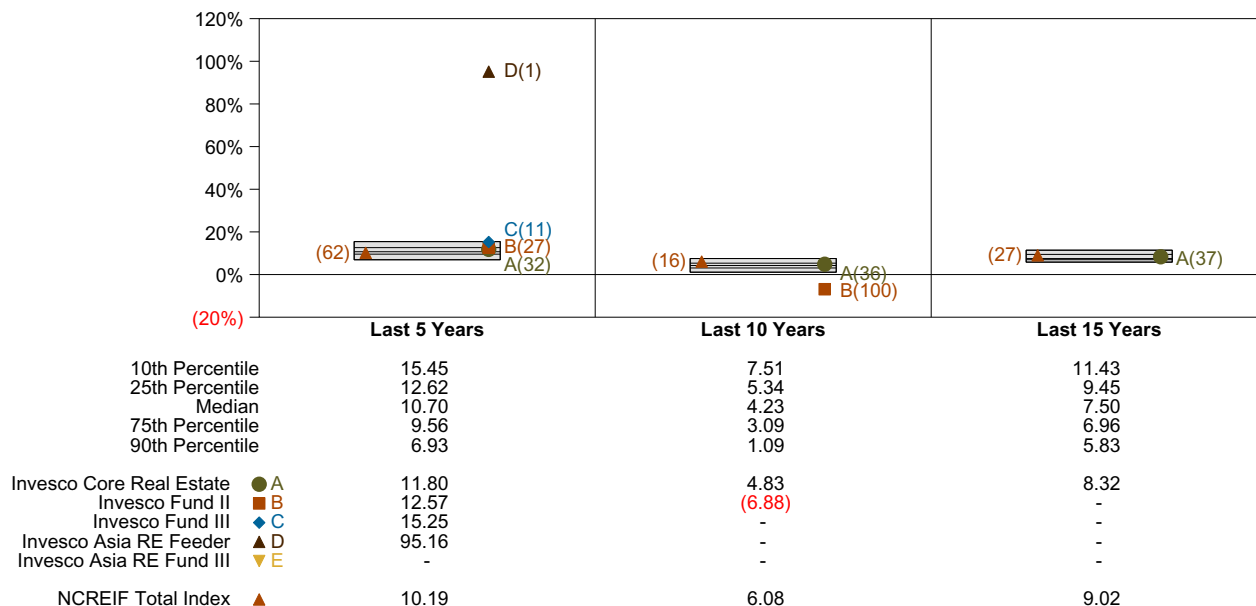
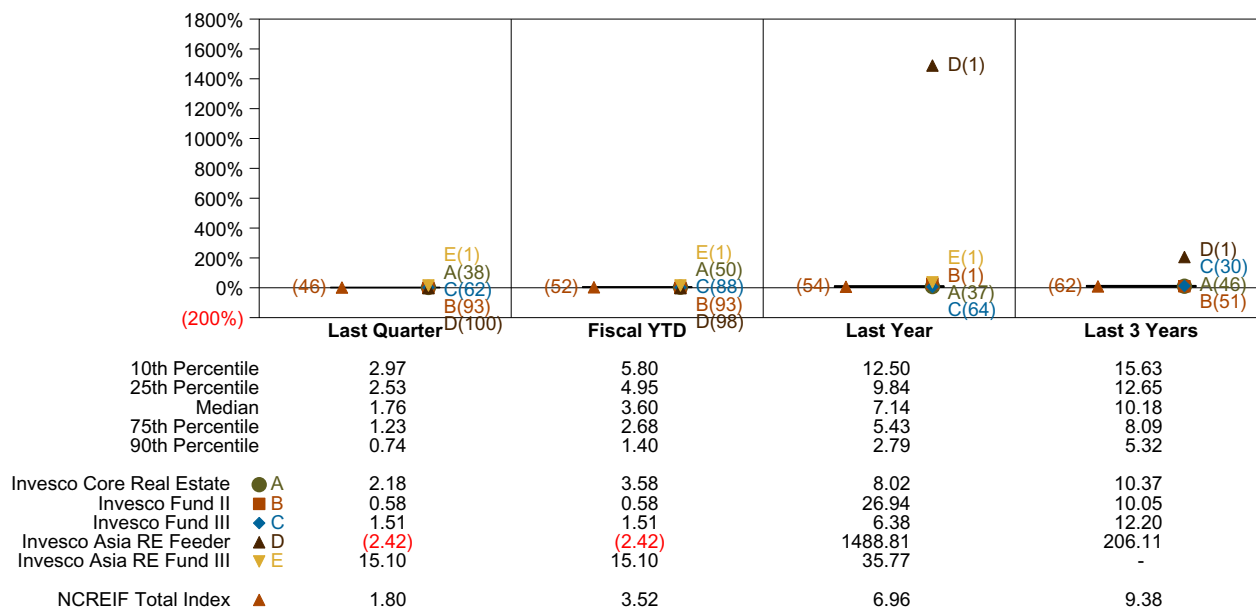




## North Dakota State Investment Board Pension Funds Performance vs Callan Total Domestic Real Estate DB Periods Ended December 31, 2017

### Return Ranking

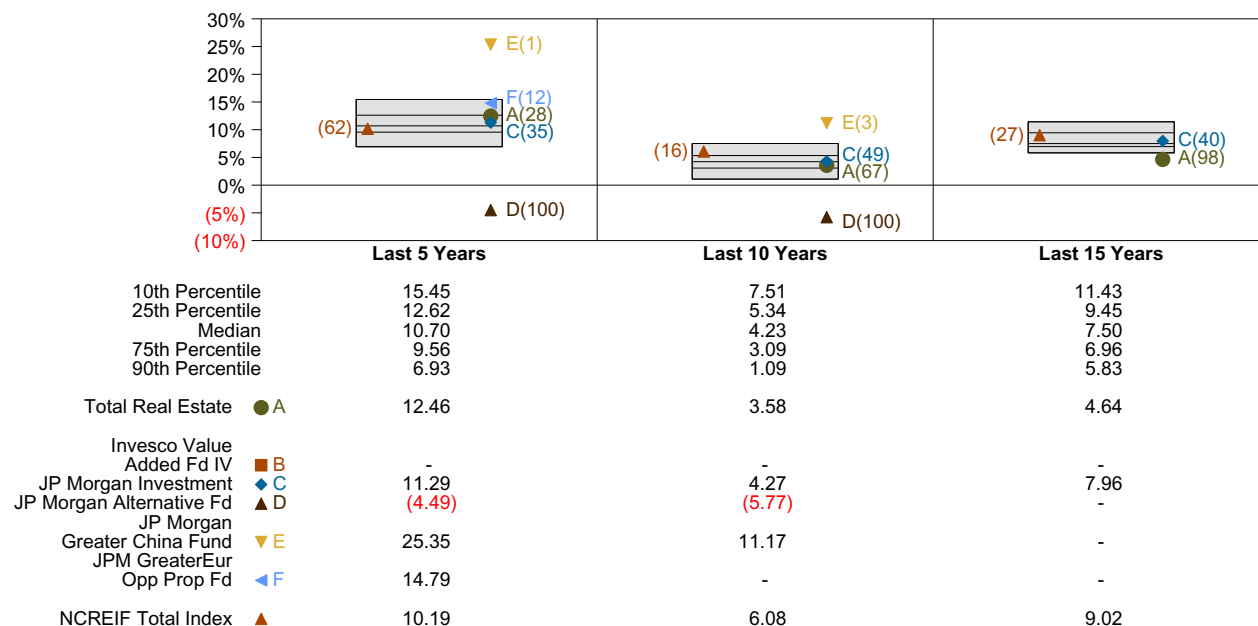
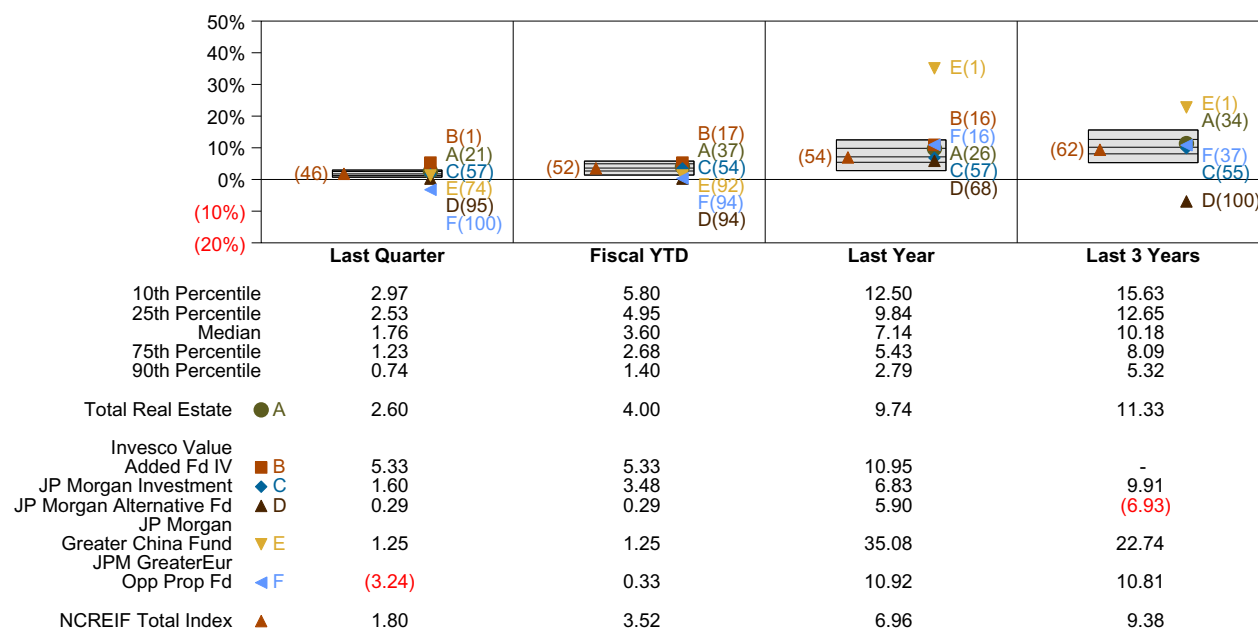
The chart below illustrates fund rankings over various periods versus the Callan Total Domestic Real Estate DB. The bars represent the range of returns from the 10th percentile to the 90th percentile for each period for all funds in the Callan Total Domestic Real Estate DB. The numbers to the right of the bar represent the percentile rankings of the funds being analyzed. The table below the chart details the rates of return plotted in the graph above.



# North Dakota State Investment Board Pension Funds Performance vs Callan Total Domestic Real Estate DB Periods Ended December 31, 2017

## Return Ranking

The chart below illustrates fund rankings over various periods versus the Callan Total Domestic Real Estate DB. The bars represent the range of returns from the 10th percentile to the 90th percentile for each period for all funds in the Callan Total Domestic Real Estate DB. The numbers to the right of the bar represent the percentile rankings of the funds being analyzed. The table below the chart details the rates of return plotted in the graph above.



## TIR Teredo Period Ended December 31, 2017

### Investment Philosophy

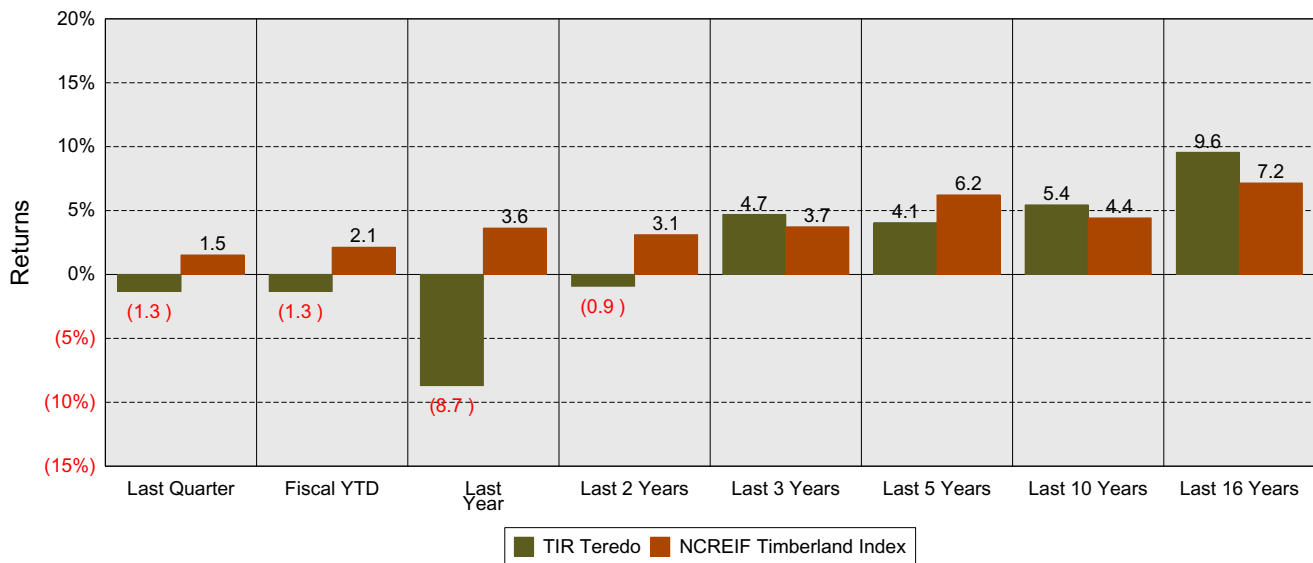
Teredo Timber LLC - The investment objective of Teredo is to provide competitive investment returns from increasing saw timber production through the 20 year term of the partnership. TIR's management strategy is to maximize saw timber volume by applying intensive forest management techniques which accelerate growth through the diameter class distribution. Periodic cash flows are produced from thinning and final harvests of the individual timber stands.

### Quarterly Summary and Highlights

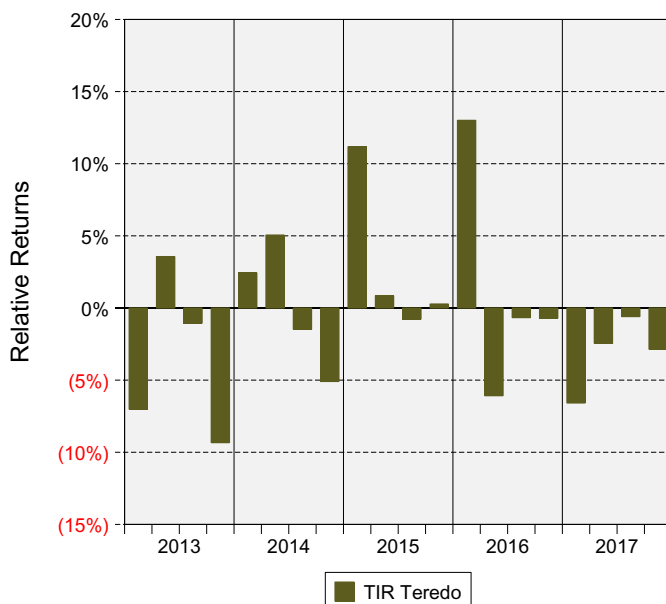
- TIR Teredo's portfolio underperformed the NCREIF Timberland Index by 2.85% for the quarter and underperformed the NCREIF Timberland Index for the year by 12.32%.

### Quarterly Asset Growth

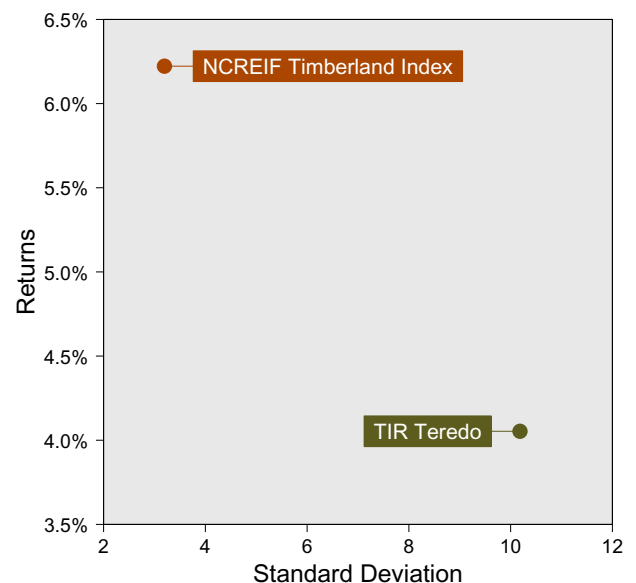
Beginning Market Value	\$31,445,437
Net New Investment	\$0
Investment Gains/(Losses)	\$-418,138
Ending Market Value	\$31,027,299



### Relative Return vs NCREIF Timberland Index



### Annualized Five Year Risk vs Return



## TIR Springbank Period Ended December 31, 2017

### Investment Philosophy

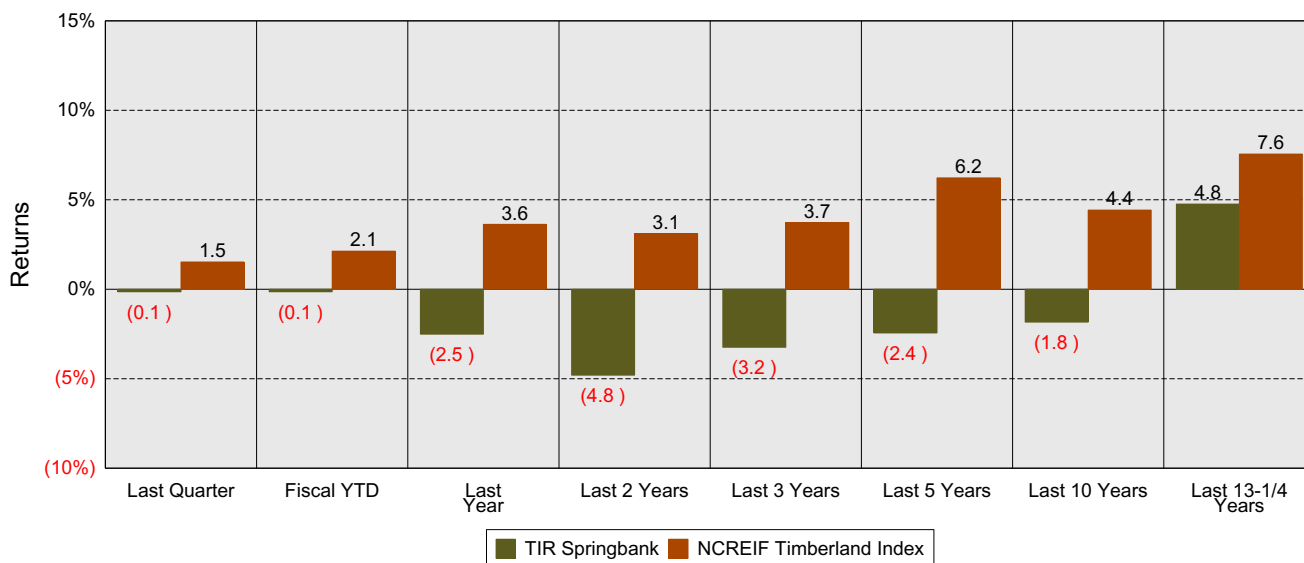
Springbank LLC - The investment objective of Springbank is to maximize long-term investment potential by means of the formation of a dedicated land management group, intensive timber management to increase timber production, the coordination of timber harvesting with land management activities and direct marketing and selective real estate partnerships.

### Quarterly Summary and Highlights

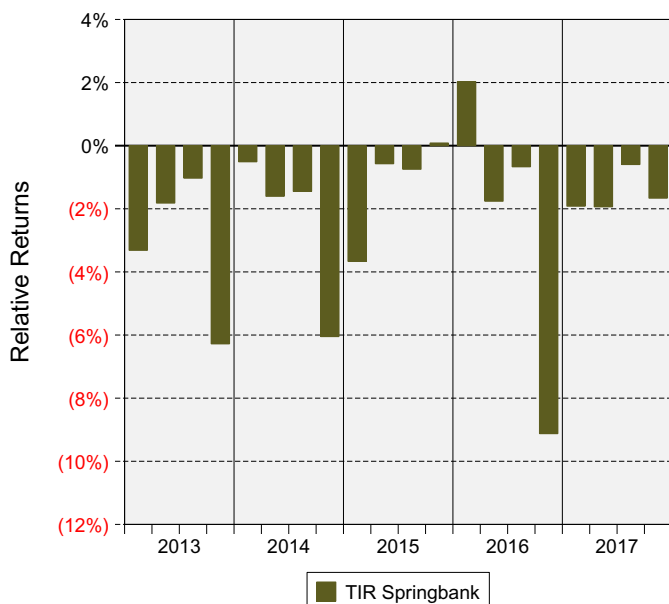
- TIR Springbank's portfolio underperformed the NCREIF Timberland Index by 1.66% for the quarter and underperformed the NCREIF Timberland Index for the year by 6.14%.

### Quarterly Asset Growth

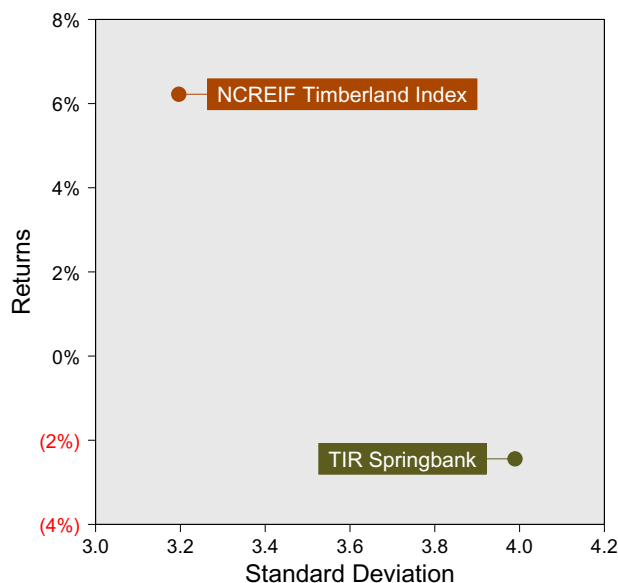
Beginning Market Value	\$103,978,460
Net New Investment	\$0
Investment Gains/(Losses)	\$-144,735
Ending Market Value	\$103,833,725



### Relative Return vs NCREIF Timberland Index



### Annualized Five Year Risk vs Return



## JP Morgan Asian Infrastructure Period Ended December 31, 2017

### Investment Philosophy

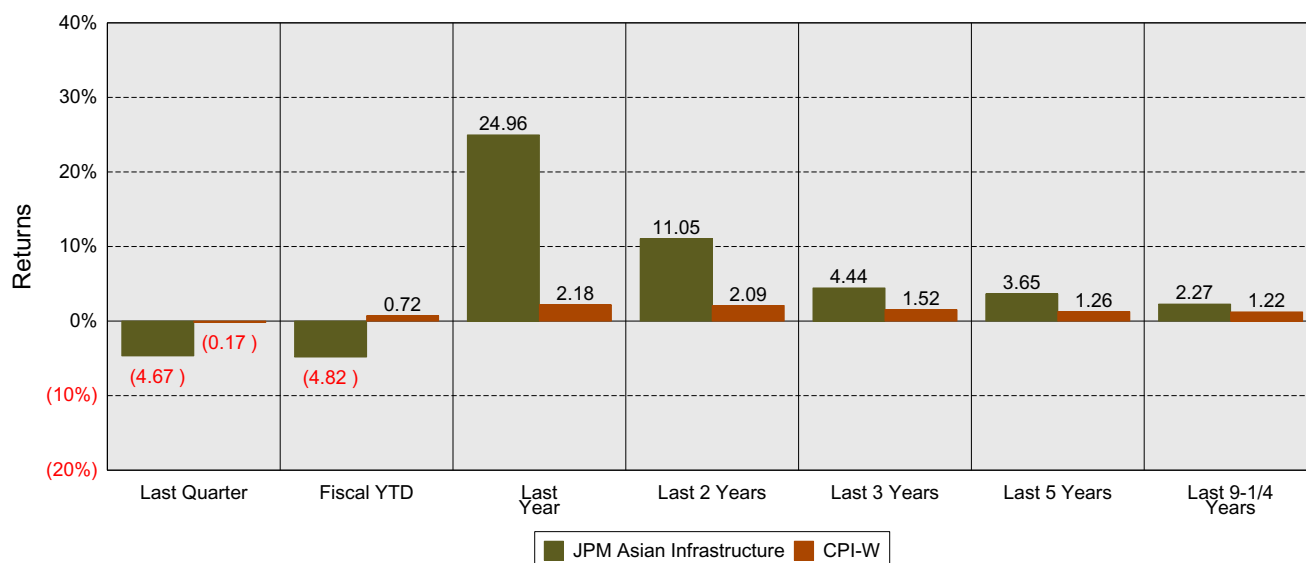
The JPMorgan Asian Infrastructure & Related Resources Opportunity ("AIRRO") Fund seeks to invest in infrastructure and related resources opportunities across the greater Asia Pacific region. The Fund seeks to invest in a broad range of assets, including: core infrastructure, power both from conventional and renewable sources, communications, water and waste-water, public works, urban development and other "social" infrastructure assets and related resources.

### Quarterly Summary and Highlights

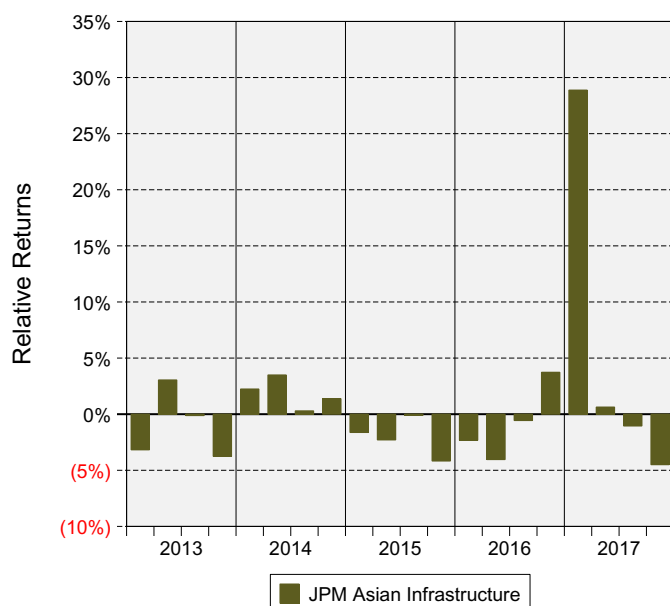
- JPM Asian Infrastructure's portfolio underperformed the CPI-W by 4.50% for the quarter and outperformed the CPI-W for the year by 22.78%.

### Quarterly Asset Growth

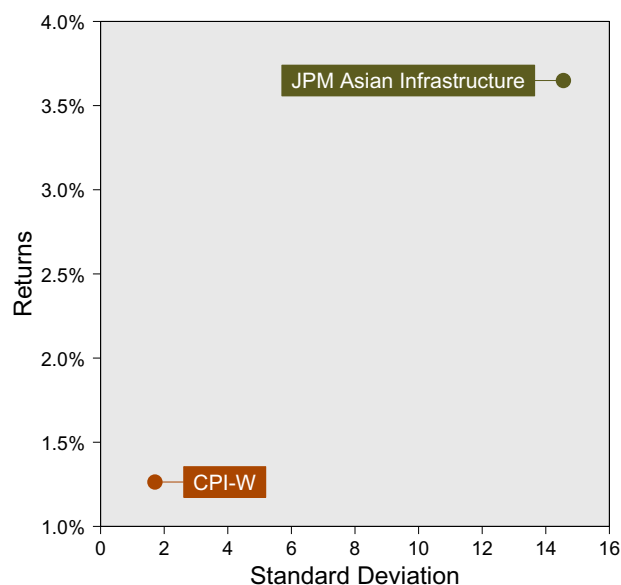
Beginning Market Value	\$23,517,287
Net New Investment	\$207,158
Investment Gains/(Losses)	\$-1,107,409
Ending Market Value	\$22,617,036



### Relative Return vs CPI-W



### Annualized Five Year Risk vs Return



## JPM Infrastructure Fund Period Ended December 31, 2017

### Investment Philosophy

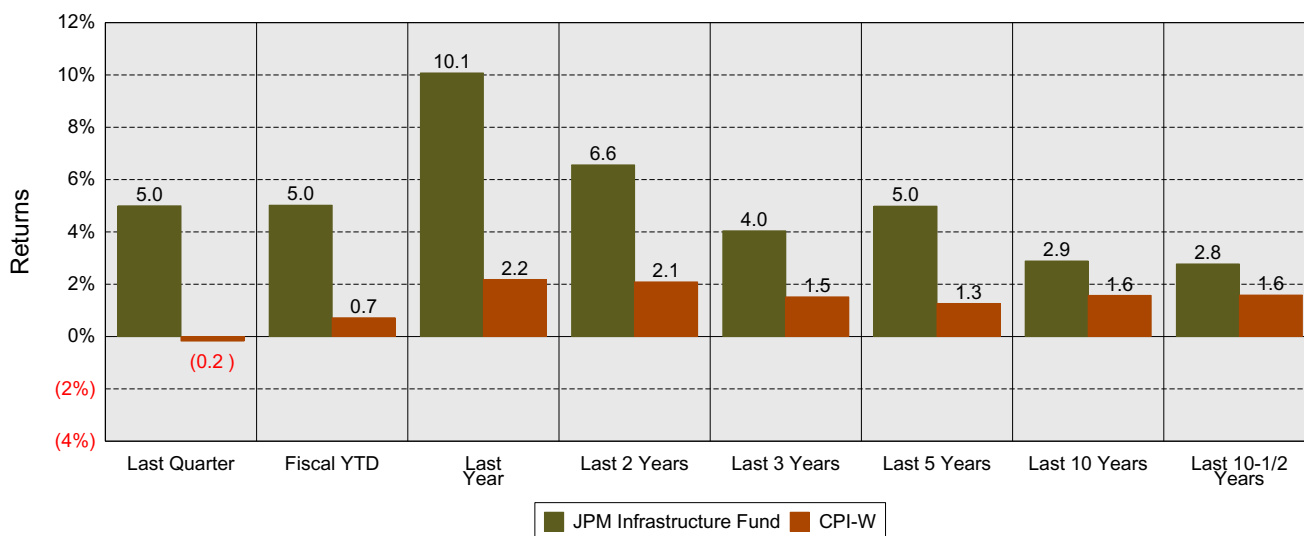
The only open-ended private commingled infrastructure fund in the U.S, the JPMorgan Infrastructure Investments Fund invests in stabilized assets in OECD countries with selected value-added opportunities, across infrastructure industry sub-sectors, including: toll roads, bridges and tunnels; oil and gas pipelines; electricity transmission and distribution facilities; contracted power generation assets; water distribution; waste-water collection and processing; railway lines and rapid rail links; and seaports and airports.

### Quarterly Summary and Highlights

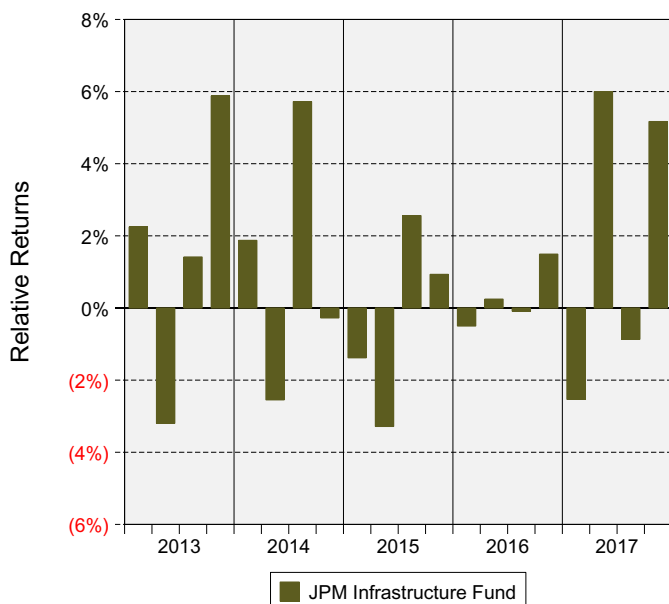
- JPM Infrastructure Fund's portfolio outperformed the CPI-W by 5.17% for the quarter and outperformed the CPI-W for the year by 7.89%.

### Quarterly Asset Growth

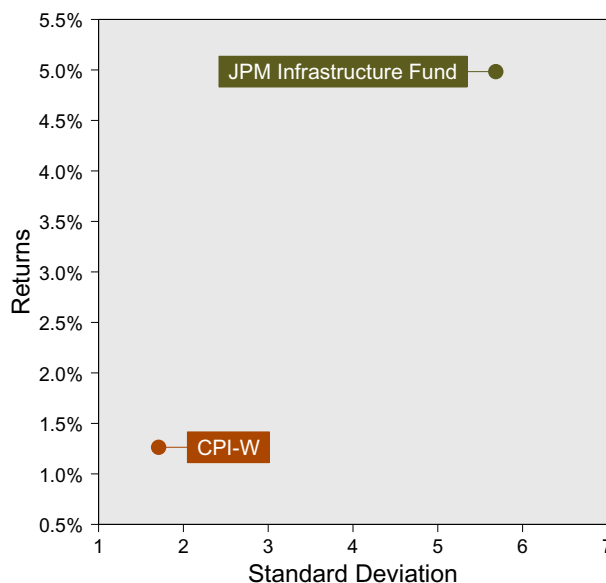
Beginning Market Value	\$178,979,091
Net New Investment	\$-108,105
Investment Gains/(Losses)	\$8,942,861
Ending Market Value	\$187,813,848



### Relative Return vs CPI-W



### Annualized Five Year Risk vs Return



## Grosvenor Cust. Infrastructure Period Ended December 31, 2017

### Investment Philosophy

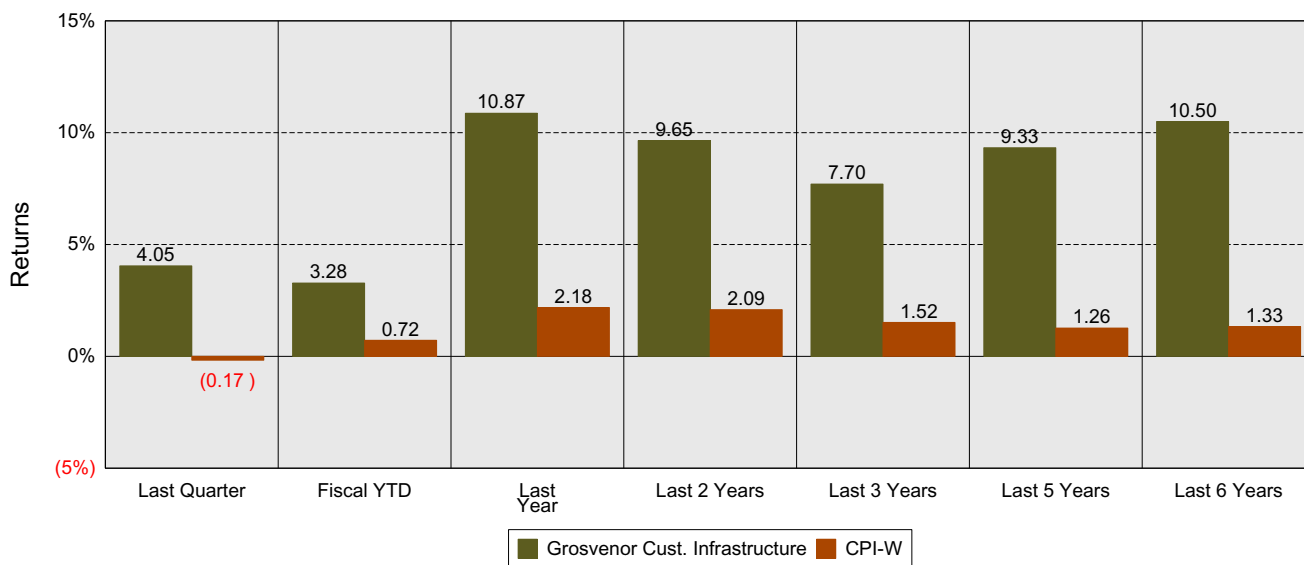
The Customized Infrastructure Strategies LP is a commingled fund focused on providing a comprehensive, diversified solution for investors looking to access the infrastructure asset class. The Fund seeks to generate stable, long-term yield and attractive risk-adjusted returns by investing in a diversified portfolio of primary core and core plus infrastructure funds (30%), co-investments (40%) and opportunistic secondary fund purchases (30%).

### Quarterly Summary and Highlights

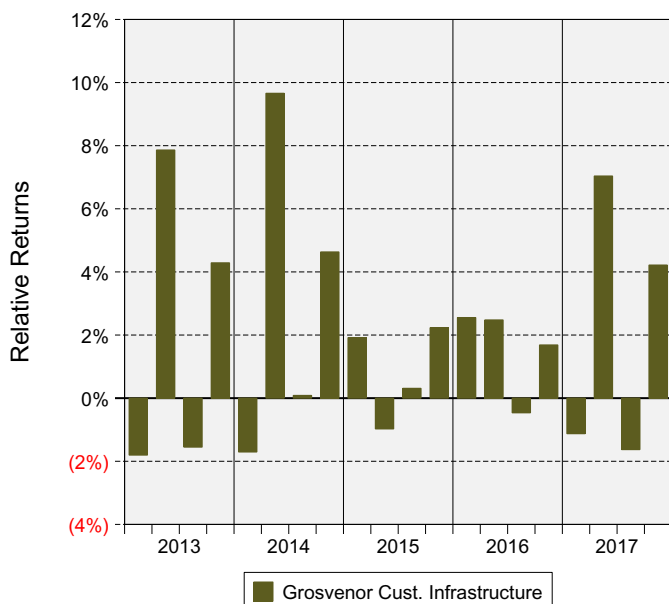
- Grosvenor Cust. Infrastructure's portfolio outperformed the CPI-W by 4.22% for the quarter and outperformed the CPI-W for the year by 8.69%.

### Quarterly Asset Growth

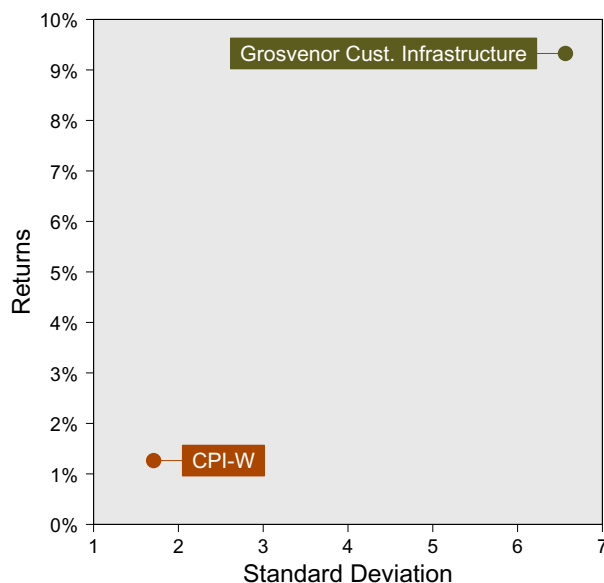
Beginning Market Value	\$34,096,781
Net New Investment	\$-1,714,332
Investment Gains/(Losses)	\$1,371,283
Ending Market Value	\$33,753,732



### Relative Return vs CPI-W



### Annualized Five Year Risk vs Return



## Grosvenor Cust. Infrastructure II Period Ended December 31, 2017

### Investment Philosophy

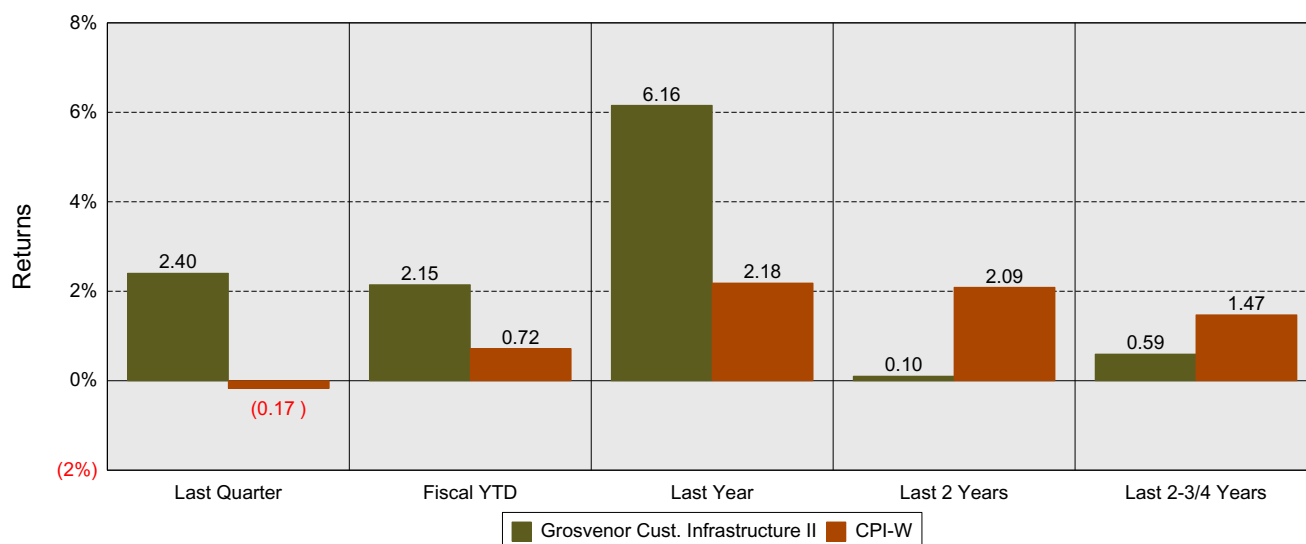
The Customized Infrastructure Strategies LP is a commingled fund focused on providing a comprehensive, diversified solution for investors looking to access the infrastructure asset class. The Fund seeks to generate stable, long-term yield and attractive risk-adjusted returns by investing in a diversified portfolio of primary core and core plus infrastructure funds (30%), co-investments (40%) and opportunistic secondary fund purchases (30%).

### Quarterly Summary and Highlights

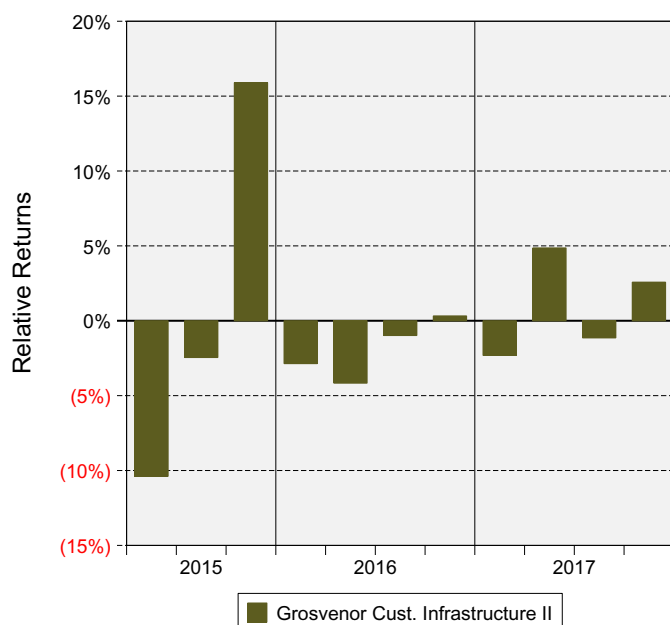
- Grosvenor Cust. Infrastructure II's portfolio outperformed the CPI-W by 2.57% for the quarter and outperformed the CPI-W for the year by 3.97%.

### Quarterly Asset Growth

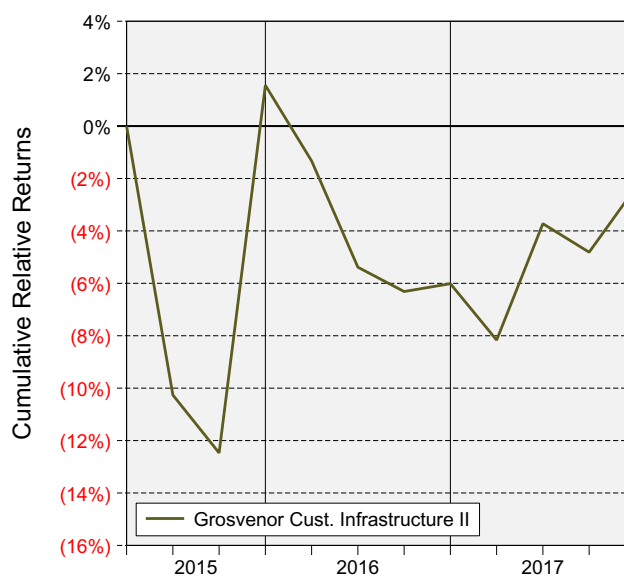
Beginning Market Value	\$9,632,977
Net New Investment	\$2,930,986
Investment Gains/(Losses)	\$290,315
Ending Market Value	\$12,854,278



### Relative Return vs CPI-W



### Cumulative Returns vs CPI-W

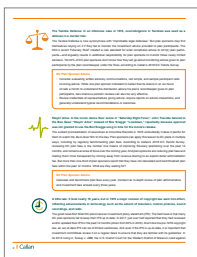




## Research and Educational Programs

The Callan Institute provides both research to update clients on the latest industry trends and carefully structured educational programs to enhance the knowledge of industry professionals. Visit [www.callan.com/library](http://www.callan.com/library) to see all of our publications, and [www.callan.com/blog](http://www.callan.com/blog) to view our blog “Perspectives.” For more information contact Anna West at 415.974.5060 / [institute@callan.com](mailto:institute@callan.com).

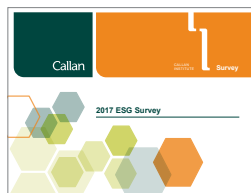
## New Research from Callan’s Experts



**The 401(k) Plan Turns 40** | In 1978, a section of the Internal Revenue Code was enacted into law that made 401(k) plans possible. For the most part, plan sponsors have taken advantage of DC plan improvements that have transpired since 1978. Yet some aspects of plan management may still be stuck in the era of bell bottom pants. Lori Lucas, Callan’s DC practice leader, offers lessons sponsors can apply to their DC plans in 2018.

**The Cost of Returns** | This paper summarizes Callan’s October 2017 Workshop, “The Cost of Returns: An In-Depth Look at Institutional Investment Fees.”

**2017 ESG Survey** | Callan’s fifth annual survey on the status of environmental, social, and governance (ESG) investing in the U.S. institutional investment market reveals more than a third of investors are incorporating ESG factors into investment decisions.



**Real Estate Indicators: Too Hot to Touch or Cool Enough to Handle?** | Callan’s Real Assets Consulting Group has identified seven indicators—based on spreads in real estate and fixed income markets—that, combined with an understanding of prevailing market dynamics, help signal when the institutional real estate market is overheated or cooled.

**2017 Investment Management Fee Survey** | This survey—the seventh we have produced in 30 years—reports on institutional investment management fee payment practices and trends. The data in this report were gleaned from electronic questionnaires sent to a broad sample of U.S.-based institutional fund sponsors and investment management organizations, as well as from information in Callan’s proprietary database.

**TDFs, FYI** | Jimmy Veneruso, CFA, CAIA, a DC consultant in our Fund Sponsor Consulting Group, discusses target date funds (TDFs) and considerations for fund sponsors in this video.

### Periodicals

**Active vs. Passive Charts, 3rd Quarter 2017** | This series of charts maps active managers alongside relevant benchmarks.

**Market Pulse Flipbook, 3rd Quarter 2017** | A quarterly market reference guide covering investment and fund sponsor trends in the U.S. economy, U.S. and non-U.S. equities and fixed income, alternatives, and defined contribution.

**Capital Market Review, 3rd Quarter 2017** | The Review provides analysis and an overview of the economy and public and private market activity each quarter across a wide range of asset classes.

**Real Assets Reporter, Summer/Fall 2017** | In this edition, Jan Mende of Callan’s Real Assets Consulting Group discusses the merits of infrastructure debt for institutional investors’ portfolios.

**DC Observer, 3rd Quarter 2017** | This edition highlights our “DC Plan Governance Survey,” which helps sponsors better understand good governance practices, including how their peers are structuring oversight committees. **With: DC Plan Governance Survey Key Findings** | This infographic displays the survey’s highlights.

**Hedge Fund Monitor, 3rd Quarter 2017** | Callan’s Jim McKee analyzes four major secular forces that may alter our perception of the financial market’s now-healthy glow and explores how investors can prepare for today’s uncertainty surrounding risk assets and the divergent paths that they may take when the next financial eclipse occurs.

## Events

Miss out on a Callan conference or workshop? Event summaries and speakers' presentations are available on our website: [www.callan.com/library/](http://www.callan.com/library/)

Callan's **National Conference** will be held January 29–31, 2018, at the Palace Hotel in San Francisco.

**For more information about events, please contact Barb Gerraty: 415.274.3093 / [gerraty@callan.com](mailto:gerraty@callan.com)**

## The Center for Investment Training Educational Sessions

The Center for Investment Training, better known as the “Callan College,” provides a foundation of knowledge for industry professionals who are involved in the investment decision-making process. It was founded in 1994 to provide clients and non-clients alike with basic- to intermediate-level instruction. Our next sessions are:

### Introduction to Investments

*Boise, April 4-5, 2018*

*San Francisco, April 10-11, 2018*

*San Francisco, July 24-25, 2018*

*Chicago, October 2-3, 2018*

This program familiarizes fund sponsor trustees, staff, and asset management advisers with basic investment theory, terminology, and practices. It lasts one-and-a-half days and is designed for individuals who have less than two years of experience with asset-management oversight and/or support responsibilities. Tuition for the Introductory “Callan College” session is \$2,350 per person. Tuition includes instruction, all materials, breakfast and lunch on each day, and dinner on the first evening with the instructors.

### Customized Sessions

The “Callan College” is equipped to customize a curriculum to meet the training and educational needs of a specific organization. These tailored sessions range from basic to advanced and can take place anywhere—even at your office.

**Learn more at [www.callan.com/events/callan-college-intro](http://www.callan.com/events/callan-college-intro) or contact Kathleen Cunnie: 415.274.3029 / [cunnie@callan.com](mailto:cunnie@callan.com)**

## Education: By the Numbers

**525**

Attendees (on average) of the Institute's annual National Conference

**50+**

Unique pieces of research the Institute generates each year

**3,700**

Total attendees of the “Callan College” since 1994

**1980**

Year the Callan Institute was founded



“We think the best way to learn something is to teach it. Entrusting client education to our consultants and specialists ensures that they have a total command of their subject matter. This is one reason why education and research have been cornerstones of our firm for more than 40 years.”

Ron Peyton, Executive Chairman

## List of Callan's Investment Manager Clients

Confidential – For Callan Client Use Only

Callan takes its fiduciary and disclosure responsibilities to clients very seriously. We recognize that there are numerous potential conflicts of interest encountered in the investment consulting industry and that it is our responsibility to manage those conflicts effectively and in the best interest of our clients. At Callan, we employ a robust process to identify, manage, monitor and disclose potential conflicts on an on-going basis.

The list below is an important component of our conflicts management and disclosure process. It identifies those investment managers that pay Callan fees for educational, consulting, software, database or reporting products and services. We update the list quarterly because we believe that our fund sponsor clients should know the investment managers that do business with Callan, particularly those investment manager clients that the fund sponsor clients may be using or considering using. Please note that if an investment manager receives a product or service on complimentary basis (e.g. attending an educational event), they are not included in the list below. Callan is committed to ensuring that we do not consider an investment manager's business relationship with Callan, or lack thereof, in performing evaluations for or making suggestions or recommendations to its other clients. Please refer to Callan's ADV Part 2A for a more detailed description of the services and products that Callan makes available to investment manager clients through our Institutional Consulting Group, Independent Adviser Group and Fund Sponsor Consulting Group. Due to the complex corporate and organizational ownership structures of many investment management firms, parent and affiliate firm relationships are not indicated on our list.

Fund sponsor clients may request a copy of the most currently available list at any time. Fund sponsor clients may also request specific information regarding the fees paid to Callan by particular fund manager clients. Per company policy, information requests regarding fees are handled exclusively by Callan's Compliance Department.

Manager Name
1607 Capital Partners, LLC
Aberdeen Asset Management PLC
Acadian Asset Management LLC
AEGON USA Investment Management
AEW Capital Management
Affiliated Managers Group, Inc.
Alcentra
AllianceBernstein
Allianz Global Investors
Allianz Life Insurance Company of North America
American Century Investments
Amundi Smith Breeden LLC
Angelo, Gordon & Co.
Apollo Global Management
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Aristotle Capital Management, LLC
Artisan Holdings
Atlanta Capital Management Co., LLC
Aviva Investors Americas
AXA Investment Managers
Baillie Gifford Overseas Limited
Baird Advisors
Bank of America
Barings LLC
Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
BlackRock
BMO Global Asset Management
BNP Paribas Investment Partners
BNY Mellon Asset Management
Boston Partners
Brandes Investment Partners, L.P.
Brandywine Global Investment Management, LLC
Brown Brothers Harriman & Company

Manager Name
Cambiar Investors, LLC
Capital Group
CastleArk Management, LLC
Causeway Capital Management
Chartwell Investment Partners
Citi US Pension Investments
ClearBridge Investments, LLC
Cohen & Steers Capital Management, Inc.
Columbia Management Investment Advisers, LLC
Columbus Circle Investors
Corbin Capital Partners, L.P.
Cornerstone Capital Management
Cramer Rosenthal McGlynn, LLC
Credit Suisse Asset Management
Crestline Investors, Inc.
D.E. Shaw Investment Management, L.L.C.
DePrince, Race & Zollo, Inc.
Deutsche Asset Management
Diamond Hill Capital Management, Inc.
Dimensional Fund Advisors LP
Doubleline
Duff & Phelps Investment Mgmt. Co.
Eagle Asset Management, Inc.
EARNEST Partners, LLC
Eaton Vance Management
Epoch Investment Partners, Inc.
Fayez Sarofim & Company
Federated Investors
Fidelity Institutional Asset Management
Fiera Capital Corporation
First Eagle Investment Management, LLC
First Hawaiian Bank Wealth Management Division
Fisher Investments
Franklin Templeton
Franklin Templeton Institutional
Fred Alger Management, Inc.

Manager Name
Fuller & Thaler Asset Management, Inc.
GAM (USA) Inc.
GlobeFlex Capital, L.P.
GMO
Goldman Sachs Asset Management
Guggenheim Investments
Guggenheim Partners Asset Management
GW&K Investment Management
Harbor Capital Group Trust
Hartford Funds
Hartford Investment Management Co.
Heitman LLC
Henderson Global Investors
Hotchkis & Wiley Capital Management, LLC
HSBC Global Asset Management
IMCA Retirement Corporation
Income Research + Management, Inc.
Insight Investment Management Limited
INTECH Investment Management, LLC
Invesco
Investec Asset Management
Ivy Investments
Janus Capital Management, LLC
Janus Henderson Investors
Jensen Investment Management
Jobs Peak Advisors
J.P. Morgan Asset Management
J.P. Morgan Chase & Company
KeyCorp
Lazard Asset Management
Legal & General Investment Management America
Lincoln National Corporation
LMCG Investments, LLC
Longview Partners
Loomis, Sayles & Company, L.P.
Lord Abbett & Company
Los Angeles Capital Management
LSV Asset Management
MacKay Shields LLC
Macquarie Investment Management (fka Delaware Investments)
Man Investments Inc.
Manulife Asset Management
McKinley Capital Management, LLC
MFS Investment Management
MidFirst Bank
Mondrian Investment Partners Limited
Montag & Caldwell, LLC
Morgan Stanley Investment Management
Mountain Lake Investment Management LLC
MUFG Union Bank, N.A.
Neuberger Berman
Newton Investment Management (fka Newton Capital Mgmt)
Nikko Asset Management Co., Ltd.
Northern Trust Asset Management
Nuveen Investments, Inc.
OFI Global Asset Management
Old Mutual Asset Management
O'Shaughnessy Asset Management, LLC

Manager Name
Pacific Investment Management Company
Pax World Management LLC
Peregrine Capital Management, Inc.
PGIM
PGIM Fixed Income
PGIM Real Estate
PineBridge Investments
Pioneer Investments
PNC Capital Advisors, LLC
PPM America
Principal Global Investors
Private Advisors, LLC
Putnam Investments, LLC
Pzena Investment Management, LLC
QMA (Quantitative Management Associates)
RBC Global Asset Management
Regions Financial Corporation
RidgeWorth Capital Management, Inc.
Rockefeller & Co., Inc.
Rothschild Asset Management, Inc.
Russell Investments
S&P Global, Inc.
Santander Global Facilities
Schroder Investment Management North America Inc.
Sit Investment Associates, Inc.
Smith, Graham & Co. Investment Advisors, L.P.
Smith Group Asset Management
South Texas Money Management Ltd.
Standard Life Investments Limited
Standish
State Street Global Advisors
Stone Harbor Investment Partners, L.P.
T. Rowe Price Associates, Inc.
Taplin, Canida & Habacht
Teachers Insurance & Annuity Association of America
The Boston Company Asset Management, LLC
The Guardian Life Insurance Company of America
The Hartford
The London Company
The TCW Group, Inc.
Thompson, Siegel & Walmsley LLC
Thornburg Investment Management, Inc.
Tri-Star Trust Bank
UBS Asset Management
Van Eck Global
Versus Capital Group
Victory Capital Management Inc.
Vontobel Asset Management, Inc.
Voya Financial
Voya Investment Management (fka ING)
WCM Investment Management
WEDGE Capital Management
Wellington Management Company, LLP
Wells Capital Management
Western Asset Management Company
William Blair & Company

December 31, 2017



## **North Dakota State Investment Board Insurance Trust**

**Investment Measurement Service  
Quarterly Review**

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The following report was prepared by Callan using information from sources that include the following: fund trustee(s); fund custodian(s); investment manager(s); Callan computer software; Callan investment manager and fund sponsor database; third party data vendors; and other outside sources as directed by the client. Callan assumes no responsibility for the accuracy or completeness of the information provided, or methodologies employed, by any information providers external to Callan. Reasonable care has been taken to assure the accuracy of the Callan database and computer software. Callan does not provide advice regarding, nor shall Callan be responsible for, the purchase, sale, hedge or holding of individual securities, including, without limitation securities of the client (i.e., company stock) or derivatives in the client's accounts. In preparing the following report, Callan has not reviewed the risks of individual security holdings or the conformity of individual security holdings with the client's investment policies and guidelines, nor has it assumed any responsibility to do so. Advice pertaining to the merits of individual securities and derivatives should be discussed with a third party securities expert. Copyright 2018 by Callan.

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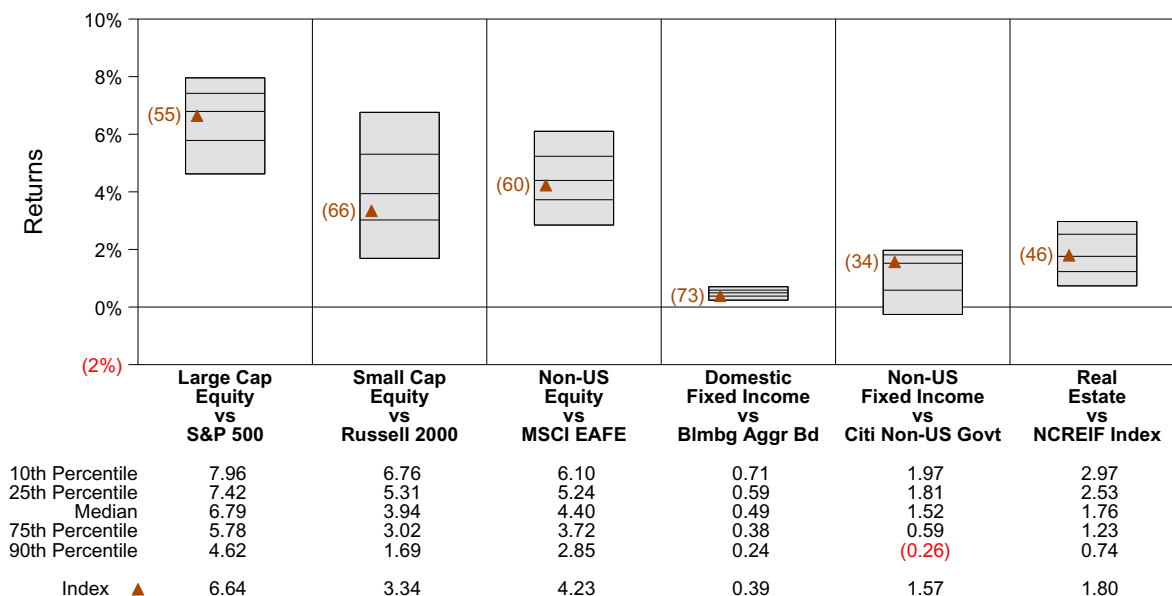
## Market Overview

### Active Management vs Index Returns

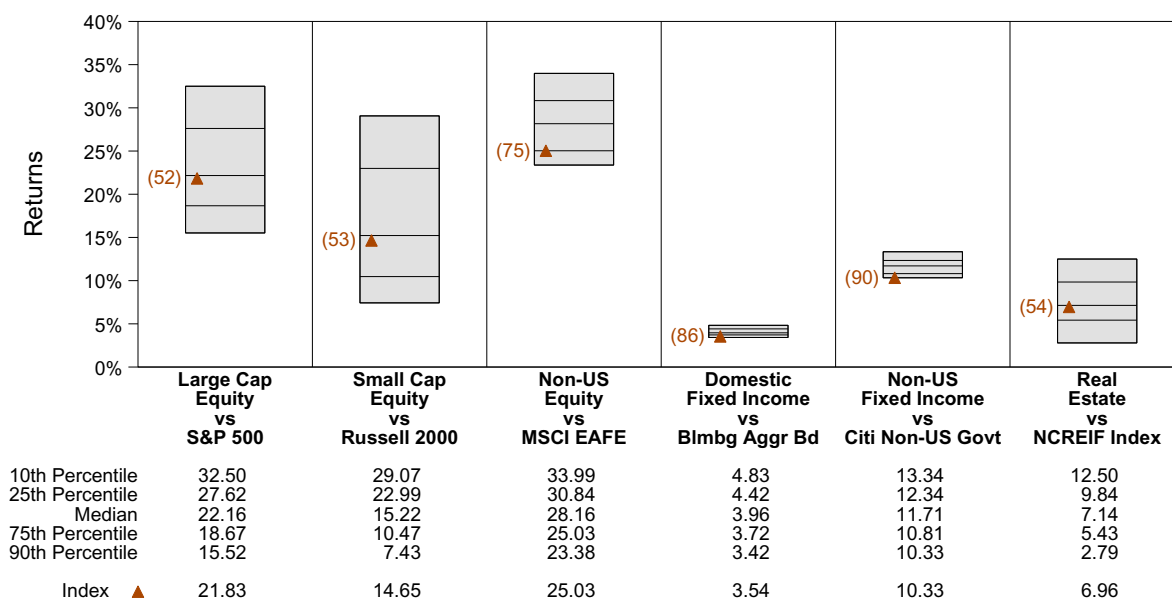
#### Market Overview

The charts below illustrate the range of returns across managers in Callan's Separate Account database over the most recent one quarter and one year time periods. The database is broken down by asset class to illustrate the difference in returns across those asset classes. An appropriate index is also shown for each asset class for comparison purposes. As an example, the first bar in the upper chart illustrates the range of returns for domestic equity managers over the last quarter. The triangle represents the S&P 500 return. The number next to the triangle represents the ranking of the S&P 500 in the Large Cap Equity manager database.

#### Range of Separate Account Manager Returns by Asset Class One Quarter Ended December 31, 2017



#### Range of Separate Account Manager Returns by Asset Class One Year Ended December 31, 2017





Fourth Quarter 2017

## Sentiment Restored. Is It Time to Worry?

### ECONOMY

**2** The U.S. economy ended 2017 with a 2.6% gain in GDP in the fourth quarter, averaging 2.3% for the year, up from 1.5% in 2016. That is especially impressive given the damage from severe hurricanes in the third quarter. Enthusiasm for growth is apparent, but is now the time to worry?

## Non-U.S. Bias Rewarded Plans

### FUND SPONSOR

**4** Endowments and foundations (+3.8%) performed best last quarter, followed by public plans (+3.7%), Taft-Hartley plans (+3.6%), and corporate plans (+3.5%). By fund size, plans with assets under \$100 million performed best, thanks to larger allocations to non-U.S. equity.

## Synchronicity Powers Global Markets

### EQUITY

**6** A strong quarter closed out a strong year for markets around the world, powered by synchronized global economic growth, a new tax law in the U.S., and low interest rates and inflation. Emerging markets outpaced developed markets for the fourth straight quarter.

## Tight Spreads in U.S.; Developed Returns Flat

### FIXED INCOME

**9** In the U.S., longer-term bonds topped short-term and intermediate-maturity bonds. Investment-grade corporate debt was the best-performing fixed income sector. Returns were mostly flat in developed markets; emerging market debt delivered more muted returns than in earlier quarters.

## Europe Best Region for REITs

### REAL ESTATE

**11** The **NCREIF Property Index** notched its 36th straight quarter of positive returns, rising 1.8%, while the **NCREIF Open End Diversified Core Equity Index** was up 2.1%. European REITs were the best performers; U.S. REITs generated positive returns.

## 2017 Fundraising Sets New Record

### PRIVATE EQUITY

**13** Investor enthusiasm abounds for private equity as evidenced by record fundraising. However, rising valuations, increasing borrowing costs, and the yet-to-be-determined impact of tax reform on borrowing levels and valuations bear vigilance moving forward.

## Risk Takers See Less as More

### HEDGE FUNDS/MACs

**14** The **Credit Suisse Hedge Fund Index** rose 2.3%, while the **Callan Hedge Fund-of-Funds Database** advanced 1.8%. The **Callan Multi-Asset Class Database** was up 3.6%. In general, hedge funds experienced positive but more modest results than market indices.

## DC Plans on Track to Win Big in 2017

### DEFINED CONTRIBUTION

**15** The **Callan DC Index™** recorded a solid 3.8% gain during the third quarter, its eighth straight quarter of positive performance. And the Index is up 11.9% year to date, which marks its best showing for the first three quarters of a year since 2013.

## Broad Market Quarterly Returns

U.S. Equity  
Russell 3000

**+6.3%**

Non-U.S. Equity  
MSCI ACWI ex USA

**+5.0%**

U.S. Fixed Income  
Bloomberg Barclays Agg

**+0.4%**

Non-U.S. Fixed Income  
Bloomberg Barclays GBI ex US

**+1.6%**

Sources: Bloomberg Barclays, MSCI, Russell Investment Group

# Sentiment Restored. Is It Time to Worry?

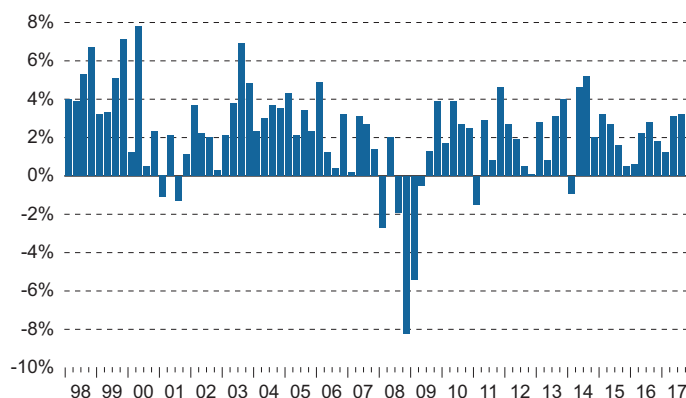
ECONOMY | Jay Kloepper

The U.S. economy closed out 2017 with decent momentum, recording a solid 2.6% gain in GDP in the fourth quarter after growth above 3% in each of the prior two quarters. Investor sentiment felt disconnected as the year unfolded; the underlying global economy appeared to be steadily improving and capital markets reported robust results, while unease around geopolitics and the impact of multiple natural disasters stoked anxiety about the future. By midyear, 2017 felt like the culmination of the unhappiest bull market we'd ever seen. Stock markets then proceeded to hit a number of record highs as the year concluded, the job market continued to improve, unemployment reached a generational low in the U.S., and retail sales rose. A historic revision to the tax code became law at the end of the year, which included a substantial corporate tax cut. After perhaps jumping the gun in the first part of the year, then held back by frustration after not getting expected tax and regulatory changes enacted during the middle quarters, the "animal spirits" of the economy and the capital markets appear to have been unleashed once again. Enthusiasm for growth and risk-taking seem apparent. Is now the time to worry, as phrases like a market "melt-up" enter the popular lexicon?

GDP growth averaged 2.3% for the year, up from 1.5% in 2016. The result for 2017 was impressive given the damage caused by severe hurricanes in the third quarter. Since the Global Financial Crisis (GFC), GDP has increased at a very modest 2.2% annual average, far below the growth typically seen following a recession and below the 3% long-term average since the early 1960s. While gains have been slow and steady, they have gone on now for a sustained period of time, one of the longest expansions on record, and as a result the unemployment rate has been pushed to a generational low of 4.1%. The job market keeps chugging along, creating over 2.1 million new jobs in 2017, or 183,000 per month. The peak years of job creation in the current cycle were 2014 (3 million) and 2015 (2.7 million). While the monthly rate of 183,000 is still robust, and well in excess of the 100,000 needed to keep the market at

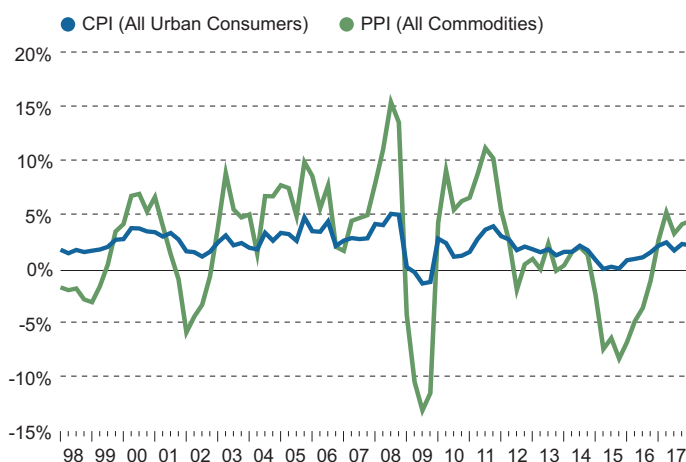
Quarterly Real GDP Growth

(20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

a steady state, the rate of job creation is tailing off, suggesting we might be reaching the limits of full employment. Despite this tight labor market, wage gains remain remarkably subdued, with annual gains in hourly earnings in the 2%-2.5% range for each of the last four years. The rate of growth in total compensation has begun to rise; the employment cost index has inched up from 2% growth to hit 3% in several quarters during 2017.

Confidence in the sustainability of the current spate of growth rose with the release of the aforementioned animal spirits. The impact of the tax cut is expected to be modest, perhaps adding 0.2 to 0.3 percentage points to GDP growth in 2018, and most if not all of the investment gains are already built into the stock market. The wild card is how corporations plan to “spend” the tax cut. The optimistic outcome is that the extra money goes into capital expansion and job growth. Other outcomes include returning the capital to owners through dividends and share buybacks, to existing workers through wage gains, or to consumers in the form of price cuts. Longer term, the \$1.5 trillion increase in the deficit is viewed as a potential drag on growth.

One other potential stimulus still to take shape is the proposed program of substantial infrastructure spending. This spending could spur further growth when the economy is already running hot, and therefore stimulate inflation beyond the current benign levels. The tight labor market suggests we might already be facing limitations on growth from the existing set of labor and capital inputs available in the U.S. economy.

Inflation remains remarkably benign, clipping along at 2.1% in December (year-over-year). Oil prices have recovered from the sharp decline of several years ago, which spurred top-line inflation, but core inflation (net of food and energy) remains below the Fed’s target of 2%. The tight labor market, the impact of the corporate tax cut, and the potential for substantial infrastructure spending all suggest that inflation could finally be poised to move. Another potential impetus for inflation is the improving outlook for the global economy, which appears to be moving into synchronized growth across disparate regions.

### The Long-Term View

Index	2017 4th Qtr	Periods ended Dec. 31, 2017			
		Year	5 Yrs	10 Yrs	25 Yrs
U.S. Equity					
Russell 3000	6.34	21.13	15.58	8.60	9.72
S&P 500	6.64	21.83	15.79	8.50	9.69
Russell 2000	3.34	14.65	14.12	8.71	9.54
Non-U.S. Equity					
MSCI ACWI ex USA	5.00	27.19	6.80	1.84	--
MSCI Emerging Markets	7.44	37.28	4.35	1.68	7.76
MSCI ACWI ex USA Small Cap	6.56	31.65	10.03	4.69	--
Fixed Income					
Bloomberg Barclays Agg	0.39	3.54	2.10	4.01	5.48
90-Day T-Bill	0.28	0.86	0.27	0.39	2.60
Bloomberg Barclays Long G/C	2.84	10.71	4.43	7.26	7.67
Bloomberg Barclays GI Agg ex US	1.63	10.51	-0.20	2.40	5.02
Real Estate					
NCREIF Property	1.70	6.85	10.16	6.07	9.11
FTSE NAREIT Equity	1.51	5.23	9.46	7.44	10.76
Alternatives					
CS Hedge Fund	2.30	7.12	4.23	3.24	--
Cambridge PE*	--	9.25	12.76	9.39	15.38
Bloomberg Commodity	4.71	1.70	-8.45	-6.83	2.47
Gold Spot Price	1.91	13.68	-4.82	4.56	5.63
Inflation – CPI-U	-0.12	2.11	1.43	1.61	2.23

\*Most recent quarterly data not available, annual returns as of 9/30/2017

Sources: Bloomberg Barclays, Bloomberg, Credit Suisse, FTSE, MSCI, NCREIF, Russell Investment Group, Standard & Poor’s, Thomson Reuters/Cambridge, Bureau of Economic Analysis

### Recent Quarterly Economic Indicators

	4Q17	3Q17	2Q17	1Q17	4Q16	3Q16	2Q16	1Q16
Employment Cost–Total Compensation Growth	2.6%	2.5%	2.4%	2.4%	2.2%	2.3%	2.3%	1.9%
Nonfarm Business–Productivity Growth	-0.1%	2.7%	1.5%	0.1%	1.3%	2.5%	0.8%	-1.2%
GDP Growth	2.6%	3.2%	3.1%	1.2%	1.8%	2.8%	2.2%	0.6%
Manufacturing Capacity Utilization	76.4%	75.2%	75.7%	75.4%	75.1%	74.9%	75.1%	75.4%
Consumer Sentiment Index (1966=100)	98.4	95.1	96.4	97.2	93.2	90.3	92.4	91.5

Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve, IHS Economics, Reuters/University of Michigan

# Non-U.S. Bias Rewarded Plans in 2017

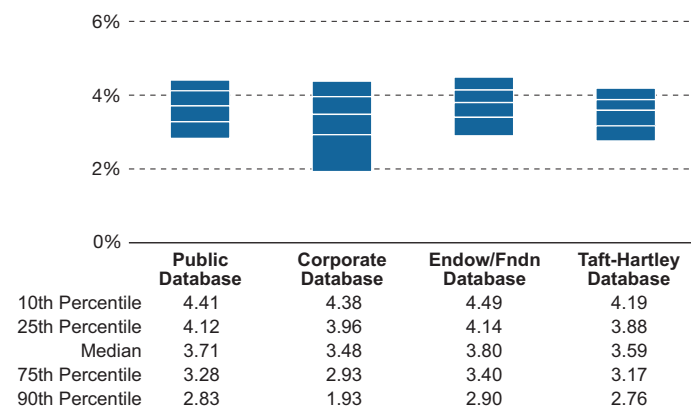
## FUND SPONSOR

Endowments/foundations (+3.8%) performed best last quarter, followed by public plans (+3.7%), Taft-Hartley plans (+3.6%), and corporate plans (+3.5%). For all funds, the return was +3.7%, according to Callan's database. Plans with assets below \$100 million performed best by fund size, up 3.7%, compared to 3.6% for both medium plans (\$100 million-\$1 billion) and large plans. A quarterly rebalanced 60% S&P 500/40% Bloomberg Barclays U.S. Aggregate Bond Index portfolio rose 4.1% during the quarter.

Marking a turn of events, the **MSCI ACWI ex USA Index** outperformed U.S. equity markets over the past year, rewarding funds that have taken steps to diversify away from a home-country bias. Over longer periods of time, Taft-Hartley plans did best over the last five years, up 9.3% annualized. Corporate plans (+5.9%) did best over the last 10 years.

Plans continue to focus on an environment marked by low interest rates, low return expectations, and frustration with the seemingly high cost of diversification while the public equity market has enjoyed such a strong run. Many fund sponsors feel compelled to take on substantial market risk to reach

## Callan Fund Sponsor Returns for the Quarter

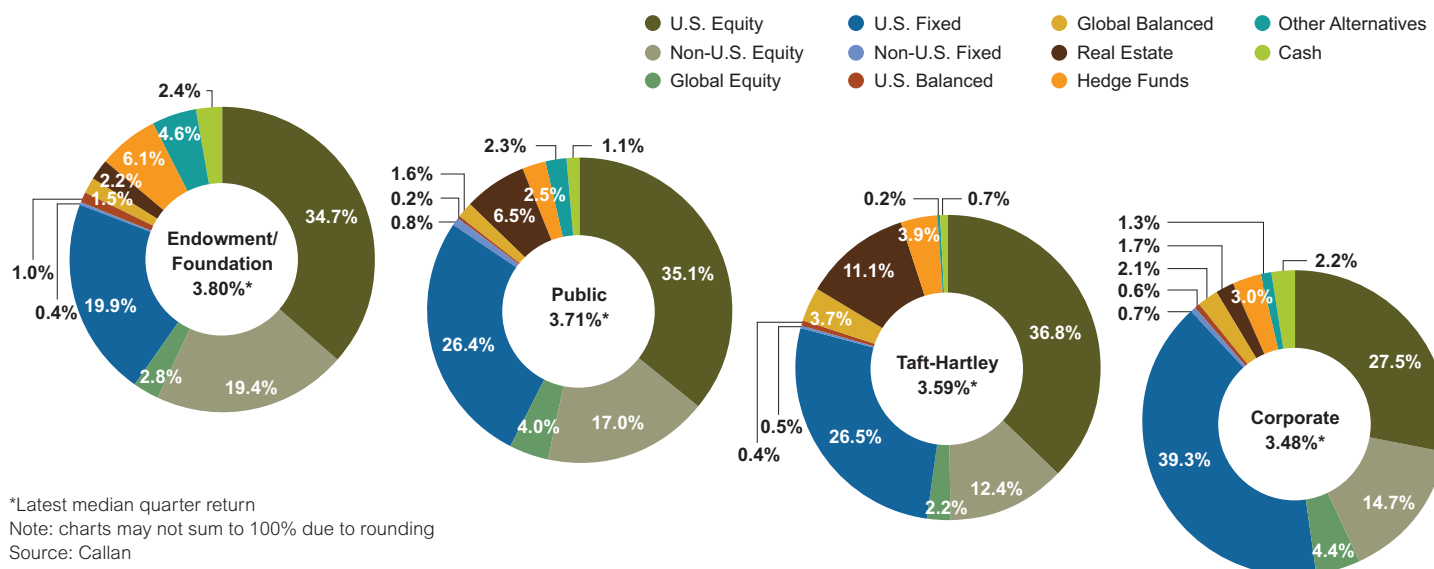


Source: Callan

return targets, and are now focusing on finding sources of diversification within the growth bucket of their asset allocation. Sponsors are examining if there is anything more they can do to tamp down the risk within the growth allocation, short of actually reducing the allocation to growth assets.

Asset owners continue to be skeptical of the value of active management, particularly in U.S. large cap equity. Pressure

## Callan Fund Sponsor Average Asset Allocation



to reduce fees or show the ability to generate consistent alpha has been building for quite some time. Some fund sponsors have undertaken structure work to consider the amount of active versus passive management and to see if there is a way to simplify their manager rosters to gain economies of scale in an effort to reduce costs.

As in past quarters, funds have adjusted their allocations in these ways over the last five years:

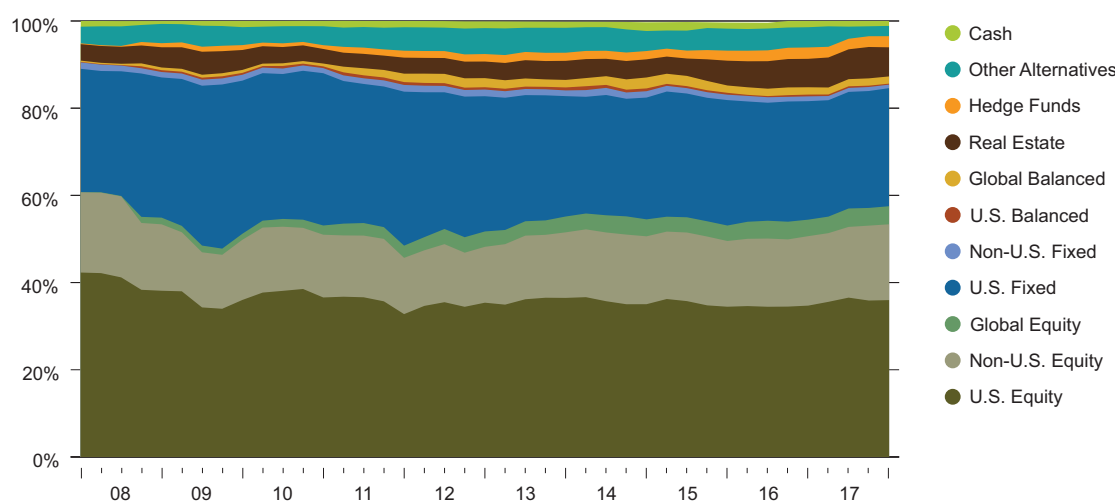
- Corporate plans have widened their range of U.S. fixed income allocations, as they are in different stages of efforts to de-risk plan assets.
- Many public funds have increased their allocation to non-U.S. equity and real estate at the expense of fixed income. Simultaneously, some of the fixed income exposure has become more equity-like in nature.
- Endowments and foundations continue to shift from fixed income to asset classes with higher return expectations, such as global equity, non-U.S. equity, and real estate.

The regulatory environment continues to drive the decision-making process for defined contribution (DC) plan sponsors. Heightened fee sensitivity and litigation have resulted in little traction for non-traditional asset classes such as liquid alternatives. DC plans are also focused on the best ways to reduce/eliminate revenue sharing, as well as obtaining even lower fees from investment managers. They are also looking for opportunities to continue streamlining investment fund lineups to achieve sufficient diversification while minimizing participant confusion—including white label options.

Public plans continue to seek return enhancement and further diversification. Reduced capital market return expectations and funding challenges have created a difficult situation for many public DB plans, and some plans are simply constrained by their circumstances. Alternative beta, MACs, and other liquid strategies are being used in a wide range of capacities and are experiencing increased interest.

### Callan Public Fund Database Average Asset Allocation

(10 Years)



Source: Callan. Callan's database includes the following groups: public defined benefit, corporate defined benefit, endowments/foundations, and Taft-Hartley plans. Approximately 10% to 15% of the database constituents are Callan's clients. All database group returns presented gross of fees. Past performance is no guarantee of future results. Reference to or inclusion in this report of any product, service, or entity should not be construed as a recommendation, approval, affiliation, or endorsement of such product, service, or entity by Callan.

# Global Equity

## U.S. Stocks: Accelerating Growth Spurs Equities

**+6.3%**

RUSSELL 3000

The U.S. equity market continued its upward trajectory in the fourth quarter, closing out a very strong year marked by continued low volatility despite a turbulent U.S. political landscape and a record year in terms of global catastrophes. Investors embraced accelerating global economic growth as well as low interest rates and inflation. Corporate earnings registered double-digit growth for the quarter, receiving a boost from the U.S. tax overhaul bill, which was signed into law in late December.

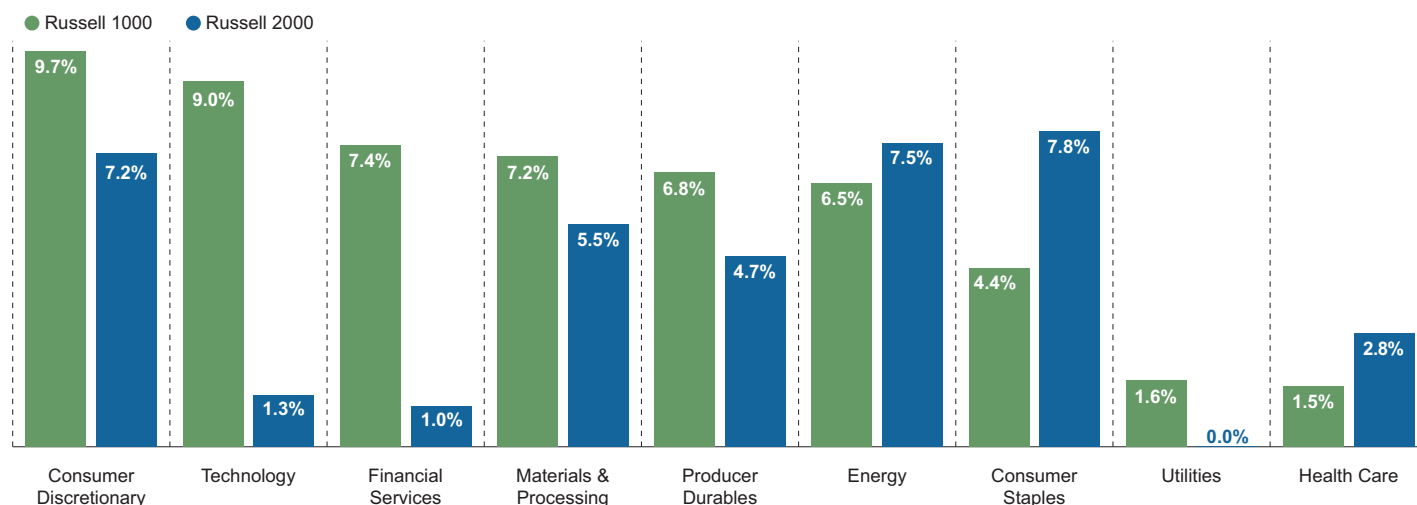
The **S&P 500 Index** rose 6.6% in the fourth quarter, and its 21.8% gain for the year was its best since 2013. The Index hit 62 record highs during the year and had only eight days of 1% or more fluctuations, the lowest number since 1964. The **S&P 500 Price Index** has nearly tripled (+295%) since its low in March 2009. Valuations are stretched by most measures, but estimates for future earnings are also strong. Large cap stocks (**Russell 1000**: +6.6%) outperformed small cap (**Russell 2000**: +3.3%) across styles for the quarter.

Riskier assets continued to lead the equity market. Consumer Discretionary (+9.9%) and Technology (+9.0%) were the strongest performers, with Apple, Amazon, and Microsoft posting 10%-20% returns due to ongoing exceptional cash flow generation and growth in global markets. The Tech sector now accounts for 24% of the S&P 500 and 38% of the **Russell 1000 Growth Index**; returns for the FAAMG stocks (Facebook, Apple, Amazon, Microsoft, Google) ranged from 36% to 56% for 2017.

Consumer Discretionary benefited from strong year-end retail sales as well as positive tax reform expectations as the retail industry carries the highest industry effective tax rate at 35%. The “Amazon Effect,” however, continues to threaten the sector as many large retailers have been forced to close stores or lower prices to unsustainable levels.

The Energy sector (+6.0%) continued to improve in the fourth quarter although it closed out the year among the worst performers (-1.0%). A combination of optimism and improvements in the global economy has spurred demand in recent months. More near-term volatility is anticipated in the price of oil as U.S.

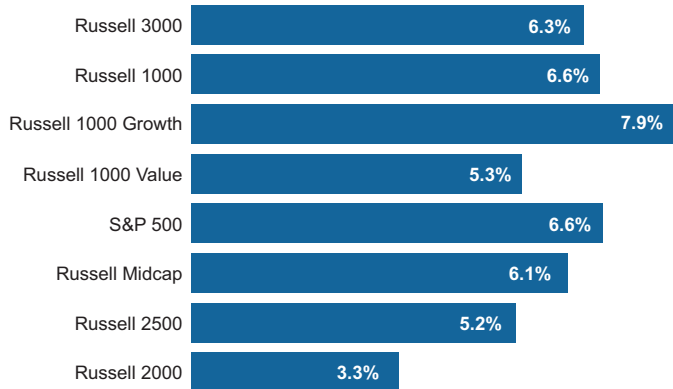
## Quarterly Performance of Select Sectors



Source: Russell Investment Group

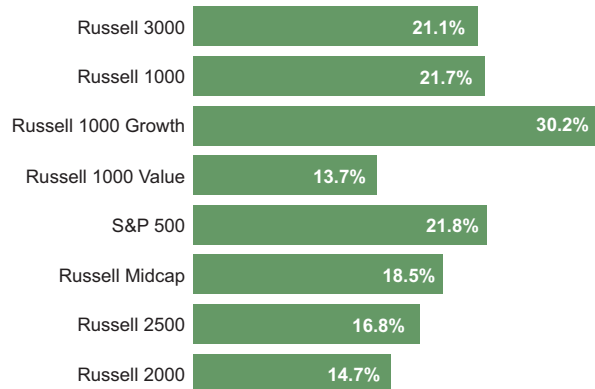


### U.S. Equity: Quarterly Returns



Sources: Russell Investment Group and Standard & Poor's

### U.S. Equity: One-Year Returns



Sources: Russell Investment Group and Standard & Poor's

output is expected to surpass production out of Saudi Arabia for the first time since the early 1990s.

Growth outperformed value during the quarter across the market cap range (**Russell 1000 Growth**: +7.9% vs. **Russell 1000 Value**: +5.3%; **Russell 2000 Growth**: +4.6% vs. **Russell 2000 Value**: +2.0%). The overweight to Tech and Consumer Discretionary in the growth indices drove the outperformance. Investors favored the stronger earnings and top-line growth outlook in the Tech sector, which also benefited from positive investor sentiment following tax reform.

Momentum-oriented stocks (**MSCI Momentum Index**: +37.8%) posted their biggest annual gain since 1999, leaving valuations

stretched; the **MSCI Defensive Index** rose 12.3% for 2017. Anecdotally, some momentum-oriented managers are finding their bench of ideas shrinking as they take profits on winners while defensively oriented managers continue to sit on cash waiting for more favorable opportunities.

### Global Stocks: Markets in Sync Around the World

**+5.0%**

MSCI ACWI ex USA

Major non-U.S. markets performed largely in line with each other during the quarter, which saw a bit of an inflection point as investors were

more willing to capitalize on synchronized global growth and began to rotate out of momentum winners into more cyclical areas such as Financials, Energy, and Materials. Cyclical led as tax reform, improving commodity prices, and growth projections overcame Brexit fears and election uncertainty in Germany in a risk-on quarter.

Non-U.S. developed (**MSCI EAFE** and **MSCI World ex USA**: +4.2%) trailed U.S. (**MSCI USA**: +6.4%) after beating it in the previous three quarters. Within MSCI EAFE, the U.K. notched a record high in the fourth quarter and was up 22.3% for the year.

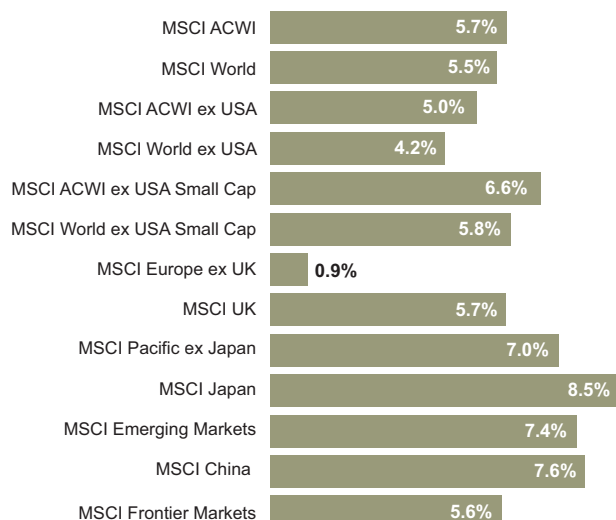
Europe, which led markets in the third quarter on earnings growth and political stability, reverted and trailed other developed regions (**MSCI Europe**: +2.2%) on Brexit negotiation concerns and political uncertainty following German elections. The European Central Bank also announced plans to curb quantitative easing in January 2018. Japan (**MSCI Japan**: +8.6%) was the best performer on its election results and improved inflation expectations.

Markets favored economically sensitive sectors: IT (+8.3%), Materials (+7.8%), and Discretionary (+7.6%). Energy was also positive (6.8%) as commodity prices were supported by distribution disruptions and high liquid natural gas usage with winter's arrival. Defensive sectors lagged as markets continued to rise: Utilities (-0.4%), Health Care (+0.9%), and Telecom (+1.7%).

It was another difficult quarter for value; factor performance favored strong growth (forecasted), earnings and price momentum, high quality, and beta (**MSCI World Value**: +4.6% vs.

## Non-U.S. Equity: Quarterly Returns

(U.S. Dollar)



Source: MSCI

**MSCI World Growth:** +6.4%). Valuation factors were mixed with price-to-book ratios and yield detracting from performance, while earnings-based multiples contributed.

## Emerging Markets: Asian Stocks Power Strong Quarter, Driven by China and Korea

**+7.4%**

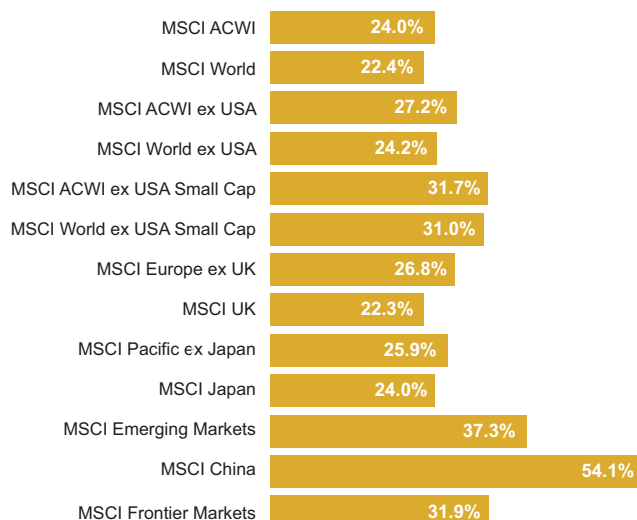
MSCI EM

Emerging market equities outperformed developed in the quarter and for the year (**MSCI Emerging Markets (USD):** +7.4%; +37.3%). Latin America was the only weak spot in the quarter (-2.3%) but was up a robust 23.7% for the year. Emerging Asia performed the best for the quarter and the year (+8.4%; +42.8%) driven by strong results from China (+7.6%; +54.1%) and Korea (+11.4%; +47.3%).

Local China A shares did even better (**MSCI China A 50 Index:** +13.7%). October's 19th National Congress of the Communist Party solidified power around Xi Jinping, reconfirming key policy objectives. Chinese technology continued to perform well but was less of a performance outlier than in previous quarters. China's increasing and less-visible debt is a growing concern, while expectations for stronger growth are buoying the market.

## Non-U.S. Equity: One-Year Returns

(U.S. Dollar)



Source: MSCI

South Africa (**MSCI South Africa:** +21.4%) was the best performer as commodity prices firmed and investors cheered a leadership change. Mexico (**MSCI Mexico:** -8.0%) was the worst-performing emerging market country as the peso sold off on NAFTA negotiation concerns.

Economically sensitive sectors sold off (Discretionary: -23.6%, Financials: -21.2%). Emerging market Health Care (+16.6%) saw very good performance with outsized contribution from China and South Korea as changing demographics continued to drive demand. Value factors struggled in emerging markets while growth, earnings momentum, price momentum, volatility, and beta were positive.

## Non-U.S. Small Cap: Health Care Powers EM Gains

**+6.6%**

MSCI ACWI ex USA SC

Developed non-U.S. small cap (**MSCI World ex USA Small Cap:** +5.8%) outperformed its large/mid counterpart modestly, led by Asia. Australia (+11.6%) and Japan (+8.7%) led the segment.

Emerging market small cap (**MSCI Emerging Market Small Cap:** +9.2%) was the best-performing segment of the equity markets in the fourth quarter, led by Health Care (+28%); Real Estate (-0.1%) was the laggard.



# Global Fixed Income

## U.S. Bonds: Strong Fundamentals Tighten Spreads

**+0.4%**

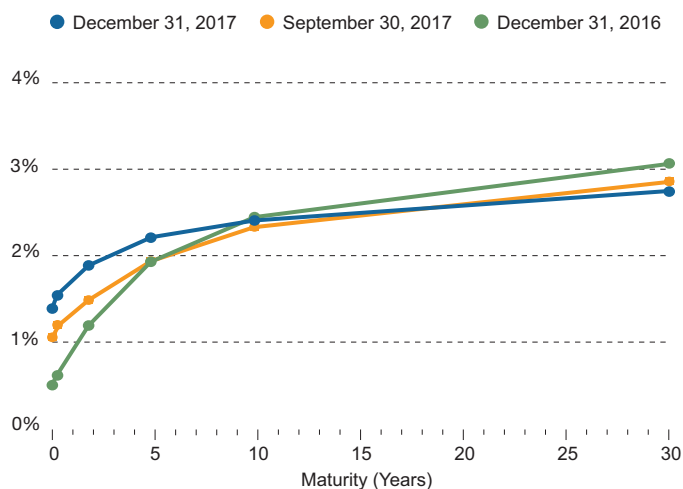
BB AGGREGATE

The U.S. yield curve continued its flat-trending trend in the fourth quarter. The 2-year U.S. Treasury yield climbed 42 basis points to close at 1.89%, up 69 bps from the end of 2016. At the long end of the yield curve, the 30-year U.S. Treasury yield fell 12 bps during the quarter, ending the year at 2.74%, 32 bps lower than its close in 2016. This trend reflects the Fed's bias to be less accommodative through monetary policy, as well as benign inflation in the face of a strong labor market. As a result, longer-term bonds sharply outperformed short-term and intermediate-maturity bonds for the quarter and the year.

Volatility in fixed income as well as equity markets sits near historical lows. The overall risk appetite remains elevated, driven in part by globally strong growth and loose monetary policy from central banks, as well as business and consumer confidence. The market is pricing in three Fed rate hikes for 2018, not far from the Fed's own expectation of where rates will end up in the longer run. Yields on 10-year Treasuries rose modestly from 2.33% at the end of the third quarter to 2.41%.

The **Bloomberg Barclays Long U.S. Treasury Index** gained 2.4% in the quarter and 8.5% in 2017 versus a -0.4% quarterly and

## U.S. Treasury Yield Curves

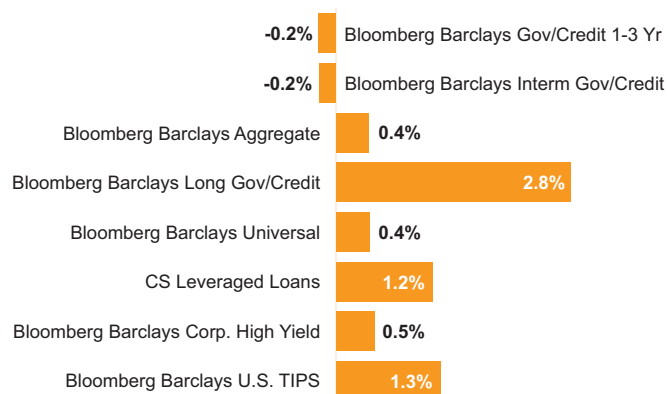


Source: Bloomberg

+1.1% annual return for the **Bloomberg Barclays Intermediate Treasury Index**. Consistent with the low volatility theme evident in the equity markets, the U.S. Treasury 10-year traded in a narrow 60 bps band for the year, the lowest since 2000.

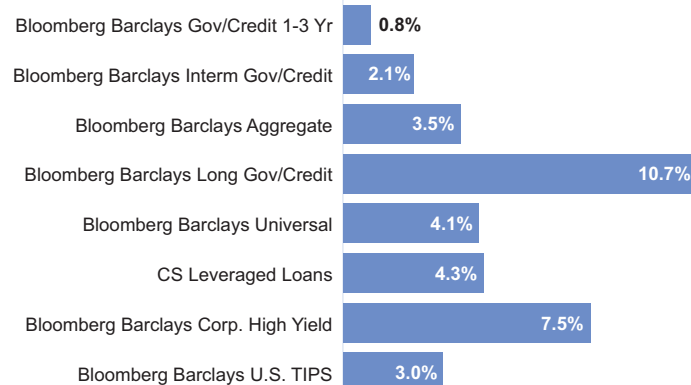
The **Bloomberg Barclays U.S. Aggregate Bond Index** rose 0.4% during the quarter. Corporate bonds outperformed for the quarter and the year, and yield spreads were the tightest since the Global Financial Crisis, hitting 93 bps over Treasuries.

## U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg Barclays and Credit Suisse

## U.S. Fixed Income: One-Year Returns



Sources: Bloomberg Barclays and Credit Suisse

## GLOBAL FIXED INCOME (Continued)

Investment-grade corporate credit was the strongest-performing fixed income sector; tax reform may boost the sector by improving profitability and reducing issuance.

High yield corporates also did well, with the **Bloomberg Barclays U.S. Corporate High Yield Index** up 0.5% for the quarter and 7.5% for the year. The annual default rate was the lowest since 2013. Issuance was robust in the fourth quarter at \$68 billion, but tax reform could negatively impact issuance.

TIPS outperformed nominal U.S. Treasuries as expectations for inflation rose. The **Bloomberg Barclays U.S. TIPS Index** rose 1.3% for the quarter and 3.0% for the year, and the 10-year breakeven spread (the difference between nominal and real yields) rose to 1.96%.

The municipal bond market performed well in 2017 as rates were steady and demand remained strong. The tax overhaul package is expected to have mixed effects. The change in personal income rates is too small to have a meaningful impact, while the decrease in corporate tax rates is expected to reduce demand for munis from certain corporations. Limiting state and local tax deductions could increase demand for in-state munis in high tax states. Issuance spiked in anticipation of changing regulations, setting a record \$62.5 billion for December supply, but the market absorbed it well. The **Bloomberg Barclays Municipal Bond Index** returned 0.7% for the quarter and 5.4% for the year.

### Global Bonds: Flat Returns in Developed Markets; EM Returns Muted

**+2.5%**  
BB GBL AGG ex US

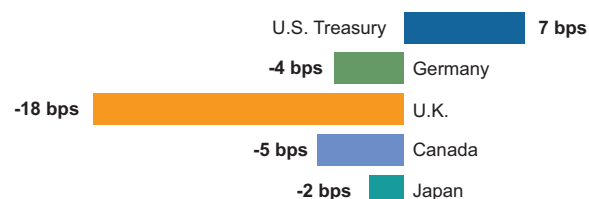
Quarterly returns were mostly flat in developed markets. The **Bloomberg Barclays Global Aggregate Bond Index** rose +1.1% (unhedged) and 0.8% (hedged).

Emerging market debt delivered more muted returns than in earlier quarters. Higher commodity prices and global growth supported the asset class broadly. The **JPM EMBI Global Diversified Index** (\$ denominated) gained 1.2% in the quarter and 10.3% for the year. Returns were mixed, but beleaguered Venezuela was the outlier for the quarter (-29%) and the year

(-34%). The local currency **JPM GBI-EM Global Diversified Index** increased +0.8% in the quarter and +15.2% for the year. In the quarter, Asian countries (+5%) performed best while Latin America sank nearly 5%.

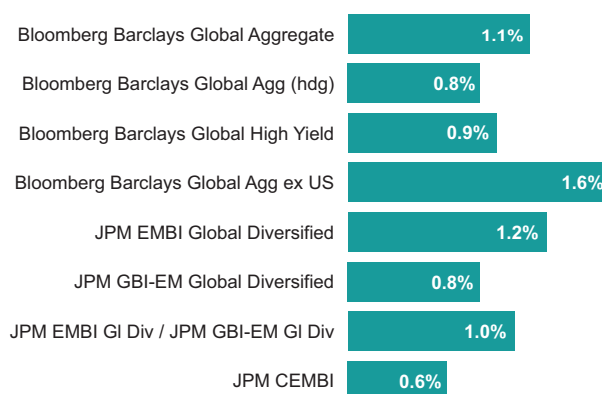
### Change in 10-year Global Government Bond Yields

3Q17 to 4Q17



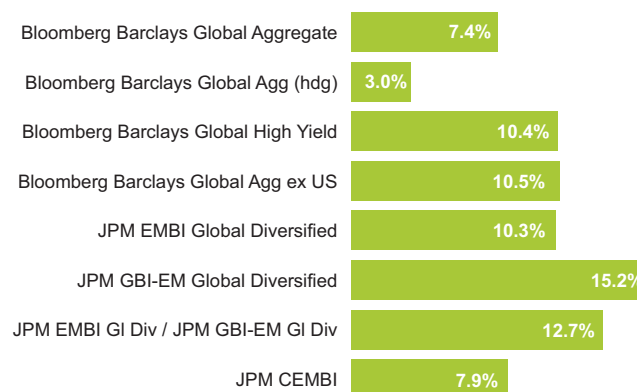
Source: Bloomberg Barclays

### Non-U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg Barclays and JP Morgan

### Non-U.S. Fixed Income: One-Year Returns



Sources: Bloomberg Barclays and JP Morgan

# Steady Returns in U.S.; Europe Best Region for REITs

REAL ESTATE | Kevin Nagy

The **NCREIF Property Index** advanced 1.8% during the fourth quarter (1.2% from income and 0.6% from appreciation). This marked the 36th consecutive quarter of positive returns for the Index.

Industrial (+3.3%) was the best-performing sector for the seventh consecutive quarter. Office (+1.7%) and Apartments (+1.6%) also did well. Hotels (+1.0%) were the worst performer and the only property type to experience a negative appreciation return. Hotels only had one quarter of positive appreciation during 2017. The West region was the strongest performer for the fifth quarter in a row, returning 2.3%, and the Midwest lagged with a 1.3% return. The West also had the strongest appreciation return at 1.2%; all other regions had appreciation below 0.5%. Transaction volume fell slightly to \$11.5 billion, a 3% decrease from the third quarter and an 18% decline from the fourth quarter of 2016. Appraisal capitalization rates rose 16 basis points to 4.55%. Transaction capitalization increased even more, rising 59 bps to 5.85%. The spread between appraisal and transactional rates increased to 130 bps.

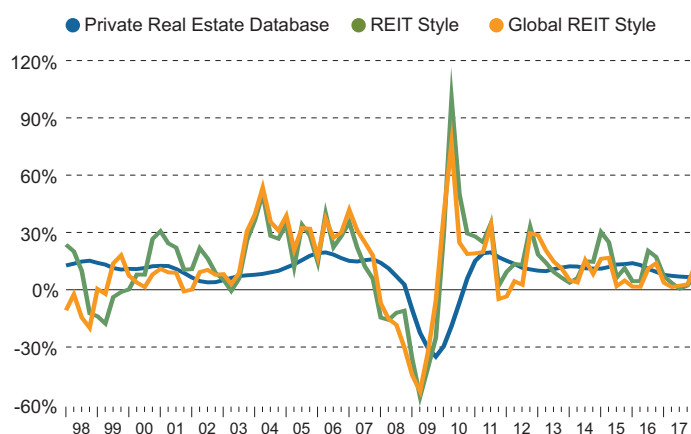
Occupancy rates increased to 93.6%, up 20 bps from the third quarter and 37 bps from the fourth quarter of 2016. Industrial and Retail occupancy rates increased slightly while Apartment and Office rates decreased.

The **NCREIF Open End Diversified Core Equity Index** rose 2.1% (1.1% from income and 1.0% from appreciation), a 20 bps increase from the third quarter. The appreciation return increased for the second quarter in a row. Leverage ticked up 1 basis point to 21.4%.

Global real estate investment trusts (REITs) tracked by the **FTSE EPRA/NAREIT Developed REIT Index (USD)** outperformed U.S. REITs and posted a 3.8% return. The median active global REIT manager, as measured by the **Callan Global REIT Style Group**, gained 4.6%, beating the Index. U.S. REITs, as measured by the **FTSE NAREIT Equity REITs Index**, advanced 1.5% for the quarter. The median active U.S. REIT manager, as measured by **Callan's U.S. REIT Style Group**, returned 2.4%, also beating the Index.

In the U.S., a strong November helped REITs overcome negative performance in October and December. Infrastructure (+8.8%), Hotels (+5.4%), and Timber (+4.9%) made solid gains, while Health Care (-5.3%), Diversified (-2.0%), Specialty (-1.9%), and Residential (-0.2%) were the worst performers. Retail (+6.8%) bounced back from a dismal second and third quarter on the back of high M&A activity and a strong holiday shopping season.

## Rolling One-Year Returns



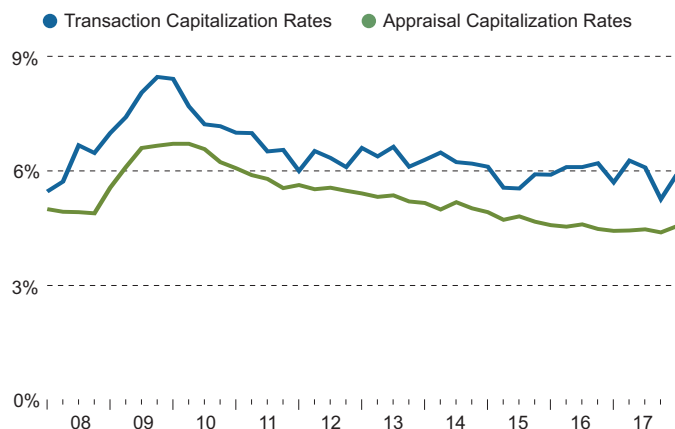
Source: Callan

## REAL ESTATE (Continued)

Europe, as represented by the **FTSE EPRA/NAREIT Europe Index**, was the strongest-performing region for the third consecutive quarter, returning 7.6% in U.S. dollar terms. U.K. REITs outperformed their continental counterparts due to optimism over a “soft Brexit” and better than expected earnings from London-centric real estate proxies. Continental Europe continued to benefit from robust economic growth that was not fazed by the Catalan election results, among other political surprises.

The Asia-Pacific region, represented by the **FTSE EPRA/NAREIT Asia Index**, jumped 5.5% in U.S. dollar terms, besting the U.S. but lagging Europe. Singapore was the strongest performer, helped by a rally in the broader Singaporean stock market. Hong Kong and Australia also had good quarters. Japan lagged behind, but was still positive.

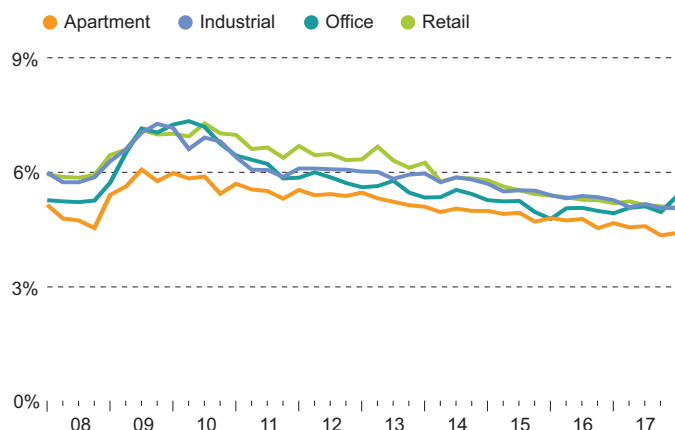
## NCREIF Transaction and Appraisal Capitalization Rates



Source: NCREIF

Note: Transaction capitalization rate is equal weighted.

## NCREIF Capitalization Rates by Property Type



Source: NCREIF

Note: Capitalization rates are appraisal-based.

# 2017 Fundraising Sets New Record

PRIVATE EQUITY | Harshal Shah

The preliminary fundraising total and number of funds formed in 2017 set a record, according to *Private Equity Analyst*, up 20% and 32%, respectively, to \$376 billion and 1,150. In the fourth quarter, new commitments hit \$126 billion and 311 new partnerships were formed. Dollar volume rose by 51% over the third quarter; the number of new funds formed grew 37%.

According to *Buyouts* newsletter, there were 1,649 disclosed deals in 2017, an increase of 25% from 2016. The year's disclosed dollar volume was \$184.2 billion, up 8% from \$170.1 billion in 2016 and hitting a nine-year high. While the disclosed dollar volume has recovered from 2009's low of \$37.3 billion, it is still well shy of the 2007 record high of \$597.4 billion. However, while general partners may be more discerning in putting capital to work, according to Standard & Poor's LCD data, the median purchase and net debt multiples in 2017 remained elevated at 10.6x and 5.8x, respectively.

Regarding exits, *Buyouts* reports that 2017's 607 private M&A exits of buyout-backed companies is up 9% from the 557 in 2016. The year's aggregate disclosed M&A exit values of \$106.7 billion is up 12.7% from 2016's \$94.6 billion. In the fourth quarter, there were 124 M&A exits, and announced value totaled \$38.1 billion. Ten M&A exits had values over \$1 billion compared to only four in the fourth quarter of 2016. There were

## Funds Closed January 1 to December 31, 2017

Strategy	No. of Funds	Amt (\$mm)	Percent
Venture Capital	510	35,945	10%
Buyouts	392	249,747	67%
Subordinated Debt	77	34,174	9%
Distressed Debt	42	29,332	8%
Secondary and Other	35	13,075	3%
Fund-of-funds	94	13,244	4%
<b>Totals</b>	<b>1,150</b>	<b>375,516</b>	<b>100%</b>

Source: Private Equity Analyst  
Figures may not total due to rounding.

only four buyout-backed IPOs in the fourth quarter last year, with a total value of \$860 million. However for the full year, there were 18 buyout-backed IPOs with a total value of \$6.5 billion, an increase of 125% and 60%, respectively, over 2016.

Venture-backed M&A exits for the year totaled 711 with announced values totaling \$41.2 billion, down from 816 exits and \$50.0 billion in announced value in 2016. The fourth quarter had 144 exits with announced values totaling \$6.7 billion, down from 173 exits and \$11.5 billion of announced value in the third quarter. The year produced 58 venture-backed IPOs raising \$9.9 billion, up from 41 IPOs in 2016 raising \$2.9 billion. The fourth quarter had 23 IPOs, raising \$3.1 billion, up significantly from the third quarter's nine IPOs raising \$730 million.

## Private Equity Performance Database (%) (Pooled Horizon IRRs through September 30, 2017\*)

Strategy	3 Months	Year	3 Years	5 Years	10 Years	15 Years	20 Years
All Venture	3.52	8.82	12.30	15.51	9.47	9.00	17.94
Growth Equity	4.90	15.83	10.68	13.21	10.06	12.60	13.13
All Buyouts	4.63	19.33	12.61	14.35	8.78	14.39	12.53
Mezzanine	4.16	13.07	9.43	10.15	9.02	9.47	8.64
Distressed	2.39	14.92	9.03	11.35	9.13	11.33	11.34
<b>All Private Equity</b>	<b>4.31</b>	<b>16.19</b>	<b>11.93</b>	<b>14.08</b>	<b>9.06</b>	<b>12.75</b>	<b>13.01</b>
S&P 500	4.48	18.61	10.81	14.22	7.44	10.04	7.00

Private equity returns are net of fees.

Sources: Standard & Poor's and Thomson Reuters/Cambridge

\*Most recent data available at time of publication

Note: Transaction count and dollar volume figures across all private equity measures are preliminary figures and are subject to update in subsequent versions of *Capital Market Review* and other Callan publications.

# Risk Takers See Less as More

HEDGE FUNDS/MACs | Jim McKee

Given the quarter's surge of raw equity beta, alpha-seeking hedge funds saw positive but more modest results. Representing a paper portfolio of hedge fund interests without implementation costs, the **Credit Suisse Hedge Fund Index** (CS HFI) rose 2.3% in the fourth quarter. Actual hedge fund portfolios represented by the median manager in the **Callan Hedge Fund-of-Funds Database** advanced 1.5%, net of all fees and expenses.

Within CS HFI, the best-performing strategy was *Managed Futures* (+6.6%), followed by *Emerging Markets* (+3.4%) and *Long/Short Equity* (+3.3%). Less fortunate was *Risk Arb* (+0.1%); some major pending deals met regulatory resistance, causing those deal spreads to widen significantly. Within Callan's Hedge FOF Database, market exposures marginally affected performance in the fourth quarter. With the added momentum from equity markets, the median *Callan Long/Short Equity FOF* (+1.8%) beat the *Callan Absolute Return FOF* (+1.5%). The *Core Diversified FOF* gained 1.5%.

The **Credit Suisse Neuberger Multi-Asset Risk Premia Index**, a proxy for liquid alternative beta, slipped 0.6% based upon a 5% volatility target. Within the Index's underlying styles, winners were *Equity Momentum* (+7.6%) and *Commodity Momentum* (+4.8%). The **Callan Multi-Asset Class Database** group's median manager rose 3.6%, gross of fees. Within this group, the median *Callan Risk Premia MAC* gained 4.0%, aided by equity and commodity momentum. Typically targeting equal risk-weighted allocations to major asset classes with leverage, the *Callan Risk Parity MAC* gained 4.7%, beating a 60% stock/40% bond benchmark (+4.1%). The *Callan Long-Biased MAC* (+3.4%) performed well, given its dynamic asset allocation mandate with a typically long equity bias, but trailed the 60/40 benchmark. Focused on non-directional strategies of long and short asset class exposures, the *Callan Absolute Return MAC* added 0.9%.

## Callan Database Median and Index Returns\* for Periods ended December 31, 2017

Hedge Fund Universe	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Callan Fund-of-Funds Database	1.53	6.98	2.90	5.01	3.04	5.22
Callan Absolute Return FOF Style	1.47	5.11	3.20	4.59	3.00	4.90
Callan Core Diversified FOF Style	1.51	6.42	2.36	4.79	2.77	5.18
Callan Long/Short Equity FOF Style	1.81	11.25	3.76	6.00	3.20	5.84
Credit Suisse Hedge Fund Index	2.30	7.12	2.50	4.23	3.24	6.01
HFRI Asset Wtd Composite	1.99	6.52	3.06	4.60	3.34	--
HFRI Fund Wtd Comp	2.65	8.68	4.25	4.95	3.23	6.10
HFRI Equity Hedge (Total)	3.51	13.46	5.82	6.63	3.19	6.09
HFRI Event-Driven (Total)	2.04	7.73	4.73	5.49	4.17	7.26
HFRI Macro (Total) Index	2.42	2.21	0.65	1.40	1.95	4.65
HFRI Relative Value (Total)	1.05	5.11	4.11	4.68	4.81	6.02
90-Day T-Bill + 5%	1.50	5.86	5.41	5.27	5.39	6.28
Liquid Alternative Universe	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Callan Absolute Return MAC	0.90	5.07	3.27	4.46	5.16	--
Callan Risk Premia MAC	3.95	5.51	2.04	3.57	7.16	--
Callan Long-Biased MAC	3.35	13.87	5.46	6.39	5.76	8.70
Callan Risk Parity MAC	4.66	11.88	6.47	5.81	6.75	--
60% S&P 500/40% BB Agg	4.14	14.26	7.76	10.25	7.09	7.90
CS NB MARP Index (5%v)	-0.63	-1.61	2.05	3.55	7.15	--
SG Trend Index	7.70	2.19	-1.36	3.35	3.15	4.21

\*Gross of fees. Sources: Bloomberg Barclays, Callan, Credit Suisse, Hedge Fund Research, Societe Generale, and Standard and Poor's



# DC Plans on Track to Win Big in 2017

## DEFINED CONTRIBUTION | Tom Szkwarla

The Callan DC Index™ recorded a solid 3.8% gain during the third quarter, its eighth straight quarter of positive performance. And the Index is up 11.9% year to date—its best showing for the first three quarters of a year since 2013.

The Index benefited from strong U.S. equity performance, but a lack of diversification to non-U.S. equity markets continued to hinder DC plan performance. The typical DC participant has less than 6% in non-U.S. equity exposure, compared to 20.1% for the typical Age 45 target date fund (TDF).

Accordingly, the Age 45 TDF outpaced the DC Index by about 50 basis points for the third quarter and 200 bps year to date. Plan balances rose 3.78%, driven by return growth (3.76%) rather than inflows (plan sponsor and participant contributions), which contributed a meager 0.02%.

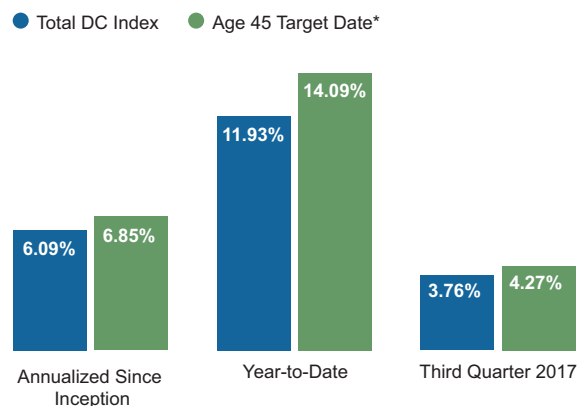
U.S. large cap and small/mid cap equities experienced significant outflows during the quarter. Non-U.S. and emerging market stocks represented the only equity asset classes to witness inflows. As usual, TDFs accounted for the majority of inflow activity during the third quarter, capturing 72 cents of every dollar moving within DC plans.

Turnover within the Index (i.e., net transfer activity) ticked up from last quarter to 0.58%, but remained below the historical average of 0.63%.

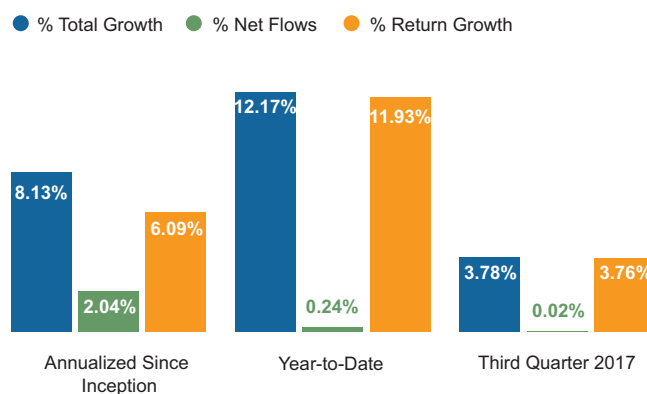
The DC Index's overall equity allocation increased to over 70% in the most recent period, but it remains below its 2007 peak of 73%. TDFs grew to their largest allocation yet, holding 30.8% of total DC assets in the third quarter. U.S. large cap equity commands the second-largest portion of participant assets (22.7%).

*The Callan DC Index is an equally weighted index tracking the cash flows and performance of nearly 90 plans, representing more than one million DC participants and over \$135 billion in assets. The Index is updated quarterly and is available on Callan's website, as is the quarterly DC Observer newsletter.*

## Investment Performance



## Growth Sources



## Net Cash Flow Analysis (Third Quarter 2017) (Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Target Date Funds	71.56%
Non-U.S. Equity	12.99%
U.S. Small/Mid Cap	-28.25%
U.S. Large Cap	-40.72%
Total Turnover**	0.58%

Data provided here is the most recent available at time of publication.

Source: Callan DC Index

Note: DC Index inception date is January 2006.

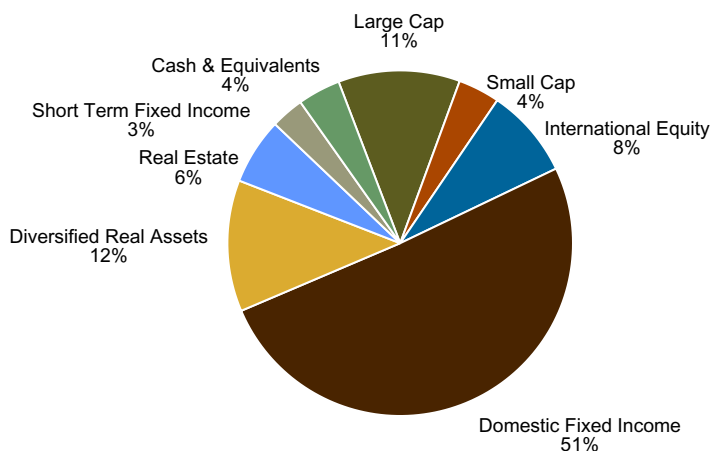
\* The Age 45 Fund transitioned from the average 2030 TDF to the 2035 TDF in June 2013.

\*\* Total Index "turnover" measures the percentage of total invested assets (transfers only, excluding contributions and withdrawals) that moved between asset classes.

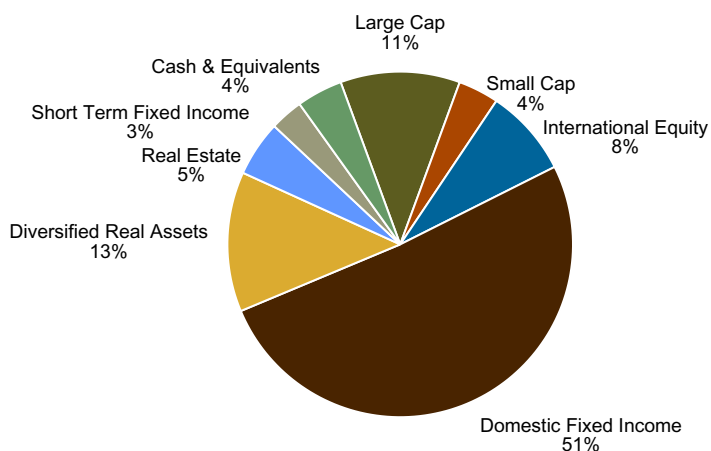
## Actual vs Target Asset Allocation As of December 31, 2017

The first chart below shows the Fund's asset allocation as of December 31, 2017. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.

**Actual Asset Allocation**



**Target Asset Allocation**



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Large Cap	256,752	11.4%	11.2%	0.2%	4,645
Small Cap	87,918	3.9%	3.8%	0.1%	2,382
International Equity	188,156	8.4%	8.2%	0.2%	3,577
Domestic Fixed Income	1,141,555	50.7%	51.1%	(0.4%)	(8,684)
Diversified Real Assets	275,878	12.3%	13.1%	(0.8%)	(18,998)
Real Estate	139,446	6.2%	5.2%	1.0%	22,396
Short Term Fixed Income	70,615	3.1%	3.1%	0.0%	835
Cash & Equivalents	90,638	4.0%	4.3%	(0.3%)	(6,153)
Total	2,250,959	100.0%	100.0%		

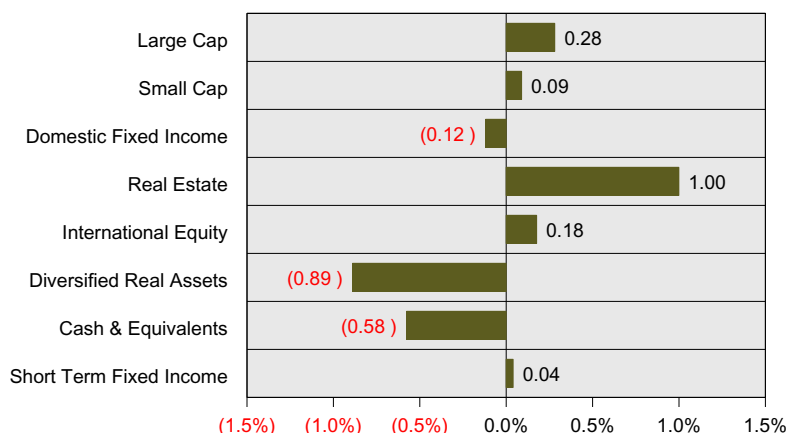
\* Current Quarter Target = 51.1% Blmbg Aggregate, 13.1% NDSIB INS DRA Weighted Benchmark, 11.2% Russell 1000 Index, 8.2% MSCI World ex US, 5.2% NCREIF Total Index, 4.3% 3-month Treasury Bill, 3.8% Russell 2000 Index and 3.1% Blmbg Gov/Cred 1-3 Yr.



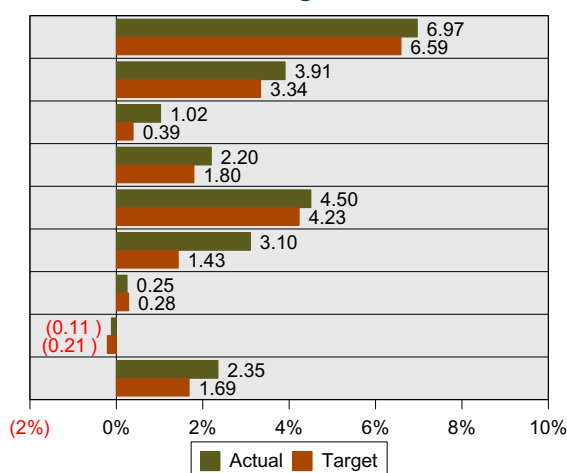
## Quarterly Total Fund Relative Attribution - December 31, 2017

The following analysis approaches Total Fund Attribution from the perspective of relative return. Relative return attribution separates and quantifies the sources of total fund excess return relative to its target. This excess return is separated into two relative attribution effects: Asset Allocation Effect and Manager Selection Effect. The Asset Allocation Effect represents the excess return due to the actual total fund asset allocation differing from the target asset allocation. Manager Selection Effect represents the total fund impact of the individual managers excess returns relative to their benchmarks.

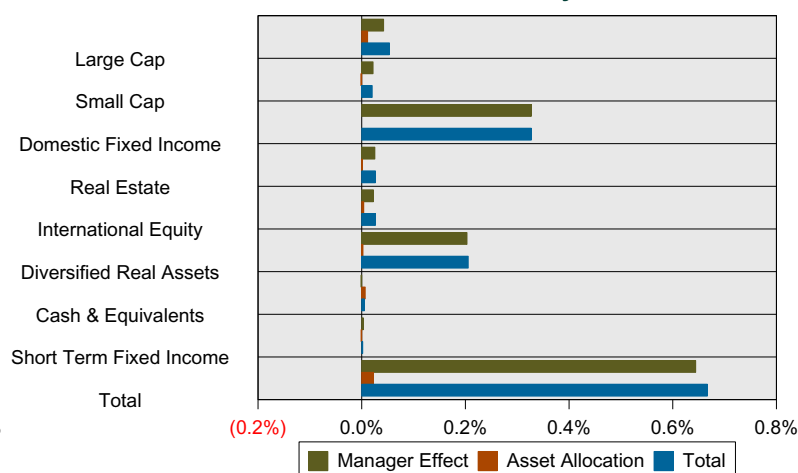
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended December 31, 2017

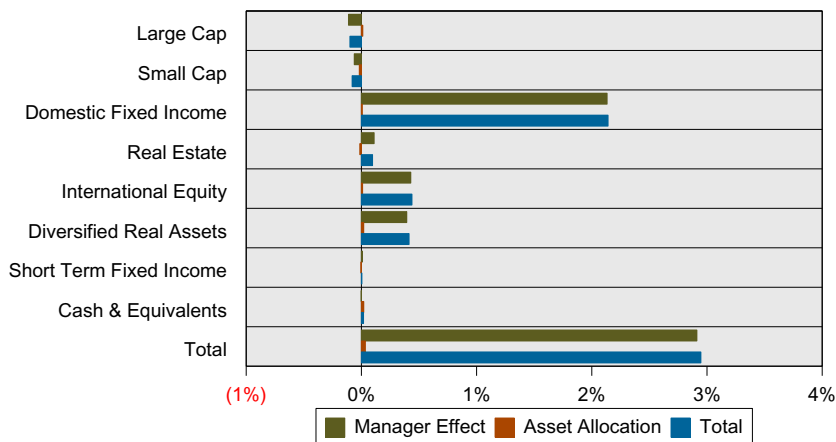
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap	11%	11%	6.97%	6.59%	0.04%	0.01%	0.05%
Small Cap	4%	4%	3.91%	3.34%	0.02%	(0.00%)	0.02%
Domestic Fixed Income	51%	51%	1.02%	0.39%	0.33%	0.00%	0.33%
Real Estate	6%	5%	2.20%	1.80%	0.03%	0.00%	0.03%
International Equity	8%	8%	4.50%	4.23%	0.02%	0.00%	0.03%
Diversified Real Assets	12%	13%	3.10%	1.43%	0.20%	0.00%	0.21%
Cash & Equivalents	4%	4%	0.25%	0.28%	(0.00%)	0.01%	0.01%
Short Term Fixed Income	3%	3%	(0.11%)	(0.21%)	0.00%	(0.00%)	0.00%
<b>Total</b>			<b>2.35%</b>	<b>1.69%</b>	<b>0.64%</b>	<b>0.02%</b>	<b>0.67%</b>

\* Current Quarter Target = 51.1% Blmbg Aggregate, 13.1% NDSIB INS DRA Weighted Benchmark, 11.2% Russell 1000 Index, 8.2% MSCI World ex US, 5.2% NCREIF Total Index, 4.3% 3-month Treasury Bill, 3.8% Russell 2000 Index and 3.1% Blmbg Gov/Cred 1-3 Yr.

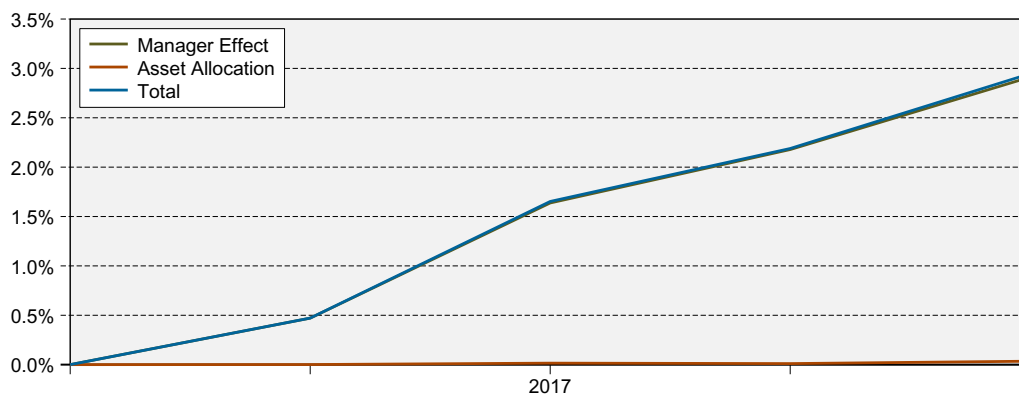
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### One Year Relative Attribution Effects



### Cumulative Relative Attribution Effects



### One Year Relative Attribution Effects

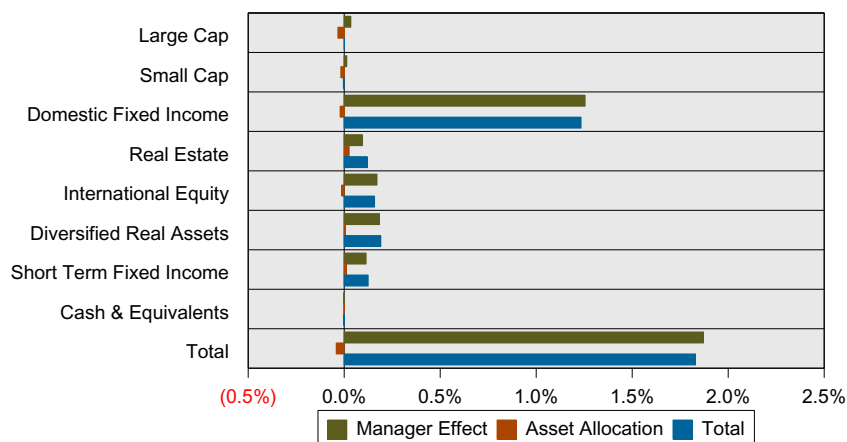
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap	11%	11%	20.57%	21.69%	(0.11%)	0.01%	(0.10%)
Small Cap	4%	4%	12.88%	14.65%	(0.06%)	(0.02%)	(0.08%)
Domestic Fixed Income	52%	52%	7.55%	3.54%	2.13%	0.01%	2.14%
Real Estate	6%	5%	8.67%	6.96%	0.11%	(0.01%)	0.10%
International Equity	8%	8%	30.07%	24.21%	0.43%	0.01%	0.44%
Diversified Real Assets	12%	13%	8.28%	5.15%	0.39%	0.02%	0.41%
Short Term Fixed Income	3%	3%	1.03%	0.72%	0.01%	(0.00%)	0.00%
Cash & Equivalents	3%	3%	0.79%	0.86%	(0.00%)	0.02%	0.02%
<b>Total</b>			<b>10.71%</b>	<b>7.76%</b>	<b>+ 2.91%</b>	<b>+ 0.03%</b>	<b>2.95%</b>

\* Current Quarter Target = 51.1% Blmbg Aggregate, 13.1% NDSIB INS DRA Weighted Benchmark, 11.2% Russell 1000 Index, 8.2% MSCI World ex US, 5.2% NCREIF Total Index, 4.3% 3-month Treasury Bill, 3.8% Russell 2000 Index and 3.1% Blmbg Gov/Cred 1-3 Yr.

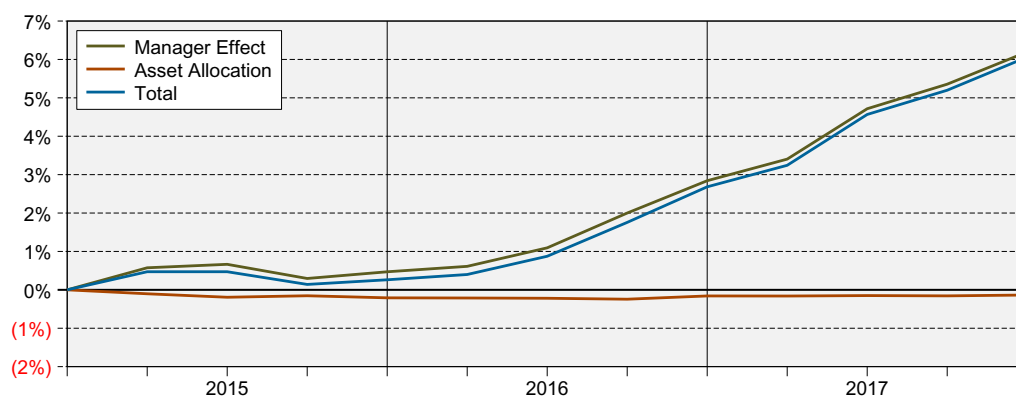
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Three Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Three Year Annualized Relative Attribution Effects

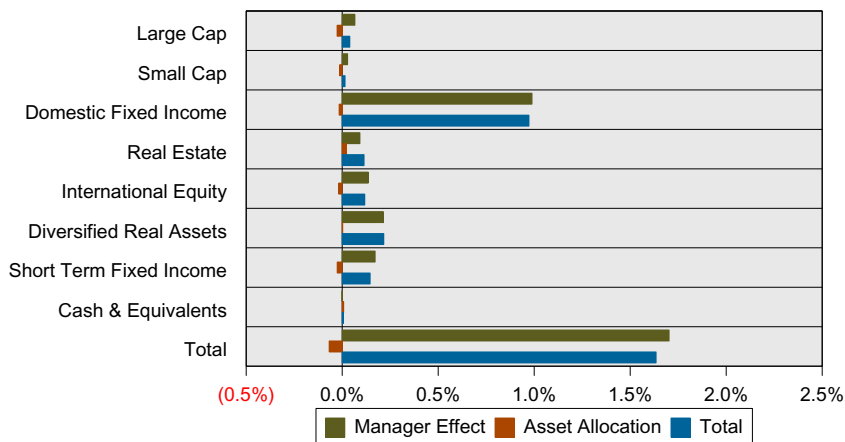
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap	11%	12%	11.73%	11.23%	0.03%	(0.03%)	0.00%
Small Cap	4%	4%	10.59%	9.96%	0.01%	(0.02%)	(0.00%)
Domestic Fixed Income	46%	46%	4.85%	2.24%	1.25%	(0.02%)	1.23%
Real Estate	6%	5%	11.01%	9.38%	0.09%	0.03%	0.12%
International Equity	7%	7%	10.46%	7.64%	0.17%	(0.01%)	0.16%
Diversified Real Assets	11%	12%	3.63%	2.07%	0.18%	0.01%	0.19%
Short Term Fixed Income	13%	12%	1.48%	0.72%	0.11%	0.01%	0.12%
Cash & Equivalents	3%	3%	0.35%	0.41%	(0.00%)	(0.00%)	(0.00%)
<b>Total</b>			<b>6.00%</b>	<b>4.17%</b>	<b>1.87%</b>	<b>(0.04%)</b>	<b>1.83%</b>

\* Current Quarter Target = 51.1% Blmbg Aggregate, 13.1% NDSIB INS DRA Weighted Benchmark, 11.2% Russell 1000 Index, 8.2% MSCI World ex US, 5.2% NCREIF Total Index, 4.3% 3-month Treasury Bill, 3.8% Russell 2000 Index and 3.1% Blmbg Gov/Cred 1-3 Yr.

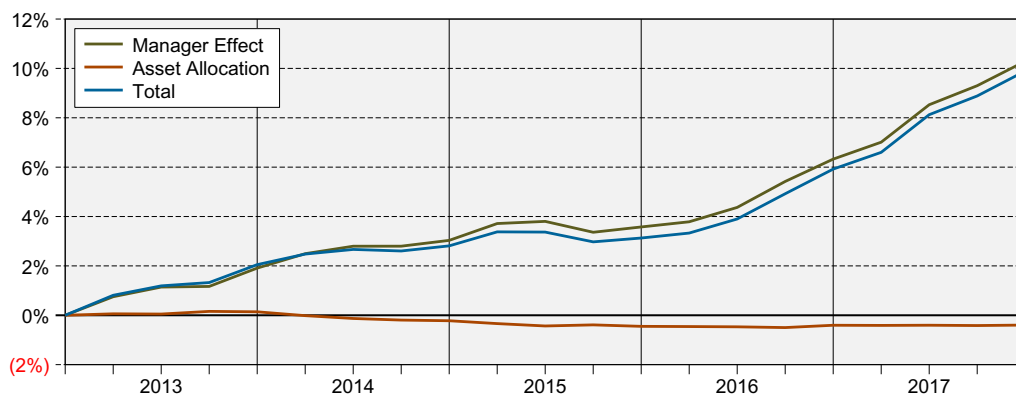
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Five Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Five Year Annualized Relative Attribution Effects

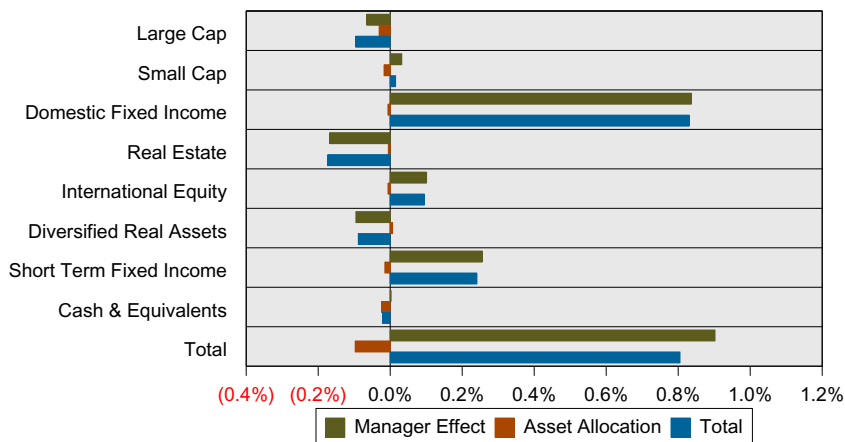
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap	11%	11%	16.67%	15.71%	0.07%	(0.03%)	0.04%
Small Cap	4%	4%	15.16%	14.12%	0.03%	(0.01%)	0.01%
Domestic Fixed Income	39%	40%	4.46%	2.10%	0.99%	(0.02%)	0.97%
Real Estate	5%	4%	12.36%	10.19%	0.09%	0.02%	0.11%
International Equity	7%	8%	10.14%	7.80%	0.14%	(0.02%)	0.12%
Diversified Real Assets	10%	11%	3.54%	1.63%	0.21%	0.00%	0.22%
Short Term Fixed Income	21%	20%	1.40%	0.63%	0.17%	(0.03%)	0.15%
Cash & Equivalents	3%	3%	0.24%	0.27%	(0.00%)	0.01%	0.01%
<b>Total</b>			<b>5.70%</b>	<b>4.06%</b>	<b>1.70%</b>	<b>(0.07%)</b>	<b>1.63%</b>

\* Current Quarter Target = 51.1% Blmbg Aggregate, 13.1% NDSIB INS DRA Weighted Benchmark, 11.2% Russell 1000 Index, 8.2% MSCI World ex US, 5.2% NCREIF Total Index, 4.3% 3-month Treasury Bill, 3.8% Russell 2000 Index and 3.1% Blmbg Gov/Cred 1-3 Yr.

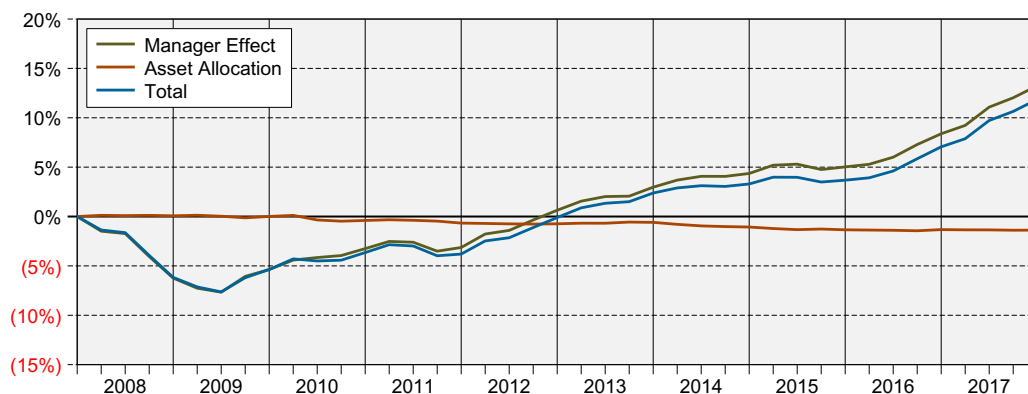
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Ten Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Ten Year Annualized Relative Attribution Effects

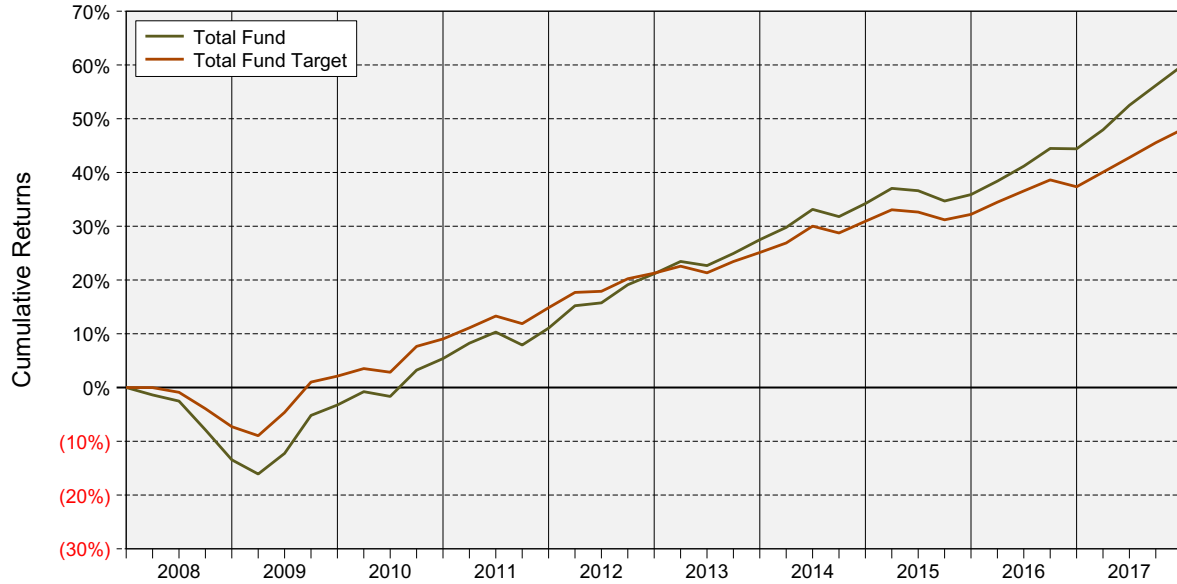
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap	10%	10%	8.01%	8.50%	(0.07%)	(0.03%)	(0.10%)
Small Cap	3%	3%	9.72%	8.71%	0.03%	(0.02%)	0.01%
Domestic Fixed Income	41%	42%	6.30%	4.01%	0.84%	(0.01%)	0.83%
Real Estate	5%	5%	2.12%	6.08%	(0.17%)	(0.01%)	(0.17%)
International Equity	7%	7%	3.42%	1.90%	0.10%	(0.01%)	0.09%
Diversified Real Assets	14%	14%	3.67%	3.76%	(0.10%)	0.01%	(0.09%)
Short Term Fixed Income	17%	16%	2.37%	0.96%	0.26%	(0.01%)	0.24%
Cash & Equivalents	3%	3%	0.45%	0.39%	0.00%	(0.02%)	(0.02%)
<b>Total</b>			<b>4.80%</b>	<b>4.00%</b>	<b>+ 0.90%</b>	<b>+ (0.10%)</b>	<b>0.80%</b>

\* Current Quarter Target = 51.1% Blmbg Aggregate, 13.1% NDSIB INS DRA Weighted Benchmark, 11.2% Russell 1000 Index, 8.2% MSCI World ex US, 5.2% NCREIF Total Index, 4.3% 3-month Treasury Bill, 3.8% Russell 2000 Index and 3.1% Blmbg Gov/Cred 1-3 Yr.

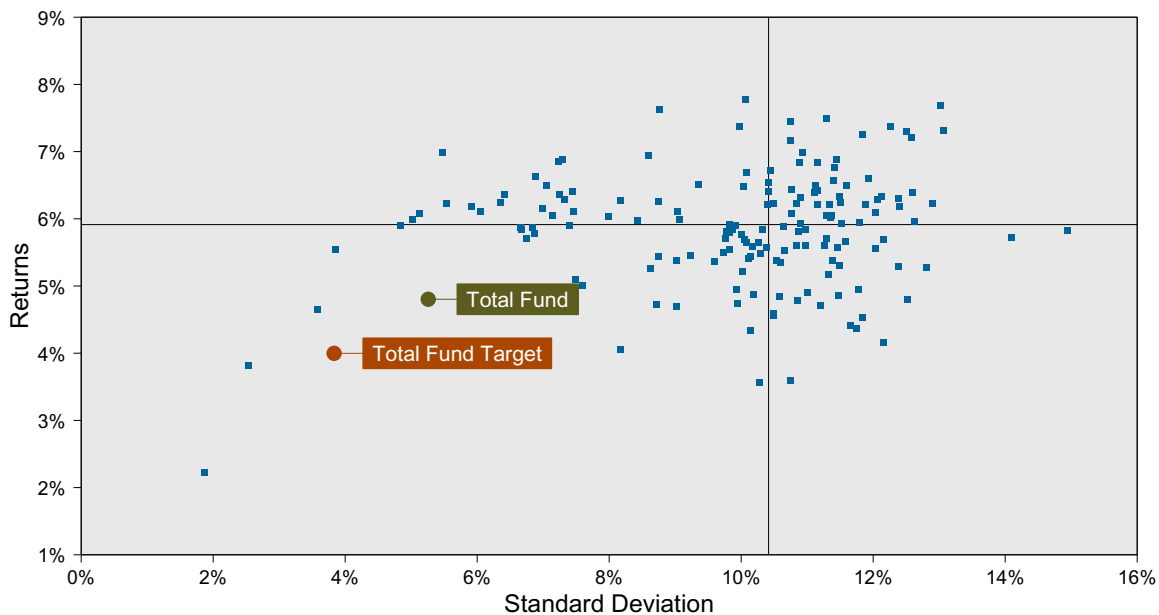
## Cumulative Performance Relative to Target

The first chart below illustrates the cumulative performance of the Total Fund relative to the cumulative performance of the Fund's Target Asset Mix. The Target Mix is assumed to be rebalanced each quarter with no transaction costs. The second chart below shows the return and the risk of the Total Fund and the Target Mix, contrasted with the returns and risks of the funds in the Callan Public Fund Sponsor Database.

### Cumulative Returns Actual vs Target



### Ten Year Annualized Risk vs Return



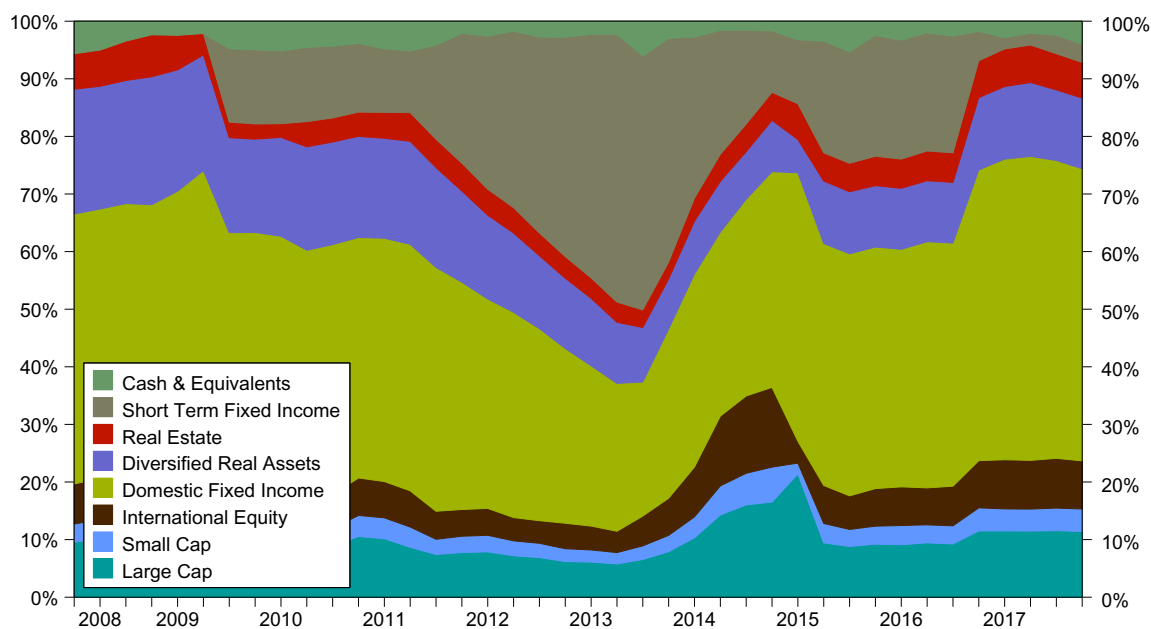
Squares represent membership of the Callan Public Fund Sponsor Database

\* Current Quarter Target = 51.1% Blmbg Aggregate, 13.1% NDSIB INS DRA Weighted Benchmark, 11.2% Russell 1000 Index, 8.2% MSCI World ex US, 5.2% NCREIF Total Index, 4.3% 3-month Treasury Bill, 3.8% Russell 2000 Index and 3.1% Blmbg Gov/Cred 1-3 Yr.

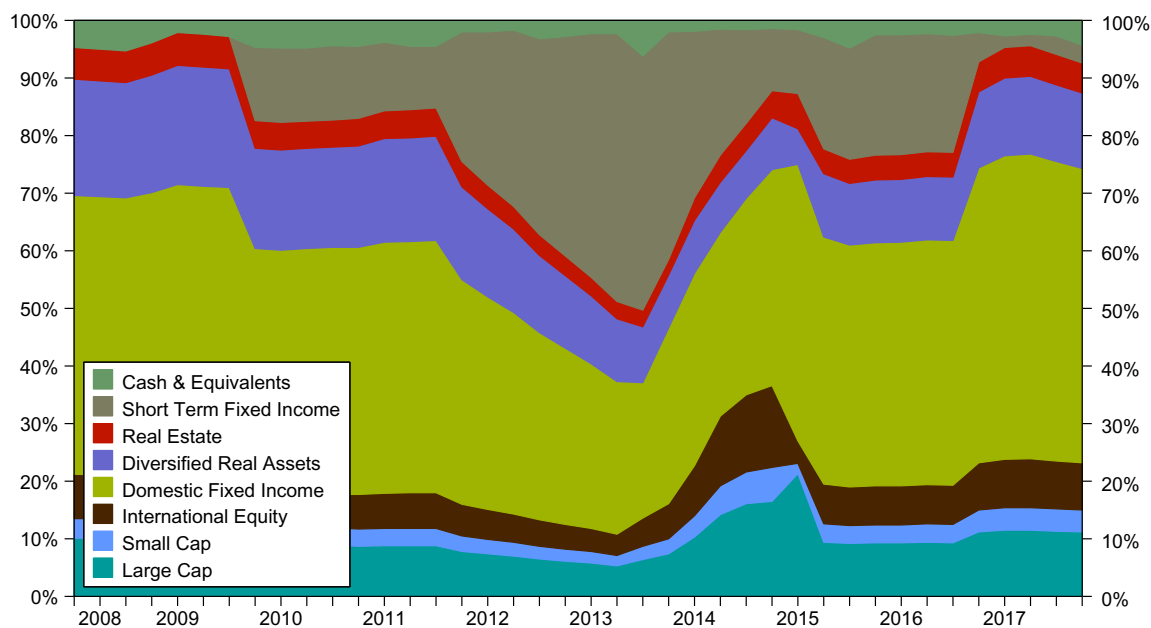
## Actual vs Target Historical Asset Allocation

The Historical asset allocation for a fund is by far the largest factor explaining its performance. The charts below show the fund's historical actual asset allocation, and the fund's historical target asset allocation.

### Actual Historical Asset Allocation



### Target Historical Asset Allocation

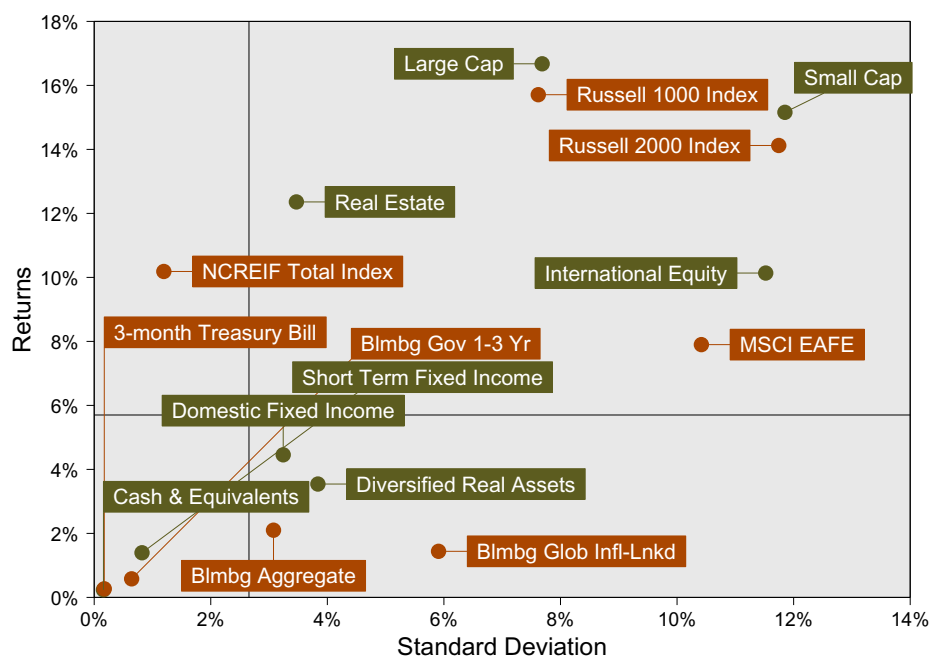


\* Current Quarter Target = 51.1% Blmbg Aggregate, 13.1% NDSIB INS DRA Weighted Benchmark, 11.2% Russell 1000 Index, 8.2% MSCI World ex US, 5.2% NCREIF Total Index, 4.3% 3-month Treasury Bill, 3.8% Russell 2000 Index and 3.1% Blmbg Gov/Cred 1-3 Yr.

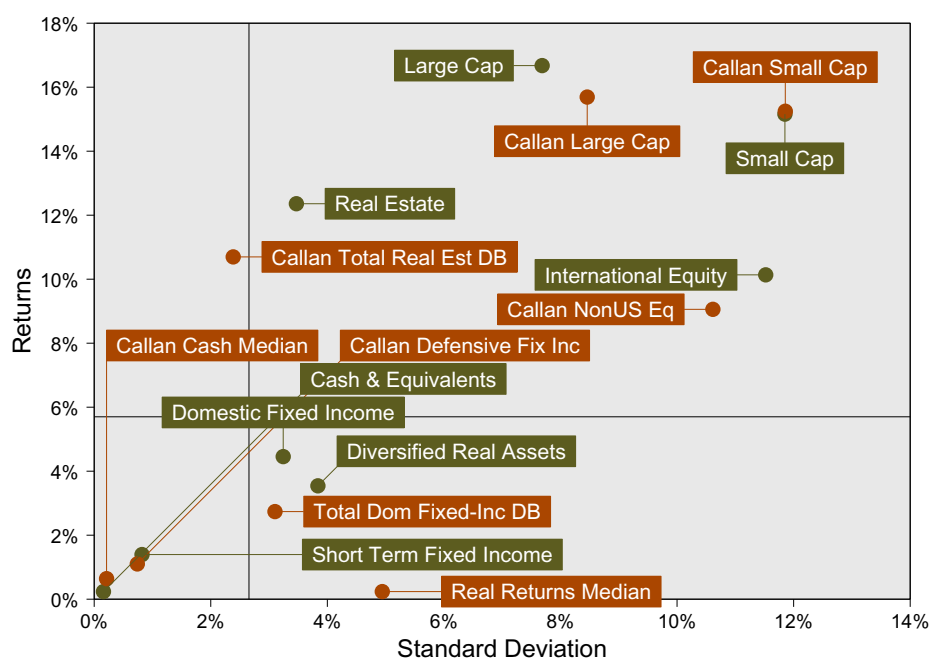
## Asset Class Risk and Return

The charts below show the five year annualized risk and return for each asset class component of the Total Fund. The first graph contrasts these values with those of the appropriate index for each asset class. The second chart contrasts them with the risk and return of the median portfolio in each of the appropriate CAI comparative databases. In each case, the crosshairs on the chart represent the return and risk of the Total Fund.

### Five Year Annualized Risk vs Return Asset Classes vs Benchmark Indices



### Five Year Annualized Risk vs Return Asset Classes vs Asset Class Median





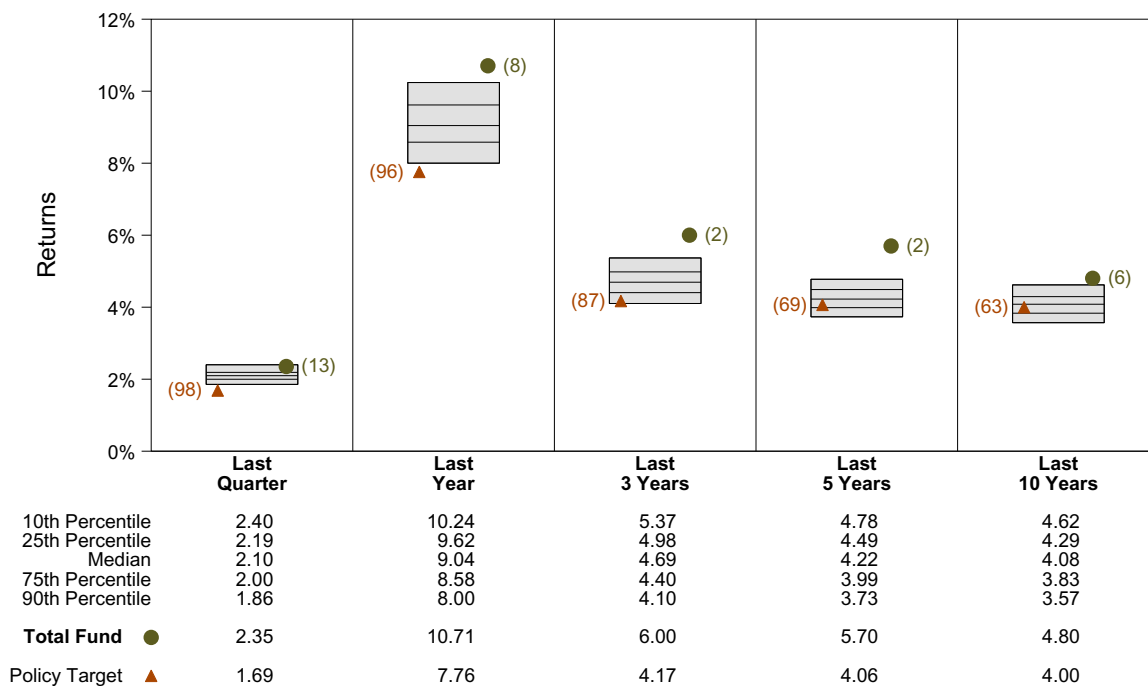
## Total Fund Ranking

The first two charts show the ranking of the Total Fund's performance relative to that of the Callan Public Fund Sponsor Database for periods ended December 31, 2017. The first chart is a standard unadjusted ranking. In the second chart each fund in the database is adjusted to have the same historical asset allocation as that of the Total Fund.

### Callan Public Fund Sponsor Database



### Asset Allocation Adjusted Ranking

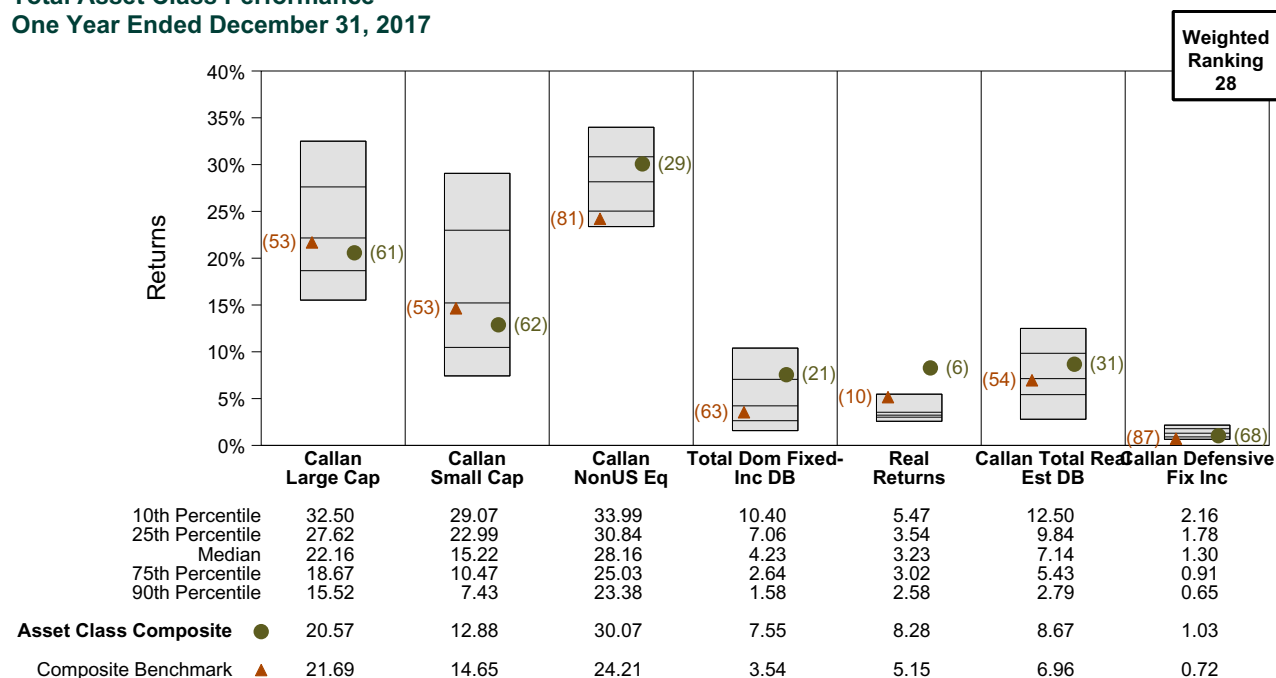


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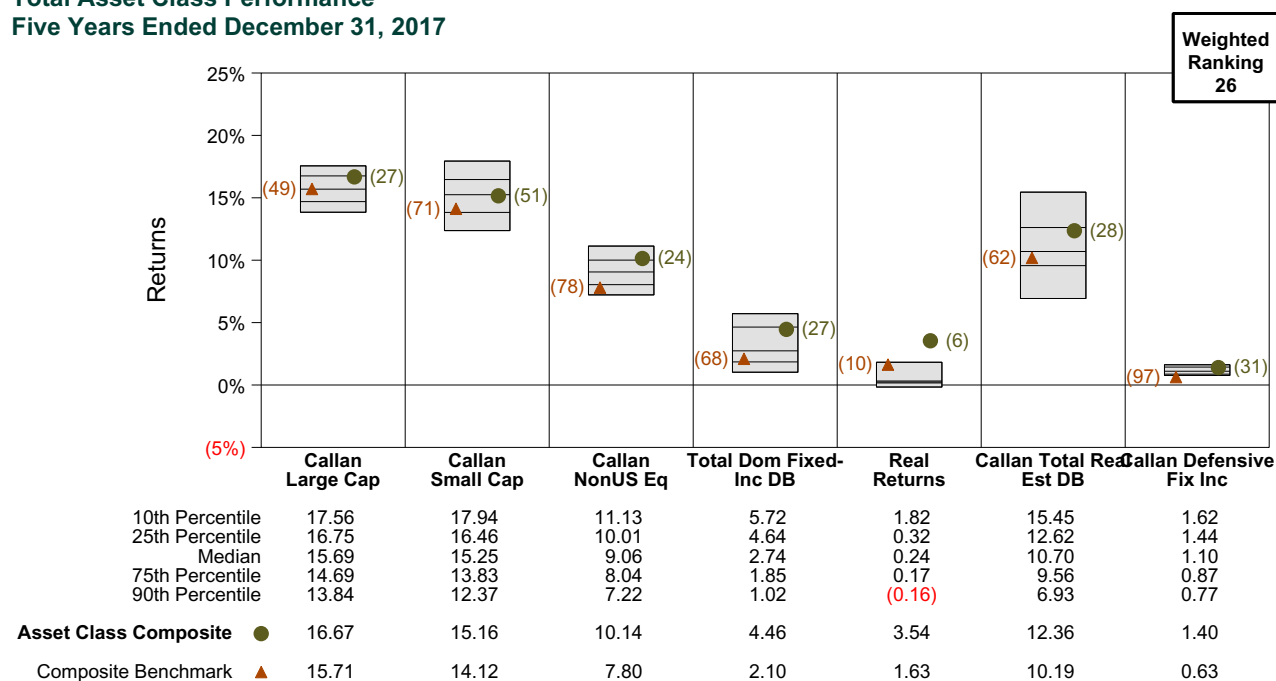
## Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases. In the upper right corner of each graph is the weighted average of the rankings across the different asset classes. The weights of the fund's actual asset allocation are used to make this calculation. The weighted average ranking can be viewed as a measure of the fund's overall success in picking managers and structuring asset classes.

### Total Asset Class Performance One Year Ended December 31, 2017



### Total Asset Class Performance Five Years Ended December 31, 2017



\* Current Quarter Target = 51.1% Blmbg Aggregate, 13.1% NDSIB INS DRA Weighted Benchmark, 11.2% Russell 1000 Index, 8.2% MSCI World ex US, 5.2% NCREIF Total Index, 4.3% 3-month Treasury Bill, 3.8% Russell 2000 Index and 3.1% Blmbg Gov/Cred 1-3 Yr.

## Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2017, with the distribution as of September 30, 2017. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

### Asset Distribution Across Investment Managers

	December 31, 2017				September 30, 2017	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
<b>Domestic Equity</b>	<b>\$344,670,469</b>	<b>15.31%</b>	<b>\$(15,639,217)</b>	<b>\$20,650,848</b>	<b>\$339,658,838</b>	<b>15.47%</b>
<b>Large Cap</b>	<b>\$256,752,468</b>	<b>11.41%</b>	<b>\$(14,313,403)</b>	<b>\$17,323,533</b>	<b>\$253,742,338</b>	<b>11.56%</b>
Parametric Clifton Large Cap	50,331,335	2.24%	(4,200,000)	3,414,185	51,117,149	2.33%
L.A. Capital Large Cap Growth	76,470,092	3.40%	(3,038,795)	5,165,597	74,343,290	3.39%
L.A. Capital Enhanced	53,317,227	2.37%	(15,622)	3,122,191	50,210,658	2.29%
LSV Large Cap Value	76,633,815	3.40%	(7,058,986)	5,621,560	78,071,240	3.56%
<b>Small Cap</b>	<b>\$87,918,001</b>	<b>3.91%</b>	<b>\$(1,325,813)</b>	<b>\$3,327,315</b>	<b>\$85,916,500</b>	<b>3.91%</b>
Parametric Clifton Small Cap	43,704,489	1.94%	(1,300,000)	1,627,970	43,376,519	1.98%
PIMCO RAE	44,213,512	1.96%	(25,813)	1,699,345	42,539,980	1.94%
<b>International Equity</b>	<b>\$188,156,003</b>	<b>8.36%</b>	<b>\$(9,548,194)</b>	<b>\$8,181,210</b>	<b>\$189,522,987</b>	<b>8.63%</b>
DFA Int'l Small Cap Value	18,473,161	0.82%	(1,200,000)	663,822	19,009,339	0.87%
LSV Intl Value	74,211,129	3.30%	(4,275,992)	2,448,116	76,039,005	3.46%
Vanguard Intl Explorer Fund	19,359,776	0.86%	0	1,008,728	18,351,048	0.84%
William Blair	76,111,937	3.38%	(4,072,202)	4,060,544	76,123,595	3.47%
<b>Domestic Fixed Income</b>	<b>\$1,141,555,319</b>	<b>50.71%</b>	<b>\$(5,223,723)</b>	<b>\$11,581,918</b>	<b>\$1,135,197,124</b>	<b>51.71%</b>
Declaration Total Return	85,748,765	3.81%	(61,200)	696,214	85,113,751	3.88%
PIMCO DiSCO II	101,994,754	4.53%	0	1,366,358	100,628,396	4.58%
PIMCO Bravo II Fund	50,757,967	2.25%	(4,839,492)	568,093	55,029,366	2.51%
Prudential	118,329,065	5.26%	(76,279)	1,210,467	117,194,878	5.34%
SSgA US Govt Credit Bd Idx	143,673,295	6.38%	(24,091)	707,475	142,989,912	6.51%
Wells Capital	322,309,419	14.32%	(122,207)	4,365,265	318,066,360	14.49%
Western Asset Management	318,742,054	14.16%	(100,454)	2,668,048	316,174,460	14.40%
<b>Diversified Real Assets</b>	<b>\$275,877,895</b>	<b>12.26%</b>	<b>\$(1,356,225)</b>	<b>\$8,336,323</b>	<b>\$268,897,797</b>	<b>12.25%</b>
Western Asset Management	120,068,344	5.33%	(37,026)	3,568,073	116,537,298	5.31%
JP Morgan Infrastructure	89,502,216	3.98%	(176,070)	4,386,283	85,292,003	3.89%
Eastern Timber Opportunities	49,430,480	2.20%	(285,963)	(303,672)	50,020,115	2.28%
Grosvenor Cust. Infrastructure	16,876,855	0.75%	(857,166)	685,640	17,048,381	0.78%
<b>Real Estate</b>	<b>\$139,446,327</b>	<b>6.19%</b>	<b>\$(1,563,472)</b>	<b>\$3,016,119</b>	<b>\$137,993,680</b>	<b>6.29%</b>
Invesco Core Real Estate	66,845,334	2.97%	(526,298)	1,478,766	65,892,865	3.00%
JP Morgan RE	72,600,994	3.23%	(1,037,174)	1,537,354	72,100,814	3.28%
<b>Short Term Fixed Income</b>	<b>\$70,614,543</b>	<b>3.14%</b>	<b>\$(22,138)</b>	<b>\$(80,399)</b>	<b>\$70,717,079</b>	<b>3.22%</b>
JP Morgan Short Term Bonds	70,614,543	3.14%	(22,138)	(80,399)	70,717,079	3.22%
<b>Cash &amp; Equivalents</b>	<b>\$90,638,072</b>	<b>4.03%</b>	<b>\$37,209,576</b>	<b>\$212,876</b>	<b>\$53,215,620</b>	<b>2.42%</b>
Northern Trust Cash Account	65,348,368	2.90%	37,209,576	137,828	28,000,964	1.28%
Bank of ND	25,289,703	1.12%	0	75,048	25,214,655	1.15%
<b>Securities Lending Income</b>	<b>\$0</b>	<b>0.00%</b>	<b>\$(38,530)</b>	<b>\$38,530</b>	<b>-</b>	<b>-</b>
<b>Total Fund</b>	<b>\$2,250,958,627</b>	<b>100.0%</b>	<b>\$3,818,077</b>	<b>\$51,937,426</b>	<b>\$2,195,203,124</b>	<b>100.0%</b>

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Domestic Equity</b>					
Gross	6.19%	18.59%	11.41%	16.28%	8.43%
Net	6.15%	18.36%	11.15%	16.02%	8.07%
<b>Large Cap Equity</b>					
Gross	6.97%	20.57%	11.73%	16.67%	8.01%
Net	6.92%	20.36%	11.51%	16.46%	7.69%
Benchmark(1)	6.59%	21.69%	11.23%	15.71%	8.50%
Parametric Clifton Large Cap - Gross	6.88%	22.05%	11.78%	16.03%	-
Parametric Clifton Large Cap - Net	6.88%	22.04%	11.68%	15.93%	-
S&P 500 Index	6.64%	21.83%	11.41%	15.79%	8.50%
L.A. Capital - Gross	7.00%	23.13%	12.63%	17.07%	10.06%
L.A. Capital - Net	6.94%	22.88%	12.40%	16.84%	9.86%
Russell 1000 Growth Index	7.86%	30.21%	13.79%	17.33%	10.00%
L.A. Capital Enhanced - Gross	6.22%	18.15%	11.44%	16.19%	9.42%
L.A. Capital Enhanced - Net	6.19%	18.00%	11.30%	16.04%	9.25%
Russell 1000 Index	6.59%	21.69%	11.23%	15.71%	8.59%
LSV Asset Management - Gross	7.43%	18.56%	10.86%	16.91%	8.67%
LSV Asset Management - Net	7.34%	18.20%	10.53%	16.58%	8.34%
Russell 1000 Value Index	5.33%	13.66%	8.65%	14.04%	7.10%
<b>Small Cap Equity</b>					
Gross	3.91%	12.88%	10.59%	15.16%	9.72%
Net	3.88%	12.63%	10.20%	14.76%	9.20%
Russell 2000 Index	3.34%	14.65%	9.96%	14.12%	8.71%
Parametric Clifton Small Cap - Gross	3.78%	15.71%	11.24%	15.28%	-
Parametric Clifton SmallCap - Net	3.78%	15.47%	10.79%	14.86%	-
Russell 2000 Index	3.34%	14.65%	9.96%	14.12%	8.71%
PIMCO RAE - Gross	4.00%	9.98%	9.66%	14.85%	10.01%
PIMCO RAE - Net	3.93%	9.71%	9.36%	14.50%	9.61%
Russell 2000	3.34%	14.65%	9.96%	14.12%	8.71%
<b>International Equity</b>					
Gross	4.50%	30.07%	10.46%	10.14%	3.42%
Net	4.42%	29.67%	10.11%	9.75%	3.14%
Benchmark(2)	4.23%	24.21%	7.64%	7.80%	1.90%
DFA Intl Small Cap Value - Net	3.83%	27.98%	12.86%	12.57%	5.77%
World ex US SC Va	5.20%	27.93%	11.72%	10.89%	5.19%
LSV Asset Management - Gross	3.43%	26.72%	10.33%	9.97%	2.68%
LSV Asset Management - Net	3.33%	26.22%	9.89%	9.53%	2.35%
Benchmark(3)	4.23%	25.03%	7.80%	7.90%	1.94%
Vanguard Intl Explorer Fund - Net	5.50%	38.77%	13.97%	13.37%	5.49%
BMI, EPAC, <\$2 B	7.60%	31.31%	14.26%	12.18%	4.90%
William Blair - Gross	5.53%	32.04%	-	-	-
William Blair - Net	5.43%	31.52%	-	-	-
MSCI ACWI ex US IMI	5.23%	27.81%	8.38%	7.22%	2.20%

(1) S&P 500 Index through 12/31/2011 and Russell 1000 Index thereafter.

(2) MSCI EAFE through 9/30/2000; 50% Hedged EAFE through 3/31/2011; MSCI EAFE again through 6/30/2016; MSCI World ex-US thereafter.

(3) MSCI EAFE through 9/30/2000; 50% Hedged EAFE through 3/31/2011; MSCI EAFE again thereafter.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Domestic Fixed Income</b>					
Gross	1.02%	7.55%	4.85%	4.46%	6.30%
Net	0.99%	7.42%	4.73%	4.32%	6.13%
Blmbg Aggregate Index	0.39%	3.54%	2.24%	2.10%	4.01%
Declaration Total Return - Net	0.82%	5.67%	3.93%	-	-
Libor-3 Month	0.36%	1.26%	0.77%	0.56%	0.79%
PIMCO DiSCO II - Net	1.36%	15.22%	10.05%	9.80%	-
PIMCO Bravo II Fund - Net	1.07%	10.40%	9.36%	-	-
Blmbg Aggregate Index	0.39%	3.54%	2.24%	2.10%	4.01%
Prudential - Gross	1.03%	7.30%	4.44%	3.70%	6.27%
Prudential - Net	0.97%	7.02%	4.16%	3.42%	6.12%
Blmbg Aggregate Index	0.39%	3.54%	2.24%	2.10%	4.01%
Wells Capital - Gross	1.37%	8.71%	5.11%	4.65%	7.44%
Wells Capital - Net	1.33%	8.49%	4.92%	4.46%	7.22%
Blmbg Baa Credit 3%	1.22%	7.45%	4.09%	3.65%	6.42%
Western Asset - Gross	0.84%	5.92%	4.13%	3.71%	5.47%
Western Asset - Net	0.81%	5.78%	3.99%	3.57%	5.29%
Blmbg Aggregate	0.39%	3.54%	2.24%	2.10%	4.01%
SSgA US Govt Cr Bd Idx - Gross	0.49%	4.01%	2.39%	-	-
SSgA US Govt Cr Bd Idx - Net	0.48%	3.97%	2.35%	-	-
Blmbg Govt/Credit Bd	0.49%	4.00%	2.38%	2.13%	4.08%
<b>Diversified Real Assets</b>					
Gross	3.10%	8.28%	3.63%	3.54%	3.67%
Net	3.04%	8.00%	3.34%	3.25%	3.35%
Weighted Benchmark	1.43%	5.15%	2.07%	1.63%	3.76%
Western TIPS - Gross	3.06%	9.12%	2.86%	1.52%	3.28%
Western TIPS - Net	3.03%	8.98%	2.72%	1.38%	3.10%
Blmbg Gbl Infln-Linked(1)	2.85%	8.67%	2.38%	1.44%	3.66%
JP Morgan Infrastructure - Gross	5.14%	10.78%	4.45%	5.64%	-
JP Morgan Infrastructure - Net	5.00%	10.08%	3.62%	4.73%	-
CPI-W	(0.17%)	2.18%	1.52%	1.26%	1.57%
Eastern Timber Opportunities - Net	(0.61%)	1.65%	1.69%	5.01%	-
NCREIF Timberland Index	1.52%	3.63%	3.73%	6.22%	4.42%
Grosvenor Cust. Infrastructure - Net	4.05%	10.87%	7.70%	9.33%	-
CPI-W	(0.17%)	2.18%	1.52%	1.26%	1.57%

(1) Blmbg US TIPS through 12/31/2009 and Blmbg Global Inflation-Linked thereafter.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Real Estate</b>					
Gross	2.20%	8.67%	11.01%	12.36%	2.12%
Net	2.08%	8.10%	10.28%	11.57%	1.12%
NCREIF Total Index	1.80%	6.96%	9.38%	10.19%	6.08%
Invesco Core Real Estate - Gross	2.26%	8.38%	10.74%	12.23%	-
Invesco Core Real Estate - Net	2.18%	8.02%	10.37%	11.80%	-
NCREIF Total Index	1.80%	6.96%	9.38%	10.19%	6.08%
JP Morgan - Gross	2.13%	8.90%	11.22%	12.44%	2.37%
JP Morgan - Net	1.98%	8.15%	10.20%	11.37%	1.22%
NCREIF Total Index	1.80%	6.96%	9.38%	10.19%	6.08%
<b>Short Term Fixed Income</b>					
Gross	(0.11%)	1.03%	1.48%	1.40%	-
Net	(0.14%)	0.71%	1.26%	1.21%	-
Blended Benchmark(1)	(0.21%)	0.72%	0.72%	0.63%	-
JP Morgan Short Term Bds - Gross	(0.11%)	1.16%	1.10%	0.96%	-
JP Morgan Short Term Bds - Net	(0.14%)	0.84%	0.92%	0.82%	-
Blmbg Gov/Credit 1-3 Y	(0.21%)	0.84%	0.93%	0.84%	1.85%
<b>Cash &amp; Equivalents - Net</b>	<b>0.25%</b>	<b>0.79%</b>	<b>0.35%</b>	<b>0.24%</b>	<b>0.45%</b>
Cash Account- Net	0.22%	0.65%	0.29%	0.20%	0.44%
Bank of ND - Net	0.30%	0.98%	-	-	-
90 Day Treasury Bills	0.28%	0.86%	0.41%	0.27%	0.39%
<b>Total Fund</b>					
Gross	2.35%	10.71%	6.00%	5.70%	4.80%
Net	2.31%	10.49%	5.78%	5.49%	4.56%
Target*	1.69%	7.76%	4.17%	4.06%	4.00%

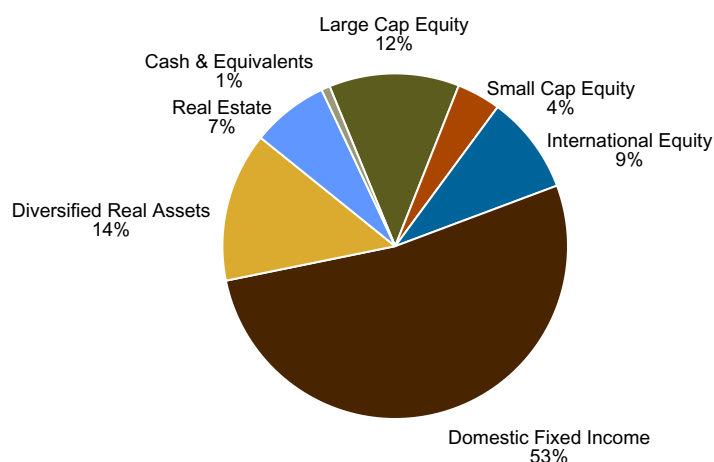
\* Current Quarter Target = 51.1% Blmbg Aggregate, 13.1% NDSIB INS DRA Weighted Benchmark, 11.2% Russell 1000 Index, 8.2% MSCI World ex US, 5.2% NCREIF Total Index, 4.3% 3-month Treasury Bill, 3.8% Russell 2000 Index and 3.1% Blmbg Gov/Cred 1-3 Yr.

(1) Blmbg Gov 1-3 Yr through March 31, 2017 and Blmbg Gov/Credit 1-3 Yr thereafter.

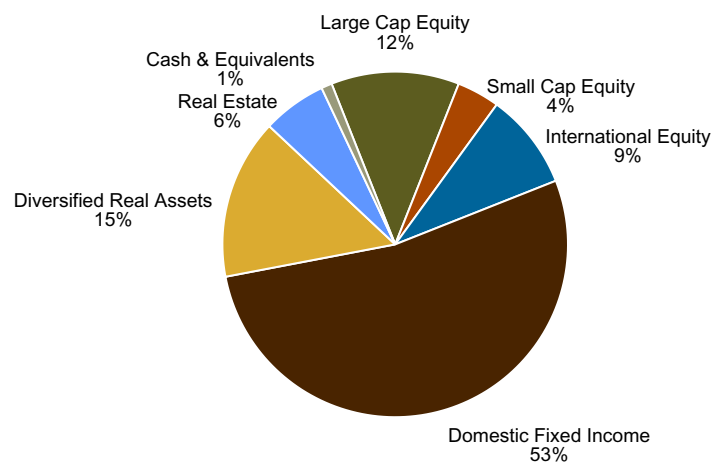
## Actual vs Target Asset Allocation As of December 31, 2017

The first chart below shows the Fund's asset allocation as of December 31, 2017. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.

**Actual Asset Allocation**



**Target Asset Allocation**



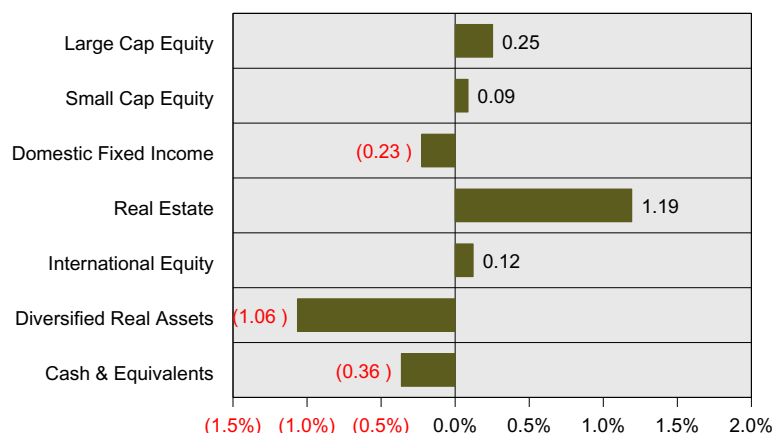
Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Large Cap Equity	237,527	12.2%	12.0%	0.2%	4,496
Small Cap Equity	79,731	4.1%	4.0%	0.1%	2,054
International Equity	178,036	9.2%	9.0%	0.2%	3,263
Domestic Fixed Income	1,019,674	52.5%	53.0%	(0.5%)	(9,544)
Diversified Real Assets	271,420	14.0%	15.0%	(1.0%)	(19,869)
Real Estate	139,379	7.2%	6.0%	1.2%	22,864
Cash & Equivalents	16,155	0.8%	1.0%	(0.2%)	(3,264)
Total	1,941,922	100.0%	100.0%		

\* Current Quarter Target = 53.0% Blmgb Aggregate, 15.0% NDSIB WSI DRA Weighted Benchmark, 12.0% Russell 1000 Index, 9.0% MSCI World ex US, 6.0% NCREIF Total Index, 4.0% Russell 2000 Index and 1.0% 3-month Treasury Bill.

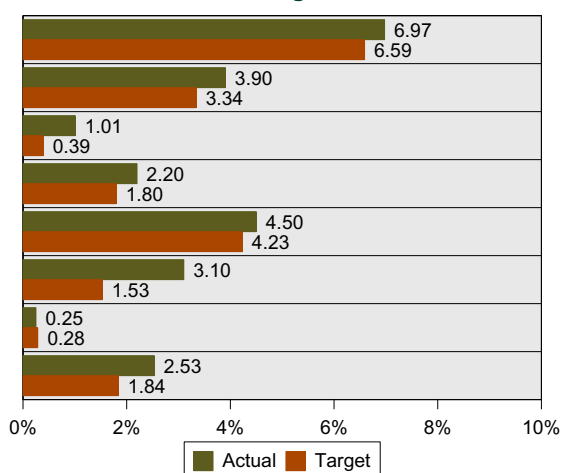
## Quarterly Total Fund Relative Attribution - December 31, 2017

The following analysis approaches Total Fund Attribution from the perspective of relative return. Relative return attribution separates and quantifies the sources of total fund excess return relative to its target. This excess return is separated into two relative attribution effects: Asset Allocation Effect and Manager Selection Effect. The Asset Allocation Effect represents the excess return due to the actual total fund asset allocation differing from the target asset allocation. Manager Selection Effect represents the total fund impact of the individual managers excess returns relative to their benchmarks.

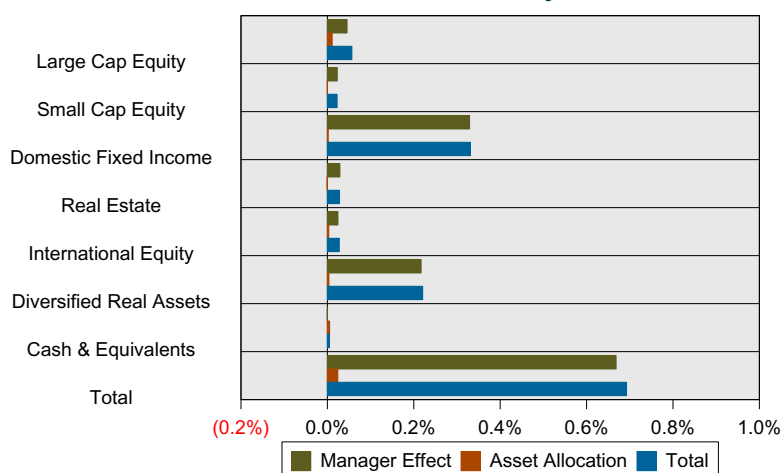
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended December 31, 2017

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	12%	12%	6.97%	6.59%	0.05%	0.01%	0.06%
Small Cap Equity	4%	4%	3.90%	3.34%	0.02%	(0.00%)	0.02%
Domestic Fixed Income	53%	53%	1.01%	0.39%	0.33%	0.00%	0.33%
Real Estate	7%	6%	2.20%	1.80%	0.03%	(0.00%)	0.03%
International Equity	9%	9%	4.50%	4.23%	0.02%	0.00%	0.03%
Diversified Real Assets	14%	15%	3.10%	1.53%	0.22%	0.00%	0.22%
Cash & Equivalents	1%	1%	0.25%	0.28%	(0.00%)	0.01%	0.00%
<b>Total</b>			<b>2.53%</b>	<b>1.84%</b>	<b>0.67%</b>	<b>0.02%</b>	<b>0.69%</b>

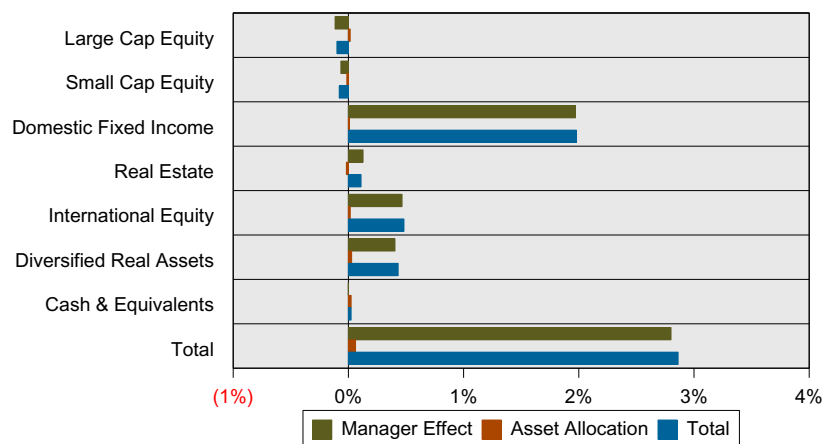
\* Current Quarter Target = 53.0% Blmbg Aggregate, 15.0% NDSIB WSI DRA Weighted Benchmark, 12.0% Russell 1000 Index, 9.0% MSCI World ex US, 6.0% NCREIF Total Index, 4.0% Russell 2000 Index and 1.0% 3-month Treasury Bill.



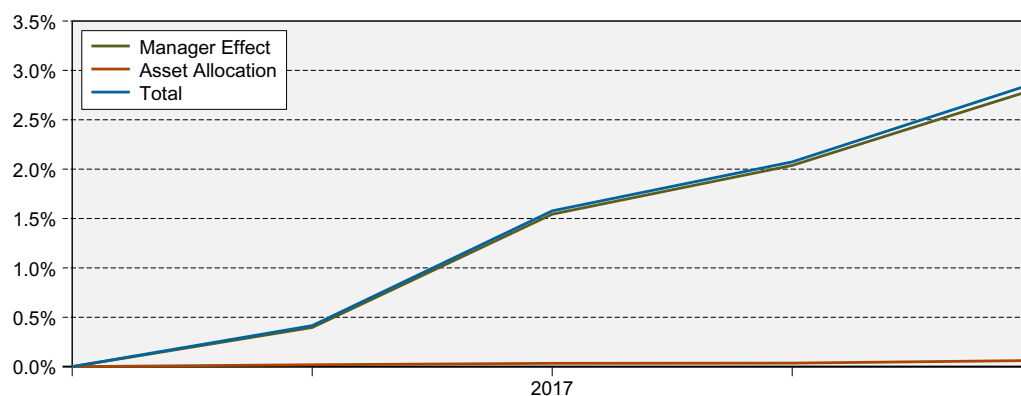
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### One Year Relative Attribution Effects



### Cumulative Relative Attribution Effects



### One Year Relative Attribution Effects

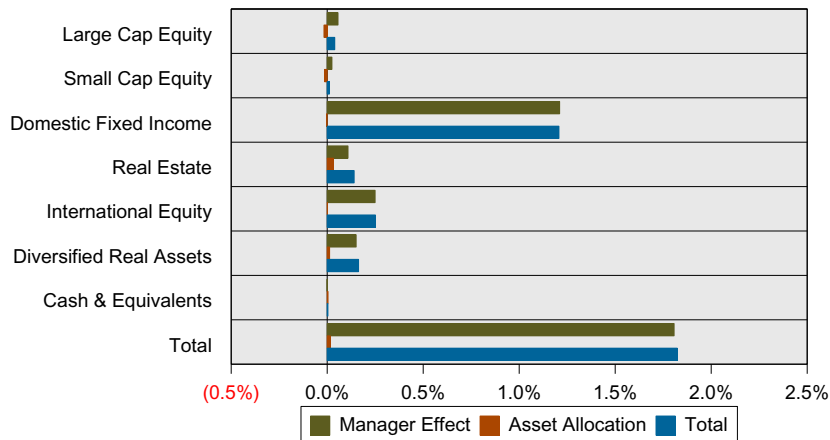
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	12%	12%	20.62%	21.69%	(0.12%)	0.02%	(0.10%)
Small Cap Equity	4%	4%	12.85%	14.65%	(0.07%)	(0.01%)	(0.08%)
Domestic Fixed Income	53%	53%	7.15%	3.54%	1.97%	0.01%	1.98%
Real Estate	7%	6%	8.67%	6.96%	0.13%	(0.02%)	0.11%
International Equity	9%	9%	30.10%	24.21%	0.47%	0.02%	0.48%
Diversified Real Assets	14%	15%	8.27%	5.41%	0.40%	0.03%	0.43%
Cash & Equivalents	1%	1%	0.80%	0.86%	(0.00%)	0.02%	0.02%
<b>Total</b>			<b>11.13%</b>	<b>8.27%</b>	<b>+ 2.80%</b>	<b>+ 0.06%</b>	<b>2.86%</b>

\* Current Quarter Target = 53.0% Blmgb Aggregate, 15.0% NDSIB WSI DRA Weighted Benchmark, 12.0% Russell 1000 Index, 9.0% MSCI World ex US, 6.0% NCREIF Total Index, 4.0% Russell 2000 Index and 1.0% 3-month Treasury Bill.

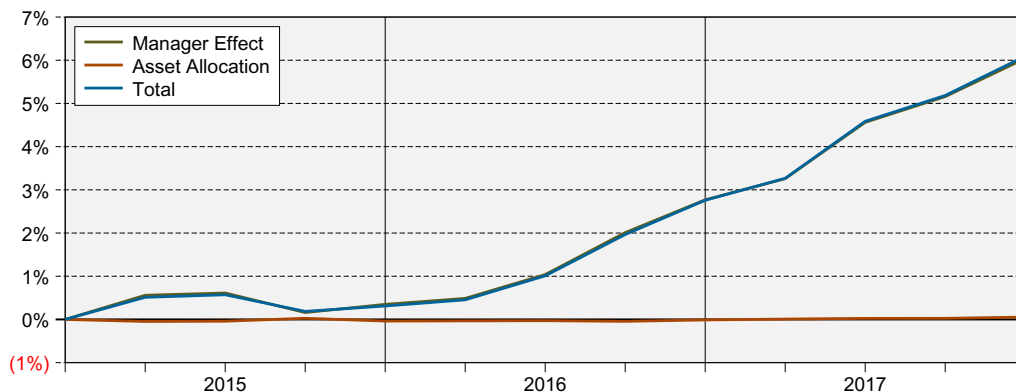
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Three Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Three Year Annualized Relative Attribution Effects

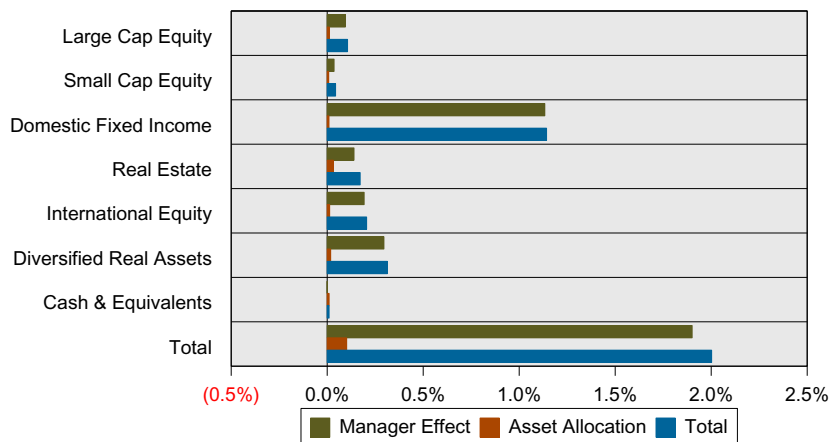
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	12%	12%	11.73%	11.23%	0.06%	(0.02%)	0.04%
Small Cap Equity	4%	4%	10.60%	9.96%	0.02%	(0.01%)	0.01%
Domestic Fixed Income	53%	53%	4.52%	2.24%	1.21%	(0.00%)	1.21%
Real Estate	7%	6%	11.01%	9.38%	0.11%	0.03%	0.14%
International Equity	9%	9%	10.50%	7.64%	0.25%	0.00%	0.25%
Diversified Real Assets	14%	15%	3.51%	2.48%	0.15%	0.01%	0.16%
Cash & Equivalents	1%	1%	0.35%	0.41%	(0.00%)	0.00%	0.00%
<b>Total</b>			<b>6.47%</b>	<b>4.65%</b>	<b>+ 1.81%</b>	<b>+ 0.02%</b>	<b>1.82%</b>

\* Current Quarter Target = 53.0% Blmbg Aggregate, 15.0% NDSIB WSI DRA Weighted Benchmark, 12.0% Russell 1000 Index, 9.0% MSCI World ex US, 6.0% NCREIF Total Index, 4.0% Russell 2000 Index and 1.0% 3-month Treasury Bill.

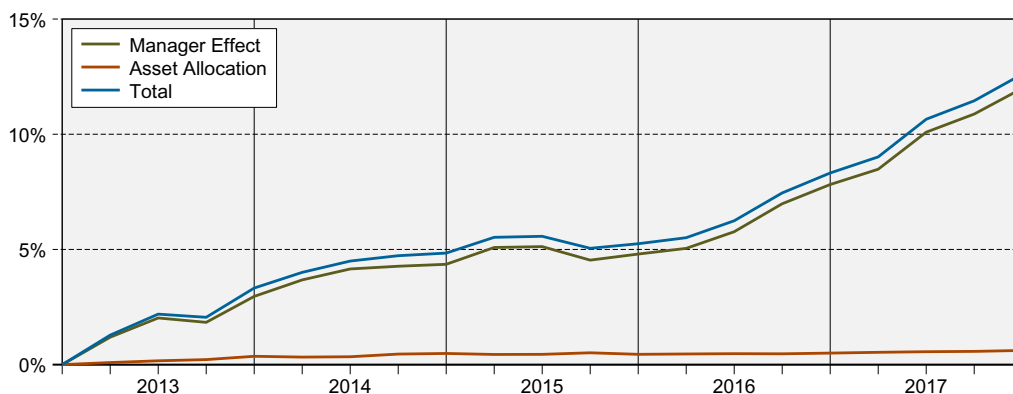
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Five Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Five Year Annualized Relative Attribution Effects

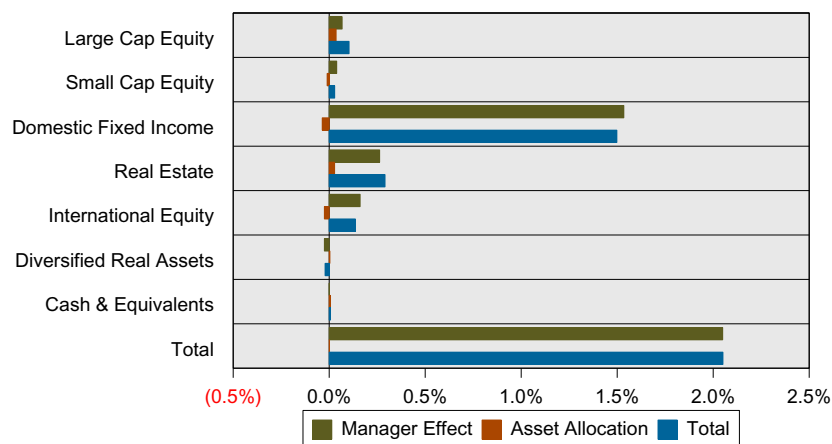
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	11%	11%	16.65%	15.71%	0.09%	0.01%	0.11%
Small Cap Equity	4%	4%	15.17%	14.12%	0.04%	0.01%	0.04%
Domestic Fixed Income	52%	52%	4.26%	2.10%	1.13%	0.01%	1.14%
Real Estate	7%	6%	12.34%	10.19%	0.14%	0.03%	0.17%
International Equity	8%	8%	10.08%	7.80%	0.19%	0.01%	0.21%
Diversified Real Assets	17%	17%	3.72%	2.09%	0.30%	0.02%	0.31%
Cash & Equivalents	1%	1%	0.24%	0.27%	(0.00%)	0.01%	0.01%
<b>Total</b>			<b>6.93%</b>	<b>4.93%</b>	<b>+ 1.90%</b>	<b>+ 0.10%</b>	<b>2.00%</b>

\* Current Quarter Target = 53.0% Blmbg Aggregate, 15.0% NDSIB WSI DRA Weighted Benchmark, 12.0% Russell 1000 Index, 9.0% MSCI World ex US, 6.0% NCREIF Total Index, 4.0% Russell 2000 Index and 1.0% 3-month Treasury Bill.

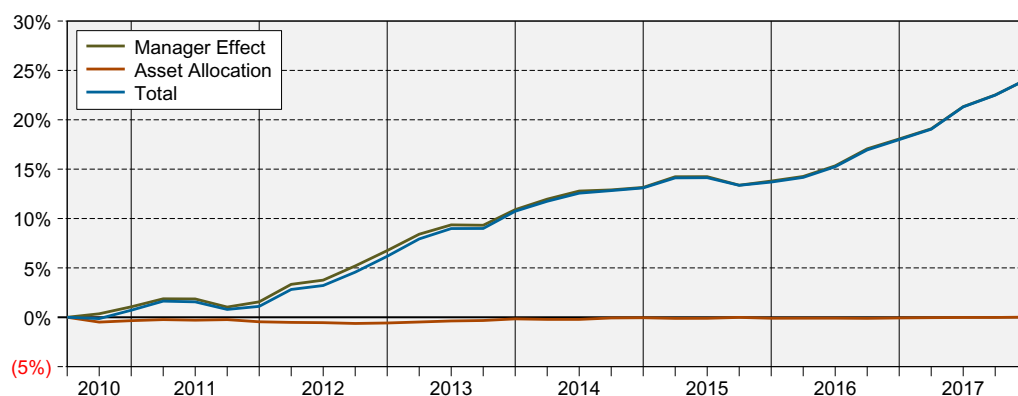
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Seven and One-Half Year Annualized Relative Attribution Effects



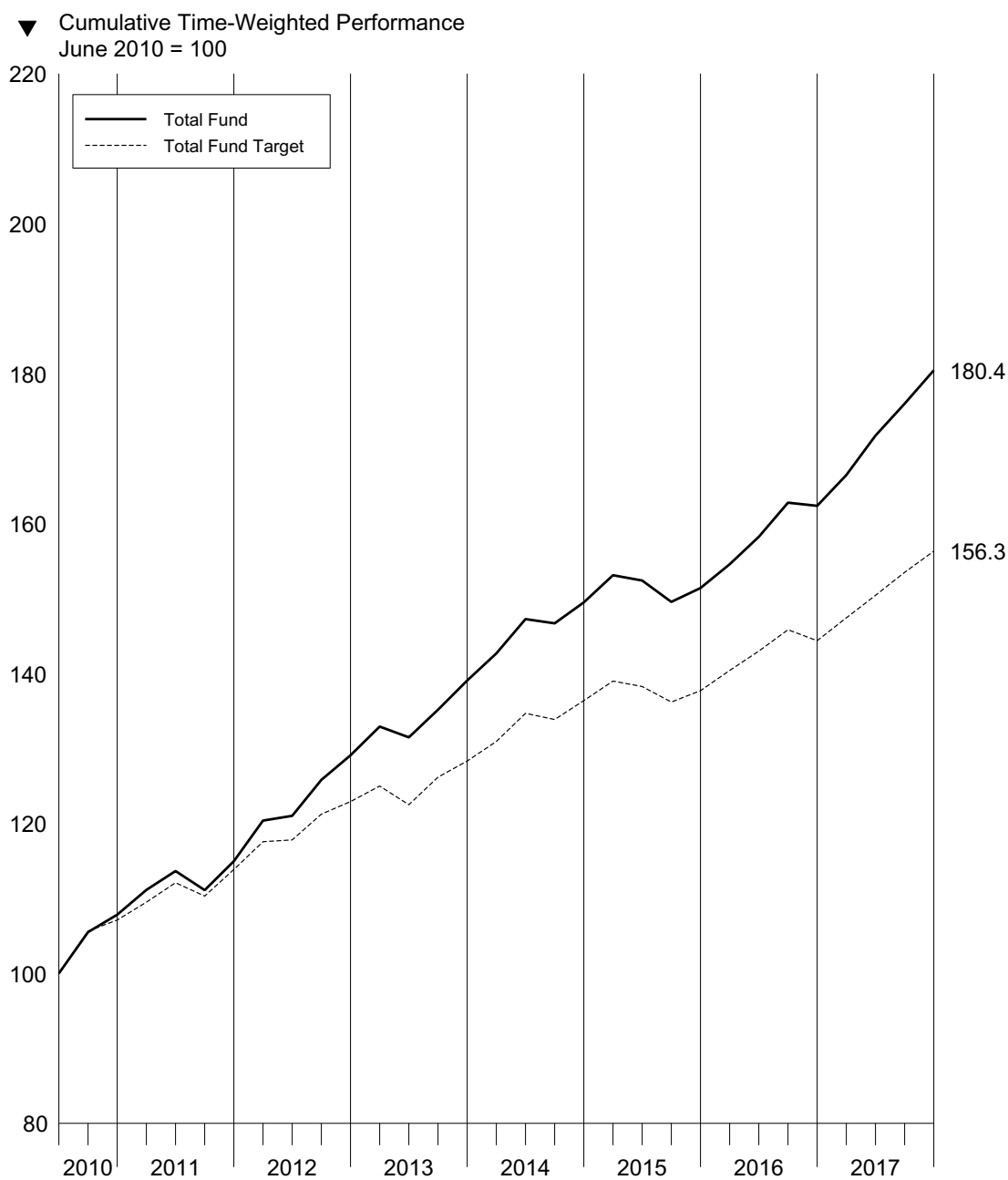
### Cumulative Relative Attribution Effects



### Seven and One-Half Year Annualized Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	11%	11%	16.63%	15.98%	0.07%	0.04%	0.10%
Small Cap Equity	4%	4%	15.84%	14.67%	0.04%	(0.01%)	0.03%
Domestic Fixed Income	52%	52%	6.06%	3.14%	1.53%	(0.04%)	1.50%
Real Estate	7%	6%	15.68%	11.28%	0.26%	0.03%	0.29%
International Equity	8%	8%	9.87%	7.88%	0.16%	(0.02%)	0.14%
Diversified Real Assets	18%	19%	4.68%	4.69%	(0.02%)	0.00%	(0.02%)
Cash & Equivalents	1%	1%	0.26%	0.22%	0.00%	0.01%	0.01%
<b>Total</b>			<b>8.19%</b>	<b>6.14%</b>	<b>2.05%</b>	<b>0.00%</b>	<b>2.05%</b>

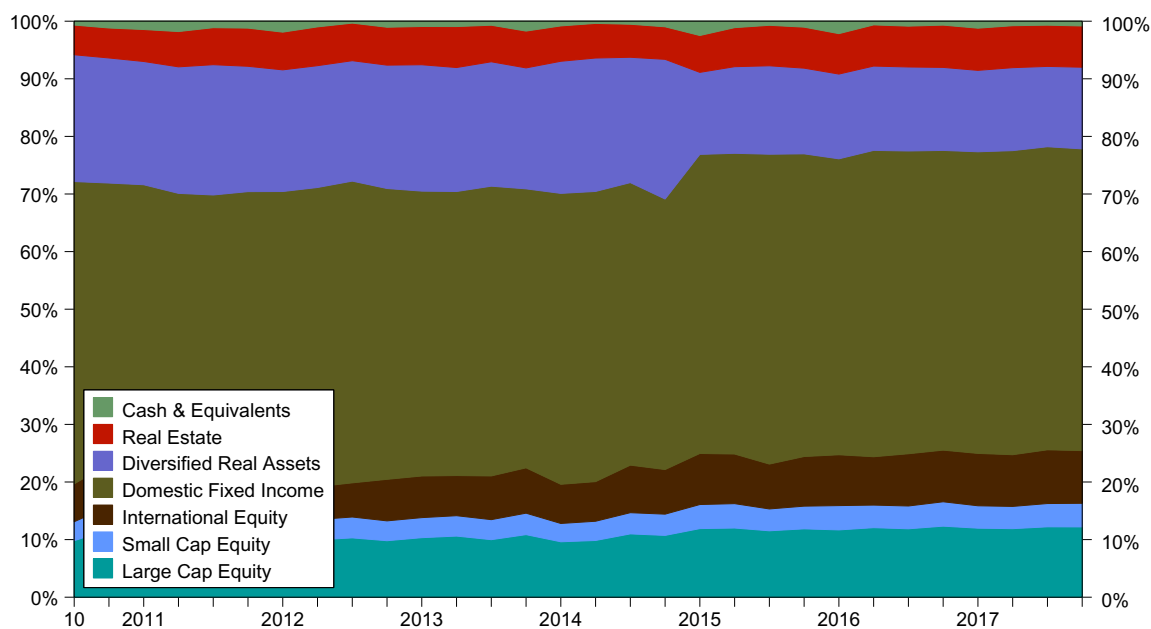
\* Current Quarter Target = 53.0% Blmbg Aggregate, 15.0% NDSIB WSI DRA Weighted Benchmark, 12.0% Russell 1000 Index, 9.0% MSCI World ex US, 6.0% NCREIF Total Index, 4.0% Russell 2000 Index and 1.0% 3-month Treasury Bill.



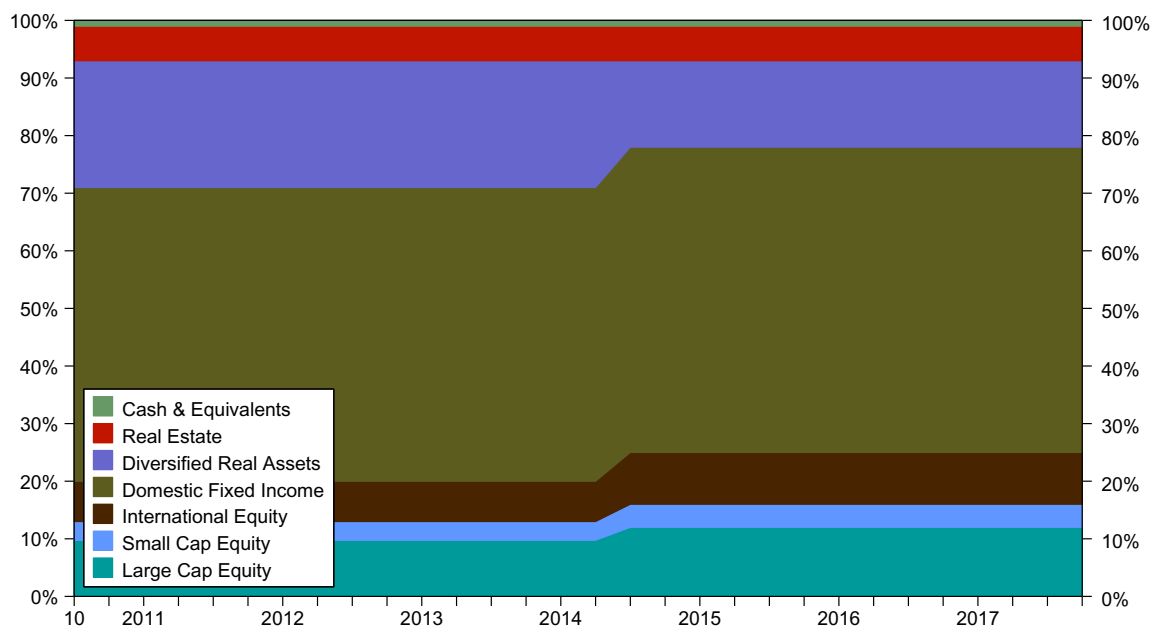
## Actual vs Target Historical Asset Allocation

The Historical asset allocation for a fund is by far the largest factor explaining its performance. The charts below show the fund's historical actual asset allocation, and the fund's historical target asset allocation.

### Actual Historical Asset Allocation



### Target Historical Asset Allocation

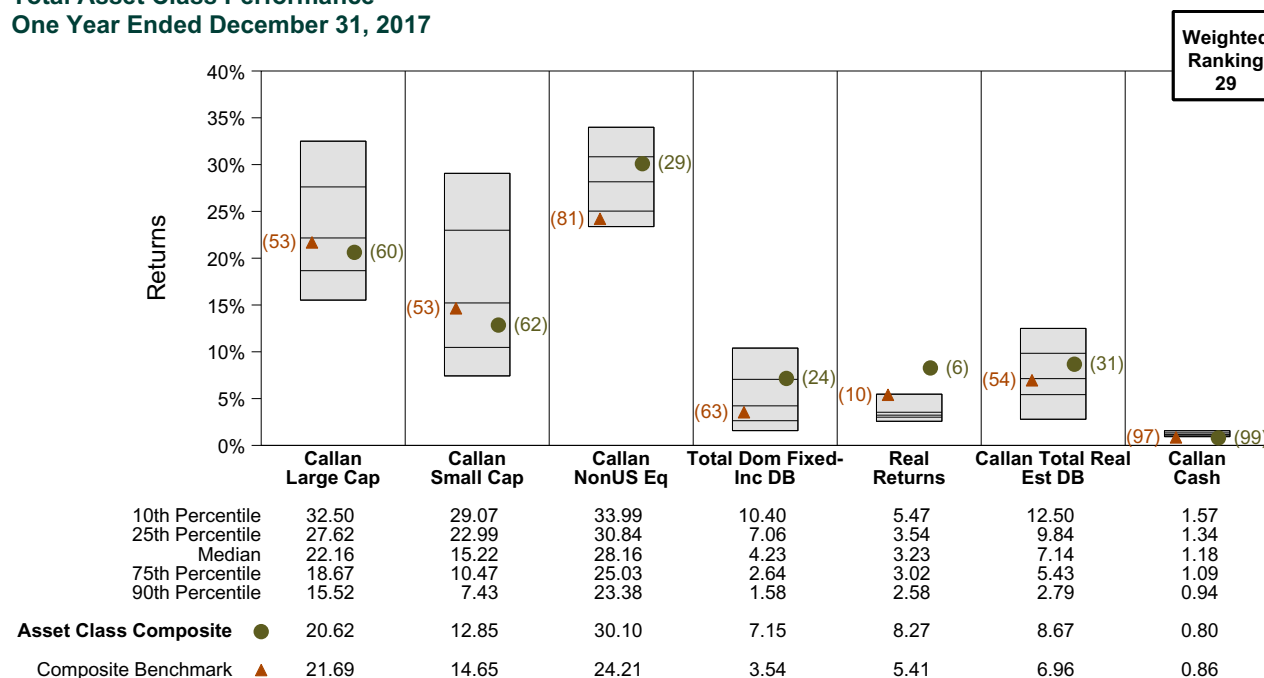


\* Current Quarter Target = 53.0% Blmgb Aggregate, 15.0% NDSIB WSI DRA Weighted Benchmark, 12.0% Russell 1000 Index, 9.0% MSCI World ex US, 6.0% NCREIF Total Index, 4.0% Russell 2000 Index and 1.0% 3-month Treasury Bill.

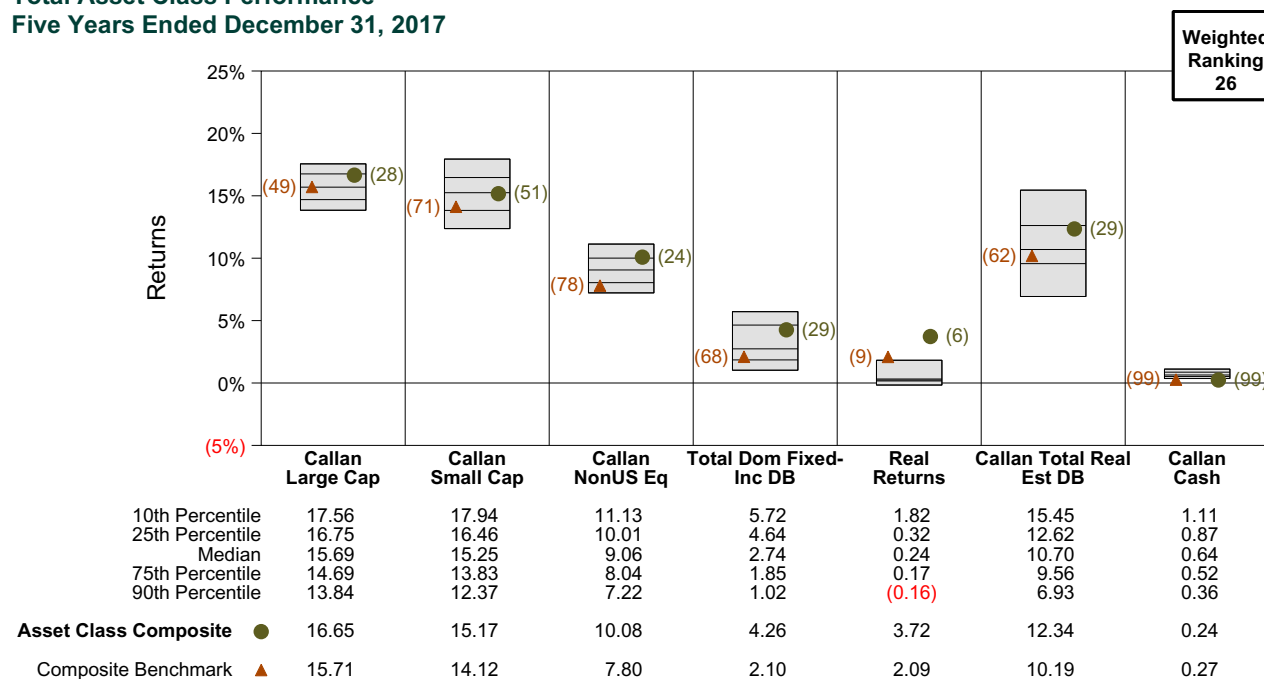
## Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases. In the upper right corner of each graph is the weighted average of the rankings across the different asset classes. The weights of the fund's actual asset allocation are used to make this calculation. The weighted average ranking can be viewed as a measure of the fund's overall success in picking managers and structuring asset classes.

### Total Asset Class Performance One Year Ended December 31, 2017



### Total Asset Class Performance Five Years Ended December 31, 2017



\* Current Quarter Target = 53.0% Blmbg Aggregate, 15.0% NDSIB WSI DRA Weighted Benchmark, 12.0% Russell 1000 Index, 9.0% MSCI World ex US, 6.0% NCREIF Total Index, 4.0% Russell 2000 Index and 1.0% 3-month Treasury Bill.

## Asset Class Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2017, with the distribution as of September 30, 2017. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

### Asset Class Allocation

	December 31, 2017		Net New Inv.	Inv. Return	September 30, 2017	
	Market Value	Weight			Market Value	Weight
Large Cap Equity	\$237,527,053	12.23%	\$(14,037,803)	\$16,067,421	\$235,497,435	12.24%
Small Cap Equity	\$79,730,862	4.11%	\$(1,264,028)	\$3,018,992	\$77,975,898	4.05%
International Equity	\$178,036,020	9.17%	\$(9,467,493)	\$7,749,988	\$179,753,525	9.34%
Domestic Fixed Income	\$1,019,674,265	52.51%	\$(4,872,103)	\$10,170,896	\$1,014,375,471	52.73%
Diversified Real Assets	\$271,419,701	13.98%	\$(1,479,836)	\$8,202,087	\$264,697,450	13.76%
Real Estate	\$139,379,143	7.18%	\$(1,563,932)	\$3,014,680	\$137,928,394	7.17%
Cash & Equivalents	\$16,155,187	0.83%	\$2,812,169	\$30,966	\$13,312,052	0.69%
Securities Lending Income	\$0	0.00%	\$(35,272)	\$35,272	-	-
Total Fund	\$1,941,922,231	100.0%	\$(29,908,298)	\$48,290,304	\$1,923,540,225	100.0%

PLEASE REFER TO PAGE 30 FOR INVESTMENT MANAGER LEVEL ASSET ALLOCATION.



## Asset Class Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7-1/2 Years
<b>Large Cap Equity</b>					
Gross	6.97%	20.62%	11.73%	16.65%	16.63%
Net	6.93%	20.41%	11.51%	16.44%	16.37%
Benchmark(1)	6.59%	21.69%	11.23%	15.71%	15.98%
<b>Small Cap Equity</b>					
Gross	3.90%	12.85%	10.60%	15.17%	15.84%
Net	3.87%	12.60%	10.20%	14.77%	15.26%
Russell 2000	3.34%	14.65%	9.96%	14.12%	14.67%
<b>International Equity</b>					
Gross	4.50%	30.10%	10.50%	10.08%	9.87%
Net	4.42%	29.70%	10.15%	9.73%	9.49%
Benchmark(2)	4.23%	24.21%	7.64%	7.80%	7.88%
<b>Domestic Fixed Income</b>					
Gross	1.01%	7.15%	4.52%	4.26%	6.06%
Net	0.98%	7.01%	4.39%	4.12%	5.89%
Blmbg Aggregate	0.39%	3.54%	2.24%	2.10%	3.14%
<b>Diversified Real Assets</b>					
Gross	3.10%	8.27%	3.51%	3.72%	4.68%
Net	3.04%	8.00%	3.21%	3.42%	4.34%
Weighted Benchmark	1.53%	5.41%	2.48%	2.09%	4.69%
<b>Real Estate</b>					
Gross	2.20%	8.67%	11.01%	12.34%	15.68%
Net	2.08%	8.10%	10.29%	11.57%	14.71%
NCREIF Total Index	1.80%	6.96%	9.38%	10.19%	11.28%
<b>Cash &amp; Equivalents - Net</b>	<b>0.25%</b>	<b>0.80%</b>	<b>0.35%</b>	<b>0.24%</b>	<b>0.26%</b>
90 Day Treasury Bills	0.28%	0.86%	0.41%	0.27%	0.22%
<b>Total Fund</b>					
Gross	2.53%	11.13%	6.47%	6.93%	8.19%
Net	2.48%	10.91%	6.24%	6.68%	7.90%
Target*	1.84%	8.27%	4.65%	4.93%	6.14%

\* Current Quarter Target = 53.0% Blmbg Aggregate, 15.0% NDSIB WSI DRA Weighted Benchmark, 12.0% Russell 1000 Index, 9.0% MSCI World ex US, 6.0% NCREIF Total Index, 4.0% Russell 2000 Index and 1.0% 3-month Treasury Bill.

(1) S&P 500 Index through 12/31/2011 and Russell 1000 Index thereafter.

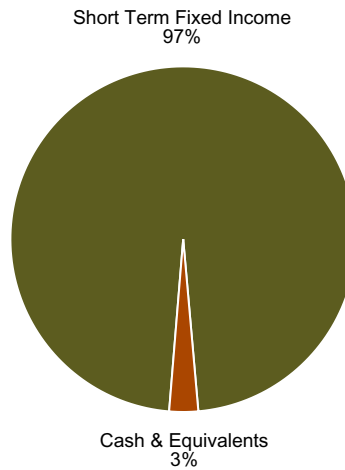
(2) MSCI EAFE through 9/30/2000; 50% Hedged EAFE through 3/31/2011; MSCI EAFE again through 6/30/2016; MSCI World ex-US thereafter.

PLEASE REFER TO PAGE 31-33 FOR INVESTMENT MANAGER LEVEL RETURNS.

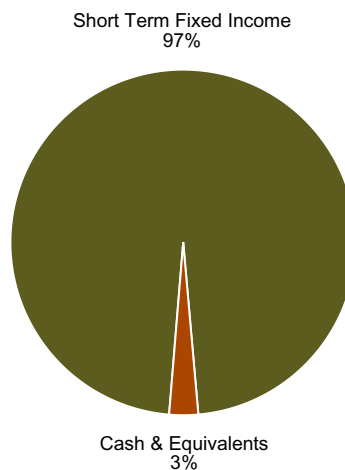
## Actual vs Target Asset Allocation As of December 31, 2017

The first chart below shows the Fund's asset allocation as of December 31, 2017. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.

### Actual Asset Allocation



### Target Asset Allocation



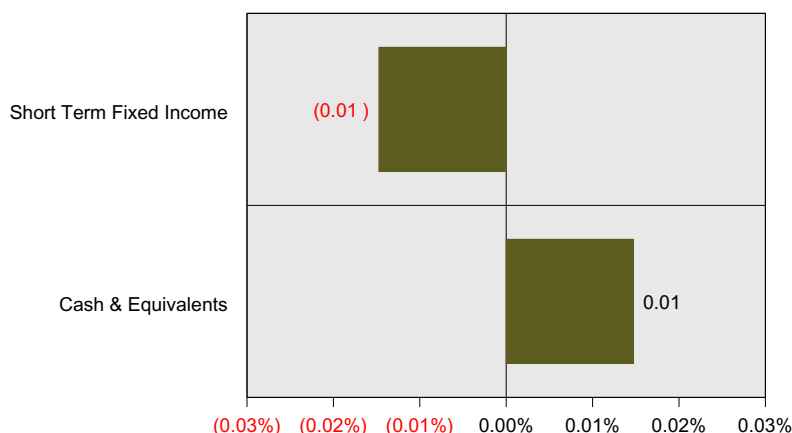
Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Short Term Fixed Income	37,356	97.3%	97.3%	0.0%	1
Cash & Equivalents	1,043	2.7%	2.7%	(0.0%)	(1)
Total	38,399	100.0%	100.0%		

\* Current Quarter Target = 97.3% Blmbg Gov/Cred 1-3 Yr and 2.7% 3-month Treasury Bill.

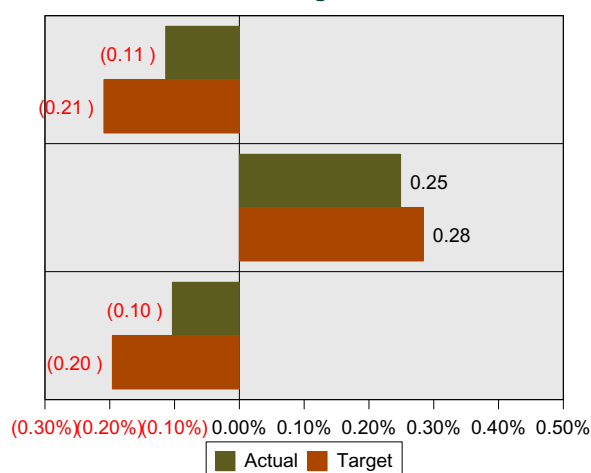
## Quarterly Total Fund Relative Attribution - December 31, 2017

The following analysis approaches Total Fund Attribution from the perspective of relative return. Relative return attribution separates and quantifies the sources of total fund excess return relative to its target. This excess return is separated into two relative attribution effects: Asset Allocation Effect and Manager Selection Effect. The Asset Allocation Effect represents the excess return due to the actual total fund asset allocation differing from the target asset allocation. Manager Selection Effect represents the total fund impact of the individual managers excess returns relative to their benchmarks.

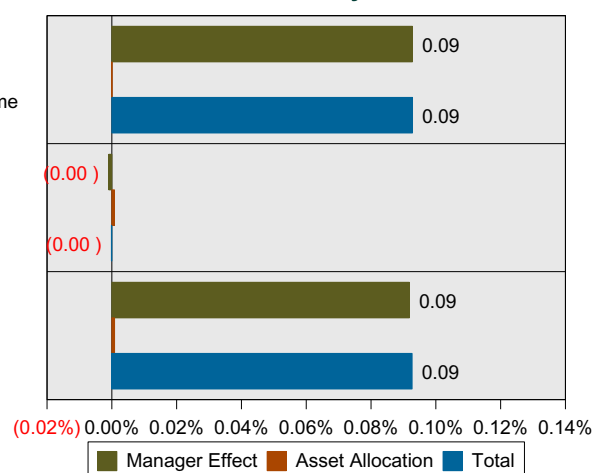
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended December 31, 2017

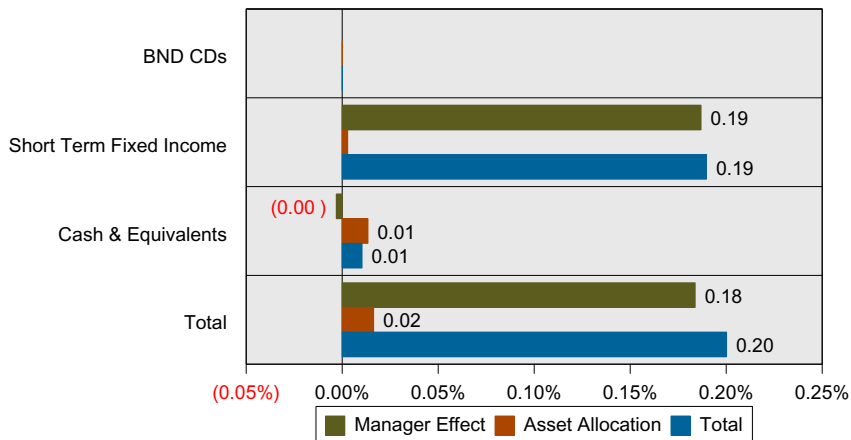
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Short Term Fixed Income	97%	97%	(0.11%)	(0.21%)	0.09%	0.00%	0.09%
Cash & Equivalents	3%	3%	0.25%	0.28%	(0.00%)	0.00%	(0.00%)
<b>Total</b>			<b>(0.10%)</b>		<b>= (0.20%)</b>	<b>+ 0.09%</b>	<b>+ 0.00%</b>
							<b>0.09%</b>

\* Current Quarter Target = 97.3% Blmbg Gov/Cred 1-3 Yr and 2.7% 3-month Treasury Bill.

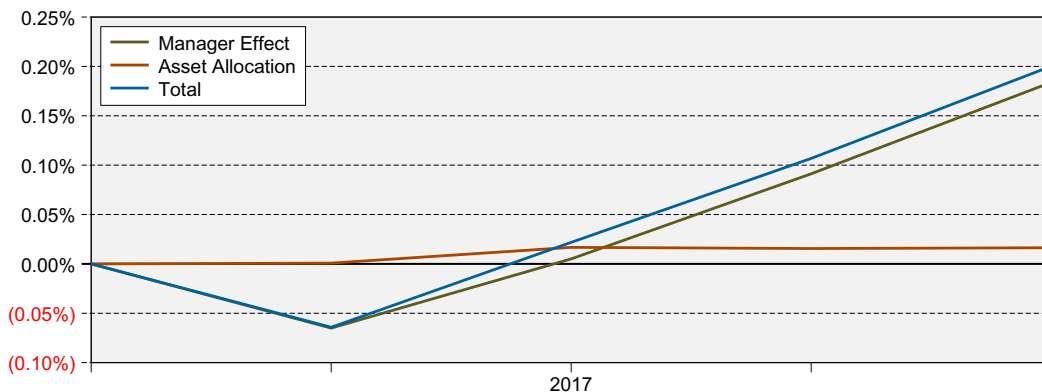
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### One Year Relative Attribution Effects



### Cumulative Relative Attribution Effects



### One Year Relative Attribution Effects

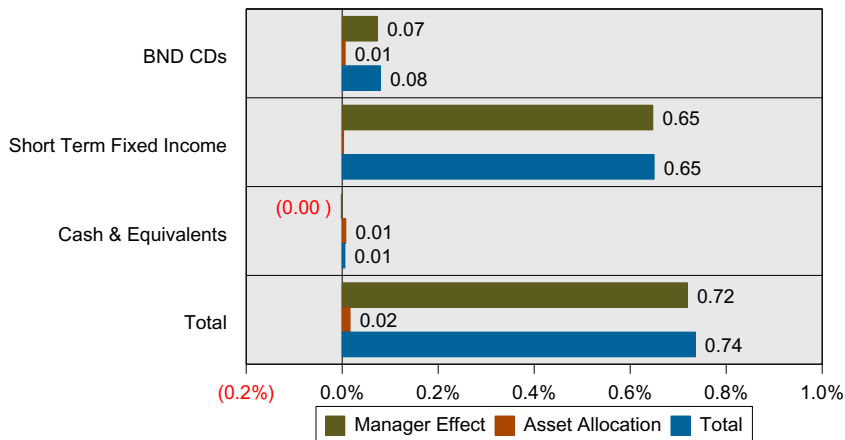
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
BND CDs	3%	3%	-	-	0.00%	0.00%	0.00%
Short Term Fixed Income	92%	92%	0.90%	0.72%	0.19%	0.00%	0.19%
Cash & Equivalents	5%	6%	0.79%	0.86%	(0.00)%	0.01%	0.01%
<b>Total</b>			<b>0.90%</b>	<b>0.70%</b>	<b>+ 0.18%</b>	<b>+ 0.02%</b>	<b>0.20%</b>

\* Current Quarter Target = 97.3% Blmbg Gov/Cred 1-3 Yr and 2.7% 3-month Treasury Bill.

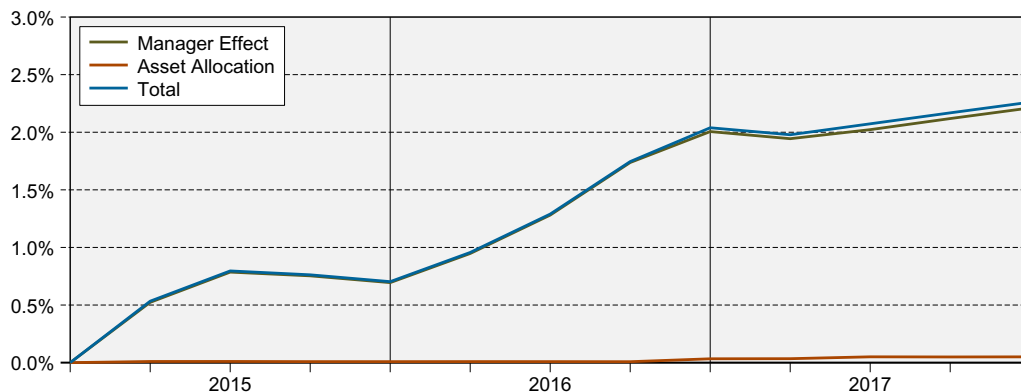
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Three Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Three Year Annualized Relative Attribution Effects

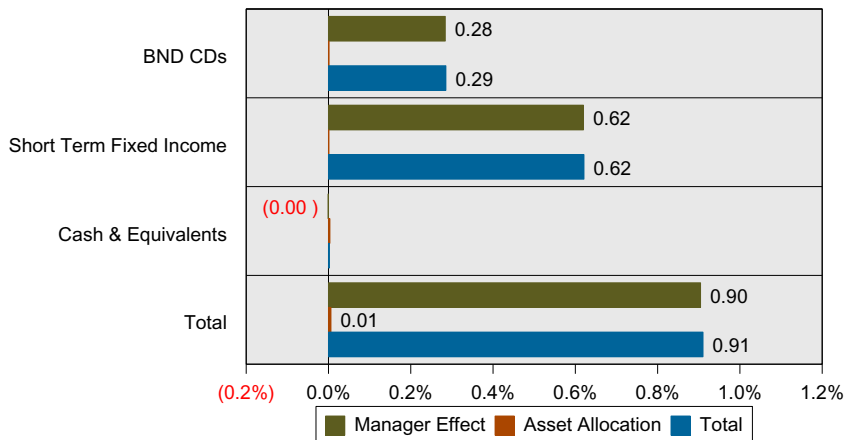
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
BND CDs	12%	12%	-	-	0.07%	0.01%	0.08%
Short Term Fixed Income	85%	85%	1.50%	0.72%	0.65%	0.00%	0.65%
Cash & Equivalents	3%	3%	0.35%	0.41%	(0.00%)	0.01%	0.01%
<b>Total</b>			<b>1.59%</b>	<b>0.85%</b>	<b>0.72%</b>	<b>0.02%</b>	<b>0.74%</b>

\* Current Quarter Target = 97.3% Blmbg Gov/Cred 1-3 Yr and 2.7% 3-month Treasury Bill.

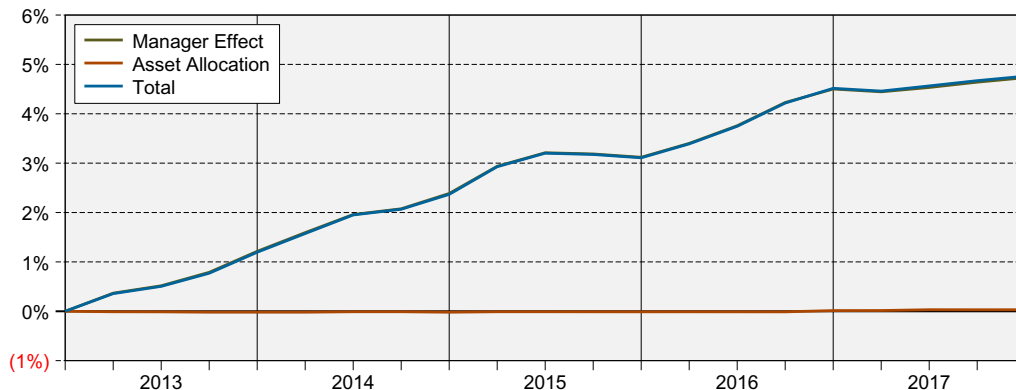
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Five Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Five Year Annualized Relative Attribution Effects

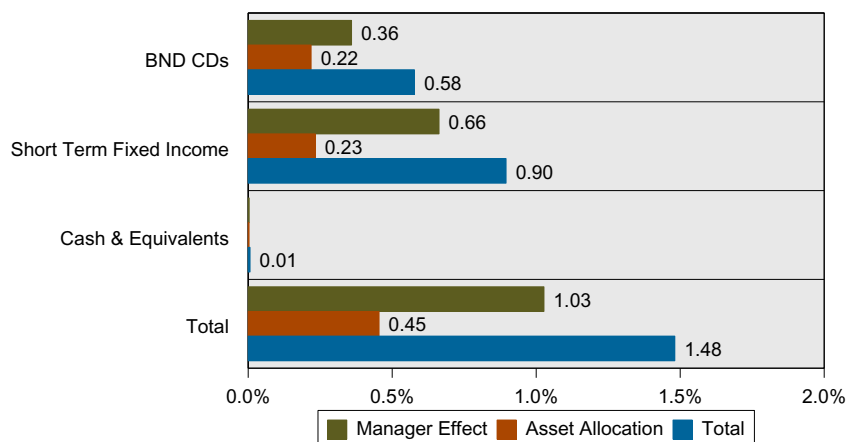
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
BND CDs	15%	15%	-	-	0.28%	0.00%	0.29%
Short Term Fixed Income	82%	82%	1.39%	0.63%	0.62%	0.00%	0.62%
Cash & Equivalents	3%	3%	0.24%	0.27%	(0.00%)	0.00%	0.00%
<b>Total</b>			<b>1.59%</b>	<b>0.68%</b>	<b>0.90%</b>	<b>0.01%</b>	<b>0.91%</b>

\* Current Quarter Target = 97.3% Blmbg Gov/Cred 1-3 Yr and 2.7% 3-month Treasury Bill.

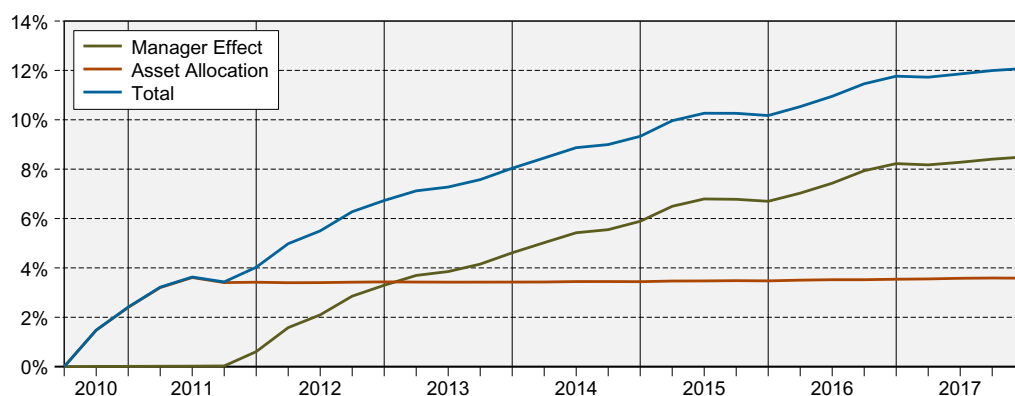
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Seven and One-Half Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects

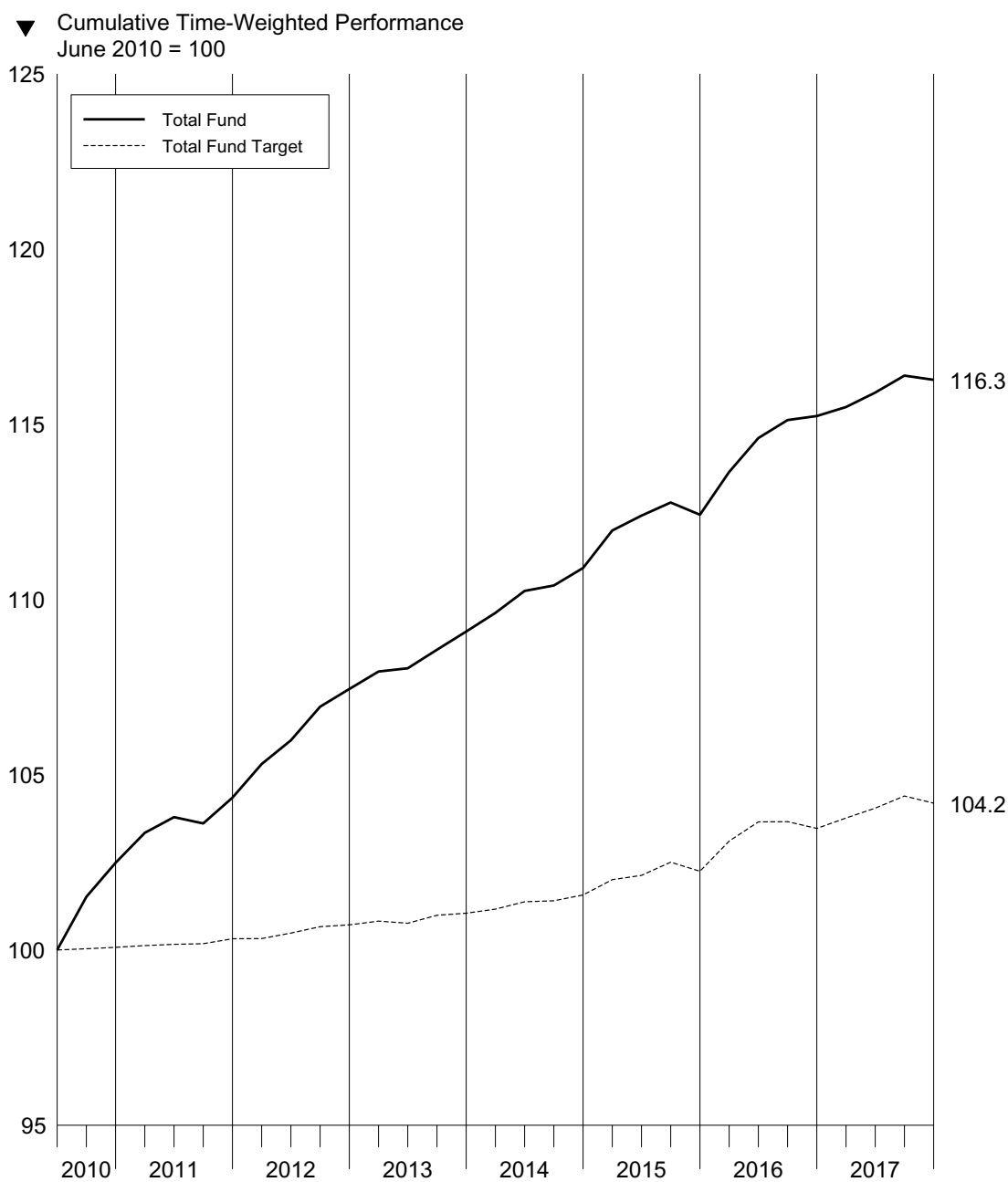


### Seven and One-Half Year Annualized Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
BND CDs	20%	14%	-	-	0.36%	0.22%	0.58%
Short Term Fixed Income	76%	67%	1.78%	0.93%	0.66%	0.23%	0.90%
Cash & Equivalents	4%	19%	0.25%	0.22%	0.00%	0.00%	0.01%
<b>Total</b>			<b>2.03%</b>	<b>0.55%</b>	<b>1.03%</b>	<b>0.45%</b>	<b>1.48%</b>

\* Current Quarter Target = 97.3% Blmbg Gov/Cred 1-3 Yr and 2.7% 3-month Treasury Bill.

NDSIB - Budget Stabilization Fund  
Cumulative Results

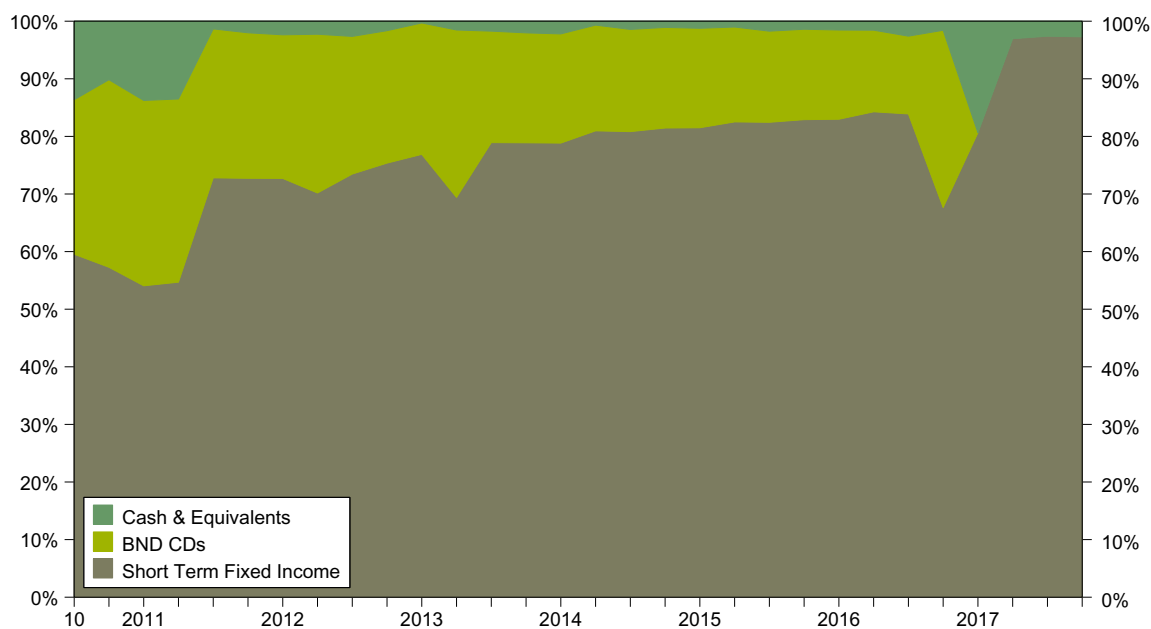




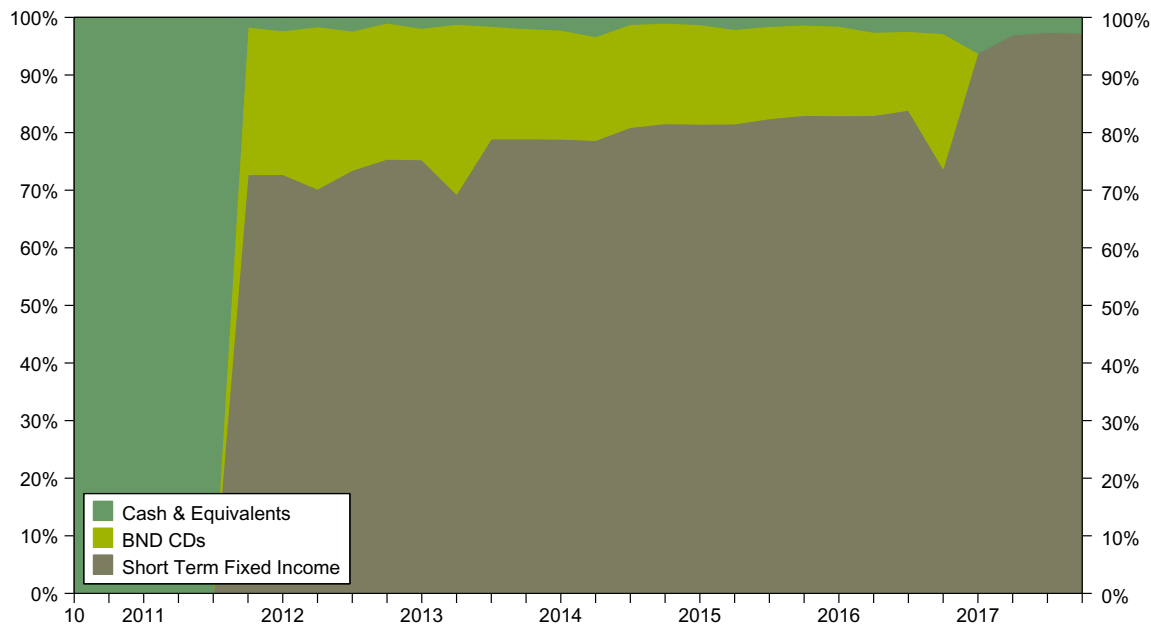
## Actual vs Target Historical Asset Allocation

The Historical asset allocation for a fund is by far the largest factor explaining its performance. The charts below show the fund's historical actual asset allocation, and the fund's historical target asset allocation.

### Actual Historical Asset Allocation



### Target Historical Asset Allocation



\* Current Quarter Target = 97.3% Blmbg Gov/Cred 1-3 Yr and 2.7% 3-month Treasury Bill.

## Asset Class Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2017, with the distribution as of September 30, 2017. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

	Asset Class Allocation					
	December 31, 2017		Net New Inv.	Inv. Return	September 30, 2017	
	Market Value	Weight			Market Value	Weight
Short Term Fixed Income	\$37,355,895	97.28%	\$(50,518)	\$(42,569)	\$37,448,982	97.39%
Cash & Equivalents	\$1,043,228	2.72%	\$38,755	\$2,544	\$1,001,930	2.61%
Securities Lending Income	\$0	0.00%	\$(313)	\$313	-	-
Total Fund	\$38,399,123	100.0%	\$(12,076)	\$(39,712)	\$38,450,912	100.0%

PLEASE REFER TO PAGE 30 FOR INVESTMENT MANAGER LEVEL ASSET ALLOCATION.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7-1/2 Years
<b>Short Term Fixed Income</b>					
Gross	(0.11%)	0.90%	1.50%	1.39%	1.78%
Net	(0.15%)	0.55%	1.27%	1.21%	1.62%
Blended Benchmark(1)	(0.21%)	0.72%	0.72%	0.63%	-
<b>Cash &amp; Equivalents - Net</b>	<b>0.25%</b>	<b>0.79%</b>	<b>0.35%</b>	<b>0.24%</b>	<b>0.25%</b>
3-month Treasury Bill	0.28%	0.86%	0.41%	0.27%	0.22%
<b>Total Fund</b>					
Gross	(0.10%)	0.90%	1.59%	1.59%	2.03%
Net	(0.13%)	0.58%	1.39%	1.44%	1.90%
Target*	(0.20%)	0.70%	0.85%	0.68%	0.55%

\* Current Quarter Target = 97.3% Blmbg Gov/Cred 1-3 Yr and 2.7% 3-month Treasury Bill.

(1) Blmbg Gov 1-3 Yr through March 31, 2017 and Blmbg Gov/Credit 1-3 Yr thereafter.

PLEASE REFER TO PAGES 31-33 FOR INVESTMENT MANAGER LEVEL RETURNS.

## Large Cap Equity Period Ended December 31, 2017

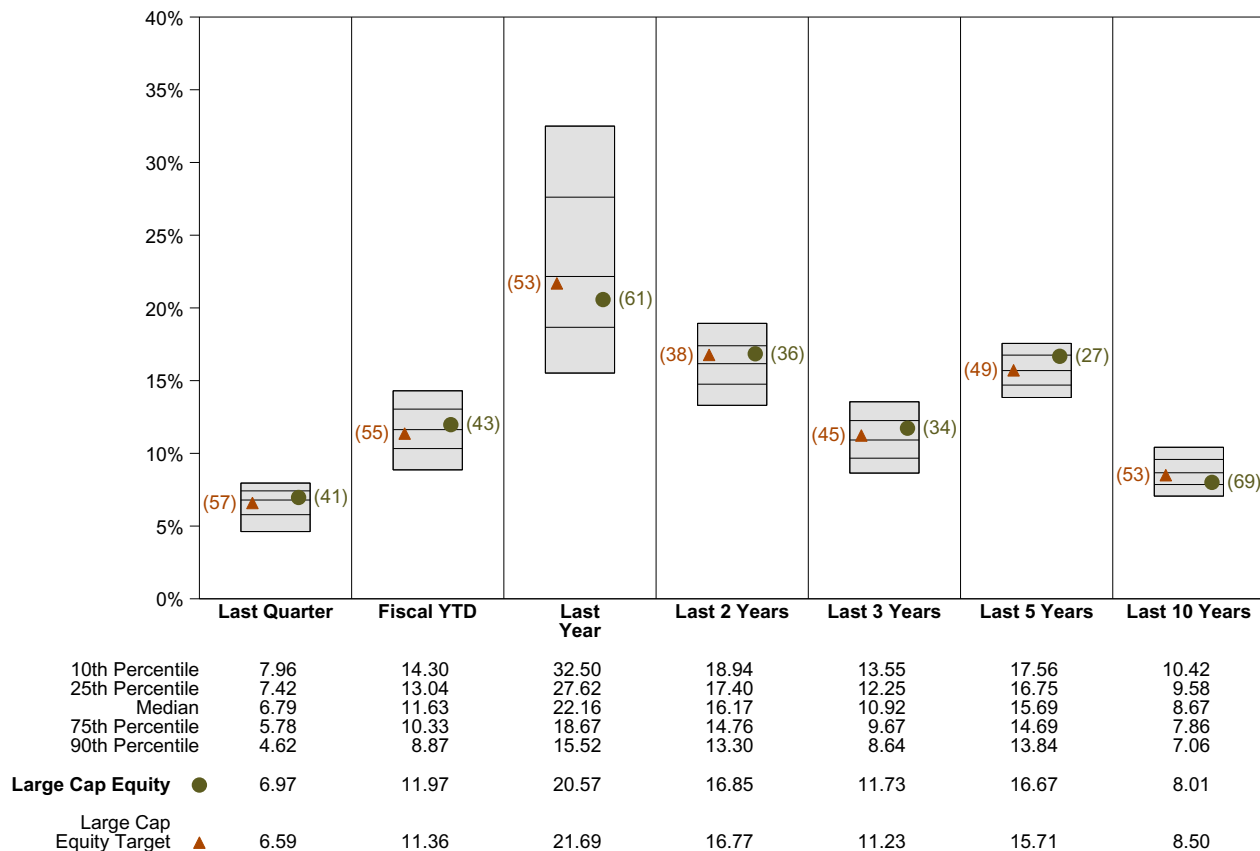
### Quarterly Summary and Highlights

- Large Cap Equity's portfolio posted a 6.97% return for the quarter placing it in the 41 percentile of the Callan Large Capitalization group for the quarter and in the 61 percentile for the last year.
- Large Cap Equity's portfolio outperformed the Large Cap Equity Target by 0.38% for the quarter and underperformed the Large Cap Equity Target for the year by 1.11%.

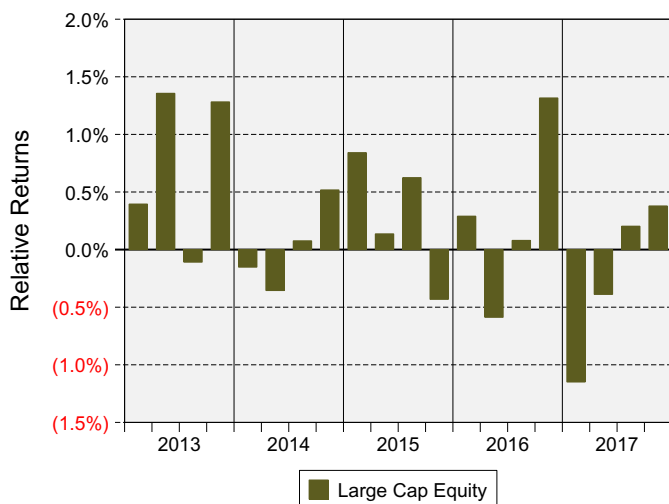
### Quarterly Asset Growth

Beginning Market Value	\$253,742,338
Net New Investment	\$-14,313,403
Investment Gains/(Losses)	\$17,323,533
Ending Market Value	\$256,752,468

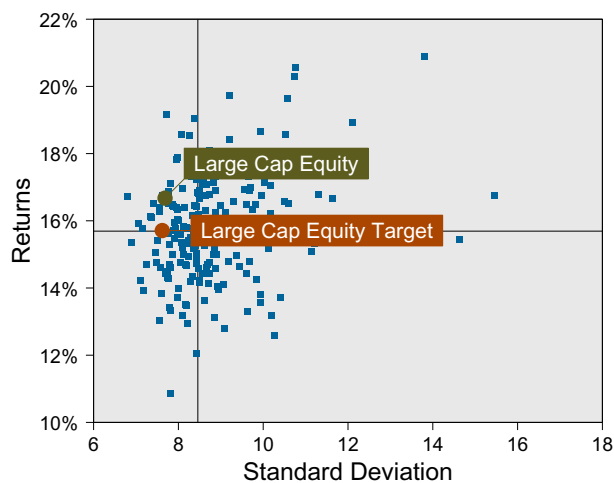
### Performance vs Callan Large Capitalization (Gross)



### Relative Return vs Large Cap Equity Target



### Callan Large Capitalization (Gross) Annualized Five Year Risk vs Return



## Parametric Clifton Large Cap Period Ended December 31, 2017

### Investment Philosophy

Parametric Clifton utilizes equity futures to gain benchmark exposure in constructing the portfolio it believes provides the greatest likelihood of outperforming the index. In this construction the underlying cash portfolio is invested in a liquid, high quality short duration fixed income portfolio. Over market cycles excess return generated by the short duration portfolio, when added to the performance of futures is expected to allow the strategy to achieve 0.50% to 1.00% of gross excess annual performance.

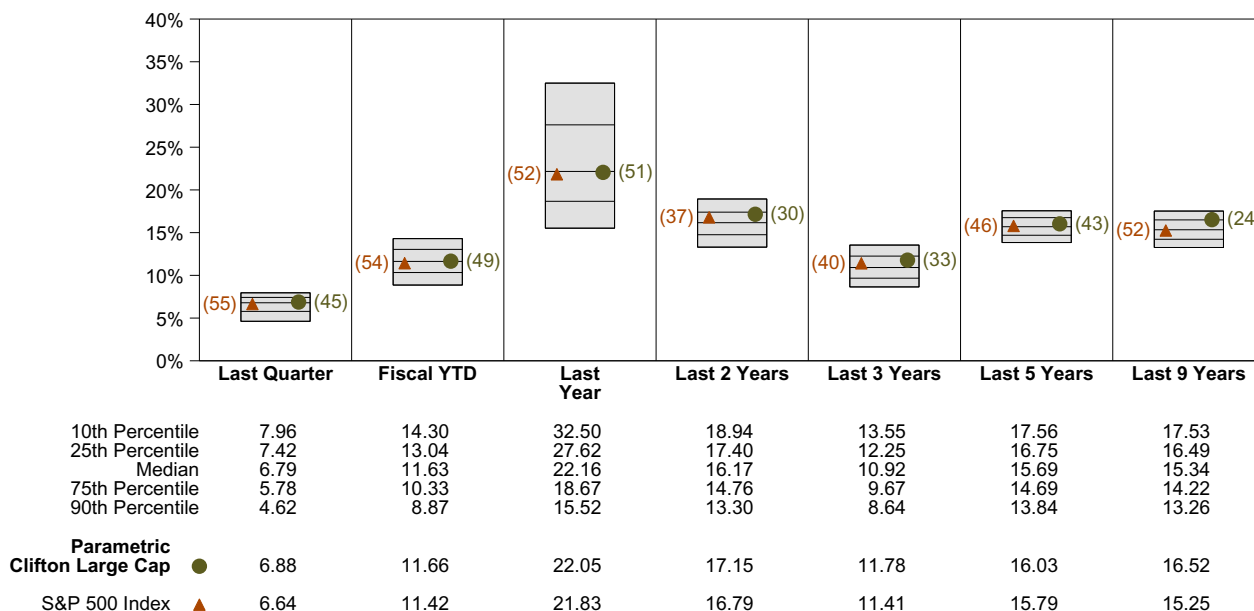
### Quarterly Summary and Highlights

- Parametric Clifton Large Cap's portfolio posted a 6.88% return for the quarter placing it in the 45 percentile of the Callan Large Capitalization group for the quarter and in the 51 percentile for the last year.
- Parametric Clifton Large Cap's portfolio outperformed the S&P 500 Index by 0.23% for the quarter and outperformed the S&P 500 Index for the year by 0.22%.

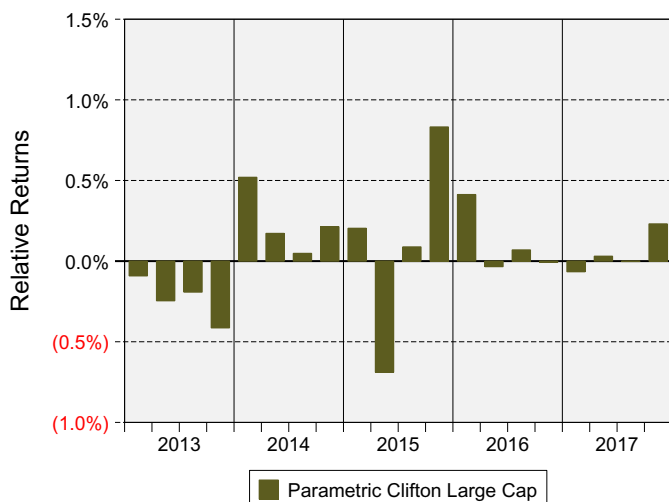
### Quarterly Asset Growth

Beginning Market Value	\$51,117,149
Net New Investment	\$-4,200,000
Investment Gains/(Losses)	\$3,414,185
Ending Market Value	\$50,331,335

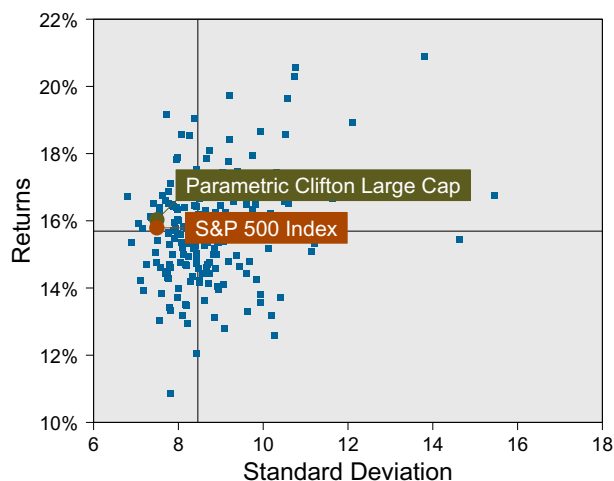
### Performance vs Callan Large Capitalization (Gross)



### Relative Return vs S&P 500 Index



### Callan Large Capitalization (Gross) Annualized Five Year Risk vs Return



## L.A. Capital Period Ended December 31, 2017

### Investment Philosophy

The LA Capital Structured portfolio is a large growth portfolio benchmarked to the Russell 1000 Growth Index. It is an active assignment meaning that it targets a 2% alpha and constrains its risk budget (tracking error) to 4% relative to the benchmark. LA Capital believes that investment results are driven by Investor Preferences and thus recognize that when preferences shift a different posture related to that factor is warranted.

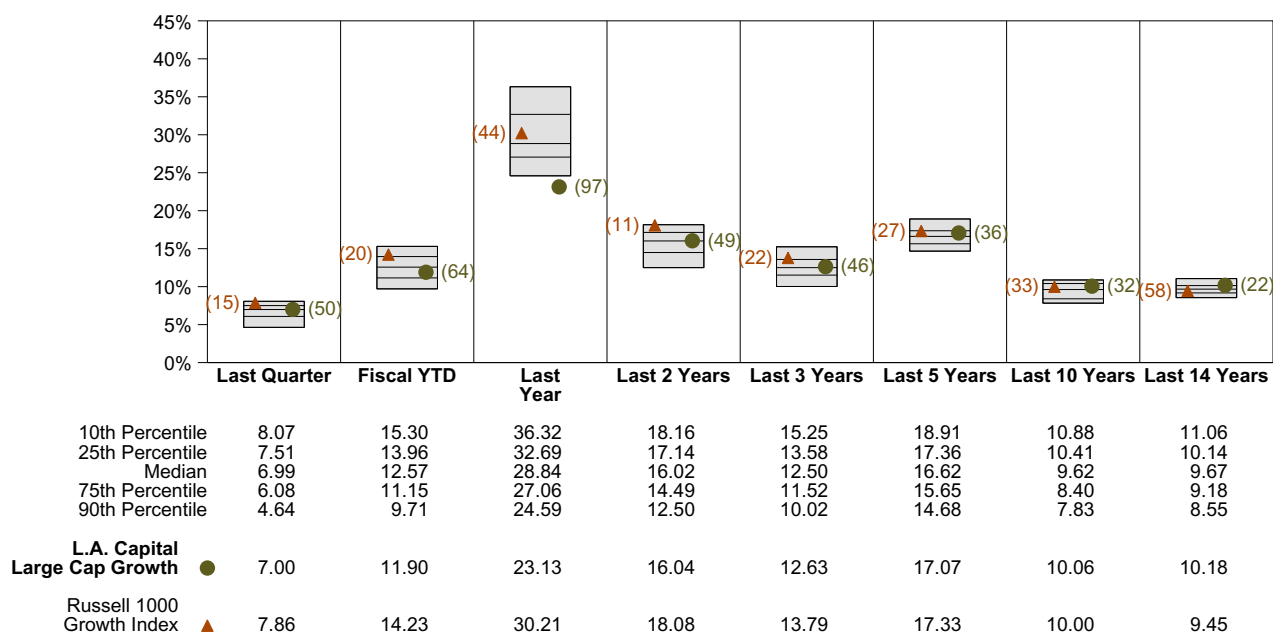
### Quarterly Summary and Highlights

- L.A. Capital Large Cap Growth's portfolio posted a 7.00% return for the quarter placing it in the 50 percentile of the Callan Large Cap Growth group for the quarter and in the 97 percentile for the last year.
- L.A. Capital Large Cap Growth's portfolio underperformed the Russell 1000 Growth Index by 0.87% for the quarter and underperformed the Russell 1000 Growth Index for the year by 7.08%.

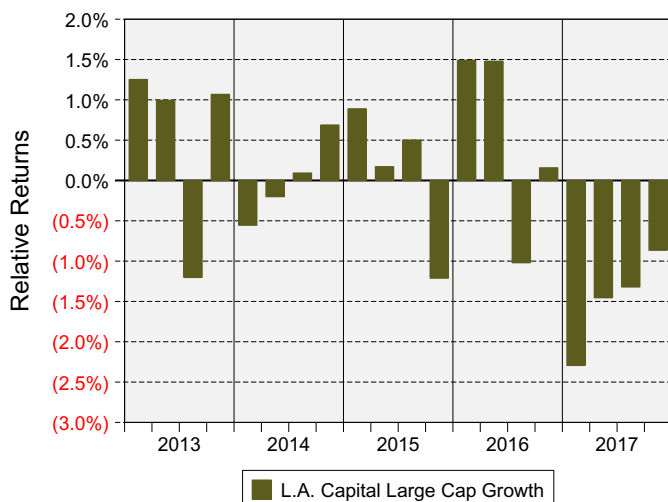
### Quarterly Asset Growth

Beginning Market Value	\$74,343,290
Net New Investment	\$-3,038,795
Investment Gains/(Losses)	\$5,165,597
Ending Market Value	\$76,470,092

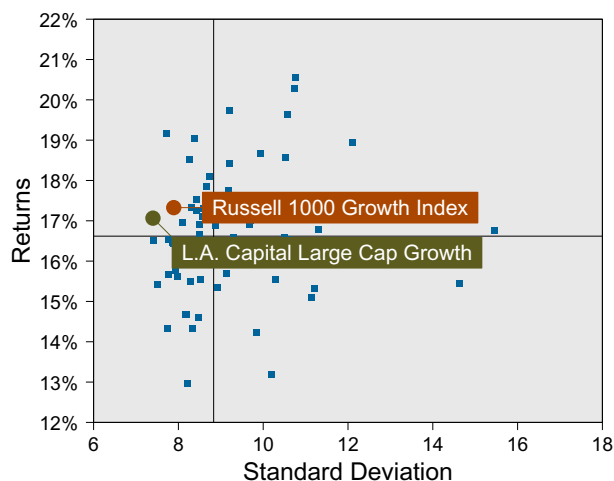
### Performance vs Callan Large Cap Growth (Gross)



### Relative Return vs Russell 1000 Growth Index



### Callan Large Cap Growth (Gross) Annualized Five Year Risk vs Return



## L.A. Capital Enhanced Period Ended December 31, 2017

### Investment Philosophy

The LA Capital Enhanced portfolio is a large core portfolio benchmarked to the Russell 1000 Index. Characterized as an enhanced index assignment, its objective is to track the benchmark with lower variability. The pension portfolio began in August of 2000 and the insurance portfolio was initiated in April of 2004. Since October of 2006 a small portion of each of the two core accounts was allocated into the Large Cap Alpha Fund with intent to add incremental alpha to the assignment given that the information ratio was expected to be higher.

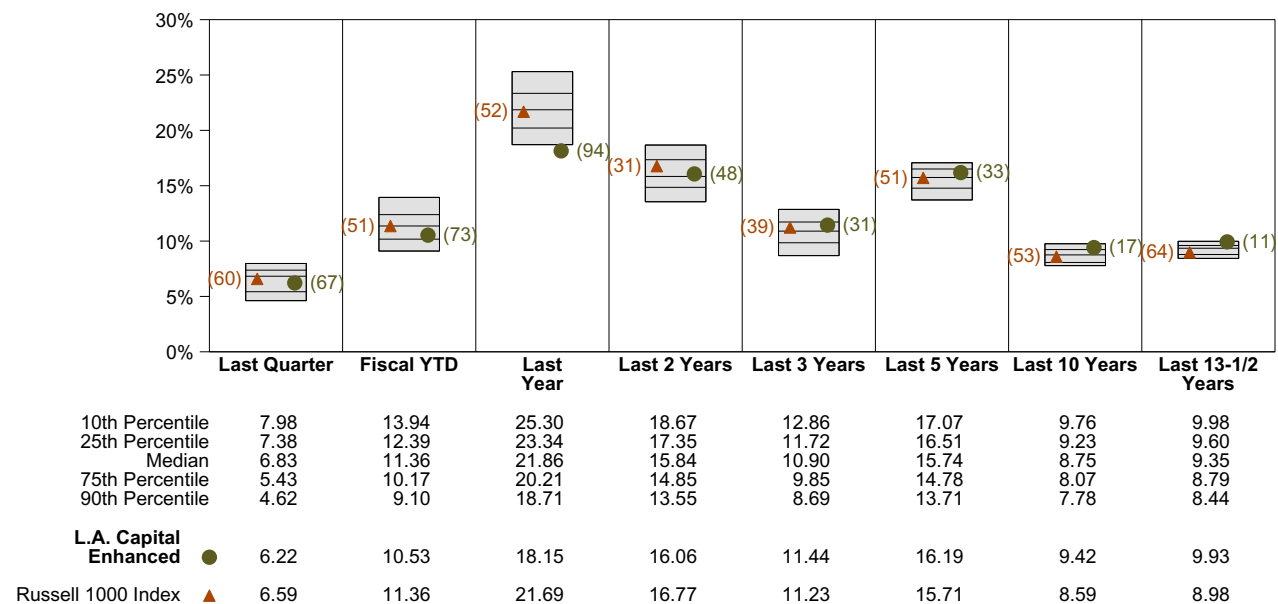
### Quarterly Summary and Highlights

- L.A. Capital Enhanced's portfolio posted a 6.22% return for the quarter placing it in the 67 percentile of the Callan Large Cap Core group for the quarter and in the 94 percentile for the last year.
- L.A. Capital Enhanced's portfolio underperformed the Russell 1000 Index by 0.37% for the quarter and underperformed the Russell 1000 Index for the year by 3.54%.

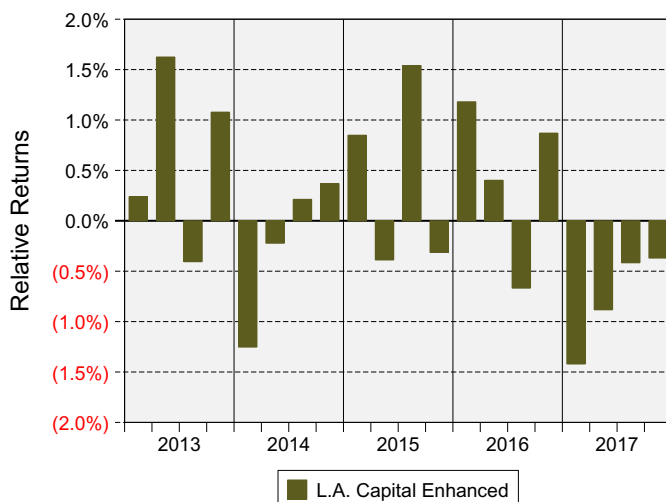
### Quarterly Asset Growth

Beginning Market Value	\$50,210,658
Net New Investment	\$-15,622
Investment Gains/(Losses)	\$3,122,191
Ending Market Value	\$53,317,227

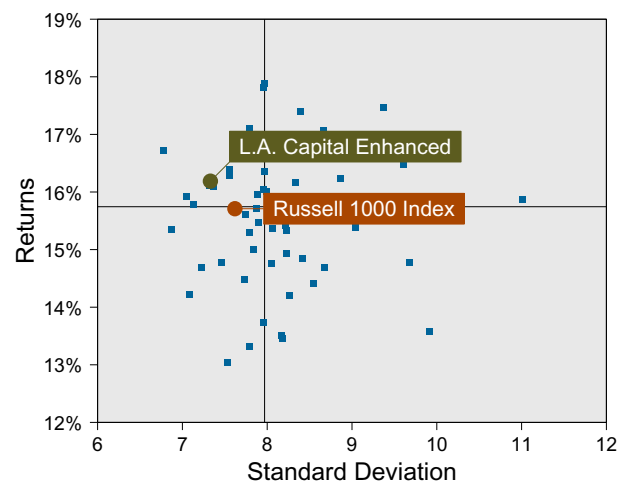
### Performance vs Callan Large Cap Core (Gross)



### Relative Return vs Russell 1000 Index



### Callan Large Cap Core (Gross) Annualized Five Year Risk vs Return



## LSV Asset Management Period Ended December 31, 2017

### Investment Philosophy

The objective of LSV Asset Management's Large Cap Value Equity (U.S.) strategy is to outperform the Russell 1000 Value by at least 200 basis points (gross of fees) per annum over a 3-5 year period with a tracking error of approximately 4%. Their stock selection process is a quantitative approach that ranks a broad universe of stocks on a combination of value and momentum factors and seeks to invest approximately 100 stocks in the most attractive securities possible within strict risk parameters to control the portfolio's tracking error relative to the benchmark. The resulting portfolio is broadly diversified across industry groups and fully invested.

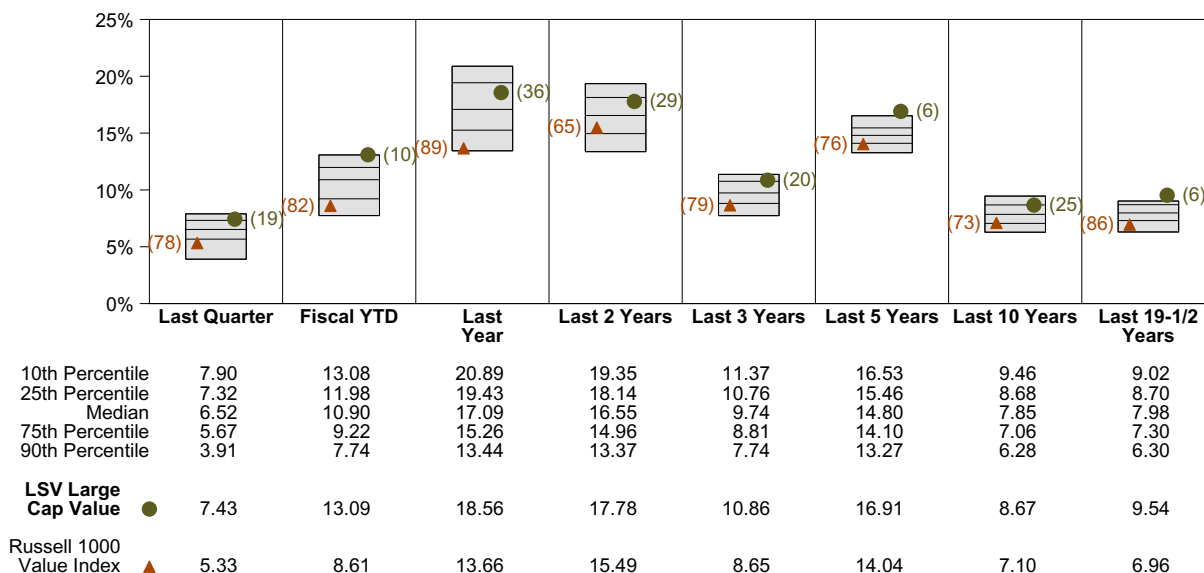
### Quarterly Summary and Highlights

- LSV Large Cap Value's portfolio posted a 7.43% return for the quarter placing it in the 19 percentile of the Callan Large Cap Value group for the quarter and in the 36 percentile for the last year.
- LSV Large Cap Value's portfolio outperformed the Russell 1000 Value Index by 2.10% for the quarter and outperformed the Russell 1000 Value Index for the year by 4.90%.

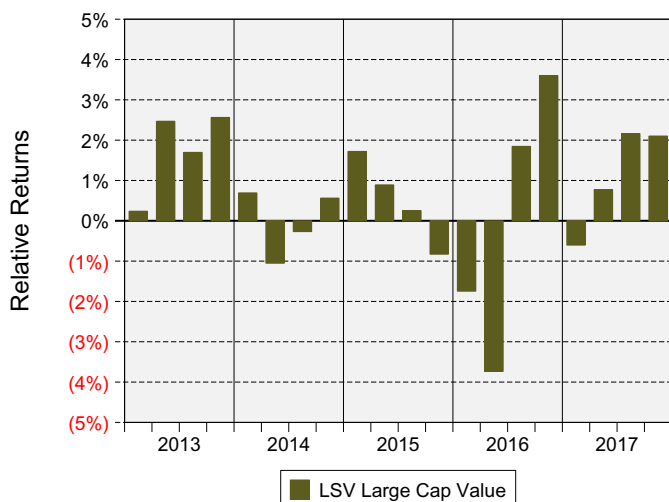
### Quarterly Asset Growth

Beginning Market Value	\$78,071,240
Net New Investment	\$-7,058,986
Investment Gains/(Losses)	\$5,621,560
Ending Market Value	\$76,633,815

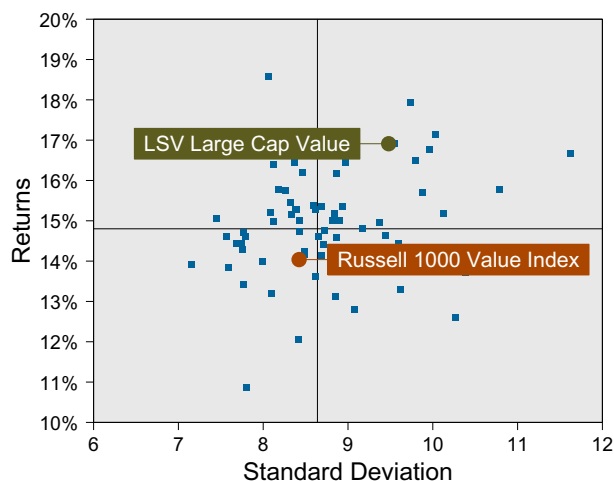
### Performance vs Callan Large Cap Value (Gross)



### Relative Return vs Russell 1000 Value Index



### Callan Large Cap Value (Gross) Annualized Five Year Risk vs Return





## Small Cap Equity Period Ended December 31, 2017

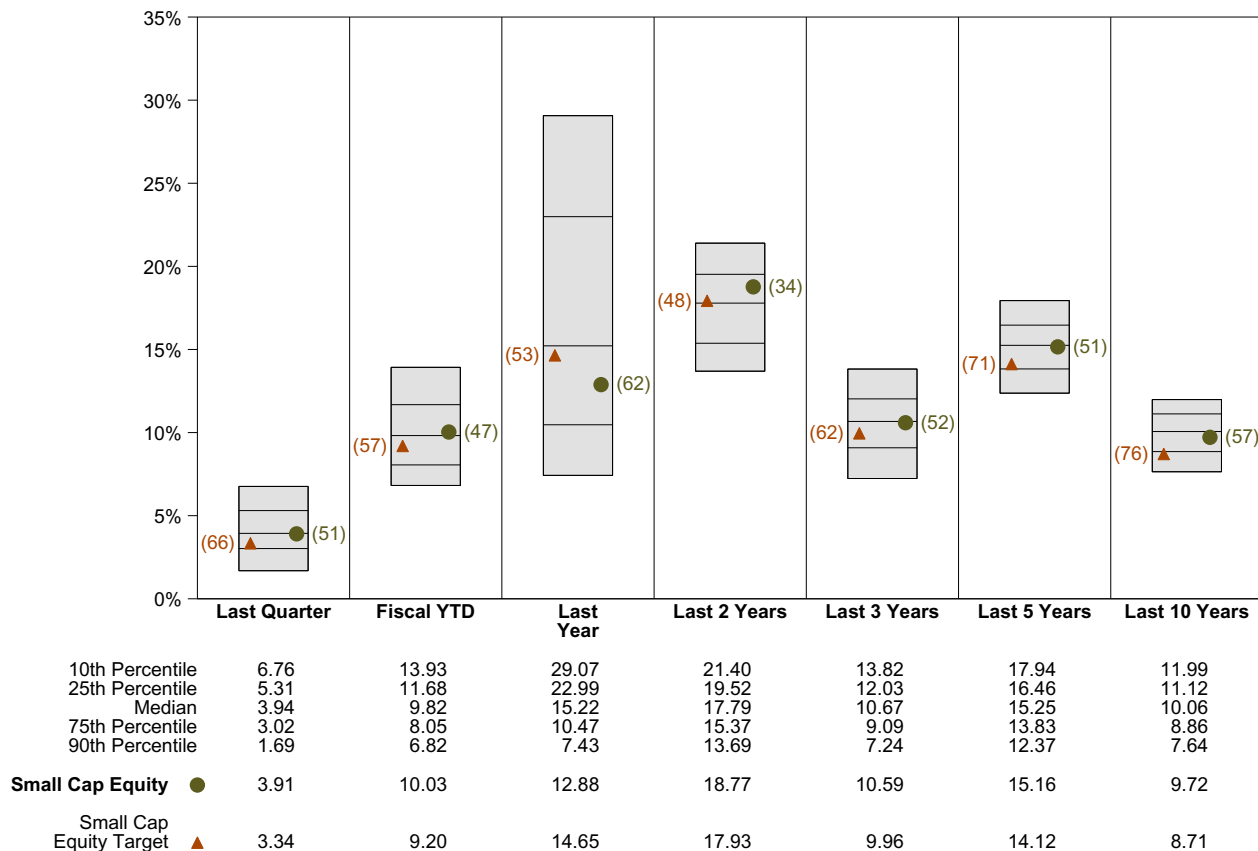
### Quarterly Summary and Highlights

- Small Cap Equity's portfolio posted a 3.91% return for the quarter placing it in the 51 percentile of the Callan Small Capitalization group for the quarter and in the 62 percentile for the last year.
- Small Cap Equity's portfolio outperformed the Small Cap Equity Target by 0.57% for the quarter and underperformed the Small Cap Equity Target for the year by 1.76%.

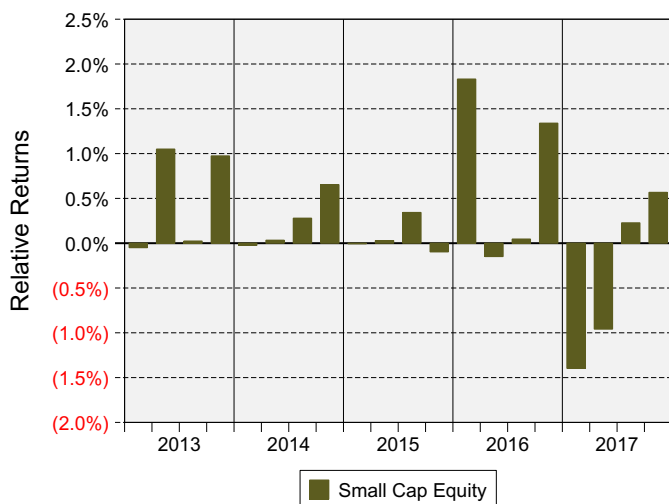
### Quarterly Asset Growth

Beginning Market Value	\$85,916,500
Net New Investment	\$-1,325,813
Investment Gains/(Losses)	\$3,327,315
Ending Market Value	\$87,918,001

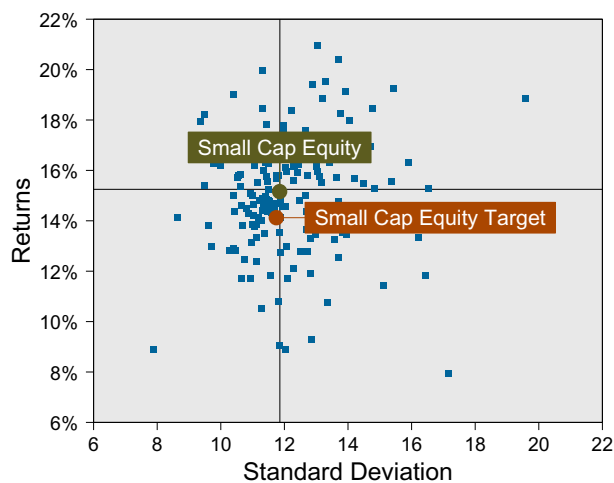
### Performance vs Callan Small Capitalization (Gross)



### Relative Return vs Small Cap Equity Target



### Callan Small Capitalization (Gross) Annualized Five Year Risk vs Return



## Parametric Clifton SmallCap Period Ended December 31, 2017

### Investment Philosophy

Parametric Clifton utilizes equity futures to gain benchmark exposure in constructing the portfolio it believes provides the greatest likelihood of outperforming the index. In this construction the underlying cash portfolio is invested in a liquid, high quality short duration fixed income portfolio. Over market cycles excess return generated by the short duration portfolio, when added to the performance of futures is expected to allow the strategy to achieve 0.50% to 1.00% of gross excess annual performance.

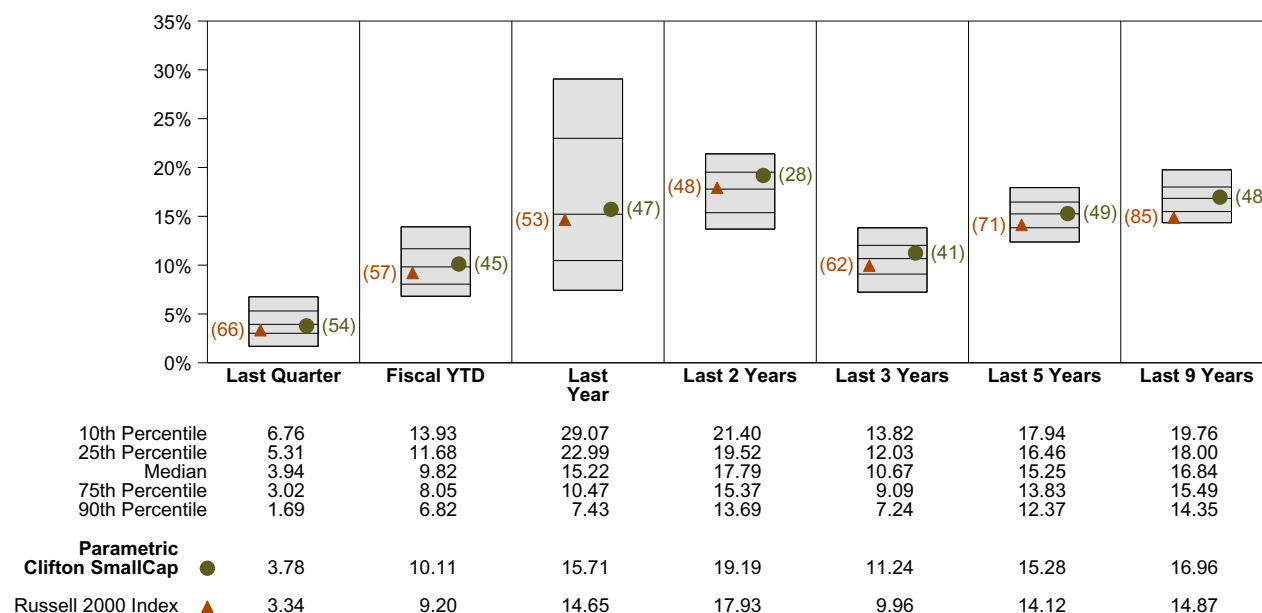
### Quarterly Summary and Highlights

- Parametric Clifton SmallCap's portfolio posted a 3.78% return for the quarter placing it in the 54 percentile of the Callan Small Capitalization group for the quarter and in the 47 percentile for the last year.
- Parametric Clifton SmallCap's portfolio outperformed the Russell 2000 Index by 0.44% for the quarter and outperformed the Russell 2000 Index for the year by 1.06%.

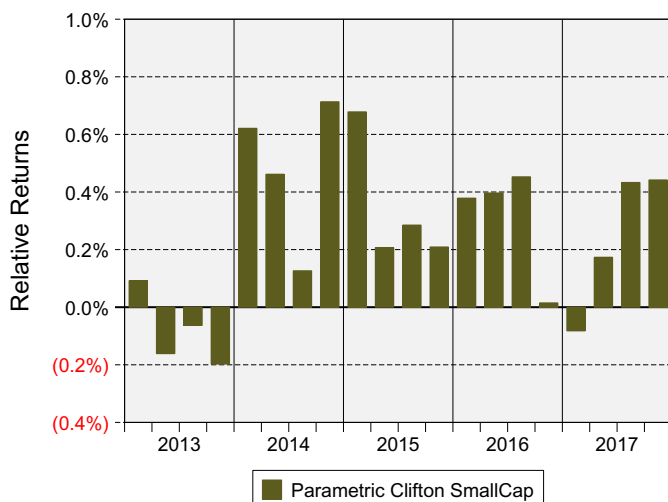
### Quarterly Asset Growth

Beginning Market Value	\$43,376,519
Net New Investment	\$-1,300,000
Investment Gains/(Losses)	\$1,627,970
Ending Market Value	\$43,704,489

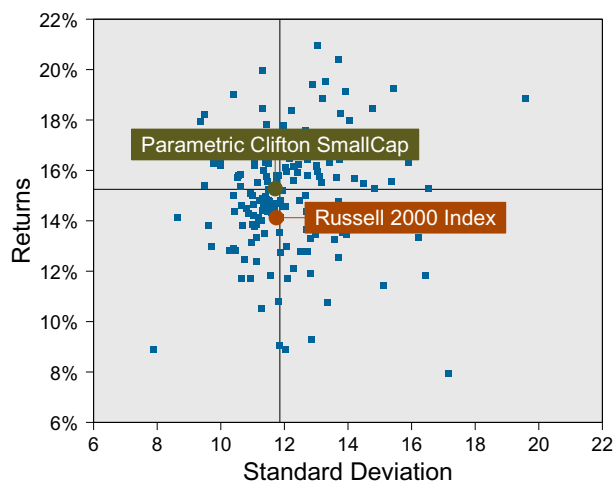
### Performance vs Callan Small Capitalization (Gross)



### Relative Return vs Russell 2000 Index



### Callan Small Capitalization (Gross) Annualized Five Year Risk vs Return



## PIMCO RAE Period Ended December 31, 2017

### Investment Philosophy

Small company value equity portfolio utilizing the index strategy and philosophy described as the Enhanced RAFI US Small strategy which relies on portfolio weights derived from firm fundamentals (free cash flow, book equity value, total sales and gross dividend), instead of market capitalization. Additionally, the enhanced portfolio strategy uses a quality of earnings screening and a financial distress screening to augment portfolio returns and reduce portfolio volatility.

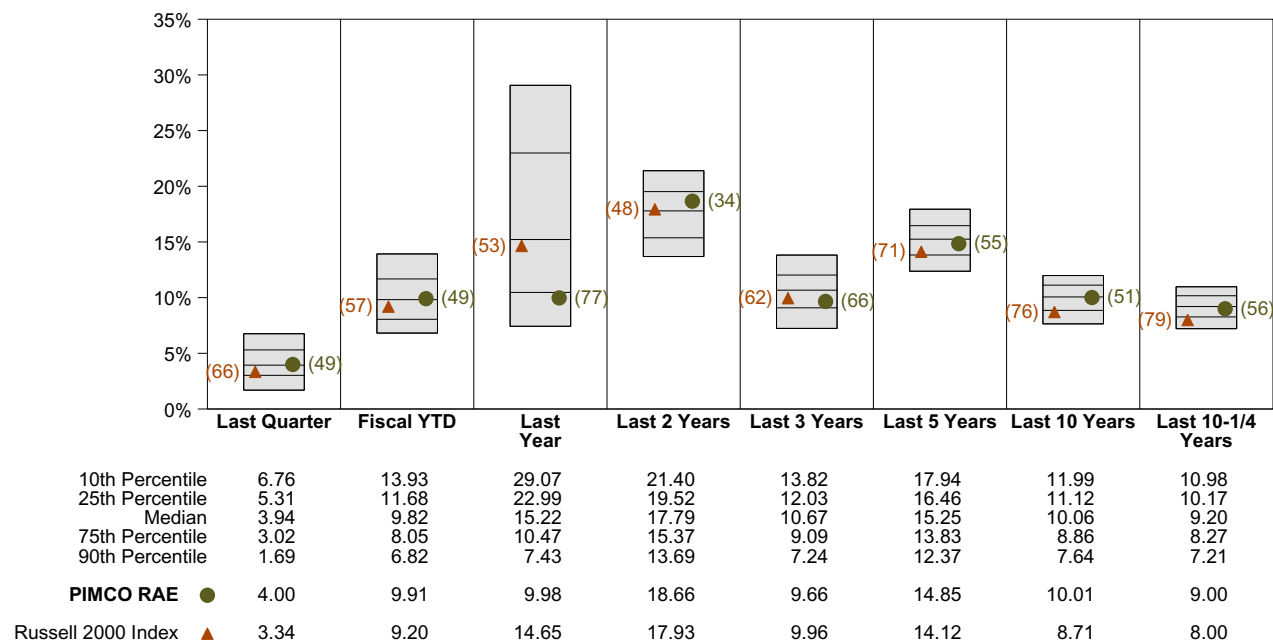
### Quarterly Summary and Highlights

- PIMCO RAE's portfolio posted a 4.00% return for the quarter placing it in the 49 percentile of the Callan Small Capitalization group for the quarter and in the 77 percentile for the last year.
- PIMCO RAE's portfolio outperformed the Russell 2000 Index by 0.66% for the quarter and underperformed the Russell 2000 Index for the year by 4.67%.

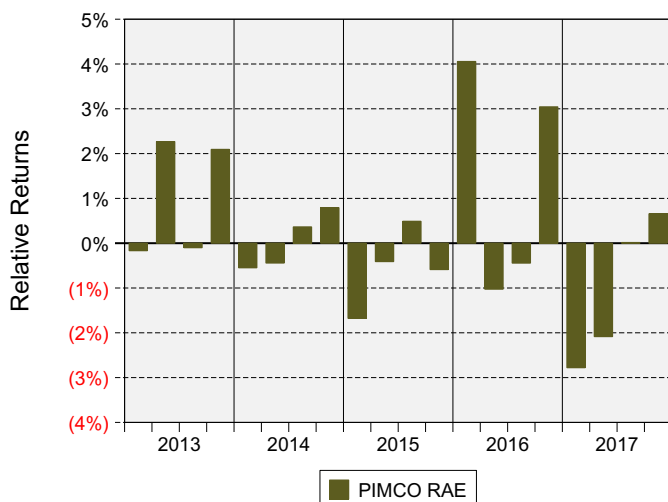
### Quarterly Asset Growth

Beginning Market Value	\$42,539,980
Net New Investment	\$-25,813
Investment Gains/(Losses)	\$1,699,345
Ending Market Value	\$44,213,512

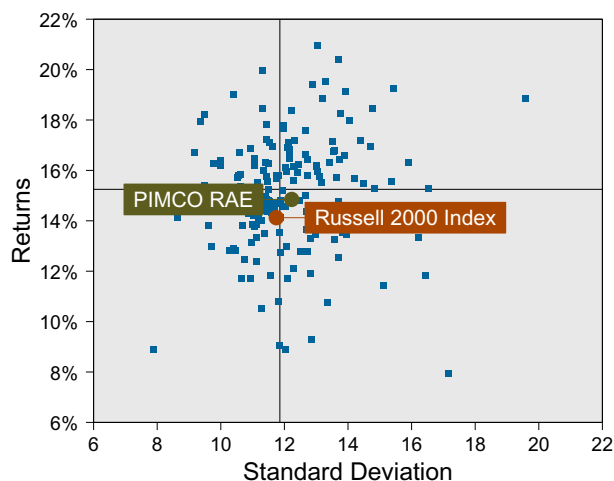
### Performance vs Callan Small Capitalization (Gross)



### Relative Return vs Russell 2000 Index



### Callan Small Capitalization (Gross) Annualized Five Year Risk vs Return



## International Equity Period Ended December 31, 2017

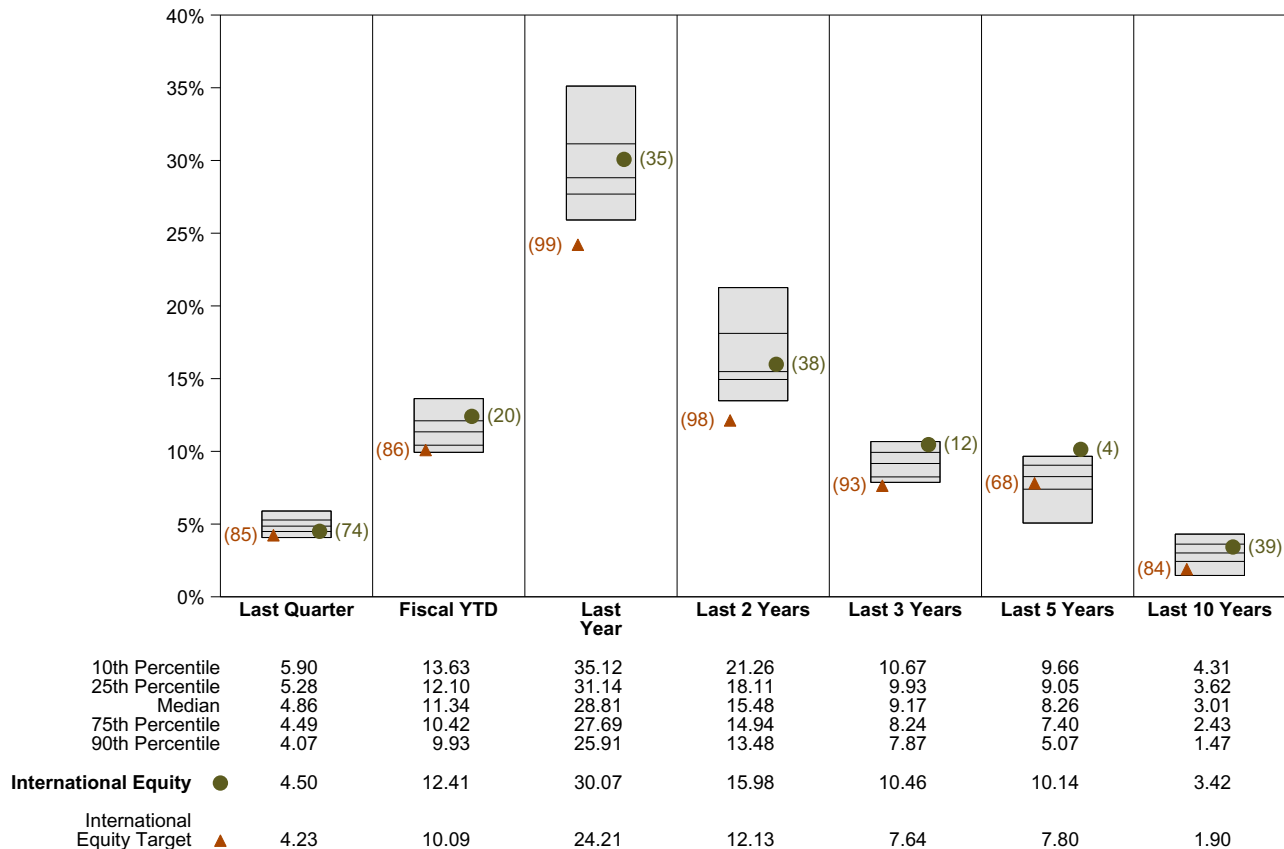
### Quarterly Summary and Highlights

- International Equity's portfolio posted a 4.50% return for the quarter placing it in the 74 percentile of the Public Fund - International Equity group for the quarter and in the 35 percentile for the last year.
- International Equity's portfolio outperformed the International Equity Target by 0.27% for the quarter and outperformed the International Equity Target for the year by 5.87%.

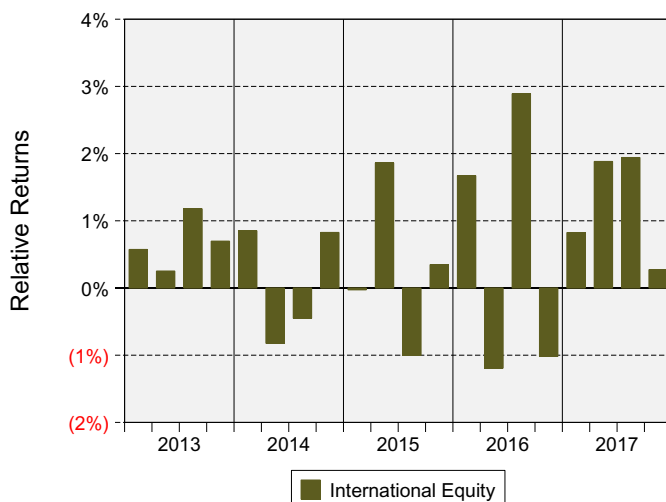
### Quarterly Asset Growth

Beginning Market Value	\$189,522,987
Net New Investment	\$-9,548,194
Investment Gains/(Losses)	\$8,181,210
Ending Market Value	\$188,156,003

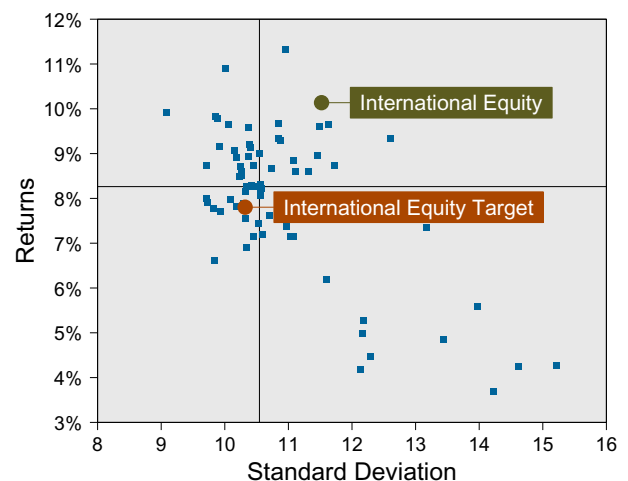
### Performance vs Public Fund - International Equity (Gross)



### Relative Return vs International Equity Target



### Public Fund - International Equity (Gross) Annualized Five Year Risk vs Return



## DFA Intl Small Cap Value Period Ended December 31, 2017

### Investment Philosophy

The International Small Cap Value Portfolio invests in the stocks of small, non-US developed markets companies that Dimensional believes to be value stocks at the time of purchase. Specifically, it looks at companies that fall within the smallest 8-10% of each country's market capitalization, and who's shares have a high book value in relation to their market value (BtM). It does not invest in emerging markets.

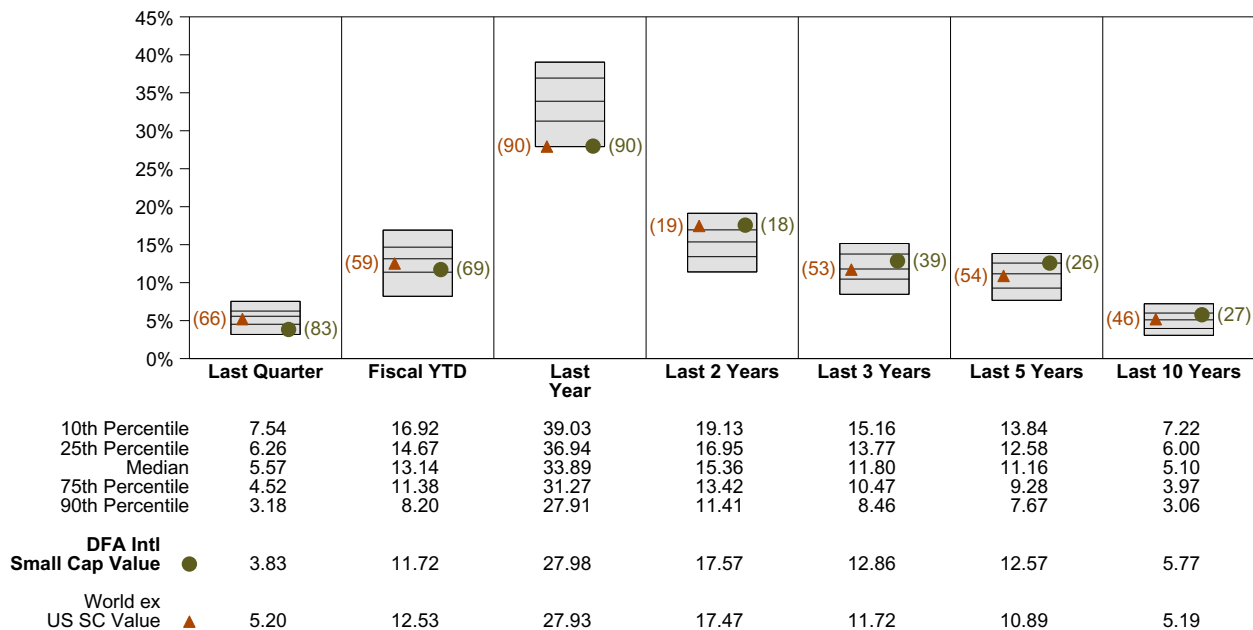
### Quarterly Summary and Highlights

- DFA Intl Small Cap Value's portfolio posted a 3.83% return for the quarter placing it in the 83 percentile of the Callan International Small Cap Mut Funds group for the quarter and in the 90 percentile for the last year.
- DFA Intl Small Cap Value's portfolio underperformed the World ex US SC Value by 1.36% for the quarter and outperformed the World ex US SC Value for the year by 0.05%.

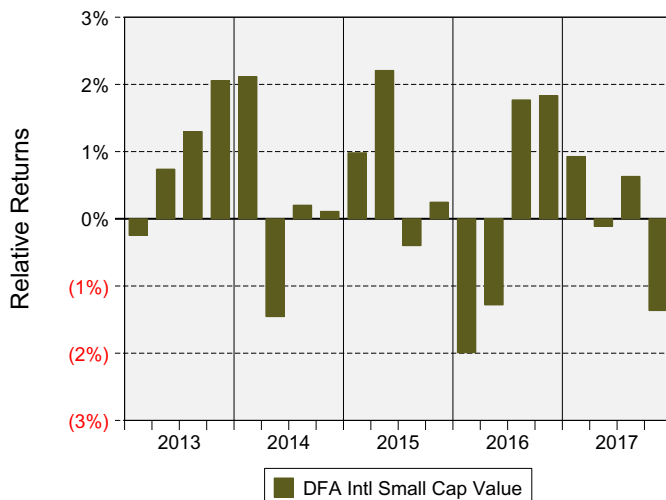
### Quarterly Asset Growth

Beginning Market Value	\$19,009,339
Net New Investment	\$-1,200,000
Investment Gains/(Losses)	\$663,822
Ending Market Value	\$18,473,161

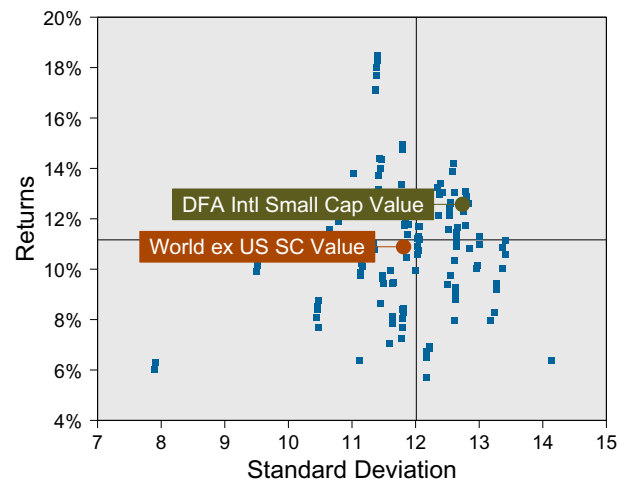
### Performance vs Callan International Small Cap Mut Funds (Net)



### Relative Return vs World ex US SC Value



### Callan International Small Cap Mut Funds (Net) Annualized Five Year Risk vs Return



## LSV Intl Value Period Ended December 31, 2017

### Investment Philosophy

The objective of LSV Asset Management's International Large Cap Value strategy is to outperform the MSCI EAFE Index by at least 250 basis points (gross of fees) per annum over an annualized 3-5 year period with a tracking error of approximately 5-6%. Their stock selection process is a quantitative approach that ranks a broad universe of stocks on a combination of value and momentum factors and seeks to invest approximately 150 stocks in the most attractive securities possible within strict risk parameters to control the portfolio's tracking error relative to the benchmark. The resulting portfolio is broadly diversified across industry groups and fully invested. LSV weights countries at a neutral weight relative to the benchmark country weights. 50% of the portfolio is US dollar hedged. **\*MSCI EAFE through 9/30/2000, 50% Hedged EAFE through 3/31/2011 and MSCI EAFE again thereafter.**

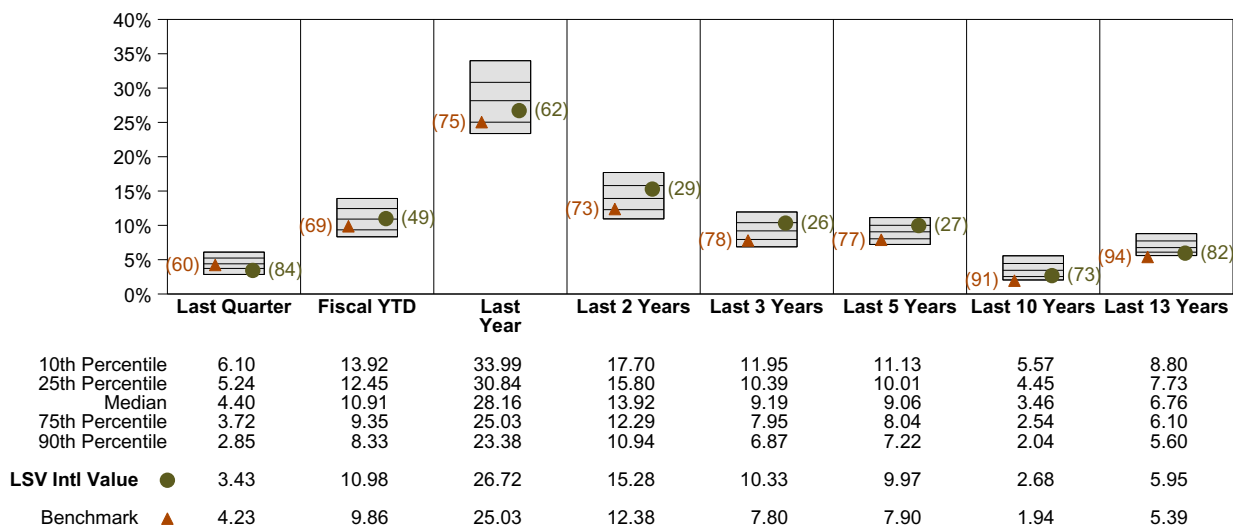
### Quarterly Summary and Highlights

- LSV Intl Value's portfolio posted a 3.43% return for the quarter placing it in the 84 percentile of the Callan Non-US Equity group for the quarter and in the 62 percentile for the last year.
- LSV Intl Value's portfolio underperformed the Benchmark by 0.80% for the quarter and outperformed the Benchmark for the year by 1.68%.

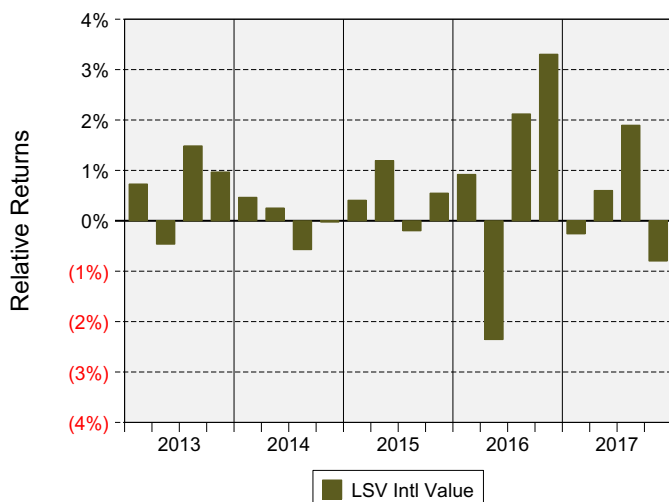
### Quarterly Asset Growth

Beginning Market Value	\$76,039,005
Net New Investment	\$-4,275,992
Investment Gains/(Losses)	\$2,448,116
Ending Market Value	\$74,211,129

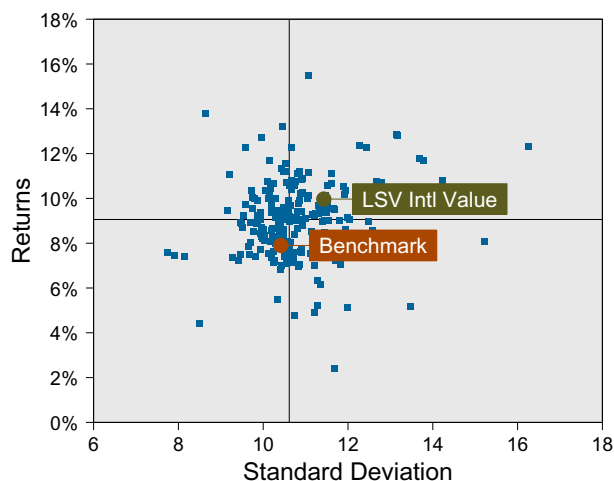
### Performance vs Callan Non-US Equity (Gross)



### Relative Return vs Benchmark



### Callan Non-US Equity (Gross) Annualized Five Year Risk vs Return



## Vanguard Intl Explorer Fund Period Ended December 31, 2017

### Investment Philosophy

Vanguard International Explorer Fund invests primarily in the equity securities of small-capitalization companies located outside the United States that the advisor believes offer the potential for long-term capital appreciation. The advisor considers, among other things, whether a company is likely to have above-average earnings growth, whether the company's securities are attractively valued, and whether the company has any proprietary advantages.

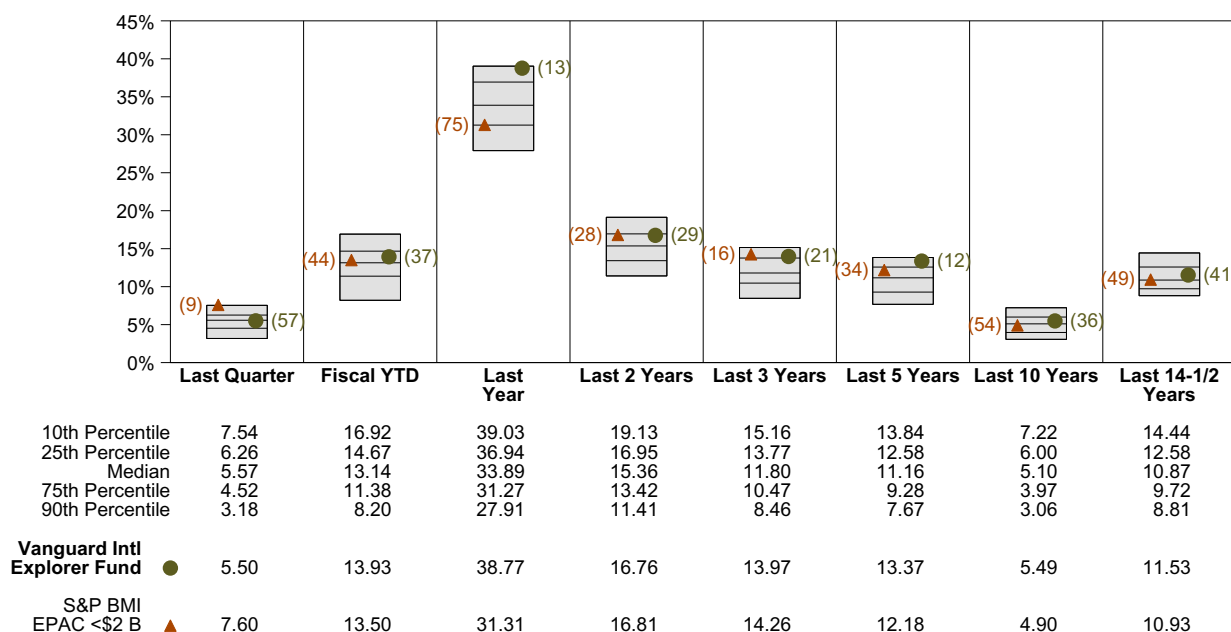
### Quarterly Summary and Highlights

- Vanguard Intl Explorer Fund's portfolio posted a 5.50% return for the quarter placing it in the 57 percentile of the Callan International Small Cap Mut Funds group for the quarter and in the 13 percentile for the last year.
- Vanguard Intl Explorer Fund's portfolio underperformed the S&P BMI EPAC <\$2 B by 2.11% for the quarter and outperformed the S&P BMI EPAC <\$2 B for the year by 7.46%.

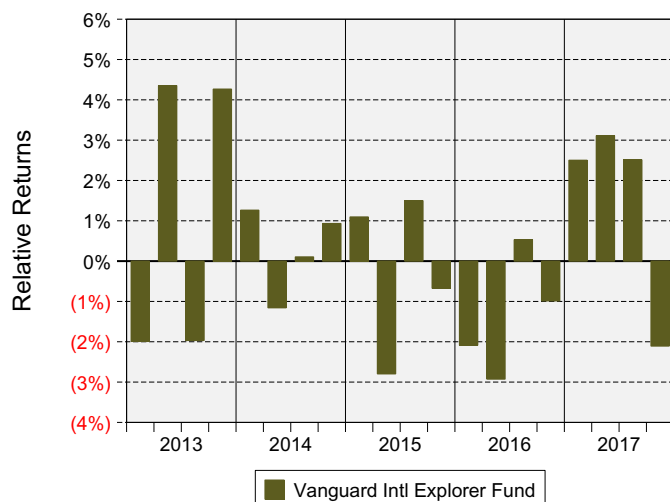
### Quarterly Asset Growth

Beginning Market Value	\$18,351,048
Net New Investment	\$0
Investment Gains/(Losses)	\$1,008,728
Ending Market Value	\$19,359,776

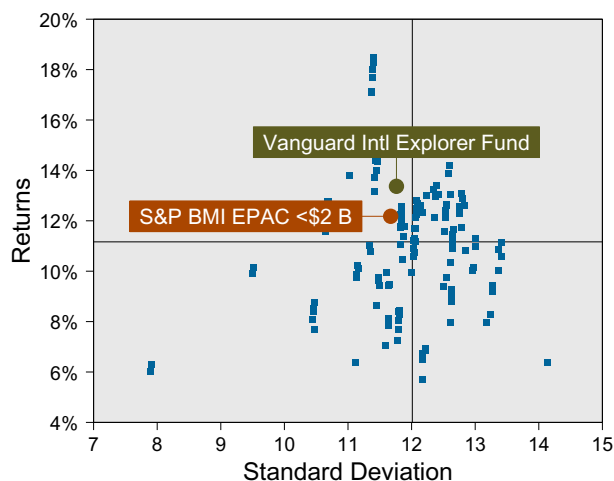
### Performance vs Callan International Small Cap Mut Funds (Net)



### Relative Return vs S&P BMI EPAC <\$2 B



### Callan International Small Cap Mut Funds (Net) Annualized Five Year Risk vs Return



## William Blair Period Ended December 31, 2017

### Investment Philosophy

One of the basic investment tenets of William Blair & Company has been its focus on quality growth companies. They believe that investing in quality growth companies will generate above average results with generally less risk than the market. This opportunity exists because they believe the market underestimates the durability and rate of growth in companies that have the following characteristics: strong management with a unique vision, competitive advantages that prolong the duration and size of earnings growth, and conservative financing. Internationally, they believe that this philosophy can be combined with strategic flexibility in managing geographic exposure, capitalization, sector emphasis, and relative growth and valuation at the portfolio level in order to provide an appropriate degree of adaptability to cyclical conditions.

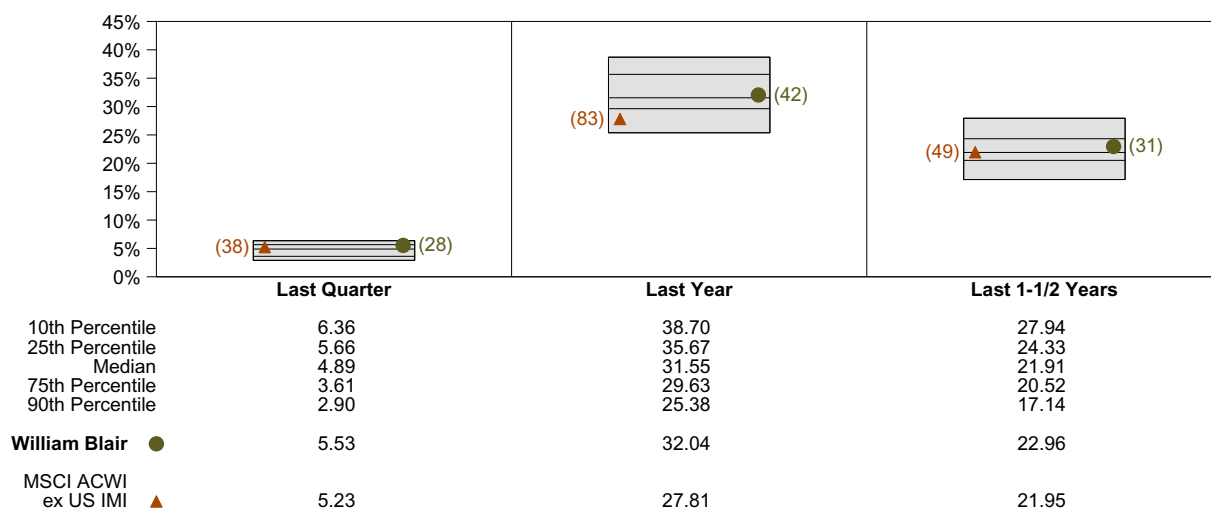
### Quarterly Summary and Highlights

- William Blair's portfolio posted a 5.53% return for the quarter placing it in the 28 percentile of the Callan Non-US All Country Growth Equity group for the quarter and in the 42 percentile for the last year.
- William Blair's portfolio outperformed the MSCI ACWI ex US IMI by 0.31% for the quarter and outperformed the MSCI ACWI ex US IMI for the year by 4.22%.

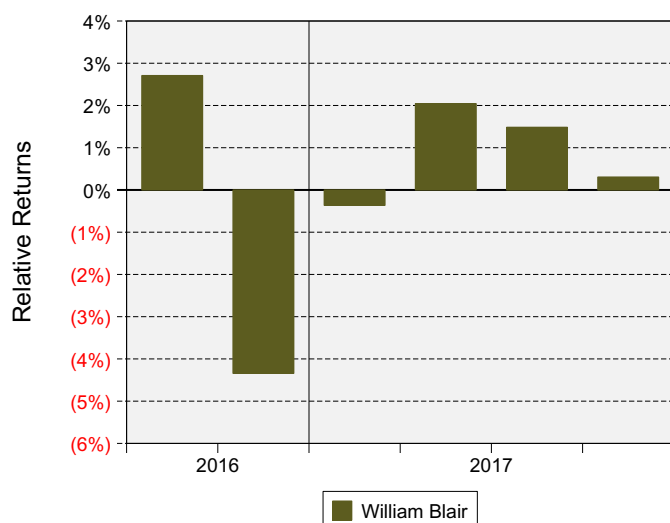
### Quarterly Asset Growth

Beginning Market Value	\$76,123,595
Net New Investment	\$-4,072,202
Investment Gains/(Losses)	\$4,060,544
Ending Market Value	\$76,111,937

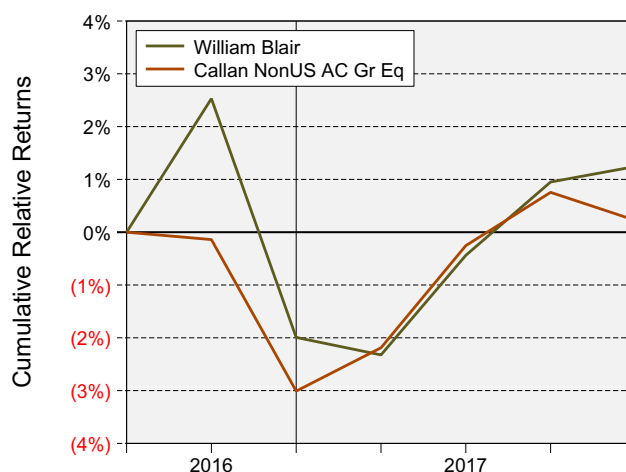
### Performance vs Callan Non-US All Country Growth Equity (Gross)



### Relative Return vs MSCI ACWI ex US IMI



### Cumulative Returns vs MSCI ACWI ex US IMI





## Domestic Fixed Income Period Ended December 31, 2017

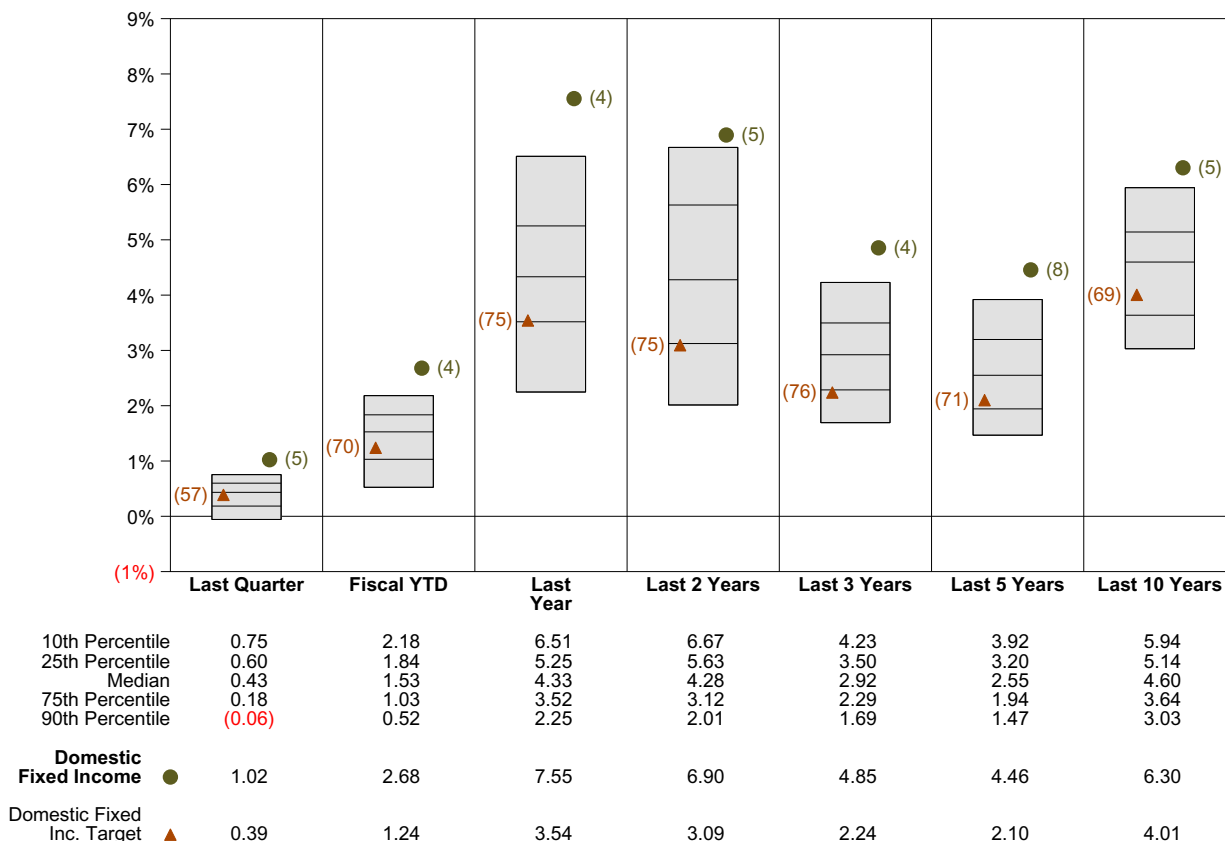
### Quarterly Summary and Highlights

- Domestic Fixed Income's portfolio posted a 1.02% return for the quarter placing it in the 5 percentile of the Public Fund - Domestic Fixed group for the quarter and in the 4 percentile for the last year.
- Domestic Fixed Income's portfolio outperformed the Domestic Fixed Inc. Target by 0.64% for the quarter and outperformed the Domestic Fixed Inc. Target for the year by 4.01%.

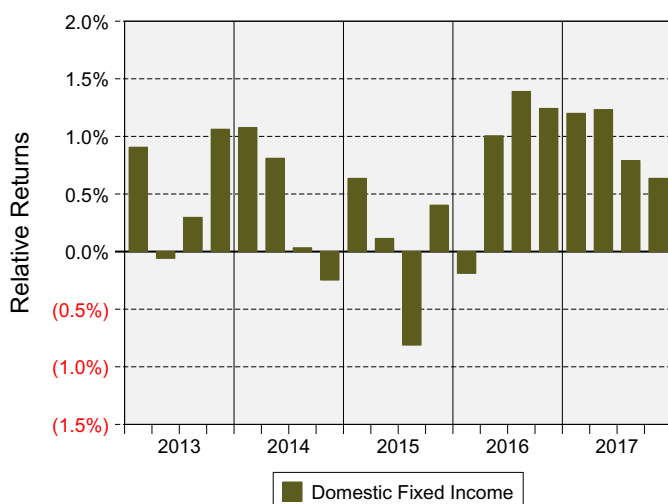
### Quarterly Asset Growth

Beginning Market Value	\$1,135,197,124
Net New Investment	\$-5,223,723
Investment Gains/(Losses)	\$11,581,918
Ending Market Value	\$1,141,555,319

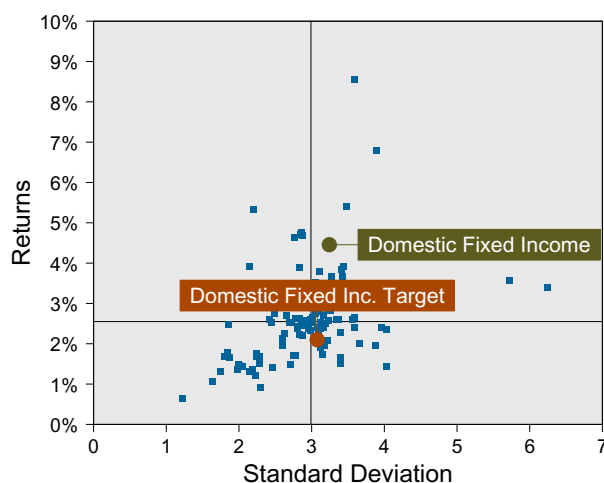
### Performance vs Public Fund - Domestic Fixed (Gross)



### Relative Return vs Domestic Fixed Inc. Target



### Public Fund - Domestic Fixed (Gross) Annualized Five Year Risk vs Return



## Declaration Total Return Period Ended December 31, 2017

### Investment Philosophy

The Fund's portfolio holdings consist primarily of RMBS issued by private sector companies (Non-Agency RMBS) and government agencies (Agency MBS) and CMBS issued by private sector companies. Agency MBS includes securities issued by the Federal National Mortgage Association (Fannie Mae), the Federal Home Loan Mortgage Corporation (Freddie Mac) and the Government National Mortgage Association (Ginnie Mae). Portfolio holdings may range from short tenure senior classes to stressed issues or subordinated securities with substantial risk of non-payment and correspondingly higher yields. Smaller portfolio allocations may include consumer asset-backed securities (ABS), or other structured credit securities and corporate bonds. As a diversification strategy and a potential hedge to credit risk, the Fund may invest in securities which tend to benefit from slow mortgage prepayments and economic growth, such as interest only (IO) MBS.

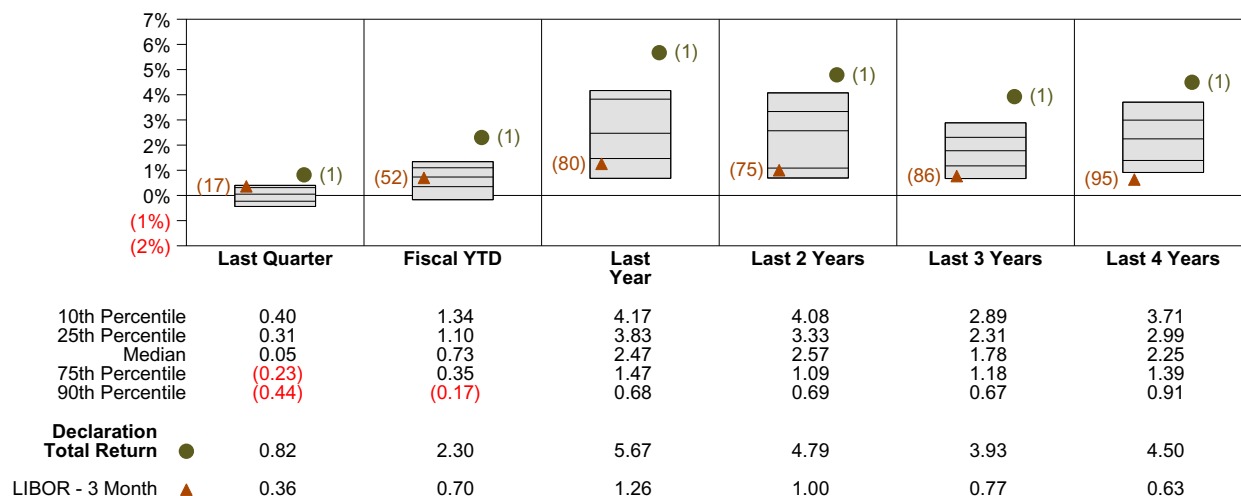
### Quarterly Summary and Highlights

- Declaration Total Return's portfolio posted a 0.82% return for the quarter placing it in the 1 percentile of the Callan Intermediate Fixed Inc Mut Funds group for the quarter and in the 1 percentile for the last year.
- Declaration Total Return's portfolio outperformed the LIBOR - 3 Month by 0.46% for the quarter and outperformed the LIBOR - 3 Month for the year by 4.42%.

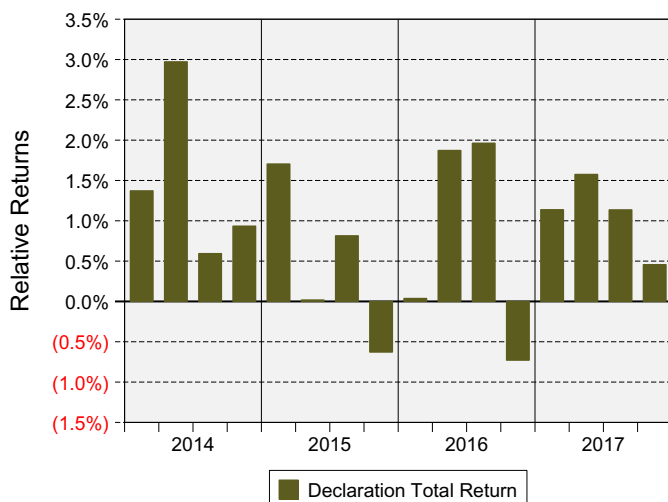
### Quarterly Asset Growth

Beginning Market Value	\$85,113,751
Net New Investment	\$-61,200
Investment Gains/(Losses)	\$696,214
Ending Market Value	\$85,748,765

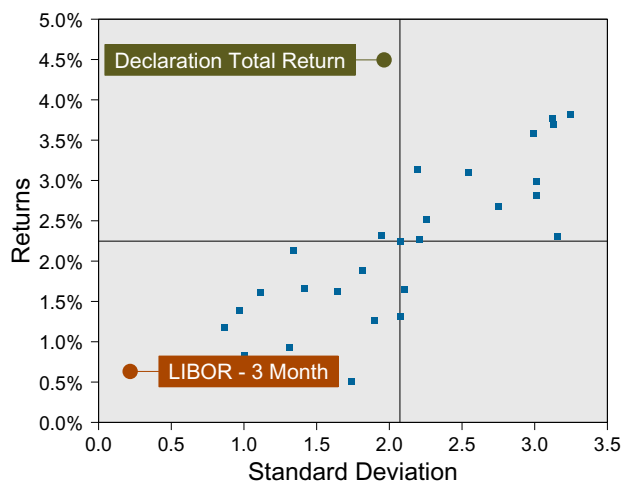
### Performance vs Callan Intermediate Fixed Inc Mut Funds (Net)



### Relative Return vs LIBOR - 3 Month



### Callan Intermediate Fixed Inc Mut Funds (Net) Annualized Four Year Risk vs Return



## PIMCO DiSCO II

### Period Ended December 31, 2017

#### Investment Philosophy

The PIMCO Distressed Senior Credit Opportunities Fund is an opportunistic private-equity style Fund which seeks to provide investors enhanced returns principally through long-biased investments in undervalued senior and super senior structured credit securities that are expected to produce attractive levels of current income and that may also appreciate in value over the long term. The fund will look to capitalize on forced sales by liquidity constrained investors.

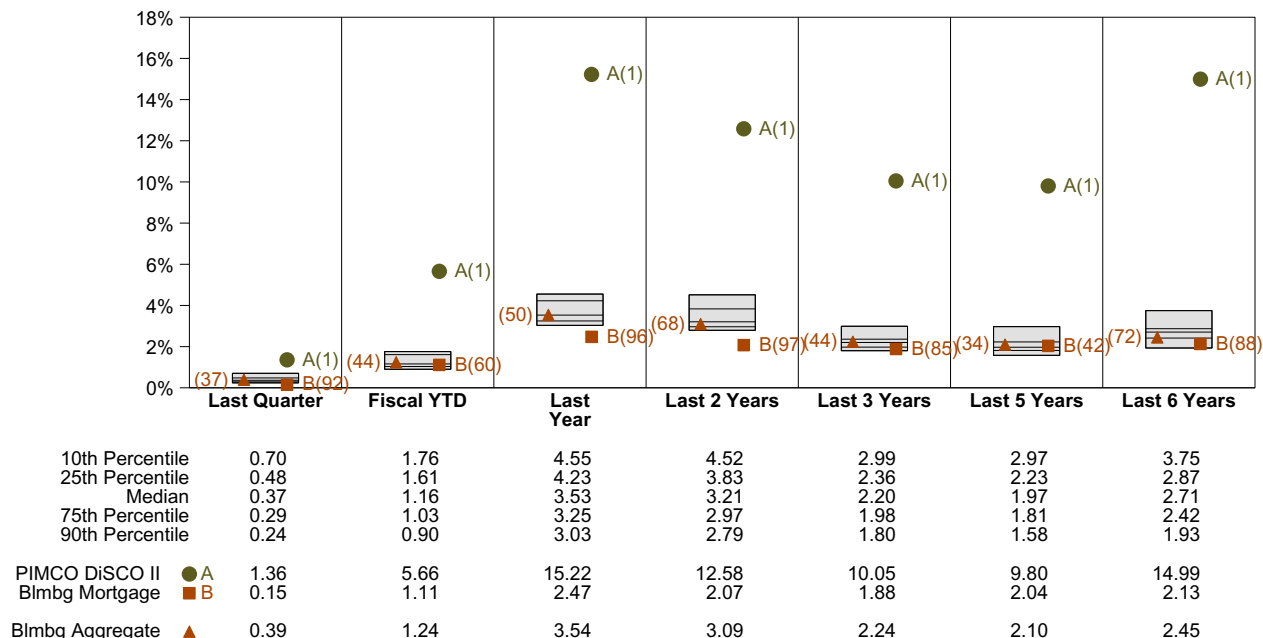
#### Quarterly Summary and Highlights

- PIMCO DiSCO II's portfolio posted a 1.36% return for the quarter placing it in the 1 percentile of the Callan Core Bond Mutual Funds group for the quarter and in the 1 percentile for the last year.
- PIMCO DiSCO II's portfolio outperformed the Blmbg Aggregate by 0.97% for the quarter and outperformed the Blmbg Aggregate for the year by 11.68%.

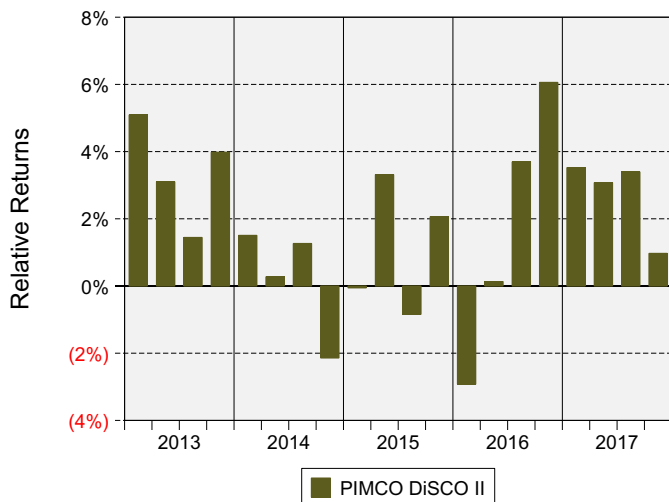
#### Quarterly Asset Growth

Beginning Market Value	\$100,628,396
Net New Investment	\$0
Investment Gains/(Losses)	\$1,366,358
Ending Market Value	\$101,994,754

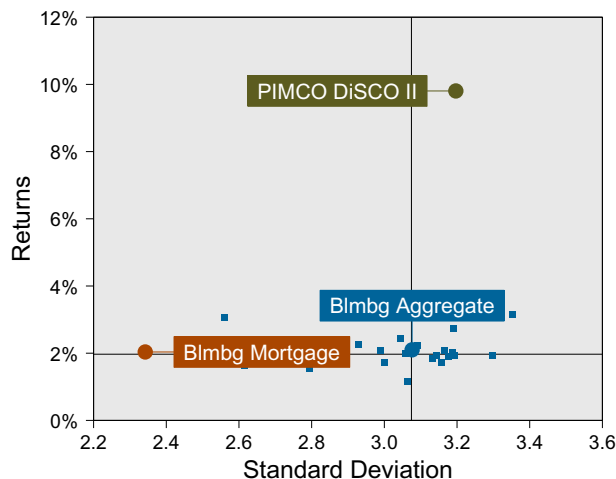
#### Performance vs Callan Core Bond Mutual Funds (Net)



#### Relative Return vs Blmbg Aggregate



#### Callan Core Bond Mutual Funds (Net) Annualized Five Year Risk vs Return



## PIMCO Bravo II Fund Period Ended December 31, 2017

### Investment Philosophy

The BRAVO II Fund is a private equity style fund targeting an annualized IRR of 15-20% and multiple of 1.8-2x, net of fees and carried interest with an initial 5-year term. The fund will seek to capitalize on non-economic asset sale decisions by global financial institutions. The fund will have the flexibility to acquire attractively discounted, less liquid loans, structured credit and other assets tied to residential or commercial real estate markets in the U.S. and Europe.

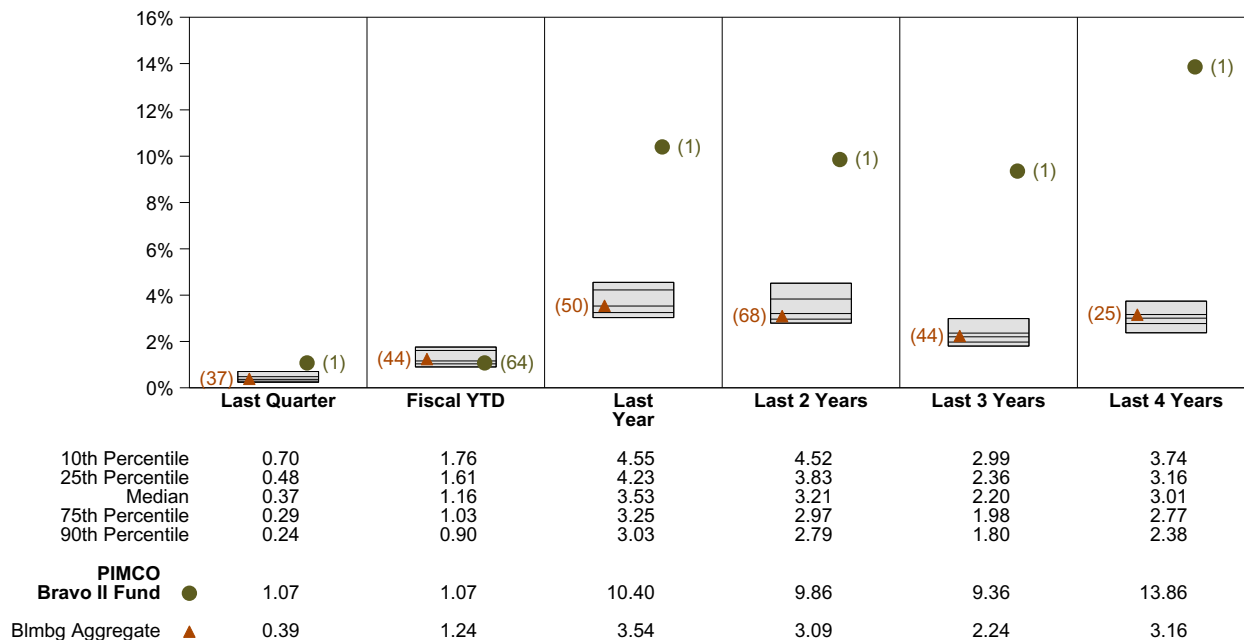
### Quarterly Summary and Highlights

- PIMCO Bravo II Fund's portfolio posted a 1.07% return for the quarter placing it in the 1 percentile of the Callan Core Bond Mutual Funds group for the quarter and in the 1 percentile for the last year.
- PIMCO Bravo II Fund's portfolio outperformed the Blmbg Aggregate by 0.69% for the quarter and outperformed the Blmbg Aggregate for the year by 6.86%.

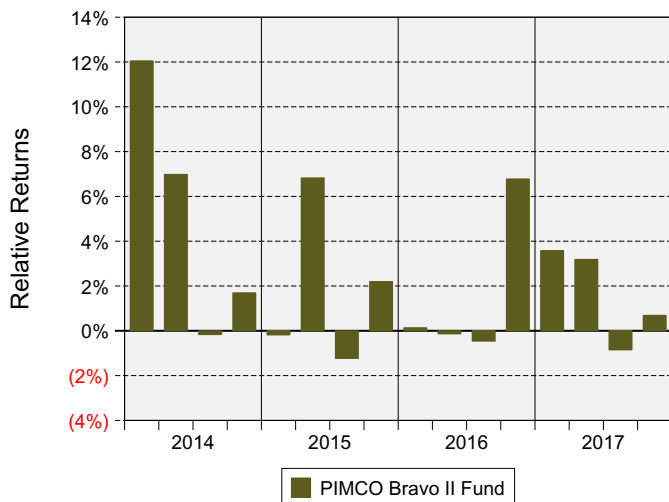
### Quarterly Asset Growth

Beginning Market Value	\$55,029,366
Net New Investment	\$-4,839,492
Investment Gains/(Losses)	\$568,093
Ending Market Value	\$50,757,967

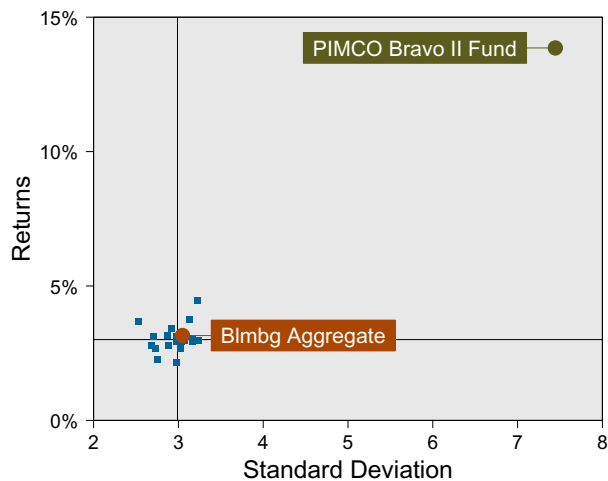
### Performance vs Callan Core Bond Mutual Funds (Net)



### Relative Return vs Blmbg Aggregate



### Callan Core Bond Mutual Funds (Net) Annualized Four Year Risk vs Return



## Prudential Period Ended December 31, 2017

### Investment Philosophy

PGIM Fixed Income's Core Plus Strategy is an actively-managed strategy that seeks +150 bps over the Bloomberg Barclays U.S. Aggregate Bond Index or similar benchmark annualized over a market cycle (three to five years.) The Strategy seeks about half of its excess return from active sector allocation and up to one-third each from subsector/security selection and duration/yield curve/currencies, depending on market opportunities.

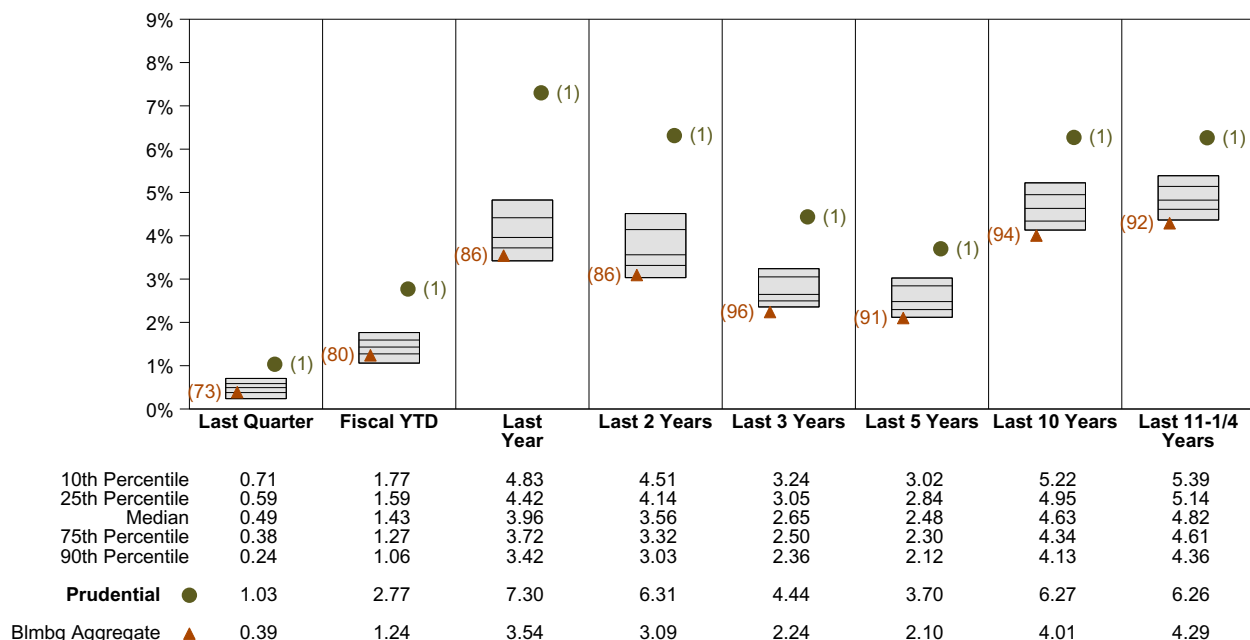
### Quarterly Summary and Highlights

- Prudential's portfolio posted a 1.03% return for the quarter placing it in the 1 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 1 percentile for the last year.
- Prudential's portfolio outperformed the Blmbg Aggregate by 0.65% for the quarter and outperformed the Blmbg Aggregate for the year by 3.76%.

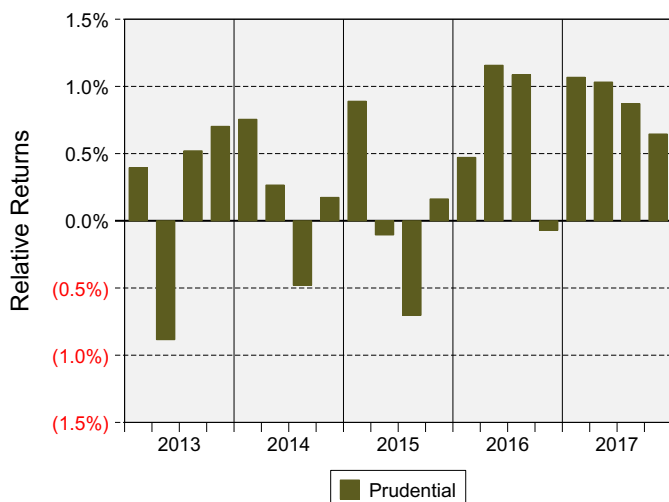
### Quarterly Asset Growth

Beginning Market Value	\$117,194,878
Net New Investment	\$-76,279
Investment Gains/(Losses)	\$1,210,467
Ending Market Value	\$118,329,065

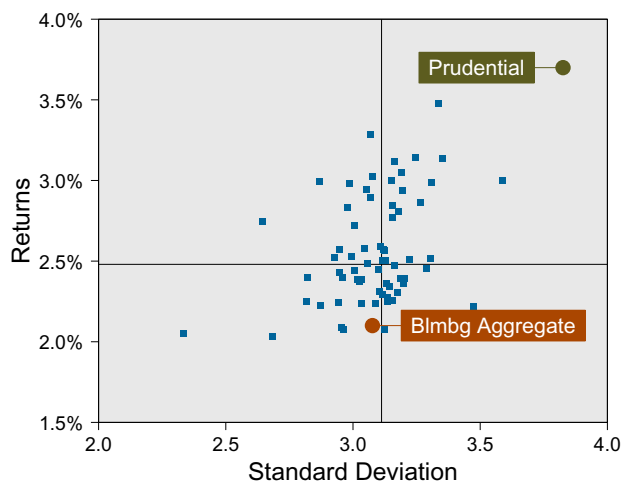
### Performance vs Callan Core Bond Fixed Income (Gross)



### Relative Return vs Blmbg Aggregate



### Callan Core Bond Fixed Income (Gross) Annualized Five Year Risk vs Return



## SSgA US Govt Cr Bd Index Period Ended December 31, 2017

### Investment Philosophy

The Fund seeks an investment return that approximates as closely as practicable, before expenses, the performance of the Barclays Capital U.S. Government/Credit Bond Index over the long term.

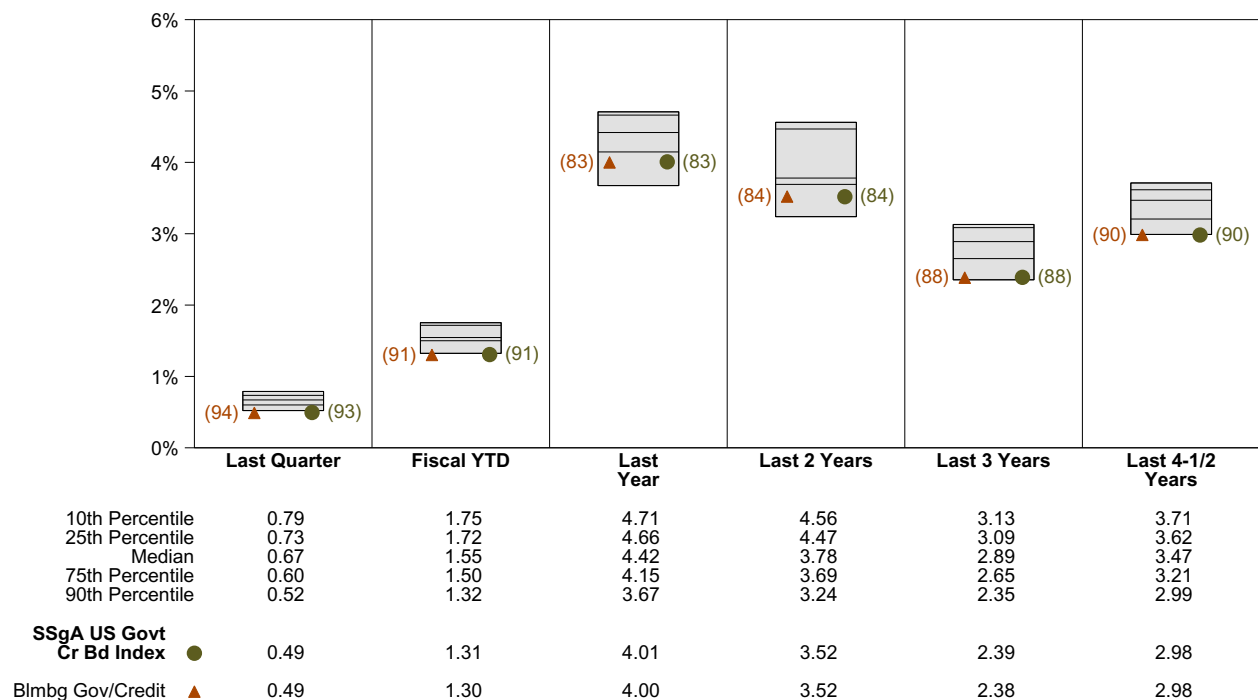
### Quarterly Summary and Highlights

- SSgA US Govt Cr Bd Index's portfolio posted a 0.49% return for the quarter placing it in the 93 percentile of the Callan Government/Credit group for the quarter and in the 83 percentile for the last year.
- SSgA US Govt Cr Bd Index's portfolio outperformed the Blmbg Gov/Credit by 0.01% for the quarter and outperformed the Blmbg Gov/Credit for the year by 0.01%.

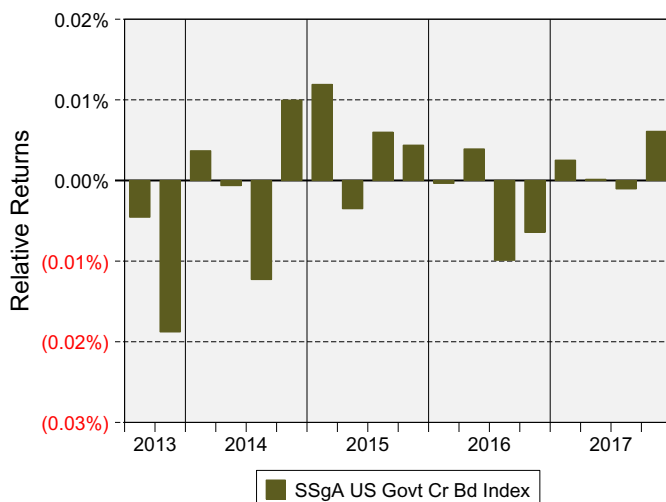
### Quarterly Asset Growth

Beginning Market Value	\$142,989,912
Net New Investment	\$-24,091
Investment Gains/(Losses)	\$707,475
Ending Market Value	\$143,673,295

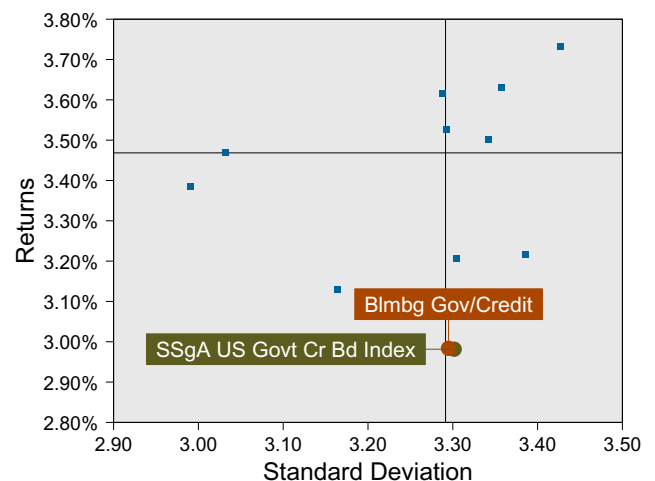
### Performance vs Callan Government/Credit (Gross)



### Relative Return vs Blmbg Gov/Credit



### Callan Government/Credit (Gross) Annualized Four and One-Half Year Risk vs Return



## Wells Capital Period Ended December 31, 2017

### Investment Philosophy

The Medium Quality Credit fixed income strategy is designed to maximize total return from the high-grade corporate bond market while maintaining a strategic allocation to the BBB portion of the high yield market. The investment process for this fund starts with a "top-down" strategy. Security selection is determined by in-depth credit research, holding that in-depth knowledge of industries, companies, and their management teams can help identify credit trends that can lead to investment opportunities. Furthermore, a disciplined relative value framework is applied to help determine the optimal position to invest within an industry and within an individual issuer's capital structure.

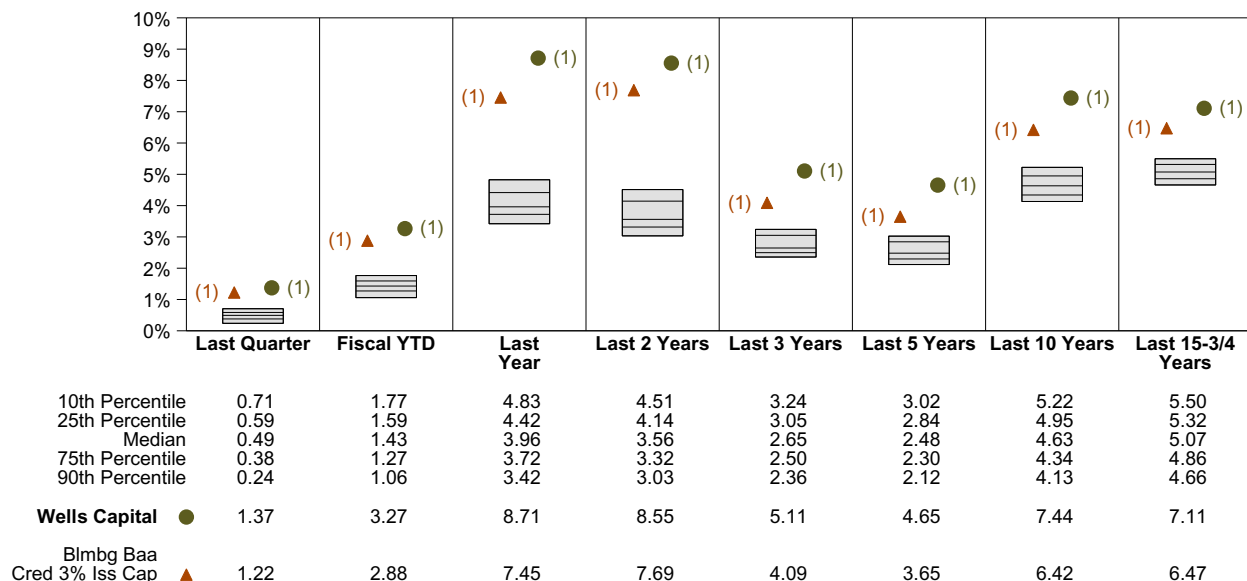
### Quarterly Summary and Highlights

- Wells Capital's portfolio posted a 1.37% return for the quarter placing it in the 1 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 1 percentile for the last year.
- Wells Capital's portfolio outperformed the Blmbg Baa Cred 3% Iss Cap by 0.15% for the quarter and outperformed the Blmbg Baa Cred 3% Iss Cap for the year by 1.26%.

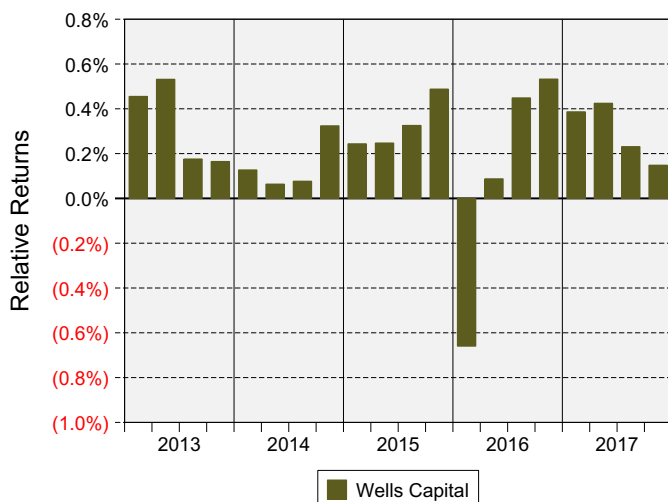
### Quarterly Asset Growth

Beginning Market Value	\$318,066,360
Net New Investment	\$-122,207
Investment Gains/(Losses)	\$4,365,265
Ending Market Value	\$322,309,419

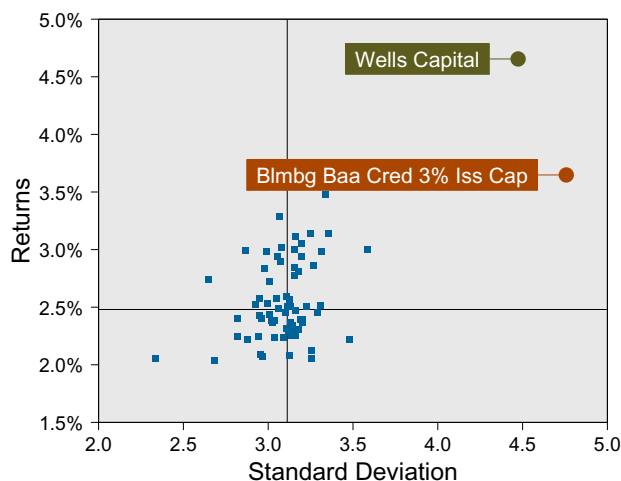
### Performance vs Callan Core Bond Fixed Income (Gross)



### Relative Returns vs Blmbg Baa Cred 3% Iss Cap



### Callan Core Bond Fixed Income (Gross) Annualized Five Year Risk vs Return



## Western Asset Management Company Period Ended December 31, 2017

### Investment Philosophy

Western Asset designs this portfolio using all major fixed-income sectors with a bias towards non-Treasuries, especially corporate, mortgage-backed and asset-backed securities. Value can be added through sector rotation, issue selection, duration and term structure weighting.

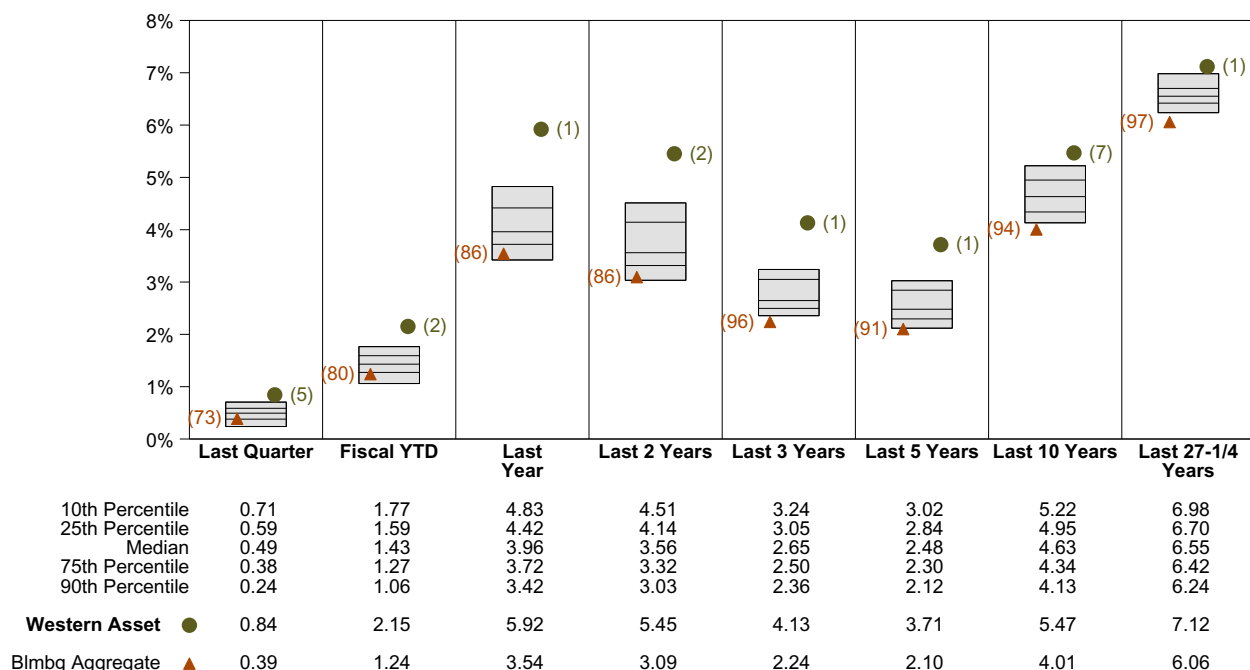
### Quarterly Summary and Highlights

- Western Asset's portfolio posted a 0.84% return for the quarter placing it in the 5 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 1 percentile for the last year.
- Western Asset's portfolio outperformed the Blmbg Aggregate by 0.46% for the quarter and outperformed the Blmbg Aggregate for the year by 2.38%.

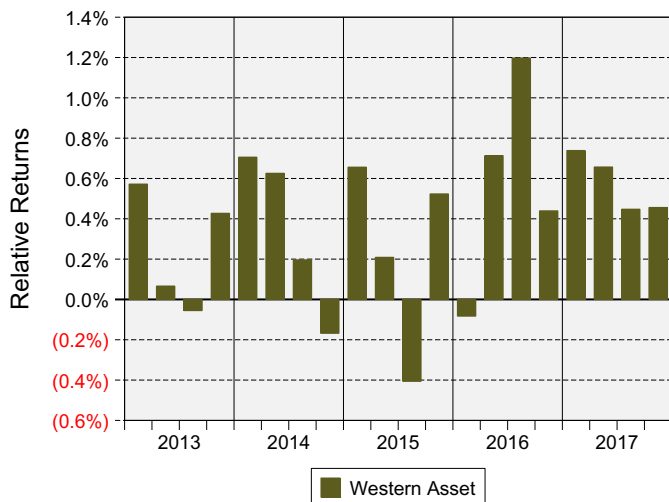
### Quarterly Asset Growth

Beginning Market Value	\$316,174,460
Net New Investment	\$-100,454
Investment Gains/(Losses)	\$2,668,048
Ending Market Value	\$318,742,054

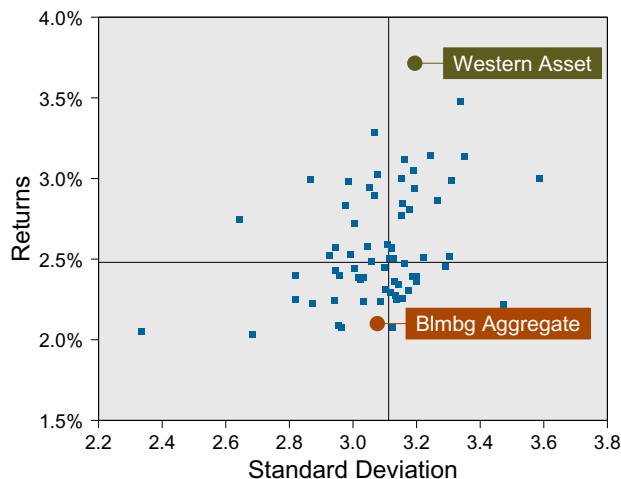
### Performance vs Callan Core Bond Fixed Income (Gross)



### Relative Return vs Blmbg Aggregate



### Callan Core Bond Fixed Income (Gross) Annualized Five Year Risk vs Return





## Western TIPS Period Ended December 31, 2017

### Investment Philosophy

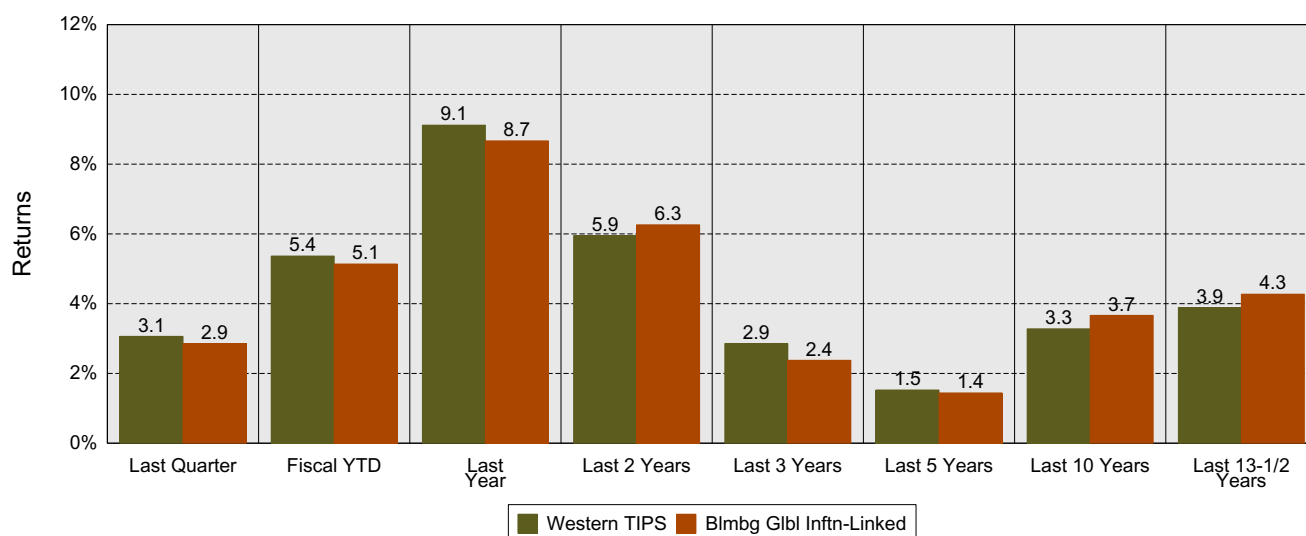
Western Asset's Global Inflation-Linked composite includes portfolios that employ an active, team-managed investment approach around a long-term, value-oriented investment philosophy. Constructed primarily of inflation-indexed securities, these portfolios use diversified strategies in seeking to add value while minimizing risk. Value can be added through country selection, term structure, issue selection, duration management and currency management. **Bloomberg US TIPS through 12/31/2009 and Bloomberg Global Inflation-Linked thereafter.**

### Quarterly Summary and Highlights

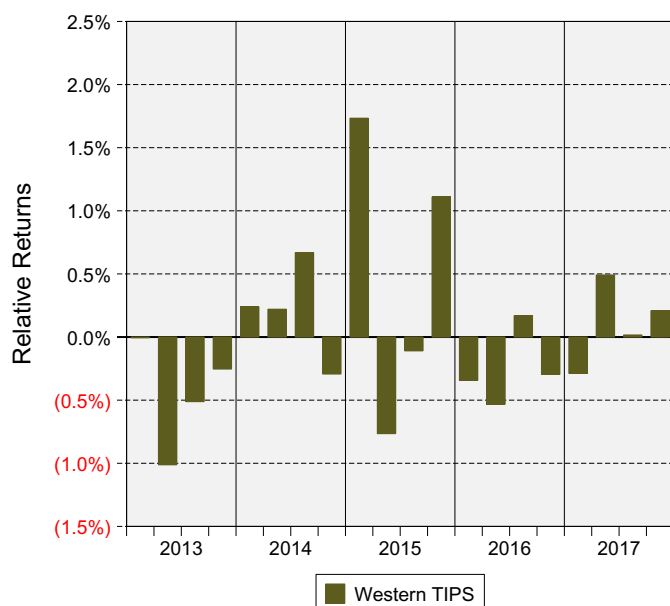
- Western TIPS's portfolio outperformed the Blmbg Gbl Inftn-Linked by 0.21% for the quarter and outperformed the Blmbg Gbl Inftn-Linked for the year by 0.45%.

### Quarterly Asset Growth

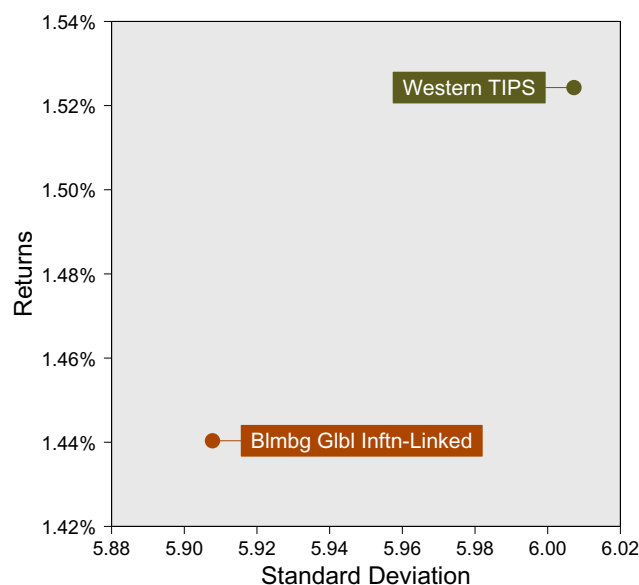
Beginning Market Value	\$116,537,298
Net New Investment	\$-37,026
Investment Gains/(Losses)	\$3,568,073
Ending Market Value	\$120,068,344



### Relative Return vs Blmbg Gbl Inftn-Linked



### Annualized Five Year Risk vs Return



## Eastern Timber Opportunities Period Ended December 31, 2017

### Investment Philosophy

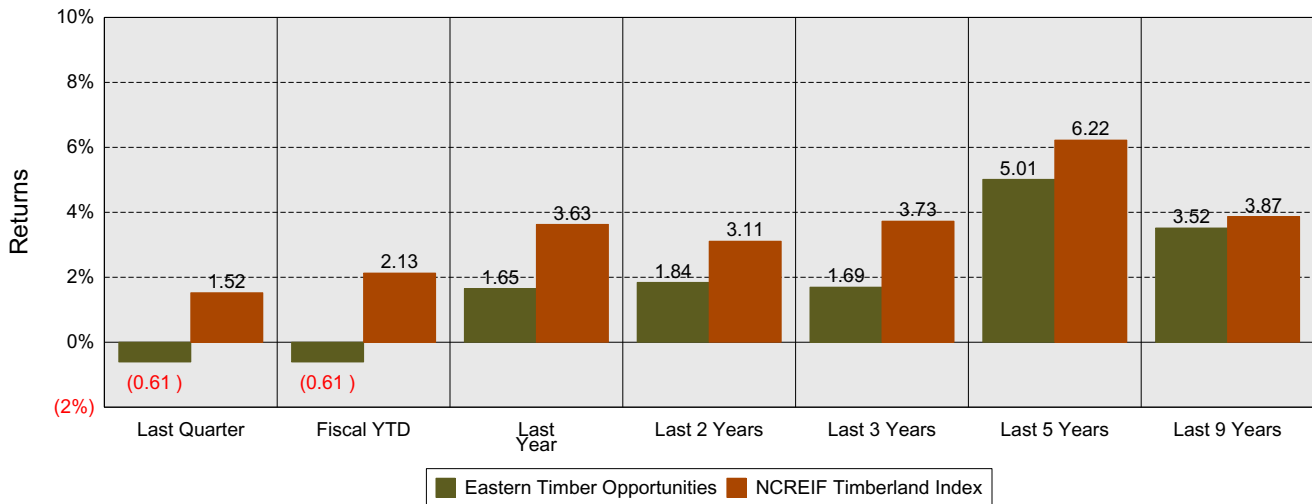
The investment objective of the Eastern Timberland Opportunities fund is to provide competitive timberland investment returns from Eastern US timberland investments by pursuing management strategies to increase timber production and land values through the investment term. TIR will maximize timber values within the portfolio with the application of intensive forest management techniques to accelerate the growth in timber volume and movement into higher value product categories. Additional value will be captured by realizing higher and better use opportunities for select timberland properties throughout the portfolio.

### Quarterly Summary and Highlights

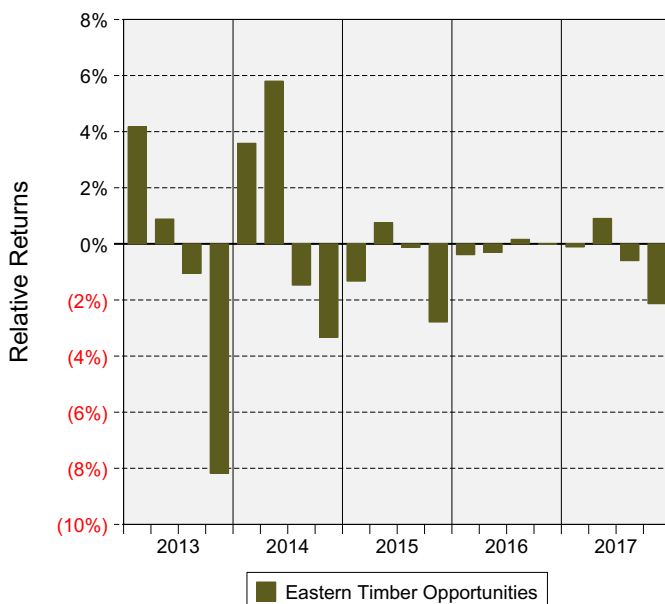
- Eastern Timber Opportunities's portfolio underperformed the NCREIF Timberland Index by 2.13% for the quarter and underperformed the NCREIF Timberland Index for the year by 1.98%.

### Quarterly Asset Growth

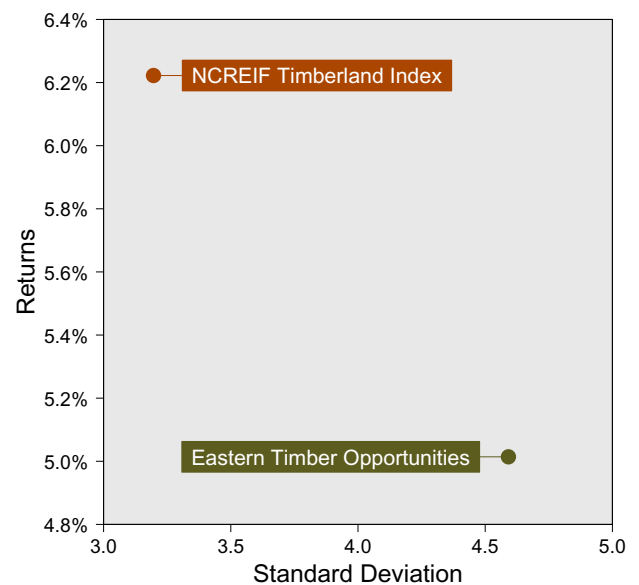
Beginning Market Value	\$50,020,115
Net New Investment	\$-285,963
Investment Gains/(Losses)	\$-303,672
Ending Market Value	\$49,430,480



### Relative Return vs NCREIF Timberland Index



### Annualized Five Year Risk vs Return



## JP Morgan Infrastructure Period Ended December 31, 2017

### Investment Philosophy

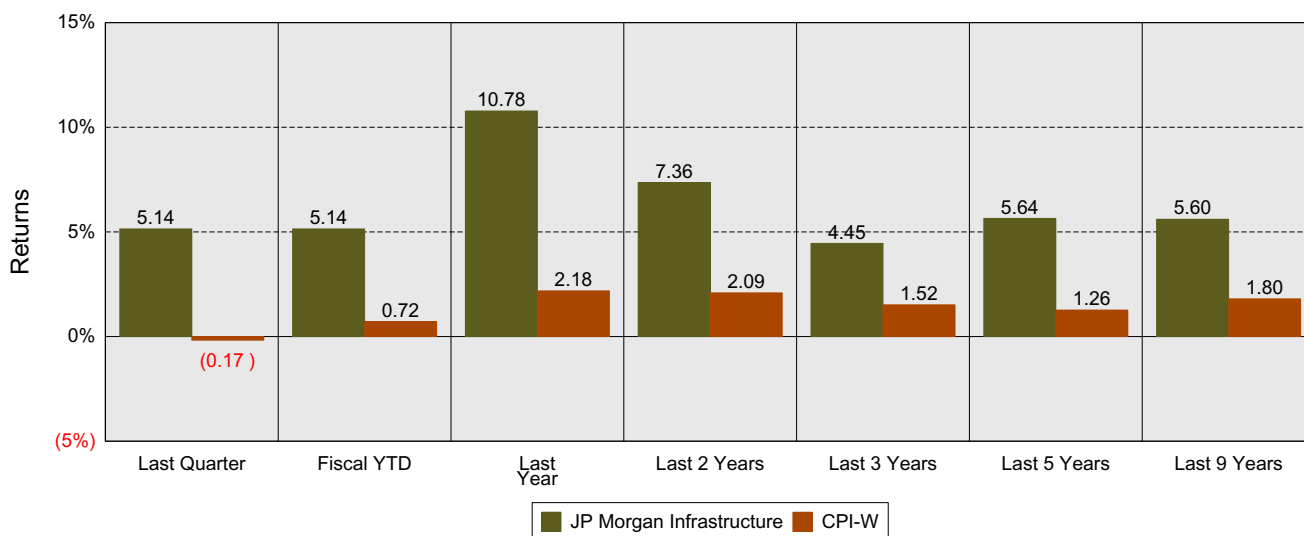
The only open-ended private commingled infrastructure fund in the U.S, the JPMorgan Infrastructure Investments Fund invests in stabilized assets in OECD countries with selected value-added opportunities, across infrastructure industry sub-sectors, including: toll roads, bridges and tunnels; oil and gas pipelines; electricity transmission and distribution facilities; contracted power generation assets; water distribution; waste-water collection and processing; railway lines and rapid rail links; and seaports and airports.

### Quarterly Summary and Highlights

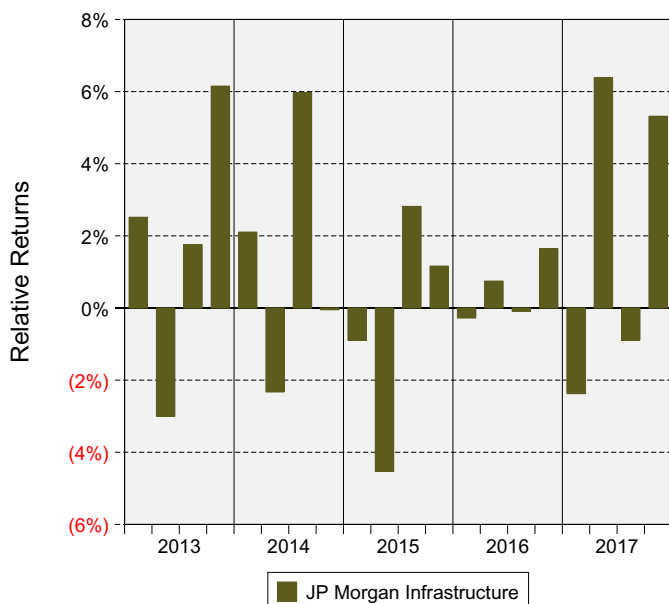
- JP Morgan Infrastructure's portfolio outperformed the CPI-W by 5.31% for the quarter and outperformed the CPI-W for the year by 8.59%.

### Quarterly Asset Growth

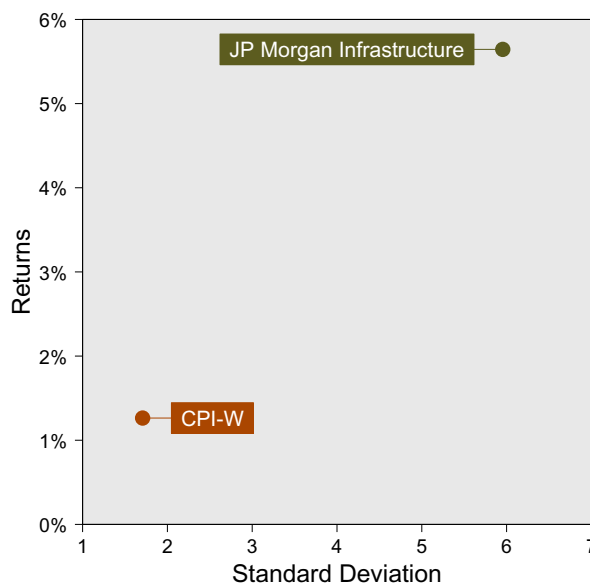
Beginning Market Value	\$85,292,003
Net New Investment	\$-176,070
Investment Gains/(Losses)	\$4,386,283
Ending Market Value	\$89,502,216



### Relative Return vs CPI-W



### Annualized Five Year Risk vs Return



## Grosvenor Cust. Infrastructure Period Ended December 31, 2017

### Investment Philosophy

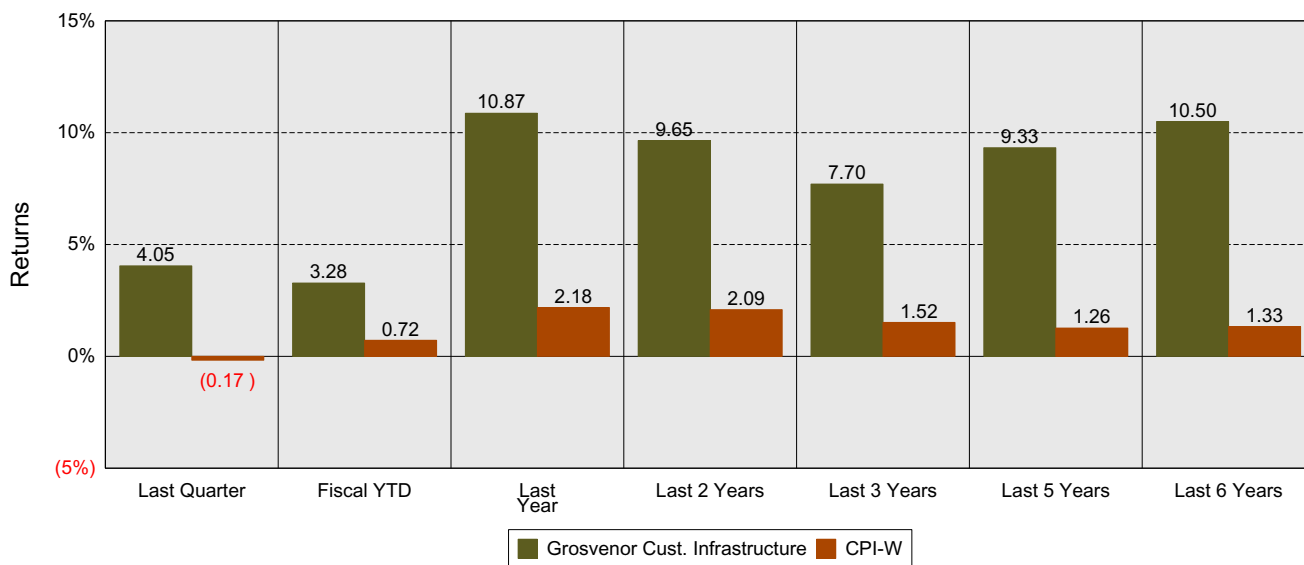
The Customized Infrastructure Strategies LP is a commingled fund focused on providing a comprehensive, diversified solution for investors looking to access the infrastructure asset class. The Fund seeks to generate stable, long-term yield and attractive risk-adjusted returns by investing in a diversified portfolio of primary core and core plus infrastructure funds (30%), co-investments (40%) and opportunistic secondary fund purchases (30%).

### Quarterly Summary and Highlights

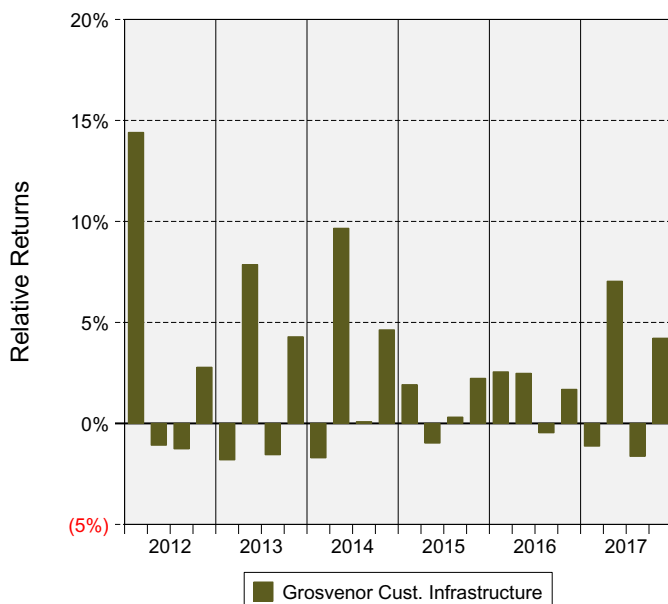
- Grosvenor Cust. Infrastructure's portfolio outperformed the CPI-W by 4.22% for the quarter and outperformed the CPI-W for the year by 8.69%.

### Quarterly Asset Growth

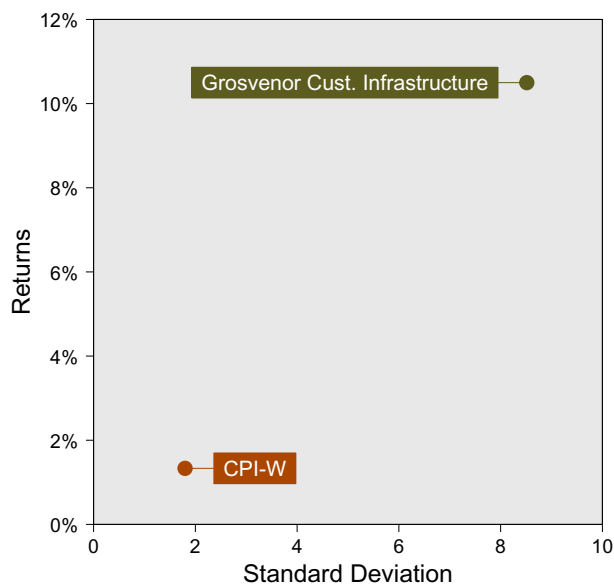
Beginning Market Value	\$17,048,381
Net New Investment	\$-857,166
Investment Gains/(Losses)	\$685,640
Ending Market Value	\$16,876,855



### Relative Return vs CPI-W



### Annualized Six Year Risk vs Return



## Real Estate Period Ended December 31, 2017

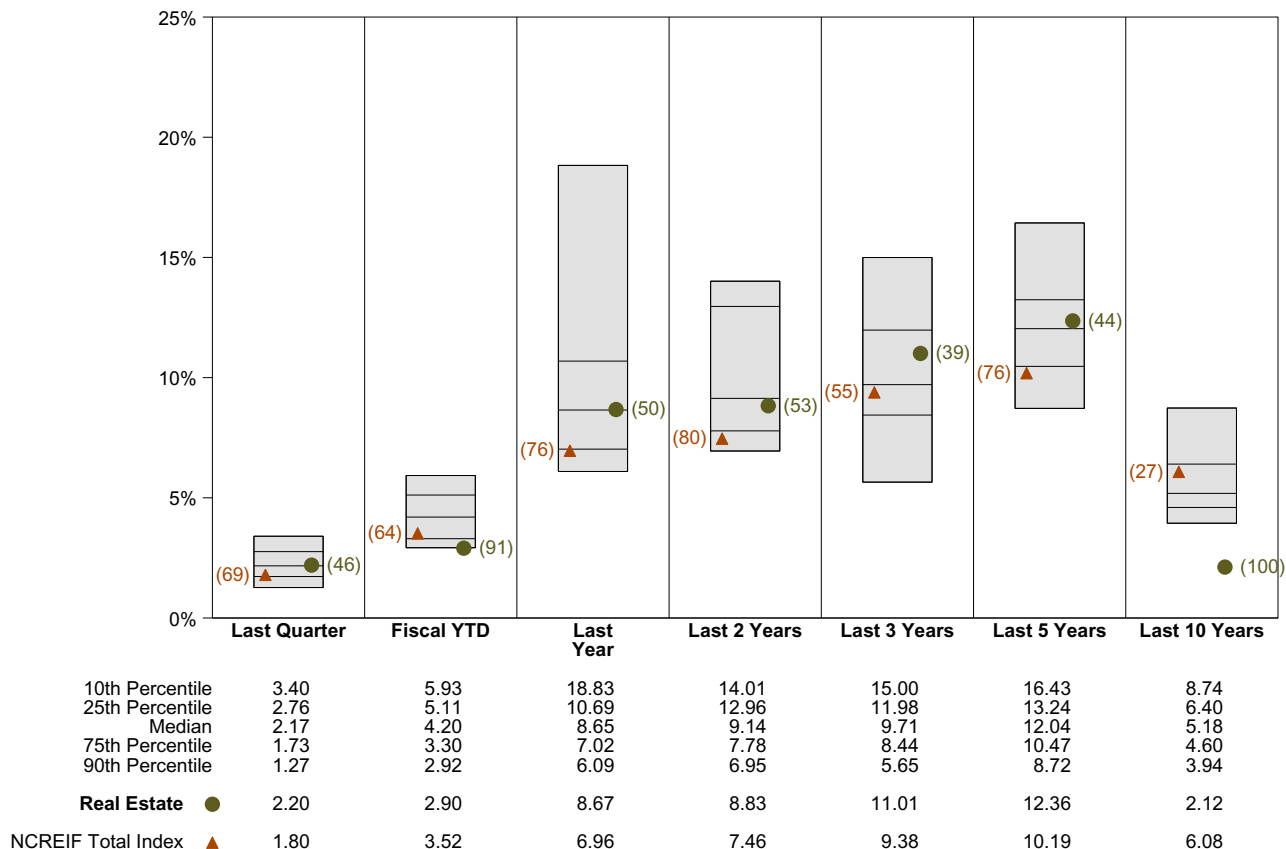
### Quarterly Summary and Highlights

- Real Estate's portfolio posted a 2.20% return for the quarter placing it in the 46 percentile of the Callan Total Domestic Real Estate DB group for the quarter and in the 50 percentile for the last year.
- Real Estate's portfolio outperformed the NCREIF Total Index by 0.40% for the quarter and outperformed the NCREIF Total Index for the year by 1.71%.

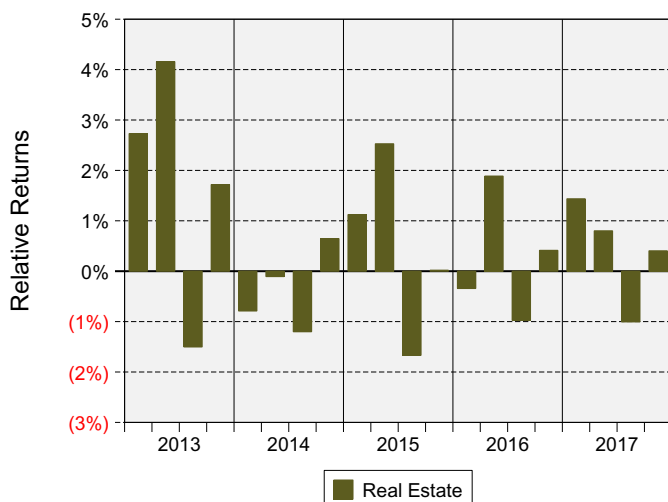
### Quarterly Asset Growth

Beginning Market Value	\$137,993,680
Net New Investment	\$-1,563,472
Investment Gains/(Losses)	\$3,016,119
Ending Market Value	\$139,446,327

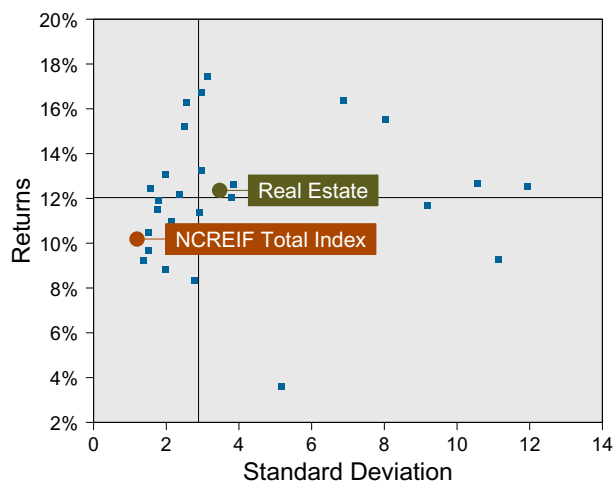
### Performance vs Callan Total Domestic Real Estate DB (Gross)



### Relative Return vs NCREIF Total Index



### Callan Total Domestic Real Estate DB (Gross) Annualized Five Year Risk vs Return



# Invesco Core Real Estate

## Period Ended December 31, 2017

### Investment Philosophy

IRE's investment philosophy is comprised of two fundamental principles: (1) maximize the predictability and consistency of investment returns and (2) minimize the risk of capital loss. This philosophy forms the cornerstone of the company's real estate investment philosophy.

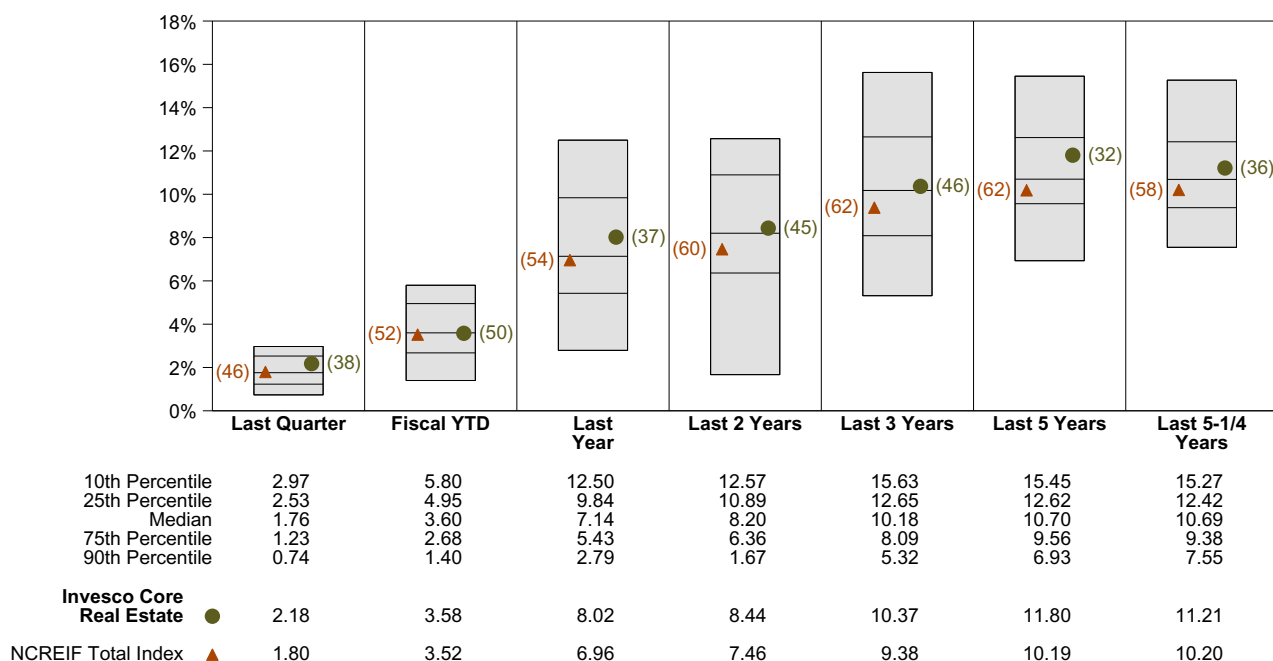
### Quarterly Summary and Highlights

- Invesco Core Real Estate's portfolio posted a 2.18% return for the quarter placing it in the 38 percentile of the Callan Total Domestic Real Estate DB group for the quarter and in the 37 percentile for the last year.
- Invesco Core Real Estate's portfolio outperformed the NCREIF Total Index by 0.38% for the quarter and outperformed the NCREIF Total Index for the year by 1.06%.

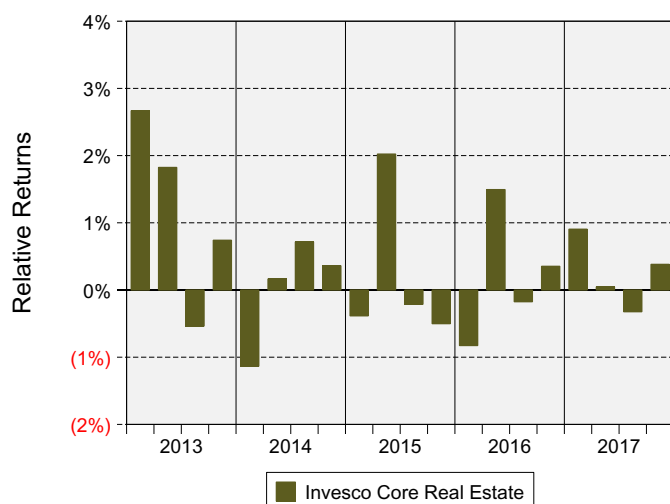
### Quarterly Asset Growth

Beginning Market Value	\$65,892,865
Net New Investment	\$-472,195
Investment Gains/(Losses)	\$1,424,663
Ending Market Value	\$66,845,334

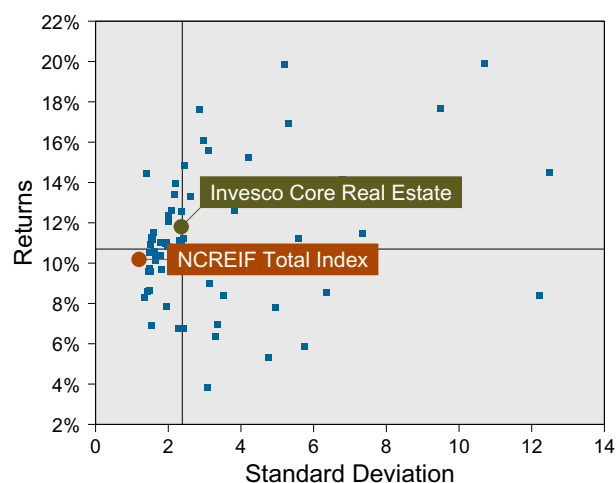
### Performance vs Callan Total Domestic Real Estate DB (Net)



### Relative Return vs NCREIF Total Index



### Callan Total Domestic Real Estate DB (Net) Annualized Five Year Risk vs Return



## JP Morgan Real Estate Period Ended December 31, 2017

### Investment Philosophy

The J.P. Morgan U.S. Real Estate Income and Growth Fund seeks to construct and opportunistically manage a portfolio of core direct real estate investments, complemented by other real estate and real estate-related assets. The Fund pursues a broadly diversified absolute-return strategy and pursues all property investments on an opportunistic basis. The majority of the Fund's investments will be in direct core properties in the office, industrial, retail and residential sectors.

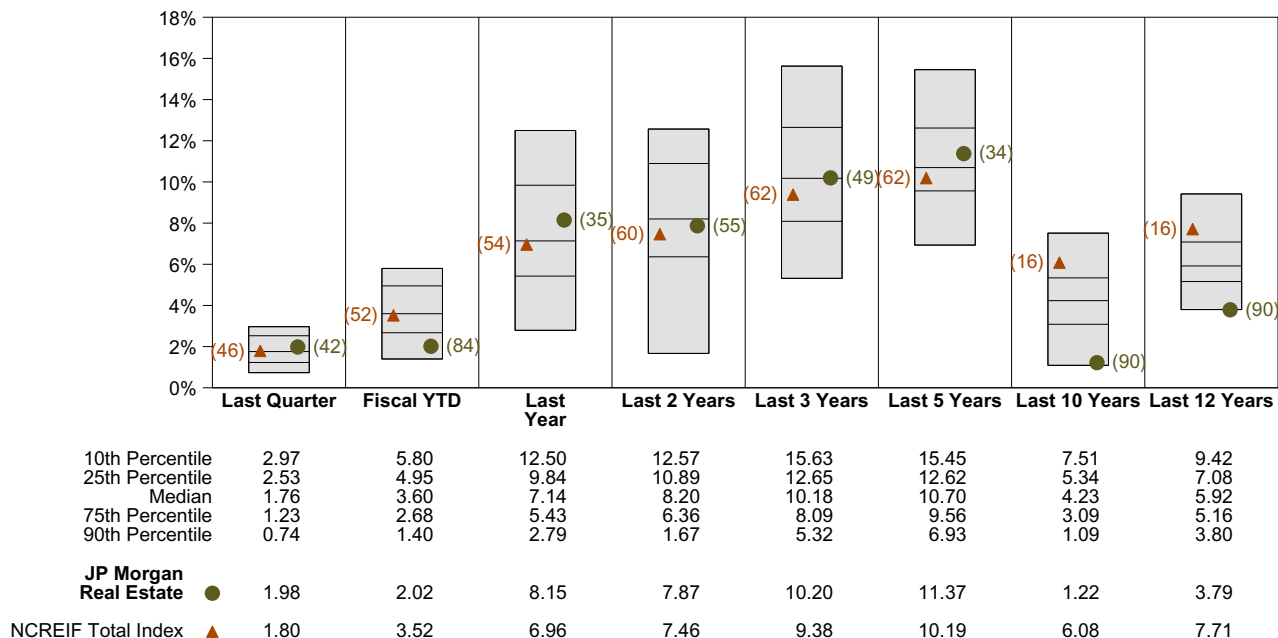
### Quarterly Summary and Highlights

- JP Morgan Real Estate's portfolio posted a 1.98% return for the quarter placing it in the 42 percentile of the Callan Total Domestic Real Estate DB group for the quarter and in the 35 percentile for the last year.
- JP Morgan Real Estate's portfolio outperformed the NCREIF Total Index by 0.19% for the quarter and outperformed the NCREIF Total Index for the year by 1.19%.

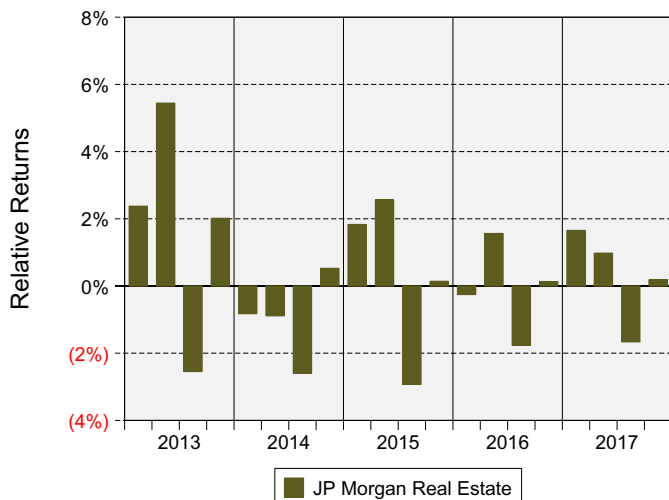
### Quarterly Asset Growth

Beginning Market Value	\$72,100,814
Net New Investment	\$-927,839
Investment Gains/(Losses)	\$1,428,018
Ending Market Value	\$72,600,994

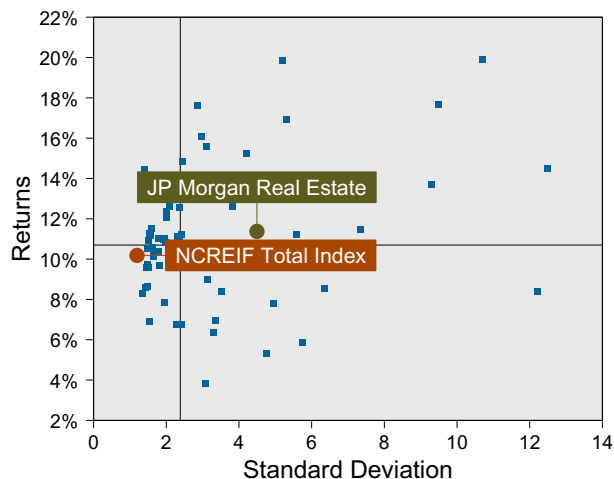
### Performance vs Callan Total Domestic Real Estate DB (Net)



### Relative Return vs NCREIF Total Index



### Callan Total Domestic Real Estate DB (Net) Annualized Five Year Risk vs Return



## Short Term Fixed Income Period Ended December 31, 2017

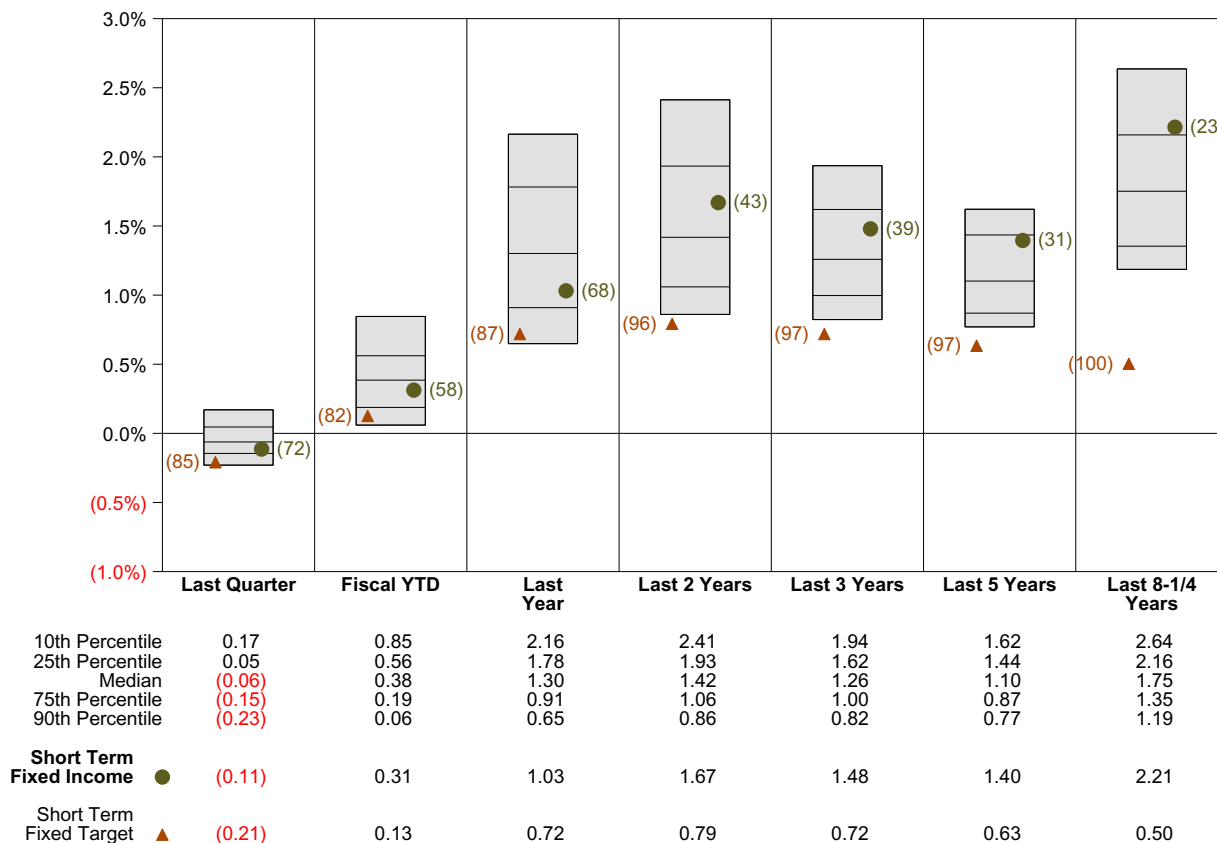
### Quarterly Summary and Highlights

- Short Term Fixed Income's portfolio posted a (0.11)% return for the quarter placing it in the 72 percentile of the Callan Defensive Fixed Income group for the quarter and in the 68 percentile for the last year.
- Short Term Fixed Income's portfolio outperformed the Short Term Fixed Target by 0.10% for the quarter and outperformed the Short Term Fixed Target for the year by 0.31%.

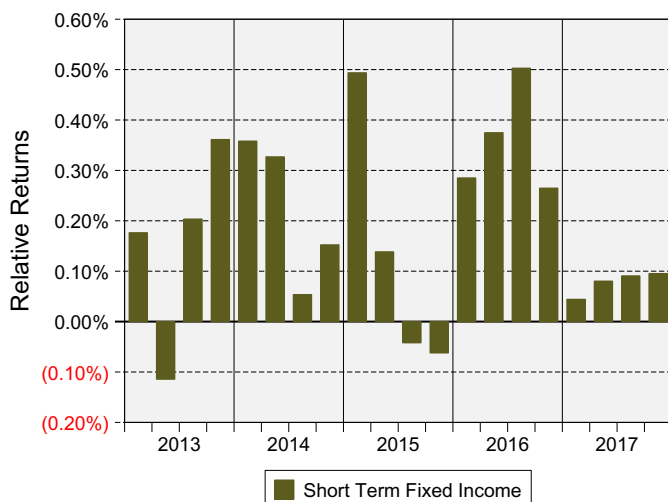
### Quarterly Asset Growth

Beginning Market Value	\$70,717,079
Net New Investment	\$-22,138
Investment Gains/(Losses)	\$-80,399
Ending Market Value	\$70,614,543

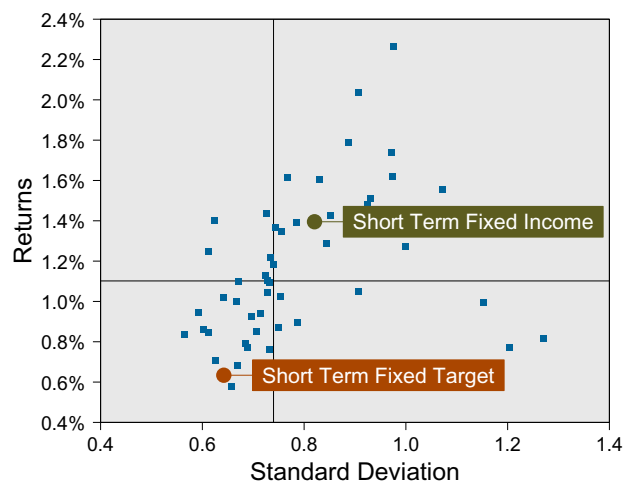
### Performance vs Callan Defensive Fixed Income (Gross)



### Relative Return vs Short Term Fixed Target



### Callan Defensive Fixed Income (Gross) Annualized Five Year Risk vs Return





## JP Morgan Short Term Bonds Period Ended December 31, 2017

### Investment Philosophy

The investment objective of this account is to outperform the Barclays Capital 1-3 year Government/Credit Index while maintaining total return risk similar to that of the benchmark as measured over a market cycle. The weighted average effective duration of the portfolio will typically remain within +/- 30% of the benchmark.

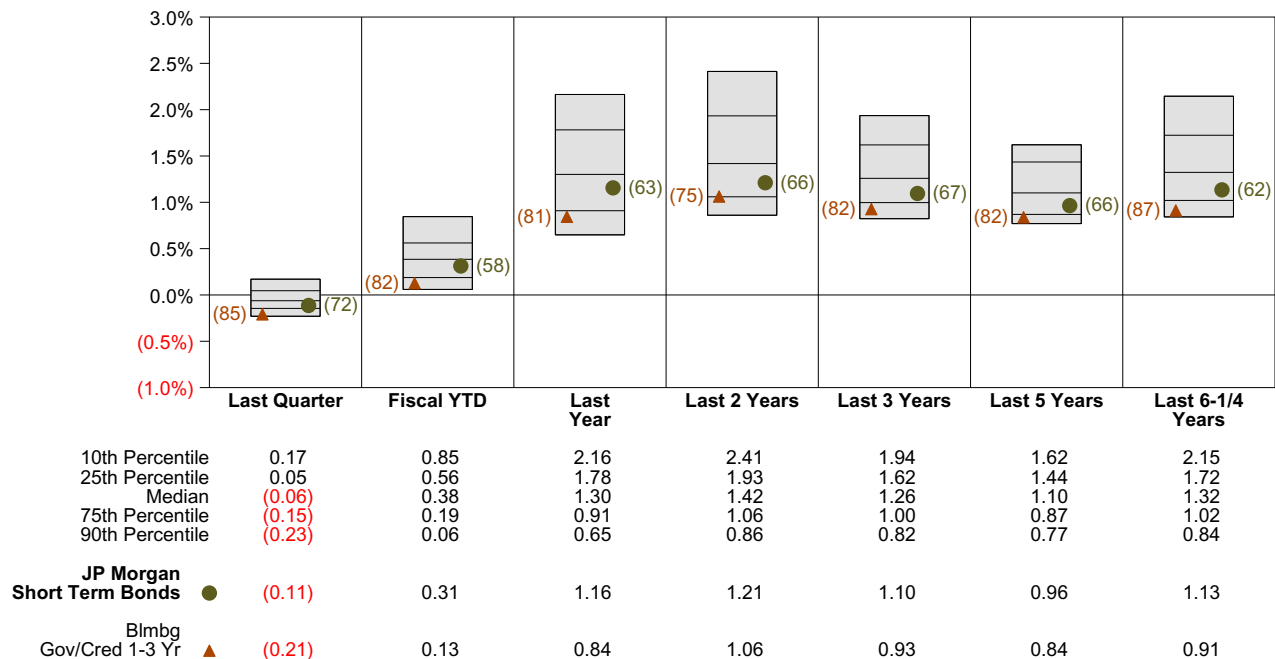
### Quarterly Summary and Highlights

- JP Morgan Short Term Bonds's portfolio posted a (0.11)% return for the quarter placing it in the 72 percentile of the Callan Defensive Fixed Income group for the quarter and in the 63 percentile for the last year.
- JP Morgan Short Term Bonds's portfolio outperformed the Blmbg Gov/Cred 1-3 Yr by 0.10% for the quarter and outperformed the Blmbg Gov/Cred 1-3 Yr for the year by 0.31%.

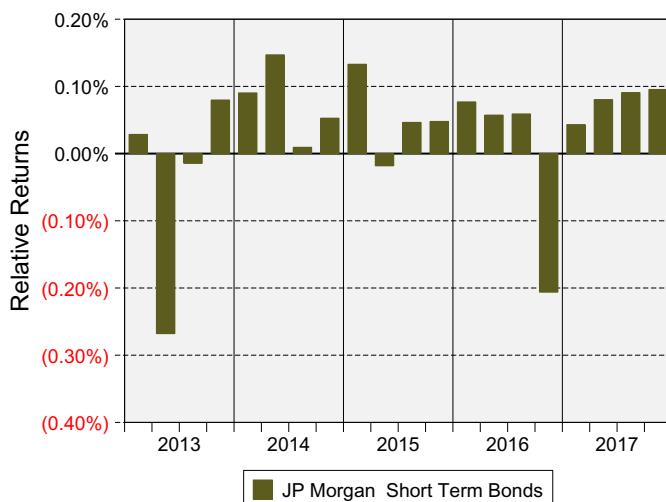
### Quarterly Asset Growth

Beginning Market Value	\$70,717,079
Net New Investment	\$-22,138
Investment Gains/(Losses)	\$-80,399
Ending Market Value	\$70,614,543

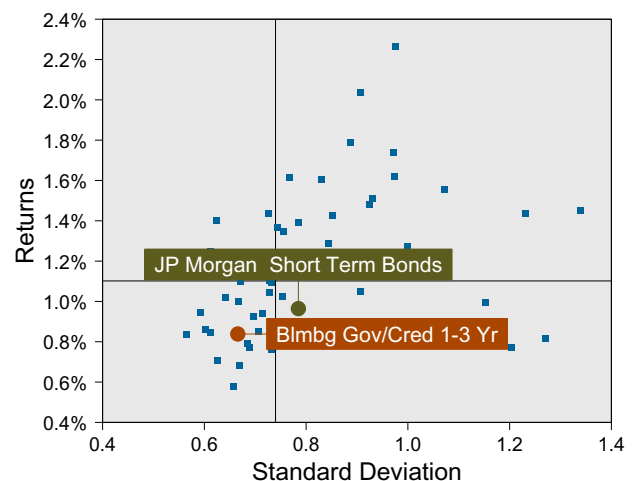
### Performance vs Callan Defensive Fixed Income (Gross)



### Relative Return vs Blmbg Gov/Cred 1-3 Yr



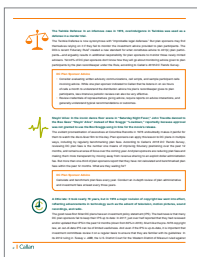
### Callan Defensive Fixed Income (Gross) Annualized Five Year Risk vs Return



## Research and Educational Programs

The Callan Institute provides both research to update clients on the latest industry trends and carefully structured educational programs to enhance the knowledge of industry professionals. Visit [www.callan.com/library](http://www.callan.com/library) to see all of our publications, and [www.callan.com/blog](http://www.callan.com/blog) to view our blog “Perspectives.” For more information contact Anna West at 415.974.5060 / [institute@callan.com](mailto:institute@callan.com).

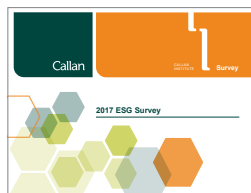
## New Research from Callan’s Experts



**The 401(k) Plan Turns 40** | In 1978, a section of the Internal Revenue Code was enacted into law that made 401(k) plans possible. For the most part, plan sponsors have taken advantage of DC plan improvements that have transpired since 1978. Yet some aspects of plan management may still be stuck in the era of bell bottom pants. Lori Lucas, Callan’s DC practice leader, offers lessons sponsors can apply to their DC plans in 2018.

**The Cost of Returns** | This paper summarizes Callan’s October 2017 Workshop, “The Cost of Returns: An In-Depth Look at Institutional Investment Fees.”

**2017 ESG Survey** | Callan’s fifth annual survey on the status of environmental, social, and governance (ESG) investing in the U.S. institutional investment market reveals more than a third of investors are incorporating ESG factors into investment decisions.



**Real Estate Indicators: Too Hot to Touch or Cool Enough to Handle?** | Callan’s Real Assets Consulting Group has identified seven indicators—based on spreads in real estate and fixed income markets—that, combined with an understanding of prevailing market dynamics, help signal when the institutional real estate market is overheated or cooled.

**2017 Investment Management Fee Survey** | This survey—the seventh we have produced in 30 years—reports on institutional investment management fee payment practices and trends. The data in this report were gleaned from electronic questionnaires sent to a broad sample of U.S.-based institutional fund sponsors and investment management organizations, as well as from information in Callan’s proprietary database.

**TDFs, FYI** | Jimmy Veneruso, CFA, CAIA, a DC consultant in our Fund Sponsor Consulting Group, discusses target date funds (TDFs) and considerations for fund sponsors in this video.

### Periodicals

**Active vs. Passive Charts, 3rd Quarter 2017** | This series of charts maps active managers alongside relevant benchmarks.

**Market Pulse Flipbook, 3rd Quarter 2017** | A quarterly market reference guide covering investment and fund sponsor trends in the U.S. economy, U.S. and non-U.S. equities and fixed income, alternatives, and defined contribution.

**Capital Market Review, 3rd Quarter 2017** | The Review provides analysis and an overview of the economy and public and private market activity each quarter across a wide range of asset classes.

**Real Assets Reporter, Summer/Fall 2017** | In this edition, Jan Mende of Callan’s Real Assets Consulting Group discusses the merits of infrastructure debt for institutional investors’ portfolios.

**DC Observer, 3rd Quarter 2017** | This edition highlights our “DC Plan Governance Survey,” which helps sponsors better understand good governance practices, including how their peers are structuring oversight committees. **With: DC Plan Governance Survey Key Findings** | This infographic displays the survey’s highlights.

**Hedge Fund Monitor, 3rd Quarter 2017** | Callan’s Jim McKee analyzes four major secular forces that may alter our perception of the financial market’s now-healthy glow and explores how investors can prepare for today’s uncertainty surrounding risk assets and the divergent paths that they may take when the next financial eclipse occurs.

## Events

Miss out on a Callan conference or workshop? Event summaries and speakers' presentations are available on our website: [www.callan.com/library/](http://www.callan.com/library/)

Callan's **National Conference** will be held January 29–31, 2018, at the Palace Hotel in San Francisco.

**For more information about events, please contact Barb Gerraty: 415.274.3093 / [gerraty@callan.com](mailto:gerraty@callan.com)**

## The Center for Investment Training Educational Sessions

The Center for Investment Training, better known as the “Callan College,” provides a foundation of knowledge for industry professionals who are involved in the investment decision-making process. It was founded in 1994 to provide clients and non-clients alike with basic- to intermediate-level instruction. Our next sessions are:

### Introduction to Investments

*Boise, April 4-5, 2018*

*San Francisco, April 10-11, 2018*

*San Francisco, July 24-25, 2018*

*Chicago, October 2-3, 2018*

This program familiarizes fund sponsor trustees, staff, and asset management advisers with basic investment theory, terminology, and practices. It lasts one-and-a-half days and is designed for individuals who have less than two years of experience with asset-management oversight and/or support responsibilities. Tuition for the Introductory “Callan College” session is \$2,350 per person. Tuition includes instruction, all materials, breakfast and lunch on each day, and dinner on the first evening with the instructors.

### Customized Sessions

The “Callan College” is equipped to customize a curriculum to meet the training and educational needs of a specific organization. These tailored sessions range from basic to advanced and can take place anywhere—even at your office.

**Learn more at [www.callan.com/events/callan-college-intro](http://www.callan.com/events/callan-college-intro) or contact Kathleen Cunnie: 415.274.3029 / [cunnie@callan.com](mailto:cunnie@callan.com)**

## Education: By the Numbers

**525**

Attendees (on average) of the Institute's annual National Conference

**50+**

Unique pieces of research the Institute generates each year

**3,700**

Total attendees of the “Callan College” since 1994

**1980**

Year the Callan Institute was founded



“We think the best way to learn something is to teach it. Entrusting client education to our consultants and specialists ensures that they have a total command of their subject matter. This is one reason why education and research have been cornerstones of our firm for more than 40 years.”

Ron Peyton, Executive Chairman

## List of Callan's Investment Manager Clients

Confidential – For Callan Client Use Only

Callan takes its fiduciary and disclosure responsibilities to clients very seriously. We recognize that there are numerous potential conflicts of interest encountered in the investment consulting industry and that it is our responsibility to manage those conflicts effectively and in the best interest of our clients. At Callan, we employ a robust process to identify, manage, monitor and disclose potential conflicts on an on-going basis.

The list below is an important component of our conflicts management and disclosure process. It identifies those investment managers that pay Callan fees for educational, consulting, software, database or reporting products and services. We update the list quarterly because we believe that our fund sponsor clients should know the investment managers that do business with Callan, particularly those investment manager clients that the fund sponsor clients may be using or considering using. Please note that if an investment manager receives a product or service on complimentary basis (e.g. attending an educational event), they are not included in the list below. Callan is committed to ensuring that we do not consider an investment manager's business relationship with Callan, or lack thereof, in performing evaluations for or making suggestions or recommendations to its other clients. Please refer to Callan's ADV Part 2A for a more detailed description of the services and products that Callan makes available to investment manager clients through our Institutional Consulting Group, Independent Adviser Group and Fund Sponsor Consulting Group. Due to the complex corporate and organizational ownership structures of many investment management firms, parent and affiliate firm relationships are not indicated on our list.

Fund sponsor clients may request a copy of the most currently available list at any time. Fund sponsor clients may also request specific information regarding the fees paid to Callan by particular fund manager clients. Per company policy, information requests regarding fees are handled exclusively by Callan's Compliance Department.

Manager Name
1607 Capital Partners, LLC
Aberdeen Asset Management PLC
Acadian Asset Management LLC
AEGON USA Investment Management
AEW Capital Management
Affiliated Managers Group, Inc.
Alcentra
AllianceBernstein
Allianz Global Investors
Allianz Life Insurance Company of North America
American Century Investments
Amundi Smith Breeden LLC
Angelo, Gordon & Co.
Apollo Global Management
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Aristotle Capital Management, LLC
Artisan Holdings
Atlanta Capital Management Co., LLC
Aviva Investors Americas
AXA Investment Managers
Baillie Gifford Overseas Limited
Baird Advisors
Bank of America
Barings LLC
Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
BlackRock
BMO Global Asset Management
BNP Paribas Investment Partners
BNY Mellon Asset Management
Boston Partners
Brandes Investment Partners, L.P.
Brandywine Global Investment Management, LLC
Brown Brothers Harriman & Company

Manager Name
Cambiar Investors, LLC
Capital Group
CastleArk Management, LLC
Causeway Capital Management
Chartwell Investment Partners
Citi US Pension Investments
ClearBridge Investments, LLC
Cohen & Steers Capital Management, Inc.
Columbia Management Investment Advisers, LLC
Columbus Circle Investors
Corbin Capital Partners, L.P.
Cornerstone Capital Management
Cramer Rosenthal McGlynn, LLC
Credit Suisse Asset Management
Crestline Investors, Inc.
D.E. Shaw Investment Management, L.L.C.
DePrince, Race & Zollo, Inc.
Deutsche Asset Management
Diamond Hill Capital Management, Inc.
Dimensional Fund Advisors LP
Doubleline
Duff & Phelps Investment Mgmt. Co.
Eagle Asset Management, Inc.
EARNEST Partners, LLC
Eaton Vance Management
Epoch Investment Partners, Inc.
Fayez Sarofim & Company
Federated Investors
Fidelity Institutional Asset Management
Fiera Capital Corporation
First Eagle Investment Management, LLC
First Hawaiian Bank Wealth Management Division
Fisher Investments
Franklin Templeton
Franklin Templeton Institutional
Fred Alger Management, Inc.

Manager Name
Fuller & Thaler Asset Management, Inc.
GAM (USA) Inc.
GlobeFlex Capital, L.P.
GMO
Goldman Sachs Asset Management
Guggenheim Investments
Guggenheim Partners Asset Management
GW&K Investment Management
Harbor Capital Group Trust
Hartford Funds
Hartford Investment Management Co.
Heitman LLC
Henderson Global Investors
Hotchkis & Wiley Capital Management, LLC
HSBC Global Asset Management
IMCA Retirement Corporation
Income Research + Management, Inc.
Insight Investment Management Limited
INTECH Investment Management, LLC
Invesco
Investec Asset Management
Ivy Investments
Janus Capital Management, LLC
Janus Henderson Investors
Jensen Investment Management
Jobs Peak Advisors
J.P. Morgan Asset Management
J.P. Morgan Chase & Company
KeyCorp
Lazard Asset Management
Legal & General Investment Management America
Lincoln National Corporation
LMCG Investments, LLC
Longview Partners
Loomis, Sayles & Company, L.P.
Lord Abbett & Company
Los Angeles Capital Management
LSV Asset Management
MacKay Shields LLC
Macquarie Investment Management (fka Delaware Investments)
Man Investments Inc.
Manulife Asset Management
McKinley Capital Management, LLC
MFS Investment Management
MidFirst Bank
Mondrian Investment Partners Limited
Montag & Caldwell, LLC
Morgan Stanley Investment Management
Mountain Lake Investment Management LLC
MUFG Union Bank, N.A.
Neuberger Berman
Newton Investment Management (fka Newton Capital Mgmt)
Nikko Asset Management Co., Ltd.
Northern Trust Asset Management
Nuveen Investments, Inc.
OFI Global Asset Management
Old Mutual Asset Management
O'Shaughnessy Asset Management, LLC

Manager Name
Pacific Investment Management Company
Pax World Management LLC
Peregrine Capital Management, Inc.
PGIM
PGIM Fixed Income
PGIM Real Estate
PineBridge Investments
Pioneer Investments
PNC Capital Advisors, LLC
PPM America
Principal Global Investors
Private Advisors, LLC
Putnam Investments, LLC
Pzena Investment Management, LLC
QMA (Quantitative Management Associates)
RBC Global Asset Management
Regions Financial Corporation
RidgeWorth Capital Management, Inc.
Rockefeller & Co., Inc.
Rothschild Asset Management, Inc.
Russell Investments
S&P Global, Inc.
Santander Global Facilities
Schroder Investment Management North America Inc.
Sit Investment Associates, Inc.
Smith, Graham & Co. Investment Advisors, L.P.
Smith Group Asset Management
South Texas Money Management Ltd.
Standard Life Investments Limited
Standish
State Street Global Advisors
Stone Harbor Investment Partners, L.P.
T. Rowe Price Associates, Inc.
Taplin, Canida & Habacht
Teachers Insurance & Annuity Association of America
The Boston Company Asset Management, LLC
The Guardian Life Insurance Company of America
The Hartford
The London Company
The TCW Group, Inc.
Thompson, Siegel & Walmsley LLC
Thornburg Investment Management, Inc.
Tri-Star Trust Bank
UBS Asset Management
Van Eck Global
Versus Capital Group
Victory Capital Management Inc.
Vontobel Asset Management, Inc.
Voya Financial
Voya Investment Management (fka ING)
WCM Investment Management
WEDGE Capital Management
Wellington Management Company, LLP
Wells Capital Management
Western Asset Management Company
William Blair & Company

December 31, 2017



## **North Dakota State Investment Board Legacy Fund**

**Investment Measurement Service  
Quarterly Review**

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The following report was prepared by Callan using information from sources that include the following: fund trustee(s); fund custodian(s); investment manager(s); Callan computer software; Callan investment manager and fund sponsor database; third party data vendors; and other outside sources as directed by the client. Callan assumes no responsibility for the accuracy or completeness of the information provided, or methodologies employed, by any information providers external to Callan. Reasonable care has been taken to assure the accuracy of the Callan database and computer software. Callan does not provide advice regarding, nor shall Callan be responsible for, the purchase, sale, hedge or holding of individual securities, including, without limitation securities of the client (i.e., company stock) or derivatives in the client's accounts. In preparing the following report, Callan has not reviewed the risks of individual security holdings or the conformity of individual security holdings with the client's investment policies and guidelines, nor has it assumed any responsibility to do so. Advice pertaining to the merits of individual securities and derivatives should be discussed with a third party securities expert. Copyright 2018 by Callan.

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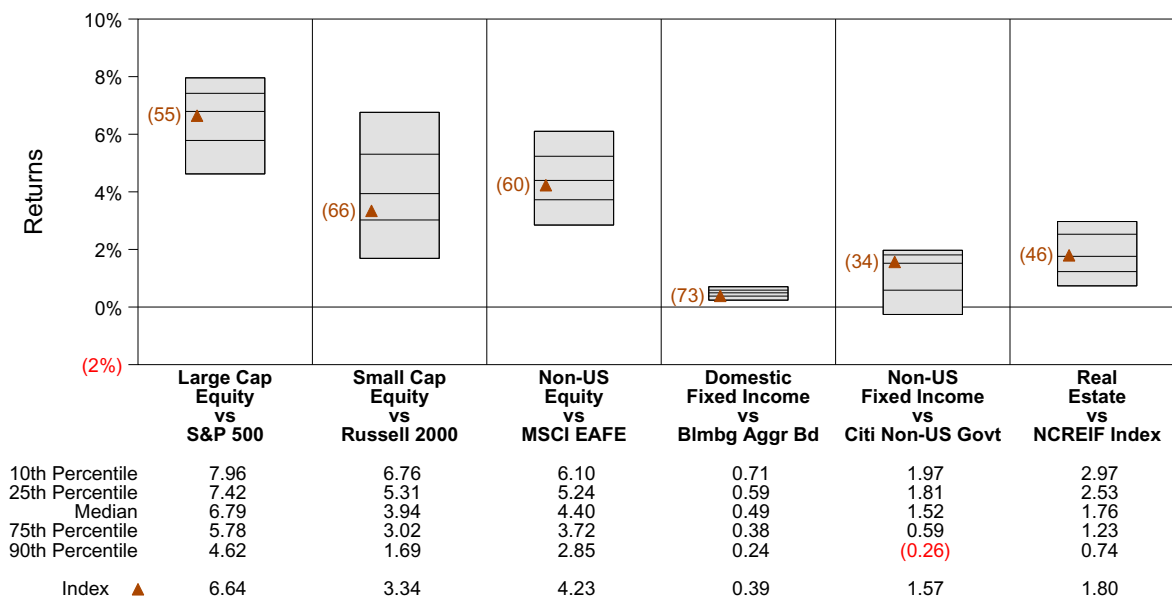
## Market Overview

### Active Management vs Index Returns

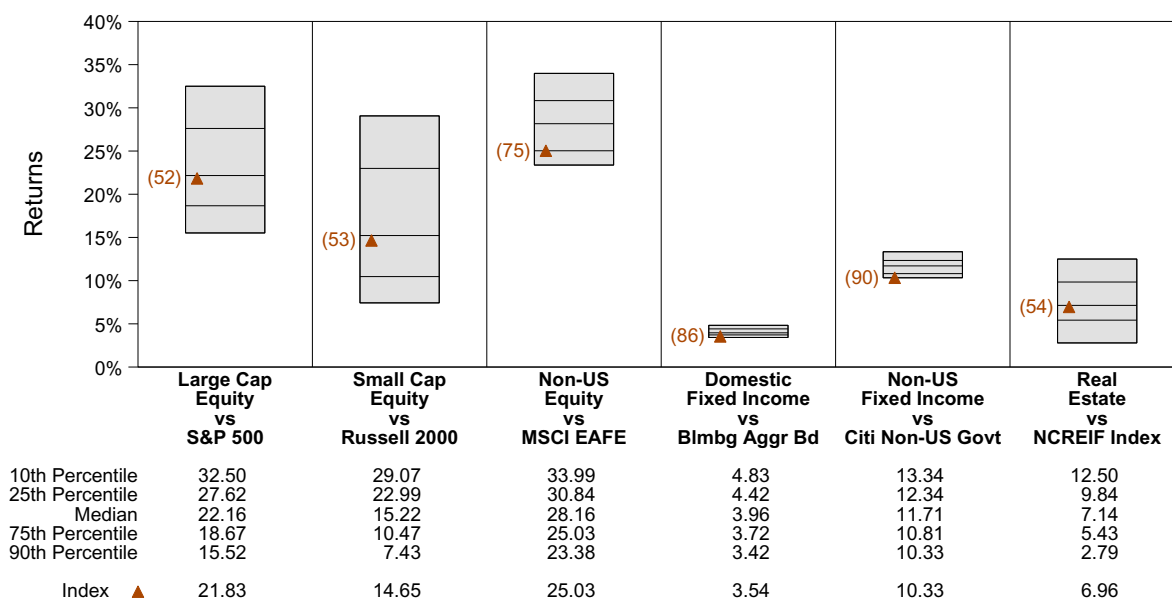
#### Market Overview

The charts below illustrate the range of returns across managers in Callan's Separate Account database over the most recent one quarter and one year time periods. The database is broken down by asset class to illustrate the difference in returns across those asset classes. An appropriate index is also shown for each asset class for comparison purposes. As an example, the first bar in the upper chart illustrates the range of returns for domestic equity managers over the last quarter. The triangle represents the S&P 500 return. The number next to the triangle represents the ranking of the S&P 500 in the Large Cap Equity manager database.

#### Range of Separate Account Manager Returns by Asset Class One Quarter Ended December 31, 2017



#### Range of Separate Account Manager Returns by Asset Class One Year Ended December 31, 2017



Fourth Quarter 2017

## Sentiment Restored. Is It Time to Worry?

### ECONOMY

**2** The U.S. economy ended 2017 with a 2.6% gain in GDP in the fourth quarter, averaging 2.3% for the year, up from 1.5% in 2016. That is especially impressive given the damage from severe hurricanes in the third quarter. Enthusiasm for growth is apparent, but is now the time to worry?

## Non-U.S. Bias Rewarded Plans

### FUND SPONSOR

**4** Endowments and foundations (+3.8%) performed best last quarter, followed by public plans (+3.7%), Taft-Hartley plans (+3.6%), and corporate plans (+3.5%). By fund size, plans with assets under \$100 million performed best, thanks to larger allocations to non-U.S. equity.

## Synchronicity Powers Global Markets

### EQUITY

**6** A strong quarter closed out a strong year for markets around the world, powered by synchronized global economic growth, a new tax law in the U.S., and low interest rates and inflation. Emerging markets outpaced developed markets for the fourth straight quarter.

## Tight Spreads in U.S.; Developed Returns Flat

### FIXED INCOME

**9** In the U.S., longer-term bonds topped short-term and intermediate-maturity bonds. Investment-grade corporate debt was the best-performing fixed income sector. Returns were mostly flat in developed markets; emerging market debt delivered more muted returns than in earlier quarters.

## Europe Best Region for REITs

### REAL ESTATE

**11** The **NCREIF Property Index** notched its 36th straight quarter of positive returns, rising 1.8%, while the **NCREIF Open End Diversified Core Equity Index** was up 2.1%. European REITs were the best performers; U.S. REITs generated positive returns.

## 2017 Fundraising Sets New Record

### PRIVATE EQUITY

**13** Investor enthusiasm abounds for private equity as evidenced by record fundraising. However, rising valuations, increasing borrowing costs, and the yet-to-be-determined impact of tax reform on borrowing levels and valuations bear vigilance moving forward.

## Risk Takers See Less as More

### HEDGE FUNDS/MACs

**14** The **Credit Suisse Hedge Fund Index** rose 2.3%, while the **Callan Hedge Fund-of-Funds Database** advanced 1.8%. The **Callan Multi-Asset Class Database** was up 3.6%. In general, hedge funds experienced positive but more modest results than market indices.

## DC Plans on Track to Win Big in 2017

### DEFINED CONTRIBUTION

**15** The **Callan DC Index™** recorded a solid 3.8% gain during the third quarter, its eighth straight quarter of positive performance. And the Index is up 11.9% year to date, which marks its best showing for the first three quarters of a year since 2013.

## Broad Market Quarterly Returns

U.S. Equity  
Russell 3000

**+6.3%**

Non-U.S. Equity  
MSCI ACWI ex USA

**+5.0%**

U.S. Fixed Income  
Bloomberg Barclays Agg

**+0.4%**

Non-U.S. Fixed Income  
Bloomberg Barclays GBI ex US

**+1.6%**

Sources: Bloomberg Barclays, MSCI, Russell Investment Group

# Sentiment Restored. Is It Time to Worry?

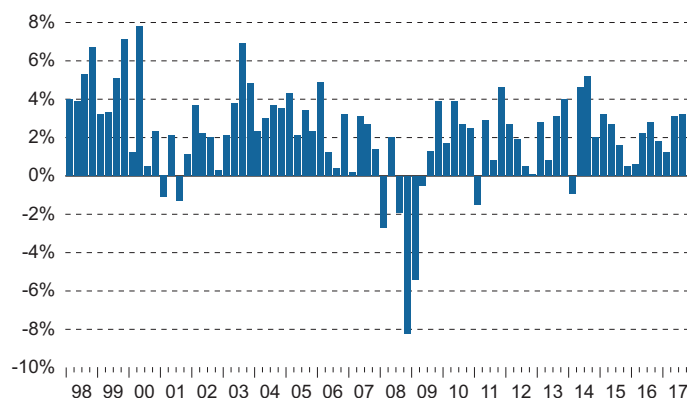
ECONOMY | Jay Kloepper

The U.S. economy closed out 2017 with decent momentum, recording a solid 2.6% gain in GDP in the fourth quarter after growth above 3% in each of the prior two quarters. Investor sentiment felt disconnected as the year unfolded; the underlying global economy appeared to be steadily improving and capital markets reported robust results, while unease around geopolitics and the impact of multiple natural disasters stoked anxiety about the future. By midyear, 2017 felt like the culmination of the unhappiest bull market we'd ever seen. Stock markets then proceeded to hit a number of record highs as the year concluded, the job market continued to improve, unemployment reached a generational low in the U.S., and retail sales rose. A historic revision to the tax code became law at the end of the year, which included a substantial corporate tax cut. After perhaps jumping the gun in the first part of the year, then held back by frustration after not getting expected tax and regulatory changes enacted during the middle quarters, the "animal spirits" of the economy and the capital markets appear to have been unleashed once again. Enthusiasm for growth and risk-taking seem apparent. Is now the time to worry, as phrases like a market "melt-up" enter the popular lexicon?

GDP growth averaged 2.3% for the year, up from 1.5% in 2016. The result for 2017 was impressive given the damage caused by severe hurricanes in the third quarter. Since the Global Financial Crisis (GFC), GDP has increased at a very modest 2.2% annual average, far below the growth typically seen following a recession and below the 3% long-term average since the early 1960s. While gains have been slow and steady, they have gone on now for a sustained period of time, one of the longest expansions on record, and as a result the unemployment rate has been pushed to a generational low of 4.1%. The job market keeps chugging along, creating over 2.1 million new jobs in 2017, or 183,000 per month. The peak years of job creation in the current cycle were 2014 (3 million) and 2015 (2.7 million). While the monthly rate of 183,000 is still robust, and well in excess of the 100,000 needed to keep the market at

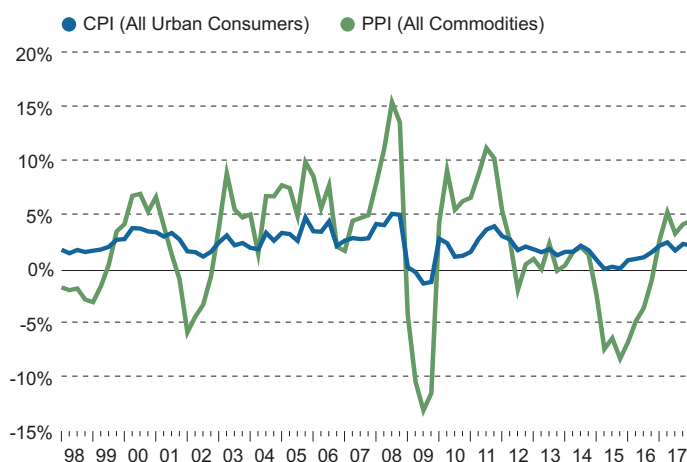
Quarterly Real GDP Growth

(20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

a steady state, the rate of job creation is tailing off, suggesting we might be reaching the limits of full employment. Despite this tight labor market, wage gains remain remarkably subdued, with annual gains in hourly earnings in the 2%-2.5% range for each of the last four years. The rate of growth in total compensation has begun to rise; the employment cost index has inched up from 2% growth to hit 3% in several quarters during 2017.

Confidence in the sustainability of the current spate of growth rose with the release of the aforementioned animal spirits. The impact of the tax cut is expected to be modest, perhaps adding 0.2 to 0.3 percentage points to GDP growth in 2018, and most if not all of the investment gains are already built into the stock market. The wild card is how corporations plan to “spend” the tax cut. The optimistic outcome is that the extra money goes into capital expansion and job growth. Other outcomes include returning the capital to owners through dividends and share buybacks, to existing workers through wage gains, or to consumers in the form of price cuts. Longer term, the \$1.5 trillion increase in the deficit is viewed as a potential drag on growth.

One other potential stimulus still to take shape is the proposed program of substantial infrastructure spending. This spending could spur further growth when the economy is already running hot, and therefore stimulate inflation beyond the current benign levels. The tight labor market suggests we might already be facing limitations on growth from the existing set of labor and capital inputs available in the U.S. economy.

Inflation remains remarkably benign, clipping along at 2.1% in December (year-over-year). Oil prices have recovered from the sharp decline of several years ago, which spurred top-line inflation, but core inflation (net of food and energy) remains below the Fed’s target of 2%. The tight labor market, the impact of the corporate tax cut, and the potential for substantial infrastructure spending all suggest that inflation could finally be poised to move. Another potential impetus for inflation is the improving outlook for the global economy, which appears to be moving into synchronized growth across disparate regions.

### The Long-Term View

Index	2017 4th Qtr	Periods ended Dec. 31, 2017			
		Year	5 Yrs	10 Yrs	25 Yrs
U.S. Equity					
Russell 3000	6.34	21.13	15.58	8.60	9.72
S&P 500	6.64	21.83	15.79	8.50	9.69
Russell 2000	3.34	14.65	14.12	8.71	9.54
Non-U.S. Equity					
MSCI ACWI ex USA	5.00	27.19	6.80	1.84	--
MSCI Emerging Markets	7.44	37.28	4.35	1.68	7.76
MSCI ACWI ex USA Small Cap	6.56	31.65	10.03	4.69	--
Fixed Income					
Bloomberg Barclays Agg	0.39	3.54	2.10	4.01	5.48
90-Day T-Bill	0.28	0.86	0.27	0.39	2.60
Bloomberg Barclays Long G/C	2.84	10.71	4.43	7.26	7.67
Bloomberg Barclays GI Agg ex US	1.63	10.51	-0.20	2.40	5.02
Real Estate					
NCREIF Property	1.70	6.85	10.16	6.07	9.11
FTSE NAREIT Equity	1.51	5.23	9.46	7.44	10.76
Alternatives					
CS Hedge Fund	2.30	7.12	4.23	3.24	--
Cambridge PE*	--	9.25	12.76	9.39	15.38
Bloomberg Commodity	4.71	1.70	-8.45	-6.83	2.47
Gold Spot Price	1.91	13.68	-4.82	4.56	5.63
Inflation – CPI-U	-0.12	2.11	1.43	1.61	2.23

\*Most recent quarterly data not available, annual returns as of 9/30/2017

Sources: Bloomberg Barclays, Bloomberg, Credit Suisse, FTSE, MSCI, NCREIF, Russell Investment Group, Standard & Poor’s, Thomson Reuters/Cambridge, Bureau of Economic Analysis

### Recent Quarterly Economic Indicators

	4Q17	3Q17	2Q17	1Q17	4Q16	3Q16	2Q16	1Q16
Employment Cost–Total Compensation Growth	2.6%	2.5%	2.4%	2.4%	2.2%	2.3%	2.3%	1.9%
Nonfarm Business–Productivity Growth	-0.1%	2.7%	1.5%	0.1%	1.3%	2.5%	0.8%	-1.2%
GDP Growth	2.6%	3.2%	3.1%	1.2%	1.8%	2.8%	2.2%	0.6%
Manufacturing Capacity Utilization	76.4%	75.2%	75.7%	75.4%	75.1%	74.9%	75.1%	75.4%
Consumer Sentiment Index (1966=100)	98.4	95.1	96.4	97.2	93.2	90.3	92.4	91.5

Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve, IHS Economics, Reuters/University of Michigan

# Non-U.S. Bias Rewarded Plans in 2017

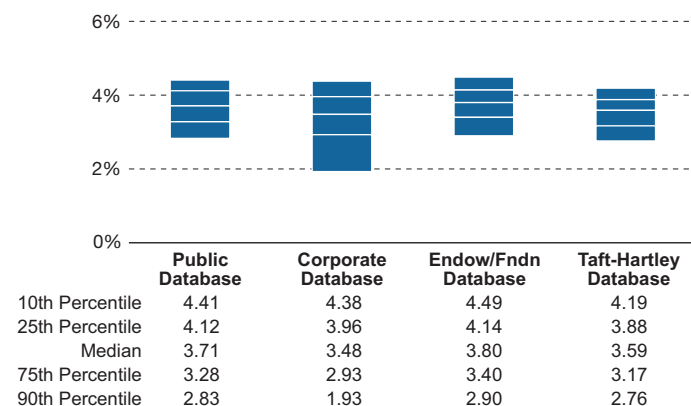
## FUND SPONSOR

Endowments/foundations (+3.8%) performed best last quarter, followed by public plans (+3.7%), Taft-Hartley plans (+3.6%), and corporate plans (+3.5%). For all funds, the return was +3.7%, according to Callan's database. Plans with assets below \$100 million performed best by fund size, up 3.7%, compared to 3.6% for both medium plans (\$100 million-\$1 billion) and large plans. A quarterly rebalanced 60% S&P 500/40% Bloomberg Barclays U.S. Aggregate Bond Index portfolio rose 4.1% during the quarter.

Marking a turn of events, the **MSCI ACWI ex USA Index** outperformed U.S. equity markets over the past year, rewarding funds that have taken steps to diversify away from a home-country bias. Over longer periods of time, Taft-Hartley plans did best over the last five years, up 9.3% annualized. Corporate plans (+5.9%) did best over the last 10 years.

Plans continue to focus on an environment marked by low interest rates, low return expectations, and frustration with the seemingly high cost of diversification while the public equity market has enjoyed such a strong run. Many fund sponsors feel compelled to take on substantial market risk to reach

## Callan Fund Sponsor Returns for the Quarter

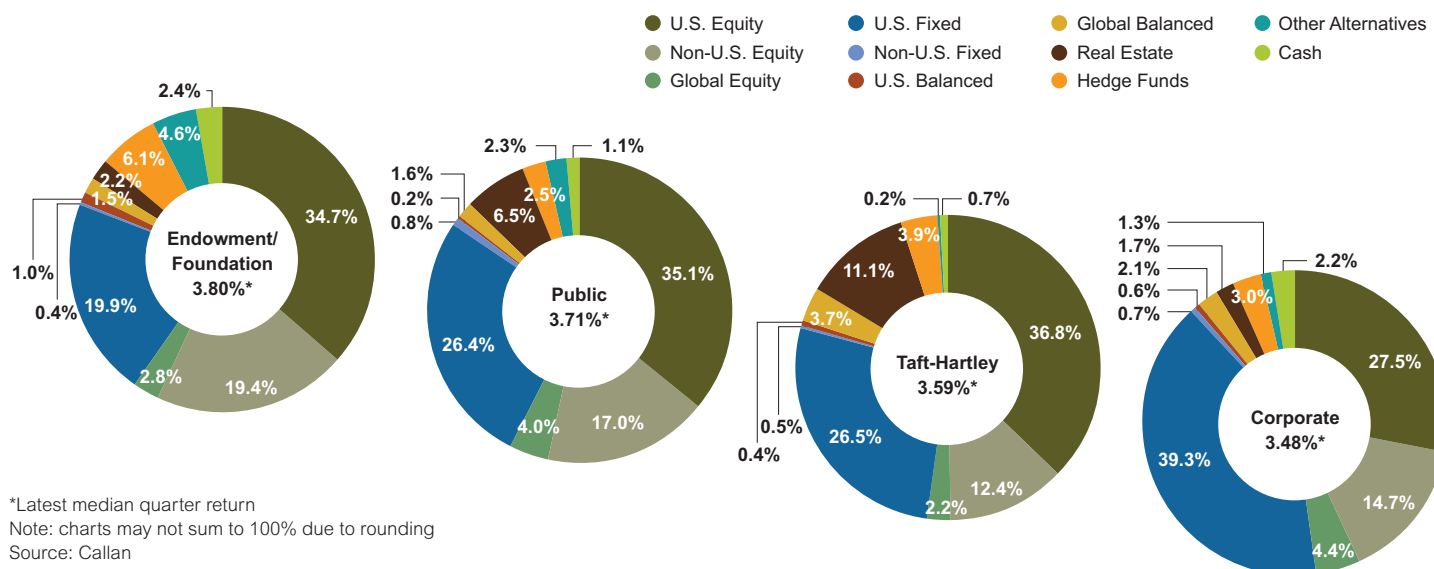


Source: Callan

return targets, and are now focusing on finding sources of diversification within the growth bucket of their asset allocation. Sponsors are examining if there is anything more they can do to tamp down the risk within the growth allocation, short of actually reducing the allocation to growth assets.

Asset owners continue to be skeptical of the value of active management, particularly in U.S. large cap equity. Pressure

## Callan Fund Sponsor Average Asset Allocation



to reduce fees or show the ability to generate consistent alpha has been building for quite some time. Some fund sponsors have undertaken structure work to consider the amount of active versus passive management and to see if there is a way to simplify their manager rosters to gain economies of scale in an effort to reduce costs.

As in past quarters, funds have adjusted their allocations in these ways over the last five years:

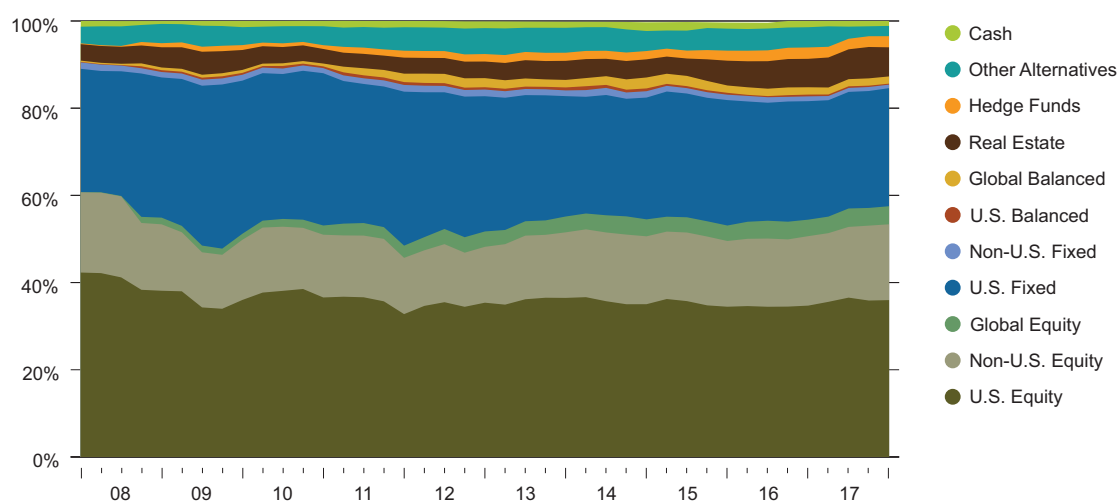
- Corporate plans have widened their range of U.S. fixed income allocations, as they are in different stages of efforts to de-risk plan assets.
- Many public funds have increased their allocation to non-U.S. equity and real estate at the expense of fixed income. Simultaneously, some of the fixed income exposure has become more equity-like in nature.
- Endowments and foundations continue to shift from fixed income to asset classes with higher return expectations, such as global equity, non-U.S. equity, and real estate.

The regulatory environment continues to drive the decision-making process for defined contribution (DC) plan sponsors. Heightened fee sensitivity and litigation have resulted in little traction for non-traditional asset classes such as liquid alternatives. DC plans are also focused on the best ways to reduce/eliminate revenue sharing, as well as obtaining even lower fees from investment managers. They are also looking for opportunities to continue streamlining investment fund lineups to achieve sufficient diversification while minimizing participant confusion—including white label options.

Public plans continue to seek return enhancement and further diversification. Reduced capital market return expectations and funding challenges have created a difficult situation for many public DB plans, and some plans are simply constrained by their circumstances. Alternative beta, MACs, and other liquid strategies are being used in a wide range of capacities and are experiencing increased interest.

### Callan Public Fund Database Average Asset Allocation

(10 Years)



Source: Callan. Callan's database includes the following groups: public defined benefit, corporate defined benefit, endowments/foundations, and Taft-Hartley plans. Approximately 10% to 15% of the database constituents are Callan's clients. All database group returns presented gross of fees. Past performance is no guarantee of future results. Reference to or inclusion in this report of any product, service, or entity should not be construed as a recommendation, approval, affiliation, or endorsement of such product, service, or entity by Callan.

# Global Equity

## U.S. Stocks: Accelerating Growth Spurs Equities

**+6.3%**

RUSSELL 3000

The U.S. equity market continued its upward trajectory in the fourth quarter, closing out a very strong year marked by continued low volatility despite a turbulent U.S. political landscape and a record year in terms of global catastrophes. Investors embraced accelerating global economic growth as well as low interest rates and inflation. Corporate earnings registered double-digit growth for the quarter, receiving a boost from the U.S. tax overhaul bill, which was signed into law in late December.

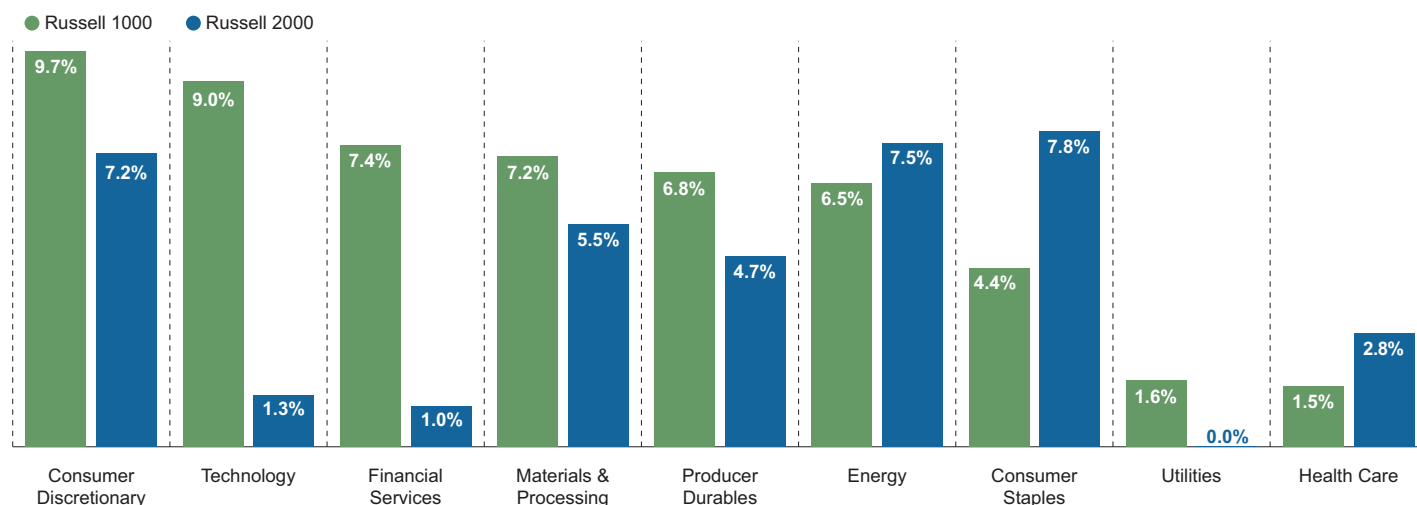
The **S&P 500 Index** rose 6.6% in the fourth quarter, and its 21.8% gain for the year was its best since 2013. The Index hit 62 record highs during the year and had only eight days of 1% or more fluctuations, the lowest number since 1964. The **S&P 500 Price Index** has nearly tripled (+295%) since its low in March 2009. Valuations are stretched by most measures, but estimates for future earnings are also strong. Large cap stocks (**Russell 1000**: +6.6%) outperformed small cap (**Russell 2000**: +3.3%) across styles for the quarter.

Riskier assets continued to lead the equity market. Consumer Discretionary (+9.9%) and Technology (+9.0%) were the strongest performers, with Apple, Amazon, and Microsoft posting 10%-20% returns due to ongoing exceptional cash flow generation and growth in global markets. The Tech sector now accounts for 24% of the S&P 500 and 38% of the **Russell 1000 Growth Index**; returns for the FAAMG stocks (Facebook, Apple, Amazon, Microsoft, Google) ranged from 36% to 56% for 2017.

Consumer Discretionary benefited from strong year-end retail sales as well as positive tax reform expectations as the retail industry carries the highest industry effective tax rate at 35%. The “Amazon Effect,” however, continues to threaten the sector as many large retailers have been forced to close stores or lower prices to unsustainable levels.

The Energy sector (+6.0%) continued to improve in the fourth quarter although it closed out the year among the worst performers (-1.0%). A combination of optimism and improvements in the global economy has spurred demand in recent months. More near-term volatility is anticipated in the price of oil as U.S.

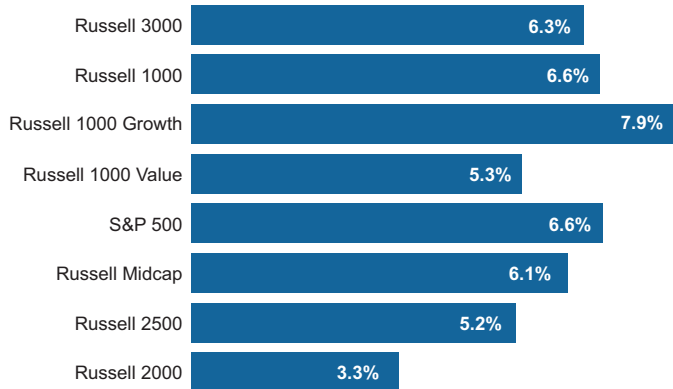
## Quarterly Performance of Select Sectors



Source: Russell Investment Group

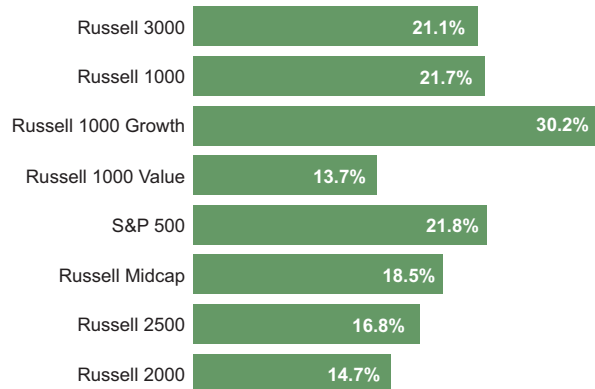


### U.S. Equity: Quarterly Returns



Sources: Russell Investment Group and Standard & Poor's

### U.S. Equity: One-Year Returns



Sources: Russell Investment Group and Standard & Poor's

output is expected to surpass production out of Saudi Arabia for the first time since the early 1990s.

Growth outperformed value during the quarter across the market cap range (**Russell 1000 Growth**: +7.9% vs. **Russell 1000 Value**: +5.3%; **Russell 2000 Growth**: +4.6% vs. **Russell 2000 Value**: +2.0%). The overweight to Tech and Consumer Discretionary in the growth indices drove the outperformance. Investors favored the stronger earnings and top-line growth outlook in the Tech sector, which also benefited from positive investor sentiment following tax reform.

Momentum-oriented stocks (**MSCI Momentum Index**: +37.8%) posted their biggest annual gain since 1999, leaving valuations

stretched; the **MSCI Defensive Index** rose 12.3% for 2017. Anecdotally, some momentum-oriented managers are finding their bench of ideas shrinking as they take profits on winners while defensively oriented managers continue to sit on cash waiting for more favorable opportunities.

### Global Stocks: Markets in Sync Around the World

**+5.0%**

MSCI ACWI ex USA

Major non-U.S. markets performed largely in line with each other during the quarter, which saw a bit of an inflection point as investors were

more willing to capitalize on synchronized global growth and began to rotate out of momentum winners into more cyclical areas such as Financials, Energy, and Materials. Cyclical led as tax reform, improving commodity prices, and growth projections overcame Brexit fears and election uncertainty in Germany in a risk-on quarter.

Non-U.S. developed (**MSCI EAFE** and **MSCI World ex USA**: +4.2%) trailed U.S. (**MSCI USA**: +6.4%) after beating it in the previous three quarters. Within MSCI EAFE, the U.K. notched a record high in the fourth quarter and was up 22.3% for the year.

Europe, which led markets in the third quarter on earnings growth and political stability, reverted and trailed other developed regions (**MSCI Europe**: +2.2%) on Brexit negotiation concerns and political uncertainty following German elections. The European Central Bank also announced plans to curb quantitative easing in January 2018. Japan (**MSCI Japan**: +8.6%) was the best performer on its election results and improved inflation expectations.

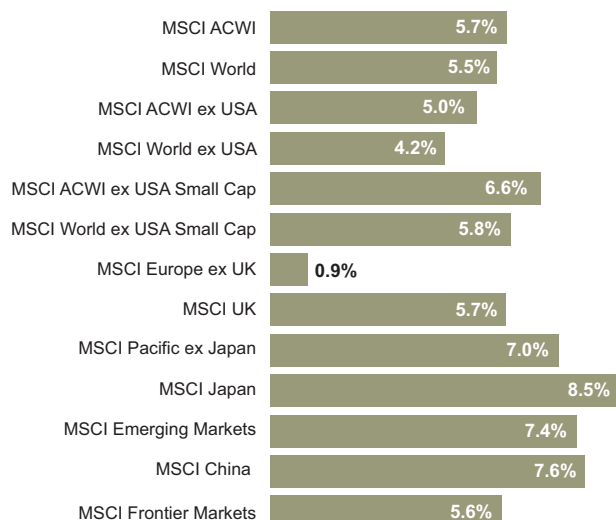
Markets favored economically sensitive sectors: IT (+8.3%), Materials (+7.8%), and Discretionary (+7.6%). Energy was also positive (6.8%) as commodity prices were supported by distribution disruptions and high liquid natural gas usage with winter's arrival. Defensive sectors lagged as markets continued to rise: Utilities (-0.4%), Health Care (+0.9%), and Telecom (+1.7%).

It was another difficult quarter for value; factor performance favored strong growth (forecasted), earnings and price momentum, high quality, and beta (**MSCI World Value**: +4.6% vs.



## Non-U.S. Equity: Quarterly Returns

(U.S. Dollar)



Source: MSCI

**MSCI World Growth:** +6.4%). Valuation factors were mixed with price-to-book ratios and yield detracting from performance, while earnings-based multiples contributed.

## Emerging Markets: Asian Stocks Power Strong Quarter, Driven by China and Korea

**+7.4%**

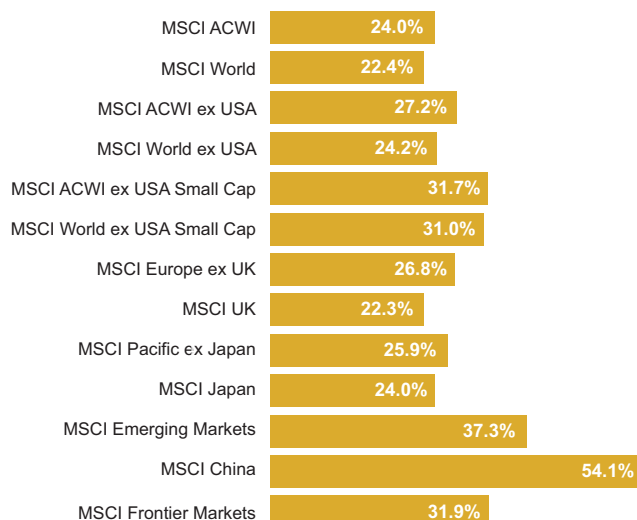
MSCI EM

Emerging market equities outperformed developed in the quarter and for the year (**MSCI Emerging Markets (USD):** +7.4%; +37.3%). Latin America was the only weak spot in the quarter (-2.3%) but was up a robust 23.7% for the year. Emerging Asia performed the best for the quarter and the year (+8.4%; +42.8%) driven by strong results from China (+7.6%; +54.1%) and Korea (+11.4%; +47.3%).

Local China A shares did even better (**MSCI China A 50 Index:** +13.7%). October's 19th National Congress of the Communist Party solidified power around Xi Jinping, reconfirming key policy objectives. Chinese technology continued to perform well but was less of a performance outlier than in previous quarters. China's increasing and less-visible debt is a growing concern, while expectations for stronger growth are buoying the market.

## Non-U.S. Equity: One-Year Returns

(U.S. Dollar)



Source: MSCI

South Africa (**MSCI South Africa:** +21.4%) was the best performer as commodity prices firmed and investors cheered a leadership change. Mexico (**MSCI Mexico:** -8.0%) was the worst-performing emerging market country as the peso sold off on NAFTA negotiation concerns.

Economically sensitive sectors sold off (Discretionary: -23.6%, Financials: -21.2%). Emerging market Health Care (+16.6%) saw very good performance with outsized contribution from China and South Korea as changing demographics continued to drive demand. Value factors struggled in emerging markets while growth, earnings momentum, price momentum, volatility, and beta were positive.

## Non-U.S. Small Cap: Health Care Powers EM Gains

**+6.6%**

MSCI ACWI ex USA SC

Developed non-U.S. small cap (**MSCI World ex USA Small Cap:** +5.8%) outperformed its large/mid counterpart modestly, led by Asia. Australia (+11.6%) and Japan (+8.7%) led the segment.

Emerging market small cap (**MSCI Emerging Market Small Cap:** +9.2%) was the best-performing segment of the equity markets in the fourth quarter, led by Health Care (+28%); Real Estate (-0.1%) was the laggard.

# Global Fixed Income

## U.S. Bonds: Strong Fundamentals Tighten Spreads

**+0.4%**

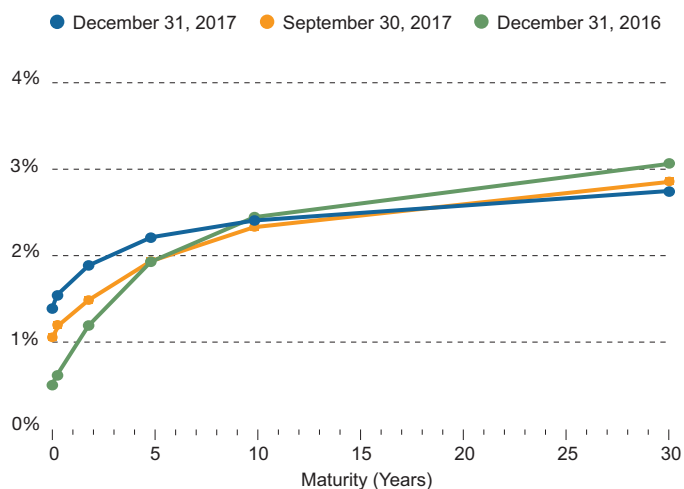
BB AGGREGATE

The U.S. yield curve continued its flat-trending trend in the fourth quarter. The 2-year U.S. Treasury yield climbed 42 basis points to close at 1.89%, up 69 bps from the end of 2016. At the long end of the yield curve, the 30-year U.S. Treasury yield fell 12 bps during the quarter, ending the year at 2.74%, 32 bps lower than its close in 2016. This trend reflects the Fed's bias to be less accommodative through monetary policy, as well as benign inflation in the face of a strong labor market. As a result, longer-term bonds sharply outperformed short-term and intermediate-maturity bonds for the quarter and the year.

Volatility in fixed income as well as equity markets sits near historical lows. The overall risk appetite remains elevated, driven in part by globally strong growth and loose monetary policy from central banks, as well as business and consumer confidence. The market is pricing in three Fed rate hikes for 2018, not far from the Fed's own expectation of where rates will end up in the longer run. Yields on 10-year Treasuries rose modestly from 2.33% at the end of the third quarter to 2.41%.

The **Bloomberg Barclays Long U.S. Treasury Index** gained 2.4% in the quarter and 8.5% in 2017 versus a -0.4% quarterly and

## U.S. Treasury Yield Curves

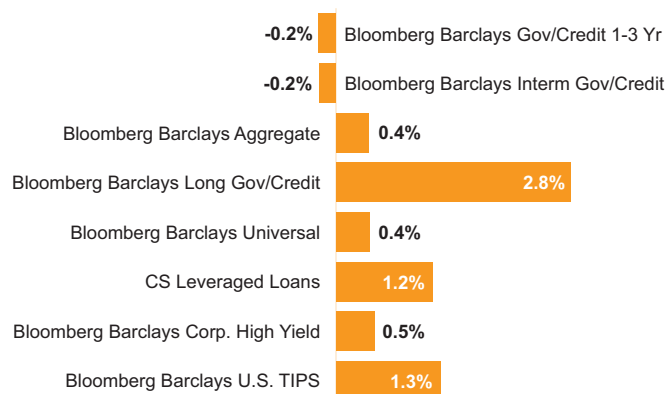


Source: Bloomberg

+1.1% annual return for the **Bloomberg Barclays Intermediate Treasury Index**. Consistent with the low volatility theme evident in the equity markets, the U.S. Treasury 10-year traded in a narrow 60 bps band for the year, the lowest since 2000.

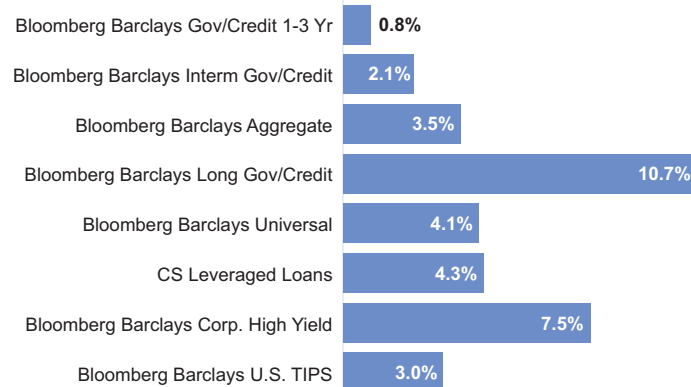
The **Bloomberg Barclays U.S. Aggregate Bond Index** rose 0.4% during the quarter. Corporate bonds outperformed for the quarter and the year, and yield spreads were the tightest since the Global Financial Crisis, hitting 93 bps over Treasuries.

## U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg Barclays and Credit Suisse

## U.S. Fixed Income: One-Year Returns



Sources: Bloomberg Barclays and Credit Suisse

## GLOBAL FIXED INCOME (Continued)

Investment-grade corporate credit was the strongest-performing fixed income sector; tax reform may boost the sector by improving profitability and reducing issuance.

High yield corporates also did well, with the **Bloomberg Barclays U.S. Corporate High Yield Index** up 0.5% for the quarter and 7.5% for the year. The annual default rate was the lowest since 2013. Issuance was robust in the fourth quarter at \$68 billion, but tax reform could negatively impact issuance.

TIPS outperformed nominal U.S. Treasuries as expectations for inflation rose. The **Bloomberg Barclays U.S. TIPS Index** rose 1.3% for the quarter and 3.0% for the year, and the 10-year breakeven spread (the difference between nominal and real yields) rose to 1.96%.

The municipal bond market performed well in 2017 as rates were steady and demand remained strong. The tax overhaul package is expected to have mixed effects. The change in personal income rates is too small to have a meaningful impact, while the decrease in corporate tax rates is expected to reduce demand for munis from certain corporations. Limiting state and local tax deductions could increase demand for in-state munis in high tax states. Issuance spiked in anticipation of changing regulations, setting a record \$62.5 billion for December supply, but the market absorbed it well. The **Bloomberg Barclays Municipal Bond Index** returned 0.7% for the quarter and 5.4% for the year.

### Global Bonds: Flat Returns in Developed Markets; EM Returns Muted

**+2.5%**

BB GBL AGG ex US

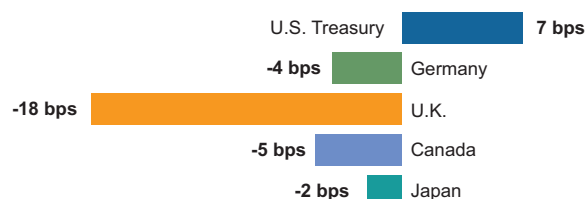
Quarterly returns were mostly flat in developed markets. The **Bloomberg Barclays Global Aggregate Bond Index** rose +1.1% (unhedged) and 0.8% (hedged).

Emerging market debt delivered more muted returns than in earlier quarters. Higher commodity prices and global growth supported the asset class broadly. The **JPM EMBI Global Diversified Index** (\$ denominated) gained 1.2% in the quarter and 10.3% for the year. Returns were mixed, but beleaguered Venezuela was the outlier for the quarter (-29%) and the year

(-34%). The local currency **JPM GBI-EM Global Diversified Index** increased +0.8% in the quarter and +15.2% for the year. In the quarter, Asian countries (+5%) performed best while Latin America sank nearly 5%.

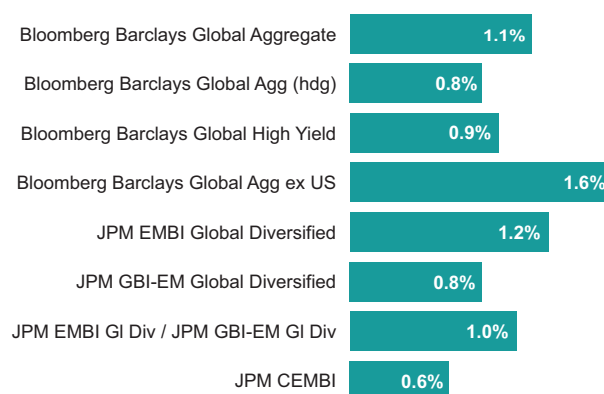
### Change in 10-year Global Government Bond Yields

3Q17 to 4Q17



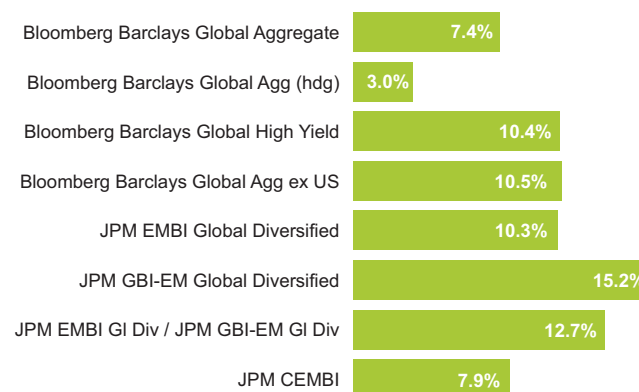
Source: Bloomberg Barclays

### Non-U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg Barclays and JP Morgan

### Non-U.S. Fixed Income: One-Year Returns



Sources: Bloomberg Barclays and JP Morgan

# Steady Returns in U.S.; Europe Best Region for REITs

REAL ESTATE | Kevin Nagy

The **NCREIF Property Index** advanced 1.8% during the fourth quarter (1.2% from income and 0.6% from appreciation). This marked the 36th consecutive quarter of positive returns for the Index.

Industrial (+3.3%) was the best-performing sector for the seventh consecutive quarter. Office (+1.7%) and Apartments (+1.6%) also did well. Hotels (+1.0%) were the worst performer and the only property type to experience a negative appreciation return. Hotels only had one quarter of positive appreciation during 2017. The West region was the strongest performer for the fifth quarter in a row, returning 2.3%, and the Midwest lagged with a 1.3% return. The West also had the strongest appreciation return at 1.2%; all other regions had appreciation below 0.5%. Transaction volume fell slightly to \$11.5 billion, a 3% decrease from the third quarter and an 18% decline from the fourth quarter of 2016. Appraisal capitalization rates rose 16 basis points to 4.55%. Transaction capitalization increased even more, rising 59 bps to 5.85%. The spread between appraisal and transactional rates increased to 130 bps.

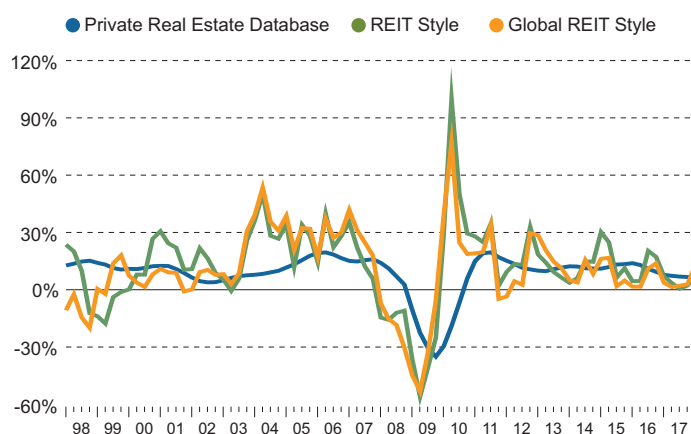
Occupancy rates increased to 93.6%, up 20 bps from the third quarter and 37 bps from the fourth quarter of 2016. Industrial and Retail occupancy rates increased slightly while Apartment and Office rates decreased.

The **NCREIF Open End Diversified Core Equity Index** rose 2.1% (1.1% from income and 1.0% from appreciation), a 20 bps increase from the third quarter. The appreciation return increased for the second quarter in a row. Leverage ticked up 1 basis point to 21.4%.

Global real estate investment trusts (REITs) tracked by the **FTSE EPRA/NAREIT Developed REIT Index (USD)** outperformed U.S. REITs and posted a 3.8% return. The median active global REIT manager, as measured by the **Callan Global REIT Style Group**, gained 4.6%, beating the Index. U.S. REITs, as measured by the **FTSE NAREIT Equity REITs Index**, advanced 1.5% for the quarter. The median active U.S. REIT manager, as measured by **Callan's U.S. REIT Style Group**, returned 2.4%, also beating the Index.

In the U.S., a strong November helped REITs overcome negative performance in October and December. Infrastructure (+8.8%), Hotels (+5.4%), and Timber (+4.9%) made solid gains, while Health Care (-5.3%), Diversified (-2.0%), Specialty (-1.9%), and Residential (-0.2%) were the worst performers. Retail (+6.8%) bounced back from a dismal second and third quarter on the back of high M&A activity and a strong holiday shopping season.

## Rolling One-Year Returns



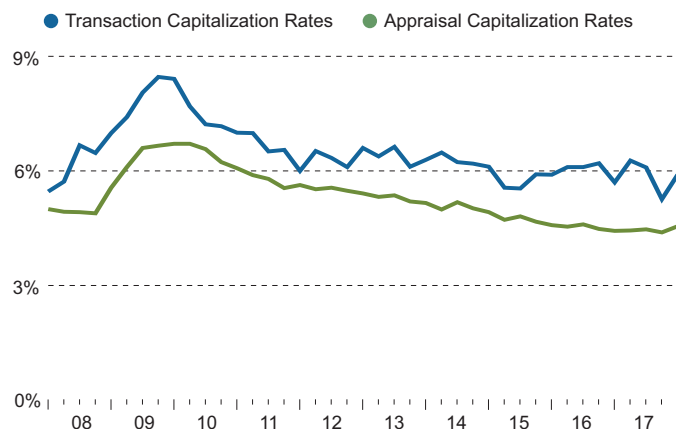
Source: Callan

## REAL ESTATE (Continued)

Europe, as represented by the **FTSE EPRA/NAREIT Europe Index**, was the strongest-performing region for the third consecutive quarter, returning 7.6% in U.S. dollar terms. U.K. REITs outperformed their continental counterparts due to optimism over a “soft Brexit” and better than expected earnings from London-centric real estate proxies. Continental Europe continued to benefit from robust economic growth that was not fazed by the Catalan election results, among other political surprises.

The Asia-Pacific region, represented by the **FTSE EPRA/NAREIT Asia Index**, jumped 5.5% in U.S. dollar terms, besting the U.S. but lagging Europe. Singapore was the strongest performer, helped by a rally in the broader Singaporean stock market. Hong Kong and Australia also had good quarters. Japan lagged behind, but was still positive.

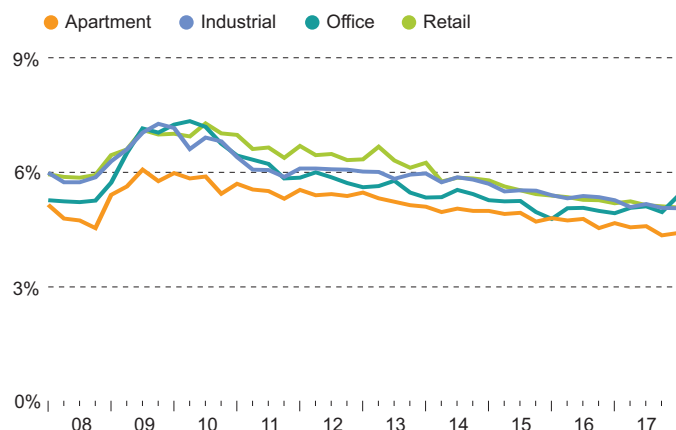
## NCREIF Transaction and Appraisal Capitalization Rates



Source: NCREIF

Note: Transaction capitalization rate is equal weighted.

## NCREIF Capitalization Rates by Property Type



Source: NCREIF

Note: Capitalization rates are appraisal-based.

# 2017 Fundraising Sets New Record

## PRIVATE EQUITY | Harshal Shah

The preliminary fundraising total and number of funds formed in 2017 set a record, according to *Private Equity Analyst*, up 20% and 32%, respectively, to \$376 billion and 1,150. In the fourth quarter, new commitments hit \$126 billion and 311 new partnerships were formed. Dollar volume rose by 51% over the third quarter; the number of new funds formed grew 37%.

According to *Buyouts* newsletter, there were 1,649 disclosed deals in 2017, an increase of 25% from 2016. The year's disclosed dollar volume was \$184.2 billion, up 8% from \$170.1 billion in 2016 and hitting a nine-year high. While the disclosed dollar volume has recovered from 2009's low of \$37.3 billion, it is still well shy of the 2007 record high of \$597.4 billion. However, while general partners may be more discerning in putting capital to work, according to Standard & Poor's LCD data, the median purchase and net debt multiples in 2017 remained elevated at 10.6x and 5.8x, respectively.

Regarding exits, *Buyouts* reports that 2017's 607 private M&A exits of buyout-backed companies is up 9% from the 557 in 2016. The year's aggregate disclosed M&A exit values of \$106.7 billion is up 12.7% from 2016's \$94.6 billion. In the fourth quarter, there were 124 M&A exits, and announced value totaled \$38.1 billion. Ten M&A exits had values over \$1 billion compared to only four in the fourth quarter of 2016. There were

### Funds Closed January 1 to December 31, 2017

Strategy	No. of Funds	Amt (\$mm)	Percent
Venture Capital	510	35,945	10%
Buyouts	392	249,747	67%
Subordinated Debt	77	34,174	9%
Distressed Debt	42	29,332	8%
Secondary and Other	35	13,075	3%
Fund-of-funds	94	13,244	4%
<b>Totals</b>	<b>1,150</b>	<b>375,516</b>	<b>100%</b>

Source: Private Equity Analyst  
Figures may not total due to rounding.

only four buyout-backed IPOs in the fourth quarter last year, with a total value of \$860 million. However for the full year, there were 18 buyout-backed IPOs with a total value of \$6.5 billion, an increase of 125% and 60%, respectively, over 2016.

Venture-backed M&A exits for the year totaled 711 with announced values totaling \$41.2 billion, down from 816 exits and \$50.0 billion in announced value in 2016. The fourth quarter had 144 exits with announced values totaling \$6.7 billion, down from 173 exits and \$11.5 billion of announced value in the third quarter. The year produced 58 venture-backed IPOs raising \$9.9 billion, up from 41 IPOs in 2016 raising \$2.9 billion. The fourth quarter had 23 IPOs, raising \$3.1 billion, up significantly from the third quarter's nine IPOs raising \$730 million.

### Private Equity Performance Database (%) (Pooled Horizon IRRs through September 30, 2017\*)

Strategy	3 Months	Year	3 Years	5 Years	10 Years	15 Years	20 Years
All Venture	3.52	8.82	12.30	15.51	9.47	9.00	17.94
Growth Equity	4.90	15.83	10.68	13.21	10.06	12.60	13.13
All Buyouts	4.63	19.33	12.61	14.35	8.78	14.39	12.53
Mezzanine	4.16	13.07	9.43	10.15	9.02	9.47	8.64
Distressed	2.39	14.92	9.03	11.35	9.13	11.33	11.34
<b>All Private Equity</b>	<b>4.31</b>	<b>16.19</b>	<b>11.93</b>	<b>14.08</b>	<b>9.06</b>	<b>12.75</b>	<b>13.01</b>
S&P 500	4.48	18.61	10.81	14.22	7.44	10.04	7.00

Private equity returns are net of fees.

Sources: Standard & Poor's and Thomson Reuters/Cambridge

\*Most recent data available at time of publication

Note: Transaction count and dollar volume figures across all private equity measures are preliminary figures and are subject to update in subsequent versions of *Capital Market Review* and other Callan publications.



# Risk Takers See Less as More

HEDGE FUNDS/MACs | Jim McKee

Given the quarter's surge of raw equity beta, alpha-seeking hedge funds saw positive but more modest results. Representing a paper portfolio of hedge fund interests without implementation costs, the **Credit Suisse Hedge Fund Index** (CS HFI) rose 2.3% in the fourth quarter. Actual hedge fund portfolios represented by the median manager in the **Callan Hedge Fund-of-Funds Database** advanced 1.5%, net of all fees and expenses.

Within CS HFI, the best-performing strategy was *Managed Futures* (+6.6%), followed by *Emerging Markets* (+3.4%) and *Long/Short Equity* (+3.3%). Less fortunate was *Risk Arb* (+0.1%); some major pending deals met regulatory resistance, causing those deal spreads to widen significantly. Within Callan's Hedge FOF Database, market exposures marginally affected performance in the fourth quarter. With the added momentum from equity markets, the median *Callan Long/Short Equity FOF* (+1.8%) beat the *Callan Absolute Return FOF* (+1.5%). The *Core Diversified FOF* gained 1.5%.

The **Credit Suisse Neuberger Multi-Asset Risk Premia Index**, a proxy for liquid alternative beta, slipped 0.6% based upon a 5% volatility target. Within the Index's underlying styles, winners were *Equity Momentum* (+7.6%) and *Commodity Momentum* (+4.8%). The **Callan Multi-Asset Class Database** group's median manager rose 3.6%, gross of fees. Within this group, the median *Callan Risk Premia MAC* gained 4.0%, aided by equity and commodity momentum. Typically targeting equal risk-weighted allocations to major asset classes with leverage, the *Callan Risk Parity MAC* gained 4.7%, beating a 60% stock/40% bond benchmark (+4.1%). The *Callan Long-Biased MAC* (+3.4%) performed well, given its dynamic asset allocation mandate with a typically long equity bias, but trailed the 60/40 benchmark. Focused on non-directional strategies of long and short asset class exposures, the *Callan Absolute Return MAC* added 0.9%.

## Callan Database Median and Index Returns\* for Periods ended December 31, 2017

Hedge Fund Universe	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Callan Fund-of-Funds Database	1.53	6.98	2.90	5.01	3.04	5.22
Callan Absolute Return FOF Style	1.47	5.11	3.20	4.59	3.00	4.90
Callan Core Diversified FOF Style	1.51	6.42	2.36	4.79	2.77	5.18
Callan Long/Short Equity FOF Style	1.81	11.25	3.76	6.00	3.20	5.84
Credit Suisse Hedge Fund Index	2.30	7.12	2.50	4.23	3.24	6.01
HFRI Asset Wtd Composite	1.99	6.52	3.06	4.60	3.34	--
HFRI Fund Wtd Comp	2.65	8.68	4.25	4.95	3.23	6.10
HFRI Equity Hedge (Total)	3.51	13.46	5.82	6.63	3.19	6.09
HFRI Event-Driven (Total)	2.04	7.73	4.73	5.49	4.17	7.26
HFRI Macro (Total) Index	2.42	2.21	0.65	1.40	1.95	4.65
HFRI Relative Value (Total)	1.05	5.11	4.11	4.68	4.81	6.02
90-Day T-Bill + 5%	1.50	5.86	5.41	5.27	5.39	6.28
Liquid Alternative Universe	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Callan Absolute Return MAC	0.90	5.07	3.27	4.46	5.16	--
Callan Risk Premia MAC	3.95	5.51	2.04	3.57	7.16	--
Callan Long-Biased MAC	3.35	13.87	5.46	6.39	5.76	8.70
Callan Risk Parity MAC	4.66	11.88	6.47	5.81	6.75	--
60% S&P 500/40% BB Agg	4.14	14.26	7.76	10.25	7.09	7.90
CS NB MARP Index (5%v)	-0.63	-1.61	2.05	3.55	7.15	--
SG Trend Index	7.70	2.19	-1.36	3.35	3.15	4.21

\*Gross of fees. Sources: Bloomberg Barclays, Callan, Credit Suisse, Hedge Fund Research, Societe Generale, and Standard and Poor's

# DC Plans on Track to Win Big in 2017

## DEFINED CONTRIBUTION | Tom Szkwarla

The Callan DC Index™ recorded a solid 3.8% gain during the third quarter, its eighth straight quarter of positive performance. And the Index is up 11.9% year to date—its best showing for the first three quarters of a year since 2013.

The Index benefited from strong U.S. equity performance, but a lack of diversification to non-U.S. equity markets continued to hinder DC plan performance. The typical DC participant has less than 6% in non-U.S. equity exposure, compared to 20.1% for the typical Age 45 target date fund (TDF).

Accordingly, the Age 45 TDF outpaced the DC Index by about 50 basis points for the third quarter and 200 bps year to date. Plan balances rose 3.78%, driven by return growth (3.76%) rather than inflows (plan sponsor and participant contributions), which contributed a meager 0.02%.

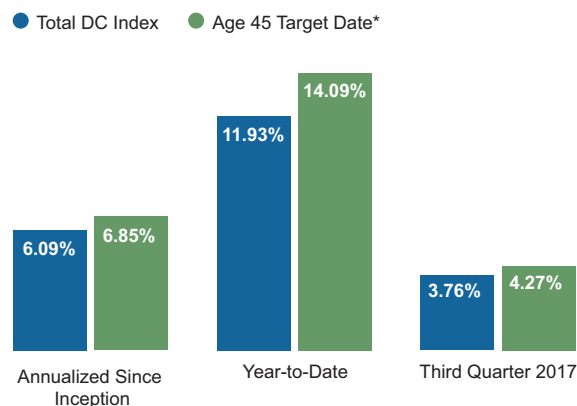
U.S. large cap and small/mid cap equities experienced significant outflows during the quarter. Non-U.S. and emerging market stocks represented the only equity asset classes to witness inflows. As usual, TDFs accounted for the majority of inflow activity during the third quarter, capturing 72 cents of every dollar moving within DC plans.

Turnover within the Index (i.e., net transfer activity) ticked up from last quarter to 0.58%, but remained below the historical average of 0.63%.

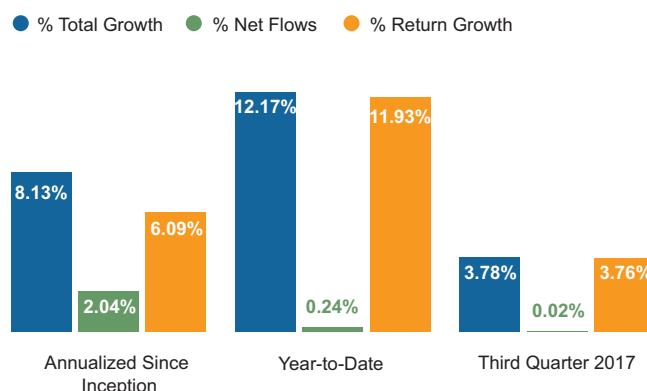
The DC Index's overall equity allocation increased to over 70% in the most recent period, but it remains below its 2007 peak of 73%. TDFs grew to their largest allocation yet, holding 30.8% of total DC assets in the third quarter. U.S. large cap equity commands the second-largest portion of participant assets (22.7%).

*The Callan DC Index is an equally weighted index tracking the cash flows and performance of nearly 90 plans, representing more than one million DC participants and over \$135 billion in assets. The Index is updated quarterly and is available on Callan's website, as is the quarterly DC Observer newsletter.*

## Investment Performance



## Growth Sources



## Net Cash Flow Analysis (Third Quarter 2017) (Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Target Date Funds	71.56%
Non-U.S. Equity	12.99%
U.S. Small/Mid Cap	-28.25%
U.S. Large Cap	-40.72%
Total Turnover**	0.58%

Data provided here is the most recent available at time of publication.

Source: Callan DC Index

Note: DC Index inception date is January 2006.

\* The Age 45 Fund transitioned from the average 2030 TDF to the 2035 TDF in June 2013.

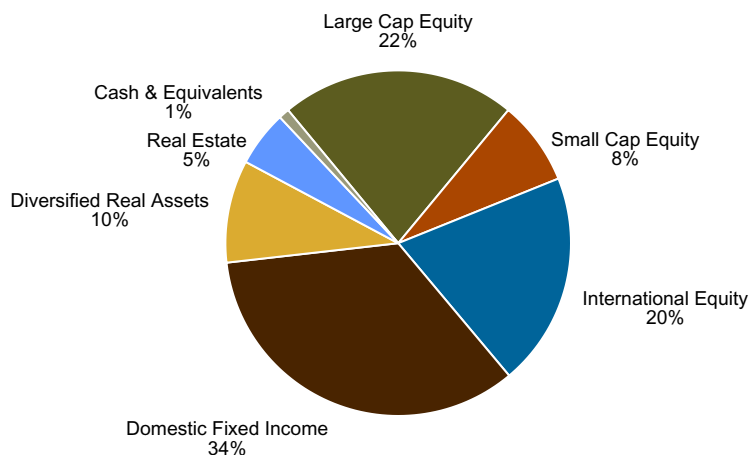
\*\* Total Index "turnover" measures the percentage of total invested assets (transfers only, excluding contributions and withdrawals) that moved between asset classes.



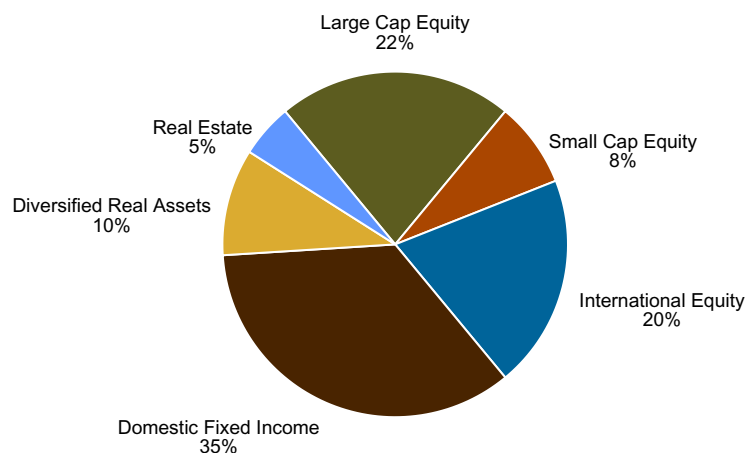
## Actual vs Target Asset Allocation As of December 31, 2017

The first chart below shows the Fund's asset allocation as of December 31, 2017. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.

**Actual Asset Allocation**



**Target Asset Allocation**



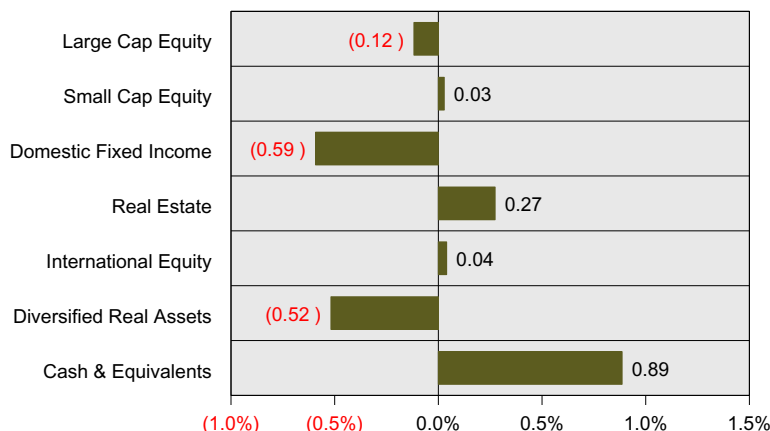
Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Large Cap Equity	1,153,566	22.0%	22.0%	(0.0%)	(1,941)
Small Cap Equity	415,195	7.9%	8.0%	(0.1%)	(4,989)
International Equity	1,049,343	20.0%	20.0%	(0.0%)	(1,117)
Domestic Fixed Income	1,803,653	34.3%	35.0%	(0.7%)	(34,652)
Diversified Real Assets	506,526	9.6%	10.0%	(0.4%)	(18,705)
Real Estate	271,421	5.2%	5.0%	0.2%	8,806
Cash & Equivalents	52,598	1.0%	0.0%	1.0%	52,598
Total	5,252,301	100.0%	100.0%		

\* Current Quarter Target = 35.0% Blmgb Aggregate, 22.0% Russell 1000 Index, 20.0% MSCI EAFE, 10.0% NDSIB Legacy DRA Weighted Benchmark, 8.0% Russell 2000 Index and 5.0% NCREIF Total Index.

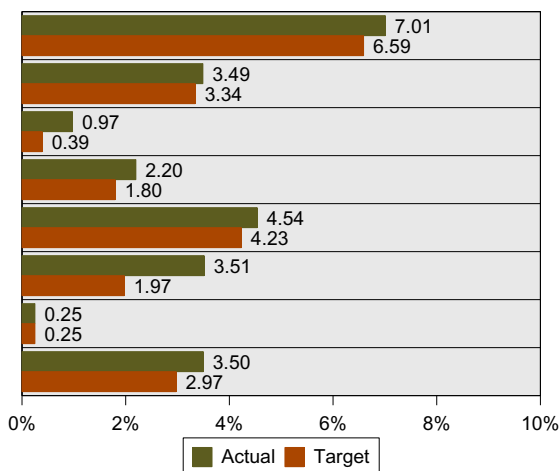
## Quarterly Total Fund Relative Attribution - December 31, 2017

The following analysis approaches Total Fund Attribution from the perspective of relative return. Relative return attribution separates and quantifies the sources of total fund excess return relative to its target. This excess return is separated into two relative attribution effects: Asset Allocation Effect and Manager Selection Effect. The Asset Allocation Effect represents the excess return due to the actual total fund asset allocation differing from the target asset allocation. Manager Selection Effect represents the total fund impact of the individual managers excess returns relative to their benchmarks.

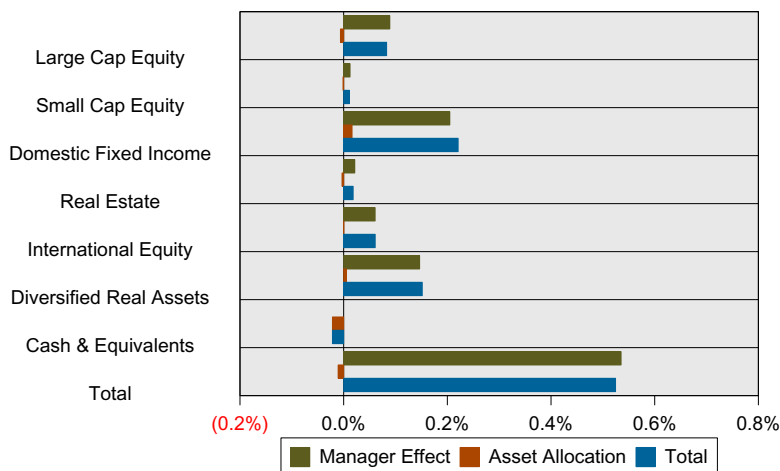
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended December 31, 2017

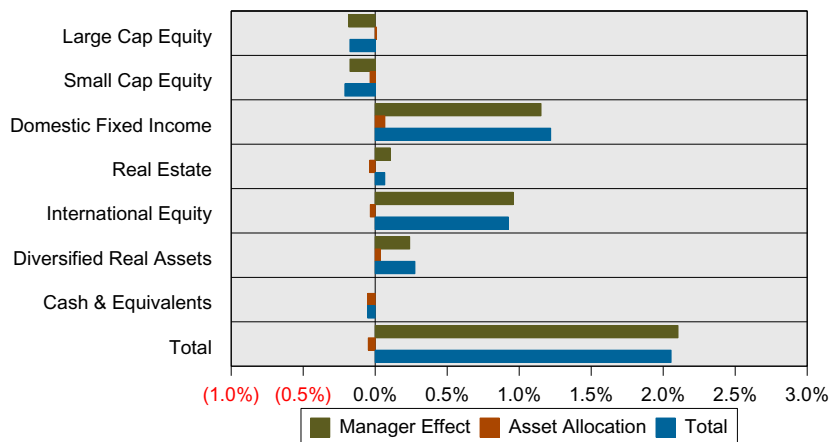
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	22%	22%	7.01%	6.59%	0.09%	(0.01%)	0.08%
Small Cap Equity	8%	8%	3.49%	3.34%	0.01%	(0.00%)	0.01%
Domestic Fixed Income	34%	35%	0.97%	0.39%	0.20%	(0.00%)	0.22%
Real Estate	5%	5%	2.20%	1.80%	0.02%	(0.00%)	0.02%
International Equity	20%	20%	4.54%	4.23%	0.06%	0.00%	0.06%
Diversified Real Assets	9%	10%	3.51%	1.97%	0.15%	0.01%	0.15%
Cash & Equivalents	1%	0%	0.25%	0.25%	0.00%	(0.02%)	(0.02%)
<b>Total</b>			<b>3.50%</b>	<b>2.97%</b>	<b>+ 0.54%</b>	<b>+ (0.01%)</b>	<b>0.52%</b>

\* Current Quarter Target = 35.0% Blmgb Aggregate, 22.0% Russell 1000 Index, 20.0% MSCI World ex US, 10.0% NDSIB Legacy DRA Weighted Benchmark, 8.0% Russell 2000 Index and 5.0% NCREIF Total Index.

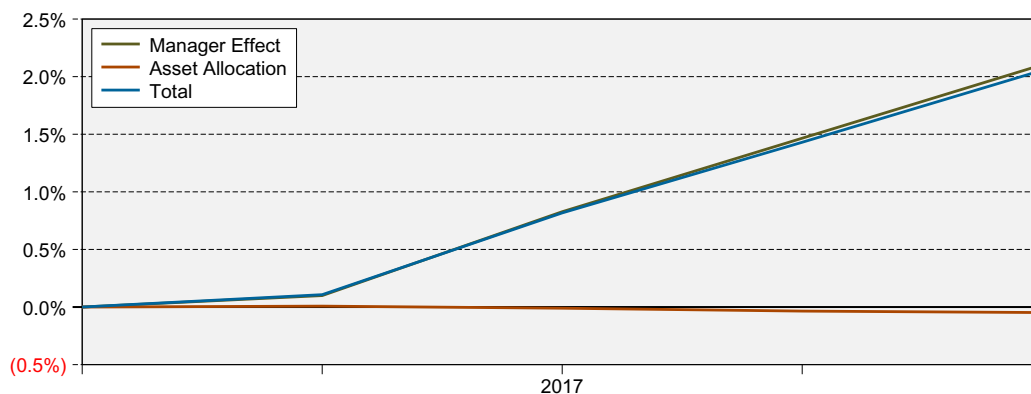
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### One Year Relative Attribution Effects



### Cumulative Relative Attribution Effects



### One Year Relative Attribution Effects

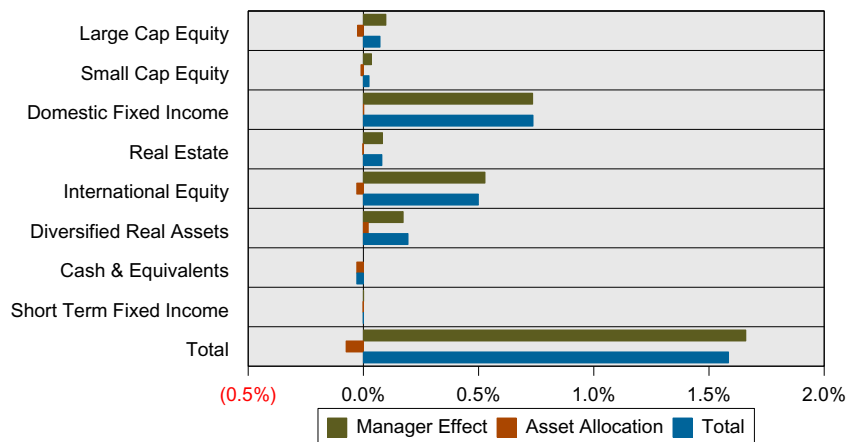
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	22%	22%	20.84%	21.69%	(0.18%)	0.01%	(0.18%)
Small Cap Equity	8%	8%	12.53%	14.65%	(0.18%)	(0.04%)	(0.21%)
Domestic Fixed Income	34%	35%	6.68%	3.54%	1.15%	0.07%	1.22%
Real Estate	6%	5%	8.65%	6.96%	0.10%	(0.04%)	0.07%
International Equity	20%	20%	29.55%	24.21%	0.96%	(0.03%)	0.92%
Diversified Real Assets	9%	10%	9.26%	6.81%	0.24%	0.04%	0.28%
Cash & Equivalents	0%	0%	0.79%	0.79%	0.00%	(0.05%)	(0.05%)
<b>Total</b>			<b>14.84%</b>	<b>12.79%</b>	<b>+ 2.10%</b>	<b>+ (0.05%)</b>	<b>2.05%</b>

\* Current Quarter Target = 35.0% Blmgb Aggregate, 22.0% Russell 1000 Index, 20.0% MSCI World ex US, 10.0% NDSIB Legacy DRA Weighted Benchmark, 8.0% Russell 2000 Index and 5.0% NCREIF Total Index.

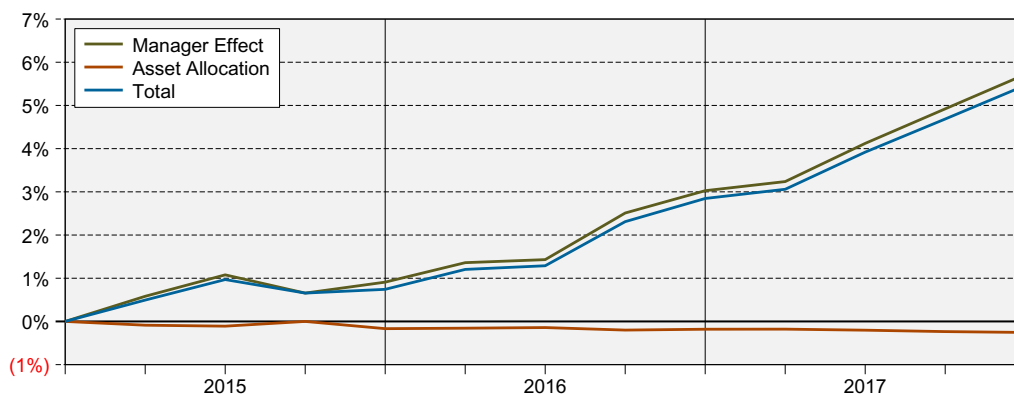
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Three Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Three Year Annualized Relative Attribution Effects

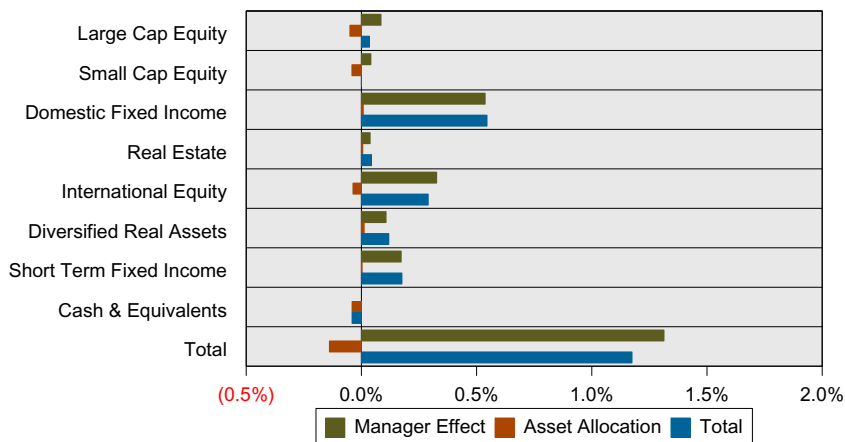
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	22%	22%	11.72%	11.23%	0.10%	(0.03%)	0.07%
Small Cap Equity	8%	8%	10.48%	9.96%	0.04%	(0.01%)	0.02%
Domestic Fixed Income	35%	35%	4.34%	2.24%	0.73%	0.00%	0.74%
Real Estate	6%	5%	11.01%	9.38%	0.08%	(0.00%)	0.08%
International Equity	20%	20%	10.32%	7.64%	0.53%	(0.03%)	0.50%
Diversified Real Assets	10%	10%	3.85%	2.05%	0.17%	0.02%	0.19%
Cash & Equivalents	0%	0%	0.35%	0.35%	0.00%	(0.03%)	(0.03%)
Short Term Fixed Income	0%	0%	-	-	0.00%	(0.00%)	(0.00%)
<b>Total</b>			<b>7.99%</b>	<b>6.41%</b>	<b>1.66%</b>	<b>(0.08%)</b>	<b>1.58%</b>

\* Current Quarter Target = 35.0% Blmgb Aggregate, 22.0% Russell 1000 Index, 20.0% MSCI World ex US, 10.0% NDSIB Legacy DRA Weighted Benchmark, 8.0% Russell 2000 Index and 5.0% NCREIF Total Index.

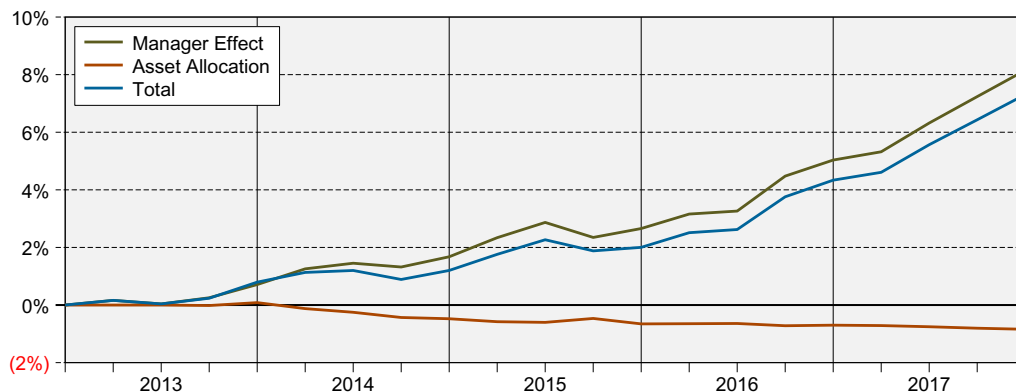
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Five Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Five Year Annualized Relative Attribution Effects

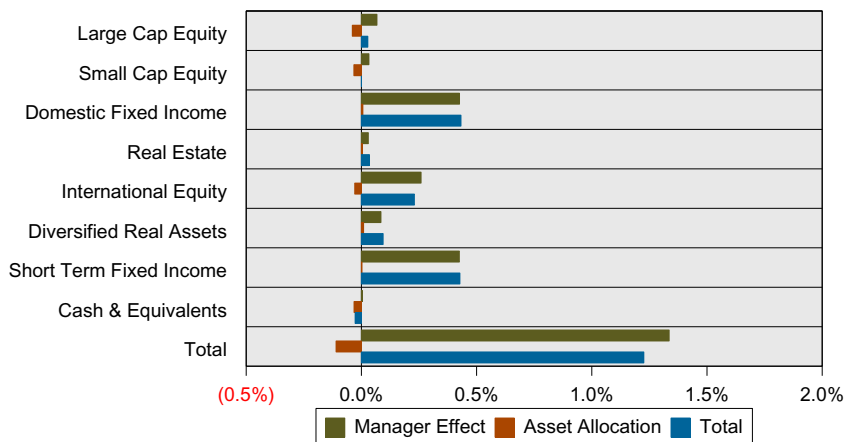
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	17%	17%	-	-	0.09%	(0.05%)	0.04%
Small Cap Equity	6%	6%	-	-	0.04%	(0.04%)	0.00%
Domestic Fixed Income	27%	27%	-	-	0.54%	0.01%	0.55%
Real Estate	4%	4%	-	-	0.04%	0.01%	0.04%
International Equity	15%	16%	-	-	0.33%	(0.04%)	0.29%
Diversified Real Assets	6%	7%	-	-	0.11%	0.01%	0.12%
Short Term Fixed Income	23%	24%	-	-	0.17%	0.00%	0.18%
Cash & Equivalents	0%	0%	0.23%	0.23%	0.00%	(0.04%)	(0.04%)
<b>Total</b>			<b>6.20%</b>	<b>5.03%</b>	<b>1.31%</b>	<b>(0.14%)</b>	<b>1.17%</b>

\* Current Quarter Target = 35.0% Blmgb Aggregate, 22.0% Russell 1000 Index, 20.0% MSCI World ex US, 10.0% NDSIB Legacy DRA Weighted Benchmark, 8.0% Russell 2000 Index and 5.0% NCREIF Total Index.

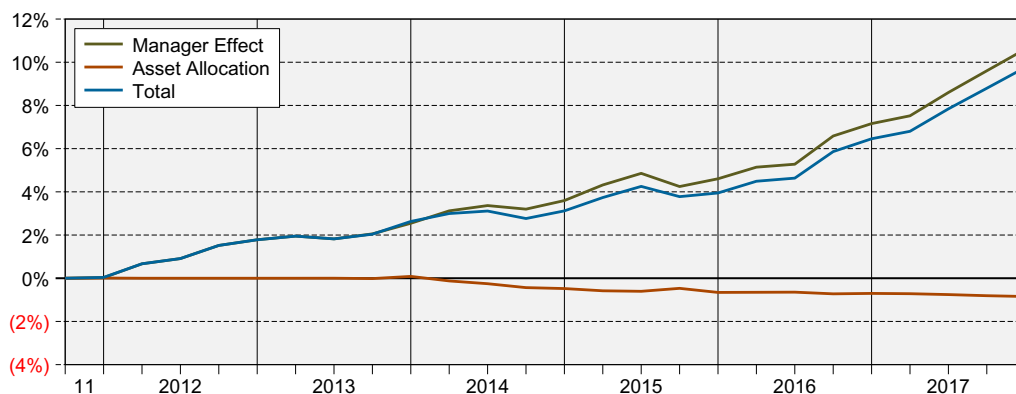
## Cumulative Total Fund Relative Attribution - December 31, 2017

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### Six and One-Quarter Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Six and One-Quarter Year Annualized Relative Attribution Effects

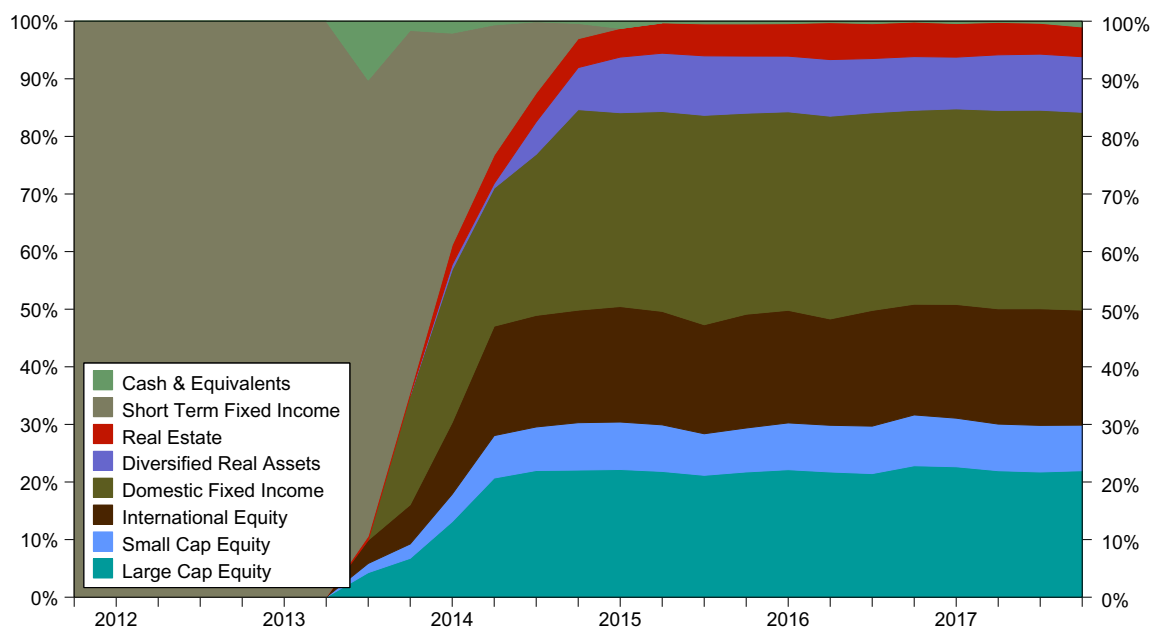
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	14%	14%	-	-	0.07%	(0.04%)	0.03%
Small Cap Equity	5%	5%	-	-	0.03%	(0.03%)	0.00%
Domestic Fixed Income	21%	21%	-	-	0.43%	0.01%	0.43%
Real Estate	3%	3%	-	-	0.03%	0.00%	0.03%
International Equity	12%	12%	-	-	0.26%	(0.03%)	0.23%
Diversified Real Assets	5%	5%	-	-	0.08%	0.01%	0.09%
Short Term Fixed Income	36%	37%	-	-	0.43%	0.00%	0.43%
Cash & Equivalents	3%	3%	0.23%	0.23%	0.00%	(0.03%)	(0.03%)
<b>Total</b>			<b>5.32%</b>	<b>4.10%</b>	<b>1.34%</b>	<b>(0.11%)</b>	<b>1.23%</b>

\* Current Quarter Target = 35.0% Blmgb Aggregate, 22.0% Russell 1000 Index, 20.0% MSCI World ex US, 10.0% NDSIB Legacy DRA Weighted Benchmark, 8.0% Russell 2000 Index and 5.0% NCREIF Total Index.

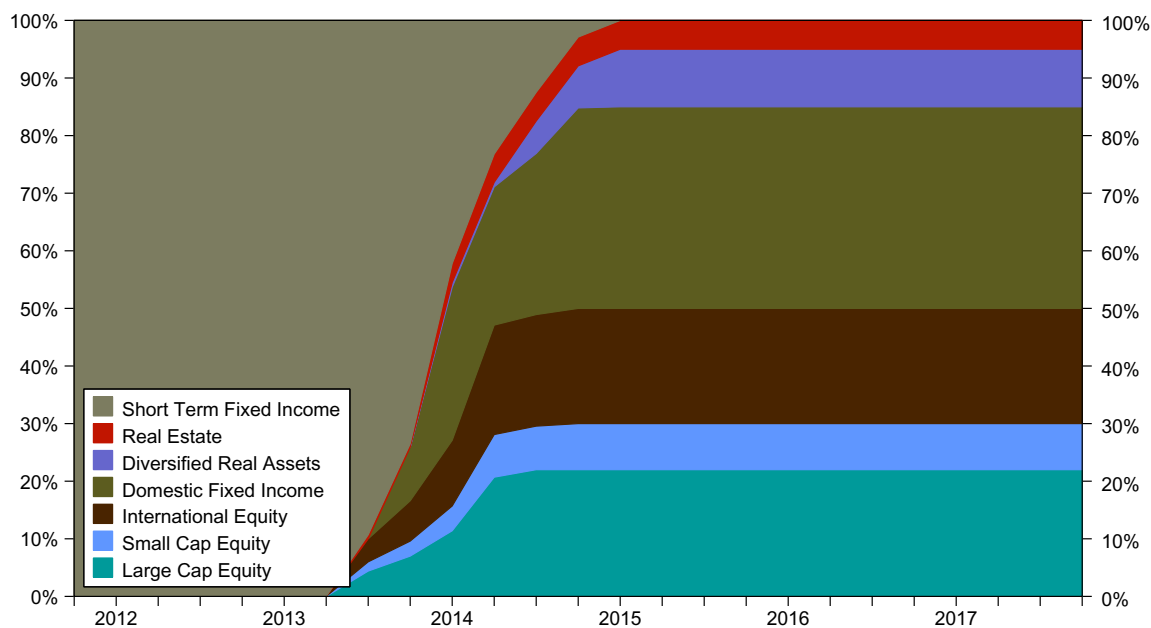
## Actual vs Target Historical Asset Allocation

The Historical asset allocation for a fund is by far the largest factor explaining its performance. The charts below show the fund's historical actual asset allocation, and the fund's historical target asset allocation.

### Actual Historical Asset Allocation



### Target Historical Asset Allocation

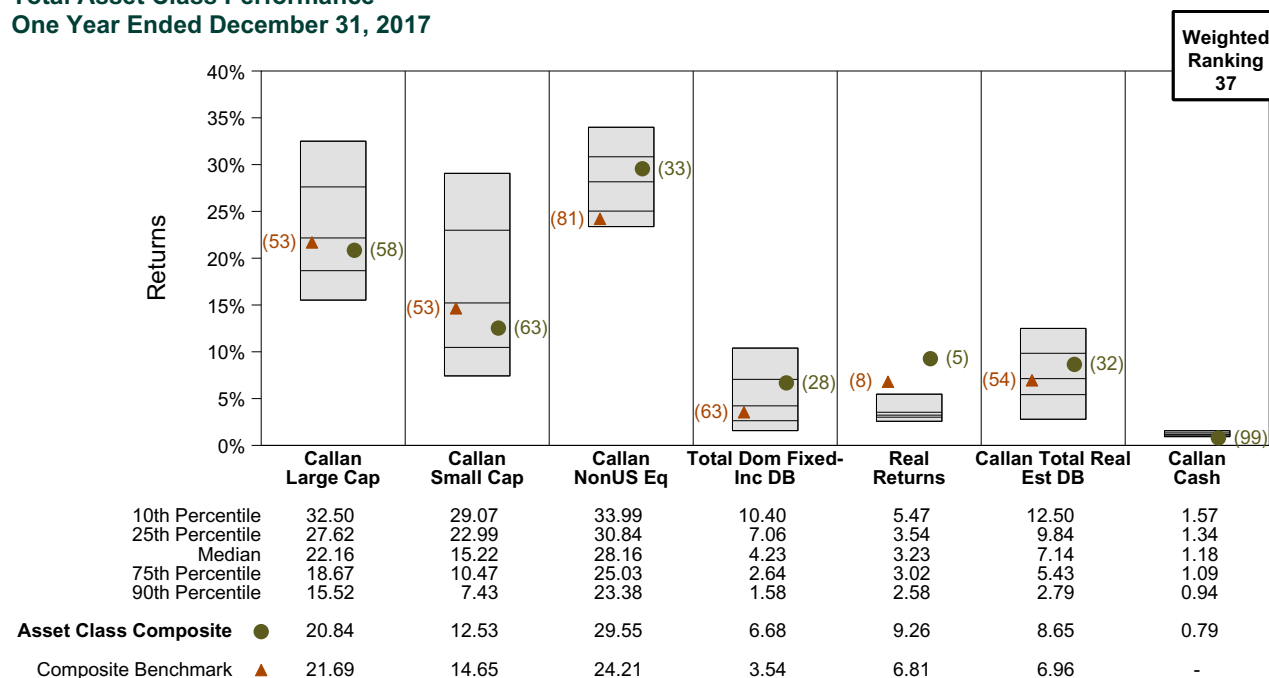


\* Current Quarter Target = 35.0% Blmgb Aggregate, 22.0% Russell 1000 Index, 20.0% MSCI World ex US, 10.0% NDSIB Legacy DRA Weighted Benchmark, 8.0% Russell 2000 Index and 5.0% NCREIF Total Index.

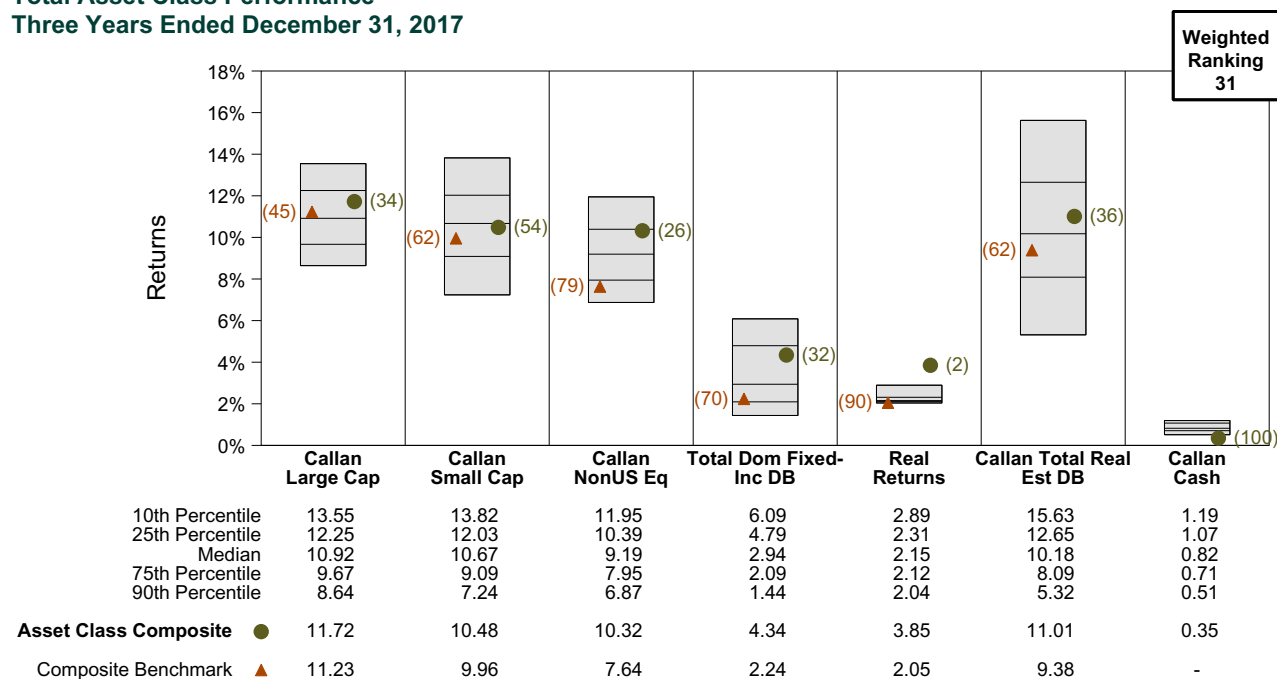
## Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases. In the upper right corner of each graph is the weighted average of the rankings across the different asset classes. The weights of the fund's actual asset allocation are used to make this calculation. The weighted average ranking can be viewed as a measure of the fund's overall success in picking managers and structuring asset classes.

### Total Asset Class Performance One Year Ended December 31, 2017



### Total Asset Class Performance Three Years Ended December 31, 2017



\* Current Quarter Target = 35.0% Blmbg Aggregate, 22.0% Russell 1000 Index, 20.0% MSCI World ex US, 10.0% NDSIB Legacy DRA Weighted Benchmark, 8.0% Russell 2000 Index and 5.0% NCREIF Total Index.



## Asset Class Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2017, with the distribution as of September 30, 2017. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

### Asset Class Allocation

	December 31, 2017				September 30, 2017	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
<b>Domestic Equity</b>	<b>\$1,568,760,230</b>	<b>29.87%</b>	<b>\$(594,582)</b>	<b>\$89,556,644</b>	<b>\$1,479,798,168</b>	<b>29.83%</b>
<b>Large Cap Equity</b>	<b>\$1,153,565,525</b>	<b>21.96%</b>	<b>\$(484,944)</b>	<b>\$75,559,945</b>	<b>\$1,078,490,524</b>	<b>21.74%</b>
L.A. Capital Enhanced	221,618,115	4.22%	(68,699)	12,894,809	208,792,005	4.21%
L.A. Capital Large Cap Growth	350,972,609	6.68%	(167,804)	23,279,337	327,861,077	6.61%
Parametric Clifton Large Cap	227,500,511	4.33%	0	14,513,417	212,987,094	4.29%
LSV Large Cap Value	353,474,289	6.73%	(248,441)	24,872,381	328,850,349	6.63%
<b>Small Cap Equity</b>	<b>\$415,194,705</b>	<b>7.91%</b>	<b>\$(109,638)</b>	<b>\$13,996,698</b>	<b>\$401,307,645</b>	<b>8.09%</b>
Parametric Clifton SmallCap	227,408,276	4.33%	0	6,754,452	220,653,824	4.45%
PIMCO RAE	187,786,429	3.58%	(109,638)	7,242,246	180,653,821	3.64%
<b>International Equity</b>	<b>\$1,049,343,140</b>	<b>19.98%</b>	<b>\$(781,618)</b>	<b>\$45,546,412</b>	<b>\$1,004,578,346</b>	<b>20.25%</b>
DFA Intl SmallCap Value	104,629,132	1.99%	0	3,863,388	100,765,744	2.03%
LSV Intl Value	411,728,637	7.84%	(398,129)	13,811,106	398,315,660	8.03%
Vanguard Intl Explorer Fund	106,768,499	2.03%	0	5,563,102	101,205,397	2.04%
William Blair	426,216,872	8.11%	(383,489)	22,308,815	404,291,545	8.15%
<b>Domestic Fixed Income</b>	<b>\$1,803,652,904</b>	<b>34.34%</b>	<b>\$76,642,157</b>	<b>\$17,115,556</b>	<b>\$1,709,895,192</b>	<b>34.47%</b>
Ares ND Credit Strategies Fd	32,430,767	0.62%	17,600,000	30,767	14,800,000	0.30%
BND CDs	63,242,695	1.20%	(1,393,627)	418,432	64,217,890	1.29%
Cerberus ND Private Credit Fd	43,825,710	0.83%	28,400,000	1,025,710	14,400,000	0.29%
Declaration Total Return	129,154,494	2.46%	(92,185)	1,048,641	128,198,038	2.58%
Prudential	197,898,883	3.77%	14,882,149	1,951,791	181,064,943	3.65%
SSgA US Govt Credit Bd Idx	254,780,214	4.85%	19,961,541	1,255,204	233,563,469	4.71%
Wells Capital	507,806,032	9.67%	(192,684)	6,502,458	501,496,258	10.11%
Western Asset Management	499,802,371	9.52%	(156,030)	3,936,408	496,021,993	10.00%
Pooled Fixed Income(1)	74,711,738	1.42%	(2,367,007)	946,145	76,132,601	1.53%
<b>Diversified Real Assets</b>	<b>\$506,525,600</b>	<b>9.64%</b>	<b>\$6,986,104</b>	<b>\$16,792,216</b>	<b>\$482,747,279</b>	<b>9.73%</b>
Western TIPS	355,642,915	6.77%	(107,760)	10,247,005	345,503,670	6.96%
JP Morgan Infrastructure	118,746,989	2.26%	(233,600)	5,819,425	113,161,165	2.28%
Grosvenor Cust. Infrastructure	32,135,695	0.61%	7,327,465	725,786	24,082,444	0.49%
<b>Real Estate</b>	<b>\$271,421,292</b>	<b>5.17%</b>	<b>\$(415,314)</b>	<b>\$5,837,493</b>	<b>\$265,999,113</b>	<b>5.36%</b>
Invesco Core Real Estate	131,584,803	2.51%	(106,499)	2,911,866	128,779,436	2.60%
JP Morgan RE Inc & Growth	139,836,489	2.66%	(308,815)	2,925,627	137,219,677	2.77%
<b>Cash &amp; Equivalents</b>	<b>\$52,597,775</b>	<b>1.00%</b>	<b>\$34,788,694</b>	<b>\$105,646</b>	<b>\$17,703,435</b>	<b>0.36%</b>
<b>Securities Lending Income</b>	<b>\$0</b>	<b>0.00%</b>	<b>\$(137,069)</b>	<b>\$137,069</b>	<b>-</b>	<b>-</b>
<b>Total Fund</b>	<b>\$5,252,300,940</b>	<b>100.0%</b>	<b>\$116,488,372</b>	<b>\$175,091,034</b>	<b>\$4,960,721,533</b>	<b>100.0%</b>

(1) Comprised of PIMCO DiSCO II and PIMCO Bravo II.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 6-1/4 Years
<b>Domestic Equity</b>				
Gross	6.05%	18.53%	11.44%	-
Net	6.01%	18.33%	11.18%	-
<b>Large Cap Equity</b>				
Gross	7.01%	20.84%	11.72%	-
Net	6.96%	20.65%	11.51%	-
Russell 1000 Index	6.59%	21.69%	11.23%	17.23%
L.A. Capital Enhanced - Gross	6.18%	17.69%	11.11%	-
L.A. Capital Enhanced - Net	6.14%	17.54%	10.96%	-
Russell 1000 Index	6.59%	21.69%	11.23%	17.23%
L.A. Capital LargeCap Growth - Gross	7.10%	23.80%	12.63%	-
L.A. Capital LargeCap Growth - Net	7.05%	23.55%	12.40%	-
Russell 1000 Growth Index	7.86%	30.21%	13.79%	18.14%
Parametric Clifton Large Cap - Gross	6.81%	21.96%	11.77%	-
Parametric Clifton Large Cap - Net	6.81%	22.04%	11.68%	-
S&P 500 Index	6.64%	21.83%	11.41%	17.22%
LSV Large Cap Value - Gross	7.57%	19.32%	11.15%	-
LSV Large Cap Value - Net	7.49%	18.96%	10.83%	-
Russell 1000 Value Index	5.33%	13.66%	8.65%	16.25%
<b>Small Cap Equity</b>				
Gross	3.49%	12.53%	10.48%	-
Net	3.46%	12.34%	10.12%	-
Russell 2000 Index	3.34%	14.65%	9.96%	16.52%
Parametric Clifton Small Cap - Gross	3.06%	14.85%	10.96%	-
Parametric Clifton Small Cap - Net	3.06%	14.73%	10.56%	-
Russell 2000 Index	3.34%	14.65%	9.96%	16.52%
PIMCO RAE - Gross	4.01%	9.86%	9.56%	-
PIMCO RAE - Net	3.95%	9.59%	9.27%	-
Russell 2000 Index	3.34%	14.65%	9.96%	16.52%
<b>International Equity</b>				
Gross	4.54%	29.55%	10.32%	-
Net	4.46%	29.16%	9.99%	-
Benchmark(1)	4.23%	24.21%	7.64%	9.52%
DFA Intl Small Cap Value	3.83%	27.98%	12.86%	-
World ex US SC Va	5.20%	27.93%	11.72%	11.81%
LSV Intl Value - Gross	3.47%	25.51%	10.26%	-
LSV Intl Value - Net	3.37%	25.03%	9.84%	-
MSCI EAFE Index	4.23%	25.03%	7.80%	9.60%
Vanguard Intl Explorer Fund	5.50%	38.77%	13.97%	-
BMI, EPAC, <\$2 B	7.60%	31.31%	14.26%	12.30%
William Blair - Gross	5.52%	31.98%	-	-
William Blair - Net	5.42%	31.47%	-	-
MSCI ACWI ex US IMI	5.23%	27.81%	8.38%	9.00%

(1) MSCI EAFE through 6/30/2016 and MSCI World ex-US thereafter.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2017. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 6-1/4 Years
<b>Domestic Fixed Income</b>					
Gross	0.97%	6.68%	4.34%	-	-
Net	0.95%	6.54%	4.21%	-	-
Blmbg Aggregate Index	0.39%	3.54%	2.24%	2.10%	2.53%
Ares ND Credit Strategies Fd - Net	0.09%	-	-	-	-
Cerberus ND Private Credit Fd - Net	4.17%	-	-	-	-
S&P/LSTA Leveraged Loan B	1.09%	4.27%	4.64%	4.24%	5.60%
BND CDs - Net	0.66%	2.71%	-	-	-
Declaration Total Return - Net	0.82%	5.67%	3.93%	-	-
Libor-3 Month	0.36%	1.26%	0.77%	0.56%	0.54%
Prudential - Gross	1.10%	7.24%	4.62%	-	-
Prudential - Net	1.03%	6.97%	4.35%	-	-
Blmbg Aggregate Index	0.39%	3.54%	2.24%	2.10%	2.53%
Wells Capital - Gross	1.30%	8.51%	5.02%	-	-
Wells Capital - Net	1.26%	8.29%	4.84%	-	-
Blmbg Baa Credit 3% In	1.22%	7.45%	4.09%	3.65%	5.14%
Western Asset - Gross	0.79%	5.66%	3.89%	-	-
Western Asset - Net	0.76%	5.53%	3.75%	-	-
Blmbg Aggregate Index	0.39%	3.54%	2.24%	2.10%	2.53%
SSgA US Govt Credit Bd Idx - Gross	0.49%	4.01%	2.39%	-	-
SSgA US Govt Credit Bd Idx - Net	0.48%	3.97%	2.35%	-	-
Blmbg Govt/Credit Bd	0.49%	4.00%	2.38%	2.13%	2.66%
Pooled Fixed Income - Net(1)	1.26%	13.44%	-	-	-
Blmbg Aggregate Index	0.39%	3.54%	2.24%	2.10%	2.53%
<b>Diversified Real Assets</b>					
Gross	3.51%	9.26%	3.85%	-	-
Net	3.45%	9.00%	3.60%	-	-
Weighted Benchmark	1.97%	6.81%	2.05%	-	-
Western Asset TIPS - Gross	3.06%	9.12%	2.88%	-	-
Western Asset TIPS - Net	3.03%	8.98%	2.74%	-	-
Blmbg Gbl Inftn-Lnked	2.85%	8.67%	2.38%	1.44%	2.81%
JP Morgan Infrastructure - Gross	5.14%	10.78%	-	-	-
JP Morgan Infrastructure - Net	5.00%	10.07%	-	-	-
CPI-W	(0.17%)	2.18%	1.52%	1.26%	1.17%
Grosvenor Cust. Infrastructure - Net	2.40%	6.15%	-	-	-
CPI-W	(0.17%)	2.18%	1.52%	1.26%	1.17%
<b>Real Estate</b>					
Gross	2.20%	8.65%	11.01%	-	-
Net	2.08%	8.09%	10.31%	-	-
NCREIF Total Index	1.80%	6.96%	9.38%	10.19%	10.33%
Invesco Core Real Estate - Gross	2.26%	8.38%	10.74%	-	-
Invesco Core Real Estate - Net	2.18%	8.02%	10.37%	-	-
NCREIF Total Index	1.80%	6.96%	9.38%	10.19%	10.33%
JP Morgan RE Inc & Growth - Gross	2.13%	8.90%	11.26%	-	-
JP Morgan RE Inc & Growth - Net	1.98%	8.15%	10.23%	-	-
NCREIF Total Index	1.80%	6.96%	9.38%	10.19%	10.33%
<b>Cash &amp; Equivalents - Net</b>	<b>0.25%</b>	<b>0.79%</b>	<b>0.35%</b>	<b>0.23%</b>	<b>0.23%</b>
90 Day Treasury Bills	0.28%	0.86%	0.41%	0.27%	0.23%
<b>Total Fund</b>					
Gross	3.50%	14.84%	7.99%	6.20%	5.32%
Net	3.45%	14.61%	7.74%	5.99%	5.14%
Target*	2.97%	12.79%	6.41%	5.03%	4.10%

\* Current Quarter Target = 35.0% Blmbg Aggregate, 22.0% Russell 1000 Index, 20.0% MSCI World ex US, 10.0% NDSIB

Legacy DRA Weighted Benchmark, 8.0% Russell 2000 Index and 5.0% NCREIF Total Index.

(1) Comprised of PIMCO DiSCO II and PIMCO Bravo II.

## Domestic Equity Period Ended December 31, 2017

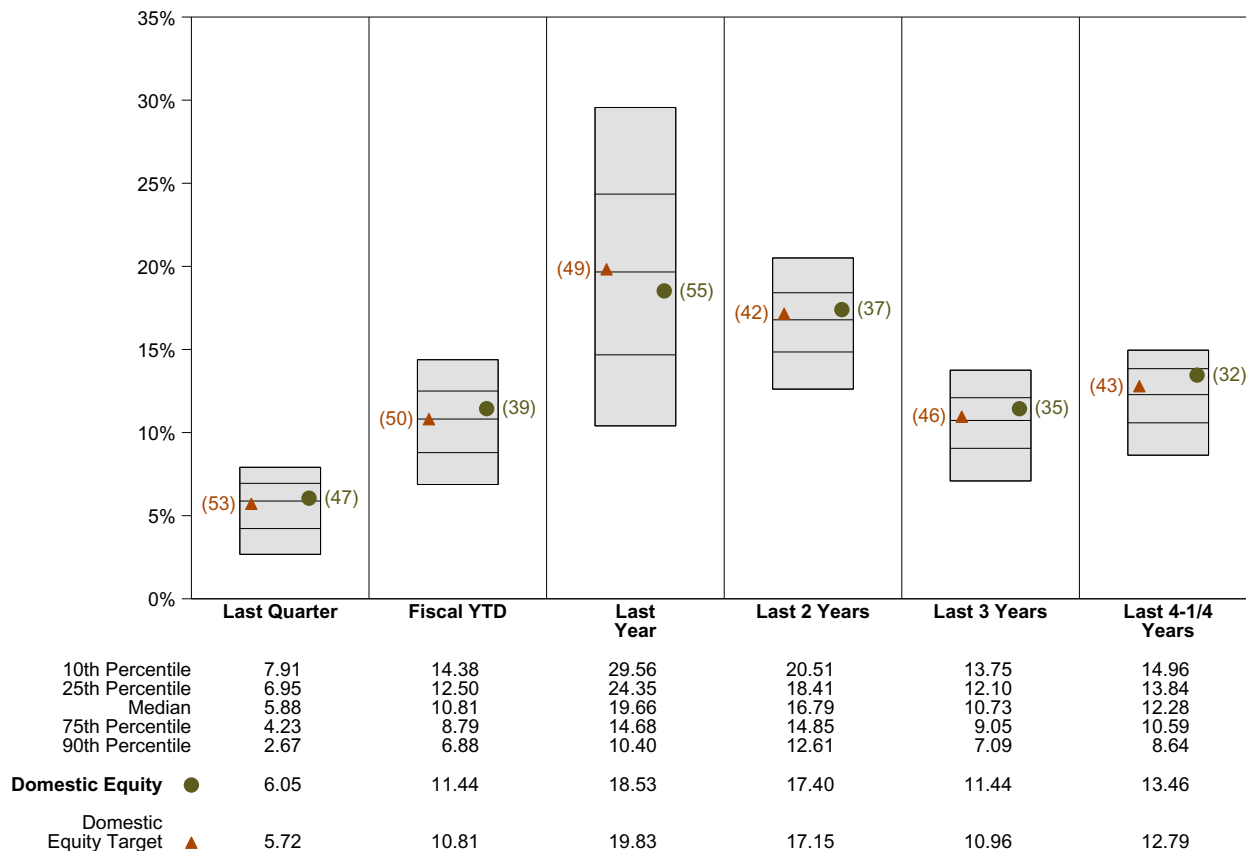
### Quarterly Summary and Highlights

- Domestic Equity's portfolio posted a 6.05% return for the quarter placing it in the 47 percentile of the Total Domestic Equity Database group for the quarter and in the 55 percentile for the last year.
- Domestic Equity's portfolio outperformed the Domestic Equity Target by 0.34% for the quarter and underperformed the Domestic Equity Target for the year by 1.30%.

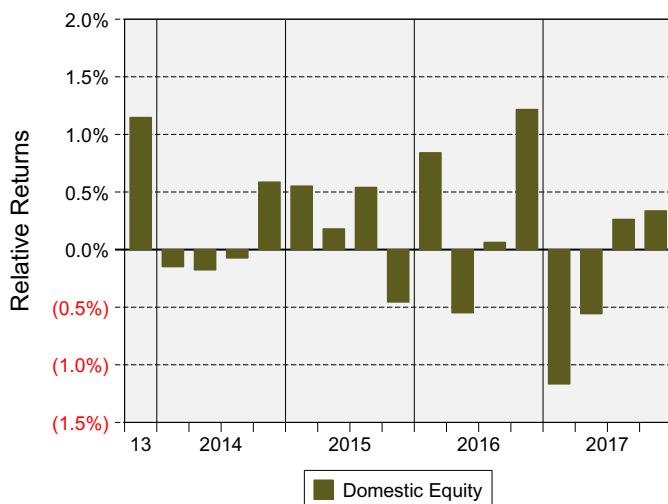
### Quarterly Asset Growth

Beginning Market Value	\$1,479,798,168
Net New Investment	\$-594,582
Investment Gains/(Losses)	\$89,556,644
Ending Market Value	\$1,568,760,230

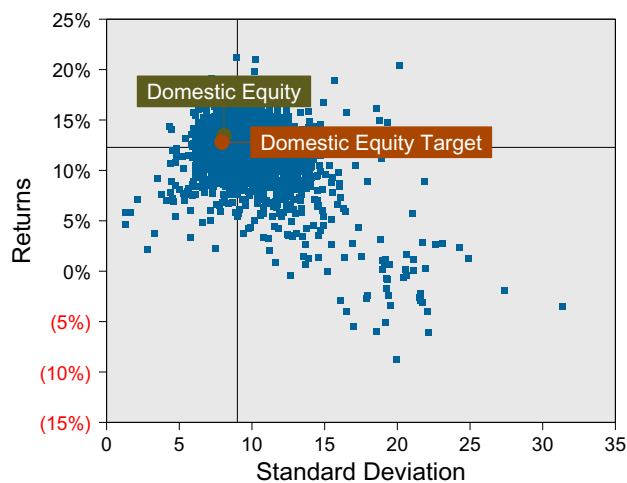
### Performance vs Total Domestic Equity Database (Gross)



### Relative Return vs Domestic Equity Target



### Total Domestic Equity Database (Gross) Annualized Four and One-Quarter Year Risk vs Return



## Parametric Clifton Large Cap Period Ended December 31, 2017

### Investment Philosophy

Parametric Clifton utilizes equity futures to gain benchmark exposure in constructing the portfolio it believes provides the greatest likelihood of outperforming the index. In this construction the underlying cash portfolio is invested in a liquid, high quality short duration fixed income portfolio. Over market cycles excess return generated by the short duration portfolio, when added to the performance of futures is expected to allow the strategy to achieve 0.50% to 1.00% of gross excess annual performance.

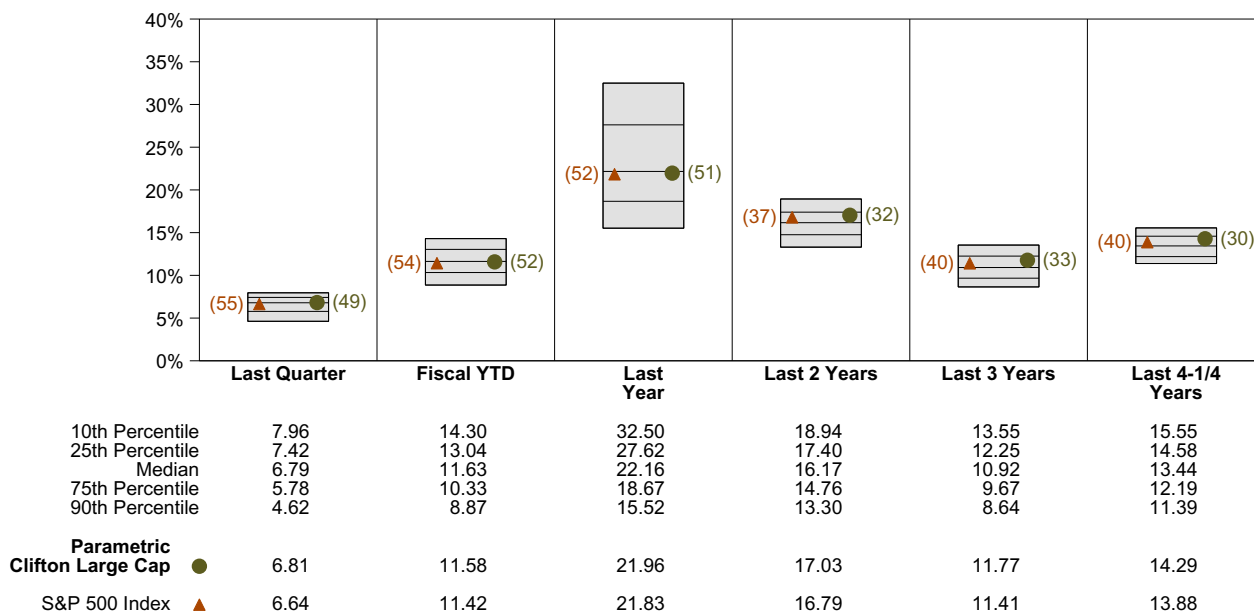
### Quarterly Summary and Highlights

- Parametric Clifton Large Cap's portfolio posted a 6.81% return for the quarter placing it in the 49 percentile of the Callan Large Capitalization group for the quarter and in the 51 percentile for the last year.
- Parametric Clifton Large Cap's portfolio outperformed the S&P 500 Index by 0.17% for the quarter and outperformed the S&P 500 Index for the year by 0.13%.

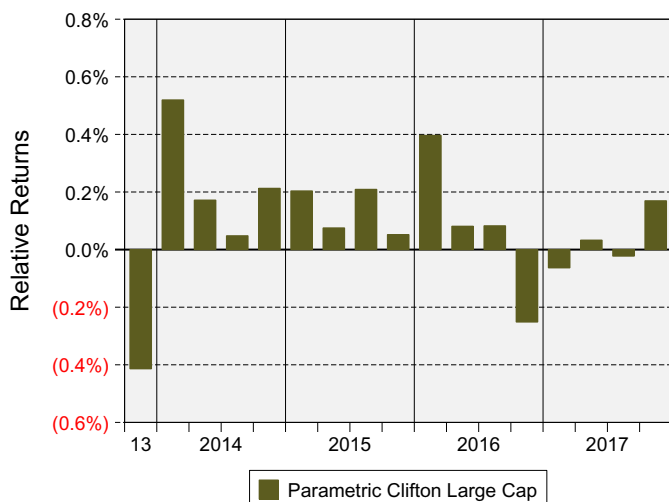
### Quarterly Asset Growth

Beginning Market Value	\$212,987,094
Net New Investment	\$0
Investment Gains/(Losses)	\$14,513,417
Ending Market Value	\$227,500,511

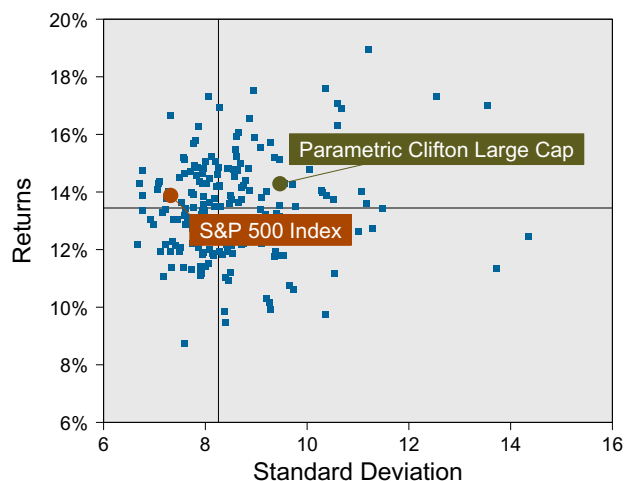
### Performance vs Callan Large Capitalization (Gross)



### Relative Return vs S&P 500 Index



### Callan Large Capitalization (Gross) Annualized Four and One-Quarter Year Risk vs Return



## L.A. Capital Period Ended December 31, 2017

### Investment Philosophy

The LA Capital Structured portfolio is a large growth portfolio benchmarked to the Russell 1000 Growth Index. It is an active assignment meaning that it targets a 2% alpha and constrains its risk budget (tracking error) to 4% relative to the benchmark. LA Capital believes that investment results are driven by Investor Preferences and thus recognize that when preferences shift a different posture related to that factor is warranted.

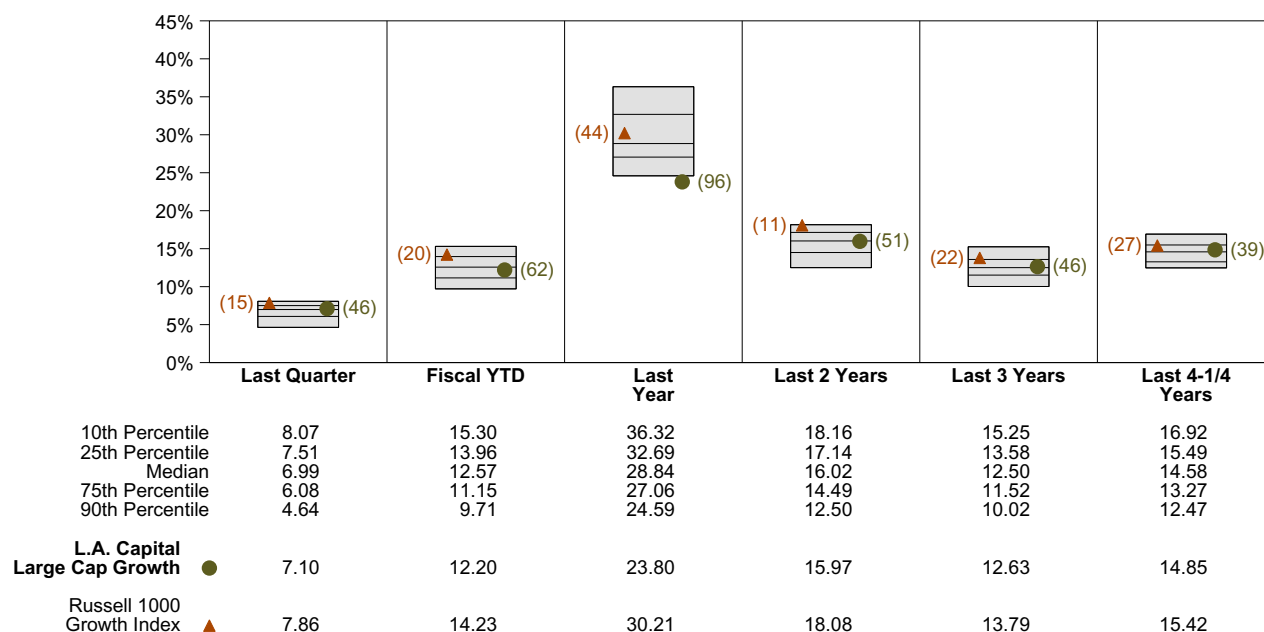
### Quarterly Summary and Highlights

- L.A. Capital Large Cap Growth's portfolio posted a 7.10% return for the quarter placing it in the 46 percentile of the Callan Large Cap Growth group for the quarter and in the 96 percentile for the last year.
- L.A. Capital Large Cap Growth's portfolio underperformed the Russell 1000 Growth Index by 0.76% for the quarter and underperformed the Russell 1000 Growth Index for the year by 6.42%.

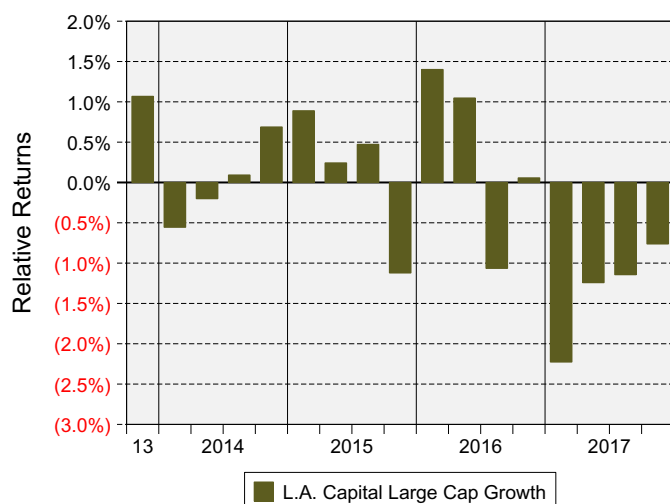
### Quarterly Asset Growth

Beginning Market Value	\$327,861,077
Net New Investment	\$-167,804
Investment Gains/(Losses)	\$23,279,337
Ending Market Value	\$350,972,609

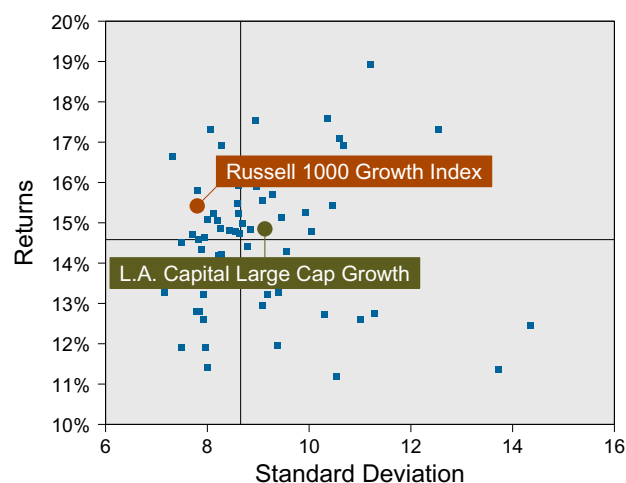
### Performance vs Callan Large Cap Growth (Gross)



### Relative Return vs Russell 1000 Growth Index



### Callan Large Cap Growth (Gross) Annualized Four and One-Quarter Year Risk vs Return



## L.A. Capital Enhanced Period Ended December 31, 2017

### Investment Philosophy

The LA Capital Enhanced portfolio is a large core portfolio benchmarked to the Russell 1000 Index. Characterized as an enhanced index assignment, its objective is to track the benchmark with lower variability. The pension portfolio began in August of 2000 and the insurance portfolio was initiated in April of 2004. Since October of 2006 a small portion of each of the two core accounts was allocated into the Large Cap Alpha Fund with intent to add incremental alpha to the assignment given that the information ratio was expected to be higher.

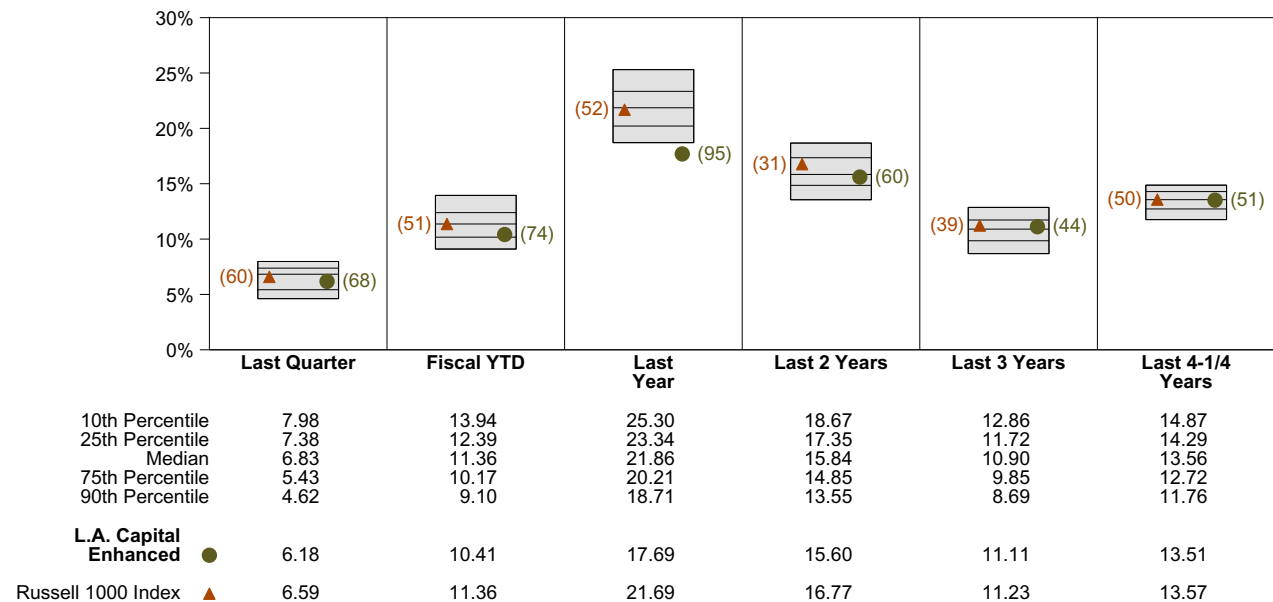
### Quarterly Summary and Highlights

- L.A. Capital Enhanced's portfolio posted a 6.18% return for the quarter placing it in the 68 percentile of the Callan Large Cap Core group for the quarter and in the 95 percentile for the last year.
- L.A. Capital Enhanced's portfolio underperformed the Russell 1000 Index by 0.41% for the quarter and underperformed the Russell 1000 Index for the year by 4.00%.

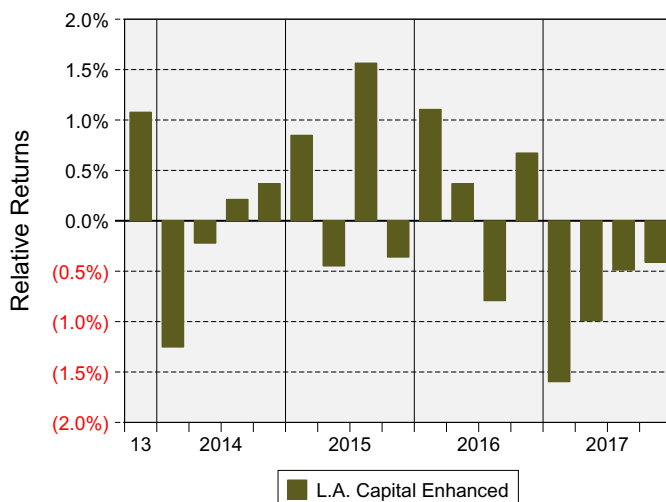
### Quarterly Asset Growth

Beginning Market Value	\$208,792,005
Net New Investment	\$-68,699
Investment Gains/(Losses)	\$12,894,809
Ending Market Value	\$221,618,115

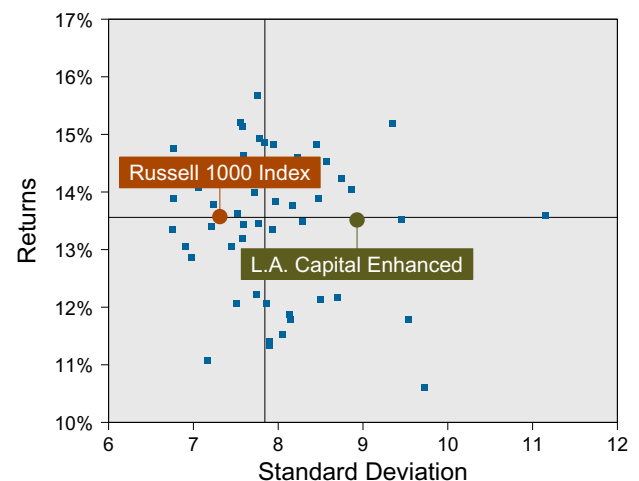
### Performance vs Callan Large Cap Core (Gross)



### Relative Return vs Russell 1000 Index



### Callan Large Cap Core (Gross) Annualized Four and One-Quarter Year Risk vs Return



# LSV Asset Management

## Period Ended December 31, 2017

### Investment Philosophy

The objective of LSV Asset Management's Large Cap Value Equity (U.S.) strategy is to outperform the Russell 1000 Value by at least 200 basis points (gross of fees) per annum over a 3-5 year period with a tracking error of approximately 4%. Their stock selection process is a quantitative approach that ranks a broad universe of stocks on a combination of value and momentum factors and seeks to invest approximately 100 stocks in the most attractive securities possible within strict risk parameters to control the portfolio's tracking error relative to the benchmark. The resulting portfolio is broadly diversified across industry groups and fully invested.

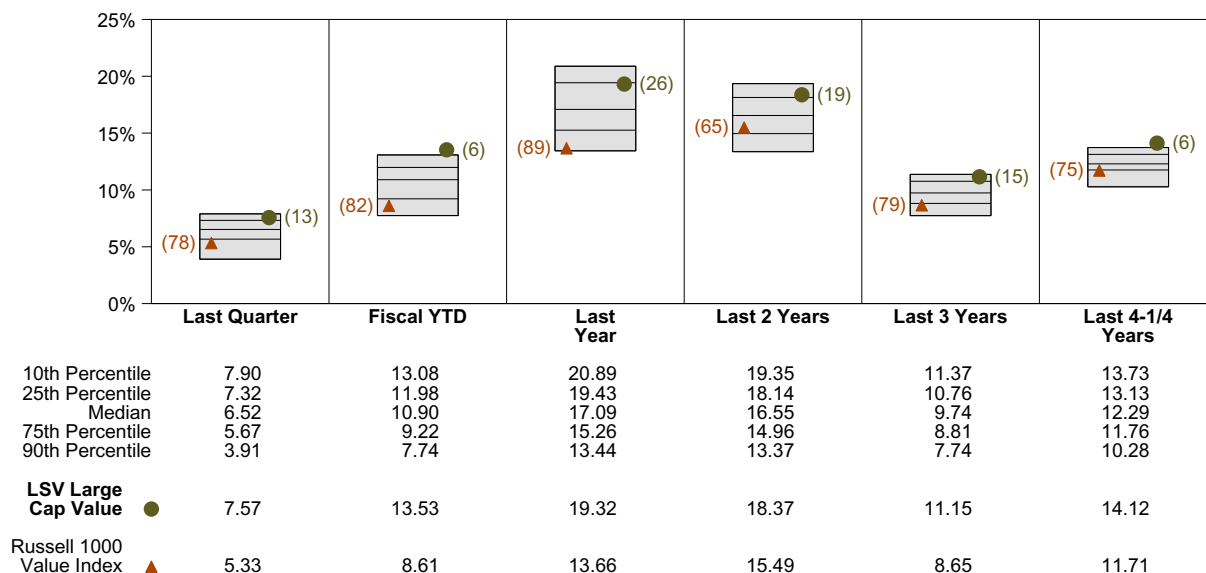
### Quarterly Summary and Highlights

- LSV Large Cap Value's portfolio posted a 7.57% return for the quarter placing it in the 13 percentile of the Callan Large Cap Value group for the quarter and in the 26 percentile for the last year.
- LSV Large Cap Value's portfolio outperformed the Russell 1000 Value Index by 2.24% for the quarter and outperformed the Russell 1000 Value Index for the year by 5.65%.

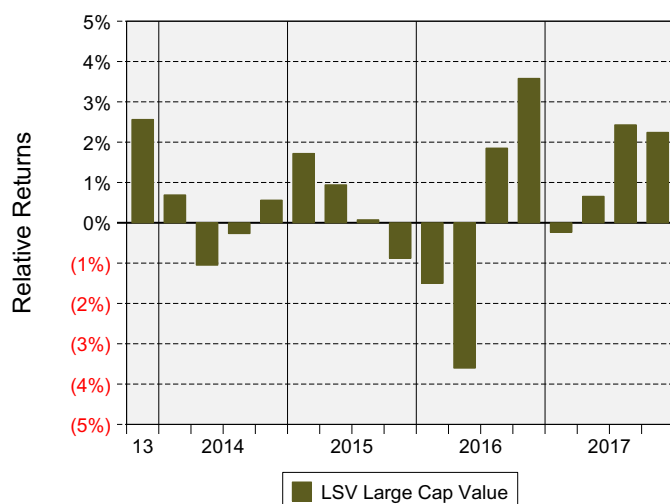
### Quarterly Asset Growth

Beginning Market Value	\$328,850,349
Net New Investment	\$-248,441
Investment Gains/(Losses)	\$24,872,381
Ending Market Value	\$353,474,289

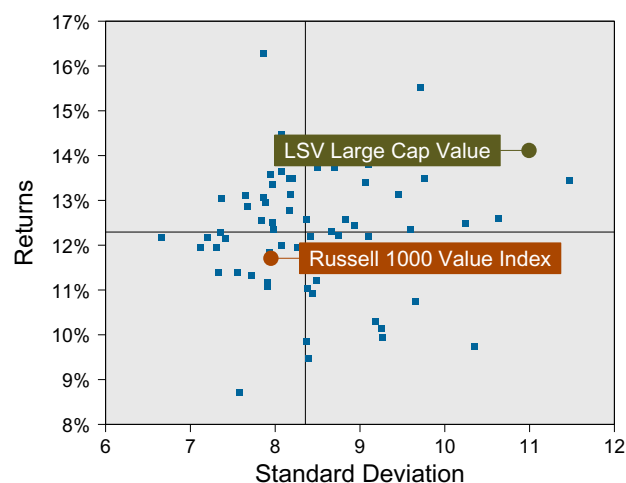
### Performance vs Callan Large Cap Value (Gross)



### Relative Return vs Russell 1000 Value Index



### Callan Large Cap Value (Gross) Annualized Four and One-Quarter Year Risk vs Return





## Parametric Clifton Small Cap Period Ended December 31, 2017

### Investment Philosophy

Parametric Clifton utilizes equity futures to gain benchmark exposure in constructing the portfolio it believes provides the greatest likelihood of outperforming the index. In this construction the underlying cash portfolio is invested in a liquid, high quality short duration fixed income portfolio. Over market cycles excess return generated by the short duration portfolio, when added to the performance of futures is expected to allow the strategy to achieve 0.50% to 1.00% of gross excess annual performance.

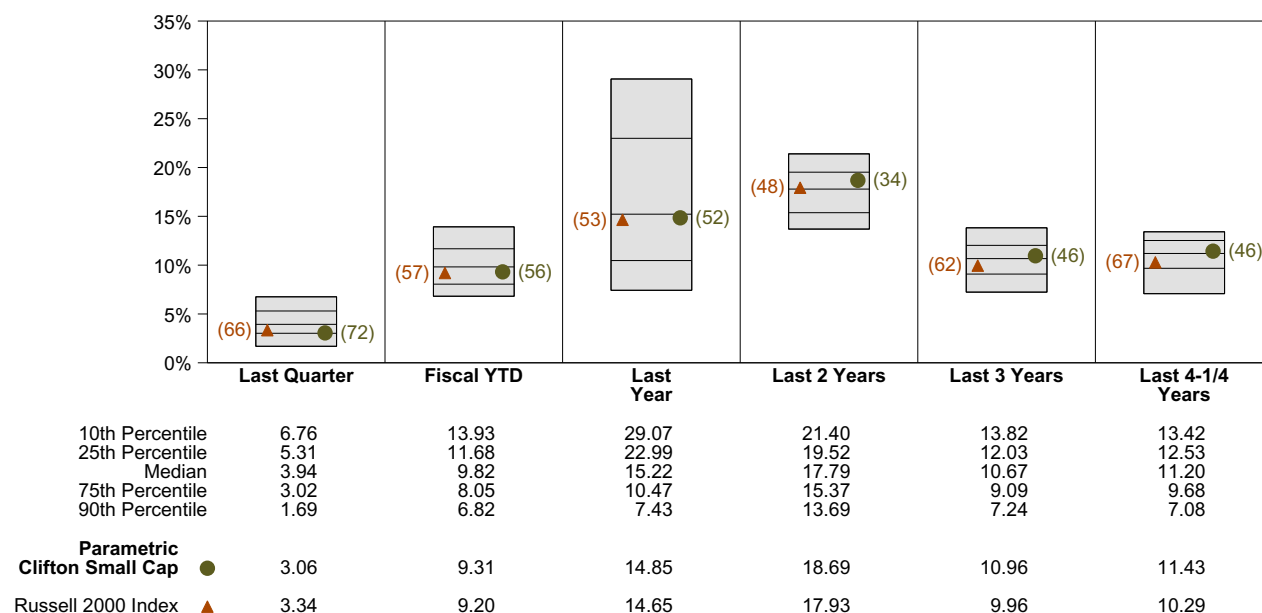
### Quarterly Summary and Highlights

- Parametric Clifton Small Cap's portfolio posted a 3.06% return for the quarter placing it in the 72 percentile of the Callan Small Capitalization group for the quarter and in the 52 percentile for the last year.
- Parametric Clifton Small Cap's portfolio underperformed the Russell 2000 Index by 0.28% for the quarter and outperformed the Russell 2000 Index for the year by 0.20%.

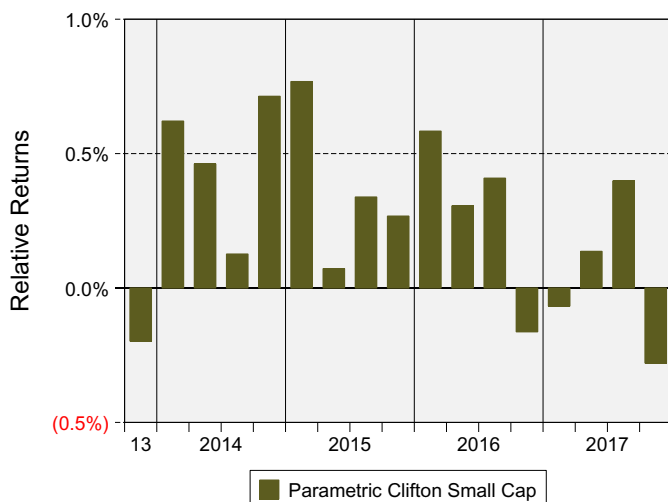
### Quarterly Asset Growth

Beginning Market Value	\$220,653,824
Net New Investment	\$0
Investment Gains/(Losses)	\$6,754,452
Ending Market Value	\$227,408,276

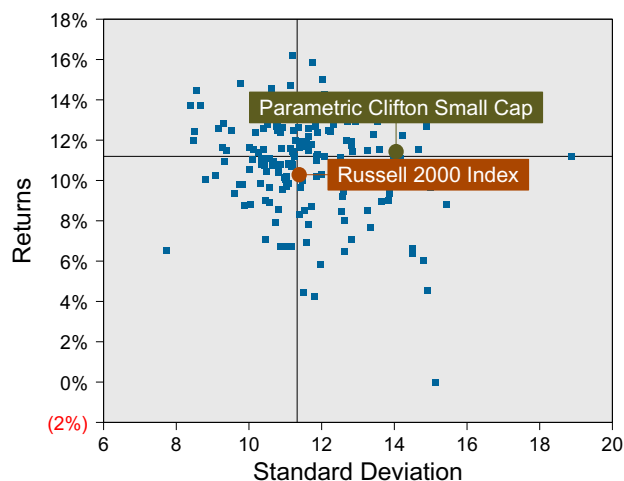
### Performance vs Callan Small Capitalization (Gross)



### Relative Return vs Russell 2000 Index



### Callan Small Capitalization (Gross) Annualized Four and One-Quarter Year Risk vs Return



## PIMCO RAE Period Ended December 31, 2017

### Investment Philosophy

Small company value equity portfolio utilizing the index strategy and philosophy described as the Enhanced RAFI US Small strategy which relies on portfolio weights derived from firm fundamentals (free cash flow, book equity value, total sales and gross dividend), instead of market capitalization. Additionally, the enhanced portfolio strategy uses a quality of earnings screening and a financial distress screening to augment portfolio returns and reduce portfolio volatility.

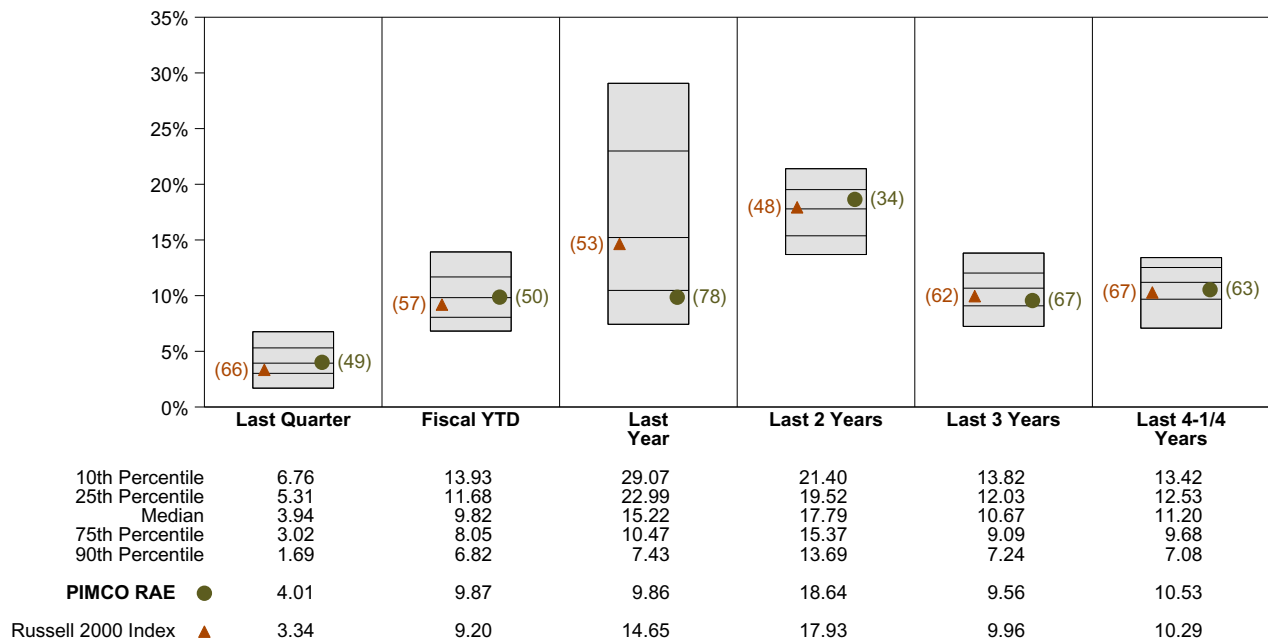
### Quarterly Summary and Highlights

- PIMCO RAE's portfolio posted a 4.01% return for the quarter placing it in the 49 percentile of the Callan Small Capitalization group for the quarter and in the 78 percentile for the last year.
- PIMCO RAE's portfolio outperformed the Russell 2000 Index by 0.67% for the quarter and underperformed the Russell 2000 Index for the year by 4.79%.

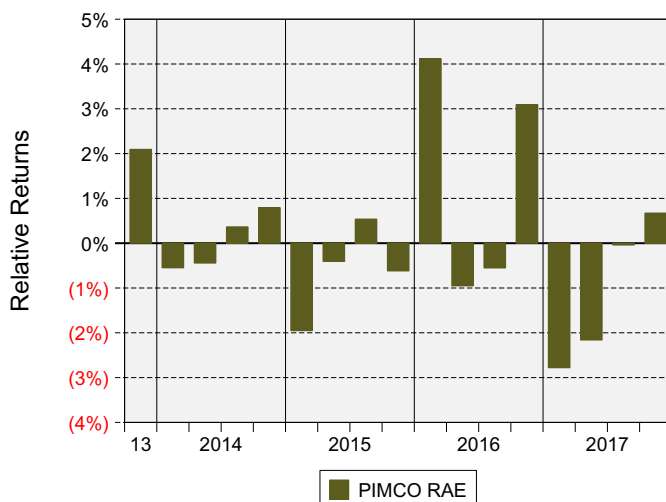
### Quarterly Asset Growth

Beginning Market Value	\$180,653,821
Net New Investment	\$-109,638
Investment Gains/(Losses)	\$7,242,246
Ending Market Value	\$187,786,429

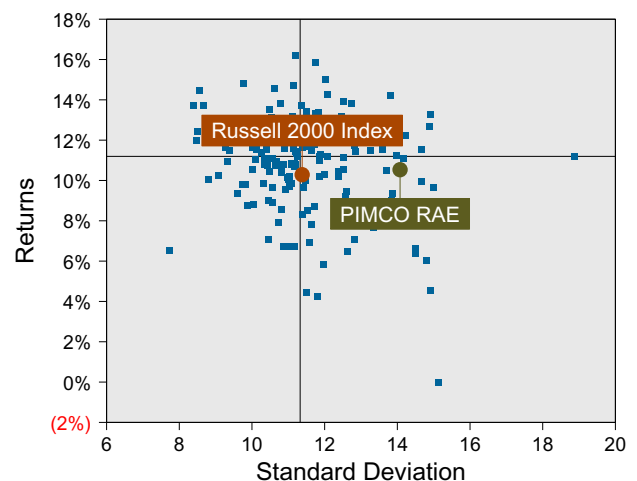
### Performance vs Callan Small Capitalization (Gross)



### Relative Return vs Russell 2000 Index



### Callan Small Capitalization (Gross) Annualized Four and One-Quarter Year Risk vs Return



## International Equity Period Ended December 31, 2017

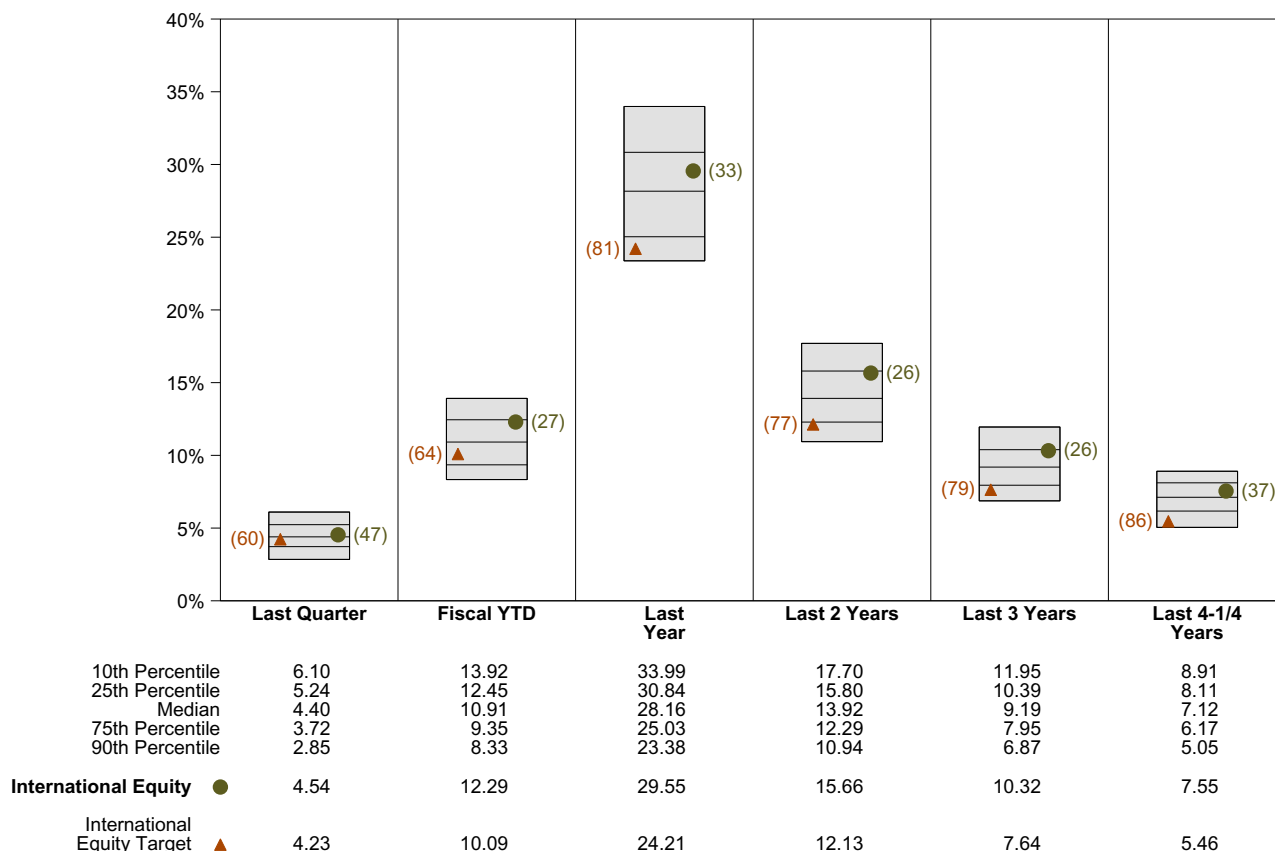
### Quarterly Summary and Highlights

- International Equity's portfolio posted a 4.54% return for the quarter placing it in the 47 percentile of the Callan Non-US Equity group for the quarter and in the 33 percentile for the last year.
- International Equity's portfolio outperformed the International Equity Target by 0.31% for the quarter and outperformed the International Equity Target for the year by 5.35%.

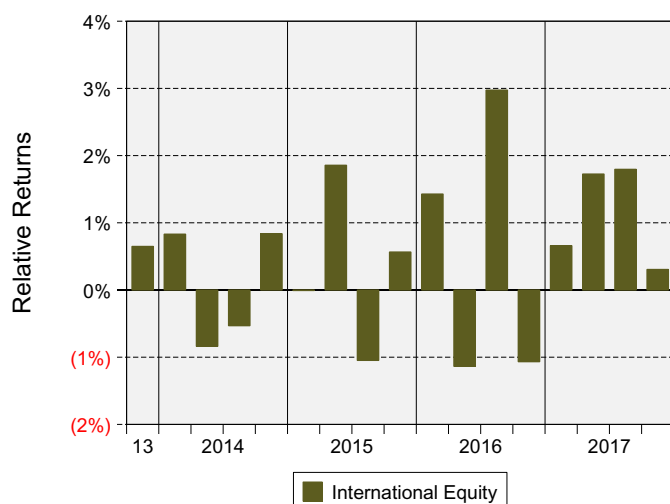
### Quarterly Asset Growth

Beginning Market Value	\$1,004,578,346
Net New Investment	\$-781,618
Investment Gains/(Losses)	\$45,546,412
Ending Market Value	\$1,049,343,140

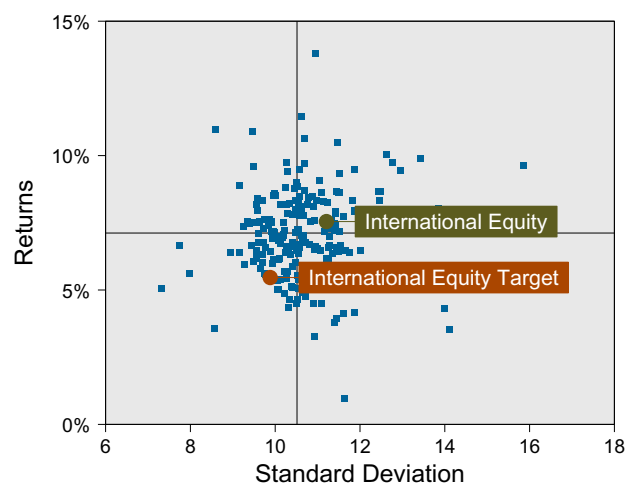
### Performance vs Callan Non-US Equity (Gross)



### Relative Return vs International Equity Target



### Callan Non-US Equity (Gross) Annualized Four and One-Quarter Year Risk vs Return



## DFA Intl Small Cap Value Period Ended December 31, 2017

### Investment Philosophy

The International Small Cap Value Portfolio invests in the stocks of small, non-US developed markets companies that Dimensional believes to be value stocks at the time of purchase. Specifically, it looks at companies that fall within the smallest 8-10% of each country's market capitalization, and who's shares have a high book value in relation to their market value (BtM). It does not invest in emerging markets.

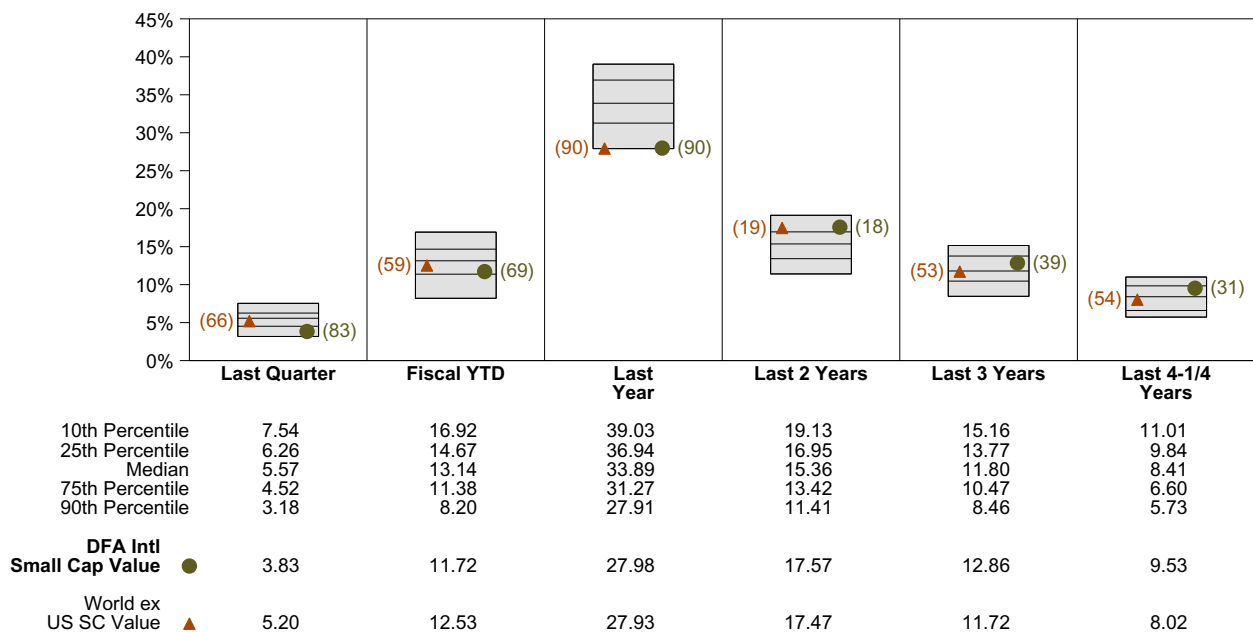
### Quarterly Summary and Highlights

- DFA Intl Small Cap Value's portfolio posted a 3.83% return for the quarter placing it in the 83 percentile of the Callan International Small Cap Mut Funds group for the quarter and in the 90 percentile for the last year.
- DFA Intl Small Cap Value's portfolio underperformed the World ex US SC Value by 1.36% for the quarter and outperformed the World ex US SC Value for the year by 0.05%.

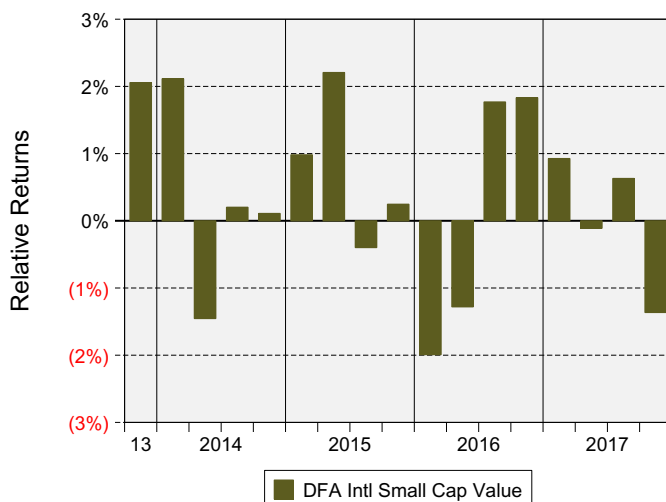
### Quarterly Asset Growth

Beginning Market Value	\$100,765,744
Net New Investment	\$0
Investment Gains/(Losses)	\$3,863,388
Ending Market Value	\$104,629,132

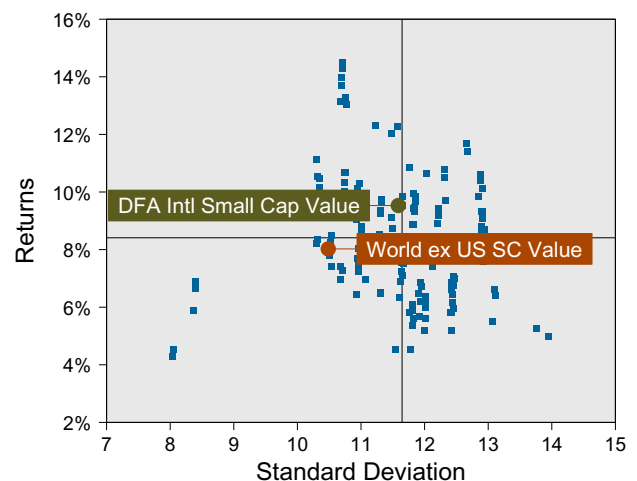
### Performance vs Callan International Small Cap Mut Funds (Net)



### Relative Return vs World ex US SC Value



### Callan International Small Cap Mut Funds (Net) Annualized Four and One-Quarter Year Risk vs Return



## LSV Intl Value

### Period Ended December 31, 2017

#### Investment Philosophy

The objective of LSV Asset Management's International Large Cap Value strategy is to outperform the MSCI EAFE Index by at least 250 basis points (gross of fees) per annum over an annualized 3-5 year period with a tracking error of approximately 5-6%. Their stock selection process is a quantitative approach that ranks a broad universe of stocks on a combination of value and momentum factors and seeks to invest approximately 150 stocks in the most attractive securities possible within strict risk parameters to control the portfolio's tracking error relative to the benchmark. The resulting portfolio is broadly diversified across industry groups and fully invested. LSV weights countries at a neutral weight relative to the benchmark country weights. 50% of the portfolio is US dollar hedged.

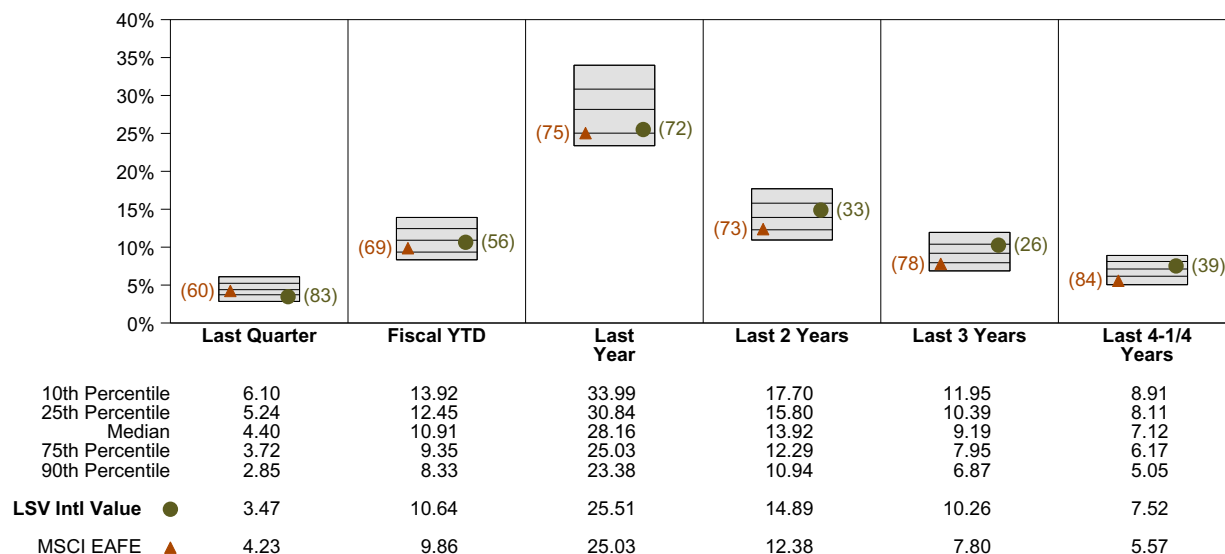
#### Quarterly Summary and Highlights

- LSV Intl Value's portfolio posted a 3.47% return for the quarter placing it in the 83 percentile of the Callan Non-US Equity group for the quarter and in the 72 percentile for the last year.
- LSV Intl Value's portfolio underperformed the MSCI EAFE by 0.76% for the quarter and outperformed the MSCI EAFE for the year by 0.48%.

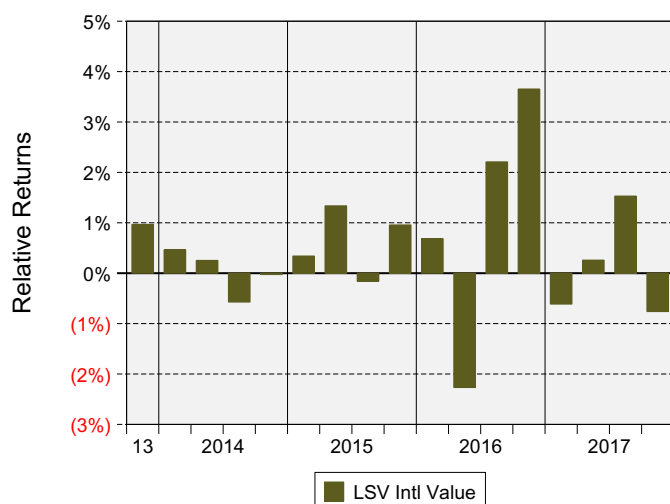
#### Quarterly Asset Growth

Beginning Market Value	\$398,315,660
Net New Investment	\$-398,129
Investment Gains/(Losses)	\$13,811,106
Ending Market Value	\$411,728,637

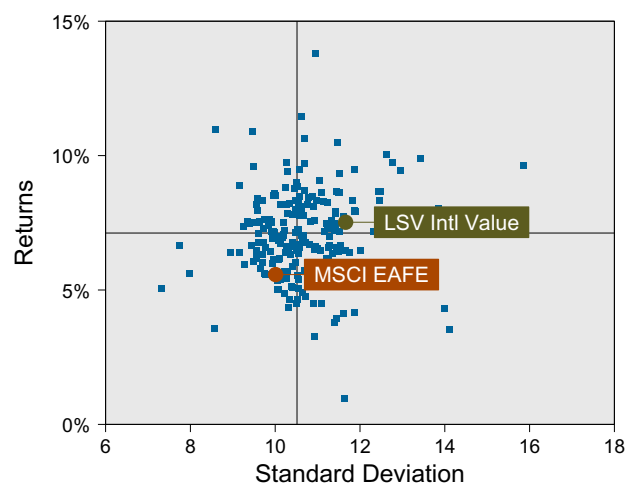
#### Performance vs Callan Non-US Equity (Gross)



#### Relative Return vs MSCI EAFE



#### Callan Non-US Equity (Gross) Annualized Four and One-Quarter Year Risk vs Return



# Vanguard Intl Explorer Fund

## Period Ended December 31, 2017

### Investment Philosophy

Vanguard International Explorer Fund invests primarily in the equity securities of small-capitalization companies located outside the United States that the advisor believes offer the potential for long-term capital appreciation. The advisor considers, among other things, whether a company is likely to have above-average earnings growth, whether the company's securities are attractively valued, and whether the company has any proprietary advantages.

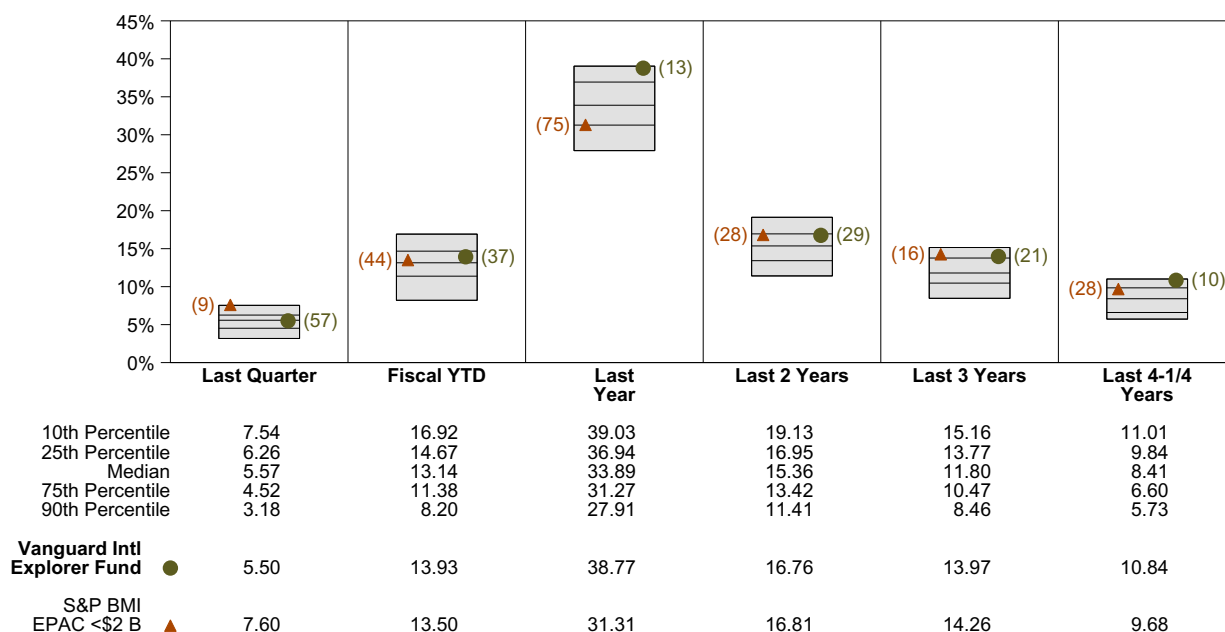
### Quarterly Summary and Highlights

- Vanguard Intl Explorer Fund's portfolio posted a 5.50% return for the quarter placing it in the 57 percentile of the Callan International Small Cap Mut Funds group for the quarter and in the 13 percentile for the last year.
- Vanguard Intl Explorer Fund's portfolio underperformed the S&P BMI EPAC <\$2 B by 2.11% for the quarter and outperformed the S&P BMI EPAC <\$2 B for the year by 7.46%.

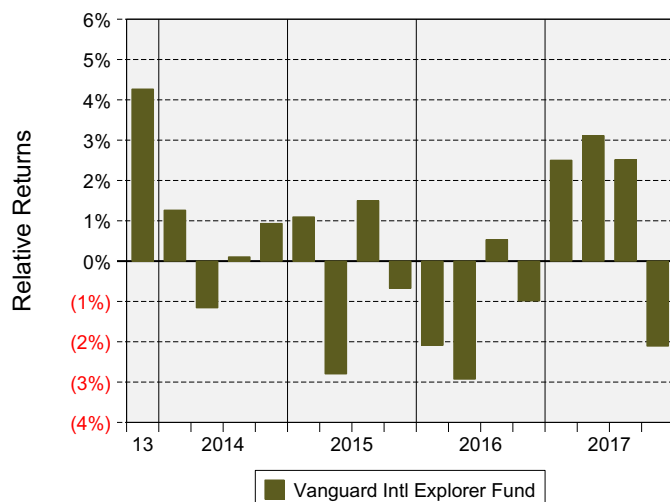
### Quarterly Asset Growth

Beginning Market Value	\$101,205,397
Net New Investment	\$0
Investment Gains/(Losses)	\$5,563,102
Ending Market Value	\$106,768,499

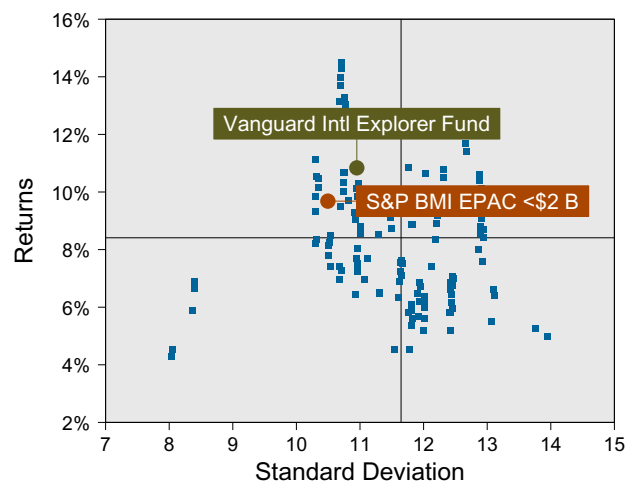
### Performance vs Callan International Small Cap Mut Funds (Net)



### Relative Return vs S&P BMI EPAC <\$2 B



### Callan International Small Cap Mut Funds (Net) Annualized Four and One-Quarter Year Risk vs Return



## William Blair Period Ended December 31, 2017

### Investment Philosophy

One of the basic investment tenets of William Blair & Company has been its focus on quality growth companies. They believe that investing in quality growth companies will generate above average results with generally less risk than the market. This opportunity exists because they believe the market underestimates the durability and rate of growth in companies that have the following characteristics: strong management with a unique vision, competitive advantages that prolong the duration and size of earnings growth, and conservative financing. Internationally, they believe that this philosophy can be combined with strategic flexibility in managing geographic exposure, capitalization, sector emphasis, and relative growth and valuation at the portfolio level in order to provide an appropriate degree of adaptability to cyclical conditions.

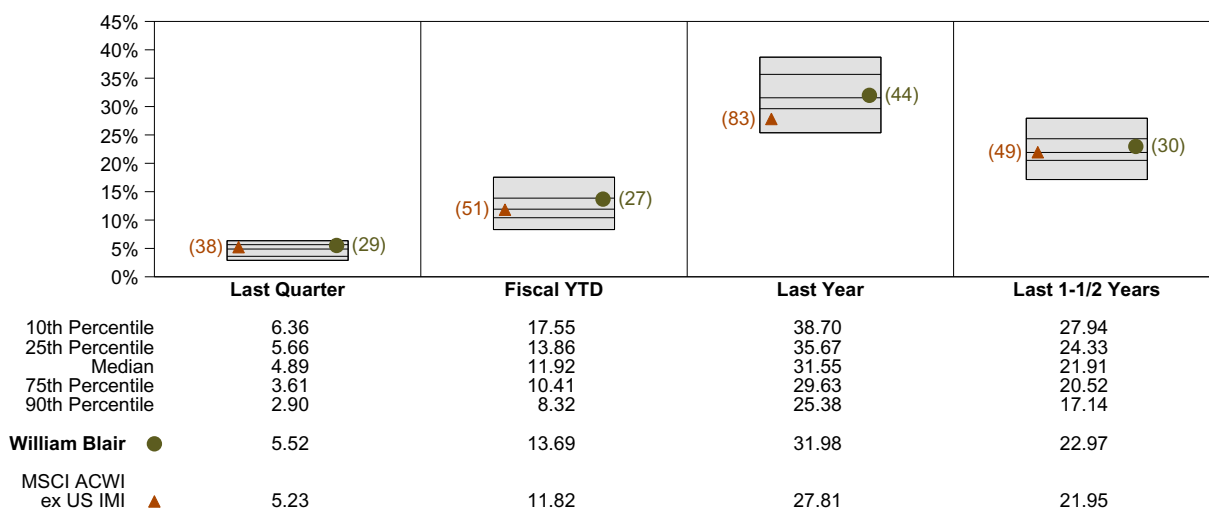
### Quarterly Summary and Highlights

- William Blair's portfolio posted a 5.52% return for the quarter placing it in the 29 percentile of the Callan Non-US All Country Growth Equity group for the quarter and in the 44 percentile for the last year.
- William Blair's portfolio outperformed the MSCI ACWI ex US IMI by 0.30% for the quarter and outperformed the MSCI ACWI ex US IMI for the year by 4.16%.

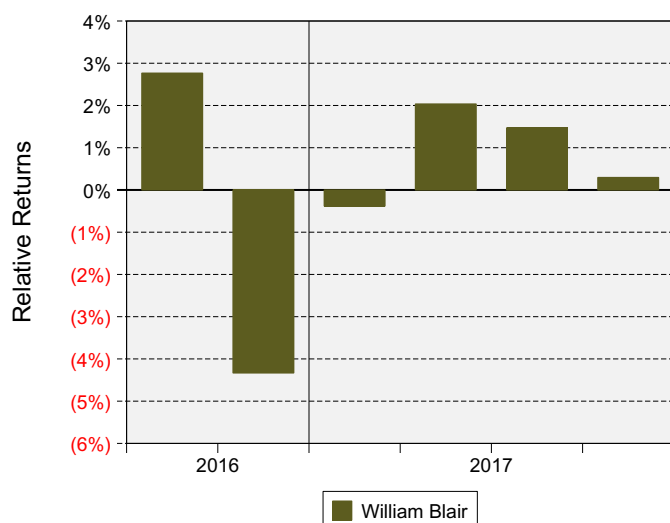
### Quarterly Asset Growth

Beginning Market Value	\$404,291,545
Net New Investment	\$-383,489
Investment Gains/(Losses)	\$22,308,815
Ending Market Value	\$426,216,872

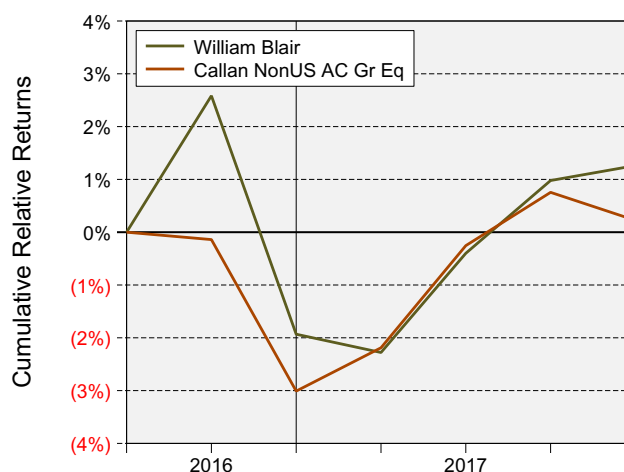
### Performance vs Callan Non-US All Country Growth Equity (Gross)



### Relative Return vs MSCI ACWI ex US IMI



### Cumulative Returns vs MSCI ACWI ex US IMI



## Domestic Fixed Income Period Ended December 31, 2017

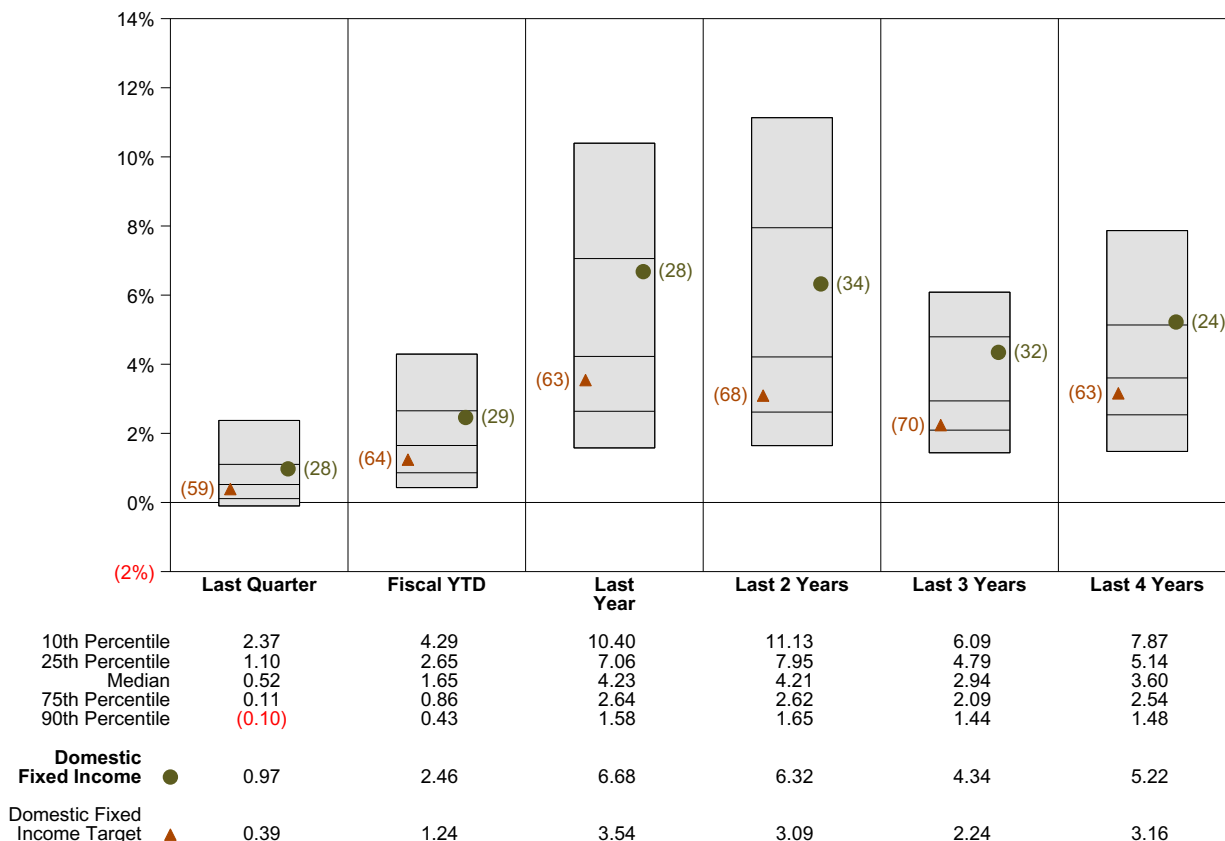
### Quarterly Summary and Highlights

- Domestic Fixed Income's portfolio posted a 0.97% return for the quarter placing it in the 28 percentile of the Total Domestic Fixed-Inc Database group for the quarter and in the 28 percentile for the last year.
- Domestic Fixed Income's portfolio outperformed the Domestic Fixed Income Target by 0.59% for the quarter and outperformed the Domestic Fixed Income Target for the year by 3.14%.

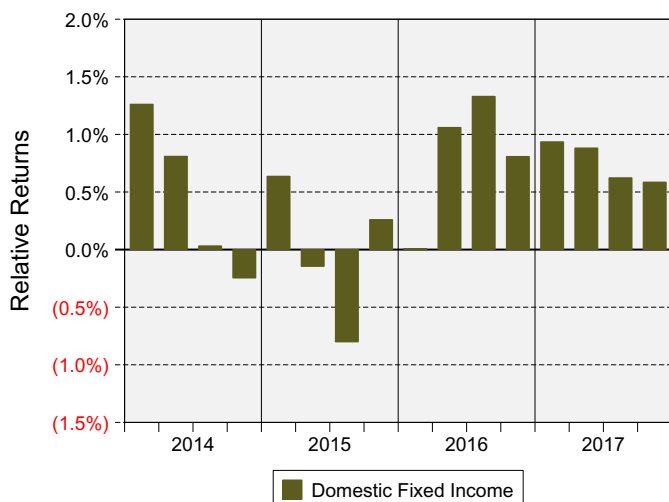
### Quarterly Asset Growth

Beginning Market Value	\$1,709,895,192
Net New Investment	\$76,642,157
Investment Gains/(Losses)	\$17,115,556
Ending Market Value	\$1,803,652,904

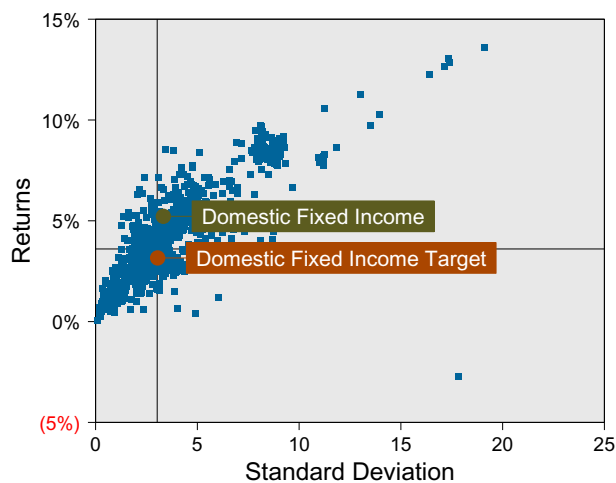
### Performance vs Total Domestic Fixed-Inc Database (Gross)



### Relative Returns vs Domestic Fixed Income Target



### Total Domestic Fixed-Inc Database (Gross) Annualized Four Year Risk vs Return





## Declaration Total Return Period Ended December 31, 2017

### Investment Philosophy

The Fund's portfolio holdings consist primarily of RMBS issued by private sector companies (Non-Agency RMBS) and government agencies (Agency MBS) and CMBS issued by private sector companies. Agency MBS includes securities issued by the Federal National Mortgage Association (Fannie Mae), the Federal Home Loan Mortgage Corporation (Freddie Mac) and the Government National Mortgage Association (Ginnie Mae). Portfolio holdings may range from short tenure senior classes to stressed issues or subordinated securities with substantial risk of non-payment and correspondingly higher yields. Smaller portfolio allocations may include consumer asset-backed securities (ABS), or other structured credit securities and corporate bonds. As a diversification strategy and a potential hedge to credit risk, the Fund may invest in securities which tend to benefit from slow mortgage prepayments and economic growth, such as interest only (IO) MBS.

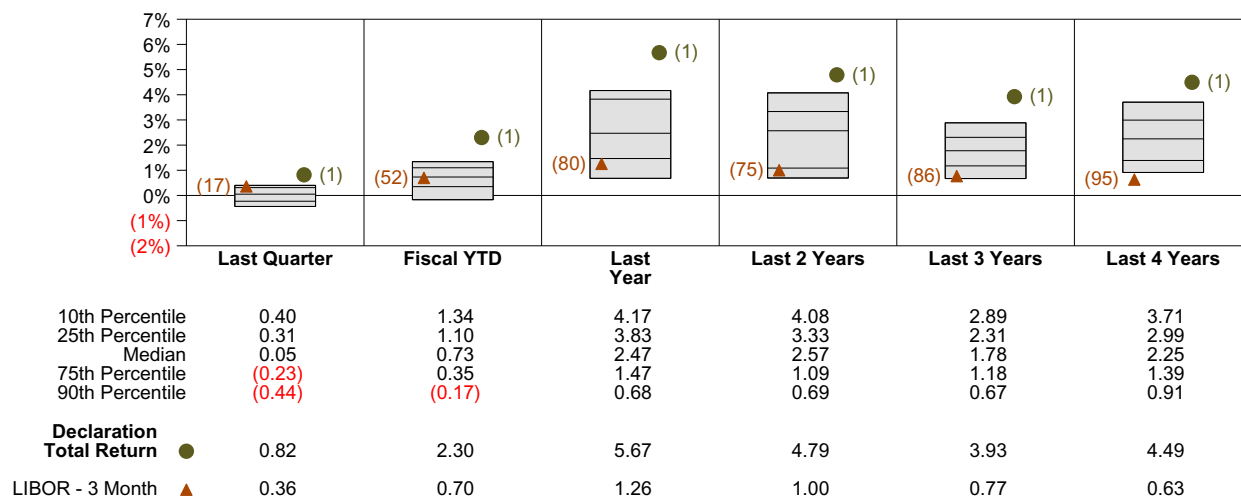
### Quarterly Summary and Highlights

- Declaration Total Return's portfolio posted a 0.82% return for the quarter placing it in the 1 percentile of the Callan Intermediate Fixed Inc Mut Funds group for the quarter and in the 1 percentile for the last year.
- Declaration Total Return's portfolio outperformed the LIBOR - 3 Month by 0.46% for the quarter and outperformed the LIBOR - 3 Month for the year by 4.41%.

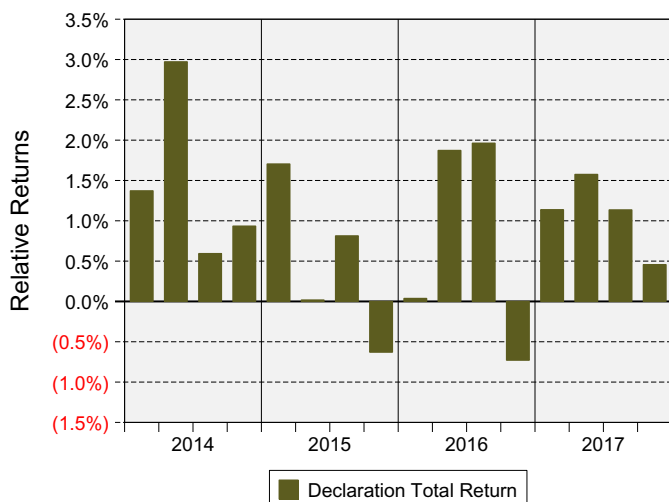
### Quarterly Asset Growth

Beginning Market Value	\$128,198,038
Net New Investment	\$-92,185
Investment Gains/(Losses)	\$1,048,641
Ending Market Value	\$129,154,494

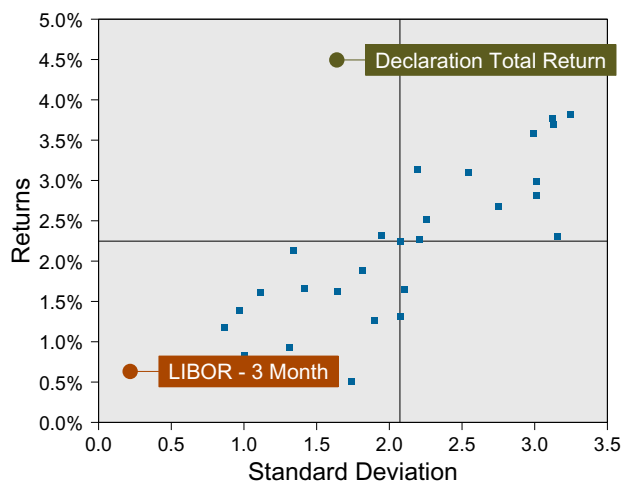
### Performance vs Callan Intermediate Fixed Inc Mut Funds (Net)



### Relative Return vs LIBOR - 3 Month



### Callan Intermediate Fixed Inc Mut Funds (Net) Annualized Four Year Risk vs Return



## Prudential Period Ended December 31, 2017

### Investment Philosophy

PGIM Fixed Income's Core Plus Strategy is an actively-managed strategy that seeks +150 bps over the Bloomberg Barclays U.S. Aggregate Bond Index or similar benchmark annualized over a market cycle (three to five years.) The Strategy seeks about half of its excess return from active sector allocation and up to one-third each from subsector/security selection and duration/yield curve/currencies, depending on market opportunities.

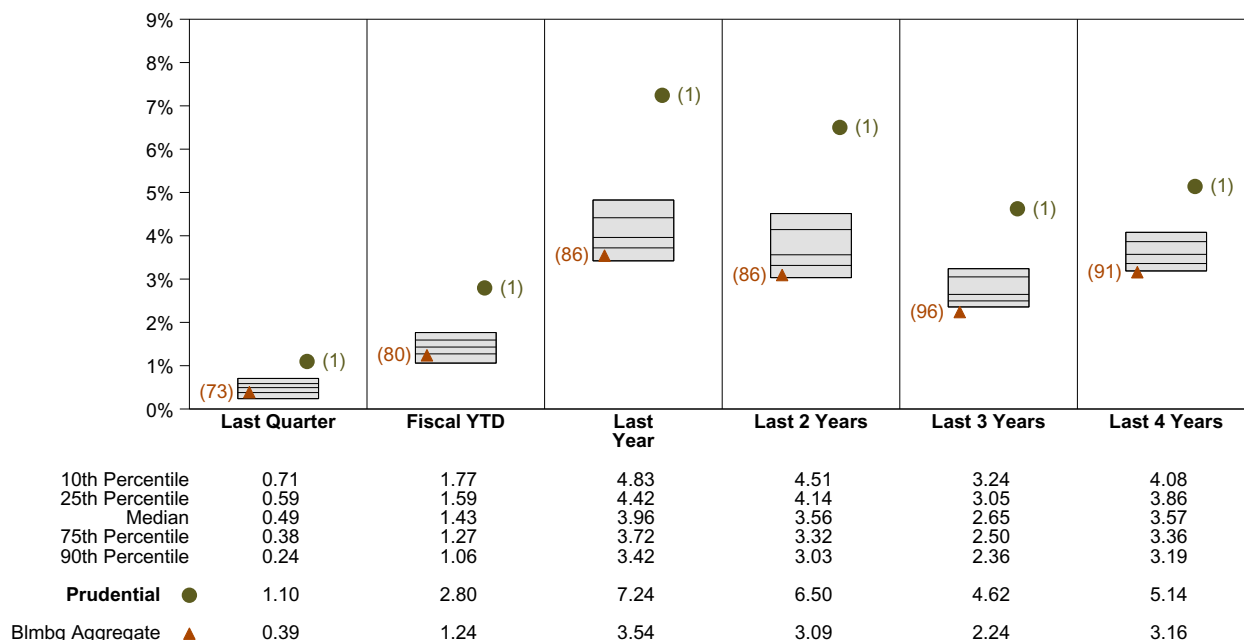
### Quarterly Summary and Highlights

- Prudential's portfolio posted a 1.10% return for the quarter placing it in the 1 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 1 percentile for the last year.
- Prudential's portfolio outperformed the Blmbg Aggregate by 0.71% for the quarter and outperformed the Blmbg Aggregate for the year by 3.70%.

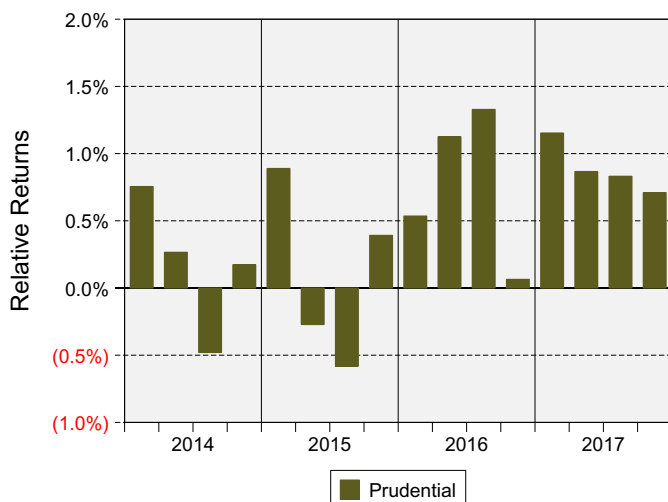
### Quarterly Asset Growth

Beginning Market Value	\$181,064,943
Net New Investment	\$14,882,149
Investment Gains/(Losses)	\$1,951,791
Ending Market Value	\$197,898,883

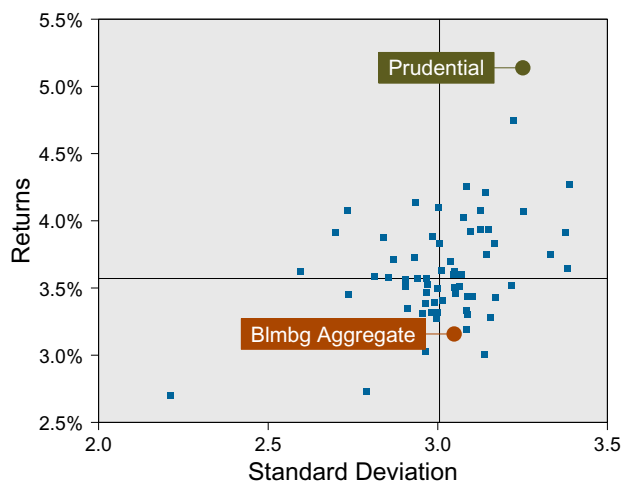
### Performance vs Callan Core Bond Fixed Income (Gross)



### Relative Return vs Blmbg Aggregate



### Callan Core Bond Fixed Income (Gross) Annualized Four Year Risk vs Return



## SSgA US Govt Credit Bd Idx Period Ended December 31, 2017

### Investment Philosophy

The Fund seeks an investment return that approximates as closely as practicable, before expenses, the performance of the Barclays Capital U.S. Government/Credit Bond Index over the long term.

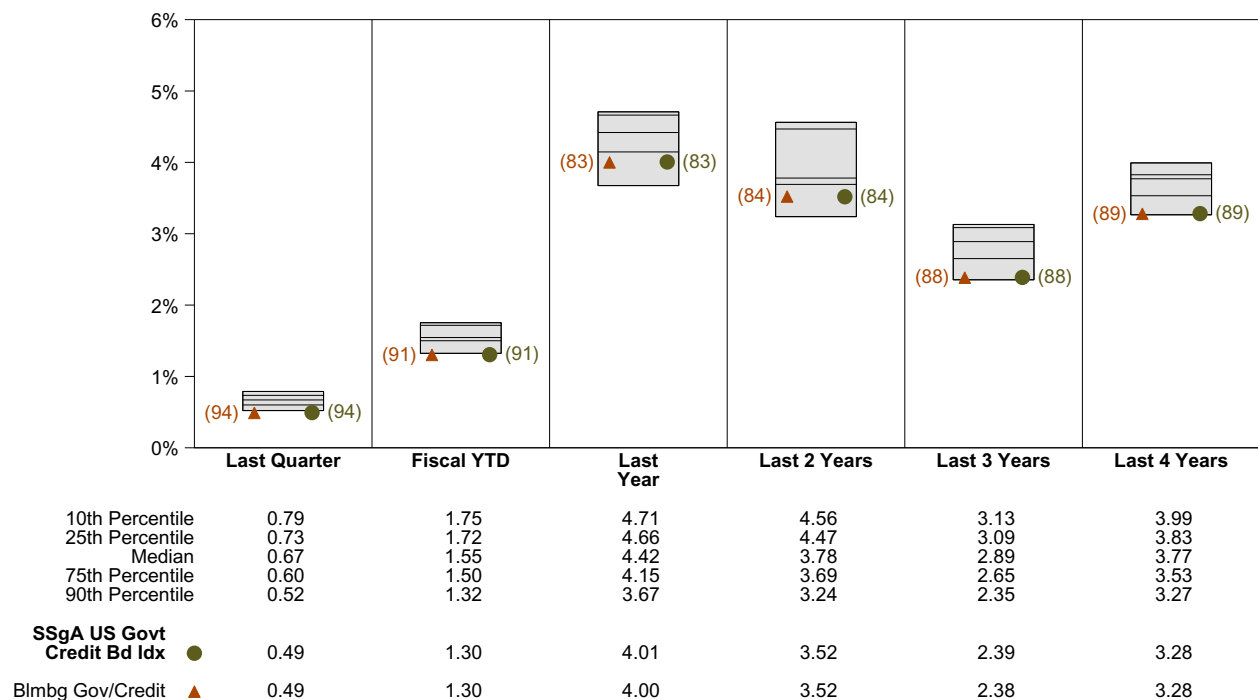
### Quarterly Summary and Highlights

- SSgA US Govt Credit Bd Idx's portfolio posted a 0.49% return for the quarter placing it in the 94 percentile of the Callan Government/Credit group for the quarter and in the 83 percentile for the last year.
- SSgA US Govt Credit Bd Idx's portfolio outperformed the Blmbg Gov/Credit by 0.00% for the quarter and outperformed the Blmbg Gov/Credit for the year by 0.01%.

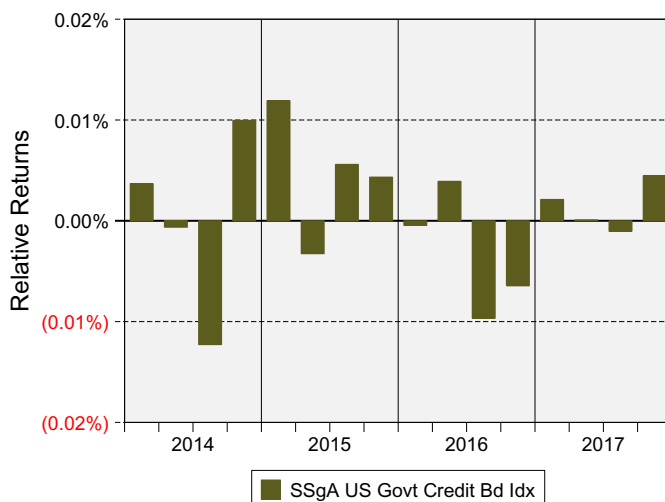
### Quarterly Asset Growth

Beginning Market Value	\$233,563,469
Net New Investment	\$19,961,541
Investment Gains/(Losses)	\$1,255,204
Ending Market Value	\$254,780,214

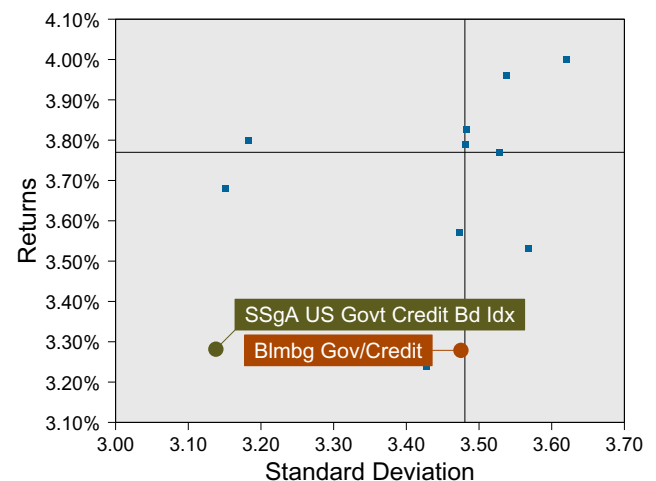
### Performance vs Callan Government/Credit (Gross)



### Relative Return vs Blmbg Gov/Credit



### Callan Government/Credit (Gross) Annualized Four Year Risk vs Return



## Wells Capital Period Ended December 31, 2017

### Investment Philosophy

The Medium Quality Credit fixed income strategy is designed to maximize total return from the high-grade corporate bond market while maintaining a strategic allocation to the BBB portion of the high yield market. The investment process for this fund starts with a "top-down" strategy. Security selection is determined by in-depth credit research, holding that in-depth knowledge of industries, companies, and their management teams can help identify credit trends that can lead to investment opportunities. Furthermore, a disciplined relative value framework is applied to help determine the optimal position to invest within an industry and within an individual issuer's capital structure.

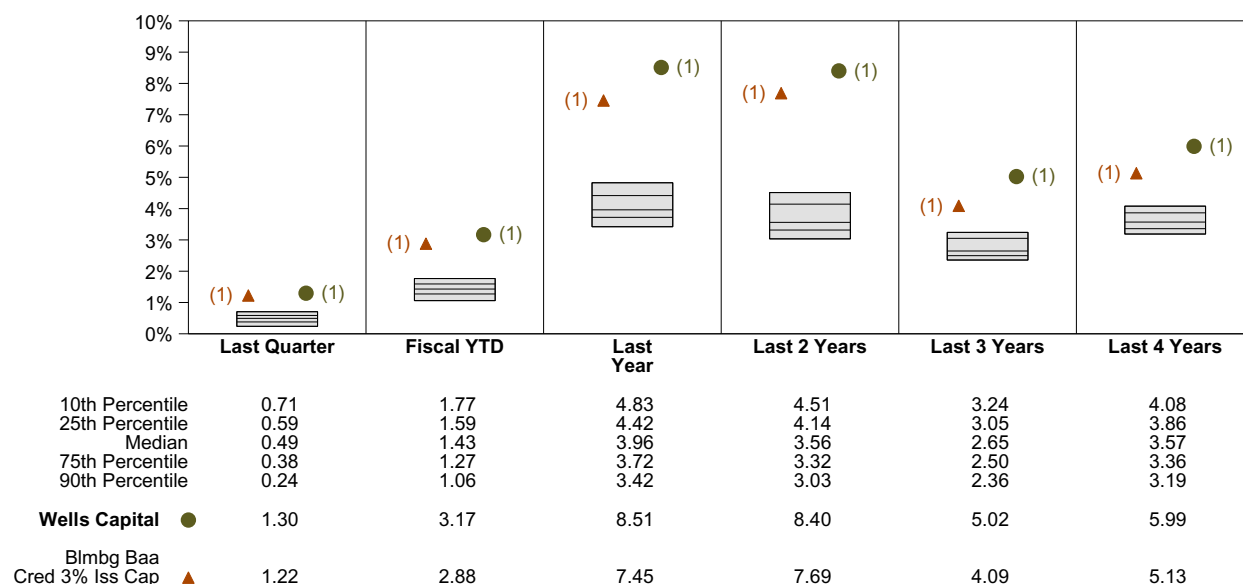
### Quarterly Summary and Highlights

- Wells Capital's portfolio posted a 1.30% return for the quarter placing it in the 1 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 1 percentile for the last year.
- Wells Capital's portfolio outperformed the Blmbg Baa Cred 3% Iss Cap by 0.07% for the quarter and outperformed the Blmbg Baa Cred 3% Iss Cap for the year by 1.06%.

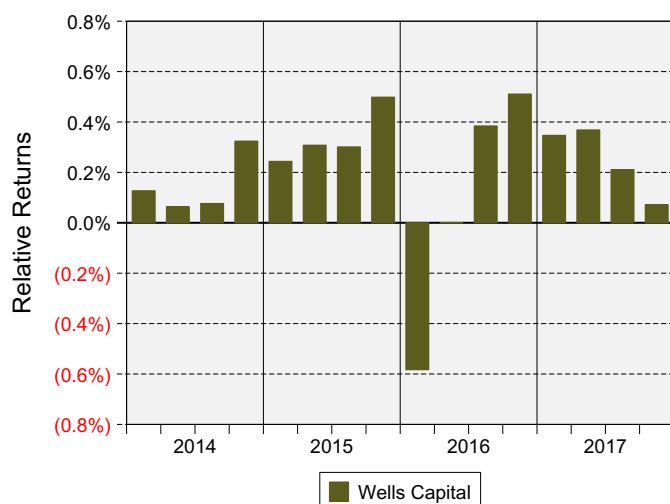
### Quarterly Asset Growth

Beginning Market Value	\$501,496,258
Net New Investment	\$-192,684
Investment Gains/(Losses)	\$6,502,458
Ending Market Value	\$507,806,032

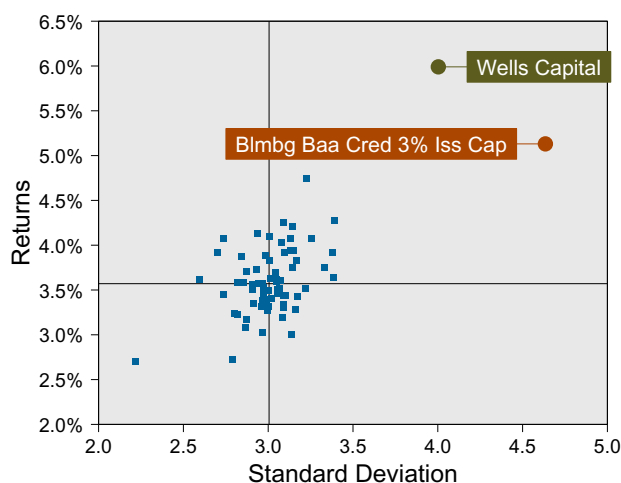
### Performance vs Callan Core Bond Fixed Income (Gross)



### Relative Returns vs Blmbg Baa Cred 3% Iss Cap



### Callan Core Bond Fixed Income (Gross) Annualized Four Year Risk vs Return



# Western Asset Management Company

## Period Ended December 31, 2017

### Investment Philosophy

Western Asset designs this portfolio using all major fixed-income sectors with a bias towards non-Treasuries, especially corporate, mortgage-backed and asset-backed securities. Value can be added through sector rotation, issue selection, duration and term structure weighting.

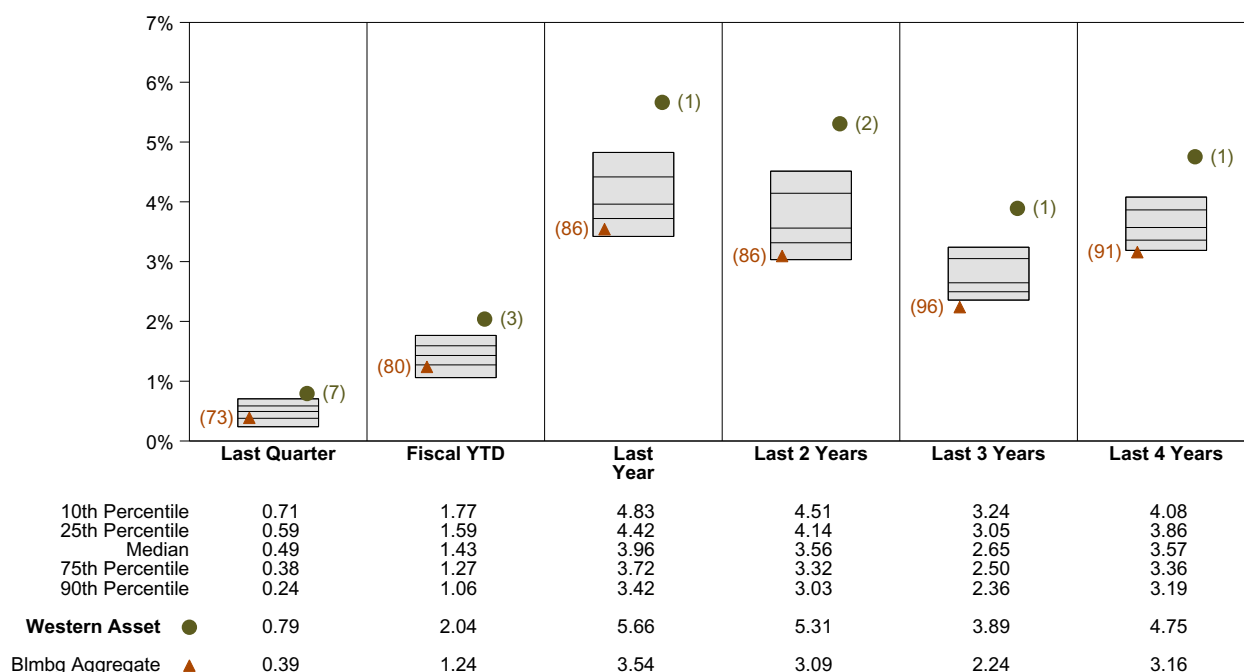
### Quarterly Summary and Highlights

- Western Asset's portfolio posted a 0.79% return for the quarter placing it in the 7 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 1 percentile for the last year.
- Western Asset's portfolio outperformed the Blmbg Aggregate by 0.41% for the quarter and outperformed the Blmbg Aggregate for the year by 2.12%.

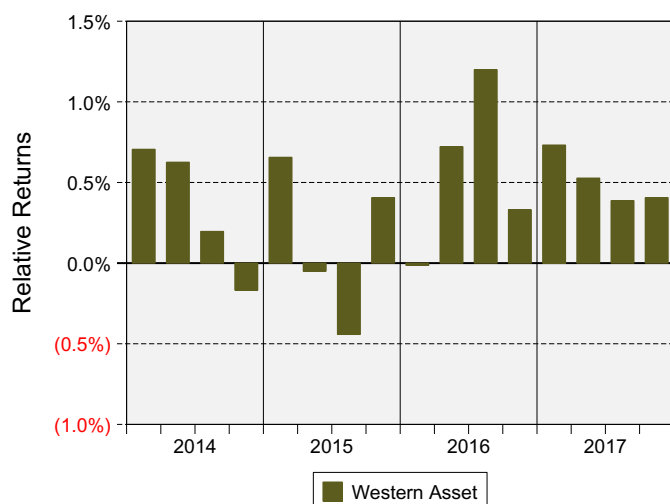
### Quarterly Asset Growth

Beginning Market Value	\$496,021,993
Net New Investment	\$-156,030
Investment Gains/(Losses)	\$3,936,408
Ending Market Value	\$499,802,371

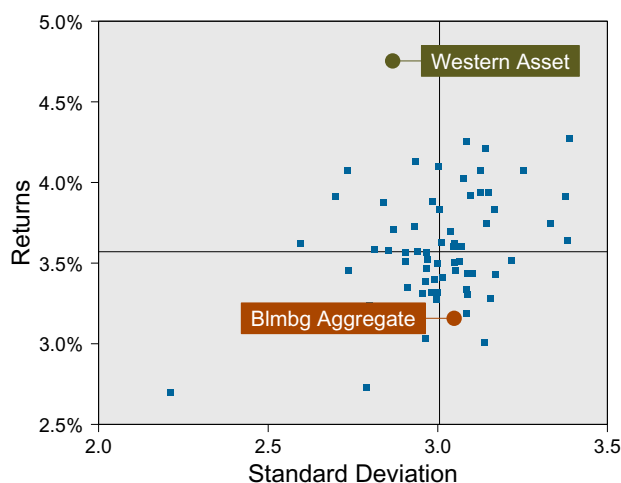
### Performance vs Callan Core Bond Fixed Income (Gross)



### Relative Return vs Blmbg Aggregate



### Callan Core Bond Fixed Income (Gross) Annualized Four Year Risk vs Return



## Western Asset TIPS Period Ended December 31, 2017

### Investment Philosophy

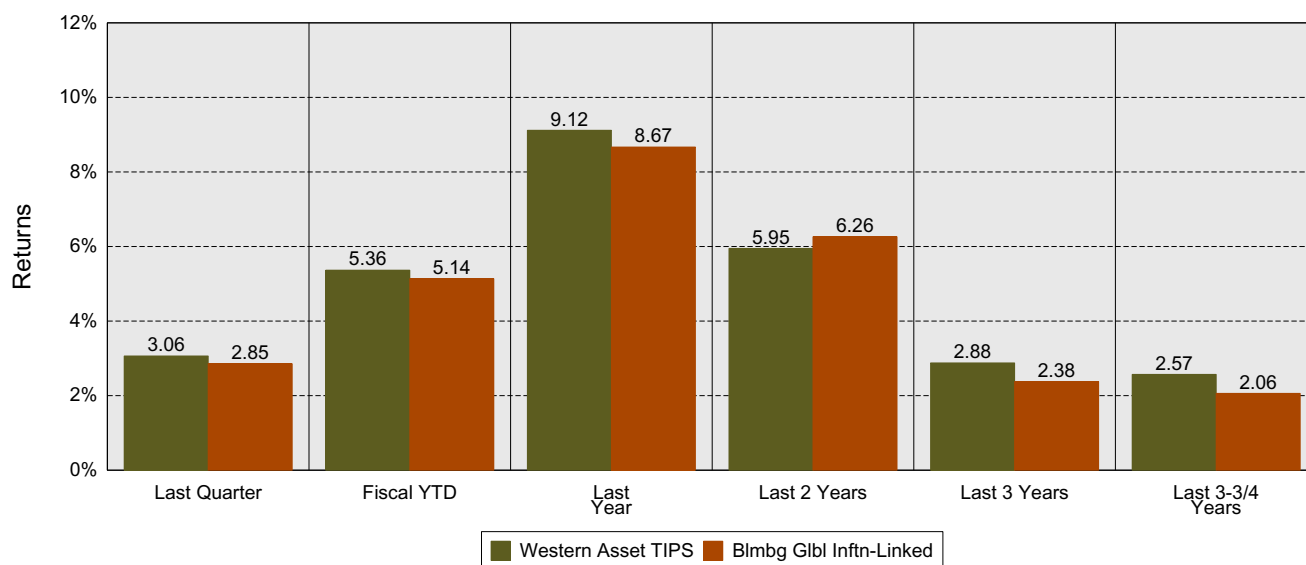
Western Asset's Global Inflation-Linked composite includes portfolios that employ an active, team-managed investment approach around a long-term, value-oriented investment philosophy. Constructed primarily of inflation-indexed securities, these portfolios use diversified strategies in seeking to add value while minimizing risk. Value can be added through country selection, term structure, issue selection, duration management and currency management.

### Quarterly Summary and Highlights

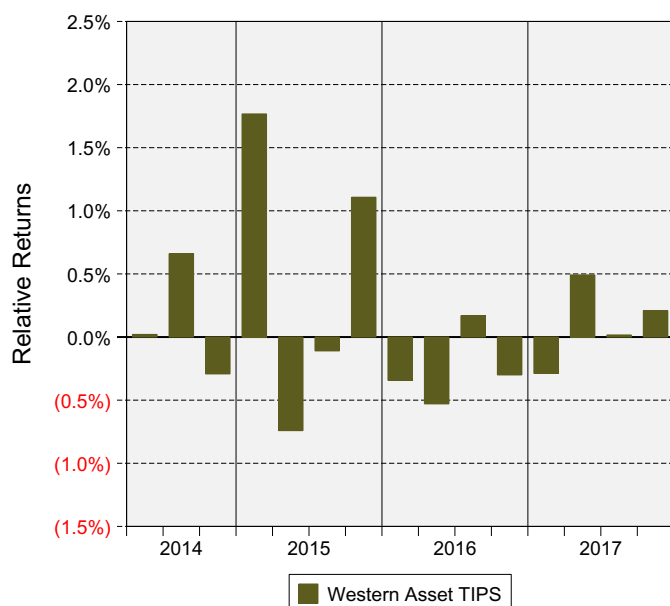
- Western Asset TIPS's portfolio outperformed the Blmbg Gbl Inftn-Linked by 0.21% for the quarter and outperformed the Blmbg Gbl Inftn-Linked for the year by 0.45%.

### Quarterly Asset Growth

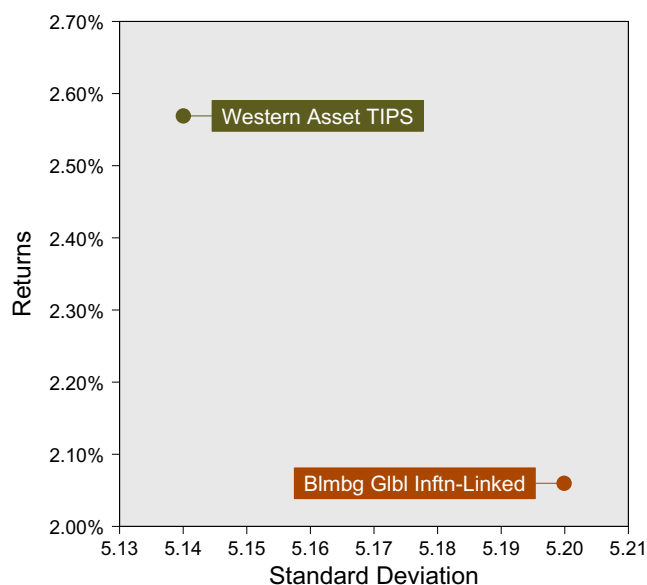
Beginning Market Value	\$345,503,670
Net New Investment	\$-107,760
Investment Gains/(Losses)	\$10,247,005
Ending Market Value	\$355,642,915



### Relative Return vs Blmbg Gbl Inftn-Linked



### Annualized Three and Three-Quarter Year Risk vs Return



## JP Morgan Infrastructure Period Ended December 31, 2017

### Investment Philosophy

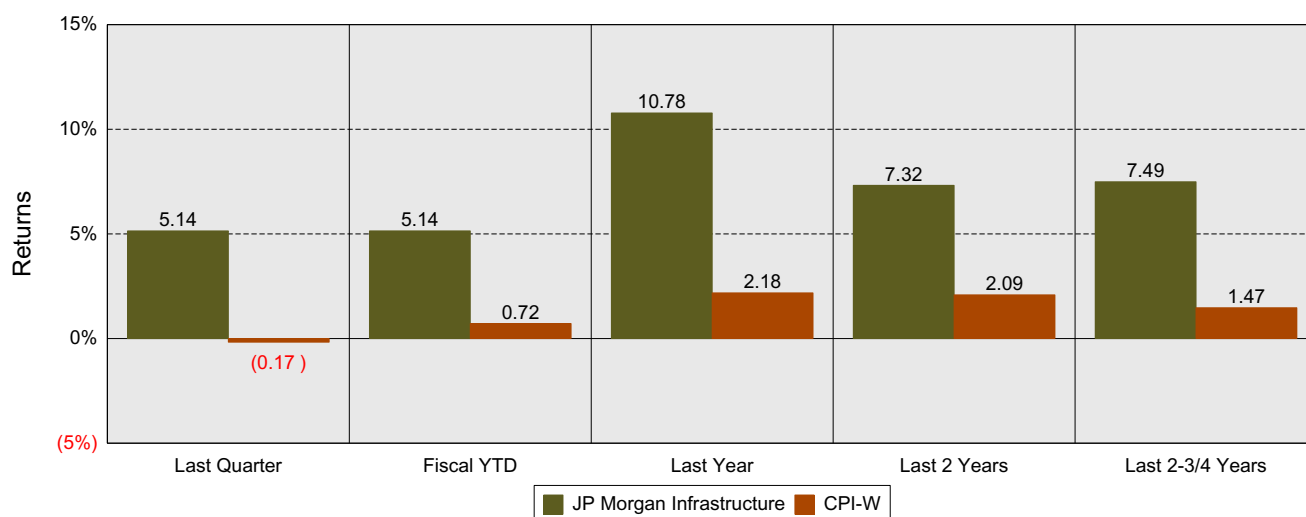
The only open-ended private commingled infrastructure fund in the U.S, the JPMorgan Infrastructure Investments Fund invests in stabilized assets in OECD countries with selected value-added opportunities, across infrastructure industry sub-sectors, including: toll roads, bridges and tunnels; oil and gas pipelines; electricity transmission and distribution facilities; contracted power generation assets; water distribution; waste-water collection and processing; railway lines and rapid rail links; and seaports and airports.

### Quarterly Summary and Highlights

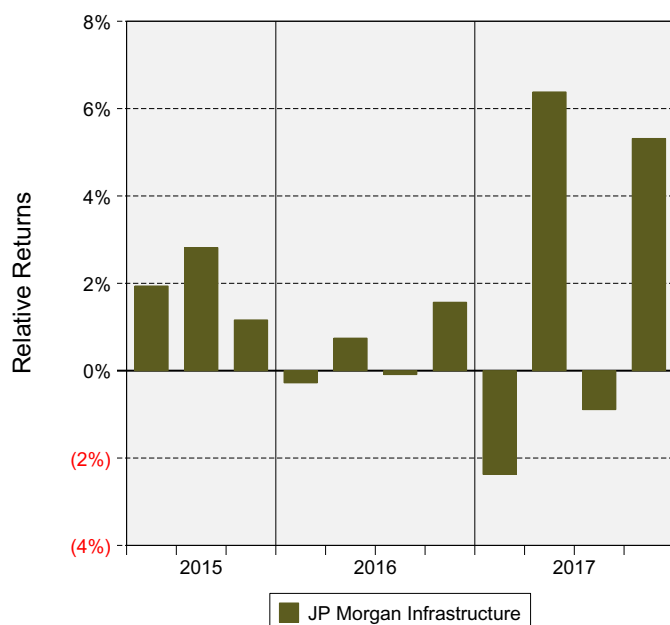
- JP Morgan Infrastructure's portfolio outperformed the CPI-W by 5.31% for the quarter and outperformed the CPI-W for the year by 8.60%.

### Quarterly Asset Growth

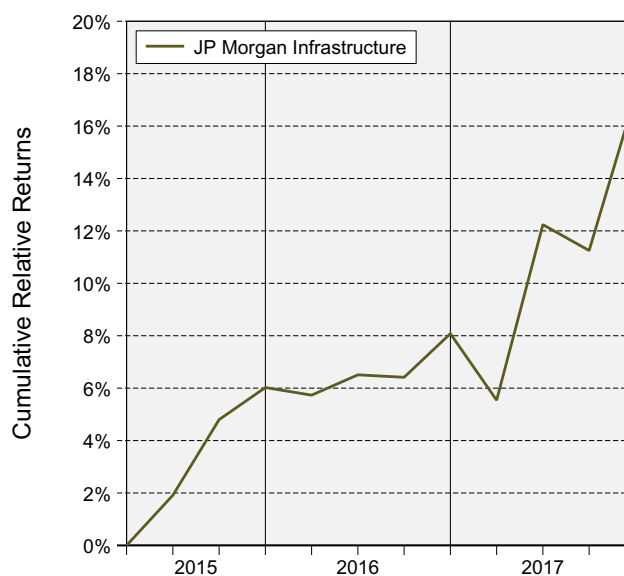
Beginning Market Value	\$113,161,165
Net New Investment	\$-233,600
Investment Gains/(Losses)	\$5,819,425
Ending Market Value	\$118,746,989



### Relative Return vs CPI-W



### Cumulative Returns vs CPI-W



## Grosvenor Cust. Infrastructure Period Ended December 31, 2017

### Investment Philosophy

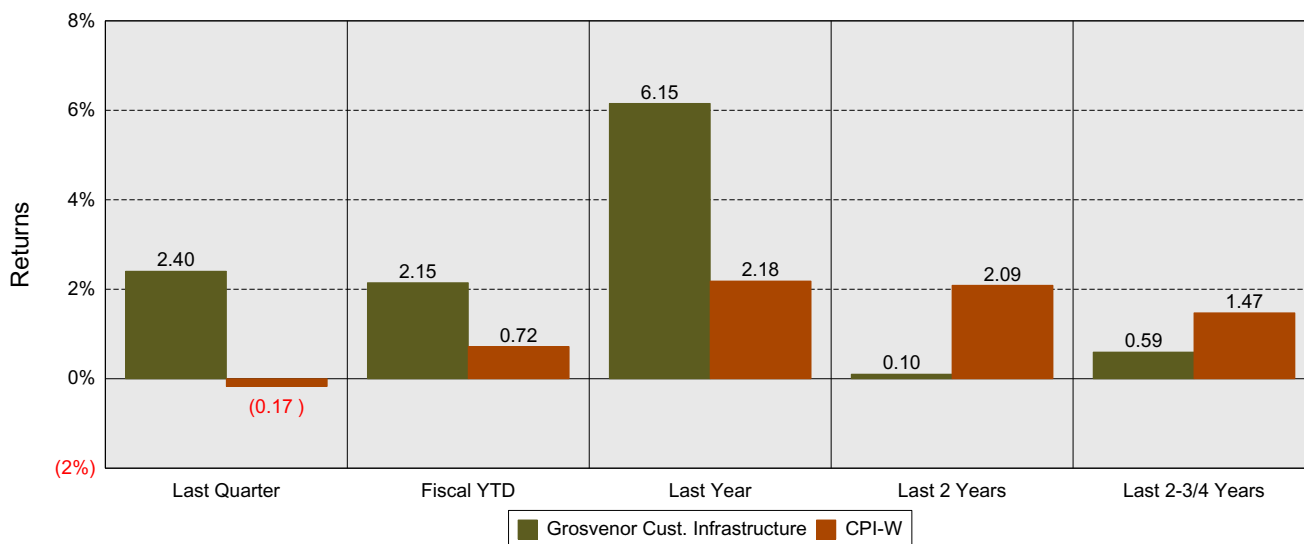
The Customized Infrastructure Strategies LP is a commingled fund focused on providing a comprehensive, diversified solution for investors looking to access the infrastructure asset class. The Fund seeks to generate stable, long-term yield and attractive risk-adjusted returns by investing in a diversified portfolio of primary core and core plus infrastructure funds (30%), co-investments (40%) and opportunistic secondary fund purchases (30%).

### Quarterly Summary and Highlights

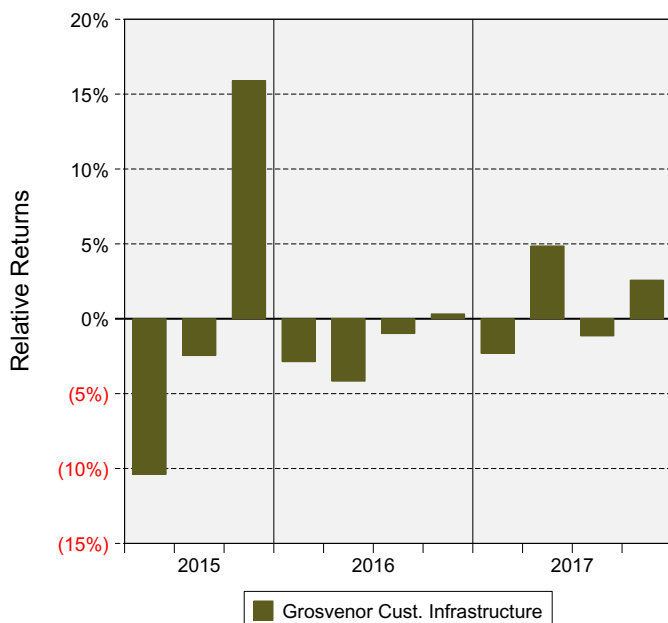
- Grosvenor Cust. Infrastructure's portfolio outperformed the CPI-W by 2.57% for the quarter and outperformed the CPI-W for the year by 3.97%.

### Quarterly Asset Growth

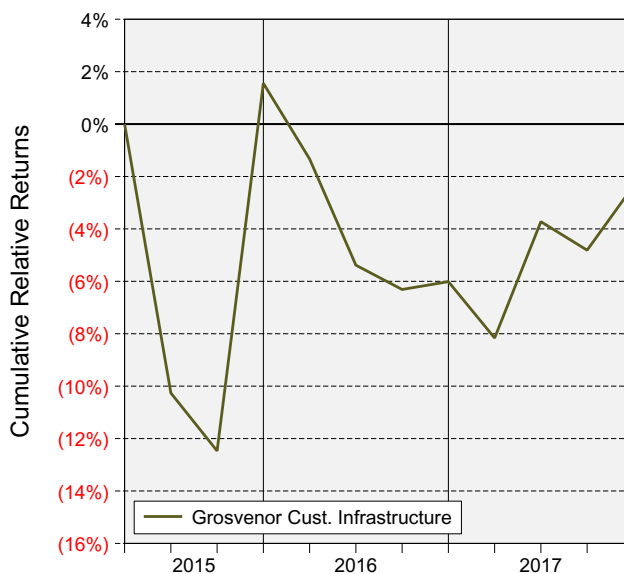
Beginning Market Value	\$24,082,444
Net New Investment	\$7,327,465
Investment Gains/(Losses)	\$725,786
Ending Market Value	\$32,135,695



### Relative Return vs CPI-W



### Cumulative Returns vs CPI-W





## Invesco Core Real Estate Period Ended December 31, 2017

### Investment Philosophy

IRE's investment philosophy is comprised of two fundamental principles: (1) maximize the predictability and consistency of investment returns and (2) minimize the risk of capital loss. This philosophy forms the cornerstone of the company's real estate investment philosophy.

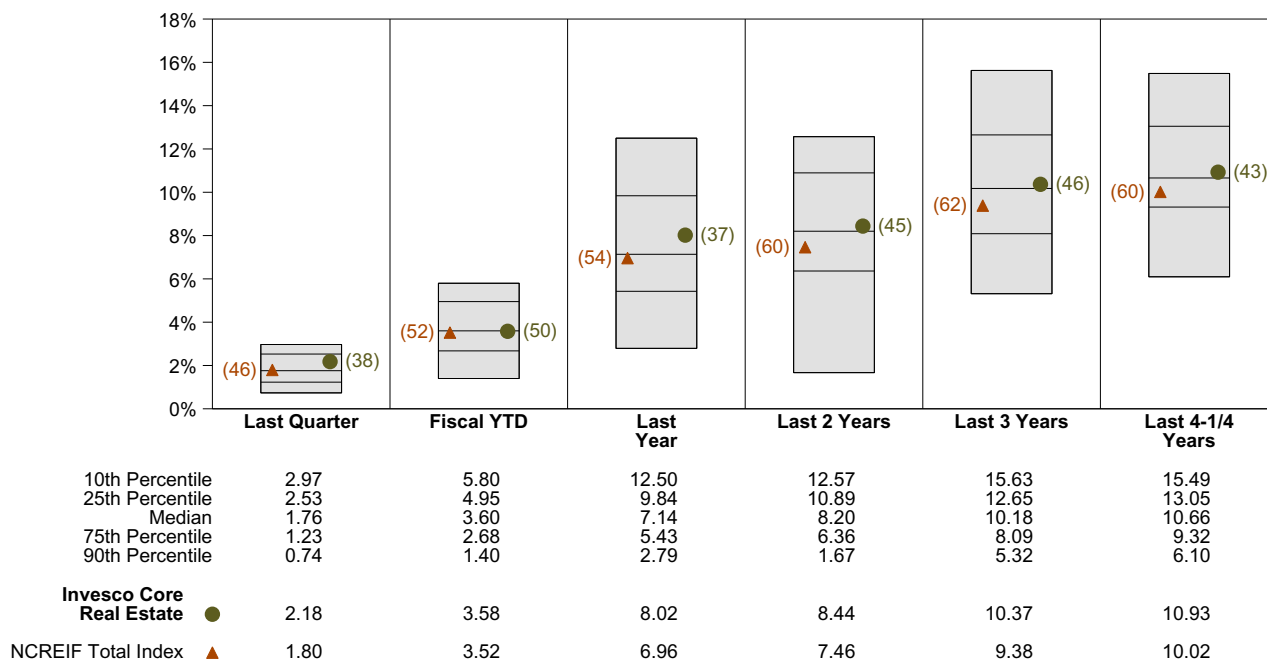
### Quarterly Summary and Highlights

- Invesco Core Real Estate's portfolio posted a 2.18% return for the quarter placing it in the 38 percentile of the Callan Total Domestic Real Estate DB group for the quarter and in the 37 percentile for the last year.
- Invesco Core Real Estate's portfolio outperformed the NCREIF Total Index by 0.38% for the quarter and outperformed the NCREIF Total Index for the year by 1.06%.

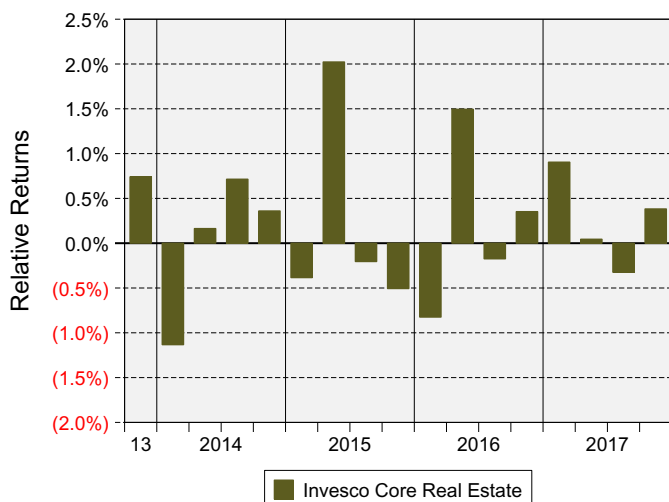
### Quarterly Asset Growth

Beginning Market Value	\$128,779,436
Net New Investment	\$-106,499
Investment Gains/(Losses)	\$2,911,866
Ending Market Value	\$131,584,803

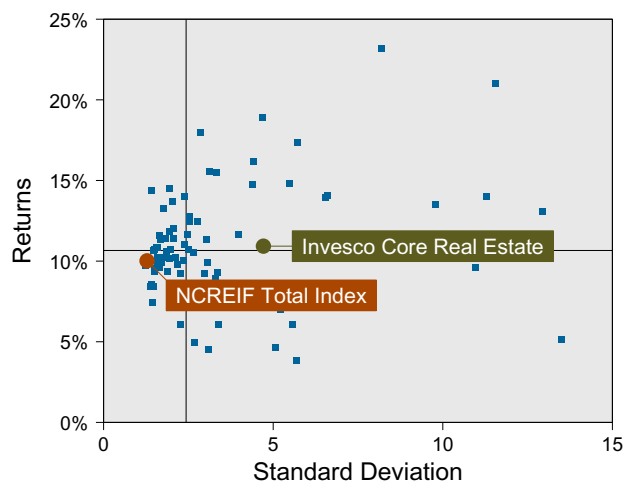
### Performance vs Callan Total Domestic Real Estate DB (Net)



### Relative Return vs NCREIF Total Index



### Callan Total Domestic Real Estate DB (Net) Annualized Four and One-Quarter Year Risk vs Return



## JP Morgan RE Inc & Growth Period Ended December 31, 2017

### Investment Philosophy

The J.P. Morgan U.S. Real Estate Income and Growth Fund seeks to construct and opportunistically manage a portfolio of core direct real estate investments, complemented by other real estate and real estate-related assets. The Fund pursues a broadly diversified absolute-return strategy and pursues all property investments on an opportunistic basis. The majority of the Fund's investments will be in direct core properties in the office, industrial, retail and residential sectors.

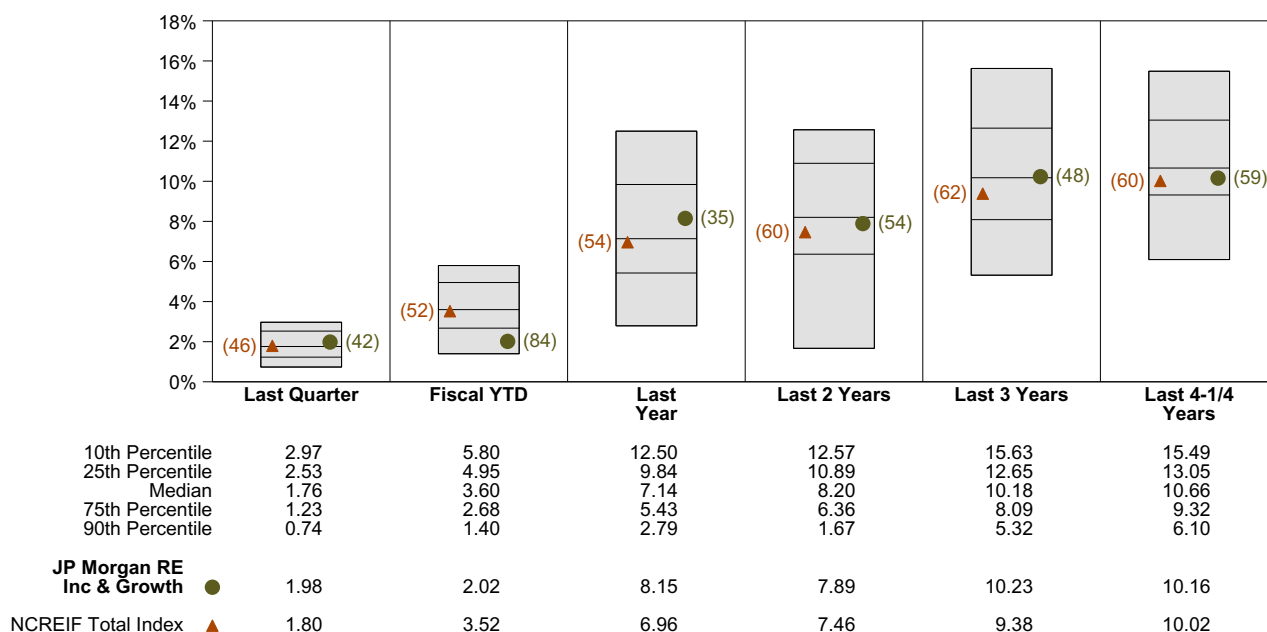
### Quarterly Summary and Highlights

- JP Morgan RE Inc & Growth's portfolio posted a 1.98% return for the quarter placing it in the 42 percentile of the Callan Total Domestic Real Estate DB group for the quarter and in the 35 percentile for the last year.
- JP Morgan RE Inc & Growth's portfolio outperformed the NCREIF Total Index by 0.19% for the quarter and outperformed the NCREIF Total Index for the year by 1.19%.

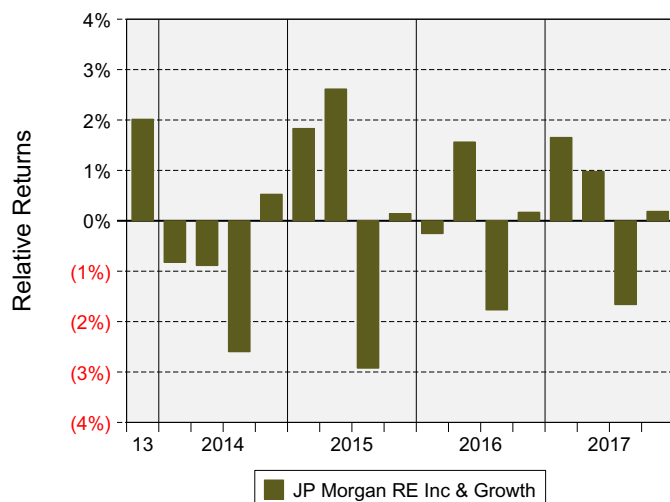
### Quarterly Asset Growth

Beginning Market Value	\$137,219,677
Net New Investment	\$-102,038
Investment Gains/(Losses)	\$2,718,850
Ending Market Value	\$139,836,489

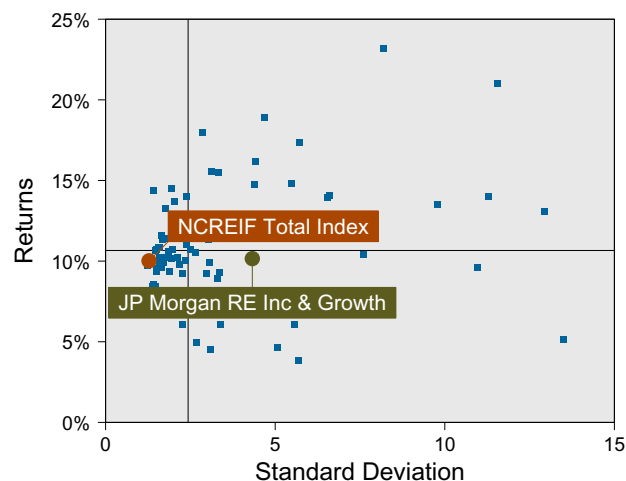
### Performance vs Callan Total Domestic Real Estate DB (Net)



### Relative Return vs NCREIF Total Index



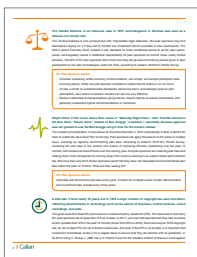
### Callan Total Domestic Real Estate DB (Net) Annualized Four and One-Quarter Year Risk vs Return



## Research and Educational Programs

The Callan Institute provides both research to update clients on the latest industry trends and carefully structured educational programs to enhance the knowledge of industry professionals. Visit [www.callan.com/library](http://www.callan.com/library) to see all of our publications, and [www.callan.com/blog](http://www.callan.com/blog) to view our blog “Perspectives.” For more information contact Anna West at 415.974.5060 / [institute@callan.com](mailto:institute@callan.com).

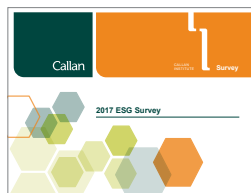
## New Research from Callan’s Experts



**The 401(k) Plan Turns 40** | In 1978, a section of the Internal Revenue Code was enacted into law that made 401(k) plans possible. For the most part, plan sponsors have taken advantage of DC plan improvements that have transpired since 1978. Yet some aspects of plan management may still be stuck in the era of bell bottom pants. Lori Lucas, Callan’s DC practice leader, offers lessons sponsors can apply to their DC plans in 2018.

**The Cost of Returns** | This paper summarizes Callan’s October 2017 Workshop, “The Cost of Returns: An In-Depth Look at Institutional Investment Fees.”

**2017 ESG Survey** | Callan’s fifth annual survey on the status of environmental, social, and governance (ESG) investing in the U.S. institutional investment market reveals more than a third of investors are incorporating ESG factors into investment decisions.



**Real Estate Indicators: Too Hot to Touch or Cool Enough to Handle?** | Callan’s Real Assets Consulting Group has identified seven indicators—based on spreads in real estate and fixed income markets—that, combined with an understanding of prevailing market dynamics, help signal when the institutional real estate market is overheated or cooled.

**2017 Investment Management Fee Survey** | This survey—the seventh we have produced in 30 years—reports on institutional investment management fee payment practices and trends. The data in this report were gleaned from electronic questionnaires sent to a broad sample of U.S.-based institutional fund sponsors and investment management organizations, as well as from information in Callan’s proprietary database.

**TDFs, FYI** | Jimmy Veneruso, CFA, CAIA, a DC consultant in our Fund Sponsor Consulting Group, discusses target date funds (TDFs) and considerations for fund sponsors in this video.

### Periodicals

**Active vs. Passive Charts, 3rd Quarter 2017** | This series of charts maps active managers alongside relevant benchmarks.

**Market Pulse Flipbook, 3rd Quarter 2017** | A quarterly market reference guide covering investment and fund sponsor trends in the U.S. economy, U.S. and non-U.S. equities and fixed income, alternatives, and defined contribution.

**Capital Market Review, 3rd Quarter 2017** | The Review provides analysis and an overview of the economy and public and private market activity each quarter across a wide range of asset classes.

**Real Assets Reporter, Summer/Fall 2017** | In this edition, Jan Mende of Callan’s Real Assets Consulting Group discusses the merits of infrastructure debt for institutional investors’ portfolios.

**DC Observer, 3rd Quarter 2017** | This edition highlights our “DC Plan Governance Survey,” which helps sponsors better understand good governance practices, including how their peers are structuring oversight committees. **With: DC Plan Governance Survey Key Findings** | This infographic displays the survey’s highlights.

**Hedge Fund Monitor, 3rd Quarter 2017** | Callan’s Jim McKee analyzes four major secular forces that may alter our perception of the financial market’s now-healthy glow and explores how investors can prepare for today’s uncertainty surrounding risk assets and the divergent paths that they may take when the next financial eclipse occurs.

## Events

Miss out on a Callan conference or workshop? Event summaries and speakers' presentations are available on our website: [www.callan.com/library/](http://www.callan.com/library/)

Callan's **National Conference** will be held January 29–31, 2018, at the Palace Hotel in San Francisco.

**For more information about events, please contact Barb Gerraty: 415.274.3093 / [gerraty@callan.com](mailto:gerraty@callan.com)**

## The Center for Investment Training Educational Sessions

The Center for Investment Training, better known as the “Callan College,” provides a foundation of knowledge for industry professionals who are involved in the investment decision-making process. It was founded in 1994 to provide clients and non-clients alike with basic- to intermediate-level instruction. Our next sessions are:

### Introduction to Investments

*Boise, April 4-5, 2018*

*San Francisco, April 10-11, 2018*

*San Francisco, July 24-25, 2018*

*Chicago, October 2-3, 2018*

This program familiarizes fund sponsor trustees, staff, and asset management advisers with basic investment theory, terminology, and practices. It lasts one-and-a-half days and is designed for individuals who have less than two years of experience with asset-management oversight and/or support responsibilities. Tuition for the Introductory “Callan College” session is \$2,350 per person. Tuition includes instruction, all materials, breakfast and lunch on each day, and dinner on the first evening with the instructors.

### Customized Sessions

The “Callan College” is equipped to customize a curriculum to meet the training and educational needs of a specific organization. These tailored sessions range from basic to advanced and can take place anywhere—even at your office.

**Learn more at [www.callan.com/events/callan-college-intro](http://www.callan.com/events/callan-college-intro) or contact Kathleen Cunnie: 415.274.3029 / [cunnie@callan.com](mailto:cunnie@callan.com)**

## Education: By the Numbers

**525**

Attendees (on average) of the Institute's annual National Conference

**50+**

Unique pieces of research the Institute generates each year

**3,700**

Total attendees of the “Callan College” since 1994

**1980**

Year the Callan Institute was founded



“We think the best way to learn something is to teach it. Entrusting client education to our consultants and specialists ensures that they have a total command of their subject matter. This is one reason why education and research have been cornerstones of our firm for more than 40 years.”

Ron Peyton, Executive Chairman

## List of Callan's Investment Manager Clients

Confidential – For Callan Client Use Only

Callan takes its fiduciary and disclosure responsibilities to clients very seriously. We recognize that there are numerous potential conflicts of interest encountered in the investment consulting industry and that it is our responsibility to manage those conflicts effectively and in the best interest of our clients. At Callan, we employ a robust process to identify, manage, monitor and disclose potential conflicts on an on-going basis.

The list below is an important component of our conflicts management and disclosure process. It identifies those investment managers that pay Callan fees for educational, consulting, software, database or reporting products and services. We update the list quarterly because we believe that our fund sponsor clients should know the investment managers that do business with Callan, particularly those investment manager clients that the fund sponsor clients may be using or considering using. Please note that if an investment manager receives a product or service on complimentary basis (e.g. attending an educational event), they are not included in the list below. Callan is committed to ensuring that we do not consider an investment manager's business relationship with Callan, or lack thereof, in performing evaluations for or making suggestions or recommendations to its other clients. Please refer to Callan's ADV Part 2A for a more detailed description of the services and products that Callan makes available to investment manager clients through our Institutional Consulting Group, Independent Adviser Group and Fund Sponsor Consulting Group. Due to the complex corporate and organizational ownership structures of many investment management firms, parent and affiliate firm relationships are not indicated on our list.

Fund sponsor clients may request a copy of the most currently available list at any time. Fund sponsor clients may also request specific information regarding the fees paid to Callan by particular fund manager clients. Per company policy, information requests regarding fees are handled exclusively by Callan's Compliance Department.

Manager Name
1607 Capital Partners, LLC
Aberdeen Asset Management PLC
Acadian Asset Management LLC
AEGON USA Investment Management
AEW Capital Management
Affiliated Managers Group, Inc.
Alcentra
AllianceBernstein
Allianz Global Investors
Allianz Life Insurance Company of North America
American Century Investments
Amundi Smith Breeden LLC
Angelo, Gordon & Co.
Apollo Global Management
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Aristotle Capital Management, LLC
Artisan Holdings
Atlanta Capital Management Co., LLC
Aviva Investors Americas
AXA Investment Managers
Baillie Gifford Overseas Limited
Baird Advisors
Bank of America
Barings LLC
Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
BlackRock
BMO Global Asset Management
BNP Paribas Investment Partners
BNY Mellon Asset Management
Boston Partners
Brandes Investment Partners, L.P.
Brandywine Global Investment Management, LLC
Brown Brothers Harriman & Company

Manager Name
Cambiar Investors, LLC
Capital Group
CastleArk Management, LLC
Causeway Capital Management
Chartwell Investment Partners
Citi US Pension Investments
ClearBridge Investments, LLC
Cohen & Steers Capital Management, Inc.
Columbia Management Investment Advisers, LLC
Columbus Circle Investors
Corbin Capital Partners, L.P.
Cornerstone Capital Management
Cramer Rosenthal McGlynn, LLC
Credit Suisse Asset Management
Crestline Investors, Inc.
D.E. Shaw Investment Management, L.L.C.
DePrince, Race & Zollo, Inc.
Deutsche Asset Management
Diamond Hill Capital Management, Inc.
Dimensional Fund Advisors LP
Doubleline
Duff & Phelps Investment Mgmt. Co.
Eagle Asset Management, Inc.
EARNEST Partners, LLC
Eaton Vance Management
Epoch Investment Partners, Inc.
Fayez Sarofim & Company
Federated Investors
Fidelity Institutional Asset Management
Fiera Capital Corporation
First Eagle Investment Management, LLC
First Hawaiian Bank Wealth Management Division
Fisher Investments
Franklin Templeton
Franklin Templeton Institutional
Fred Alger Management, Inc.

Manager Name
Fuller & Thaler Asset Management, Inc.
GAM (USA) Inc.
GlobeFlex Capital, L.P.
GMO
Goldman Sachs Asset Management
Guggenheim Investments
Guggenheim Partners Asset Management
GW&K Investment Management
Harbor Capital Group Trust
Hartford Funds
Hartford Investment Management Co.
Heitman LLC
Henderson Global Investors
Hotchkis & Wiley Capital Management, LLC
HSBC Global Asset Management
IMCA Retirement Corporation
Income Research + Management, Inc.
Insight Investment Management Limited
INTECH Investment Management, LLC
Invesco
Investec Asset Management
Ivy Investments
Janus Capital Management, LLC
Janus Henderson Investors
Jensen Investment Management
Jobs Peak Advisors
J.P. Morgan Asset Management
J.P. Morgan Chase & Company
KeyCorp
Lazard Asset Management
Legal & General Investment Management America
Lincoln National Corporation
LMCG Investments, LLC
Longview Partners
Loomis, Sayles & Company, L.P.
Lord Abbett & Company
Los Angeles Capital Management
LSV Asset Management
MacKay Shields LLC
Macquarie Investment Management (fka Delaware Investments)
Man Investments Inc.
Manulife Asset Management
McKinley Capital Management, LLC
MFS Investment Management
MidFirst Bank
Mondrian Investment Partners Limited
Montag & Caldwell, LLC
Morgan Stanley Investment Management
Mountain Lake Investment Management LLC
MUFG Union Bank, N.A.
Neuberger Berman
Newton Investment Management (fka Newton Capital Mgmt)
Nikko Asset Management Co., Ltd.
Northern Trust Asset Management
Nuveen Investments, Inc.
OFI Global Asset Management
Old Mutual Asset Management
O'Shaughnessy Asset Management, LLC

Manager Name
Pacific Investment Management Company
Pax World Management LLC
Peregrine Capital Management, Inc.
PGIM
PGIM Fixed Income
PGIM Real Estate
PineBridge Investments
Pioneer Investments
PNC Capital Advisors, LLC
PPM America
Principal Global Investors
Private Advisors, LLC
Putnam Investments, LLC
Pzena Investment Management, LLC
QMA (Quantitative Management Associates)
RBC Global Asset Management
Regions Financial Corporation
RidgeWorth Capital Management, Inc.
Rockefeller & Co., Inc.
Rothschild Asset Management, Inc.
Russell Investments
S&P Global, Inc.
Santander Global Facilities
Schroder Investment Management North America Inc.
Sit Investment Associates, Inc.
Smith, Graham & Co. Investment Advisors, L.P.
Smith Group Asset Management
South Texas Money Management Ltd.
Standard Life Investments Limited
Standish
State Street Global Advisors
Stone Harbor Investment Partners, L.P.
T. Rowe Price Associates, Inc.
Taplin, Canida & Habacht
Teachers Insurance & Annuity Association of America
The Boston Company Asset Management, LLC
The Guardian Life Insurance Company of America
The Hartford
The London Company
The TCW Group, Inc.
Thompson, Siegel & Walmsley LLC
Thornburg Investment Management, Inc.
Tri-Star Trust Bank
UBS Asset Management
Van Eck Global
Versus Capital Group
Victory Capital Management Inc.
Vontobel Asset Management, Inc.
Voya Financial
Voya Investment Management (fka ING)
WCM Investment Management
WEDGE Capital Management
Wellington Management Company, LLP
Wells Capital Management
Western Asset Management Company
William Blair & Company

February 23, 2018



**North Dakota State  
Investment Board**

Private Equity Performance  
Review

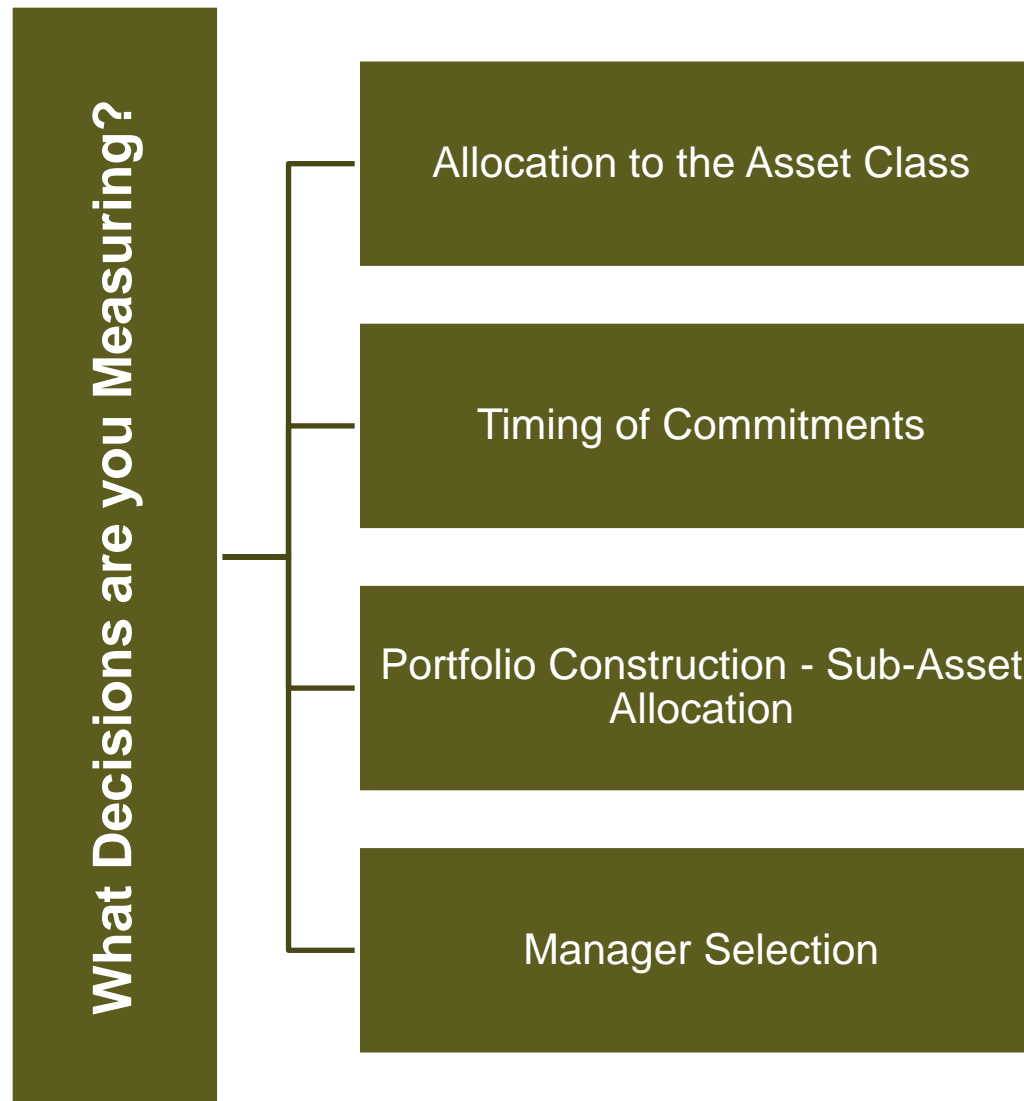
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**Alex Browning**  
Senior Vice President

**Harshal Shah**  
Senior Vice President

# Private Equity Performance

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# Evaluating Performance

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## Asset Class Performance

- Measures the performance of the asset class relative to capital markets expectations.

## Peer Group Performance

- Measures relative performance by time, strategy and geography.
- Evaluates manager selection and portfolio construction.

# Typical Private Equity Peer Group Performance Measures

Return Measure	Definition	Pros	Cons	Relative Measure (Quartile Ranking)
<b>Time Weighted Return ("TWR")</b>	<ul style="list-style-type: none"> <li>Calculates return for each period (Monthly, Quarterly, Annual, etc.);</li> <li>Uses beginning &amp; ending market values, adjusting for in period cash flows.</li> </ul>	<ul style="list-style-type: none"> <li>Well established - ease of use;</li> <li>Works well for Level 1 assets – pricing is market based and on a daily basis.</li> </ul>	<ul style="list-style-type: none"> <li>Short term returns can be deceptive;</li> <li>Assumes ease of liquidity – liquidity can be an issue in concentrated or illiquid strategies.</li> </ul>	
<b>Internal Rate of Return ("IRR")</b>	<ul style="list-style-type: none"> <li>Return that equates the present value of invested capital with the present value of returns – the NPV of all cash flows is zero.</li> </ul>	<ul style="list-style-type: none"> <li>Useful measure for investments with irregular cash flows;</li> <li>Considers the time value of money.</li> </ul>	<ul style="list-style-type: none"> <li>Assumes cash flows are invested at the same rate of return;</li> <li>Timing of cash flows can disproportionately impact the IRR;</li> <li>More effective measure over a longer period.</li> </ul>	
<b>Distribution to Paid-in-Capital ("DPI")</b>	<ul style="list-style-type: none"> <li>Capital paid-out relative to the total paid-in capital.</li> </ul>	<ul style="list-style-type: none"> <li>Ease of use;</li> <li>Favorable for comparable analysis.</li> </ul>	<ul style="list-style-type: none"> <li>Ignores the time value of money;</li> <li>Similar to IRR, can be impacted by one large outcome;</li> <li>Early successes can positively skew results.</li> </ul>	
<b>Total Value to Paid-in-Capital ("TVPI")</b>	<ul style="list-style-type: none"> <li>Cumulative distributions plus residual value to paid-in capital.</li> </ul>	<ul style="list-style-type: none"> <li>Ease of use;</li> <li>IRR sanity check</li> </ul>	<ul style="list-style-type: none"> <li>Ignores the time value of money;</li> <li>Unrealized or residual value can meaningfully impact the result;</li> </ul>	

# Private Equity Performance Summary

## NDSIB Private Equity Portfolio Performance as of 12-30-2017 (1 qtr. Lag)

	Total Commitments (\$000s)	Net Asset Value (\$000s)	Net IRR	DPI	TVPI
Private Equity Portfolio	\$897,722	\$176,365	4.21% (3 <sup>rd</sup> Quartile)	0.91x (3 <sup>rd</sup> Quartile)	1.15x (3 <sup>rd</sup> quartile)
Fund-of-Funds Investments	\$473,715	\$66,385	12.14% (2 <sup>nd</sup> Quartile)	1.26x (2 <sup>nd</sup> Quartile)	1.61x (2 <sup>nd</sup> quartile)
Direct Fund Investments	\$424,007	\$109,979	(0.07%) (4 <sup>th</sup> Quartile)	0.80x (3 <sup>rd</sup> Quartile)	1.00x (4 <sup>th</sup> Quartile)

Quartile rankings relative to the All Private Equity, All Regions Thomson/Cambridge database

- Overall performance weighted down by the performance of the direct fund investments.
- Vintage year diversification, portfolio construction and general partner selection, negatively impacting the performance of the direct fund investments.

# NDSIB Private Equity Performance by Partnership

## North Dakota State Investment Board Private Equity - Manager Detail as of December 31, 2017

The following table summarizes changes in each manager's aggregated cash flows and valuation information as of December 31, 2017.

Manager	Vintage Year	Capital Commitments (\$000s)	Paid-In Capital (\$000s)	Uncalled Capital (\$000s)	% Paid-In	Distributed Capital (\$000s)	Net Asset Value (\$000s)	DPI	RVPI	TVPI	Net IRR
Adams St 1998 Partnership	1998	\$5,230	5,236	27	100.12%	7,726	125	1.48x	0.02x	1.50x <sup>2nd</sup>	7.24%
Adams St 1999 Partnership	1999	\$9,041	8,664	377	95.83%	10,937	325	1.26x	0.04x	1.30x <sup>2nd</sup>	4.27%
Adams St 1999 Non-US	1999	\$3,812	3,572	240	93.69%	6,925	71	1.94x	0.02x	1.96x <sup>1st</sup>	12.46%
Adams St BVCF IV Fund	1999	\$25,000	25,000	0	100.00%	43,736	3,343	1.75x	0.13x	1.88x <sup>1st</sup>	7.61%
Adams St 2000 Partnership	2000	\$17,195	17,511	844	101.84%	25,883	561	1.48x	0.03x	1.51x <sup>2nd</sup>	7.16%
Adams St 2000 Non-US	2000	\$4,538	4,538	0	100.00%	8,251	534	1.82x	0.12x	1.94x <sup>1st</sup>	13.19%
Adams St 2001 Partnership	2001	\$9,530	9,121	410	95.70%	13,535	1,043	1.48x	0.11x	1.60x <sup>2nd</sup>	7.18%
Adams St 2001 Non-US	2001	\$3,354	3,354	0	100.00%	6,115	161	1.82x	0.05x	1.87x <sup>2nd</sup>	13.44%
Adams St 2002 Partnership	2002	\$5,318	5,150	167	96.85%	9,390	161	1.82x	0.03x	1.85x <sup>2nd</sup>	13.07%
Adams St 2002 Non-US	2002	\$5,834	6,038	0	103.49%	11,413	261	1.89x	0.04x	1.93x <sup>2nd</sup>	15.23%
Adams St 2003 Partnership	2003	\$1,877	1,780	97	94.84%	2,883	231	1.62x	0.13x	1.75x <sup>2nd</sup>	11.40%
Adams St 2003 Non-US	2003	\$4,741	4,507	234	95.07%	10,125	198	2.25x	0.04x	2.29x <sup>1st</sup>	23.23%
Adams St 2004 Non-US	2004	\$2,244	2,139	105	95.33%	3,234	274	1.51x	0.13x	1.64x <sup>2nd</sup>	10.04%
Adams St Direct Co-Invest	2006	\$20,000	19,100	900	95.50%	27,031	1,461	1.42x	0.08x	1.49x <sup>2nd</sup>	5.52%
Adams St 2008 Non-US	2008	\$10,000	8,900	1,100	89.00%	5,512	7,833	0.62x	0.88x	1.50x <sup>2nd</sup>	9.93%
Adams St 2010 Direct Fund	2010	\$1,500	1,420	80	94.66%	1,358	957	0.96x	0.67x	1.63x <sup>2nd</sup>	12.35%
Adams St 2010 Partnership	2010	\$7,500	6,608	892	88.10%	3,552	6,291	0.54x	0.95x	1.49x <sup>3rd</sup>	12.94%
Adams St 2010 Non-US Dev	2010	\$4,500	3,751	749	83.35%	2,061	3,072	0.55x	0.82x	1.37x <sup>3rd</sup>	10.27%
Adams St 2010 Non-US EM	2010	\$1,500	1,302	198	86.80%	264	1,547	0.20x	1.19x	1.39x <sup>3rd</sup>	9.95%
Adams St 2015 Global Fd	2015	\$30,000	8,715	21,285	29.05%	1,603	9,438	0.18x	1.08x	1.27x <sup>1st</sup>	30.45%
Adams St 2016 Global Fd	2016	\$30,000	4,980	25,020	16.60%	0	5,428	0.00x	1.09x	1.09x <sup>2nd</sup>	9.07%
Adams St 2017 Global Fd	2017	\$60,000	2,626	57,374	4.38%	0	2,626	0.00x	1.00x	1.00x	0.00%
BlackRock	2017	\$200,000	20,701	179,299	10.35%	0	20,445	0.00x	0.99x	0.99x <sup>1st</sup>	(2.51%)
Capital International V	2007	\$35,279	41,221	5,786	116.84%	37,629	1,673	0.91x	0.04x	0.95x <sup>4th</sup>	(1.54%)
Capital International VI	2011	\$38,092	35,709	4,931	93.75%	7,144	25,838	0.20x	0.72x	0.92x <sup>4th</sup>	(2.80%)
Corsair III	2007	\$25,133	33,159	1,778	131.94%	13,914	14,071	0.42x	0.42x	0.84x <sup>4th</sup>	(2.94%)
Corsair IV	2010	\$32,200	40,956	6,151	127.19%	27,479	24,604	0.67x	0.60x	1.27x <sup>3rd</sup>	9.46%
EIG Energy Fund XIV	2007	\$45,000	59,496	1,243	132.21%	49,840	5,543	0.84x	0.09x	0.93x <sup>4th</sup>	(3.12%)
Hearthstone Advisors MSII	1999	\$3,500	26,576	3,500	759.31%	36,855	-24	1.39x	-0.00x	1.39x <sup>2nd</sup>	(99.77%)
Hearthstone Advisors MSIII	2003	\$8,750	37,058	4,475	423.52%	45,026	2,300	1.22x	0.06x	1.28x <sup>3rd</sup>	24.65%
MatlinPatterson II	2004	\$40,000	59,254	1	148.13%	33,246	1,124	0.56x	0.02x	0.58x <sup>4th</sup>	(22.21%)
MatlinPatterson III	2007	\$40,000	49,410	1,498	123.53%	38,323	22,840	0.78x	0.46x	1.24x <sup>3rd</sup>	4.68%
Lewis & Clark, LP	2002	\$7,500	6,750	750	90.00%	5,488	1,582	0.81x	0.23x	1.05x <sup>3rd</sup>	0.52%
Lewis & Clark II	2009	\$15,000	13,578	1,422	90.52%	5,274	6,620	0.39x	0.49x	0.88x <sup>4th</sup>	(2.45%)
Quantum Energy Partners	2007	\$15,000	15,130	1,005	100.87%	14,707	3,808	0.97x	0.25x	1.22x <sup>3rd</sup>	5.83%
<b>Total Private Equity</b>		<b>\$897,722</b>	<b>731,752</b>	<b>323,446</b>	<b>81.51%</b>	<b>668,077</b>	<b>176,365</b>	<b>0.91x</b>	<b>0.24x</b>	<b>1.15x<sup>3rd</sup></b>	<b>4.21%</b>

Financial figures represent lagged values (NAVs) adjusted for quarter-end flows.

Total Private Equity includes liquidated funds.

Quartile rankings against the All Private Equity, All Regions Thomson/Cambridge database.

**BOARD ACTION**

**TO:** State Investment Board

**FROM:** Dave Hunter

**DATE:** February 16, 2018

**SUBJECT:** **Investment Policy Statement Updates – Grand Forks Park District and Teachers’ Fund for Retirement (TFFR)**

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**RIO requests the SIB accept investment policy statement (IPS) changes recently approved by the TFFR Board and Trustees for the Park District of the City of Grand Forks, North Dakota Pension Plan (GFPD).**

On January 25, 2018, the TFFR Board approved the attached IPS changes for the TFFR Pension Plan. As previously discussed, RIO recommended a simplified asset allocation policy in which sector allocations with the three major asset classes are segmented into two categories for Pension Trust clients. These sector allocations include **Public Equity or Private Equity for Global Equities, Investment Grade or Non-Investment Grade for Global Fixed Income, and Real Estate or Other for Global Real Assets**. These changes are consistent with board approved policies for fixed income in which dedicated international debt mandates were eliminated such that the remaining sector allocations are classified as investment grade or non-investment grade. For Real Assets, the dedicated allocation to Timber will be contained within “Other” given that we no longer recommend any new capital commitments to the timber sector. (The timber allocation within other real assets will decline as this asset is harvested thereby allowing our infrastructure and other real asset exposure to grow.) RIO notes the decision to eliminate dedicated target allocations to international debt and timber were prompted by the expectation that these two sectors offer poor risk adjusted return opportunities as supported by our investment consultant capital market expectations. These changes will serve to improve RIO’s operational efficiency, while diminishing administrative burdens. **If the Board concurs, RIO requests the SIB make a motion to accept the TFFR Board approved IPS changes.**

On February 7, 2018, the GFPD Trustees approved the attached investment policy statement changes for the City of Grand Forks Park District Pension Plan. The recommendations approved by the GFPD Trustees are similar to the above noted TFFR board approved changes such that Global Equity is classified as either Public or Private Equity and Global Real Assets are classified as Real Estate or Other. RIO notes that Global Fixed Income only contains an Investment Grade category as this plan does not have a dedicated target allocation to Non-Investment Grade. **If the Board concurs, RIO requests the SIB make a motion to accept the IPS changes approved by GFPD Trustees.**

**SIB SYSTEMATIC REBALANCING POLICY**

At least quarterly, all portfolios will be evaluated to determine if the actual percentage of assets within the broad asset classes are in compliance with the asset allocation plan. Broad asset classes in which the percentage of assets deviate by more than the established range around the target shall be rebalanced back within the range. Unless specifically indicated in the Investment Policy Statement, ranges around a target allocation are as follows:

Target allocation of less than 10%	+/- 25% of the target
Target allocation of 10% or greater but less than 20%	+/- 18.75% of the target
Target allocation of 20% or greater	+/- 12.5% of the target

# TFFR Investment Policy Statement Review – Jan. 25, 2018

## I. PLAN CHARACTERISTICS AND FUND CONSTRAINTS.

The North Dakota Teachers' Fund for Retirement (TFFR) is a pension benefit plan that was established in 1913 to provide retirement income to all public school and certain state teachers and administrators in the state of North Dakota. The plan is administered by a seven member Board of Trustees comprised of five active and retired members of the fund appointed by the Governor of North Dakota and two elected officials - the State Treasurer and the State Superintendent of Public Instruction.

The plan is a multi-employer defined benefit public pension plan that provides retirement, disability, and death benefits in accordance with Chapter 15-39.1 of the North Dakota Century Code (NDCC). Monthly retirement benefits are based on the formula: Number of Years of service X 2.0% X Final Average Salary. Adjustments to the basic formula are made depending on the retirement option selected.

Funding is provided by monthly employee and employer contributions scheduled to increase as follows:

	<u>7/1/11</u>	<u>7/1/12</u>	<u>7/1/14</u>
<b>Employee</b>	<b>7.75%</b>	<b>9.75%</b>	<b>11.75%</b>
<b>Employer</b>	<b>8.75%</b>	<b>10.75%</b>	<b>12.75%</b>

Employee and employer contributions will be reduced to 7.75% each when TFFR reaches 100% funded level on an actuarial value basis.

The TFFR Board has an actuarial valuation performed annually and an Experience Study and Asset Liability Study performed every five years. The actuarial assumed rate of return on assets was reduced to 7.75% from 8.0% as of July 1, 2015. Key plan and financial statistics are recorded in the most recent valuation report on file at the North Dakota Retirement and Investment office (RIO).

## 2. FUND GOALS

The Plan benefits are financed through both statutory employer and employee contributions and the investment earnings on assets held in the Fund. The TFFR Board recognizes that a sound investment program is essential to meet the pension obligations.

As a result, the Fund goals are to:

- Improve the Plan's funding status to protect and sustain current and future benefits.
- Minimize the employee and employer contributions needed to fund the Plan over the long term.
- Avoid substantial volatility in required contribution rates and fluctuations in the Plan's funding status.
- Accumulate a funding surplus to provide increases in retiree annuity payments to preserve the purchasing power of their retirement benefit.

The Board acknowledges the material impact that funding the pension plan has on the State/School District's financial performance. These goals affect the Fund's investment strategies and of ten represent conflicting goals. For example, minimizing the long-term funding costs implies a less conservative investment program, whereas dampening the volatility of contributions and avoiding large swings in the funding status implies a more conservative investment program. The Board places a greater emphasis on the strategy of improving the funding status and reducing the contributions that must be made to the Fund, as it is most consistent with the long-term goal of conserving money to apply to other important state/local projects.

# TFFR Investment Policy Statement Review - Jan. 25, 2017

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## **3. RESPONSIBILITIES AND DISCRETION OF THE STATE INVESTMENT BOARD (SIB).**

The TFFR Board is charged by law under NDCC 21-10-02.1 with the responsibility of establishing policies on investment goals and asset allocation of the Fund. The SIB is charged with implementing these policies and investing the assets of the Fund in the manner provided in NDCC 21-10-07, the prudent investor rule. Under this rule, the fiduciaries shall exercise the judgment and care, under the circumstances then prevailing, that an institutional investor of ordinary prudence, discretion, and intelligence exercises in the management of large investments entrusted to it, not in regard to speculation but in regard to the permanent disposition of funds, considering probable safety of capital as well as probable income. The Fund must be invested exclusively for the benefit of the members and their beneficiaries in accordance with this investment policy.

Management responsibility for the investment program not assigned to the SIB in Chapter 21-10 of the North Dakota Century Code (NDCC) is hereby delegated to the SIB, who must establish written policies for the operation of the investment program, consistent with this investment policy.

The SIB may delegate investment responsibility to professional money managers. Where a money manager has been retained, the SIB's role in determining investment strategy and security selection is supervisory, not advisory.

At the discretion of the SIB, the Fund's assets may be pooled with other funds. In pooling funds, the SIB may establish whatever asset class pools it deems necessary with specific quality, diversification, restrictions, and performance objectives appropriate to the prudent investor rule and the objectives of the funds participating in the pools.

The SIB is responsible for establishing criteria, procedures, and making decisions with respect to hiring, keeping, and terminating money managers. SIB investment responsibility also includes selecting performance measurement services, consultants, report formats, and frequency of meetings with managers.

The SIB will implement changes to this policy as promptly as is prudent.

## **4. RISK TOLERANCE**

The Board is unwilling to undertake investment strategies that might jeopardize the ability of the Fund to finance the pension benefits promised to plan participants.

However, funding the pension promise in an economical manner is critical to the State/School Districts ability to continue to provide pension benefits to plan participants. Thus, the Board actively seeks to lower the cost of funding the Plan's pension obligations by taking on risk for which it expects to be compensated over the long term. The Board understands that a prudent investment approach to risk taking can result in periods of under-performance for the Fund in which the funding status may decline. These periods, in turn, can lead to higher required contribution rates. Nevertheless, the Board believes that such an approach, prudently implemented, best serves the long-run interests of the State/School District and, therefore, of plan participants.

## **5. INVESTMENT OBJECTIVES**

The Board's investment objectives are expressed in terms of reward and risk expectations relative to investable, passive benchmarks. The Fund's policy benchmark is comprised of policy mix weights of appropriate asset class benchmarks as set by the SIB

- 1) The fund's rate of return, net of fees and expenses, should at least match that of the policy benchmark over a minimum evaluation period of five years.
- 2) The fund's risk, measured by the standard deviation of net returns, should not exceed 115% of the policy benchmark over a minimum evaluation period of five years.
- 3) The risk adjusted performance of the fund, net of fees and expenses, should at least match that of the policy benchmark over a minimum evaluation period of five years.

## Board Action Requested

# TFFR Investment Policy Statement Review – Jan. 25, 2018

### 6. POLICY ASSET MIX

Benefit payments are projected to occur over a long period of time. This allows TFFR to adopt a long-term investment horizon and asset allocation policy for the management of fund assets. Asset allocation policy is critical because it defines the basic risk and return characteristics of the investment portfolio. Asset allocation targets are established using an asset-liability analysis designed to assist the Board in determining an acceptable volatility target for the fund and an optimal asset allocation policy mix. This asset-liability analysis considers both sides of the plan balance sheet, utilizing both quantitative and qualitative inputs, in order to estimate the potential impact of various asset class mixes on key measures of total plan risk, including the resulting estimated impact of funded status and contribution rates. After consideration of all the inputs and a discussion of its own collective risk tolerance, the Board approves the appropriate policy asset mix for the Fund.

Asset Class	Policy Target (%)	Rebalancing Range (%)
Global Equity	58	<del>46-65</del>
Public Equity	52	<del>44-60</del>
<del>U.S.</del>	<del>29</del>	<del>23-35</del>
<del>Global ex-U.S.</del>	<del>23</del>	<del>18-28</del>
Private Equity	6	<del>4-8</del>
Global Fixed Income	23	<del>16-30</del>
Investment Grade	16	<del>11-24</del>
Non-Investment Grade	7	<del>5-9</del>
Global Real Assets	18	<del>12-24</del>
Global Real Estate	10	<del>5-15</del>
Other	8	<del>0-12</del>
<del>Infrastructure</del>		<del>0-10</del>
<del>Timber</del>		<del>0-5</del>
<del>Commodities</del>		<del>0-5</del>
<del>Inflation-Linked Bonds</del>		<del>0-10</del>
<del>Other Inflation Sensitive Strategies</del>		<del>0-5</del>
<del>Global Alternatives</del>		<del>0-10</del>
Cash	1	<del>0-2</del>

**TFFR's Total "Global Equity" allocation of 58% remains constant, but "U.S." vs. "Global ex-U.S." allocations are eliminated.**

**TFFR's "Global Fixed Income" and "Global Real Assets" allocations remain constant at 23% and 18% respectively, including sector allocations to "Investment Grade" and "Non-Investment Grade" (for Fixed Income) and "Real Estate" and "Other" (for Real Assets), but the "Rebalancing Range %'s" are eliminated for all Asset Classes.**

**RIO requests TFFR to approve the elimination of specific target allocations to "U.S." and "Global ex-U.S." public equity and specific "Rebalancing Ranges" for each asset class in order to improve operational flexibility, while minimizing administrative burden, in the oversight of TFFR's portfolio. This recommendation is not expected to materially increase or decrease the fund's expected return or risk profile, although it should reduce an administrative burden on RIO staff if adopted by all clients in the Pension Trust.**



# TFFR Investment Policy Statement Review – Jan. 25, 2018

**An allocation to Global Alternatives of up to 10% is authorized but shall not increase the expected volatility of the portfolio as measured in Section 5; and if utilized, all other targets will be adjusted pro-rata. The Board does not endorse tactical asset allocation, therefore, it is anticipated the portfolio be managed as close to the policy target as is prudent and practicable while minimizing rebalancing costs. Rebalancing of the Fund to this target will be done in accordance with the SIB's rebalancing policy.** ~~While the Board recognizes fluctuations in market values will lead to short-term deviations from policy targets, the Board does not intend to engage in tactical asset allocation. Allocations to Global Alternatives will result in pro-rata reduction in the policy targets.~~



## 7. RESTRICTIONS

While the SIB is responsible for establishing specific quality, diversification, restrictions, and performance objectives for the investment vehicles in which the Fund's assets will be invested, it is understood that:

- a. Futures and options may be used to hedge or replicate underlying index exposure, but not for speculation.
- b. Derivative use will be monitored to ensure that undue risks are not taken by the money managers
- c. No transaction shall be made which threatens the tax exempt status of the Fund.
- d. All assets will be held in custody by the SIB's master custodian or such other custodians as are acceptable to the SIB.
- e. No unhedged short sales or speculative margin purchases shall be made.
- f. Social investing is prohibited unless it meets the Exclusive Benefit Rule and it can be substantiated that the investment must provide an equivalent or superior rate of return for a similar investment with a similar time horizon and similar risk.

For the purpose of this document, Social Investing is defined as *"The investment or commitment of public pension fund money for the purpose of obtaining an effect other than a maximized return to the intended beneficiaries."*

- g. Economically targeted investing is prohibited unless the investment meets the Exclusive Benefit Rule.

For the purpose of this document economically targeted investment is defined as an investment designed to produce a competitive rate of return commensurate with risk involved, as well as to create collateral economic benefits for a targeted geographic area, group of people, or sector of the economy.

Also, for the purpose of this document, the Exclusive Benefit Rule is met if the following four conditions are satisfied:

- 1) The cost does not exceed the fair market value at the time of investment.
- 2) The investment provides the Fund with an equivalent or superior rate of return for a similar investment with a similar time horizon and similar task.
- 3) Sufficient liquidity is maintained in the Fund to permit distributions in accordance with the terms of the plan.
- 4) The safeguards and diversity that a prudent investor would adhere to are present.

Where investment characteristics, including yield, risk, and liquidity are equivalent, the Board's policy favors investments which will have a positive impact on the economy of North Dakota.

# TFFR Investment Policy Statement Review – Jan. 25, 2018

## 8. INTERNAL CONTROLS

A system of internal controls must be in place by the SIB to prevent losses of public funds arising from fraud or employee error. Such controls deemed most important are the separation of responsibilities for investment purchases from the recording of investment activity, custodial safekeeping, written confirmation of investment transactions, and established criteria for broker relationships. The annual financial audit must include a comprehensive review of the portfolio, accounting procedures for security transactions and compliance with the investment policy.

## 9. EVALUATION AND REVIEW

Investment management of the Fund will be evaluated against the Fund's investment objectives. Emphasis will be placed on five year results. Evaluation should include an assessment of the continued feasibility of achieving the investment objectives and the appropriateness of the Investment Policy Statement for achieving those objectives.

Performance reports will be provided to the TFFR Board periodically, but not less than annually. Such reports will include asset returns and allocation data as well as information regarding all significant and/or material matters and changes pertaining to the investment of the Fund, including but not limited to:

- 1) A list of the advisory services managing investments for the board.
- 2) A list of investments at market value, compared to previous reporting period, of each fund managed by each advisory service.
- 3) Earnings, percentage earned, and change in market value of each fund's investments.
- 4) Comparison of the performance of each fund managed by each advisory service to other funds under the board's control and to generally accepted market indicators.
- 5) All material legal or legislative proceedings affecting the SIB.
- 6) Compliance with this investment policy statement.

**TFFR Board Adopted:** May 25, 1995.

**Amended:** November 30, 1995; August 21, 1997; July 15, 1999; July 27, 2000; September 18, 2003; July 14, 2005; September 21, 2006; September 20, 2007; October 27, 2011; September 26, 2013; January 21, 2016; September 21, 2017, **January 25, 2018**

**Approved by SIB:** November 18, 2011, February 26, 2016, September 22, 2017, **January 26, 2018**

ND Teachers' Fund For Retirement

ND State Investment Board

Date: \_\_\_\_\_

Date: \_\_\_\_\_

## **CITY OF GRAND FORKS PARK DISTRICT**

### **INVESTMENT POLICY STATEMENT**

#### **1. PLAN CHARACTERISTICS AND FUND CONSTRAINTS**

The Park District of the City of Grand Forks, North Dakota Pension Plan (the “Plan”) is a cost-sharing public employee pension plan operated by The Park District of the City of Grand Forks, North Dakota (the “District”) which serves as the Plan Administrator (“Administrator”) and Plan Sponsor (“Sponsor”). All employees are required to participate in the Plan. Some participants have elected to cease benefit accruals under the Plan as of January, 1, 2010 and to participate in the North Dakota Public Employees Retirement System (“NDPERS”) pension plan. All future hires after December 31, 2009, will be required to participate in the NDPERS plan. The investment assets of the Plan are held within the Plan Fund (“Fund”).

Benefit provisions are established by the Park Board (“Board”) of the Sponsor. The employers contribute such amounts as necessary to provide the promised benefits. The contribution amounts are determined by the annual actuarial valuation report and approved by the Board.

#### **2. FUND GOALS**

The plan benefits are financed through both employer and employee contributions and the investment earnings on assets held in the Fund. The Board recognizes that a sound investment program is essential to meet the pension obligations.

As a result, the Fund goals are to:

- Improve the Plan’s funding status to protect and sustain current and future benefits.
- Minimize the employee and employer contributions needed to fund the Plan over the long term.
- Avoid substantial volatility in required contribution rates and fluctuations in the Plan’s funding status.
- Accumulate a funding surplus to provide increases in retiree annuity payments to preserve the purchasing power of their retirement benefit.

The Board acknowledges the material impact that funding the pension plan has on the District’s financial performance. These goals affect the Fund’s investment strategies and often represent conflicting goals. For example, minimizing the long-term funding costs implies a less conservative investment program, whereas dampening the volatility of contributions and avoiding large swings in the funding status implies a more conservative investment program. The Board places greater emphasis on the strategy of improving the funding status and reducing the contributions that must be made to the Fund, as it is most consistent with the long-term goal of conserving money to apply to other important projects.

#### **3. RESPONSIBILITIES AND DISCRETION OF THE STATE INVESTMENT BOARD (SIB)**

The Board has entered into a contract with the SIB for investment services as allowed under NDCC 21-10-06. The Board is responsible for establishing policies on investment goals and asset allocation of the Fund. The SIB is charged with implementing these policies and investing the assets of the Fund in the manner provided in NDCC 21-10-07, the prudent investor rule. Under this rule, the fiduciaries shall exercise the judgment and care, under the circumstances then

prevailing, that an institutional investor of ordinary prudence, discretion, and intelligence exercises in the management of large investments entrusted to it, not in regard to speculation but in regard to the permanent disposition of funds, considering probable safety of capital as well as probable income. The Fund must be invested exclusively for the benefit of the members and their beneficiaries in accordance with this investment policy.

Management responsibility for the investment program not assigned to the SIB in Chapter 21-10 of the North Dakota Century Code (NDCC) is hereby delegated to the SIB, who must establish written policies for the operation of the investment program, consistent with this investment policy.

The SIB may delegate investment responsibility to professional money managers. Where a money manager has been retained, the SIB's role in determining investment strategy and security selection is supervisory, not advisory.

At the discretion of the SIB, the Fund's assets may be pooled with other funds. In pooling funds, the SIB may establish whatever asset class pools it deems necessary with specific quality, diversification, restrictions, and performance objectives appropriate to the prudent investor rule and the objectives of the funds participating in the pools.

The SIB is responsible for establishing criteria, procedures, and making decisions with respect to hiring, keeping, and terminating money managers. SIB investment responsibility also includes selecting performance measurement services, consultants, report formats, and frequency of meetings with managers.

The SIB will implement changes to this policy as promptly as is prudent.

#### **4. RISK TOLERANCE**

The Board is unwilling to undertake investment strategies that might jeopardize the ability of the Fund to finance the pension benefits promised to plan participants. However, funding the pension promise in an economical manner is critical to the Board's ability to continue to provide pension benefits to plan participants. Thus, the Board actively seeks to lower the cost of funding the plan's pension obligations by taking on risk for which it expects to be compensated over the long term. The Board understands that a prudent investment approach to risk taking can result in periods of under-performance for the Fund in which the funding status may decline. These periods, in turn, can lead to higher required contribution rates. Nevertheless, the Board believes that such an approach, prudently implemented, best serves the long-run interests of the District and, therefore, of plan participants.

#### **5. INVESTMENT OBJECTIVES**

The Board's investment objectives are expressed in terms of reward and risk expectations relative to investable, passive benchmarks. The Fund's policy benchmark is comprised of policy mix weights of appropriate asset class benchmarks as set by the SIB.

1. The fund's rate of return, net of fees and expenses, should at least match that of the policy benchmark over a minimum evaluation period of five years.
2. The fund's risk, measured by the standard deviation of net returns, should not exceed 115% of the policy benchmark over a minimum evaluation period of five years.
3. The risk-adjusted performance of the fund, net of fees and expenses, should at least match that of the policy benchmark over a minimum evaluation period of five years.

## 6. POLICY ASSET MIX

Benefit payments are projected to occur over a long period of time. This allows the Board to adopt a long-term investment horizon and asset allocation policy for the management of fund assets. Asset allocation policy is critical because it defines the basic risk and return characteristics of the investment portfolio. Asset allocation targets are established using an asset-liability analysis designed to assist the Board in determining an acceptable volatility target for the fund and an optimal asset allocation policy mix. This asset-liability analysis considers both sides of the plan balance sheet, utilizing both quantitative and qualitative inputs, in order to estimate the potential impact of various asset class mixes on key measures of total plan risk, including the resulting estimated impact of funded status and contribution rates. After consideration of all the inputs and a discussion of its own collective risk tolerance, the Board approves the appropriate policy asset mix for the Fund.

<u>Asset Class</u>	<u>Policy Target(%)</u>
Global Equity	65
Public Equity	60
Private Equity	5
Global Fixed Income	25
Investment Grade Fixed Income	25
Global Real Assets	10
Global Real Estate	5
Other	5

An allocation to Global Alternatives of up to 10% is authorized but shall not increase the expected volatility of the portfolio as measured in Section 5; and if utilized, all other targets will be adjusted pro-rata. The Board does not endorse tactical asset allocation, therefore, it is anticipated the portfolio be managed as close to the policy target as is prudent and practicable while minimizing rebalancing costs. Rebalancing of the Fund to this target will be done in accordance with the SIB's rebalancing policy.

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While the SIB is responsible for establishing specific quality, diversification, restrictions, and performance objectives for the investment vehicles in which the Fund's assets will be invested, it is understood that:

- Futures and options may be used to hedge or replicate underlying index exposure, but not for speculation.
- Derivatives use will be monitored to ensure that undue risks are not taken by the money managers.
- No transaction shall be made which threatens the tax exempt status of the Fund.
- All assets will be held in custody by the SIB's master custodian or such other custodians as are acceptable to the SIB.
- No unhedged short sales or speculative margin purchases shall be made.
- Social investing is prohibited unless it meets the exclusive benefit rule, and it can be substantiated that the investment provides an equivalent or superior rate of return for a similar investment with a similar time horizon and similar risk.

For the purpose of this document, social investing is defined as the consideration of socially responsible criteria in the investment or commitment of public fund money for the purpose of obtaining an effect other than a maximized return to the Fund.

- g. Economically targeted investing is prohibited unless the investment meets the Exclusive Benefit Rule.

For the purpose of this document economically targeted investment is defined as an investment designed to produce a competitive rate of return commensurate with risk involved, as well as to create collateral economic benefits for a targeted geographic area, group of people, or sector of the economy.

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A system of internal controls must be in place by the SIB to prevent losses of public funds arising from fraud or employee error. Such controls deemed most important are the separation of responsibilities for investment purchases from the recording of investment activity, custodial safekeeping, written confirmation of investment transactions, and established criteria for investment manager selection and monitoring. The annual financial audit must include a comprehensive review of the portfolio, accounting procedures for security transactions and compliance with the investment policy.

## **9. EVALUATION AND REVIEW**

Investment management of the Fund will be evaluated against the Fund's investment objectives. Emphasis will be placed on five year results. Evaluation should include an assessment of the continued feasibility of achieving the investment objectives and the appropriateness of the Investment Policy Statement for achieving those objectives.

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1. A list of the advisory services managing investments for the SIB.
2. A list of investments at market value, compared to previous reporting period, of each account managed by each advisory service.
3. Earnings, percentage earned, and change in market value of each account's investments.
4. Comparison of the performance of each account managed by each advisory service to other accounts under the SIB's control and to generally accepted market indicators.
5. All material legal or legislative proceedings affecting the SIB.
6. Compliance with this investment policy statement.

Trustee for the Park District of the City of  
Grand Forks, North Dakota Pension Plan

David J. Hunter  
Executive Director/CIO  
Retirement and Investment Office

By: \_\_\_\_\_

\_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Approved by the Park District of Grand Forks  
2/6/18

Approved by the State Investment Board



## **ND STATE INVESTMENT BOARD SECURITIES LITIGATION COMMITTEE MEETING**

Friday February 16, 2018 - 3:00 PM  
North Dakota Retirement and Investment Office (RIO)  
3442 East Century Avenue, Bismarck, ND 58503

### **AGENDA**

1. Call to Order and Approval of Agenda – Chief Deputy Attorney General Seibel (Committee Action) (5 minutes)
2. Election of Chair and Vice Chair – Chief Deputy Attorney General Troy Seibel (Committee Action) (5 minutes)
3. Proposed Charter for Securities Litigation Committee – Ms. Flanagan (Committee Action) (20 minutes)
4. Review of Current Securities Litigation Policy – Mr. Hunter (Informational) (20 minutes)
5. Proposed Committee Meeting Dates and Location – Mr. Hunter (Committee Action) (10 minutes)
6. Other - Next SIB Securities Litigation Committee Meeting (subject to Committee approval)

North Dakota Retirement and Investment Office  
3442 E Century Ave, Bismarck, ND 58503  
Thursday, March 15, 2018 @ 3:00 PM

or

North Dakota State Capitol  
17<sup>th</sup> Floor A.G. Conference Room, Bismarck, ND  
Thursday, March 15, 2018 @ 3:00 PM

7. Adjournment

Any individual requiring an auxiliary aid or service should contact the Retirement and Investment Office at (701) 328-9885 at least (3) days prior to the scheduled meeting.



***Committee Action Requested***

**TO:** State Investment Board Securities Litigation Committee

**FROM:** Dave Hunter and Connie Flanagan

**DATE:** February 9, 2018

**SUBJECT:** Proposed Charter for Securities Litigation Committee

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RIO's Fiscal and Investment Operations Manager Connie Flanagan drafted the proposed Charter for the Securities Litigation Committee based on the *SIB Audit Committee Charter*. **After review and discussion, RIO suggests the Committee make a motion to accept the proposed Charter including any requested changes or request RIO Staff to provide a revised draft of the proposed Charter at the next Committee meeting.**

**CHARTER OF THE  
SECURITIES LITIGATION COMMITTEE OF THE  
NORTH DAKOTA STATE INVESTMENT BOARD**

**PURPOSE**

The Securities Litigation Committee (the Committee) is a standing committee of the North Dakota State Investment Board (SIB) created to assist in fulfilling its fiduciary oversight responsibilities of monitoring the investment of assets entrusted to it by the various statutory and contracted funds, and to serve as a communications link for the SIB, RIO's management and staff, third party securities litigation firms, and others.

The Committee will determine when an active role should be pursued in regards to securities litigation affecting securities within the SIB's portfolios.

**AUTHORITY**

The Committee is authorized to:

- create SIB policy regarding dollar and/or risk thresholds for determining when to opt-out of class actions and/or seek direct litigation or lead plaintiff status;
- make decisions on the level of participation the SIB will take in direct litigation, opt-in or group litigation, anti-trust and other class actions; and
- approve the selection of special assistant attorneys in cases of direct litigation.

## **COMPOSITION**

The Committee will consist of the Executive Director of RIO, one member of RIO fiscal or investment staff, RIO general counsel, and two members of the SIB appointed by the Chair.

Membership on the Committee will be for one year or termination of term on the SIB. Vacancies will be filled by the SIB Chair at the first scheduled meeting following the vacancy. There will be no limit to the number of terms served on the Committee.

The Committee will elect a Chair and a Vice Chair. The Chair will preside at all meetings of the Committee and serve as the liaison to the SIB. In the absence of the Chair, the Vice Chair will perform the duties of the Chair. The liaison will report at least four times a year to the SIB on the activities of the Committee and other pertinent information.

The Committee may form, and delegate authority to, subcommittees when it deems appropriate.

## **MEETINGS**

The Committee will meet generally four times a year, with authority to convene additional meetings, as circumstances require or to adequately fulfill all the obligations and duties as outlined in this charter.

Meeting agendas will be prepared by the Executive Director and approved by the Committee Chair, unless otherwise directed by the Committee and will be provided to the Committee members along with briefing materials before the scheduled committee meeting.

Committee members are expected to attend each meeting, in person or via tele- or video-conference. RIO's executive management and others necessary to provide information and to conduct business will attend meetings. The Committee may invite staff of RIO or others to attend meetings, as necessary. The Committee may hold executive sessions as allowed under state law.

The Committee will act only on the affirmative vote of three of the committee members at a meeting. To conduct business, a quorum will be three members of the Committee. Should a quorum not be present before a scheduled meeting or during a meeting, the Chair will announce the absence of a quorum and the members will disburse. Meetings unable to transact business for lack of a quorum are not considered meetings. Meeting minutes will be prepared by RIO, or as otherwise directed by the Committee. Approved meeting minutes of the Committee will be submitted to the SIB.

## **RESPONSIBILITIES**

RIO's management is responsible for ongoing monitoring of securities litigation and claims filing. The Committee has the responsibility to provide oversight in the areas of:

- policy development
- determination on direct litigation and/or lead plaintiff status
- approval of special assistant attorneys (outside counsel)

To this end, the Committee will:

- Develop initial policy and periodically review policy to determine if changes are needed.
- Review reports from RIO staff and third parties in order to maintain awareness of potential and actual securities litigation affecting the SIB portfolios.
- Make decisions on whether to pursue direct litigation and/or lead plaintiff status on cases exceeding policy thresholds for passive participation.
- Select third party litigation firms when deemed appropriate.
- Perform other activities related to this charter as requested by the SIB.
- Review and assess the adequacy of the Committee charter annually, requesting the SIB approval for proposed changes.
- Confirm annually the review of all responsibilities outlined in this charter.

### **Reporting Responsibilities**

- Report to the SIB about the Committee's activities, issues, and related recommendations.
- Provide a written report annually to the SIB, describing the Committee's composition, responsibilities and how they were discharged, and any other information required.

**DATE OF CREATION OF COMMITTEE AMENDMENTS:** February \_\_, 2018

**DATE SECURITIES LITIGATION COMMITTEE CHARTER ADOPTED AND APPROVED:**

February \_\_, 2018

*Informational*

**TO:** State Investment Board Securities Litigation Committee

**FROM:** Dave Hunter

**DATE:** February 9, 2018

**SUBJECT:** Review of Current Securities Litigation Policy

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**On January 26, 2018, the SIB established a new Securities Litigation Committee (SLC or Committee).** SIB Chair Lt. Governor Brent Sanford appointed the following members: 1) Chief Deputy Assistant Attorney General Troy Seibel; 2) State Treasurer Kelly Schmidt; 3) Assistant Attorney General Patrick Brooke; 4) RIO Executive Director David Hunter; and 5) RIO Fiscal and Investment Operations Manager Connie Flanagan.

**After the Committee adopts a Charter for the Securities Litigation Committee of the SIB, RIO suggests the Committee review the existing Securities Litigation Policy (as shown on the following four pages).**

**POLICY TITLE: SECURITIES MONITORING AND LITIGATION**

General Purpose

1. The North Dakota State Investment Board (“SIB”) is a fiduciary for assets held in trust for the benefit of SIB clients’ including their beneficiaries and to defray expenses of administration of their respective investment funds.
2. In order to carry out its fiduciary duty to prudently invest and diversify the assets of the various investment funds, the SIB invests considerable assets in global public securities markets.
3. The efficient and effective deployment of plan assets requires that in seeking returns market risks must be prudently assumed and managed. Investing in publicly-traded securities in regulated markets under accounting, disclosure and business practice laws and regulations provides general, but not perfect assurance that the information forming the basis for investments is accurate, conforms with accepted accounting practices, and is not distorted due to misfeasance, malfeasance or nonfeasance, or the timing of information disclosures by persons or entities with the ability to affect market prices of the investment securities.
4. Legal action is sometimes necessary to attempt to recover all or part of losses the fund may incur due to alleged improper action or inaction that results in the impairment of the value of the fund’s security holdings.

5. Most such actions will be prosecuted by the class action bar whether or not the SIB takes an active role as a plaintiff or a passive role as a member of a certified class of plaintiffs. Any ultimate award or settlement from a class action filing will be ratably allocated among legitimate claimants.
6. The SIB will generally only consider pursuing active participation in securities actions when such a role is expected to add value by enhancing the prospect for recovery, increasing the amount of recovery, assuring more efficient and effective prosecution of the case, or identifying and addressing corporate governance issues through litigation.

For purposes of this Policy, “active participation” means seeking status as lead plaintiff, co-lead plaintiff, or filing separate legal action.

#### Non-Active Recovery and Filing

1. SIB will require as part of its agreement with its custodial bank **or other designated agent**, that adequate securities class action monitoring is maintained on an ongoing basis, sufficient to assure that most of the actual awards and settlements for such cases are tracked and identified and that proof of claim forms, including supporting documentation, will be properly and timely filed.
2. To augment and enhance coverage, identification and tracking of class-action cases (potential or actual) SIB may engage one or more legal firms that specialize in monitoring and prosecuting security class-action cases; any such engagement is subject to the special appointment requirements of N.D.C.C. §54-12-08. For these purposes only, such firms may be granted ongoing access to security holdings information through the custodian bank **or other designated agent**.
3. A monitoring agreement with any law firm for monitoring service access and reporting will not commit SIB to employing said firm in the event that it seeks to represent SIB as an active participant in any securities related litigation. Such representation must be effected by a separate retainer agreement between the SIB and said firm, or another, depending on such factors as the potential monetary scope, the nature of the case and industry specialty that may be required, the allocation of current or past cases among candidate firms, the likely duration and cost of prosecuting such a case, retainer fees or contingency splits, the venue in which the case is to be filed, and other considerations.
4. The custodial bank **or other designated agent** will be required to provide the Retirement and Investment Office (“RIO”) with periodic reports that detail class action cases monitored, claims filed, and award or settlement distributions received. RIO will maintain these records and provide an update to the SIB with regards to accounting information on distributions received on claims filed by the custodian bank on our behalf.

#### Active Participation in Cases

1. The Executive Director will initiate active participation in securities cases only upon prior review and approval of the SIB. Before bringing any recommendations to the Board, the Executive Director with significant assistance by legal counsel from the Office of the Attorney General, will assess the merits and prospects for active participation by reference to the criteria and factors outlined in this section.

## 2. Decision Criteria and Factors:

- a. The decision to participate in an active capacity in security litigation should be based on the totality of the circumstances. Dollar loss amounts are important, but not the sole or overriding factor to consider in making such recommendations by the Executive Director, or determinations by the SIB.
- b. Potential losses to SIB clients must be significant in order to warrant participation as a lead plaintiff, co-lead plaintiff, or separate “opt-out” litigant. Generally, in cases where the potential loss does not exceed the **greater of 0.1%** of trust assets, the SIB will avoid active participation.
- c. The *prima facie* merits of the claim for loss, and the factual basis for the action, recognizing that the full discovery process will not commence until the class has been certified by the court in which such case is to be filed.
- d. The availability of witnesses, and possible support that may be obtained from investment managers, consultants, and the custodial bank through discovery.
- e. The potential that any defendants or insurers will be able to pay an adequate recovery to the class, without impairing the value of any current security holdings SIB may yet hold in the issuer in the portfolio.
- f. The ability of the law firm recommending action on the part of SIB to prosecute the case effectively, in the venue where such case is likely to be filed, and the experience of the firm in managing such cases individually or in partnership with other firms.
- g. Potential long-term benefits from corporate governance changes from pursuing litigation.
- h. The ability of SIB to serve as a fiduciary on behalf of all class members in the case, especially in relative terms to other institutional investors that may be considering the same case.
- i. Potential costs that may be incurred. Special consideration must be given to any case that must be filed in a non-U.S. venue under the “Morrison” criteria established by the U. S. Supreme Court in a 2010 decision, since costs of litigation and potential liabilities of unsuccessful claims may be significant.
- j. Current workload and staffing resources required for the fulfillment of SIB’s primary member service functions, and whether participation might displace time and staff resources needed for core business functions.

## 3. Decision Criteria and Factors for cases filed in a non-U.S. venue: In addition to the Criteria and Factors set forth in Subsection 2, the SIB may consider the following:

- a. The proposed funding arrangements for the action.
- b. Evaluate the merits and risks of the case in light of the law of the jurisdiction in which the action would be brought.
- c. The role or level of participation in the case by the SIB.

### Roles in Managing and Monitoring Litigation

1. The SIB will make the final determination of whether it is in the SIB's best interest to pursue active participation in any case and whether to engage any law firm and the terms of such engagement.
2. Decisions regarding the conduct and implementation of the Board's decision to participate will be the responsibility of the Executive Director, or an approved member of the management staff if he so delegates. When feasible and advisable, the Executive Director shall seek advice and direction from the Board on strategic and legal issues that may arise in prosecuting the action on behalf of the SIB and its clients. The Executive Director shall timely report to the Board on the progress of the litigation.
3. The Executive Director shall be responsible for management of the relationship with any portfolio monitoring law firm or organization for such purpose. Based on the need for additional coverage, the Executive Director will determine whether one or several firms are needed to fulfill the goals of this Policy and may terminate such monitoring agreements as judgment advises.
4. Any agreement for portfolio monitoring services that includes a fee or subscription cost must first be approved by the SIB before execution by the Executive Director.

### Policy Review

1. The Board shall review this policy at least every three years to ensure that it remains relevant and appropriate.

**Policy Implemented:** November 20, 2015

***Committee Action Requested***

**TO:** SIB Securities Litigation Committee  
**FROM:** Dave Hunter  
**DATE:** February 9, 2018  
**SUBJECT:** **Proposed Meeting Schedule - Securities Litigation Committee**

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RIO Staff suggests the Securities Litigation Committee schedule four meetings per year on the following dates:

March 15, 2018 (Thursday)  
May 17, 2018 (Thursday)  
August 23, 2018 (Thursday)  
November 8, 2018 (Thursday)

RIO Staff invites input on the proposed meeting dates and frequency including the desired meeting location (e.g. RIO or Capitol) and time (e.g. 3:00 or 3:30 pm).

If the Committee concurs, RIO's Supervisor of Administrative Services and Office Manager Bonnie Heit will seek to confirm Committee member availability on each of the above dates in advance of our next proposed meeting on March 15, 2018.



## **POLICY TYPE: GOVERNANCE PROCESS**

### **POLICY TITLE: *STANDING COMMITTEES***

The board's standing committee is that which is set forth in this policy as follows:

1. Audit Committee
2. Securities Litigation Committee

- A. The audit committee and securities litigation committee shall operate under the terms of a charter approved by the board.

#### **INTRODUCTION – Audit Committee**

An Audit Committee has been established as a standing committee of the State Investment Board (SIB). The Audit Committee will assist the SIB in carrying out its oversight responsibilities as they relate to the Retirement and Investment Office (RIO) internal and external audit programs, including financial and other reporting practices, internal controls, and compliance with laws, regulations, and ethics.

The primary objective of the internal audit function is to assist the SIB and management in the effective discharge of their responsibilities. To this end, internal auditing will furnish them with analyses, appraisals, recommendations, and pertinent information concerning the activities reviewed.

Functions and units within RIO will be reviewed at appropriate intervals to determine whether they are effectively carrying out their responsibilities of planning, organizing, directing, and controlling in accordance with SIB and management instructions, applicable laws, policies, and procedures, and in a manner consistent with both the RIO objectives and high standards of administrative practice.

#### **POLICY OF THE STATE INVESTMENT BOARD – Audit Committee**

The audit staff shall have full, free, and unrestricted access to all RIO activities, records, property, and personnel relative to the subject under review. The audit function will be conducted in a manner consistent with acceptable professional standards and coordinated with others to best achieve the audit objectives and the RIO objectives.

The Internal Audit Services Unit is responsible for developing and directing a broad, comprehensive program of internal auditing within RIO. The Internal Audit Services Unit will report administratively to management and functionally to the Audit Committee of the SIB.

The RIO unit supervisors are responsible for seeing that corrective action on reported weaknesses is either planned or taken within 30 days from the receipt of a report disclosing those weaknesses if known or applicable. The unit supervisors are also responsible for seeing that a written report of action planned or completed is sent to the executive director. If a plan for action is reported, a second report shall be made promptly upon completion of the plan.

## INTRODUCTION – Securities Litigation Committee

A Securities Litigation Committee (SLC) has been established as a standing committee of the State Investment Board (SIB). The SLC will assist the SIB in fulfilling its fiduciary oversight responsibilities of monitoring the investment assets entrusted to it by the various statutory and contracted funds, and to serve as a communications link for the SIB, RIO's management and staff, third party securities litigation firms, and others.

The SLC will determine when an active role should be pursued in regards to securities litigation affecting investments within the SIB's portfolios.

## POLICY OF THE STATE INVESTMENT BOARD – Securities Litigation Committee

The SLC is authorized to:

- create policy regarding dollar and/or risk thresholds for determining when to opt-out of class actions and/or seek direct litigation or lead plaintiff status;
- make decisions on the level of participation the SIB will take in direct litigation, opt-in or group litigation, anti-trust and other class actions; and
- approve the selection of special assistant attorneys (in conjunction with the approval of the Office of the Attorney General) in cases of direct litigation.

RIO's management is responsible for ongoing monitoring of securities litigation and claims filing. RIO management and staff will enable the SLC to provide a quarterly update to the SIB on the SLC's activities and related recommendations at least four times a year.

The SLC has the responsibility to provide oversight in the areas of:

- policy development;
- determination on direct litigation and/or lead plaintiff status; and
- approval of special assistant attorneys (outside counsel) with concurrence of the Attorney General.

## Board Input Requested on Recommended Governance Manual Policy Changes on Standing Committees:

RIO requests the Board to provide input on the proposed governance policy language relating to the newly established Securities Litigation Committee. This language would be inserted into Section B – 6 (on Standing Committees) in the SIB Governance Manual if formally approved by the SIB on March 23, 2018. **Given that this is a “First Reading” of a newly proposed governance section, RIO is only requesting preliminary input from the SIB at this time.**

**Policy Implemented:** June 23, 1995.

**Policy Amended:** February \_\_, 2018.

## **POLICY TYPE: GOVERNANCE PROCESS**

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### **POLICY TITLE: POLICY INTRODUCTION/AMENDMENT/PASSAGE**

New policies or policy amendments may be proposed by the Executive Director or a Board member. All new policies or amendments may be submitted to the Board's Legal Counsel for drafting in the approved style.

Upon request of the Executive Director or a Board member a new policy or amendment shall be placed on the Board's agenda for action as follows:

1. Introduction and first reading. A brief explanation or summary of the new policy or amendment shall be presented to the Board. Upon approval of introduction and first reading, the measure shall be placed on the agenda of the next scheduled meeting of the Board for second reading and adoption. When appropriate, the measure shall be distributed to interested parties.
2. *Second reading and adoption. Interested parties and the public shall be allowed an opportunity to comment on the policy or amendment before final action by the Board. The measure shall take effect immediately following second reading and adoption by the Board, unless a different effective date is stated.*
3. Amendments. Amendments may be proposed at any time before final adoption of the measure. Upon determination by the Board that adoption of an amendment constitutes a substantive change that significantly changes the meaning or effect of the measure, the Board shall continue consideration of second reading and adoption to the next meeting to permit further review and comment.

Emergency measures. The Board may, upon determination that an emergency or other circumstances calling for expeditious action exists, waive the requirement of a second reading and immediately approve the new policy or amendment following introduction and first reading.

**Policy Implemented:** February 27, 2009

**Policy Revised:** November 18, 2016

**BOARD ACTION**

**TO:** State Investment Board  
**FROM:** Dave Hunter  
**DATE:** February 16, 2018  
**SUBJECT:** [\*\*Investment Manager List\*\*](#)

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SIB investment managers are listed on the following page including an estimate of their current market value as of a recent valuation date (which may be a recent month or quarter end for private market investments and/or commingled trust structures).

During the past month, RIO has received reverse inquiries on several of our private market investments most notably in private equity. If the Board concurs, RIO requests the SIB to consider the sale of non-strategic private market investments at or above their latest market valuation on or before June 30, 2018. Non-strategic private market investments are highlighted on the following page including those shown in private equity (P/E) and private debt (P/D). Non-strategic private market investments are generally valued at less than \$50 million. Prior to closing on any proposed transaction, the SIB would be made aware of the contemplated sale including an estimate of the net sales proceeds upon final disposition. Net sales proceeds would be re-invested with our remaining group of strategic investment partners in order to minimize any underweight sectors in accordance with prescribed client investment policy statements.

Callan is in the process of finalizing a current summary of our private equity investment portfolio which will likely be distributed to the SIB by Wednesday, February 21, 2018.

SIB Manager List			
As of Feb. 15, 2018		AUM	Asset
Interim Estimates		(millions)	Class
1	LSV	\$ 1,450	Equity
2	LA Capital	\$ 1,313	Equity
3	WAMCO	\$ 1,305	Bonds
4	JPMorgan	\$ 1,047	Multiple
5	Clifton/Parametric	\$ 884	Equity
6	PIMCO/Research Affil.	\$ 843	Multiple
7	Wells Capital	\$ 811	Bonds
8	Northern Trust	\$ 710	Multiple
9	William Blair	\$ 680	Equity
10	Invesco	\$ 575	Real Estate
11	State Street	\$ 567	Multiple
12	Epoch	\$ 418	Equity
13	Prudential	\$ 308	Bonds
14	Manulife/Declaration	\$ 323	Bonds
15	DFA	\$ 274	Equity
16	SEI	\$ 223	Multiple
17	TIR	\$ 184	Timber
18	Axiom	\$ 179	Equity
19	Loomis Sayles	\$ 169	High Yield
20	Brandywine	\$ 163	Int'.Debt
21	Atlanta Capital	\$ 143	Equity
22	Vanguard	\$ 126	Equity
23	Ares	\$ 116	Debt
24	Cerberus	\$ 113	Debt
25	Grosvenor	\$ 100	Infrastructure
26	UBS	\$ 98	Int'.Debt
27	Wellington	\$ 95	Equity
28	BND	\$ 64	CD's
29	Adams Street	\$ 47	P/E
30	Corsair	\$ 37	P/E
31	Capital International	\$ 28	P/E
32	Matlin Patterson	\$ 24	P/E
33	BlackRock	\$ 22	P/E
34	Lewis & Clark	\$ 8	P/E
35	EIG	\$ 6	P/E
36	Quatum	\$ 4	P/E
37	Hearthstone	\$ 2	P/E
38	Goldman Sachs	\$ 1	P/D
Maximum Est. Value		\$ 13,460	

**BOARD ACCEPTANCE REQUESTED**

**TO:** State Investment Board

**FROM:** SIB Chairman Sanford and SIB Vice Chairman Lech

**DATE:** February 16, 2018

**SUBJECT:** Proposed Timeline for Board Self-Assessment - 2018

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On January 26, 2018, the SIB requested RIO to engage Ms. Jeanna Cullins, Aon Hewitt Partner and Fiduciary Services Practice Leader, to oversee a board self-assessment. During the past month, RIO worked with Aon Hewitt and our Board Chairmen to develop a SIB self-assessment questionnaire and proposed timeline. **A 100% participation rate is encouraged of our SIB members.**

- |                           |  |
|---------------------------|--|
| <b>Feb. 23</b>            | <b>Aon Hewitt electronically distributes the SIB Self-Assessment Questionnaire (via email using Survey Monkey).</b>  |
| <b>Feb. 23 to March 9</b> | <b>SIB members have two weeks to complete the Board Self-Assessment Survey (due on Friday, March 9<sup>th</sup>).</b>  |
| March 7                   | Aon Hewitt sends out a reminder to non-respondents.  |
| <b>March 9</b>            | <b>Due Date for Aon Hewitt to receive completed responses</b>  |
| March 19                  | Aon Hewitt provides summary report to Board Chairmen   |
| <b>March 23</b>           | <b>Aon Hewitt facilitates self-evaluation discussion at SIB meeting</b>  |
| <b>March 30</b>           | <b>Aon Hewitt documents themes and resulting next actions from the Board's discussion and sends to Chair Lt. Governor Brent Sanford and Vice Chair Rob Lech in draft form for their review and comment</b> |
| <b>April 13</b>           | <b>Aon Hewitt incorporates suggested edits and sends final version to Chair Lt. Governor Brent Sanford and Vice Chair Rob Lech</b>   |

**If the Board desires, a motion should be made to accept the proposed timeline for the Self-Assessment process.** RIO will instruct Aon Hewitt to distribute the Board Self-Assessment Questionnaire after our SIB meeting on February 23, 2018 (noting a cover memo to the survey is presented on the following page).

## **2018 NORTH DAKOTA STATE INVESTMENT BOARD (NDSIB) SELF-ASSESSMENT**

The SIB is committed to maintaining excellence in its governance practices. In furtherance of that commitment, the SIB has determined that it is prudent and consistent with governance best practices to establish a practice of annually reviewing its own performance.

Engaging in a self-assessment process gives the SIB members an opportunity to reflect and evaluate: (i) how they are functioning-individually and collectively; (ii) the Board's strengths and areas that could benefit from enhancement; and (iii) opening channels of communication to enhance the SIB's effectiveness and efficiency. It also provides a structure for fine-tuning and reinforcing the SIB roles and responsibilities. Thus, even the best run boards can benefit from engaging in a self-assessment.

The self-assessment involves a two-step process.

- **Individual Board member Self-Assessment**

Being a Board member carries with it both a personal and collective duty. The Board Self-Assessment criteria on the following pages are an abbreviated outline and periodic reminder of what constitutes "good boardmanship." Its primary purpose is to encourage introspection, personal reflection, and heighten awareness of the important responsibilities of serving on the SIB. Your individual responses will not be shared with others. They will be compiled with the other Board member responses and reported back to the Board without attribution.

- **Overall Board Assessment**

The purpose of the Overall Board Assessment is to give the Board members an opportunity to evaluate the Board's performance with candor, objectivity, and a broad perspective. This governance practice is maintained even when the Board is functioning well. It may also be particularly valuable during periods when the Board needs to make improvements. The Overall Board Assessment criteria contain elements of "best practices" of public funds. It is important for each Board member to complete the assessment. Upon receipt of your responses, Aon Hewitt Investment Consulting, Inc. will tabulate the responses. Aggregated responses, including comments, will be shared with the entire Board, without attribution.

Please take some time and carefully consider each statement within each of the questionnaires. Please complete the questionnaire **no later than close of business Friday, March 9, 2018**. The results will be tabulated and presented to the SIB during its March Board meeting by Jeanna Cullins, of Aon Hewitt Investment Consulting, Inc.

**ND STATE INVESTMENT BOARD  
AUDIT COMMITTEE MEETING**

Thursday February 22, 2018 – 3:00 PM  
Retirement and Investment Office  
3442 E Century Ave, Bismarck, ND 58507

**AGENDA**

1. Call to Order and Approval of Agenda – Chair (committee action) (5 minutes)
2. Approval of November 16, 2017 Minutes – Chair (committee action) (5 minutes)
3. Introduction of Supervisor of Internal Audit – Mr. Hunter (5 minutes)
4. Open Records Education – Attorney General's Office – Mr. Brooke and Ms. DePountis (30 minutes)
5. 2016-17 Audit Charter Review Committee (committee action)(15 minutes)
6. 2017 - 2018 Second Quarter Audit Activities Report – Ms. Thorsen (committee action)(10 minutes)
7. Executive Limitation Audit – Ms. Sauter (committee action)(10 minutes)
8. GASB 68 Schedule Audit Update – Ms. Thorsen (information)(5 minutes)
9. Other – Next SIB Audit Committee Meeting

North Dakota Retirement and Investment Office  
Thursday May 24, 2018 - 3:00 PM  
RIO Conference Room  
3442 East Century Avenue  
Bismarck, ND

10. Adjournment

Any individual requiring an auxiliary aid or service should contact the Retirement and Investment Office at (701) 328-9885 at least (3) days prior to the scheduled meeting.



**STATE INVESTMENT BOARD  
AUDIT COMMITTEE MEETING  
MINUTES OF THE  
NOVEMBER 16, 2017, MEETING**

**COMMITTEE MEMBERS PRESENT:** Rebecca Dorwart, Chair  
Yvonne Smith, PERS Board, Vice Chair  
Mike Gessner, TFFR Board (TLCF)  
Cindy Ternes, Workforce Safety & Insurance  
Josh Wiens, External Representative

**STAFF PRESENT:** Connie Flanagan, Fiscal & Invt Ops Mgr  
Bonnie Heit, Assist to the Audit Committee  
David Hunter, ED/CIO  
Fay Kopp, Dep ED/CRO  
Dottie Thorsen, Internal Auditor

**GUEST:** Jason Ostroski, CliftonLarsonAllen

**CALL TO ORDER:**

Ms. Dorwart called the State Investment Board (SIB) Audit Committee meeting to order at 3:00 p.m. on Thursday, November 16, 2017, at the Retirement and Investment Office (RIO), 3442 E Century Ave., Bismarck, ND.

A quorum was present for conducting business.

Ms. Dorwart stated the Audit Committee Charter review and discussion would be postponed to the February 22, 2018, meeting due to the vacancies of RIO's legal counsel and RIO's Audit Supervisor.

**AGENDA:**

**IT WAS MOVED BY MS. TERNES AND SECONDED BY MS. SMITH AND CARRIED BY A VOICE VOTE TO APPROVE THE AGENDA FOR THE NOVEMBER 16, 2017, MEETING AS DISTRIBUTED.**

**AYES: MS. SMITH, MS. TERNES, MR. WIENS, MR. GESSNER, AND MS. DORWART  
NAYS: NONE  
MOTION CARRIED**

**MINUTES:**

**IT WAS MOVED BY MR. WIENS AND SECONDED BY MS. TERNES AND CARRIED BY A VOICE VOTE TO ACCEPT THE REVISED SEPTEMBER 22, 2017, MINUTES.**

**AYES: MR. GESSNER, MS. SMITH, MS. TERNES, MR. WIENS, AND MS. DORWART  
NAYS: NONE  
MOTION CARRIED**

**FINANCIAL AUDIT REPORT:**

Mr. Jason Ostroski, CliftonLarsonAllen (CLA), reviewed the results of the audit of the financial statements of RIO for the year ended June 30, 2017. CLA issued an unmodified "clean" opinion that the financial statements are presented fairly, in all material respects, and in conformity with U.S. Generally Accepted Accounting Principles (GAAP).

Mr. Ostroski also reviewed the financial status of the Teachers' Fund for Retirement (TFFR) net pension liability, changes in fiduciary net position, and changes in total pension liability.

Mr. Ostroski also reviewed investment trust changes in fiduciary net position for the Legacy Fund, and the Pension and Insurance Trust pools, and investment trust unit purchases for the PERS Group Insurance and Legacy Fund, and unit redemptions for the PERS Group Insurance and Budget Stabilization Fund.

Mr. Ostroski also briefed the Audit Committee on the GASB 68 Census Data Audits. Employer census testing was completed with 17 employers. Out of the 201 total employees tested, one error was noted. Work on the GASB 68 schedules will began in November and CLA expects to issue their final report on the schedules by the end of 2017.

**IT WAS MOVED BY MS. TERNES AND SECONDED BY MS. SMITH AND CARRIED BY A VOICE VOTE TO ACCEPT THE FINANCIAL AUDIT REPORT OF RIO FOR THE PERIOD ENDING JUNE 30, 2017.**

**AYES: MS. TERNES, MR. WIENS, MS. SMITH, MR. GESSNER, AND MS. DORWART**

**NAYS: NONE**

**MOTION CARRIED**

#### **AUDIT ACTIVITIES REPORT:**

Ms. Thorsen reviewed first quarter activities of the Audit Division for the period of July 1, 2017 - September 30, 2017.

TFFR Employer Audits - Two had been completed, one was pending with corrections, five were in progress, five were pending and not yet started, and one notification was sent for an upcoming audit.

Ms. Thorsen also informed the Committee the following audits were completed for the same period - TFFR File Maintenance Audit and the SIB Customer Satisfaction Survey. The Benefits Payments Audit was in progress and will be presented at the next meeting.

The Audit Division also assisted CLA with the GASB 68 census data audits.

Ms. Thorsen also stated Audit Services continues its participation in the Institute of Internal Auditors Central NoDak Chapter.

**IT WAS MOVED BY MR. WIENS AND SECONDED BY MS. SMITH AND CARRIED BY A VOICE VOTE TO ACCEPT THE FIRST QUARTER ACTIVITIES REPORT FOR THE PERIOD OF JULY 1, 2017 - SEPTEMBER 30, 2017.**

**AYES: MR. GESSNER, MR. WIENS, MS. SMITH, MS. TERNES, AND MS. DORWART**

**NAYS: NONE**

**MOTION CARRIED**

The Committee and staff discussed the work plan for the next quarter. Ms. Dorwart directed Ms. Thorsen to stay on track as much as possible and the Committee will revisit the work plan at the February meeting.

**AGENCY UPDATE:**

Mr. Hunter distributed the posted job announcement for the Supervisor of Internal Audit and outlined the timeframe for filling the vacancy.

Mr. Hunter also notified the Committee RIO also has a Benefits Counselor and Administrative Assistant vacancy. The positions have been posted and RIO hopes to have the positions filled within the next couple of months.

Mr. Hunter also notified the Committee RIO's Attorney General Counsel, Ms. Jan Murtha, has resigned from her position, and has accepted a position with the City of Dickinson. The Attorney General's Office will notify RIO when they have filled the position.

**OTHER:**

The next Audit Committee meeting is scheduled for Thursday, February 22, 2018, at 3:00 pm at the Retirement and Investment Office, 3442 East Century Ave., Bismarck, ND.

With no further business to come before the Audit Committee, Ms. Dorwart adjourned the meeting at 3:41 p.m.

Respectfully Submitted:

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Ms. Rebecca Dorwart, Chair  
SIB Audit Committee

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Bonnie Heit  
Assistant to the Audit Committee

## **MEMORANDUM**

**TO:** State Investment Board (SIB)  
State Investment Board (SIB) Audit Committee  
David Hunter, Executive Director/CIO

**FROM:** Sara Sauter, Supervisor of Audit Services

**DATE:** February 22, 2018

**SUBJECT:** Executive Limitations Final Audit Report

Audit Services has completed the annual review of the Executive Director/CIO's level of compliance with State Investment Board (SIB) Governance Manual Executive Limitation policies for the calendar year beginning January 1, 2017 and ending December 31, 2017.

The policies reviewed during the course of the audit were:

- General Executive Constraint (A-1)
- Staff Relations (A-2)
- Relating to Public and Government (A-3)
- Budgeting (A-4)
- Financial Condition (A-5)
- Communication and Counsel to the Board (A-6)
- Asset Protection (A-7)
- Compensation and Benefits (A-8)
- Conflict of Interest (A-9)
- Code of Conduct (A-10)
- Unrelated Business Interests (A-11)

Audit Services is sufficiently satisfied that the Executive Director/CIO was in compliance with SIB Governance Manual Executive Limitation policies A-1 through A-11 during calendar year 2017.

**RETIREMENT AND INVESTMENT OFFICE  
AUDIT SERVICES  
EXECUTIVE LIMITATIONS AUDIT REPORT  
January 1, 2017 – December 31, 2017**

**Executive Limitations – General Executive Constraint (A-1)**

The following documents were reviewed and found to support the Executive Director/CIO's compliance with Executive Limitation A-1:

- Executive Team Members – Communication Questionnaires
- State Investment Board (SIB) Meeting Agendas, Materials, and Minutes

The executive team indicated that frequent communication occurs regarding board and executive issues and processes. Executive team members believe they are well informed and not lacking pertinent or relevant information. The executive team continues to demonstrate great cohesiveness. There is still a consensus regarding the most important issues facing the organization. Executive team members overwhelmingly agree that the depth of knowledge and experience currently held by executive staff will insulate the organization from any risk associated with the sudden loss of executive services.

**Executive Limitations – Staff Relations (A-2)**

The following documents were reviewed and found to support the Executive Director/CIO's compliance with Executive Limitation A-2:

- RIO Administrative Manual and Employee Acknowledgements
- RIO Termination Checklist, Exit Interview, and Employee Termination Documents
- 2017 Employee Survey Results
- 2017 SIB Executive Review Committee Survey, Results, and Meeting Minutes

RIO maintains an Administrative Manual which includes personnel rules for staff, provides for the effective handling of grievances, and protects against wrongful conditions or violations of state and federal law. All staff members signed acknowledgements indicating that they reviewed and understood all policies contained within the Administrative Manual. Three employees ended their employment with RIO during the 2017 calendar list. A termination checklist was completed for each employee and an exit interview was offered to each of the employees with only one completing an exit interview. Staff and SIB survey responses were positive regarding staff relations.

**Executive Limitations – Relating to Public and Government (A-3)**

The following documents were reviewed and found to support the Executive Director/CIO's compliance with Executive Limitation A-3:

- 2017 SIB Client Satisfaction Survey and Responses
- RIO Administrative Manual (Media Policy), Media Inquiry, and Open Records Request
- 2017 SIB Executive Review Committee Survey, Results, and Meeting Minutes

SIB clients were asked to rate the services provided by RIO staff on behalf of the SIB. A score of 3.60 was received on a 4.0 weighted average scale. Comments received were generally positive and indicated clients have a great deal of trust in staff, that staff is knowledgeable and helpful. The Executive Director/CIO routinely responds to media requests and open records requests. The requests reviewed revealed that information provided by staff was accurate and when applicable distinguished between fact and personal opinion. Members of the SIB overwhelmingly agreed that the Executive Director/CIO

**Executive Limitations – Relating to Public and Government (A-3) (continued)**

effectively promotes the SIB and provides necessary information to various stakeholders, constituencies, political subdivisions, and the state legislature. This is most often accomplished with appropriately timed and relevant communications, presentations, and general discussions.

**Executive Limitations – Budgeting (A-4) and Financial Condition (A-5)**

The following documents were reviewed and found to support the Executive Director/CIO's compliance with Executive Limitation A-4 and A-5:

- RIO 2017-2019 Biennium Budget and Other Supporting Documentation
- Budget and Financial Condition Quarterly Monitoring Reports – SIB Meeting Materials
- 2017 Executive Review Committee Survey, Results, and Meeting Minutes

The 65<sup>th</sup> Legislative Assembly commenced in January 2017. The 2017-2019 budget was passed and signed by the governor on April 25, 2017. A review of the quarterly monitoring reports for fiscal year 2017 revealed that RIO operated well within budget and had not made any expenditure which exceeded the appropriation authorized by the legislature. This confirms that the budget planning process currently used by RIO is adequate and results in the development of credible expense projections. During calendar year 2017 RIO did not reduce the level of service of any programs nor request the assistance of the Emergency Commission. Continuing appropriations are reviewed by third parties, one of the largest expenditures is related to investment management fees and consulting expenses. Fees have continued to trend downward as a percentage of investments since FY 2013. SIB members surveyed indicated they are satisfied with the Executive Director/CIO's budgeting actions and RIO's overall financial condition.

**Executive Limitations – Communication and Counsel to the Board (A-6)**

The following documents were reviewed and found to support the Executive Director/CIO's compliance with Executive Limitation A-6:

- 2017 SIB Executive Review Committee Survey, Results, and Meeting Minutes
- SIB Governance Manual Policy C-4 (Monitoring Executive Performance Policy)
- SIB Meeting Agendas, Materials, and Minutes – Calendar Year 2017

SIB members indicated that the Executive Director/CIO routinely provides information to assist in decision making, board education, updates on current issues, and timely problem identification. The Executive Director/CIO also adequately monitors investment performance, managers, and strategies. The Executive Director/CIO met all reporting requirements detailed in SIB Governance Manual Policy C-4.

**Executive Limitations – Asset Protection (A-7)**

The following documents were reviewed and found to support the Executive Director/CIO's compliance with Executive Limitation A-7:

- State Fire and Tornado Fund Insurance Policy – FY 2017 and FY 2018
- OMB/Risk Management – Risk Management Fund Manual
- State Bonding Fund – Commercial Blanket Bond – CY 2016 and CY 2017
- RIO Financial Audit - Fiscal Year Ended June 30, 2017
- 2017 SIB Executive Review Committee Survey, Results, and Meeting Minutes
- 2017 SIB Meeting Agendas, Materials, and Minutes – Nov 17, 2017

**Executive Limitations – Asset Protection (A-7) (continued)**

RIO has obtained adequate insurance to protect against theft and casualty losses as well as to protect against liability losses to board members, staff, and the organization. All RIO personnel who have access to funds are properly bonded. External auditors confirmed that funds are received, processed, and distributed under controls which are sufficient to meet State Auditor standards. The financial audit for the fiscal year ended June 30, 2017 received a clean unmodified opinion. Information on actual versus target asset allocation, excess returns for the 1, 3, and 5 year time periods, and current level of risk assumed indicates that the investment process undertaken by RIO is in compliance with the SIB policy on investment.

**Executive Limitations – Compensation and Benefits (A-8)**

The following documents were reviewed and found to support the Executive Director/CIO's compliance with Executive Limitation A-8:

- OMB ND Salary Ranges – 2016/17 and 2017/18
- Agency Position Number Listing Report – Business Unit 190
- SIB Executive Review Committee – Executive Director/CIO Performance Review
- ND Administrative Code, Chapter 04-07-02
- SIB Meeting Agenda, Materials, and Minutes – May 26, 2017

A review of available documents confirmed that compensation and benefits for staff are in compliance with the ND Administrative Code, Chapter 04-07-02. Current salary and benefits for the Executive Director/CIO are consistent with the recommendations of the SIB Executive Review Committee.

**Executive Limitations – General Executive Constraint (A-1), Conflict of Interest (A-9), Code of Conduct (A-10), and Unrelated Business Interests (A-11)**

The following documents were reviewed and found to support the Executive Director/CIO's compliance with Executive Limitation A-1, A-9, A-10, and A-11:

- 2017 Executive Limitation/CIO Effectiveness Survey and Results
- 2017 Executive Review Committee Survey and Results
- SIB Governance Manual Policy A-9 and Conflict of Interest Statement
- SIB Meeting Agenda, Materials, and Minutes – Feb 24, 2017 and July 27, 2017
- SIB Audit Committee Agenda, Materials, and Minutes – Feb 24, 2017

The Executive Director/CIO affirmed understanding of the Executive Limitation Conflict of Interest Policy (A-9) located within the SIB Governance Manual. Executive team members independently confirmed that they are not aware of any actual or perceived conflicts of interest concerning the Executive Director/CIO. SIB members indicated they believe the Executive Director/CIO maintains high fiduciary standards and adheres to all laws, rules, policies, procedures, and professional ethics. Staff overwhelmingly believes that the Executive Director/CIO demonstrates integrity and sets an example for others to follow.

**BOARD ACTION REQUESTED**

To: State Investment Board  
From: Dave Hunter  
Date: February 16, 2018  
RE: **Appointment of Executive Review Committee**

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SIB Governance Manual C-4 on Monitoring Executive Performance states that “Each March the board will conduct a formal evaluation of the Executive Director / Investment Officer. This evaluation will be based on accomplishments of Ends and Compliance with Executive Limitations. **At the February board meeting, the chairperson will appoint a three-member committee** to review the board’s evaluation and make a recommendation to the full board concerning the salary for the Executive Director / Investment Officer.” Last year, the Executive Review Committee consisted of the Ms. Yvonne Smith (as Chair), Ms. Cindy Ternes and Mr. Mike Sandal. In 2016, the Executive Review Committee consisted of the SIB Chair, Vice Chair and Parliamentarian.

In anticipation of the SIB Chairman appointing a three member “Executive Review Committee”, the Executive Director/CIO notes that **RIO’s Supervisor of Audit Services, Sara Sauter, may be requested to administer the Executive Director/CIO Survey on behalf of the SIB and/or the Executive Review Committee.** The ED/CIO endorses the SIB engaging RIO’s Supervisor of Audit Services to administer the survey on behalf of the Executive Review Committee.

A sample copy of the Executive Director/CIO Survey is attached for reference or discussion purposes.

Attachments: SIB Executive Director/CIO Survey



## **POLICY TYPE: BOARD-STAFF RELATIONSHIP**

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### **POLICY TITLE: MONITORING EXECUTIVE PERFORMANCE**

Monitoring executive performance is synonymous with monitoring organizational performance against board policies on *Ends* and on *Executive Limitations*. Any evaluation of the executive director's 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 which does not do this will not be considered to be monitoring. Only a minimum amount of board time as necessary will be devoted toward monitoring so that meetings can best 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: Disclosure of compliance information to the board from the executive director.
  - B. External report: Discovery of compliance information by a disinterested, external auditor, inspector or judge 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: Discovery of compliance information 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 which allows a "prudent person" test of policy compliance.
3. The board will monitor each *Ends* and *Executive Limitations* policy according to the following frequency and method:

Quarterly internal reports for policies:

- A-2 Staff Relations
- A-4 Budgeting
- A-5 Financial Condition
- D-3 Investment Services
- D-4 Investment Performance

Annual external reports for policies:

- A-2 Staff Relations
- A-4 Budgeting
- A-7 Asset Protection
- D-3 Investment Services
- D-4 Investment Performance

## **POLICY TYPE: BOARD-STAFF RELATIONSHIP**

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### **POLICY TITLE: MONITORING EXECUTIVE PERFORMANCE**

Annual internal reports for policies:

- A-1 General Executive Constraint
- A-3 Relating to Public and Government
- A-8 Compensation and Benefits
- A-9 Conflict of Interest

4. The Executive Director will submit required monitoring reports at regular meetings of the board. The board will act on those reports by voting on one of the following motions:
  - A. A motion to accept the report.
  - B. A motion to conditionally accept the report, with a statement of the revisions or additional information that is necessary for the report to be accepted without condition.

The internal audit staff will be responsible for preparing an annual summary of the board's action concerning required reports submitted by the Executive Director, and the summary will be made available as a part of the formal evaluation of the Executive Director.

5. Each March the board will conduct a formal evaluation of the executive director/investment officer. This evaluation will be based on accomplishments of *Ends* and *Compliance with Executive Limitations*.
6. At the February board meeting, the chairperson will appoint a three-member committee to review the board's evaluation and make a recommendation to the full board concerning salary for the executive director/investment officer.

In making its recommendation, the committee will consider job performance as evidenced by the annual summary of the periodic monitoring reports, the Retirement and Investment Office budget status, the annual Public Pension System's Compensation Survey, the annual National Association of State Investment Officer's survey, the legislature's approved salary increases for state employees, the North Dakota market compensation for comparable positions, and other data or information considered relevant by the committee.

The committee's recommendation will be placed on the May board meeting agenda for possible action by the board. Final action by the board will be accomplished no later than the June board meeting.

**Policy Implemented:** June 23, 1995

**Amended:** November 21, 1997; June 25, 1999; November 19, 1999; January 28, 2000; February 25, 2000; February 23, 2001; September 26, 2014.

## 1. Introduction

A State Investment Board (SIB) Executive Review Committee has been appointed for the purpose of evaluating the performance of the Executive Director/CIO of the ND Retirement and Investment Office (RIO), Mr. David Hunter.

As a member of the SIB you are being asked to evaluate the Executive Director/CIO's level of compliance with the *Ends* and Executive Limitation policies set forth in the SIB Governance Manual. This evaluation assesses six major categories utilizing the following three point scale:

**1 - DOES NOT MEET EXPECTATIONS:** Executive Director/CIO is not performing acceptably and expectations are not being met. Goals for improvement must be set and performance review date established (3-6 months). **To ensure the best possible feedback for the Executive Director/CIO a comment which provides further explanation is strongly encouraged when a rating of 1 is selected.**

**2 - MEETS EXPECTATIONS:** Executive Director/CIO is performing acceptably and is meeting all standards and expectations.

**3 - EXCEEDS EXPECTATIONS:** Executive Director is performing beyond and exceeds the established standards and expectations. **To ensure the best possible feedback for the Executive Director/CIO a comment which provides further explanation is encouraged when a rating of 3 is selected.**

If NOT APPLICABLE is selected, please provide further details for support.

Please contact the Supervisor of Audit Services, Terra Miller Bowley, at 701.328.9896 or [tmbowley@nd.gov](mailto:tmbowley@nd.gov) for additional information and supporting documentation related to the *Ends* and Executive Limitation policies addressed in the evaluation.

\* 1. State Investment Board Member Completing the Evaluation:

## CATEGORY 1 - Board Meetings

### (Reference: Executive Limitations A-6)

2. The Executive Director/CIO prepares agenda items with supporting information and disseminates to State Investment Board members at least three days prior to the meeting.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

3. The Executive Director/CIO provides appropriate information to the State Investment Board either in writing or verbally to aid in decision-making related to policy development, asset allocation, portfolio structure, and investment strategies.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

4. The Executive Director/CIO provides board materials that identify any items which need "Board Action" and also provides staff recommendations where appropriate.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

5. The Executive Director/CIO provides education at board meetings in order for the State Investment Board to adequately perform their role.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

## CATEGORY 2 - Board Relations

### (Reference: Executive Limitations A-6)

6. The Executive Director/CIO is responsive to requests from the State Investment Board, adapts to the State Investment Board's direction on policy, and works with the board as a team member.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

7. The Executive Director/CIO keeps the State Investment Board aware of current issues and, when appropriate, provides information between board meetings.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

8. The Executive Director/CIO provides timely and accurate problem identification to the State Investment Board as well as solutions and options for consideration.

☐ 1

☐ 2

☐ 3

☐ Not Applicable

Comments

### CATEGORY 3 - Office Operations

**(Reference: Executive Limitations A-2, A-4, A-5 and A-7)**

9. The Executive Director/CIO directs preparation of the biennial budget, which includes, but is not limited to the following sub-categories:

Biennial budget is prepared pursuant to OMB guidelines and submitted pursuant to guidelines established by the Office of the Governor.

- Does not reduce the level of service, or anticipate a reduction in the level of service, of any Retirement and Investment Office program without the prior approval of the State Investment Board.
- Expenditures for items which require use of the Contingencies line item are not made without prior approval of the State Investment Board.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

10. Based on my observations at board meetings and other interactions, I believe the Executive Director/CIO fosters a work environment that is safe, fair, respectful, organized, and gives direction through organizational goals and objectives.

- ☐
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments



11. Based on my observations at board meetings and other interactions, I believe the Executive Director/CIO provides leadership, coaching and effective feedback to RIO staff, recommending measures to improve performance and increase efficiency.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

12. Based on my observations at board meetings and other interactions, I believe the Executive Director/CIO maintains and continues to develop positive working relationships across various organizational units and levels.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

13. Based on my observations at board meetings and other interactions, I believe the Executive Director/CIO provides adequate staffing for the NDRIO, which includes, but is not limited to the following sub-categories:

- All applicable personnel rules of the State of North Dakota are followed.
- Staff performance evaluations are completed at least annually.

☐ 1

☐ 2

☐ 3

☐ Not Applicable

Comments

## CATEGORY 4 - Investment Programs and Program Operations

**(Reference: Executive Limitations A-6, A-7 and A-9 and Ends D-3 and D4)**

14. The Executive Director/CIO maintains approved Investment Objectives and Policies.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

15. The Executive Director/CIO effectively advises, monitors and reports investment performances, which includes, but is not limited to the following sub-categories:

- Produces accurate and timely reports which are provided to the State Investment Board concerning investments, progress and compliance with investment policies.
- Advises and makes recommendations to the State Investment Board regarding investment programs and strategies.
  - Recommends corrective actions as necessary to investment strategies.
- Routinely analyzes and monitors overall investment expenses to ensure that investment programs are operating efficiently and effectively based on comparable market standards.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

16. The Executive Director/CIO effectively monitors investment strategies, which includes, but is not limited to the following sub-categories:

- In conjunction with SIB client boards and their investment consultants and actuaries, the Executive Director/CIO oversees the development and monitoring of investment policies for all State Investment Board client assets, including asset allocation, structure of investment assets and, upon approval, implementation of the policy.

- Makes recommendations to the State Investment Board related to the Watch List.

- Monitors and evaluates total portfolio risk and return and recommends adjustments to the asset allocation, investment strategy, manager structure and guidelines.

- Researches and recommends new asset classes and innovative investment management styles that can increase the return on assets, reduce risk, or reduce costs to the plan.

☐ 1

☐ 2

☐ 3

☐ Not Applicable

Comments

17. The Executive Director/CIO effectively oversees the monitoring of investment managers, which includes, but is not limited to the following sub-categories:

- Adjusts managers' assets to maintain proper risk levels and asset allocation targets.
- At least quarterly, evaluates and reviews the investment activity and portfolio management of the investment managers.
- Reports a summary of investment manager activity and compliance with investment policy and contractual guidelines to the State Investment Board and individual governing boards.
  - Regularly meets with the investment managers to review performance and other activity.
- Oversees and, when necessary, participates in searches for new investment managers and consultants, negotiates fees and contracts, and recommends termination of managers.

☐ 1

☐ 2

☐ 3

☐ Not Applicable

Comments

18. Based on my observations at board meetings and other interactions, the Executive Director/CIO maintains high fiduciary standards. The annual review of the Executive Limitations policy provides corroborating evidence to support this statement.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

19. The Executive Director/CIO adequately provides State Investment Board contract management, which includes, but is not limited to the following sub-categories:

- Distributes and analyzes bids for services to facilitate decision-making for the State Investment Board.
- Monitors contractor performance and advises the State Investment Board of any issues, including options for responding and recommendations for associated action plans.
  - Provides direction to all contracts to ensure that State Investment Board objectives are achieved.
  - Ensures that all contractors comply with contract provisions, state law and administrative rules.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

## CATEGORY 5 - Public/Legislative Relations

**(Reference: Executive Limitations A-3 and A-9)**

20. The Executive Director/CIO provides necessary information, through regular effective communications and timely programs, to various stakeholders.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

21. The Executive Director/CIO represents RIO and promotes State Investment Board programs to various stakeholders, constituencies, political subdivisions and the state legislature.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

22. The Executive Director/CIO develops legislative proposals in concert with the State Investment Board and represents the board in communications and presentations to the legislature.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

23. The Executive Director/CIO properly informs the Legislature, through the Interim Committee, regarding the status of the investment funds which fall under the oversight of the State Investment Board.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

24. The Executive Director/CIO has developed a rapport with legislators to ensure the credible recognition of the positions of the State Investment Board.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments



## CATEGORY 6 - Professional Skills and Development

**(Reference: Executive Limitations A-2 and A-6)**

25. The Executive Director/CIO provides visionary and strategic leadership to the State Investment Board.

☐ 1

☐ 2

☐ 3

☐ Not Applicable

Comments

26. The Executive Director/CIO exhibits a positive and results-oriented style with a predisposition to building consensus and goal achievement through collaboration.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

27. The Executive Director/CIO demonstrates the ability to dissect highly complex issues and effectively develop and communicate a corresponding plan of action.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

28. Based on my observations at board meetings and other interactions, the Executive Director/CIO adheres to all material laws, rules, policies, procedures and professional ethics.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

29. The Executive Director/CIO exhibits courtesy and respect in all interactions.

- ☐ 1

- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

30. Based on my observations at board meetings and other interactions, the Executive Director/CIO understands motivational drivers and is skilled at getting individuals, teams, and the entire organization to perform at the highest possible level and to embrace change.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Not Applicable

Comments

INFORMATIONAL ONLY

TO: State Investment Board

FROM: Dave Hunter and Darren Schulz

DATE: February 16, 2018

SUBJECT: **Bank of North Dakota (BND) Match Loan CD Program Background**

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**Background:**

On June 17, 2017, the Legacy Fund Advisory Board approved the Legacy Fund Investment Policy Statement (IPS), which acknowledged the transfer of the BND Match Loan CD Program from the Budget Stabilization Fund into the Legacy Fund in early-2017. **On July 28, 2017, the SIB formally accepted the IPS as approved by the Advisory Board. The revised IPS noted “The BND CD investment will be limited to the lesser of \$200 million or 5% of the Legacy Fund (and represent a sector allocation within fixed income.)”** In addition, “BND will be requested to guarantee a minimum 1.75% investment return. **The minimum return requirement will be periodically reviewed in connection with the Legacy Fund’s overall asset allocation framework.** BND CD’s are rated AA by S&P.”

**Legacy Fund Advisory Board Meeting “Minutes” – November 27, 2017:**

***“Bank of North Dakota Matching and Infrastructure Loan Programs***

*At the request of Chairman Kempenich, Mr. Hardmeyer presented information ([Appendix D](#)) regarding the Bank of North Dakota's matching loan program **and the possibility of increasing legacy fund investments in Bank certificates of deposits (CDs) in order for the Bank to increase funding available for the matching loan program and an infrastructure loan program.** He said there is no risk to the legacy fund as the risk of loss lies with the Bank and the Bank has never had a loss on a loan in its match program.*

*In response to a question from Representative Kreidt, Mr. Hardmeyer said the CD rate would be the U.S. Treasury rate plus an agreed upon markup. He said the match program currently includes a fixed interest rate for a 5-year period with terms of 15 to 20 years. He said the political subdivisions would prefer to have a longer period in which the interest rate is fixed.*

*No further business appearing, Chairman Kempenich adjourned the meeting at 2:50 p.m.”*

**At the meeting, Mr. Hunter stated that RIO would consider this “infrastructure loan program” request in connection with the Legacy Fund asset allocation study being conducted by Callan Associates in the first half of 2018.** Mr. Hunter referenced prior discussions with BND representatives on this topic including BND’s requested \$200 million increase in the program size (spread over the next four years in \$50 million annual increments starting in 2018). RIO communicated this request to Callan Associates in late-2017 (and early-2018) and looks forward to providing an update in the upcoming months.

## **Concept Paper**

### **Utilizing Legacy Funding to Finance North Dakota Infrastructure**

**Purpose:** To create a program that utilizes a portion of the Fixed Income Allocation of the Legacy Fund to finance local political sub-division infrastructure in North Dakota.

#### **Background**

In 2010, North Dakota voters approved a measure creating the “Legacy Fund” utilizing 30% of the state’s share of oil and gas tax revenues. The intent is to create an on-going source of revenue from the one-time extraction of natural resources. Today, the Legacy Fund is over Five Billion dollars with an average deposit of \$34m per month in 2017. The investment goal of the Legacy Fund is principal preservation while maximizing total return.

Determining the investment strategy for the Legacy Fund is a two-step process. The first step is for the Legacy and Budget Stabilization Fund Advisory Board to develop recommendations for presentation to the State Investment Board. The second step in the process is for the State Investment Board to receive and act on the recommendations.

In addition to the Legacy Fund, the SIB also guides investments for other state funds. Examples include: the state bonding fund; teachers’ fund for retirement, state fire and tornado fund; WSI, Public Employee Retirement System, Insurance Regulatory Trust Fund, etc.

#### **The Infrastructure Challenge**

Communities across North Dakota need financing for infrastructure development and re-development. The size and scope of infrastructure financing need varies greatly depending on the size of the community and type of project. Redeveloping a road in a smaller community might only cost a million or two. Larger scale projects in the biggest communities easily run into the hundreds of millions of dollars.

Examples of projects that could be financed include:

- Road and Street Projects including curb and gutter
- Water and Waste Water Treatment Plants
- Extension of new Sewer and Water lines that do not qualify for SRF financing
- Essential regional water supply for municipal, rural and industrial purposes
- Permanent community flood protection across the state
- Intra-state natural gas pipeline capacity to provide an industrial gas supply enhancing the competitive position of a community and value-added economic development
- Real estate development that meets critical local demand for affordable housing
- Alternative transportation systems to serve evolving state and community needs

## **Proposal**

The concept of this white paper is to utilize a portion of the North Dakota Legacy Fund to finance investment in North Dakota Infrastructure. Creating a program to provide financing for infrastructure development can benefit the state in multiple ways.

1. A program can be structured to provide a return on investment to the corpus of the Legacy Fund.
2. Instead of state funds leaving North Dakota to be invested in large-scale infrastructure funds, it keeps the money in state with the added benefit of building local communities.
3. Funding will allow local political subdivisions to build or rehabilitate infrastructure in their community in a cost-effective way, lowering the cost to North Dakota taxpayers.

## **Program Administration**

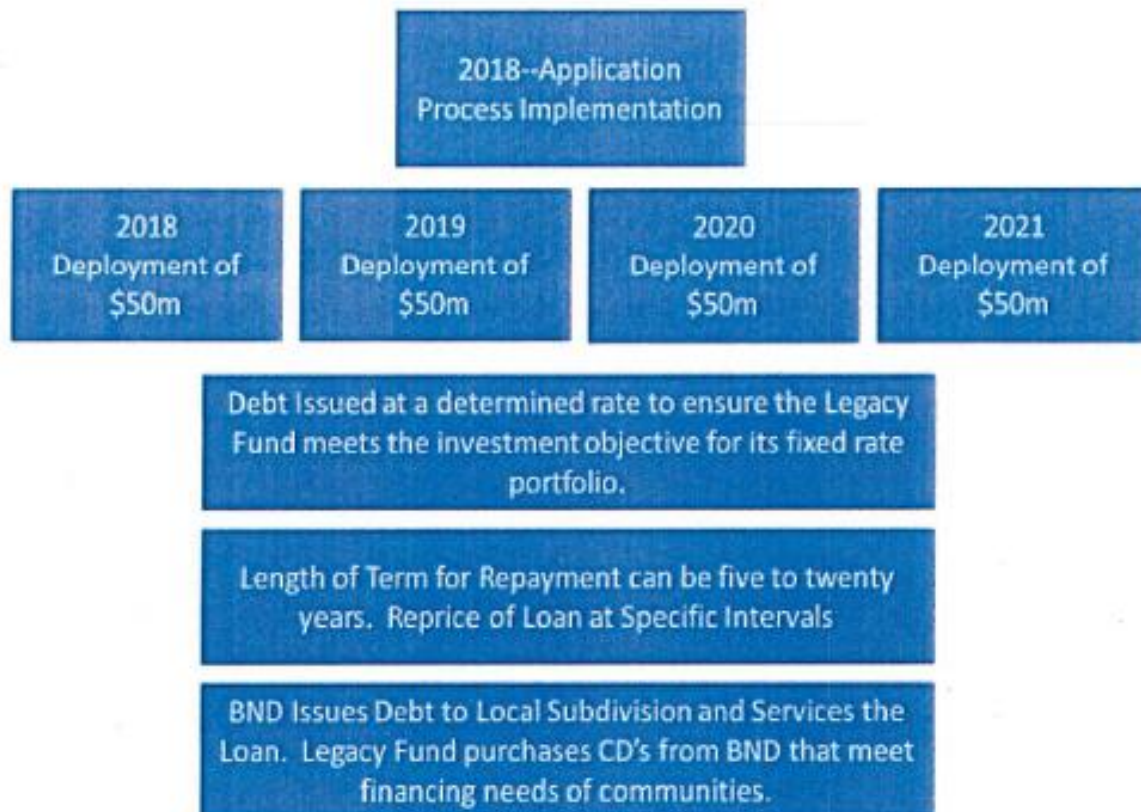
The Bank of North Dakota will develop and administer the infrastructure loan program. Some key concepts related to this proposal.

1. This is a loan program administered by BND. Loans will meet underwriting guidelines with a source of repayment and securitization of the note by a political subdivision.
2. As this is an investment of the Legacy Fund administered by BND, interest rates will be market rates.
3. As opposed to utilizing the earnings of the Legacy Fund, this proposal suggests the program be considered part of the investments or debt instruments of the fund. It is a part of the corpus, contributing to the earnings of the Fund.

## Program Structure

The Infrastructure Loan Program will mirror the structure of the existing BND Match Program. In this structure, the Retirement and Investment Office will purchase a Certificate of Deposit (CD) from the Bank of North Dakota with a specified rate return structure. BND will then utilize the investment to provide loans for infrastructure development to political subdivisions in North Dakota.

## Conceptual Financing Model



# BND Match Program

## Eligibility

Businesses that create new wealth for North Dakota and provide new jobs outside of the retail sector, especially in manufacturing, processing and value-added industries, are primary candidates. These companies shall provide evidence of considerable financial strength as demonstrated by a long-term investment grade rating. If a company does not have an adequate rating, it has three options to meet this requirement:

- Credit enhancement by a financial institution. The bank or credit union can provide a letter of credit acceptable to BND or pledge Fed Book entry securities.
- Guarantee from a federal guaranty agency or another company with an investment grade rating
- Pledge a certificate of deposit or marketable securities of a quality and level satisfactory to BND

This enhancement must provide 100 percent of BND's portion of the loan.

**Interest rate:** Interest rate on BND's portion of the loan is 0.25% over the 1- to 5- year US Treasury Yield Rate with a 2% floor. The interest rate may be adjusted periodically throughout the term of the loan depending upon the conditions of the MATCH funding and the ability of the borrower to maintain its long-term credit rating. The interest rate may reset at 1- to 5-year re-pricing windows consistent with the loan pricing options and may be subject to a prepayment penalty satisfactory to BND.

The borrower must provide evidence each year that the company's long term rating has remained at the investment grade level. Should the rating fall below investment grade, the interest rate on the note will be adjusted to reflect the market rate for the subsequent rating.



## **BND Match Loan CD Program History and Background:**

BND has a strong desire to maintain the CD Program which provides low cost financing to companies seeking to develop new businesses in North Dakota. RIO notes this economic development program has been in place for nearly 30 years although the funding source has migrated among various funds overseen by the SIB. Given the nature and size of the Legacy Fund, RIO most recently suggested the Legacy Fund as an alternative funding source to the Budget Stabilization Fund (which was reduced to support the General Fund). RIO notes “the retirement funds belonging to TFFR and PERS must be invested exclusively for the benefit of their members”. Given these “exclusive benefit” provisions, RIO does not intend to explore funding alternatives within the Pension Trust.

## **Budget Stabilization Fund Performance Review – March 31, 2017:**

The BND Match Loan CD Program was the best performing investment within the BSF over the last five years generating a 2.88% return while the Short Term Fixed Income portfolio posted a 1.61% return during this same period. BND’s strong performance is due to most of the CD rates being set at a fixed rate during a period of higher rates. As a result, the BND CD Program locked in rates several years ago when they were above current market rates available today. (BND CD’s were fully transferred into the Legacy Fund by January 31, 2017.)

### **Five Year Annualized Relative Attribution Effects**

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
BND CDs	19%	19%	2.88%	0.87%	0.43%	0.00%	0.43%
Short Term Fixed Income	79%	79%	1.61%	0.65%	0.75%	0.00%	0.75%
Cash & Equivalents	2%	2%	0.15%	0.14%	0.00%	0.00%	0.00%
<b>Total</b>			<b>1.86% = 0.68% + 1.18% + 0.01%</b>				<b>1.19%</b>

During the past year, the BND CD Program has continued to outperform other Short-Term Fixed Income investments although the level of the outperformance has declined as older CD’s bearing higher interest rates have been replaced with CD’s bearing lower interest rates given the current rate environment.

### **One Year Relative Attribution Effects**



Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
BND CDs	15%	15%	2.21%	2.21%	0.00%	0.02%	0.02%
Short Term Fixed Income	82%	82%	1.43%	0.25%	0.97%	0.01%	0.97%
Cash & Equivalents	3%	3%	0.31%	0.36%	(0.00%)	0.00%	0.00%
<b>Total</b>			<b>1.63% = 0.64% + 0.97% + 0.02%</b>				<b>0.99%</b>

The current interest rate environment poses a substantial risk to the future BND CD Program particularly in the event interest rates were to rise sharply in the near future. RIO notes the BND CD’s are backed by the full faith and credit of the State of North Dakota.

## Legacy Fund Fixed Income Returns – December 31, 2017:

The Legacy Fund fully implemented a revised target asset allocation policy of 50% Equity, 35% Fixed Income, 10% Diversified Real Assets and 5% Real Estate in early-2015. BND CD's were transferred into the Legacy Fund (from the Budget Stabilization Fund) during the fourth quarter of 2016. **BND CD's generated a 2.71% net investment return for the Legacy Fund in 2017 which was approximately 0.83% below the Bloomberg Aggregate Index while being rated AA.**

### Returns for Periods Ended December 31, 2017

	Last Quarter	Last Year	Last 3 Years
<b>Domestic Fixed Income</b>			
Gross	0.97%	6.68%	4.34%
Net	0.95%	6.54%	4.21%
Bimbg Aggregate Index	0.39%	3.54%	2.24%
Ares ND Credit Strategies Fd - Net	0.09%	-	-
Cerberus ND Private Credit Fd - Net	4.17%	-	-
S&P/LSTA Leveraged Loan B	1.09%	4.27%	4.64%
 BND CDs - Net	0.66%	 2.71%	-
Declaration Total Return - Net	0.82%	5.67%	3.93%
Libor-3 Month	0.36%	1.26%	0.77%
Prudential - Gross	1.10%	7.24%	4.62%
Prudential - Net	1.03%	6.97%	4.35%
Bimbg Aggregate Index	0.39%	3.54%	2.24%
Wells Capital - Gross	1.30%	8.51%	5.02%
Wells Capital - Net	1.26%	8.29%	4.84%
Bimbg Baa Credit 3% In	1.22%	7.45%	4.09%
Western Asset - Gross	0.79%	5.66%	3.89%
Western Asset - Net	0.76%	5.53%	3.75%
Bimbg Aggregate Index	0.39%	3.54%	2.24%
SSgA US Govt Credit Bd Idx - Gross	0.49%	4.01%	2.39%
SSgA US Govt Credit Bd Idx - Net	0.48%	3.97%	2.35%
Bimbg Govt/Credit Bd	0.49%	4.00%	2.38%
Pooled Fixed Income - Net(1)	1.26%	13.44%	-
Bimbg Aggregate Index	0.39%	3.54%	2.24%

## NDSIB Governance Policy: Bank of North Dakota Match Loan Program (E-12)

**The SIB has a commitment to the Bank of North Dakota Match Loan Program.** The purpose of the program is to encourage and attract financially strong companies to North Dakota. The program is targeted to manufacturing, processing and value-added industries.

The SIB provides capital to the program by purchasing Certificates of Deposit (CD's) from the Bank of North Dakota. The CD's are guaranteed by the state, typically have seven to fifteen year maturities and pay interest pegged to US Treasury notes.

**The source of funding for CD's shall be determined by the Investment Director; that funding to be from the most appropriate source consistent with liquidity and relative yield and return objectives and constraints.**

## **NDCC 21-10-11. Legacy and budget stabilization fund advisory board.**

The legacy and budget stabilization fund advisory board is created to develop recommendations for the investment of funds in the legacy fund and the budget stabilization fund to present to the state investment board. The goal of investment for the legacy fund is principal preservation while maximizing total return. The board consists of two members of the Senate appointed by the Senate Majority Leader, two members of the House of Representatives appointed by the House Majority Leader, the Director of the Office of Management and Budget or designee, the President of the Bank of North Dakota or designee, and the Tax Commissioner or designee. The board shall select a chairman and must meet at the call of the chairman. The board shall report at least semiannually to the budget section. Legislative members are entitled to receive compensation and expense reimbursement as provided under section 54-03-20 and reimbursement for mileage as provided by law for state officers. The legislative council shall pay the compensation and expense reimbursement for the legislative members. The legislative council shall provide staff services to the legacy and budget stabilization fund advisory board. The staff and consultants of the state retirement and investment office shall advise the board in developing asset allocation and investment policies.

## **NDCC 21-10-02. Board - Powers and duties.**

The board is charged with the investment of the funds enumerated in section 21-10-06. It shall approve general types of securities for investment by these funds and set policies and procedures regulating securities transactions on behalf of the various funds. Representatives of the funds enumerated in section 21-10-06 may make recommendations to the board in regard to investments. The board or its designated agents must be custodian of securities purchased on behalf of funds under the management of the board. The board may appoint an investment director or advisory service, or both, who must be experienced in, and hold considerable knowledge of, the field of investments. The investment director or advisory service shall serve at the pleasure of the board. The investment director or advisory service may be an individual, corporation, limited liability company, partnership, or any legal entity which meets the qualifications established herein. The board may authorize the investment director to lend securities held by the funds. These securities must be collateralized as directed by the board. The board may create investment fund pools in which the funds identified in section 21-10-06 may invest.

### **NDCC 21-10-02.1. Board - Policies on investment goals and objectives and asset allocation.**

1. The governing body of each fund enumerated in section 21-10-06 shall establish policies on investment goals and objectives and asset allocation for each respective fund. The policies must provide for:
  - a. The definition and assignment of duties and responsibilities to advisory services and persons employed by the board.
  - b. Rate of return objectives, including liquidity requirements and acceptable levels of risk.
  - c. Long-range asset allocation goals.
  - d. Guidelines for the selection and redemption of investments.
  - e. Investment diversification, investment quality, qualification of advisory services, and amounts to be invested by advisory services.
  - f. The type of reports and procedures to be used in evaluating performance.
2. The asset allocation and any subsequent allocation changes for each fund must be approved by the governing body of that fund and the state investment board. The governing body of each fund shall use the staff and consultants of the retirement and investment office in developing asset allocation and investment policies.



# North Dakota State Investment Board

February 23, 2018

**Josef Lakonishok**

Founding Partner, CEO & CIO

P: (312) 460-2326 | W: [lsvasset.com](http://lsvasset.com)

**James W. Owens, Jr.**

Partner & Director, Portfolio Services

P: (312) 460-2323

## Twenty-Year Partnership: LSV & NDSIB 1998-2018

	Pension Portfolios			Insurance Portfolios		Legacy Fund Portfolios		Totals
	<u>US Lg Cap Value</u>	<u>Int'l Lg Cap Value</u>	<u>Global Value</u>	<u>US Lg Cap Value</u>	<u>Int'l Lg Cap Value</u>	<u>US Lg Cap Value</u>	<u>Int'l Lg Cap Value</u>	
<b>Timeline:</b>								
July 1998: Initial LCV Portfolio	\$ 75,326,316			\$ 44,664,097				
Nov 2004: Initial Intl Val Portfolio		\$ 124,158,201			\$ 25,553,713			
Net contributions Prior to Merging Pension Portfolios in Jan 2013	\$ 48,764,104	\$ (36,296,000)						
Combine portfolios in May 2015	\$ (267,330,624)	\$ (127,545,625)	\$ 394,876,249					
Net contributions since conversion to Global Value Portfolio			\$ (103,100,000)					
Transfer assets from Insurance Portfolios to dedicated Legacy Fund Portfolios May 2015				\$ (214,010,000)	\$ (225,330,331)	\$ 214,010,000	\$ 225,330,331	
Insurance & Legacy Net Contributions				\$ 147,956,950	\$ 232,443,027	\$ 49,800,000	\$ 84,100,000	
<b>Total Contributed Capital by Fund:</b>	<b>\$108,852,621</b>			<b>\$11,277,456</b>		<b>\$573,240,331</b>		<b>\$693,370,408</b>
<b>Return on Investment</b>		<b>\$434,851,837</b>		<b>\$ 98,031,699</b>	<b>\$ 41,366,555</b>	<b>\$ 89,699,465</b>	<b>\$ 101,605,528</b>	<b>\$765,555,084</b>
Ending Value December 2017	\$ -	\$ -	\$ 543,704,458	\$ 76,642,746	\$ 74,032,964	\$ 353,509,465	\$ 411,035,859	
<b>Total Assets Managed by Fund:</b>	<b>\$543,704,458</b>			<b>\$150,675,710</b>		<b>\$764,545,324</b>		<b>\$1,458,925,492</b>

# Organizational Update

## LSV's Key Organizational Strengths

- Academic foundation
- 25+ years of research
- Successfully applied model for over 20 years
- Value equity focus- our sole business
- Consistency of people, philosophy & portfolio
- Employee ownership

## All Strategies Built From Same Model

- \$118.4 billion in firmwide assets under management
- Limited capacity offerings

United States		International (Non-U.S.)		Global	
Large Cap Value	\$34.0 B	Developed Markets Large Cap Value	\$13.3 B	Developed Markets Global Value	\$8.7 B
Mid Cap Value	\$3.0 B	All-Country Large Cap Value	\$10.5 B	All-Country Global Value	\$8.8 B
Small/ Mid Cap Value*	\$3.9 B	Developed Markets Small Cap Value*	\$5.0 B	Global Small Cap Value*	\$1.8 B
Small Cap Value*	\$3.5 B	Emerging Markets Value	\$7.2 B	Managed Volatility	\$3.0 B
Micro Cap Value*	\$0.5 B	Emerging Markets Small Cap Value*	\$2.0 B	Concentrated Value	\$0.6 B
Enhanced Index	\$0.6 B	Regional Strategies - Large & Small Cap - Europe, Asia, Canada, Japan, Australia	\$3.0 B		
Managed Volatility	\$4.8 B	Managed Volatility	\$0.2 B		
		Concentrated Value	\$1.3 B		

## Value Equity

*Investment Specialists*

Data as of 12/31/17

\*Denotes strategies that are currently closed to new investors.

# Organizational Structure

**Josef Lakonishok, Ph.D.**  
Partner, CEO, CIO  
Portfolio Manager (23)

## Marketing

**Jason Ciaglo**  
Partner  
Business Development (8)

**David Coon**  
Director  
Retail Sales & Services (1)

**Brett Goldacker**  
Associate Director (1)

## Client Service & Marketing Support

**Marisa Rosenblatt, CIPM**  
Partner (13)

**Jessica Merz**  
Associate (8)

**Kari Smith**  
Associate (2)

**Erin Kielty**  
Associate (1)

## Research, Portfolio Construction

**Menno Vermeulen, CFA**  
Partner  
Systems Dev & Port Manager (22)

**Bala Ragothaman, CFA**  
Partner  
Systems Development (11)

**Titus Liu**  
Partner  
Systems Development (6)

**Simon Zhang, CFA**  
Partner  
Systems & Research (19)

**Puneet Mansharamani, CFA**  
Partner  
Portfolio Manager (17)

**Jason Karceski, Ph.D.**  
Partner  
Portfolio Manager & Research (8)

**Greg Sleight**  
Partner  
Portfolio Manager (11)

**Guy Lakonishok, CFA**  
Partner  
Portfolio Manager (8)

**Gal Skarishevsky**  
Quantitative Analyst (1)

**Bhaskaran Swaminathan, Ph.D.**  
Partner  
Director of Research (12)

**Han Qu**  
Partner  
Research (23)

**Louis K.C. Chan, Ph.D.**  
Partner, Academic Advisor  
University of Illinois (17)

**Dan Givoly, Ph.D.**  
Academic Advisor  
Penn State University (12)

## Trading

**Dan Newman**  
Partner  
Trading (18)

**Eric Miller**  
Partner  
Trading (19)

**Claude O'Malley**  
Partner  
Trading (12)

**Brian Sanderson**  
Partner  
Trading (5)

**Brian Weber**  
Associate  
Trading (6)

## Portfolio Services

**James Owens**  
Partner  
Portfolio Services (17)

**Keith Bruch, CFA**  
Partner  
Portfolio Services (14)

**Peter Young, CFA**  
Partner  
Portfolio Services (13)

**Scott Kemper**  
Partner  
Portfolio Services (11)

**Michael Wagner**  
Partner  
Portfolio Services, Taft-Hartley (5)

**Paul Halpern, Ph.D.**  
Director  
Portfolio Services, Canada (13)

**David Beata**  
Partner  
Portfolio Services (13)

**Josh Dupont**  
Director  
Portfolio Services (1)

## Operations

**Kevin Phelan, CFA**  
Partner  
Chief Operating Officer (13)

**Tracy Bolger**  
Partner  
Manager, Operations (20)

**Rajeev Uppalapati, CFA**  
Partner (7)

## Portfolio Accounting

**Monika Quinn**  
Partner  
Portfolio Accounting (20)

**Gloria Balta**  
Associate (13)

**Lisa Lewis**  
Associate (10)

## Compliance

**Josh O'Donnell**  
Partner  
Chief Compliance Officer  
Chief Legal Officer (4)

**Leslie Kondziela**  
Partner  
Compliance Officer (13)

**John Dunbar**  
Associate (1)

**Jessica Roberts**  
Associate (1)

## Bus. Mgmt.

**Sara Paeth**  
Associate (2)

Note: Number indicates years at LSV.



# Representative Client List

## 15+ Years

Alma College Endowment  
Bank of America  
BASF  
Bridger Coal Company - Reclamation Trust  
Caterpillar Inc.  
Cement Masons Local 502 Pension Fund  
CHRISTUS Health  
City of Gainesville Police Officers' & Firefighters' Ret. Plan  
City of Kansas City Employee's Retirement System  
College of the Ozarks  
Empire State Carpenters  
Fiat Chrysler Automobiles  
FM Global  
Formanek Investment Trust  
General Laborers' Local 66 Pension Fund  
G.C.I.U. Local 119B Pension & Welfare Funds  
Hoogovens Pensioenfonds  
Howard County (MD) Master Trust  
I.A.T.S.E. National Pension Fund  
I.B.E.W. Local 98 Pension Plan  
I.U.O.E. Local 478 Pension Fund  
I.U.O.E. Local 825  
Illinois Municipal Retirement Fund  
Illinois State Board of Investment  
John D. & Catherine T. MacArthur Foundation  
L-3 Communications Corporation  
Laundry & Dry Cleaning Workers Pension Fund, UNITE  
Louisiana State Employees' Retirement System  
McConnell Foundation  
Methodist Le Bonheur Healthcare  
Mid-Atlantic Regional Council of Carpenters  
Municipal Police Employees' Ret. System of Louisiana

## Summary

As of 12/31/17:

**Approximately \$118 Billion  
In Assets Under Management**

**360 Total Clients**

**200+ Clients  
with Track Records of  
10 Years or Longer**

**100+ Clients with  
Multiple Mandates**

## 15+ Years (Cont.)

National Asbestos Workers Pension Fund  
National Geographic Society  
NCR Corporation  
New Jersey Health Foundation  
**North Dakota State Investment Board**  
Olin Corporation  
PacifiCorp  
PacifiCorp/I.B.E.W. Local 57 Retirement Trust Fund  
Paper Products Local 27 Pension & Welfare Funds  
Parkland Management Company  
Parochial Employees' Retirement System of Louisiana  
Plumbers & Pipefitters National Pension Fund  
Prudential Retirement

## 15+ Years (Cont.)

Raytheon Company  
RTD (Denver) Salaried Employees' Pension Trust  
Roy J. Carver Charitable Trust  
Salvation Army USA Southern Territory  
S.E.I.U. Local 25  
SEI Investments  
Sheet Metal Workers Local 73  
Shell Pensioenfonds  
Southern Alaska Carpenters Retirement Fund  
Teachers' Retirement System of Illinois  
Teachers' Retirement System of Louisiana  
Teamsters Joint Council No. 83 of Virginia  
UA Local Union Officers & Employees Pension  
UBS Netherlands  
U.F.C.W. International Union-Industry Pension Fund  
U.M.W.A. 1974 Pension Trust  
Warehouse Employees' Local 570 Pension Fund  
WellSpan Health System  
Anonymous Clients - 11

## 10-15 Years

1199 National Benefit & Pension Fund  
ACT, Inc. (American College Testing)  
Alberta Investment Management Corporation  
Altria Group  
AMP Capital Investors  
Ancilla Systems, Inc.  
ANZ Global Wealth  
Archdiocese of Cincinnati  
Asbestos Workers Philadelphia Pension & Welfare Fund  
AustralianSuper  
Automobile Mechanics Local 701



# Representative Client List

## 10-15 Years (Cont.)

Baltimore County Employees' Retirement System  
Bayerische Versorgungskammer (BVK)  
Bricklayers & Allied Craftworkers Local 5  
Bricklayers & Trowel Trades International Pension Fund  
Bristol County Retirement System  
Carpenters Pension Fund of Illinois  
Carpenters Pension Trust of St. Louis  
Central Pennsylvania Teamsters Pension Fund  
Chagnon Foundation  
Chicago Area I.B.O.T. Local 703  
Chicago Firemen's Annuity & Benefit Fund  
Christiana Care Health Services  
City and County of San Francisco Employees' Retirement System  
City of Richmond  
City of St. Louis Employees Retirement System  
City of Stamford, CT Employees' Retirement Fund  
Cleveland Bakers & Teamsters  
Covenant Health  
Cullen Foundation  
Daimler NA  
Desjardins Global Asset Management  
Detroit Free Press Inc. Newspaper Guild  
Diebold Nixdorf  
Dignity Health  
District of Columbia Retirement Board  
Duke Energy  
Eighth District Electrical Workers  
Firefighters' Retirement System of Louisiana  
Frederick County Employees' Retirement Plan  
Froedtert Health

## 10-15 Years (Cont.)

Funds SA  
Harbor Capital Advisors, Inc.  
Hess Corporation  
I.B.E.W. Local 103 Pension Fund  
I.B.E.W. Local 25 Pension Fund  
I.U.O.E. Local 14-14B  
I.U.O.E. Local 302 & 612  
IN/KY/OH Regional Council of Carpenters Pension Fund  
IOOF  
Iron Workers Local Union 16  
Irving S. Gilmore Foundation  
Jacksonville Plumbers & Pipefitters Pension Fund  
Jewish Healthcare Foundation  
Kaiser Foundation Hospitals  
Kansas City Police Employees' Retirement System  
Laborers' Pension Fund - Chicago  
Laborers' National Pension Fund  
Lattner Family Foundation  
Local 1102 Amalgamated Pension Fund  
Local Government Super  
Maritime Super  
Marsh & McLennan Companies, Inc.  
Mason Tenders' District Council Pension Fund  
McGill University  
Midwest Pension Plan  
Minnesota State Board of Investment  
Municipal Employees' Annuity & Benefit Fund of Chicago  
National Roofing Industry Pension Fund  
New England Healthcare Workers  
New Hampshire Retirement System

## 10-15 Years (Cont.)

New Jersey Transit Corporation  
New York City District Council of Carpenters  
New Zealand Superannuation Fund  
Nexcom  
Nissan North America  
Norwalk City Employees' Pension Fund  
Ohio Highway Patrol Retirement System  
Ohio Public Employees Retirement System  
Ohio School Employees' Retirement System  
Operating Engineers Local 428  
Pacific Salmon Commission  
Pavers & Roadbuilders Pension Trust  
Pennsylvania Municipal Retirement System  
Prudential Investments  
Retail, Wholesale & Dept. Store Union  
Sacramento County Employees' Retirement System  
Saint Louis University  
Salvation Army Central Territory  
Salvation Army Eastern Territory  
San Antonio Fire and Police Pension Fund  
Stagecoach Group  
Stanislaus County Employees' Retirement Association  
State of Idaho Endowment Fund  
Telstra Super Pty, Ltd  
Texas Presbyterian Foundation  
The Seeing Eye, Inc.  
Twin City Pipe Trades  
Twin Disc, Inc.  
U.F.C.W. International Union-Industry Pension Fund  
U.F.C.W. Local 1546 Pension Fund

# Representative Client List

## 10-15 Years (Cont.)

U.F.C.W. Midwest Pension Fund  
United Church of Canada  
University of Guelph  
Virginia Retirement System  
Wells Fargo Funds  
West Virginia Investment Management Board  
York University  
Anonymous Clients - 49

## 5-10 Years

Chicago Transit Authority  
Cox Enterprises, Inc.  
Delphi  
Denver Employees Retirement Plan  
DTE Energy  
Foresters  
Mercy Investment Services Inc.  
Methodist Hospital System  
Metropolitan Water Reclamation District  
Mine Wealth + Wellbeing  
Ministers and Missionaries Benefit Board

## 5-10 Years (Cont.)

Misericordia Home  
New York State Teachers' Retirement System  
PORTICO  
South Carolina Retirement System Investment Commission  
Trinity Health  
Anonymous Clients - 25

## 0-5 Years

Alaska Permanent Fund  
Aon Hewitt Investment Consulting  
Arkansas Public Employees Retirement System  
Boilermakers-Blacksmith National Pension Fund  
Bridge Builder Mutual Funds  
Canadian Medical Protective Association  
Chicago Regional Council of Carpenters  
City of Newport News  
Connecticut Laborers' Pension Fund  
Diocese of Brooklyn  
District Council 82 Painting Industry Pension Fund  
Dominican Sisters of Springfield Illinois  
E-L Financial Corporation  
Emerson Electric

## 0-5 Years (Cont.)

Entergy Services, Inc.  
Immanuel  
IUPAT Industry Pension Plan  
Kentucky Retirement Systems  
Legacy Health  
LIUNA Pension Plans  
Louisiana School Employees' Retirement System  
Mercer  
Mission Health System  
Mother Theresa Mission Care and Trust  
National Elevator Industry Plan  
New Mexico State Investment Council  
NewYork-Presbyterian  
Nova Scotia Health Employees' Pension Plan  
Old Mutual Global Investors  
Parkland Health & Hospital System  
PGA Tour Inc.  
Plumbers & Pipefitters Local Union 25  
Scotiabank  
SOKA-BAU  
The General Retirement System for Employees of Jefferson County  
The Gruffalo Unit Trust  
The Sisters of the Holy Family of Nazareth  
University of Alberta  
University of Nebraska  
Voya Investments  
Anonymous Clients - 36

## Performance

Periods Ended December 31, 2017

Assets Managed: \$543,704,458

	QTD	One Year	Three Year	Five Year	Seven Year	Ten Year	Fifteen Year	Since Inception*	Since Inception* (Cumulative)
<b>Pension Portfolio**</b>	<b>5.4%</b>	<b>23.5%</b>	<b>10.4%</b>	<b>13.1%</b>	<b>11.0%</b>	<b>5.6%</b>	<b>10.4%</b>	<b>8.4%</b>	<b>381.8%</b>
Primary Benchmark***	5.7%	23.9%	9.5%	11.0%	8.9%	4.7%	8.9%	6.5%	241.7%
Secondary Benchmark***	4.8%	18.5%	8.0%	9.8%	7.9%	3.8%	7.8%	4.9%	154.2%
<i>Excess Return</i>	<i>-0.3%</i>	<i>-0.5%</i>	<i>0.9%</i>	<i>2.1%</i>	<i>2.2%</i>	<i>0.9%</i>	<i>1.4%</i>	<i>1.9%</i>	<i>140.1%</i>

### Fiscal Year (7/1-6/30) Summary

	YTD 2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999
<b>Pension Portfolio**</b>	<b>12.5%</b>	<b>23.8%</b>	<b>-7.0%</b>	<b>1.8%</b>	<b>27.8%</b>	<b>23.6%</b>	<b>-6.4%</b>	<b>27.9%</b>	<b>16.7%</b>	<b>-29.1%</b>	<b>-22.6%</b>	<b>27.1%</b>	<b>22.3%</b>	<b>20.6%</b>	<b>30.0%</b>	<b>-1.7%</b>	<b>2.8%</b>	<b>29.5%</b>	<b>-10.8%</b>	<b>5.9%</b>
Primary Benchmark***	11.3%	19.0%	-3.9%	0.8%	23.3%	16.8%	-6.5%	30.1%	11.8%	-29.3%	-9.3%	25.2%	18.0%	12.3%	21.1%	-1.0%	-9.0%	10.3%	-8.9%	16.4%
Secondary Benchmark***	9.8%	19.3%	-4.7%	-3.1%	23.2%	18.0%	-7.8%	28.2%	11.5%	-27.8%	-15.6%	27.0%	19.3%	8.0%	19.1%	0.3%	-18.0%	-14.8%	7.3%	22.8%
<i>Excess Return</i>	<i>1.2%</i>	<i>4.8%</i>	<i>-3.2%</i>	<i>1.0%</i>	<i>4.4%</i>	<i>6.8%</i>	<i>0.1%</i>	<i>-2.2%</i>	<i>5.0%</i>	<i>0.3%</i>	<i>-13.3%</i>	<i>1.9%</i>	<i>4.3%</i>	<i>8.4%</i>	<i>8.8%</i>	<i>-0.6%</i>	<i>11.7%</i>	<i>19.2%</i>	<i>-1.9%</i>	<i>-10.5%</i>

\*Inception date: 7/1/1998

Note: All returns are gross of fees; periods greater than one year are annualized. MSCI indices are shown net of withholding taxes.

\*\*The Pension portfolio track record is for the U.S. Large Cap Value account from 7/1/1998 to 12/1/2004, at which point the track record is an asset weighted blend of the U.S. Large Cap Value and International Large Cap Value Pension portfolios beginning 12/1/2004. The Pension portfolio switched to the Global Value strategy effective 2/1/2013.

\*\*\*Benchmarks changed from Russell 1000 Value and S&P 500 to a blend of Russell 1000 Value/MSCI EAFE 50% Hedged USD and S&P 500/MSCI EAFE Value 50% Hedged USD effective 12/1/2004. Benchmarks changed to a blend of Russell 1000 Value/MSCI EAFE and S&P 500/MSCI EAFE Value effective 4/1/2011. Benchmarks changed to MSCI ACWI IMI and MSCI ACWI IMI Value effective 2/1/2013.

## Relationship Summary

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### North Dakota State Investment Board - Pension

Investment Strategy: Global Value Equity

#### Pension Portfolio Growth

Inception Date: February 1, 2013

**Beginning Value - 2/1/13:** \$ 394,876,249

Initial Contribution: \$394,876,249

Net Contributions/Withdrawals: \$ (103,100,000)

Benchmark: MSCI ACWI IMI

Net Return on Investments: \$ 251,928,209

Custodian: Northern Trust

**Ending Value - 12/31/17:** \$ 543,704,458

Consultant: Callan Associates

#### Objectives/Investment Process:

The objective of our Global Value Equity strategy is to outperform the benchmark by at least 200 basis points (gross of fees) per annum over a full investment cycle with a tracking error of approximately 5-6% relative to the benchmark.

The process used to select stocks is a **quantitative** approach developed by our founding partners through years of academic research on a variety of investment and investor behavior topics. The process ranks a broad universe of stocks on a combination of **value and momentum** factors and seeks to invest approximately 275-300 stocks in the most attractive securities possible within our strict risk parameters to control the portfolio's tracking error relative to the benchmark. The resulting portfolio will be **broadly diversified** across industry groups and **fully invested** (cash balances are typically less than 1% of the portfolio). Initial positions must be in stocks with a market capitalization above \$500 million.

## Market Update

Large Cap Developed Global Indices	Periods Ending 12/31/17					
	4Q17	1 Yr	2 Yrs	3 Yrs	5 Yrs	10 Yrs
MSCI World	5.5%	22.4%	14.7%	9.3%	11.6%	5.0%
MSCI World (Local)	5.3%	18.5%	13.6%	9.7%	13.3%	5.6%
MSCI World Value	4.6%	17.1%	14.7%	7.8%	10.5%	4.0%
<b>Value vs Growth Spread:</b>	<b>-1.9%</b>	<b>-10.9%</b>	<b>0.0%</b>	<b>-2.9%</b>	<b>-2.3%</b>	<b>-2.1%</b>
Small Cap Developed Global Indices						
MSCI World Small Cap	5.2%	22.7%	17.6%	11.3%	13.2%	7.7%
MSCI World Small Cap Value	4.1%	17.8%	17.6%	10.3%	12.4%	7.6%
<b>Value vs Growth Spread:</b>	<b>-2.2%</b>	<b>-9.9%</b>	<b>0.1%</b>	<b>-2.0%</b>	<b>-1.5%</b>	<b>-0.2%</b>
Emerging Markets Indices						
MSCI Emerging Markets	7.4%	37.3%	23.6%	9.1%	4.4%	1.7%
MSCI Emerging Markets Value	6.8%	28.1%	21.3%	6.2%	1.8%	0.9%
MSCI Emerging Markets (Local)	5.7%	30.6%	19.7%	10.5%	8.0%	4.1%
<b>Value vs Growth Spread:</b>	<b>-1.1%</b>	<b>-18.7%</b>	<b>-4.4%</b>	<b>-5.7%</b>	<b>-5.1%</b>	<b>-1.5%</b>
All-Country Indices						
MSCI AC-World	5.7%	24.0%	15.6%	9.3%	10.8%	4.7%
MSCI AC-World Value	4.8%	18.3%	15.4%	7.7%	9.5%	3.6%
<b>Value vs Growth Spread:</b>	<b>-1.8%</b>	<b>-11.7%</b>	<b>-0.5%</b>	<b>-3.2%</b>	<b>-2.6%</b>	<b>-2.0%</b>

Value Equity

Investment Specialists

*All returns are in USD; periods longer than one year are annualized.*

## Performance

*Periods Ended December 31, 2017*

*Assets Managed: \$543,704,458*

	QTD	One Year	Three Year	Since Inception*
<b>ND Pension</b>	<b>5.4%</b>	<b>23.5%</b>	<b>10.4%</b>	<b>12.1%</b>
MSCI ACWI IMI	5.7%	24.0%	9.5%	10.2%
MSCI ACWI IMI Value	4.8%	18.5%	8.0%	8.8%
<i>Excess Return</i>	<i>-0.4%</i>	<i>-0.5%</i>	<i>0.9%</i>	<i>1.9%</i>

### Fiscal Year (7/1-6/30) Summary

	YTD 2018	2017	2016	2015	2014	2013*
<b>ND Pension</b>	<b>12.5%</b>	<b>23.8%</b>	<b>-7.0%</b>	<b>1.8%</b>	<b>27.8%</b>	<b>4.2%</b>
MSCI ACWI IMI	11.3%	19.0%	-3.9%	0.8%	23.3%	1.6%
MSCI ACWI IMI Value	9.8%	19.3%	-4.7%	-3.1%	23.2%	1.4%
<i>Excess Return</i>	<i>1.2%</i>	<i>4.8%</i>	<i>-3.2%</i>	<i>1.0%</i>	<i>4.4%</i>	<i>2.6%</i>

\*Inception date: 2/1/2013

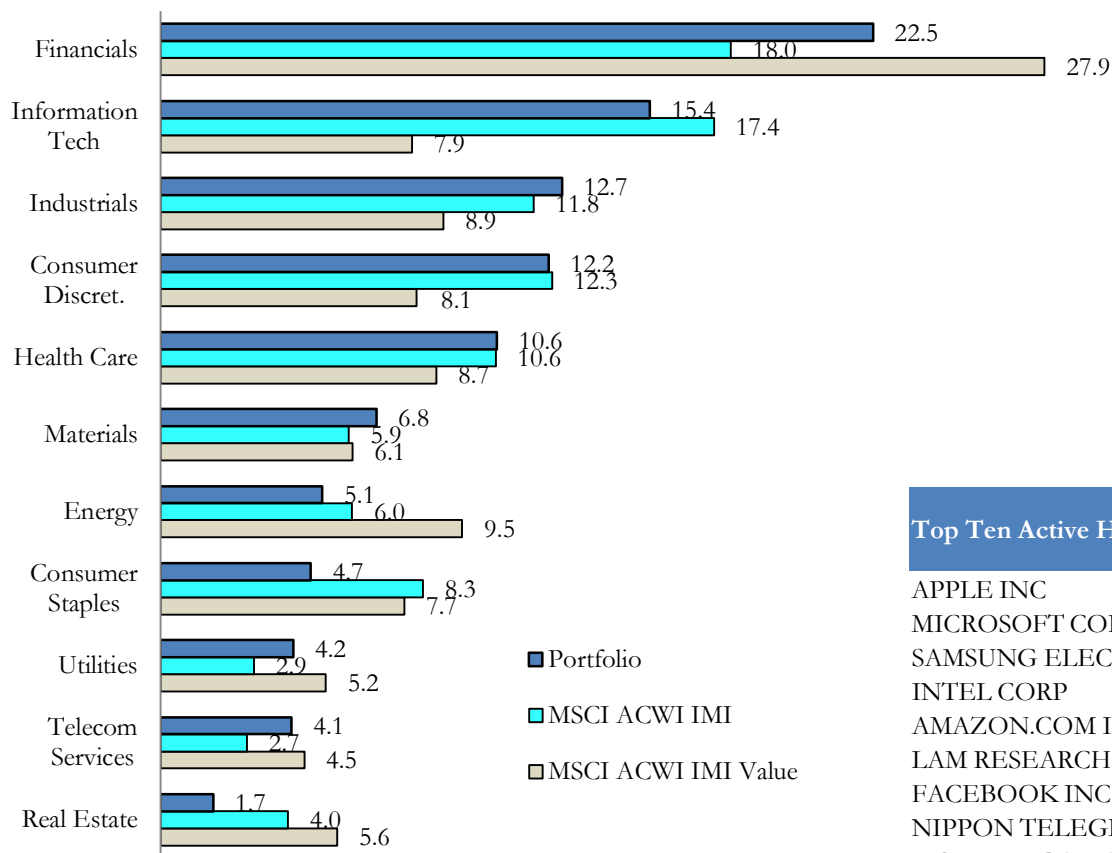
Note: All returns are gross of fees and in USD; periods greater than one year are annualized.  
Indices shown net of withholding taxes.

## Portfolio Characteristics – December 31, 2017

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	North Dakota Portfolio	MSCI ACWI IMI	MSCI ACWI IMI Value
<b>Value Measures</b>			
Price / Earnings (FY1)	<b>12.4x</b>	18.1x	15.0x
Price / Earnings (FY2)	<b>11.4x</b>	16.3x	13.7x
Price / Cash Flow	<b>7.7x</b>	12.4x	9.5x
Price / Book	<b>1.7x</b>	2.3x	1.6x
Dividend Yield	<b>2.7%</b>	2.2%	3.1%
<b>Size Measures</b>			
Weighted Average Market Cap	<b>\$61.5 billion</b>	\$114.3 billion	\$92.2 billion
Weighted Median Market Cap	<b>\$23.8 billion</b>	\$41.8 billion	\$44.7 billion
# of Holdings	<b>283</b>		

## Portfolio Characteristics – December 31, 2017



Top 10 Holdings	% of Portfolio
SAMSUNG ELECTRONIC	1.5%
INTEL CORP	1.3%
JPMORGAN CHASE & CO	1.1%
PFIZER INC	1.0%
LAM RESH CORP	1.0%
BOEING CO	0.9%
CISCO SYSTEMS INC	0.9%
JOHNSON & JOHNSON	0.9%
CITIGROUP INC	0.9%
VERIZON COMMUNICATIONS	0.9%

Top Ten Active Holdings	Portfolio Weight	Benchmark Weight	Active Weight
APPLE INC	0.0%	1.7%	-1.7%
MICROSOFT CORP	0.0%	1.2%	-1.2%
SAMSUNG ELECTRONICS COMPANY LIMITED	1.5%	0.5%	1.0%
INTEL CORP	1.3%	0.4%	0.9%
AMAZON.COM INC	0.0%	0.9%	-0.9%
LAM RESEARCH CORP	1.0%	0.1%	0.9%
FACEBOOK INC	0.0%	0.8%	-0.8%
NIPPON TELEGRAPH AND TELEPHONE CORP	0.8%	0.1%	0.8%
MOL HUNGARIAN OIL	0.7%	0.0%	0.7%
SK TELECOM CO LTD	0.7%	0.0%	0.6%



## Country Exposures – December 31, 2017

Developed Countries	LSV Portfolio	MSCI ACWI IMI	MSCI ACWI IMI Value
Australia	2.9%	2.3%	2.2%
Austria	0.8%	0.1%	0.2%
Belgium	0.5%	0.4%	0.3%
Canada	2.6%	3.2%	3.2%
Denmark	0.0%	0.6%	0.2%
Finland	0.5%	0.3%	0.4%
France	3.2%	3.2%	3.1%
Germany	3.6%	3.1%	2.9%
Hong Kong	1.4%	1.1%	1.1%
Ireland	0.4%	0.2%	0.1%
Israel	0.2%	0.2%	0.2%
Italy	0.7%	0.9%	1.3%
Japan	8.5%	8.3%	8.4%
Netherlands	0.4%	1.1%	0.7%
New Zealand	0.0%	0.1%	0.1%
Norway	0.7%	0.3%	0.4%
Portugal	0.0%	0.1%	0.1%
Singapore	0.5%	0.5%	0.5%
Spain	1.0%	1.0%	1.5%
Sweden	0.8%	1.0%	0.7%
Switzerland	1.6%	2.5%	2.2%
UK	5.0%	6.0%	6.8%
USA	<u>52.0%</u>	<u>51.7%</u>	<u>51.7%</u>
<b>Total</b>	<b>87%</b>	<b>88%</b>	<b>88%</b>

Emerging Countries	LSV Portfolio	MSCI ACWI IMI	MSCI ACWI IMI Value
Brazil	0.9%	0.8%	0.8%
Chile	0.0%	0.2%	0.2%
China	2.6%	3.3%	3.3%
Colombia	0.0%	0.1%	0.1%
Czech Republic	0.2%	0.0%	0.0%
Egypt	0.0%	0.0%	0.0%
Greece	0.0%	0.1%	0.0%
Hungary	0.9%	0.0%	0.0%
India	0.0%	1.1%	1.1%
Indonesia	0.1%	0.3%	0.3%
Korea (South)	2.5%	1.8%	1.8%
Malaysia	0.3%	0.3%	0.3%
Mexico	0.2%	0.3%	0.4%
Pakistan	0.0%	0.0%	0.0%
Peru	0.0%	0.0%	0.0%
Philippines	0.0%	0.1%	0.1%
Poland	0.3%	0.2%	0.1%
Qatar	0.0%	0.1%	0.1%
Russia	0.6%	0.4%	0.4%
South Africa	0.4%	0.8%	0.8%
Taiwan	2.2%	1.4%	1.5%
Thailand	1.1%	0.3%	0.3%
Turkey	0.2%	0.1%	0.1%
UAE	<u>0.0%</u>	<u>0.1%</u>	<u>0.1%</u>
<b>Total</b>	<b>13%</b>	<b>12%</b>	<b>12%</b>

# Portfolio Holdings by Country – December 31, 2017

COUNTRY	% PORT.	COUNTRY	% PORT.	COUNTRY	% PORT.
<b>AUSTRALIA</b>	<b>2.9%</b>	<b>FRANCE (continued)</b>		<b>JAPAN (continued)</b>	
Mineral Resources Inc.	0.5%	Arkema	0.3%	Fujitec Co., Ltd.	0.2%
Qantas Airways Limited	0.4%	Bnp Paribas	0.3%	Maeda Road Construction Co., Ltd.	0.2%
Macquarie Group Limited	0.3%	Scor Se	0.2%	Unipres Corporation	0.2%
Australia And New Zealand Banking Group	0.3%	Credit Agricole Sa	0.2%	Heiwa Corporation	0.2%
Metcash Limited	0.3%	Societe Generale	0.2%	Mizuho Financial Group Inc	0.2%
Lend Lease Finance Limited	0.3%			Sankyu Inc.	0.2%
Bank Of Queensland Limited	0.2%	<b>GERMANY</b>	<b>3.6%</b>	Sawai Pharmaceutical Co., Ltd.	0.2%
Bendigo And Adelaide Bank Limited	0.2%	Deutsche Post Ag	0.7%	Toagosei Co., Ltd.	0.2%
Asaleo Care Limited	0.2%	Allianz Se	0.6%	Thekiyo Bank, Ltd.	0.2%
Southern Cross Media Group Limited	0.1%	Rheinmetall Aktiengesellschaft	0.5%	Nishi-Nippon Financial Holdings, Inc.	0.1%
Ausdrill Limited	0.1%	Daimler Ag	0.5%	Eizo Corporation	0.1%
Downer Edi Limited	0.1%	Siemens Aktiengesellschaft	0.5%		
Myer Holdings Limited	0.0%	Volkswagen Aktiengesellschaft	0.4%	<b>KOREA, REPUBLIC OF</b>	<b>2.5%</b>
		Bayer Aktiengesellschaft	0.2%	Samsung Electronics Co., Ltd.	1.4%
<b>AUSTRIA</b>	<b>0.8%</b>	Basf Se	0.2%	Sk Telecom Co., Ltd.	0.7%
Voestalpine Ag	0.4%			Korea Electric Power Corp	0.4%
Omv Aktiengesellschaft	0.4%	<b>HONG KONG</b>	<b>1.4%</b>		
		Lee & Man Paper Manufacturing Limited	0.5%	<b>MALAYSIA</b>	<b>0.3%</b>
<b>BELGIUM</b>	<b>0.5%</b>	Wh Group Limited	0.3%	Kuching Port Authority	0.3%
Solvay	0.5%	Skyworth Digital Holdings Limited	0.2%		
Agfa-Gevaert	0.1%	Yue Yuen Industrial (Holdings) Limited	0.2%	<b>MEXICO</b>	<b>0.2%</b>
		Kingboard Chemical Holdings Limited	0.2%	Deutsche Bank Mexico, S.A., Institucion	0.2%
<b>BRAZIL</b>	<b>0.9%</b>				
Itausa Investimentos Itau S.A.	0.3%	<b>HUNGARY</b>	<b>0.9%</b>	<b>NETHERLANDS</b>	<b>0.4%</b>
Banco Do Brasil S.A.	0.3%	Mol Magyar Olaj- Es Gazipari Nyilvanosan	0.7%	Ing Groep N.V.	0.3%
Companhia Paranaense De Energia - Copel	0.2%	Richter Gedeon Vegyeszeti Gyar Nyilvanos	0.2%	Aegon N.V.	0.1%
Jbs S/A	0.1%			<b>NORWAY</b>	<b>0.7%</b>
		<b>INDONESIA</b>	<b>0.1%</b>	Yara International Asa	0.2%
<b>CANADA</b>	<b>2.6%</b>	Pt Perusahaan Gas Negara (Persero) Tbk	0.1%	Dnb Asa	0.2%
Magna International Inc.	0.6%			Statoil Asa	0.2%
Air Canada	0.5%	<b>IRELAND</b>	<b>0.4%</b>		
Linamar Corporation	0.5%	Smurfit Kappa Group Public Limited Compa	0.4%	<b>POLAND</b>	<b>0.3%</b>
Canadian Tire Corporation, Limited	0.4%			Kghm Polska Miedz S.A.	0.2%
Bce Inc.	0.3%	<b>ISRAEL</b>	<b>0.2%</b>	Pge Polska Grupa Energetyczna S.A.	0.1%
Westjet Airlines Ltd.	0.3%	Bank Hapoalim B.M.	0.2%		
				<b>RUSSIAN FEDERATION</b>	<b>0.6%</b>
<b>CHINA</b>	<b>2.6%</b>	<b>ITALY</b>	<b>0.7%</b>	Public Joint Stock Company Oil Company L	0.6%
Picc Property And Casualty Company Limit	0.4%	Enel S.P.A	0.7%		
Kwg Property Holding Limited	0.4%			<b>SINGAPORE</b>	<b>0.5%</b>
Chongqing Rural Commercial Bank	0.4%	<b>JAPAN</b>	<b>8.4%</b>	United Overseas Bank Limited	0.5%
Tianneng Power International Limited	0.3%	Nippon Telegraph And Telephone Corporati	0.8%		
Shanghai Industrial Holdings Limited	0.3%	Itochu Corporation	0.6%	<b>SOUTH AFRICA</b>	<b>0.4%</b>
Sinotrans Limited	0.2%	Kyowa Exeo Corporation	0.4%	Mtn Group Limited	0.2%
Dongfeng Motor Group Co., Ltd	0.2%	Kddi Corporation	0.4%	Reunert Limited	0.2%
Shanghai Pharmaceuticals Holding Co., Lt	0.2%	Resona Holdings, Inc.	0.4%	Omnia Holdings Limited	0.1%
China Railway Group Limited	0.2%	Nikkon Holdings Co., Ltd.	0.4%		
		Aisin Seiki Co., Ltd.	0.4%	<b>SPAIN</b>	<b>1.0%</b>
<b>CZECH REPUBLIC</b>	<b>0.2%</b>	Lintec Corporation	0.3%	Repsol, S.A.	0.4%
Cez, A. S.	0.2%	Brother Industries, Ltd.	0.3%	Gas Natural Sdg, S.A.	0.3%
		Orix Corporation	0.3%	Distribuidora Internacional De Alimentac	0.3%
<b>FINLAND</b>	<b>0.5%</b>	Japan Airlines Co., Ltd	0.3%	Repsol, S.A.	0.0%
Upm-Kymmene Oyj	0.5%	Ntt Docomo, Inc.	0.3%		
		Geo Holdings Corporation	0.3%	<b>SWEDEN</b>	<b>0.8%</b>
<b>FRANCE</b>	<b>3.2%</b>	Sumitomo Mitsui Financial Group, Inc.	0.3%	Boliden Ab	0.3%
Sanofi	0.8%	Kaken Pharmaceutical Co., Ltd.	0.2%	Nordea Bank Ab	0.2%
Atos Se	0.5%	Astellas Pharma Inc.	0.2%	Inwido Ab (Publ)	0.2%
Total Sa	0.4%	Towa Pharmaceutical Co., Ltd.	0.2%	Swedbank Ab	0.2%
Axa	0.4%	Marubeni Corporation	0.2%		

# Portfolio Holdings by Country – December 31, 2017

COUNTRY	% PORT.	COUNTRY	% PORT.	COUNTRY	% PORT.
<b>SWITZERLAND</b>	<b>1.6%</b>	<b>UNITED STATES (continued)</b>		<b>UNITED STATES (continued)</b>	
Credit Suisse Group Ag	0.5%	Applied Materials, Inc.	0.7%	Everest Re Group Ltd	0.3%
Adecco Group Ag	0.4%	Public Service Enterprise Group Incorpor	0.7%	Huntsman Corporation	0.3%
Swiss Re Ag	0.3%	Fedex Corporation	0.7%	Wells Fargo & Company	0.3%
Baloise Holding Ag	0.2%	Hca Healthcare, Inc.	0.6%	Fresh Del Monte Produce Inc.	0.3%
Georg Fischer Ag	0.2%	General Motors Company	0.6%	Exelon Corporation	0.3%
		Discover Financial Services	0.6%	Fifth Third Bancorp	0.3%
<b>TAIWAN</b>	<b>2.2%</b>	Wyndham Worldwide Corporation	0.6%	Trinity Industries, Inc.	0.3%
Hon Hai Precision Industry Company Ltd	0.7%	Prudential Financial, Inc.	0.6%	International Paper Company	0.3%
Compeq Manufacturing Co., Ltd.	0.5%	Anthem, Inc.	0.6%	Seagate Technology Public Limited Compan	0.3%
Foxconn Technology Co., Ltd.	0.4%	At&T Inc.	0.6%	Ford Motor Company	0.3%
Pegatron Corporation	0.4%	United Continental Holdings, Inc.	0.6%	Hp Inc.	0.3%
Qisda Corporation	0.3%	Te Connectivity Ltd.	0.5%	Kla-Tencor Corporation	0.3%
		Tyson Foods, Inc.	0.5%	United Technologies Corporation	0.3%
<b>THAILAND</b>	<b>1.1%</b>	The Children'S Place, Inc.	0.5%	The Western Union Company	0.3%
Tisco Financial Group Public Company Lim	0.4%	The Travelers Companies, Inc.	0.5%	Arrow Electronics, Inc.	0.3%
Krung Thai Bank Public Company Limited	0.3%	Merck & Co., Inc.	0.5%	Ncr Corporation	0.3%
Ap (Thailand) Public Company Limited.	0.3%	International Business Machines Corporat	0.5%	American Eagle Outfitters, Inc.	0.3%
		Cigna Corporation	0.5%	Murphy Usa Inc.	0.3%
<b>TURKEY</b>	<b>0.2%</b>	Aetna Inc.	0.5%	Alaska Air Group, Inc.	0.3%
Tav Havalimanlari Holding Anonim Sirketi	0.2%	The Allstate Corporation	0.5%	Big Lots, Inc.	0.3%
		Western Digital Corporation	0.5%	Caretrust Reit, Inc.	0.3%
<b>UNITED KINGDOM</b>	<b>4.9%</b>	The Pnc Financial Services Group, Inc.	0.5%	Whirlpool Corporation	0.2%
Bae Systems Integrated System Technolog	0.5%	Ameriprise Financial, Inc.	0.5%	Lyondellbasell Industries N.V.	0.2%
Bellway P L C	0.5%	Ca, Inc.	0.5%	Cabot Corporation	0.2%
Bp P.L.C.	0.4%	The Goodyear Tire & Rubber Company	0.5%	Kulicke And Soffa Industries, Inc.	0.2%
Royal Dutch Shell Plc	0.4%	Regions Financial Corporation	0.5%	Assurant, Inc.	0.2%
3i Group Plc	0.4%	The Kroger Co.	0.5%	Hyster-Yale Materials Handling, Inc.	0.2%
J Sainsbury Plc	0.4%	Bank Of America Corporation	0.4%	Xerox Corporation	0.2%
Lloyds Banking Group Plc	0.3%	Ebay Inc.	0.4%	Harley-Davidson, Inc.	0.2%
Glaxosmithkline Plc	0.3%	Morgan Stanley	0.4%	Hewlett Packard Enterprise Company	0.2%
Royal Mail Plc	0.2%	Lincoln National Corporation	0.4%	The Gap, Inc.	0.2%
Aviva Plc	0.2%	The Hartford Financial Services Group, I	0.4%	Host Hotels & Resorts, LP.	0.2%
Man Group Plc	0.2%	Spirit Aerosystems Holdings, Inc.	0.4%	State Street Corporation	0.2%
Computacenter Plc	0.2%	Gilead Sciences, Inc.	0.4%	Viacom Inc.	0.2%
Firstgroup Plc	0.2%	Chevron Corporation	0.4%	Metlife, Inc.	0.2%
Old Mutual Public Limited Company	0.2%	Lazard Ltd	0.4%	Brinker International, Inc.	0.2%
Centrica Plc	0.1%	Mgic Investment Corporation	0.4%	Keycorp	0.2%
Redrow Plc	0.1%	Kohl'S Corporation	0.4%	Vishay Intertechnology, Inc.	0.2%
Vesuvius Plc	0.1%	Agco Corporation	0.4%	Sonic Automotive, Inc.	0.2%
Acacia Mining Plc	0.1%	Express Scripts Holding Company	0.4%	Autoliv, Inc.	0.2%
Trinity Mirror Plc	0.0%	Packaging Corporation Of America	0.4%	Ethan Allen Interiors Inc.	0.2%
Meggitt Plc	0.0%	Pilgrim'S Pride Corporation	0.4%	Dell Technologies Inc.	0.1%
		Eastman Chemical Company	0.4%	Bed Bath & Beyond Inc.	0.1%
<b>UNITED STATES</b>	<b>51.6%</b>	The Goldman Sachs Group, Inc.	0.4%	Dxc Technology Company	0.1%
Intel Corporation	1.3%	Radian Group Inc.	0.4%	Dillard'S, Inc.	0.1%
Jpmorgan Chase & Co.	1.1%	American Electric Power Company, Inc.	0.4%	Triumph Group, Inc.	0.1%
Pfizer Inc.	1.0%	Lear Corporation	0.4%	Gamestop Corp.	0.1%
Lam Research Corporation	1.0%	Borgwarner Inc.	0.4%	Tegna Inc.	0.1%
The Boeing Company	0.9%	Archer-Daniels-Midland Company	0.4%	World Acceptance Corporation	0.1%
Cisco Systems, Inc.	0.9%	Capital One Financial Corporation	0.4%	Gannett Co., Inc.	0.0%
Johnson & Johnson	0.9%	Ingredion Incorporated	0.4%	R. R. Donnelley & Sons Company	0.0%
Citigroup Inc.	0.9%	Cardinal Health, Inc.	0.4%	Donnelley Financial Solutions, Inc.	0.0%
Verizon Communications Inc.	0.9%	Target Corporation	0.4%	Lsc Communications, Inc.	0.0%
Abbvie Inc.	0.9%	Firstenergry Corp.	0.4%	BrightHouse Financial, Inc.	0.0%
Wal-Mart Stores, Inc.	0.7%	American Financial Group, Inc.	0.4%	Genworth Financial, Inc.	0.0%
Valero Energy Corporation	0.7%	Biogen Inc.	0.4%	Vectrus, Inc.	0.0%
Amgen Inc.	0.7%	Sanmina Corporation	0.3%	Universal Corporation	0.0%
Corning Incorporated	0.7%	Exxon Mobil Corporation	0.3%		
				<b>CASH</b>	<b>0.6%</b>
				<b>TOTAL</b>	<b>100%</b>

# Relationship Summary

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## North Dakota State Investment Board

Investment Strategy: Large Cap Value Equity  
 Inception Date: July 1, 1998  
 Initial Contribution: \$44,664,097  
 Benchmark: Russell 1000 Value  
 Custodian: Northern Trust  
 Consultant: Callan Associates

### Insurance Portfolio Growth

<b>Beginning Value - 7/1/98:</b>	<b>\$</b>	<b>44,664,097</b>
Net Contributions/Withdrawals:	\$	(66,053,050)
Net Return on Investments:	\$	98,031,699
<b>Ending Value - 12/31/17:</b>	<b>\$</b>	<b>76,642,746</b>

### Legacy Fund Portfolio Growth

<b>Beginning Value - 5/1/15:</b>	<b>\$</b>	<b>214,010,000</b>
Net Contributions/Withdrawals:	\$	49,800,000
Net Return on Investments:	\$	89,699,465
<b>Ending Value - 12/31/17:</b>	<b>\$</b>	<b>353,509,465</b>

### Objectives/Investment Process:

The objective of our Large Cap Value Equity (U.S.) strategy is to outperform the Russell 1000 Value by at least 200 basis points (gross of fees) per annum over a full investment cycle with a tracking error of approximately 4%.

The process used to select stocks is a quantitative approach developed by our founding partners through years of academic research on a variety of investment and investor behavior topics. The process ranks a broad universe of stocks on a combination of value and momentum factors and seeks to invest approximately 150-175 stocks in the most attractive securities possible within our strict risk parameters to control the portfolio's tracking error relative to the benchmark. The resulting portfolio will be broadly diversified across industry groups and fully invested (cash balances are typically less than 1% of the portfolio). Initial positions must be in stocks with a market capitalization above \$500 million.

## Market Update

	Periods Ending 12/31/17					
	4Q17	1 Yr	2 Yrs	3 Yrs	5 Yrs	10 Yrs
S&P 500	6.6%	21.8%	16.8%	11.4%	15.8%	8.5%
Large Cap Value (R1000V)	5.3%	13.7%	15.5%	8.7%	14.0%	7.1%
Large Cap Growth (R1000G)	7.9%	30.2%	18.1%	13.8%	17.3%	10.0%
<b>Value vs Growth Spread:</b>	<b>-2.6%</b>	<b>-16.6%</b>	<b>-2.6%</b>	<b>-5.1%</b>	<b>-3.3%</b>	<b>-2.9%</b>
Mid Cap Core (RMC)	6.1%	18.5%	16.1%	9.6%	15.0%	9.1%
Mid Cap Value (RMCV)	5.5%	13.3%	16.6%	9.0%	14.7%	9.1%
Mid Cap Growth (RMCG)	6.8%	25.3%	16.0%	10.3%	15.3%	9.1%
<b>Value vs Growth Spread:</b>	<b>-1.3%</b>	<b>-11.9%</b>	<b>0.7%</b>	<b>-1.3%</b>	<b>-0.6%</b>	<b>0.0%</b>
Small Cap Core (R2000)	3.3%	14.7%	17.9%	10.0%	14.1%	8.7%
Small Cap Value (R2000V)	2.1%	7.8%	19.2%	9.6%	13.0%	8.2%
Small Cap Growth (R2000G)	4.6%	22.2%	16.6%	10.3%	15.2%	9.2%
<b>Value vs Growth Spread:</b>	<b>-2.5%</b>	<b>-14.3%</b>	<b>2.6%</b>	<b>-0.7%</b>	<b>-2.2%</b>	<b>-1.0%</b>

*Periods longer than one year are annualized.*

## Performance

Periods Ended December 31, 2017

Assets Managed: \$76,642,746

	QTD	One Year	Three Year	Five Year	Seven Year	Ten Year	Fifteen Year	Since Inception*
<b>ND Insurance -LCV</b>	<b>7.4%</b>	<b>18.6%</b>	<b>10.9%</b>	<b>16.9%</b>	<b>14.7%</b>	<b>8.8%</b>	<b>12.0%</b>	<b>9.6%</b>
Russell 1000 Value	5.3%	13.7%	8.7%	14.0%	12.5%	7.1%	9.6%	7.0%
S&P 500	6.6%	21.8%	11.4%	15.8%	13.8%	8.5%	9.9%	6.5%
<i>Excess Return</i>	<i>2.1%</i>	<i>4.9%</i>	<i>2.2%</i>	<i>2.9%</i>	<i>2.3%</i>	<i>1.7%</i>	<i>2.5%</i>	<i>2.7%</i>

### Fiscal Year (7/1-6/30) Summary

	YTD 2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999
<b>ND Insurance -LCV</b>	<b>13.1%</b>	<b>21.8%</b>	<b>-3.1%</b>	<b>7.2%</b>	<b>28.3%</b>	<b>32.6%</b>	<b>-0.6%</b>	<b>31.8%</b>	<b>18.5%</b>	<b>-27.3%</b>	<b>-21.0%</b>	<b>24.0%</b>	<b>15.8%</b>	<b>18.9%</b>	<b>30.7%</b>	<b>-1.8%</b>	<b>3.1%</b>	<b>30.1%</b>	<b>-10.8%</b>	<b>5.4%</b>
Russell 1000 Value	8.6%	15.5%	2.8%	4.1%	23.8%	25.3%	3.0%	28.9%	16.9%	-29.0%	-18.8%	21.9%	12.1%	14.1%	21.1%	-1.0%	-9.0%	10.4%	-8.9%	16.4%
S&P 500	11.4%	17.9%	4.0%	7.4%	24.6%	20.6%	5.4%	30.7%	14.4%	-26.2%	-13.1%	20.6%	8.7%	6.3%	19.1%	0.3%	-18.0%	-14.8%	7.3%	22.7%
<i>Excess Return</i>	<i>4.5%</i>	<i>6.3%</i>	<i>-5.9%</i>	<i>3.0%</i>	<i>4.5%</i>	<i>7.3%</i>	<i>-3.6%</i>	<i>2.8%</i>	<i>1.5%</i>	<i>1.8%</i>	<i>-2.2%</i>	<i>2.2%</i>	<i>3.7%</i>	<i>4.9%</i>	<i>9.6%</i>	<i>-0.8%</i>	<i>12.0%</i>	<i>19.8%</i>	<i>-1.9%</i>	<i>-11.0%</i>

## Performance

*Periods Ended December 31, 2017*

*Assets Managed: \$353,509,465*

	QTD	One Year	Since Inception*
<b>ND Legacy Fund LCV</b>	<b>7.6%</b>	<b>19.3%</b>	<b>11.9%</b>
Russell 1000 Value	5.3%	13.7%	9.7%
S&P 500	6.6%	21.8%	12.1%
<i>Excess Return</i>	<i>2.3%</i>	<i>5.7%</i>	<i>2.2%</i>

### Fiscal Year (7/1-6/30) Summary

	YTD 2018	2017	2016	2015*
<b>ND Legacy Fund LCV</b>	<b>13.5%</b>	<b>22.1%</b>	<b>-2.9%</b>	<b>0.3%</b>
Russell 1000 Value	8.6%	15.5%	2.8%	-0.8%
S&P 500	11.4%	17.9%	4.0%	-0.7%
<i>Excess Return</i>	<i>4.9%</i>	<i>6.6%</i>	<i>-5.7%</i>	<i>1.1%</i>

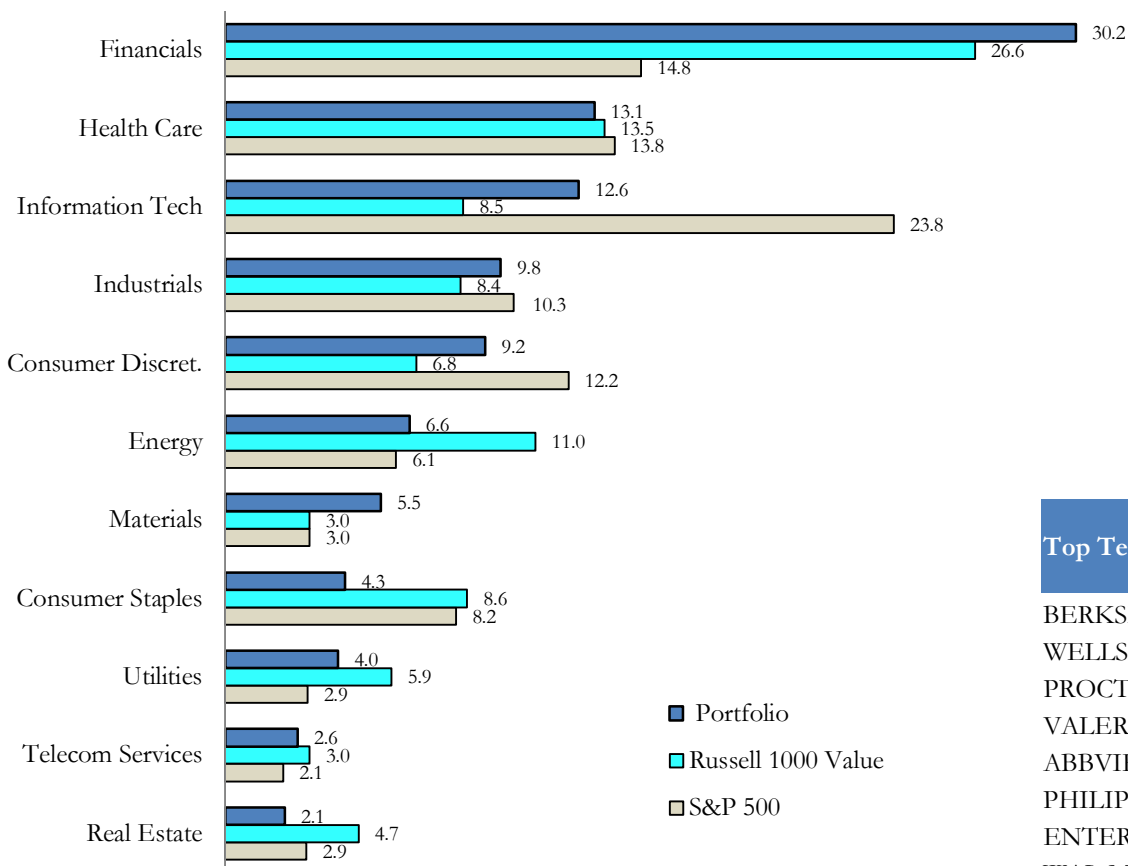
## Portfolio Characteristics – December 31, 2017

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	North Dakota Portfolio	Russell 1000 Value	S&P 500
<b>Value Measures</b>			
Price / Earnings (FY1)	<b>14.1x</b>	18.0x	20.0x
Price / Earnings (FY2)	<b>13.0x</b>	16.2x	18.0x
Price / Cash Flow	<b>8.8x</b>	11.6x	14.6x
Price / Book	<b>2.0x</b>	2.1x	3.3x
Dividend Yield	<b>2.4%</b>	2.3%	1.9%
<b>Size Measures</b>			
Weighted Average Market Cap	<b>\$91.1 billion</b>	\$126.5 billion	\$197.3 billion
Weighted Median Market Cap	<b>\$33.5 billion</b>	\$65.1 billion	\$95.8 billion
# of Holdings	<b>143</b>		



## Portfolio Characteristics – December 31, 2017



Top 10 Holdings	% of Portfolio
JPMORGAN CHASE & CO	3.3%
BANK OF AMERICA CORP	2.7%
PFIZER INC	2.5%
CITIGROUP INC	2.4%
INTEL CORP	2.3%
CHEVRON CORP	2.2%
JOHNSON & JOHNSON	2.1%
CISCO SYSTEMS INC	2.1%
EXXON MOBIL CORP	1.7%
VALERO ENERGY CORP	1.6%

Top Ten Active Holdings	Portfolio Weight	Benchmark Weight	Active Weight
BERKSHIRE HATHAWAY	0.0%	3.0%	-3.0%
WELLS FARGO & CO	0.0%	2.1%	-2.1%
PROCTER & GAMBLE CO	0.0%	1.8%	-1.8%
VALERO ENERGY CORP	1.6%	0.3%	1.2%
ABBVIE INC	1.2%	0.0%	1.2%
PHILIP MORRIS INTERNATIONAL	0.0%	1.2%	-1.2%
ENTERGY CORP	1.3%	0.1%	1.1%
WAL-MART STORES INC	0.0%	1.1%	-1.1%
EXXON MOBIL CORP	1.7%	2.8%	-1.1%
ORACLE CORP	0.0%	1.0%	-1.0%

# Portfolio Holdings by Sector – December 31, 2017

SECTOR	MKT. VALUE	% PORT.
<b>FINANCIALS</b>	<b>23,036,235</b>	<b>30.1%</b>
Jpmorgan Chase & Co.	2,513,090	3.3%
Bank Of America Corporation	2,066,400	2.7%
Citigroup Inc.	1,860,250	2.4%
Morgan Stanley	1,049,400	1.4%
Capital One Financial Corporation	936,052	1.2%
The Allstate Corporation	858,622	1.1%
The Goldman Sachs Group, Inc.	840,708	1.1%
Discover Financial Services	799,968	1.0%
Fifth Third Bancorp	782,772	1.0%
Suntrust Banks, Inc.	775,080	1.0%
The Pnc Financial Services Group, Inc.	764,737	1.0%
Ameriprise Financial, Inc.	745,668	1.0%
Lincoln National Corporation	691,830	0.9%
Regions Financial Corporation	680,832	0.9%
Prudential Financial, Inc.	655,386	0.9%
The Hartford Financial Services Group, I	607,824	0.8%
Everest Re Group Ltd	575,276	0.8%
Unum Group	570,856	0.7%
Voya Financial, Inc.	563,958	0.7%
Lazard Ltd	525,000	0.7%
Metlife, Inc.	500,544	0.7%
Keycorp	488,114	0.6%
The Travelers Companies, Inc.	461,176	0.6%
Cit Group Inc.	433,224	0.6%
Radian Group Inc.	395,712	0.5%
Assurant, Inc.	373,108	0.5%
State Street Corporation	361,157	0.5%
Legg Mason, Inc.	352,632	0.5%
Aflac Incorporated	333,564	0.4%
Annaly Capital Management, Inc.	279,415	0.4%
Navient Corporation	62,604	0.1%
Brighthouse Financial, Inc.	61,279	0.1%
Donnelley Financial Solutions, Inc.	37,031	0.0%
Genworth Financial, Inc.	32,966	0.0%
<b>HEALTH CARE</b>	<b>10,002,590</b>	<b>13.1%</b>
Pfizer Inc.	1,879,818	2.5%
Johnson & Johnson	1,634,724	2.1%
Abbvie Inc.	918,745	1.2%
Amgen Inc.	869,500	1.1%
Aetna Inc.	703,521	0.9%
Anthem, Inc.	675,030	0.9%
Cigna Corporation	649,888	0.8%
Express Scripts Holding Company	634,440	0.8%
Gilead Sciences, Inc.	494,316	0.6%
Hca Healthcare, Inc.	404,064	0.5%
Merck & Co., Inc.	393,890	0.5%
Mckesson Corporation	280,710	0.4%
Lifepoint Health, Inc.	224,100	0.3%
Quest Diagnostics Incorporated	196,980	0.3%
Mallinckrodt Public Limited Company	42,864	0.1%
<b>UTILITIES</b>	<b>3,052,500</b>	<b>4.0%</b>
Entergy Corporation	960,402	1.3%
Public Service Enterprise Group Incorpor	901,250	1.2%
Firstenergy Corp.	615,462	0.8%
Exelon Corporation	575,386	0.8%

SECTOR	MKT. VALUE	% PORT.
<b>INFORMATION TECHNOLOGY</b>	<b>9,579,944</b>	<b>12.5%</b>
Intel Corporation	1,781,776	2.3%
Cisco Systems, Inc.	1,616,260	2.1%
Corning Incorporated	735,770	1.0%
International Business Machines Corporat	552,312	0.7%
Applied Materials, Inc.	521,424	0.7%
Juniper Networks, Inc.	450,300	0.6%
Seagate Technology Public Limited Compan	439,320	0.6%
Hp Inc.	424,402	0.6%
Lam Research Corporation	423,361	0.6%
Western Digital Corporation	421,509	0.6%
Ncr Corporation	414,678	0.5%
Cirrus Logic, Inc.	331,904	0.4%
Xerox Corporation	303,889	0.4%
The Western Union Company	300,358	0.4%
Hewlett Packard Enterprise Company	290,072	0.4%
Dell Technologies Inc.	224,658	0.3%
Convergys Corporation	183,300	0.2%
Dxc Technology Company	164,652	0.2%
<b>INDUSTRIALS</b>	<b>7,457,918</b>	<b>9.7%</b>
The Boeing Company	766,766	1.0%
American Airlines, Inc.	561,924	0.7%
United Continental Holdings, Inc.	539,200	0.7%
Delta Air Lines, Inc.	509,600	0.7%
Owens Corning	496,476	0.6%
Alaska Air Group, Inc.	441,060	0.6%
Trinity Industries, Inc.	427,044	0.6%
Manpowergroup Inc.	403,552	0.5%
Spirit Aerosystems Holdings, Inc.	401,350	0.5%
Fedex Corporation	399,264	0.5%
Cummins Inc.	388,608	0.5%
Briggs & Stratton Corporation	357,717	0.5%
Meritor, Inc.	340,170	0.4%
Hyster-Yale Materials Handling, Inc.	332,124	0.4%
Agco Corporation	328,578	0.4%
Ryder System, Inc.	303,012	0.4%
The Timken Company	235,920	0.3%
Pitney Bowes Inc.	135,278	0.2%
R. R. Donnelley & Sons Company	47,114	0.1%
Lsc Communications, Inc.	28,785	0.0%
Vectrus, Inc.	14,376	0.0%
<b>REAL ESTATE</b>	<b>1,612,505</b>	<b>2.1%</b>
Senior Housing Properties Trust	417,470	0.5%
Piedmont Office Realty Trust, Inc.	364,746	0.5%
Lexington Realty Trust	316,520	0.4%
Hospitality Properties Trust	289,545	0.4%
Mack-Cali Realty Corporation	224,224	0.3%

SECTOR	MKT. VALUE	% PORT.
<b>CONSUMER DISCRETIONARY</b>	<b>7,037,157</b>	<b>9.2%</b>
General Motors Company	655,840	0.9%
Wyndham Worldwide Corporation	625,698	0.8%
Ford Motor Company	572,042	0.7%
Aptiv Plc	542,912	0.7%
Lear Corporation	529,980	0.7%
Kohl's Corporation	526,031	0.7%
The Goodyear Tire & Rubber Company	481,419	0.6%
Best Buy Co., Inc.	451,902	0.6%
Target Corporation	450,225	0.6%
Whirlpool Corporation	387,872	0.5%
Brinker International, Inc.	291,300	0.4%
Borgwarner Inc.	291,213	0.4%
Viacom Inc.	289,614	0.4%
Ethan Allen Interiors Inc.	231,660	0.3%
Dillard's, Inc.	168,140	0.2%
Gamestop Corp.	138,215	0.2%
Tegna Inc.	126,720	0.2%
Big Lots, Inc.	112,300	0.1%
Delphi Jersey Holdings Plc	111,919	0.1%
Gannett Co., Inc.	52,155	0.1%
<b>ENERGY</b>	<b>4,988,897</b>	<b>6.5%</b>
Chevron Corporation	1,665,027	2.2%
Exxon Mobil Corporation	1,304,784	1.7%
Valero Energy Corporation	1,194,830	1.6%
Marathon Petroleum Corporation	541,036	0.7%
Phillips 66	283,220	0.4%
<b>MATERIALS</b>	<b>4,215,446</b>	<b>5.5%</b>
Huntsman Corporation	622,523	0.8%
Eastman Chemical Company	620,688	0.8%
International Paper Company	533,048	0.7%
Celanese Corporation	513,984	0.7%
Lyondellbasell Industries N.V.	507,472	0.7%
Packaging Corporation Of America	385,760	0.5%
Cabot Corporation	375,699	0.5%
Domtar Corporation	297,120	0.4%
Schweitzer-Mauduit International, Inc.	267,624	0.3%
Westrock Company	91,528	0.1%
<b>CONSUMER STAPLES</b>	<b>3,245,383</b>	<b>4.2%</b>
Tyson Foods, Inc.	697,202	0.9%
Pilgrim's Pride Corporation	409,992	0.5%
The Kroger Co.	409,005	0.5%
Walgreens Boots Alliance, Inc.	363,100	0.5%
Archer-Daniels-Midland Company	348,696	0.5%
The J. M. Smucker Company	323,024	0.4%
Ingredion Incorporated	307,560	0.4%
Fresh Del Monte Produce Inc.	271,719	0.4%
Supervalu Inc.	115,085	0.2%
<b>TELECOMMUNICATION SERVICES</b>	<b>1,966,854</b>	<b>2.6%</b>
At&T Inc.	1,045,872	1.4%
Verizon Communications Inc.	920,982	1.2%
<b>CASH</b>	<b>363,926</b>	<b>0.5%</b>
<b>TOTAL</b>	<b>76,642,746</b>	<b>100%</b>

## Relationship Summary

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### North Dakota State Investment Board

Investment Strategy:	International Large Cap Value
Insurance Inception Date:	November 19, 2004
Legacy Fund Inception Date:	January 30, 2015
Insurance Initial Contribution:	\$25,553,713
Legacy Fund Initial Contribution:	\$225,330,331
Benchmark:	MSCI EAFE
Custodian:	Northern Trust
Consultant:	Callan Associates

#### Insurance Portfolio Growth

<b>Beginning Value - 11/19/04:</b>	<b>\$</b>	<b>25,553,713</b>
Net Contributions/Withdrawals:	\$	7,112,696
Net Return on Investments:	\$	41,366,555
<b>Ending Value - 12/31/17:</b>	<b>\$</b>	<b>74,032,964</b>

#### Legacy Fund Portfolio Growth

<b>Beginning Value - 1/30/15:</b>	<b>\$</b>	<b>225,330,331</b>
Net Contributions/Withdrawals:	\$	84,100,000
Net Return on Investments:	\$	101,605,528
<b>Ending Value - 12/31/17:</b>	<b>\$</b>	<b>411,035,859</b>

#### Objectives/Investment Process:

The objective of our International Large Cap Value Equity strategy is to outperform the benchmark by at least 250 basis points (gross of fees) per annum over a full investment cycle with a tracking error of approximately 5-6%.

The process used to select stocks is a quantitative approach developed by our founding partners through years of academic research on a variety of investment and investor behavior topics. The process ranks a broad universe of stocks on a combination of value and momentum factors and seeks to invest approximately 250 stocks in the most attractive securities possible within our strict risk parameters to control the portfolio's tracking error relative to the benchmark. The resulting portfolio will be broadly diversified across industry groups and fully invested (cash balances are typically less than 1% of the portfolio). Initial positions must be in stocks with a market capitalization greater than \$500 million.

## Market Update

Large Cap International Indices	Periods Ending 12/31/17					
	4Q17	1 Yr	2 Yrs	3 Yrs	5 Yrs	10 Yrs
MSCI EAFE	4.2%	25.0%	12.4%	7.8%	7.9%	1.9%
MSCI EAFE Value	3.2%	21.4%	12.9%	6.4%	7.0%	1.2%
MSCI ACWI Ex-U.S.	5.0%	27.2%	15.3%	7.8%	6.8%	1.8%
MSCI World Ex-U.S.	4.2%	24.2%	13.0%	7.4%	7.5%	1.9%
MSCI EAFE (Local)	3.7%	15.2%	10.2%	8.5%	11.4%	3.3%
<b>MSCI EAFE Value vs Growth Spread:</b>	<b>-2.0%</b>	<b>-7.4%</b>	<b>1.2%</b>	<b>-2.8%</b>	<b>-1.8%</b>	<b>-1.5%</b>
Small Cap International Indices						
MSCI EAFE Small Cap	6.1%	33.0%	16.6%	14.2%	12.9%	5.8%
MSCI EAFE Small Cap Value	5.6%	30.3%	17.5%	13.2%	12.6%	5.7%
<b>Value vs Growth Spread:</b>	<b>-0.9%</b>	<b>-5.6%</b>	<b>1.7%</b>	<b>-1.9%</b>	<b>-0.5%</b>	<b>-0.2%</b>
Emerging Markets Indices						
MSCI Emerging Markets	7.4%	37.3%	23.6%	9.1%	4.4%	1.7%
MSCI Emerging Markets Value	6.8%	28.1%	21.3%	6.2%	1.8%	0.9%
MSCI Emerging Markets (Local)	5.7%	30.6%	19.7%	10.5%	8.0%	4.1%
<b>Value vs Growth Spread:</b>	<b>-1.1%</b>	<b>-18.7%</b>	<b>-4.4%</b>	<b>-5.7%</b>	<b>-5.1%</b>	<b>-1.5%</b>
Comparative U.S. Indices						
S&P 500	6.6%	21.8%	16.8%	11.4%	15.8%	8.5%
Russell 2000	3.3%	14.7%	17.9%	10.0%	14.1%	8.7%

*All returns are in USD; periods longer than one year are annualized.*

## Performance

Periods Ended December 31, 2017

Assets Managed: \$74,032,964

	QTD	One Year	Three Year	Five Year	Seven Year	Ten Year	Since Inception*
<b>ND Insurance -EAFE</b>	<b>3.5%</b>	<b>26.8%</b>	<b>10.5%</b>	<b>10.0%</b>	<b>7.7%</b>	<b>2.7%</b>	<b>6.4%</b>
MSCI EAFE	4.2%	25.0%	7.8%	7.9%	5.9%	1.8%	5.5%
MSCI EAFE Value	3.2%	21.4%	6.4%	7.0%	5.2%	1.1%	4.8%
<i>Excess Return</i>	<i>-0.8%</i>	<i>1.8%</i>	<i>2.7%</i>	<i>2.1%</i>	<i>1.9%</i>	<i>0.9%</i>	<i>0.9%</i>

### Fiscal Year (7/1-6/30) Summary

	YTD 2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005*
<b>ND Insurance -EAFE</b>	<b>11.1%</b>	<b>27.5%</b>	<b>-11.3%</b>	<b>-3.4%</b>	<b>27.0%</b>	<b>20.7%</b>	<b>-14.4%</b>	<b>24.5%</b>	<b>9.5%</b>	<b>-26.9%</b>	<b>-25.1%</b>	<b>31.7%</b>	<b>28.3%</b>	<b>12.4%</b>
MSCI EAFE	9.9%	20.3%	-10.2%	-4.2%	23.6%	18.6%	-13.8%	23.3%	8.0%	-27.5%	-15.6%	26.4%	26.2%	7.7%
MSCI EAFE Value	9.3%	25.0%	-15.4%	-7.1%	26.9%	18.6%	-15.2%	22.3%	5.7%	-24.8%	-21.2%	28.1%	26.7%	8.6%
<i>Excess Return</i>	<i>1.2%</i>	<i>7.3%</i>	<i>-1.1%</i>	<i>0.8%</i>	<i>3.4%</i>	<i>2.1%</i>	<i>-0.6%</i>	<i>1.2%</i>	<i>1.5%</i>	<i>0.6%</i>	<i>-9.6%</i>	<i>5.3%</i>	<i>2.1%</i>	<i>4.7%</i>

\*Inception date: 11/22/2004

Note: All returns are gross of fees and in USD; periods greater than one year are annualized. Indices shown net of withholding taxes. \*\*Benchmarks changed from MSCI EAFE 50% Hedged USD and MSCI EAFE Value 50% Hedged USD to MSCI EAFE and MSCI EAFE Value effective 4/1/2011.

## Performance

*Periods Ended December 31, 2017*

*Assets Managed: \$411,035,859*

	QTD	One Year	Since Inception*
<b>ND Legacy Fund EAFE</b>	<b>3.5%</b>	<b>25.5%</b>	<b>10.5%</b>
MSCI EAFE	4.2%	25.0%	7.9%
MSCI EAFE Value	3.2%	21.4%	6.6%
<i>Excess Return</i>	<i>-0.8%</i>	<i>0.5%</i>	<i>2.6%</i>

### Fiscal Year (7/1-6/30) Summary

	YTD 2018	2017	2016	2015*
<b>ND Legacy Fund EAFE</b>	<b>10.7%</b>	<b>26.9%</b>	<b>-11.2%</b>	<b>7.1%</b>
MSCI EAFE	9.9%	20.3%	-10.2%	5.0%
MSCI EAFE Value	9.3%	25.0%	-15.4%	4.4%
<i>Excess Return</i>	<i>0.9%</i>	<i>6.7%</i>	<i>-1.0%</i>	<i>2.1%</i>

### Value Equity

*Investment Specialists*

\*Inception date: 2/1/2015

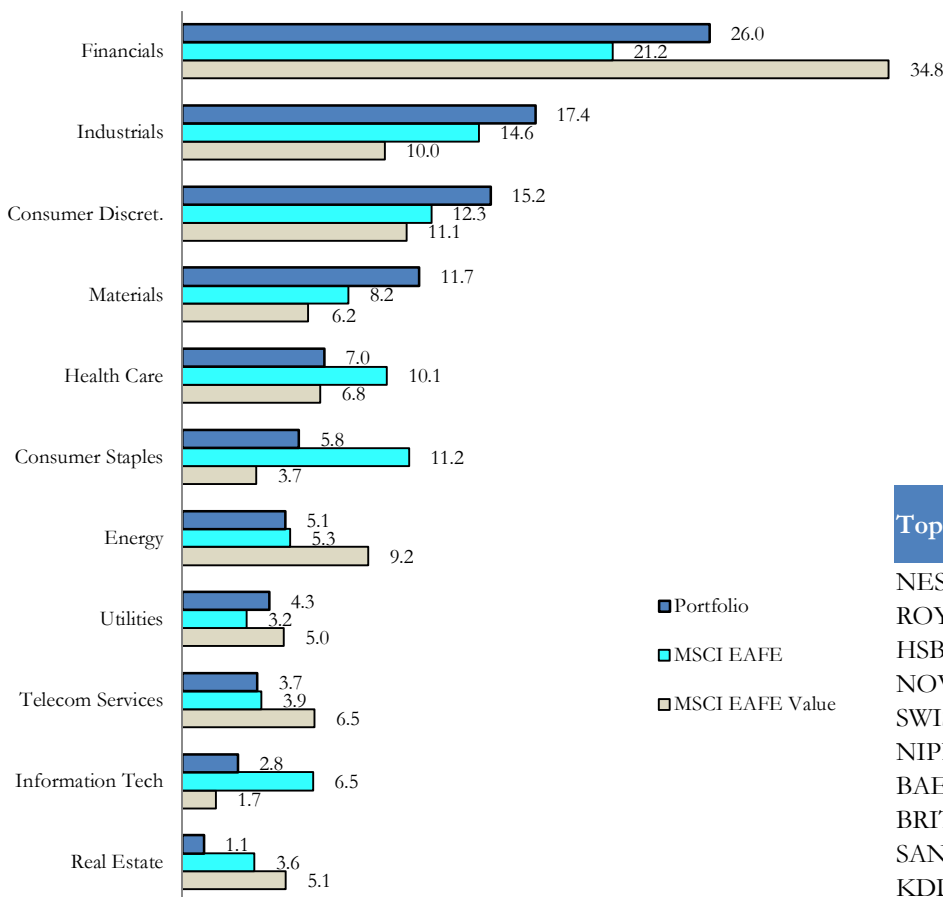
Note: All returns are gross of fees and in USD. Indices shown net of withholding taxes. Periods greater than one year are annualized.

## Portfolio Characteristics – December 31, 2017

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	North Dakota Portfolio	MSCI EAFE	MSCI EAFE Value
<b>Value Measures</b>			
Price / Earnings (FY1)	<b>12.0x</b>	16.1x	13.2x
Price / Earnings (FY2)	<b>11.1x</b>	14.9x	12.4x
Price / Cash Flow	<b>6.9x</b>	10.3x	7.4x
Price / Book	<b>1.3x</b>	1.8x	1.3x
Dividend Yield	<b>3.4%</b>	2.9%	3.9%
<b>Size Measures</b>			
Weighted Average Market Cap	<b>\$31.9 billion</b>	\$64.2 billion	\$71.7 billion
Weighted Median Market Cap	<b>\$11.9 billion</b>	\$40.2 billion	\$47.1 billion
# of Holdings	<b>216</b>		

## Portfolio Characteristics – December 31, 2017

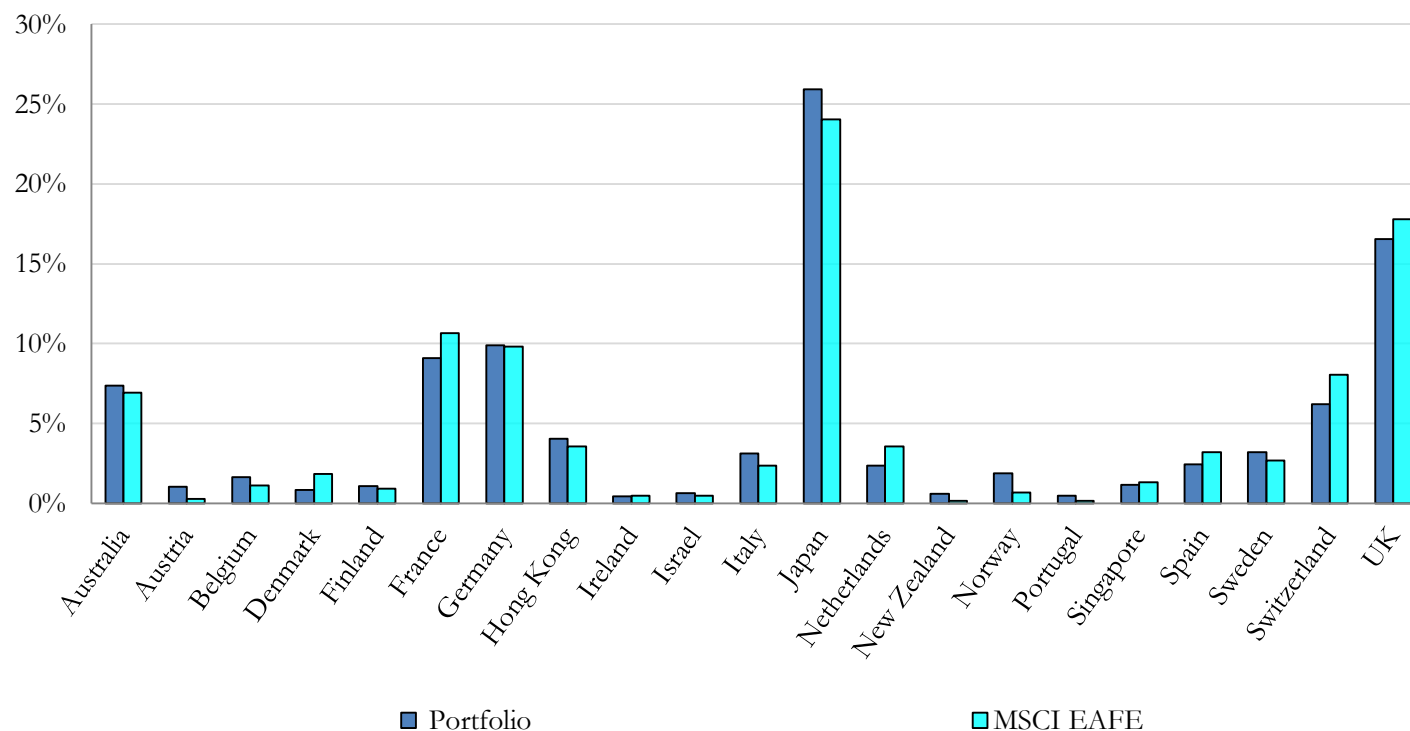


Top 10 Holdings	% of Portfolio
SANOFI	1.7%
TOTAL	1.3%
NIPPON TELEGRAPH & TELEPHONE CORP	1.3%
GLAXOSMITHKLINE	1.2%
BAE SYSTEMS	1.2%
KDDI CORP	1.2%
SWISS LIFE HOLDINGS AG	1.2%
BP	1.1%
DAIMLER AG	1.1%
ENEL SPA	1.1%

Top Ten Active Holdings	Portfolio Weight	Benchmark Weight	Active Weight
NESTLE S.A.	0.0%	1.8%	-1.8%
ROYAL DUTCH SHELL	0.4%	1.9%	-1.5%
HSBC HOLDINGS PLC	0.0%	1.4%	-1.4%
NOVARTIS AG	0.0%	1.3%	-1.3%
SWISS LIFE HOLDING AG	1.2%	0.1%	1.1%
NIPPON TELEGRAPH AND TELEPHONE CORP	1.3%	0.2%	1.1%
BAE SYSTEMS PLC	1.2%	0.2%	1.1%
BRITISH AMERICAN TOBACCO P.L.C.	0.0%	1.0%	-1.0%
SANOFI S.A.	1.7%	0.7%	1.0%
KDDI CORPORATION	1.2%	0.3%	0.9%



## Country Exposures – December 31, 2017



# Portfolio Holdings by Country – December 31, 2017

COUNTRY	% PORT.	COUNTRY	% PORT.	COUNTRY	% PORT.
<b>AUSTRALIA</b>	<b>7.3%</b>	<b>FRANCE (continued)</b>		<b>IRELAND</b>	<b>0.4%</b>
Qantas Airways Limited	0.6%	Compagnie Generale Des Etablissements Mi	0.4%	Smurfit Kappa Group Public Limited Compa	0.4%
Macquarie Group Limited	0.6%	Scor Se	0.4%		
Metcash Limited	0.6%	Engie	0.4%	<b>ISRAEL</b>	<b>0.6%</b>
Lend Lease Finance Limited	0.5%	Credit Agricole Sa	0.4%	Bank Hapoalim B.M.	0.5%
Bluescope Steel Limited	0.5%	Societe Generale	0.4%	Teva Pharmaceutical Industries Ltd	0.2%
Mineral Resources Inc.	0.5%	Orange	0.4%		
Bank Of Queensland Limited	0.5%	Sopra Steria Group	0.4%	<b>ITALY</b>	<b>3.1%</b>
Agl Energy Limited	0.4%	Electricite De France	0.4%	Enel S.P.A	1.1%
Mcmillan Shakespeare Limited	0.4%	Valeo	0.4%	Societa Iniziative Autostradali E Serviz	0.6%
Australia And New Zealand Banking Group	0.4%	Neopost Sa	0.1%	Leonardo S.P.A.	0.5%
Sandfire Resources NI	0.4%			Mediobanca Banca Di Credito Finanziario	0.4%
Bendigo And Adelaide Bank Limited	0.4%	<b>GERMANY</b>	<b>9.8%</b>	Iren S.P.A.	0.4%
Asaleo Care Limited	0.4%	Daimler Ag	1.1%	Astaldi S.P.A.	0.1%
National Australia Bank Limited	0.3%	Deutsche Lufthansa Aktiengesellschaft	0.9%		
Fortescue Metals Group Ltd.	0.3%	Allianz Se	0.8%	<b>JAPAN</b>	<b>25.6%</b>
Myer Holdings Limited	0.2%	Deutsche Post Ag	0.8%	Nippon Telegraph And Telephone Corporati	1.3%
Ausdrill Limited	0.1%	Bayerische Motoren Werke Aktiengesellsch	0.7%	Kddi Corporation	1.2%
Seven West Media Limited	0.1%	Bayer Aktiengesellschaft	0.7%	Itochu Corporation	0.9%
		Rheinmetall Aktiengesellschaft	0.6%	Resona Holdings, Inc.	0.7%
<b>AUSTRIA</b>	<b>1.0%</b>	Basf Se	0.6%	Nissan Motor Co., Ltd.	0.7%
Voestalpine Ag	0.5%	Volkswagen Aktiengesellschaft	0.5%	Mitsubishi Ujf Financial Group, Inc.	0.5%
Omv Aktiengesellschaft	0.5%	Leoni Ag	0.5%	Fujikura Ltd.	0.5%
		Talanx Aktiengesellschaft	0.4%	S Foods Inc.	0.5%
<b>BELGIUM</b>	<b>1.6%</b>	Hannover Ruck Se	0.4%	The Yokohama Rubber Co., Ltd.	0.5%
Solvay	0.6%	Siemens Aktiengesellschaft	0.4%	Aisan Industry Co., Ltd.	0.5%
Agfa-Gevaert	0.4%	Munchener Ruckversicherungs-Gesellschaft	0.4%	Maeda Road Construction Co., Ltd.	0.5%
Ageas N.V.	0.3%	Evonik Industries Ag	0.4%	Nisshinbo Holdings Inc.	0.5%
"Bpost"	0.3%	Ceconomy Ag	0.3%	Kureha Corporation	0.5%
		Ceconomy Ag	0.2%	Japan Airlines Co., Ltd	0.5%
<b>DENMARK</b>	<b>0.8%</b>	Uniper Ag	0.1%	Mizuho Financial Group Inc	0.5%
Danske Bank A/S	0.8%			Kaneka Corporation	0.5%
		<b>HONG KONG</b>	<b>4.0%</b>	Unipres Corporation	0.5%
<b>FINLAND</b>	<b>1.1%</b>	Wh Group Limited	0.8%	Toyo Ink Sc. Holdings Co., Ltd.	0.4%
Neste Oyj	0.7%	Lee & Man Paper Manufacturing Limited	0.5%	Dowa Ho Ldings Co., Ltd	0.4%
Upm-Kymmene Oyj	0.4%	Yue Yuen Industrial (Holdings) Limited	0.4%	Tokairika,Co, Ltd.	0.4%
		Kingboard Chemical Holdings Limited	0.4%	Aisin Seiki Co., Ltd.	0.4%
<b>FRANCE</b>	<b>9.0%</b>	Wheelock And Company Limi	0.4%	Geo Holdings Corporation	0.4%
Sanofi	1.7%	Nws Holdings Limited	0.4%	Marubeni Corporation	0.4%
Total Sa	1.3%	China Resources Cement Holdings Limited	0.3%	Toho Holdings Co., Ltd.	0.4%
Axa	0.7%	Skyworth Digital Holdings Limited	0.3%	Seino Holdings Co., Ltd.	0.4%
Bnp Paribas	0.6%	Citic Telecom International Holdings Lim	0.2%	Sumitomo Bakelite Co., Ltd.	0.4%
Arkema	0.6%	Ck Asset Holdings Limited	0.2%	Towa Pharmaceutical Co., Ltd.	0.4%
Renault	0.5%	Apt Satellite Holdings Limited	0.1%	Sumitomo Mitsui Financial Group, Inc.	0.4%

# Portfolio Holdings by Country – December 31, 2017

COUNTRY	% PORT.
<b>JAPAN (continued)</b>	
Sankyu Inc.	0.4%
Isuzu Motors Limited	0.4%
Toyo Tire & Rubber Co., Ltd.	0.4%
Hitachi, Ltd.	0.4%
Nec Corp.	0.4%
Astellas Pharma Inc.	0.4%
Ube Industries, Ltd.	0.4%
Eizo Corporation	0.4%
Nishi-Nippon Financial Holdings, Inc.	0.4%
Mitsui Chemicals, Inc.	0.4%
Sumitomo Osaka Cement Co., Ltd.	0.4%
Kyb Corporation	0.4%
Cocokara Fine Inc.	0.4%
Teijin Limited	0.4%
Central Glass Co., Ltd.	0.4%
Mirait Holdings Corporation	0.4%
Toyota Motor Corporation	0.3%
Kaken Pharmaceutical Co., Ltd.	0.3%
Thekeiyo Bank, Ltd.	0.3%
Fujitec Co., Ltd.	0.3%
Sky Perfect Jsat Holdings Inc.	0.3%
Konica Minolta, Inc.	0.3%
Ntt Docomo, Inc.	0.3%
Tokyo Seimitsu Co., Ltd.	0.3%
Kyowa Exeo Corporation	0.3%
Mitsubishi Gas Chemical Company, Inc.	0.3%
Heiwado Co., Ltd.	0.2%
Prima Meat Packers, Ltd.	0.2%
Sawai Pharmaceutical Co., Ltd.	0.2%
Nichi-Iko Pharmaceutical Co., Ltd.	0.1%
Kyorin Seiyaku Holdings Kabushiki Kaish	0.1%
<b>NETHERLANDS</b>	<b>2.3%</b>
Ing Groep N.V.	0.7%
Nn Group N.V.	0.6%
Abn Amro Group N.V.	0.5%
Philips Lighting B.V.	0.4%
Aegon N.V.	0.2%
<b>NEW ZEALAND</b>	<b>0.6%</b>
Fletcher Building Limited	0.3%
Sky Network Television Limited	0.2%

COUNTRY	% PORT.
<b>NORWAY</b>	<b>1.9%</b>
Salmar Asa	0.5%
Statoil Asa	0.4%
Dnb Asa	0.4%
Austevoll Seafood Asa	0.4%
Marine Harvest Asa	0.3%
<b>PORTUGAL</b>	<b>0.5%</b>
Edp - Energias De Portugal, S.A.	0.5%
<b>SINGAPORE</b>	<b>1.2%</b>
Dbz Group Holdings Ltd	0.7%
United Overseas Bank Limited	0.5%
<b>SPAIN</b>	<b>2.4%</b>
Repsol, S.A.	0.6%
Banco Santander, S.A.	0.5%
Mapfre, S.A.	0.5%
Distribuidora Internacional De Alimentac	0.4%
Iberdrola, S.A.	0.4%
Repsol, S.A.	0.0%
Duro Felguera, S.A.	0.0%
<b>SWEDEN</b>	<b>3.2%</b>
Aktiebolaget Volvo	0.6%
Boliden Ab	0.6%
Nordea Bank Ab	0.5%
Skandinaviska Enskilda Banken Ab	0.4%
Sas Ab	0.4%
Sapa Profiles Holding Ab	0.3%
Swedbank Ab	0.2%
Inwido Ab (Publ)	0.2%
<b>SWITZERLAND</b>	<b>6.1%</b>
Swiss Life Holding Ag	1.1%
Roche Holding Ag	0.8%
Ubs Group Ag	0.8%
Swiss Re Ag	0.7%
Baloise Holding Ag	0.6%
Valiant Holding Ag	0.6%
Credit Suisse Group Ag	0.4%
Autoneum Holding Ag	0.4%
Georg Fischer Ag	0.4%

COUNTRY	% PORT.
<b>SWITZERLAND (continued)</b>	
Rieter Holding Ag	0.3%
Cembra Money Bank Ag	0.1%
<b>UNITED KINGDOM</b>	<b>16.3%</b>
Glaxosmithkline Plc	1.2%
Bae Systems Integrated System Technologi	1.2%
Bp P.L.C.	1.1%
Legal & General Group Plc	0.8%
Bellway P L C	0.7%
3i Group Plc	0.7%
The Berkeley Group Holdings Plc	0.6%
J Sainsbury Plc	0.6%
Kingfisher Plc	0.5%
Man Group Plc	0.5%
Bovis Homes Group Plc	0.5%
Barratt Developments P L C	0.5%
Old Mutual Public Limited Company	0.5%
Aviva Plc	0.5%
Investec Plc	0.5%
Lloyds Banking Group Plc	0.4%
Meggitt Plc	0.4%
Direct Line Insurance Group Plc	0.4%
Galliford Try Plc	0.4%
Royal Dutch Shell Plc	0.4%
National Express Group Plc	0.4%
Crest Nicholson Holdings Plc	0.4%
Inchcape Plc	0.4%
Royal Mail Plc	0.4%
Sse Plc	0.3%
Firstgroup Plc	0.3%
Easyjet Plc	0.3%
Centrica Plc	0.2%
Stagecoach Group Plc	0.2%
Mondi Plc	0.2%
Bt Group Plc	0.2%
Chemring Group Plc	0.2%
Computacenter Plc	0.1%
Debenhams Plc	0.1%
Premier Foods Finance Plc	0.1%
Vesuvius Plc	0.1%
<b>CASH</b>	<b>1.2%</b>
<b>TOTAL</b>	<b>100%</b>

## Investment Philosophy

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**LSV believes in the systematic implementation of fundamental investment ideas**

### Deep Value

- We identify cheap companies that are underappreciated by the market
  - A patient approach that focuses on undervalued companies can deliver superior returns
- 

### Quantitative

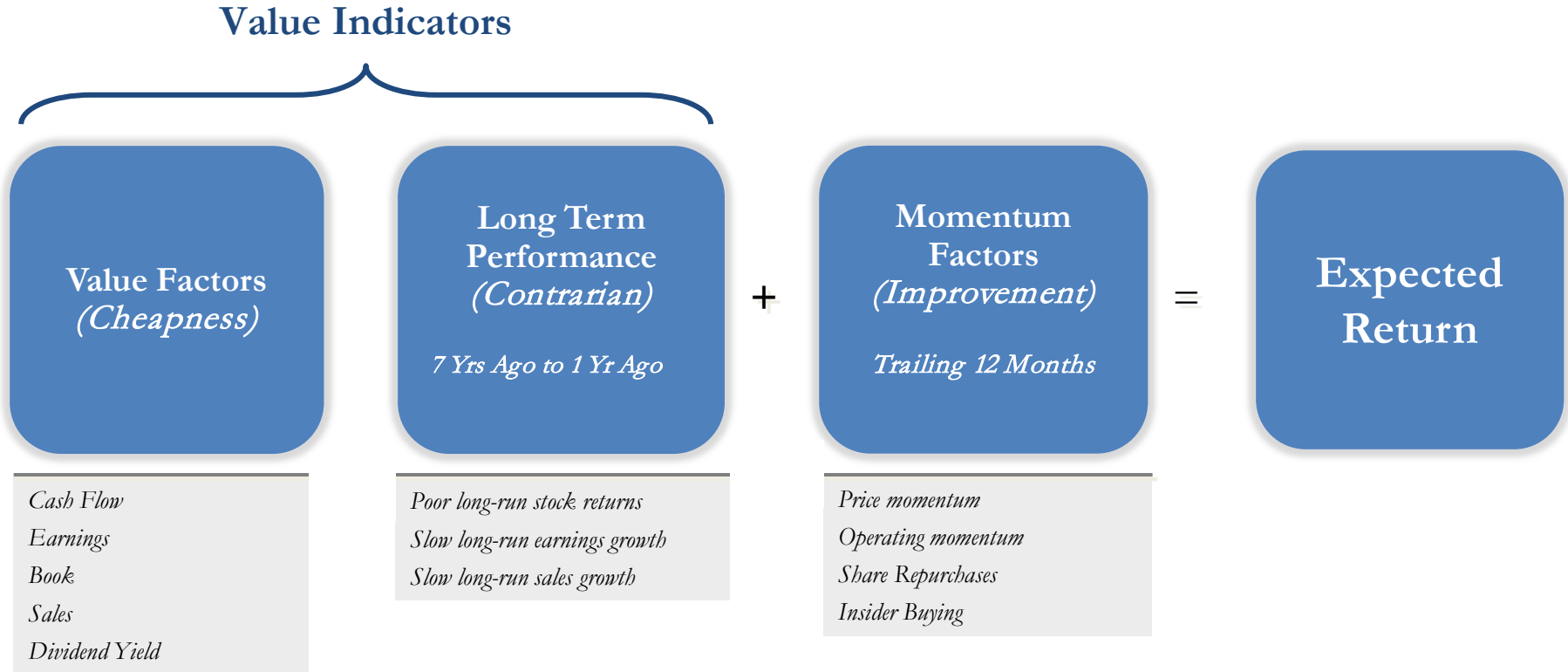
- LSV's quantitative investment strategy is based on comprehensive empirical research which addresses the complexities of financial statements
  - Our common sense approach avoids the pitfalls of data mining
- 

### Risk Control

- We construct well diversified portfolios across sectors, industries and individual names utilizing our proprietary optimization process

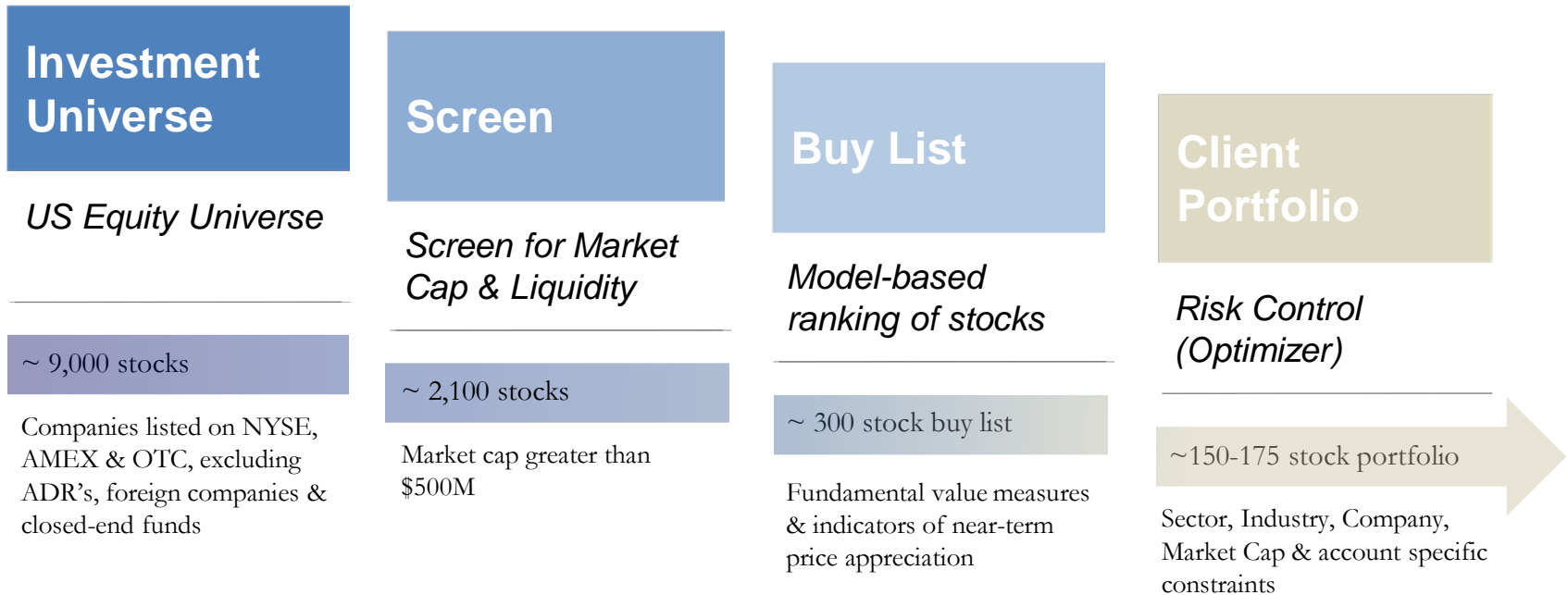
## Investment Process – Expected Return Model

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## Investment Process

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## Sell Discipline

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### A stock is sold when:

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- Model ranking deteriorates

### A stock is cut back when:

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- Portfolio weight becomes excessive

### Turnover

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- Approximately 25% per year

## Research and Investment Team

Name	Years Experience / LSV	Role & Responsibilities	Education
<b>Josef Lakonishok</b>	40/23	CEO, CIO, Founding Partner Portfolio Management	Ph.D. Cornell University, Finance MS Cornell University, Statistics MBA/BA Tel-Aviv University, Economics & Statistics
<b>Menno Vermeulen, CFA</b>	26/22	Partner Portfolio Management & Systems Development	MS Erasmus University-Rotterdam, Econometrics
<b>Puneet Mansharamani, CFA</b>	19/17	Partner Portfolio Management	MS Case Western University, Engineering BS Delhi University, Engineering
<b>Bhaskaran Swaminathan</b>	28/12	Partner Director of Research	Ph.D. University of California at Los Angeles, Finance MBA University of Denver, Finance BE College of Engineering, Guindy, Madras, India, Mechanical Engineering
<b>Jason Karceski</b>	24/8	Partner Portfolio Management & Research	Ph.D. University of Illinois, Finance MBA University of North Florida BS California Institute of Technology, Electrical Engineering
<b>Han Qu</b>	24/23	Partner Research	MS University of Illinois, Finance & Statistics BS Shanghai University, Computer Science
<b>Simon Zhang, CFA</b>	19/19	Partner Systems & Research	MBA/MS University of Illinois, Finance & MIS Civil Engineering MS Tongji University, Shanghai, Engineering Management BS Shanghai Institution of Building Material, Engineering
<b>Bala Ragothaman, CFA</b>	20/11	Partner Systems Development	MS University of Iowa, Computer Science & Networks BS PSG College, Bharathiar University, Computer Engineering
<b>Titus Liu</b>	16/6	Partner Systems Development	MS University of Chicago, Finance, Econometrics & Accounting BS University of Illinois, Electrical Engineering
<b>Greg Sleight</b>	11/11	Partner Portfolio Management	MBA University of Chicago, Econometrics, Econ. & Analytic Finance BS University of Illinois, Material Science & Engineering
<b>Guy Lakonishok, CFA</b>	17/8	Partner Portfolio Management	MBA University of Chicago, Analytical Finance & Accounting BS Washington University, Electrical Engineering
<b>Gal Skarishevsky</b>	7/1	Quantitative Analyst	MBA University of Chicago, Finance & Accounting BS Ben-Gurion University, Computer Science
<b>Dan Givoly, CPA (Isr.)</b>	33/12	Academic Advisor; Ernst & Young Professor of Accounting; Dept. of Accounting, Pennsylvania State University	Ph.D. New York University, Accounting & Finance MBA Tel-Aviv University BA Hebrew University, Jerusalem, Economics & Statistics
<b>Louis Chan</b>	35/17	Partner, Academic Advisor Professor Finance, University of Illinois	Ph.D./ MS University of Rochester, Finance & Applied Economics BBA University of Hawaii, Business Administration



## Client Portfolio Services Team

Name	Years Experience / LSV	Role & Responsibilities	Education
James Owens	28/17	Partner Portfolio Services	BA Iowa State University, Finance
Keith Bruch, CFA	29/14	Partner Portfolio Services	MBA University of Chicago, Finance BA Northwestern University, Economics
Peter Young, CFA	29/13	Partner Portfolio Services	BS Wake Forest University, Business/Mathematics
Scott Kemper	21/11	Partner Portfolio Services	MBA University of Chicago BA DePauw University
Michael Wagner	30/5	Partner Client Portfolio Services, Taft-Hartley	MBA Loyola University, Finance BS Elmhurst College, Marketing
Josh Dupont	6/1	Director Portfolio Services	BA Northwestern University, Economics
Paul Halpern	46/13	Director Client Portfolio Services, Canada	Ph.D. University of Chicago MBA University of Chicago Bcomm University of Toronto
Jason Ciaglo	19/8	Partner Business Development	MBA University of Chicago BA University of California-Berkeley, English
David Coon	26/1	Director Retail Sales & Services	MBA DePaul University BA Albion College
Kevin Phelan, CFA	16/13	Partner Chief Operating Officer	BA University of Chicago, Economics
Josh O'Donnell	13/4	Partner Chief Compliance Officer Chief Legal Officer	JD Vanderbilt University Law School BA Wake Forest University, Politics



# BOARD LEADERSHIP

## INNOVATIVE APPROACHES TO GOVERNANCE

NUMBER 154, NOV.–DEC. 2017

[www.boardleadershipnewsletter.com](http://www.boardleadershipnewsletter.com)

## The Risk Management Gap

by Matthew Leitch

*Risk is one of the most important topics addressed in the boardroom. It is also one of the trickiest. In this article, Matthew Leitch, a member of the Centre for Risk Research and a coauthor of the Southampton Business School's guide, "Directing Risk Management in Organizations," starts from the perspective that the received wisdom that the board can somehow be directly involved in every decision involving risk in their organization, because they have considered the principal risks, and set a risk appetite is a fantasy. The reality he explores here is that most of the thinking that takes place in an organization does not involve the board and requires a quantity of thinking that is orders of magnitude more than the board itself can deal with.*

OVER THE PAST 25 years or so, a large gap has opened up between what boards are told they should do to manage risk and what most people really think they should do in practical situations because it is logical, natural, and much more likely to be effective. This article explains and briefly critiques the received wisdom, then explains what most people actually prefer. This is based on several surveys as well as many conversations and observations of cases.

### The Received Wisdom

Since the early 1990s the clear trend of corporate risk management

advice and regulation has been toward setting up a corporate process based on the idea of filling in a risk register with a list of risks. This is conveyed by the language of guidance, which repeatedly talks about "risks," and in the process described, which boils down to making a list of risks, then deciding what to do about them, and doing it. There is usually much associated guidance about roles, monitoring, and so on, but the core of the system is the risk listing process.

(In this description, we must set aside financial services, where the guidance has often had a different focus because of the widespread use of quantitative modeling and decision theoretical methods.)

The risk list is often used to select the "top ten" or principal risks, and to generate a "heat map" diagram. Risks are often rated for their probability of occurrence and impact if they do occur, then assigned colors based on these. Most readers will recognize these methods easily, having seen

(continued on page 2)

## NEWS

### New Research on Board Chairs

INSEAD business school has published an illuminating new report, "Board Chairs' Practices Across Countries." As the preface states, "They have no executive power but preside over the most powerful body in the organization—the board of directors. Their performance is critically important for every company but they still need help to improve it. Yet they have no boss, no peers, no one to turn to for advice. They learn mostly by trial and error."

You can see the full report at [https://centres.insead.edu/corporate-governance/meeting-reports/documents/BoardChairsPracticesAcrossCountries\\_razv.pdf](https://centres.insead.edu/corporate-governance/meeting-reports/documents/BoardChairsPracticesAcrossCountries_razv.pdf).

### The Necessary and Sufficient Conditions for Legitimate Capitalism

The Maturity Institute, which was created in 2012 for the purpose of maximizing the value of people to maximize the value for society, has recently written an open letter to the senior partners of the "Big Four" accounting firms: Deloitte, EY, PwC, and KPMG. They refer to their single-measure "Total Stakeholder Value (TSV)" that combines the best of profitability, shareholder returns, company valuation, and societal benefits.

(continued on page 7)

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## Risk Management Gap

*(continued from front page)*

them in use and promoted by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), the Financial Reporting Council (FRC), the Institute of Risk Management (IRM), the Institute of Internal Auditors (IIA), and even the International Organization for Standardization (ISO), among others.

In recent years the idea of setting some kind of limit or target risk level for risks on the list has developed into the idea of writing a risk appetite statement of some kind, ultimately summarized as risk levels against each risk on the list or as a line on a heat map.

In all this, there are many minor variations but, in comparison with other approaches to managing risk and uncertainty, this is a remarkably homogenous pattern. The fundamental assumption is that all risk can be managed by making a list of risks, deciding what to do about each one, then acting. The approach is focused on decisions about what to do with risks, usually considering them one at a time.

### What Most People Prefer

In real life, most of our decisions at work are business decisions. In those decisions we consider many factors, most of which are uncertain to some extent, and that makes the decisions risky. Our focus is on business decisions, and each has many risky factors (or "risks" if you prefer) associated with it. This is the opposite of deciding what to do about each risk.

In a typical day, many managers and directors will spend time getting more information, trying to find viable courses of action, debating how ambitious to be in planning, thinking through what might happen if they take a new course of action, covering possible outcomes, designing systems and processes, and thinking innumerable other thoughts that contribute to managing risk.

In surveys and polls I have conducted over several years (listed at <http://www.workinginuncertainty.co.uk/studies.shtml>), most people consistently pick out and prefer the more naturally integral ways of managing risk. People are far more likely to recommend these than to recommend methods based on the risk listing process, even though risk listing has enjoyed huge promotion and regulatory backing over more than two decades.

Almost everyone thinks that the amount of risk they would take depends on the rewards at stake and is not a fixed "appetite."

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Almost everyone thinks that the amount of risk they would take depends on the rewards at stake and is not a fixed "appetite."

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### The Board Perspective

For boards the received wisdom of risk management within corporate governance leads to the absurd situation where, after a deep discussion about future strategy in which most of the conversation is wrestling with deep uncertainty, the board moves on to the agenda item "Risk Management" as if it were a new topic.

The fantasy behind the received wisdom of risk management is that the board can somehow be directly involved in every decision involving risk in their organization because they have considered the principal risks and set a risk appetite. In reality, most of the thinking that takes place in an organization does not involve the board and requires a quantity of thinking that is orders of magnitude more than the board itself can deal

with. That thinking takes place in a wide range of management activities and is far too varied to be tackled with one method.

At any point in time, most organizations have a number of initiatives going on that are designed to improve the way the organization is managed and led, among other things. These might include implementing a computer system, giving management training, revising the forms people have to fill in for some critical process, and using machine learning to improve some kind of frequently taken decision. Some of these initiatives will improve the way risk is handled so they count as part of improving risk management. This is more than just putting internal controls in place; these are initiatives that will affect the way people make decisions and do other management tasks.

In addition to managing risk well in their own deliberations, the board's role in risk management includes overseeing these initiatives and the impact they have on the level of risk management in their organization.

I am one of the authors of a guide from the Southampton Business School's Centre for Risk Research called "Directing Risk Management in Organizations." This guide starts from this perspective and offers criteria for quickly evaluating the coverage provided by an organization's initiatives to improve risk management and for evaluating individual initiatives when they are proposed.

### Improvement Initiatives

What initiatives might an organization take to improve its risk management? Here are some common examples.

Board annual planning might be improved by better information, a new forecasting model, switching to a rolling approach, better ways to measure performance that reflect uncertainty, and scenario planning, to mention just a few of the possibilities. The way targets (if used) are set should reflect



relevant risk, and the way people plan to achieve those targets can also be changed to better consider particular unwanted potential outcomes and to manage uncertainty over all outcomes.

Resilience of computer and communication systems might be tackled with a stand-alone project aimed at continuity planning, but other worthwhile initiatives might include changing the way premises are evaluated and selected, the way that activities are positioned within buildings, and the methods used to design computer facilities, systems, and applications.

That might overlap with work to review and improve the way projects are managed, strengthening information gathering, monitoring, responsiveness, and planning. It might involve a switch toward more incremental delivery, or use of planning tools that help to highlight risk exposure and encourage appropriate planning.

A company that makes bids or proposals to win work will normally have a process to support decisions as to what proposal will be made, if any. That process can make a huge difference to the company, so it could be the topic of repeated changes designed to improve the handling of risk within it, improving evaluation, proposal design, and reducing bias (which is a common problem as people are desperate to sell for their own reasons even if it is a job the company as a whole should not touch).

Familiar topics of management training include delegation skills, time management, and making effective presentations, but how about improving the way people deal with common risky situations in their jobs? Some fresh and valuable opportunities exist here.

What about staff appraisal? Decisions about reward, training, and promotion are among the most important in many organizations and frequently involve a great deal of uncertainty and, hence, risk. Quantitative performance measures rarely tell the whole story, and their importance can be distorted by the rigmarole of target setting, where used. Here is another rich area

for changes that improve the way risk is handled in an organization.

## Two Illustrations in Detail

It does not matter if the organization is very large or very small. There will still be things that can be done to improve the way risk is managed, and they will still need monitoring and direction.

Starting small, imagine that your business is domestic cleaning. The organization is just you, a vacuum cleaner, and a box of cleaning tools. Every aspect of getting and performing work is fraught with risk and uncertainty, but let's just focus on the first week with a new customer. One of the many potential problems is that of damaging the customer's property by accident because something in it is not robust enough to survive standard cleaning procedures.

For example, perhaps a particular floor covering lifts off the floor when strong suction is used on the vacuum cleaner, or some laminate planks cannot be made wet, or a shower curtain falls down if you pull it in a certain way, or a table falls over if you move the picture frame standing on it. Many of us have weak spots in our homes but have gotten used to them and often forget to mention them to a professional cleaner.

With a bit of practice it is not hard to learn to include questions for this kind of hazard in the initial briefing and tour of the customer's house. This reduces the chances of a potentially nasty incident. You might have thought my example of a table that falls over if the picture frame is moved a bit fanciful, but this is based on a real incident. On hearing a crash, the householder rushed down, saying, "Oh, I'm so sorry, I forgot to mention that!"

For a large-scale example, imagine you are on the board of a major membership organization with hundreds of thousands of members. Every detail of the way members are recruited and retained is crucial to whether your organization grows or shrinks. A suc-

cession of projects to improve this will be proposed, and some involve approval by your board. Evaluating the effect of these and being informed enough to decide what actions to take requires the right kind of information. If you have not previously used controlled studies, rich information graphics, or machine learning techniques, then these could all be ways to improve the way you deal with uncertainty when thinking about the challenges of recruitment and retention.

## Where Does Our Risk Register Belong?

In this broader, more realistic perspective, where does an existing corporate risk register belong? As a first step, it can be placed as just one more initiative within the risk management portfolio. It could also be used as a source of ideas for improvement initiatives. If you thought something was important enough to be on the list, then presumably it is important enough to be managed effectively as an integral part of management, so perhaps someone could look at exactly where that takes place, how, and what scope for improvement there is.

## Conclusion

The gap between the received wisdom on risk management as part of corporate governance and what people really would prefer to do has already existed for too long. It is time to look again at what managing risk in organizations really involves and how to write guidance and regulations for it. A lot of what matters is not being included, while the formal rigmaroles of risk registers and appetite statements are getting too much attention despite their failure to directly support business decision making and other management thinking activities. □

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# What Role Do You Play in Board Conversations?

by Athens Kolias

Most, if not all Board Leadership readers will have participated in or observed a board meeting, and witnessed directors following an agenda, talking at each other for a while and then calling and seconding motions before voting and finally adjourning their meeting, feeling satisfied that they've "got something done." Sounds pretty normal. But here, Athens Kolias, governance consultant and adjunct professor at San Francisco State University Center for Extended Learning, asks, "Is normal the best they can do?"

**W**HETHER YOU ARE on a board of directors, a board committee, or administering the work of the board, you will inevitably be a part of group discussions and their resulting decisions. Yet we take for granted the answers to a question so basic that it's hidden in plain sight. How do we communicate with each other?

We're talking about not only individual conversations but conversations as a larger group: conversations that facilitate the flow of the decision-making process, delegation and accountability, report review and compliance, role clarity, and linkage with the organization's ownership—conversations that can have far-reaching impacts on large populations of beneficiaries, consumers, and staff.

## FOOD FOR THOUGHT

"In preparing for battle I have always found that plans are useless, but planning is indispensable."

Dwight D. Eisenhower quoted in *Six Crises* (1962) by Richard Nixon, and Quotation number 18611 in *The Columbia World of Quotations*

## So What's the Big Deal?

Here's the thing. As with any skill or knowledge area, the more we understand it, the better we become at it. As in any subject area of expertise (governance, management, advocacy, etc.), our expertise in actually using our knowledge and tools often evolves from ad hoc, informal, or even accidental use of our skills. As we add foundational knowledge and seek to continuously improve, we evolve into a more studied, rigorous, productive, and efficient use of our skills. Little do we realize that there is much more going on in any group conversation besides just "talking." Well, let's take a look at what goes on "under the hood" of our conversations.

## What's in a Word?

We often take for granted that the words we choose to communicate with have consequences for the understanding of our intent. Just as chips in the United Kingdom are closer to steak frites in France or French fries in the United States, our choice of terminology impacts the clarity of understanding of our message. For example, look at the differences between these words:

### • **Conversation:**

- Informal interchange of thoughts, information, etc., by spoken words.

- Oral communication between persons.<sup>1</sup>
- **Discussion:**
  - "Discussion," a word whose roots mean "to break apart."
  - Discussions are conversations where people hold onto and defend their differences.<sup>2</sup>
- **Dialogue:**
  - "The essence of dialogue is an inquiry that surfaces ideas, perceptions, and understanding that people do not already have."
  - "You begin to think together—not simply report out old thoughts."<sup>3</sup>
- **Dialogic leadership:**
  - "A way of leading that consistently uncovers, through conversation, the hidden creative potential in any situation."
  - "The promise of dialogue is that a small group of people might do something that impacts the world."<sup>4</sup>
- **Group think:**
  - "The process in which bad decisions are made by a group because its members do not want to express opinions, suggest new ideas, etc. that others may disagree with."<sup>5</sup>

Amazing, isn't it? And all this time we thought we were just talking! Let's dive a little deeper. ...

## The Kantor Four-Player Model

William Isaacs, a lecturer at MIT's Sloan School of Management, and author of the book *Dialog and the Art of Thinking Together*, cites David Kantor's Four-Player model (1995),<sup>6</sup> which provides the basis for dialogic leadership.

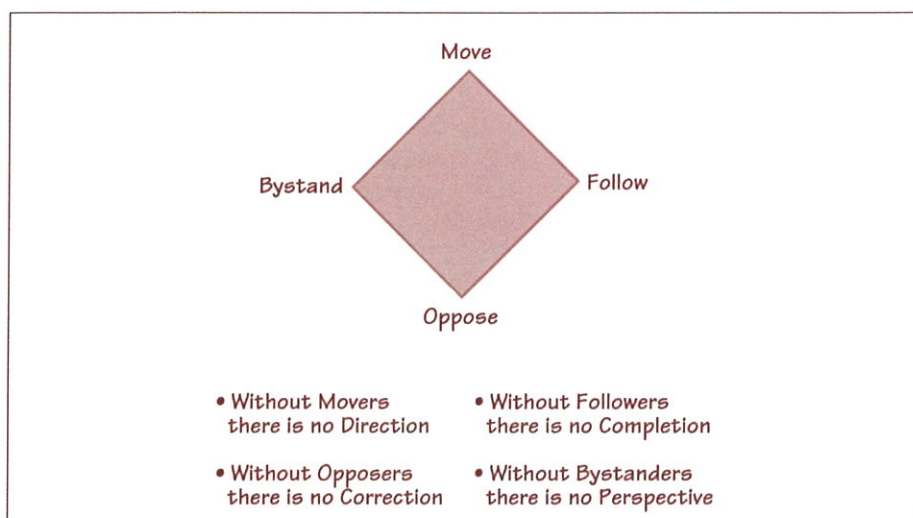
The Kantor model says that in any conversation, people organically reflect the unspoken needs of the group and situation, through filling at least one of four player roles, as shown in Table 1 and Figure 1.<sup>7</sup> What's interesting is that all four roles are needed for an effective dialogue, and, in fact,



**Table 1: The Four-Player Roles**

Role	Purpose	Practice
<b>Mover</b>	Initiate ideas	<b>Voicing:</b> your true voice; encourage others' true voice
<b>Follower</b>	Complete what is said; support what is happening	<b>Listening:</b> as a participant
<b>Opposer</b>	Challenge what is being said	<b>Respecting:</b> the coherence of others' views
<b>Bystander</b>	Provide perspective on what is happening	<b>Suspending:</b> your certainties

**Figure 1: The Four-Player Model**



Source: Adapted from David Kantor © 1995.

we move in and out of each role seamlessly without thinking about it.

A healthy conversation and team, according to Kantor, consists of *all of these roles* and actions being used in balance. None is omitted. All of the people in the conversation are *free to occupy any of the four positions at any time*.<sup>8</sup> In fact, when we backslide away from dialogic leadership, one of the symptoms you will see is that people will tend to become stuck in one role.

### Absence of Any of the Player Roles

Notice that the roles balance each other and are dynamic. But what happens when any of the roles are missing? We need someone to drive the conversation and someone to fill in the blanks. We need someone to step back and provide a broader perspec-

tive as much as we need someone to look at all sides of the issue and make sure we are not forgetting something. Absence of any of the player roles equates to communications and decision-making risk, evidenced by a narrower perspective and failure to consider alternatives.<sup>9</sup>

### Danger Ahead!

Remember the definition of *group think* mentioned earlier? Group think is considered a communications risk. It turns out that there is an inherent danger when we hold back and “just go along” rather than looking at an idea from all sides and trying to fully understand it.

For example, some cultures are ingrained with the idea that people  
(continued on page 7)

## WHEN WE SAY ...

**B**OARD LEADERSHIP'S mission is “to discover, explain, and discuss innovative approaches to board governance with the goal of helping organizations achieve effective, meaningful, and successful leadership to fulfill their missions.”

*Board Leadership* aims to fulfill this mission by engaging its readers in a lively and illuminating inquiry into how board governance can be made more effective. This inquiry is based on three key assumptions:

- Boards exist to lead organizations; not merely monitor them.
- Effective board governance is not about either systems, structures, processes, theories, practices, culture, or behaviors—it is about all of them.
- Significant improvements are likely to come only through challenging the status quo and trying out new ideas in theory and in practice.

Uniquely among regular publications on board governance, *Board Leadership* primarily focuses on the job of board leadership as a whole, rather than on individual elements of practice within the overall job.

Over time, *Board Leadership* will provide a repository of different approaches to governance created through its regular “One Way to Govern” feature.

Here's what a few of the key terms we use mean to us:

- **Innovative:** Creating significant positive change.
- **Approaches to:** principles, theories, ideas, methodologies, and practices.
- **Board governance:** The job of governing whole organizations. □



# CALENDAR OF EVENTS

DECEMBER 6–8, 2017

## Board Source Retreat 2017: Coming Together to Discover, Collaborate, and Learn

— Omni Hilton Head Oceanfront Resort,  
23 Ocean Ln, Hilton Head Island, South  
Carolina 29928 USA

Meet and connect with other non-profit chief executives from throughout the country and sector to discuss the unique challenges of the chief executive role and what it takes to strengthen the leadership partnership between you and your board. This course encourages self-reflection and provides a "safe" place for sharing and learning.

For more information go to <https://boardsource.org/event/executive-retreat-2017-coming-together-discover-collaborate-learn/2017-12-06/>

DECEMBER 8, 2017,  
8:30 A.M.–12:00 P.M.

## Charity Leadership Workshop: Improving Board Effectiveness

— ICSA, Saffron House, 6-10 Kirby  
Street, London, EC1N 8TS, London, UK

This half-day, interactive workshop will provide trustees, executives, and governance professionals with an opportunity to discuss some of the core issues currently dominating the sector headlines, including

*Thinking of publishing in Board Leadership? Contact managing editor Caroline Oliver for criteria at [coliver@goodtogovern.com](mailto:coliver@goodtogovern.com)*

how to identify destructive personalities in the boardroom, improving trustee oversight, and how to balance risk and reward.

For more information go to <https://www.icsa.org.uk/events/conferences-and-summits/charity-leadership-workshop>

DECEMBER 11–13, 2017,  
8:30 A.M.–4:00 P.M.

## Certificate of Nonprofit Board Consulting

— Gulf Coast Community Foundation,  
601 Tamiami Trail South Venice, Florida  
34258 USA

To better meet the ongoing need for governance training among nonprofit organizations throughout the country, BoardSource has created the Certificate of Nonprofit Board Consulting. This three-day course is designed to heighten the skills and abilities of those who currently, or would like to, consult and train nonprofit boards of directors on governance issues.

For more information go to <https://boardsource.org/event/certificate-nonprofit-board-consulting-2/2017-12-13/#>

FEBRUARY 12–13, 2018

## Boards that Lead: Corporate Governance that Builds Value

— Philadelphia, Pennsylvania, USA

With shareholder pressures, increasing regulations, and shifting management demands, your corporate board of directors is a vital resource. But is it being used to its full potential? Boards that Lead: Corporate Governance that Builds Value is a Wharton Executive

Education program that shows chief executives and corporate board members alike how to optimize corporate performance through collaborative leadership, expanded business perspectives, and management motivation.

You can find out more at [https://executiveeducation.wharton.upenn.edu/for-individuals/all-programs/boards-that-lead-corporate-governance-that-builds-value?utm\\_source=dabd&utm\\_medium=email&utm\\_content=bt&utm\\_campaign=dabd18bt](https://executiveeducation.wharton.upenn.edu/for-individuals/all-programs/boards-that-lead-corporate-governance-that-builds-value?utm_source=dabd&utm_medium=email&utm_content=bt&utm_campaign=dabd18bt)

FEBRUARY 24–25, 2018

## In-Person International Policy Governance Association (IPGA) Consultants' Forum

— Fort Lauderdale, Florida, USA

One of the two major opportunities IPGA provides each year for consultants and experienced practitioners (defined as those who have worked with their board using the Policy Governance® system for at least two full annual monitoring cycles) to get together for in-depth learning and networking with expert presentations and lively discussion of common challenges.

The main theme for this Forum is the Policy Governance concept of "At What Worth?" as a vital part of Ends design has long been a source of puzzlement. This Forum aims to engage us all in helping to clarify what the concept means in theory and practice. We will also pick up on important threads from last year's Forum including ownership and culture.

For more information go to [www.policygovernanceassociation.org](http://www.policygovernanceassociation.org) □



## News

(continued from front page)

You can find out more about TSV at <http://www.hrmaturity.com/press-release-the-maturity-institute-calls-for-the-redefinition-of-corporate-purpose-using-total-stakeholder-value/>

You can see a copy of the open letter at <http://www.theaccountant-online.com/comments/an-open-letter-to-the-senior-partners-of-the-big-four-5957382>.

## An Overview of Governance Theories

The *Journal of Asian Review of Public Affairs and Policy* has just published (October 14, 2017) an article entitled "Mainstreaming Moments in Governance Theories: Some Observations" by Theerapat Ungsuchaval. The article elaborates three prime moments in mainstream governance theories (taking a definition not necessarily restricted to the work of boards of directors). The first moment has brought about the primacy of network as governance. The second moment has brought interpretive ideas to the analysis of governance, resulting in the typical decentered theory of governance and other alternative approaches. The third moment has called for bringing the hierarchy and the state back into the analysis of governance. These moments are not mutually exclusive. However, they reflect different emphases of analytics, which arguably can be mentioned as different schools of governance theories. And these three schools are dominant in the contemporary debate; they are well

cited in academic works and applied in various fields.

You can see the full article by registering here: [https://www.academia.edu/34896750/Mainstreaming\\_Moments\\_in\\_Governance\\_Theories\\_Some\\_Observations?auto=download&campaign=weekly\\_digest](https://www.academia.edu/34896750/Mainstreaming_Moments_in_Governance_Theories_Some_Observations?auto=download&campaign=weekly_digest).

## New International Standard on Governance of Organizations Moves Ahead

Following a successful ballot, a new work item involving drafting a new international standard (ISO) is under way. *Board Leadership* editor Caroline Oliver is a member of the relevant Working Group (WG1) under Technical Group 309 (TC309). The next in-person meeting takes place November 12–17, 2017, in Shenzhen, China.

You can find out more including information about your country's participation at <https://www.iso.org/committee/6266703.html>.

## New Guidance from ICSA and the Investment Association on Engaging with Stakeholders

In its response to a green paper consultation on corporate governance reform published in August, the UK government highlighted the new guidance on stakeholder engagement, produced jointly by ICSA and the Investment Association, as one example of the industry-led action needed to complement its proposed regulatory reforms to bring about better governance.

Titled "The Stakeholder Voice in Board Decision Making," the aim of the guidance is to help boards think about how they understand and weigh up the interests of their key stakeholders when taking strategic decisions. They hope that it will be of use to the boards of all companies—whether listed or privately owned and irrespective of their size or sector—and potentially for other organizations, too.

The report can be found at <https://www.icsa.org.uk/knowledge/resources/stakeholdervoice>.

## Culture as a Corporate Asset: Translate Values into Value

Organizations with strong, positive cultures have been shown to outperform their peers in customer satisfaction, quality, productivity, and profitability. The absence of a healthy culture can create or increase many types of risk.

Culture as a Corporate Asset: Translate Values into Value is the highly relevant topic of this year's US NACD Blue Ribbon Commission Report. Just released at the 2017 NACD Global Board Leaders' Summit, the report provides directors with the following information:

- A definition and key characteristics of organizational culture
- Priorities for action for the entire board and committees
- 10 strategic recommendations for overseeing culture

You can download a copy of the report at <http://boardleadership.nacdonline.org/BRC-Culture-DB.html>. □

## Board Conversations

(continued from page 5)

should never appear to buck authority, as that is seen as a sign of disrespect. You can convey a message, and these folks will outwardly agree. However, often enough they hold back that they don't truly agree with the message and, in fact, may resist or refuse to act. All of this is done to appear respectful of authority, but the unintended consequence is that they create false harmony.

The concept of false or artificial harmony is further described by Patrick Lencioni, author of *The Five Dysfunctions of a Team*<sup>10</sup> as follows:

### **Dysfunction #2: Fear of Conflict**

*The desire to preserve artificial harmony stifles the occurrence of productive ideological conflict.*

Often, we take the easier path, or don't want to rock the boat, or don't

like conflict. As Chet Scott of *Built to Lead* ([www.builttolead.com](http://www.builttolead.com)) says: "The real reason it is easier to live with false harmony is this ... using conflict to improve performance takes big doses of COURAGE!"<sup>11</sup>

Rather than default to always seeing conflict as negative, if we learn to view conflict from a positive and productive point of view, then it is easier to develop the courage to lay issues on the table without either the "conflict



avoidance" filter or the "artificial harmony" filter.

### Ultimately ...

This brings us back to the Four-Player model. We must cultivate the practices and skill sets of voicing with authenticity, listening actively as a participant, suspending our certainties and preconceptions, and respecting others' points of view. With these skills, conflict becomes productive as a tool for looking at ideas from all angles and with trust. We can shift toward higher-quality interactions with others.<sup>12</sup>

So how do we ensure that we are being dialogic leaders and conversationally intelligent as we execute our duties as board directors? The next time your board meets, notice who is filling which role. Notice the balance that occurs when all four roles are present. Notice if anyone is getting stuck in one role or if any of the roles are missing entirely.

When a Mover is initiating ideas and brainstorming, they need the Opposer to play devil's advocate (productively and respectfully) to balance their ideas. Too many ideas by the Mover and they languish in the idea bucket, while too many challenges by the Opposer end up creating defensiveness. Too few ideas and the group is stagnant.

There's more, though. When the Mover on your board is voicing an idea, the follower actively listens and fills in the blanks, while the Bystander steps back, suspends his or her certainties, and listens with a broader perspective. In this way, the idea—whether it is about policy development or the CEO's monitoring report—is fleshed out in more detail, while also being put into a larger perspective. Without the Bystander role, we'd always be in the weeds, and without the Follower role, we'd miss many of the details.

### Be All that You Can Be

To shift your board's effectiveness from "just talking" to dialogic leadership, share the Kantor Four-Player model with your board of directors, as part of

your larger board education initiatives. Practice these skills in your everyday life as well as in the boardroom.

*Dialogic leadership can appear anywhere, at any level of an organization. As people apply the principles outlined above, they are learning to think together, and so greatly increase the odds that they will build the expansive relationships required to build success. ...<sup>12</sup>*

As we make the shift to dialogic leadership, we become aware of the deeper meaning to our words and use them to achieve our organization's deeper purpose. We look beyond the casual transactional conversations toward the *transformational dialogues that can change our world for the better.* □

### Notes

1. Isaacs, W. (1999). "Dialogic Leadership." *The Systems Thinker* 10 (1): 1–5.
2. Ibid.
3. Ibid., p. 2.
4. Ibid.
5. <http://dictionary.cambridge.org/us/dictionary/english/groupthink>
6. <https://www.kantorinstitute.com/fullwidth.html>
7. Glazer, J. *Conversational Intelligence: How Leaders Build Trust and Get Extraordinary Results*. New York: Bibliomotion, 2013.
8. Isaacs, p. 3.
9. Isaacs, pp. 1–5.
10. <https://www.tablegroup.com/books/dysfunctions>
11. <https://builttolead.com/2006/12/29/conflict-not-false-harmony-is-your-real-friend/>
12. Isaacs, pp. 1–5.
13. Ibid., p. 5.

Athens Koliass, MPM, PMP, PGP, PMI-ACP, is a member of the first cohort to gain a certificate for successful completion of the accredited International Policy Governance Association's (IPGA's) Policy Governance Proficiency Program (PGP) and a former chair of the board of the San Francisco chapter of the Project Management Institute. Athens can be reached at [athens@order4orgs.com](mailto:athens@order4orgs.com).

## BOARD LEADERSHIP

INNOVATIVE APPROACHES TO GOVERNANCE

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