



## ND STATE INVESTMENT BOARD MEETING

Friday, August 24, 2018, 8:30 a.m.  
Peace Garden Room, State Capitol  
600 E Blvd., Bismarck, ND

### I. APPROVAL OF AGENDA

### II. APPROVAL OF MINUTES (JULY 27, 2018)

### III. INVESTMENTS

- A. Asset & Performance Overview - Mr. Hunter (enclosed) (15 minutes) *Informational*
- B. Callan Investment Review - Mr. Erlendson and Mr. Browning (1 hour) **Board Acceptance**
  - 1. Pension Trust (enclosed)
  - 2. Legacy Fund (enclosed)
  - 3. Insurance Trust (enclosed)
  - 4. Callan's Performance Evaluation Presentation (enclosed)

===== Break from 10:00 to 10:15 am =====

- C. Private Equity Update - Mr. Hunter (45 minutes) *Informational*
  - 1. Adams Street Global Fund 2018 - Mr. Miguel Gonzalo and Mr. Brijesh Jeevarathnam
  - 2. Staff Recommendation Pacing Schedule - Mr. Schulz **Board Action**
- D. Legacy Fund Earnings Update – Mr. Hunter (10 minutes) *Informational*

### IV. BOARD EDUCATION - Conferences & Courses – Mr. Hunter (10 minutes) (enclosed)

### V. QUARTERLY MONITORING (Questions Only - Board Acceptance) (10 minutes)

- A. Executive Limitations/Staff Relations - Mr. Hunter
- B. Budget and Financial Conditions - Ms. Flanagan
- C. Investment Program - Mr. Schulz
- D. Retirement Program - Ms. Kopp
- E. Watch List – None
- F. Investment Manager Catalog - Mr. Schmidt

### VI. OTHER

Next Meeting: Audit Committee - Sep. 27, 2018, 10:00 a.m., RIO, 3442 East Century, Bismarck  
SIB - Sep. 28, 2018, 8:30 a.m. State Capitol *Peace Garden Room*  
Securities Litigation - Nov. 8, 2018, 3:00 p.m. RIO, 3442 East Century, Bismarck

### VII. ADJOURNMENT

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Any individual requiring an auxiliary aid or service, please contact the Retirement and Investment Office  
(701) 328-9885 at least three (3) days prior to the scheduled meeting.

**NORTH DAKOTA STATE INVESTMENT BOARD  
MINUTES OF THE  
JULY 27, 2018, BOARD MEETING**

**MEMBERS PRESENT:** Brent Sanford, Lt.Governor, Chair  
Rob Lech, TFFR Board, Vice Chair  
Troy Seibel, PERS Board, Parliamentarian  
Jon Godfread, Insurance Commissioner  
Toni Gumeringer, TFFR Board  
Adam Miller, PERS Board  
Mel Olson, TFFR Board  
Kelly Schmidt, State Treasurer  
Jodi Smith, Commissioner of Trust Lands  
Yvonne Smith, PERS Board (TLCF)  
Cindy Ternes, WSI Designee

**STAFF PRESENT:** Bonnie Heit, Assist to the SIB  
David Hunter, ED/CIO  
Fay Kopp, Dep ED/CRA  
Sara Sauter, Audit Svs Suprv  
Cody Schmidt, Compliance Officer  
Susan Walcker, Invt Acct

**OTHERS PRESENT:** Alex Browning, Callan Associates  
Mike Burton, TFFR  
Jim Dotzenrod, District 26, Senate  
Paul Erlendson, Callan Associates  
Chris Kadrmas, Legislative Council  
Keith Kempenich, District 39, House  
Jerry Klein, District 14, Senate  
Gary Kreidt, District 33, House  
Scott Miller, PERS  
Joe Morrissette, OMB  
Anders Odegaard, Attorney General's Office  
Tim Porter, Bank of North Dakota  
William Priest, Epoch  
Bryan Reinhardt, PERS  
Charles Steffan, Workforce Safety & Insurance  
Jeff Ulness, Epoch

Mrs. Gumeringer, active teacher on the TFFR Board, will represent the TFFR Board on the SIB. Mrs. Gumeringer replaces Mr. Gessner who retired from active employment in May 2018.

**CALL TO ORDER:**

Lt. Governor Sanford, Chair, called the State Investment Board (SIB) regular meeting to order at 8:30 a.m. on Friday, July 27, 2018, at Bismarck State College, National Energy Center of Excellence, Bismarck, ND.

**AGENDA:**

**IT WAS MOVED BY TREASURER SCHMIDT AND SECONDED BY MR. LECH AND CARRIED BY A VOICE VOTE TO ACCEPT THE AGENDA FOR THE JULY 27, 2018, MEETING.**

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

NAYS: NONE  
MOTION CARRIED

MINUTES:

IT WAS MOVED BY TREASURER SCHMIDT AND SECONDED BY MS. SMITH AND CARRIED BY A VOICE VOTE TO ACCEPT THE MINUTES OF THE MAY 25, 2018, MEETING AS DISTRIBUTED.

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

NAYS: NONE  
MOTION CARRIED

ELECTION OF OFFICERS:

IT WAS MOVED BY MR. LECH AND SECONDED BY MS. TERNES TO NOMINATE LT. GOVERNOR SANFORD AS CHAIR OF THE SIB FOR THE PERIOD OF JULY 1, 2018 - JUNE 30, 2019.

IT WAS MOVED BY TREASURER SCHMIDT AND SECONDED BY MR. LECH TO CEASE NOMINATIONS AND CAST A UNANIMOUS BALLET FOR LT. GOVERNOR SANFORD TO SERVE AS CHAIR.

A roll call vote was taken as follows:

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

NAYS: NONE  
MOTION CARRIED

IT WAS MOVED BY TREASURER SCHMIDT AND SECONDED BY MR. MILLER TO NOMINATE MR. LECH AS VICE CHAIR OF THE SIB FOR THE PERIOD OF JULY 1, 2018 - JUNE 30, 2019.

IT WAS MOVED BY TREASURER SCHMIDT AND SECONDED BY MS. TERNES TO CEASE NOMINATIONS AND CAST A UNANIMOUS BALLET FOR MR. LECH TO SERVE AS VICE CHAIR.

A roll call vote was taken as follows:

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

NAYS: NONE  
MOTION CARRIED

Parliamentarian - Lt. Governor Sanford appointed Mr. Seibel Parliamentarian for the period of July 1, 2018 - June 30, 2019.

Audit Committee - Mr. Hunter requested re-appointment of the following individuals to the Audit Committee for the period of July 1, 2018 - June 30, 2019. Ms. Ternes (representing elected/appointed officials), Ms. Smith (representing PERS), and Mr. Josh Wiens (external representative). Mr. Hunter also requested the appointment of Mr. Jon Griffin (external representative). Mr. Lech, nominated by the TFFR Board at their July 26, 2018, meeting, will serve as the TFFR representative.

IT WAS MOVED BY TREASURER SCHMIDT AND SECONDED BY MR. OLSON AND CARRIED BY A ROLL CALL VOTE TO APPROVE THE AUDIT COMMITTEE MEMBERSHIP OF MS. TERNES, MS. SMITH, MR. WIENS, MR. GRIFFIN, AND MR. LECH FOR THE PERIOD OF JULY 1, 2018 - JUNE 30, 2019.

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

NAYS: NONE

MOTION CARRIED

Securities Litigation Committee - Mr. Hunter requested affirmation of the current members of the Securities Litigation Committee for the period of July 1, 2018 - June 30, 2019 - Mr. Seibel, Treasurer Schmidt, Mr. Anders Odegaard, Ms. Connie Flanagan, and himself.

IT WAS MOVED BY MR. LECH AND SECONDED BY COMMISSIONER GODFREED AND CARRIED BY A ROLL CALL VOTE TO REAFFIRM THE SECURITIES LITIGATION COMMITTEE MEMBERSHIP OF MR. SEIBEL, TREASURER SCHMIDT, MR. ODEGAARD, MS. FLANAGAN, AND MR. HUNTER FOR THE PERIOD OF JULY 1, 2018 - JUNE 30, 2019.

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

NAYS: NONE

MOTION CARRIED

#### INVESTMENT GOVERNANCE:

PERS Job Service Investment Policy Statement - Mr. Hunter requested approval of the revised PERS Job Service Investment Policy Statement. The statement was revised by the PERS Board at their June 21, 2018, meeting.

IT WAS MOVED BY MR. OLSON AND SECONDED BY COMMISSIONER SMITH AND CARRIED BY A ROLL CALL VOTE TO ACCEPT THE PERS JOB SERVICE INVESTMENT POLICY STATEMENT AS PRESENTED.

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

NAYS: NONE

MOTION CARRIED

Code of Conduct Affirmation - Per SIB Governance Policy/Board Members' Code of Conduct requires the SIB members to reaffirm their understanding of the policy on an annual basis and disclose any conflicts of interest. Board members are to acknowledge the affirmation by signing and dating the form and returning to staff.

Private Equity - Mr. Hunter requested approval to sell the Corsair IV non-core private equity mandate at a purchase price which is close in value to the most recently reported quarter end value of \$25 million. RIO investment personnel have been diversifying the SIB private equity portoflio away from smaller, industry or geographic specific investments towards larger, more globally and industry diverse strategies since a strategic review was completed in 2014 and approved by the SIB.

IT WAS MOVED BY TREASURER SCHMIDT AND SECONDED BY COMMISSIONER SMITH AND CARRIED BY A ROLL CALL VOTE TO ACCEPT STAFF RECOMMENDATION AND SELL THE CORSAIR IV NON-CORE PRIVATE EQUITY MANDATE.

**AYES: MS. SMITH, MR. MILLER, MR. OLSON, MRS. GUMERINGER, MR. LECH, MR. SEIBEL, MS. TERNES, COMMISSIONER GODFREAD, COMMISSIONER SMITH, TREASURER SCHMIDT, AND LT. GOVERNOR SANFORD**  
**NAYS: NONE**  
**MOTION CARRIED**

Investment Consulting Contract - Mr. Hunter informed the board staff will be providing the SIB with an update on the growth and success of the leading investment consulting firms which compete with Callan in the institutional market place. Staff intends to reach out to the following firms to provide this market update in the upcoming months: Aon Hewitt, Callan, Cambridge, Mercer, NEPC, PCA, Russell, RVK, SIS, and Towers Watson.

**BOARD EDUCATION:**

Fundamental Investment Beliefs - Mr. Hunter reviewed the SIB's Fundamental Investment Beliefs for the current time period.

Callan Performance Benchmarks - Mr. Erlendson and Mr. Browning presented an educational segment on benchmarking.

Board Member Education Options - Mr. Hunter reviewed the survey results of board member education. RIO worked with Callan to create a brief survey which was distributed to each SIB member to develop a custom investment education plan to better meet the needs of the individual board member. RIO personnel will work with the SIB and Callan in the development of custom investment education plans for each SIB member.

The Board recessed at 10:13 a.m. and reconvened at 10:42 a.m.

Epoch - Epoch Investment Partners, Mr. Bill Priest, reviewed the firm's perspective, investment process, capital markets outlook, and an update on the SIB's portfolio.

**OTHER:**

The next meeting of the Securities Litigation Committee meeting is scheduled for August 23, 2018, at 3:00 p.m. at the Retirement and Investment Office.

The next meeting of the SIB is scheduled for August 24, 2018, at 8:30 a.m. at the State Capitol, Peace Garden Room.

The next meeting of the SIB Audit Committee is scheduled for September 27, 2018, at 10:00 a.m. at the Retirement and Investment Office.

**ADJOURNMENT:**

With no further business to come before the SIB, Lt. Governor Sanford adjourned the meeting at 11:57 a.m.

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Lt. Governor Sanford, Chair  
State Investment Board

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Bonnie Heit  
Assistant to the Board

**Informational Purposes Only**

# **Asset and Performance Overview**

August 20, 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

<u>Fund Name</u>	<u>Market Values as of 6/30/18 <sup>(1)</sup></u>	<u>Market Values as of 6/30/17 <sup>(2)</sup></u>
<b>Pension Trust Fund</b>		
Public Employees Retirement System (PERS)	3,024,222,995	2,781,347,058
Teachers' Fund for Retirement (TFFR)	2,485,835,306	2,318,214,334
City of Bismarck Employees Pension	99,177,507	91,954,165
City of Grand Forks Employees Pension	63,633,206	63,392,384
City of Bismarck Police Pension	40,106,249	38,136,784
Grand Forks Park District	6,772,657	6,160,568
<b>Subtotal Pension Trust Fund</b>	<b>5,719,747,919</b>	<b>5,299,205,292</b>
<b>Insurance Trust Fund</b>		
Workforce Safety & Insurance (WSI)	1,923,117,660	1,894,614,791
Budget Stabilization Fund	113,603,777	6,127,844
City of Fargo FargoDome Permanent Fund	44,629,288	41,634,918
PERS Group Insurance Account	31,610,707	37,500,315
State Fire and Tornado Fund	23,066,784	22,008,326
Petroleum Tank Release Compensation Fund	6,167,272	6,396,410
ND Association of Counties (NDACo) Fund	5,910,661	4,383,920
Insurance Regulatory Trust Fund	5,637,791	5,289,164
State Risk Management Workers Comp Fund	5,356,549	5,534,628
State Risk Management Fund	4,956,217	5,781,003
State Bonding Fund	3,411,215	3,374,399
ND Board of Medicine	2,251,119	2,179,911
Bismarck Deferred Sick Leave Account	730,026	698,131
Cultural Endowment Fund	448,825	431,470
<b>Subtotal Insurance Trust Fund</b>	<b>2,170,897,891</b>	<b>2,035,955,230</b>
<b>Legacy Trust Fund</b>		
Legacy Fund	5,577,319,109	4,687,963,729
PERS Retiree Insurance Credit Fund	126,605,207	116,150,947
Job Service of North Dakota Pension	95,690,469	97,332,820
ND Tobacco Prevention and Control Trust Fund	54,365,162	57,462,736
<b>Total Assets Under SIB Management</b>	<b>13,744,625,757</b>	<b>12,294,070,754</b>

- ▶ **SIB client investments exceeded \$13.7 billion as of June 30, 2018**, with the Pension Trust exceeding \$5.7 billion, Insurance Trust exceeding \$2.1 billion and Legacy approaching \$5.6 billion.
- ▶ **The Pension Trust posted a net return of 9.1% in the last year.** During the last 5-years, the Pension Trust generated a net annualized return of 8.3%, exceeding the performance benchmark of 7.5%.
- ▶ **The Insurance Trust generated a net return of 5.2% in the last year.** During the last 5-years, the Insurance Trust posted a net annualized return of 5.3%, exceeding the performance benchmark of 4.0%.
- ▶ **Legacy Fund generated a net return of 7.6% last year, exceeding its policy benchmark.** During the last 5-years, Legacy Fund earned a net annualized return of 6.1%, exceeding the performance benchmark of 5.1%.
- ▶ **RIO conservatively estimates the SIB use of active management enhanced client returns by over \$300 million since June 30, 2013** (e.g. \$10 billion x 0.60% = \$60 million x 5 years = \$300 million).
- ▶ **If SIB managers outperform their benchmark by 0.01% (or 1 basis point), after all fees & expenses, client returns improve by \$1.3 million per year** (e.g. \$13 billion x 0.01% = \$1.3 million).
- ▶ **RIO's internal investment cost for administering the external investment programs for our SIB clients is less than 1 basis point or 0.01% (i.e. less than 1/100<sup>th</sup> of 1%) per annum.**

<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.

# Investment Performance Evaluation – June 30, 2018

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## 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 0.46% per annum over the last 5-years, while adhering to approved risk levels and generating 0.25% of aggregate positive Risk Adjusted Excess Return (over the last 5-years).

TFFR and PERS each earned 9.1% for the 5-years ended June 30, 2018. Global equities were the primary performance driver and earned 10% over the last 5-years with U.S. Equities up 13% and International Equity up 8%. Private equity returns were weak at only 1.3% per annum the last 5-years. Fixed Income earned 4.2% annualized over the last 5-years with Investment Grade up 3.8% and Non-Investment Grade up 6.5%. Global Real Assets also performed well and gained earned over 8% per annum for the 5-years ended June 30, 2018, with Real Estate up nearly 12% and Infrastructure up 5.7%, while Timber returns were weak at -0.35% per annum the last 5-years (versus +6% for the NCREIF Timberland Index).

## Non-Pension Trust:

Every Non-Pension Trust client generated positive Excess Return of at least 0.65% per annum and positive Risk Adjusted Excess Returns for the 5-years ended June 30, 2018, with two exceptions for PERS Retiree Health Insurance Credit Fund (-0.17%) and PERS Group Insurance (-0.07%).

Legacy Fund earned 7.5% for the 1-year ended June 30, 2018, which translates into over \$350 million of net investment income (including \$240 million of realized income). Legacy’s U.S. Equity portfolio earned 15% last year, while International Equities earned 9.8%. Fixed Income returns were disappointing last year at only 1.1%, but surpassed the Bloomberg Aggregate Index which declined 0.40% due to rising interest rates between fiscal year ends. Real Asset returns were mixed with Infrastructure up 9%, Real Estate up 7.2% and Global Inflation Linked Debt Securities up 2.4% last year. Our second largest non-Pension Trust client, WSI, also generated strong returns by earning approximately 5.3% and 6.3% for the 1- and 5-years ended June 30, 2018, respectively.

Risk, as measured by standard deviation, was within approved levels for all SIB clients for the 5-years ended June 30, 2018.

*Actual asset allocations are within Target ranges and guidelines as confirmed by Callan as of June 30, 2018.*

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# Pension Trust Return & Risk Summary – June 30, 2018

**KEY POINT for Returns and Risk:** Every Pension Trust client portfolio generated positive “Excess Return” for the 3- and 5-year periods ended June 30, 2018, while adhering to prescribed risk levels (e.g. within 115% of the Policy Benchmark for the 5-years ended June 30, 2018).

	1 Yr Ended 6/30/2018	3 Yrs Ended 6/30/2018	5 Yrs Ended 6/30/2018	Risk 5 Yrs Ended 6/30/2018	Risk Adj Excess Return 5 Yrs 6/30/2018
<b>PERS \$3 billion</b>					
Total Fund Return - Net	9.19%	7.37%	8.33%	4.82%	0.24%
Policy Benchmark Return	7.85%	6.65%	7.47%	4.45%	
Excess Return	1.34%	0.72%	0.85%	108%	
<b>TFFR \$2.5 billion</b>					
Total Fund Return - Net	9.11%	7.30%	8.31%	4.81%	0.26%
Policy Benchmark Return	7.89%	6.61%	7.45%	4.45%	
Excess Return	1.21%	0.69%	0.85%	108%	
<b>Bismarck Employee \$99 million</b>					
Total Fund Return - Net	7.86%	6.65%	7.58%	4.13%	0.30%
Policy Benchmark Return	6.63%	5.94%	6.71%	3.80%	
Excess Return	1.23%	0.72%	0.88%	109%	

# Pension Trust Return & Risk Summary – June 30, 2018

	1 Yr Ended 6/30/2018	3 Yrs Ended 6/30/2018	5 Yrs Ended 6/30/2018	Risk 5 Yrs Ended 6/30/2018	Risk Adj Excess Return 5 Yrs 6/30/2018
<b>Bismarck Police \$40 million</b>					
Total Fund Return - Net	8.36%	6.86%	7.81%	4.44%	0.26%
Policy Benchmark Return	7.20%	6.23%	7.00%	4.11%	
Excess Return	1.16%	0.63%	0.81%	108%	
<b>Job Service \$96 million</b>					
Total Fund Return - Net	3.15%	4.74%	6.15%	3.60%	-0.05%
Policy Benchmark Return	4.17%	4.72%	5.69%	3.28%	
Excess Return	-1.02%	0.02%	0.46%	110%	
<b>Grand Forks \$64 million</b>					
Total Fund Return - Net	9.46%	7.33%	8.29%	4.83%	0.25%
Policy Benchmark Return	8.38%	6.89%	7.68%	4.61%	
Excess Return	1.08%	0.44%	0.61%	105%	
<b>G.F. Park District \$6.7 million</b>					
Total Fund Return - Net	9.33%	7.35%	8.47%	4.81%	0.42%
Policy Benchmark Return	8.02%	6.68%	7.74%	4.63%	
Excess Return	1.31%	0.67%	0.73%	104%	

Risk Adjusted Excess Returns for the 5-years ended June 30, 2018, were positive for all Pension Trust clients with one exception of -0.05% for Job Service.

Job Service is 135% funded & significantly de-risked its portfolio (to 20% equity / 80% 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 – June 30, 2018

	1 Yr Ended 6/30/2018	3 Yrs Ended 6/30/2018	5 Yrs Ended 6/30/2018	Risk 5 Yrs Ended 6/30/2018	Risk Adj Excess Return 5 Yrs Ended 6/30/2018
<b>WSI - \$1.9 billion</b>					
Total Fund Return - Net	5.34%	5.72%	6.39%	3.01%	0.79%
Policy Benchmark Return	3.77%	4.13%	4.97%	2.70%	
Excess Return	1.57%	1.59%	1.43%	OK	
<b>Legacy Fund - \$5.6 billion</b>					
Total Fund Return - Net	7.57%	6.79%	6.06%	4.10%	0.44%
Policy Benchmark Return	6.51%	5.75%	5.09%	3.73%	
Excess Return	1.06%	1.04%	0.96%	OK	
<b>Budget Stabilization - \$114 million</b>					
Total Fund Return - Net	0.32%	0.98%	1.35%	0.71%	0.40%
Policy Benchmark Return	0.24%	0.70%	0.69%	0.54%	
Excess Return	0.08%	0.28%	0.65%	OK	
<b>Fire &amp; Tornado - \$23 million</b>					
Total Fund Return - Net	5.32%	5.73%	6.58%	3.54%	0.49%
Policy Benchmark Return	4.36%	4.46%	5.28%	3.08%	
Excess Return	0.96%	1.27%	1.29%	OK	

**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 June 30, 2018. These returns were achieved while adhering to reasonable risk levels which were 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 – June 30, 2018

	1 Yr Ended 6/30/2018	3 Yrs Ended 6/30/2018	5 Yrs Ended 6/30/2018	Risk 5 Yrs Ended 6/30/2018	Risk Adj Excess Return 5 Yrs Ended 6/30/2018
<b>State Bonding \$3.4 million</b>					
Total Fund Return - Net	1.07%	2.31%	2.45%	1.68%	0.89%
Policy Benchmark Return	0.40%	1.26%	1.44%	1.59%	
Excess Return	0.68%	1.06%	1.00%	OK	
<b>Insur.Reg.Trust \$5.6 million</b>					
Total Fund Return - Net	4.53%	4.43%	5.01%	2.89%	0.16%
Policy Benchmark Return	4.04%	3.70%	4.26%	2.53%	
Excess Return	0.49%	0.74%	0.75%	OK	
<b>Petrol.Tank Release Comp. - \$6.1 million</b>					
Total Fund Return - Net	1.13%	2.17%	2.26%	1.52%	0.81%
Policy Benchmark Return	0.49%	1.21%	1.35%	1.44%	
Excess Return	0.64%	0.97%	0.91%	OK	
<b>State Risk Mgmt \$5 million</b>					
Total Fund Return - Net	5.14%	5.94%	6.80%	3.21%	0.54%
Policy Benchmark Return	4.27%	4.66%	5.48%	2.82%	
Excess Return	0.87%	1.28%	1.32%	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 June 30, 2018, including **Excess Returns of 0.75% or more.**

# Non-Pension Trust Return & Risk Summary – June 30, 2018

	1 Yr Ended 6/30/2018	3 Yrs Ended 6/30/2018	5 Yrs Ended 6/30/2018	Risk 5 Yrs Ended 6/30/2018	Risk Adj Excess Return 5 Yrs Ended 6/30/2018
<b>State Risk W/C - \$5.3 million</b>					
Total Fund Return - Net	6.03%	6.53%	7.52%	3.56%	0.44%
Policy Benchmark Return	5.32%	5.38%	6.29%	3.18%	
Excess Return	0.71%	1.15%	1.23%	OK	
<b>NDACO - \$5.9 million</b>					
Total Fund Return - Net	4.48%	5.15%	5.93%	3.29%	0.45%
Policy Benchmark Return	3.70%	3.95%	4.69%	2.83%	
Excess Return	0.78%	1.20%	1.23%	OK	
<b>Bis.Def.Sick Leave - \$730,000</b>					
Total Fund Return - Net	4.66%	5.56%	6.35%	3.42%	0.67%
Policy Benchmark Return	3.50%	4.02%	4.83%	2.94%	
Excess Return	1.16%	1.55%	1.51%	OK	
<b>FargoDome \$45 million</b>					
Total Fund Return - Net	7.64%	6.93%	8.02%	4.67%	0.57%
Policy Benchmark Return	6.54%	5.71%	6.81%	4.29%	
Excess Return	1.10%	1.22%	1.20%	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 June 30, 2018, including **Excess Returns of 1.20% or more.**

# Non-Pension Trust Return & Risk Summary – June 30, 2018

	1 Yr Ended 6/30/2018	3 Yrs Ended 6/30/2018	5 Yrs Ended 6/30/2018	Risk 5 Yrs Ended 6/30/2018	Risk Adj Excess Return 5 Yrs Ended 6/30/2018
<b>Cultural Endow. \$449,000</b>					
Total Fund Return - Net	8.27%	7.63%	8.94%	4.68%	0.25%
Policy Benchmark Return	7.74%	6.83%	7.98%	4.30%	
Excess Return	0.52%	0.81%	0.96%	OK	
<b>Board of Medicine \$2.2 million</b>					
Total Fund Return - Net	3.12%	3.34%	N/A		
Policy Benchmark Return	2.80%	2.72%	N/A		
Excess Return	0.33%	0.62%	N/A		
<b>PERS Retiree Health \$126 million</b>					
Total Fund Return - Net	7.15%	6.46%	7.70%	5.05%	-0.70%
Policy Benchmark Return	7.18%	6.63%	7.87%	4.69%	
Excess Return	-0.03%	-0.16%	-0.17%	OK	
<b>PERS Group Insurance \$32 million</b>					
Total Fund Return - Net	0.41%	0.66%	0.40%	0.62%	-0.08%
Policy Benchmark Return	0.33%	0.75%	0.47%	0.57%	
Excess Return	0.08%	-0.09%	-0.07%	OK	
<b>Tobacco Prev. \$54 million</b>					
Total Fund Return - Net	1.63%	N/A	N/A		
Policy Benchmark Return	1.68%	N/A	N/A		
Excess Return	-0.04%	N/A	N/A		

## SIB Client Specific Commentary:

The Cultural Endowment Fund has generated the highest absolute level of net investment returns (of 8.9%) 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.

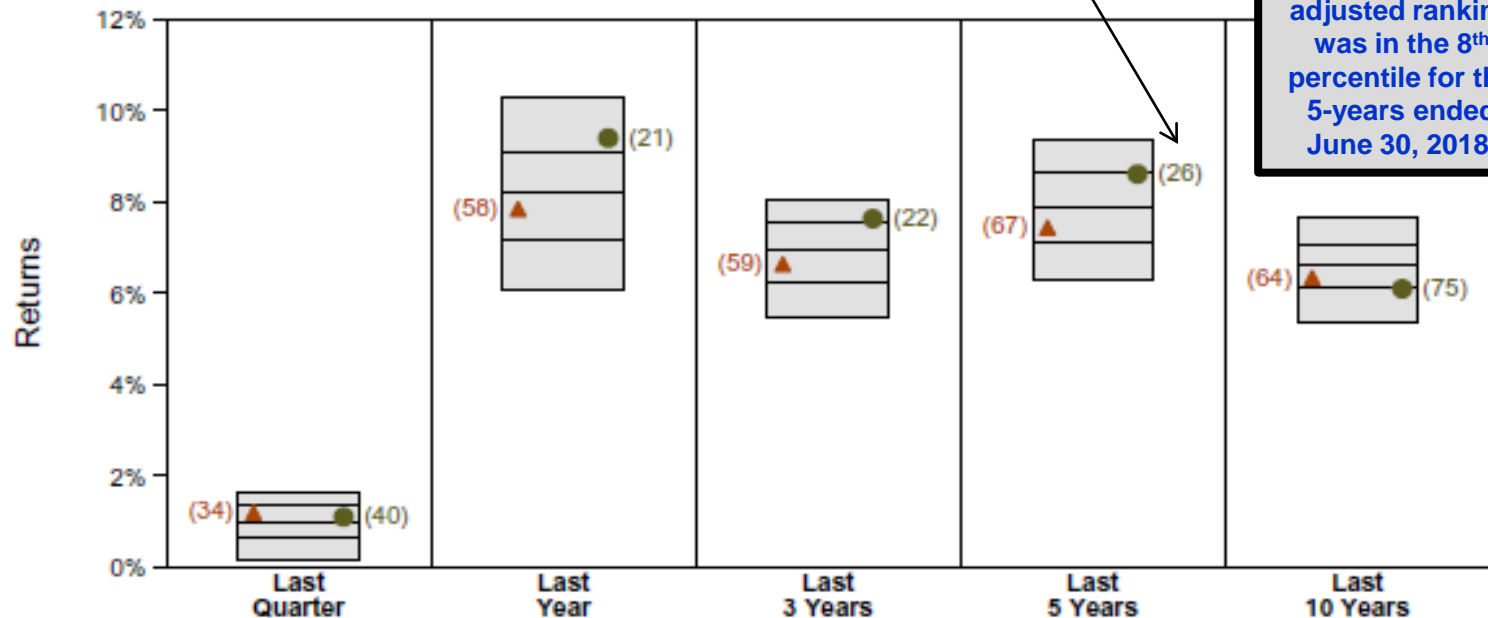
**PERS Retiree Health absolute returns have been reasonable the last 5-years (7.70%) but disappointing on a risk adjusted excess return basis of -0.70%.**

**PERS Group Insurance returns for the 5-years ended June 30, 2018 is disappointing but within -0.08% 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 26<sup>th</sup> percentile for the 5-years ended June 30, 2018, based on Callan’s “Public Fund Sponsor Database”.

## Callan Public Fund Sponsor Database



The Pension Trust asset allocation adjusted ranking was in the 8<sup>th</sup> percentile for the 5-years ended June 30, 2018.

\* Current Quarter Target = 16.3% Blmbg Aggregate, 16.1% Russell 1000 Index, 16.0% MSCI World, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.5% NDSIB PEN - Private Equity, 5.7% CPI-W, 4.9% Russell 2000 Index, 3.1% MSCI EM, 2.3% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.



## Investment Manager Meetings – *Forward Calendar*

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**RIO generally meets with up to ten 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 2018, RIO will conduct portfolio reviews with each of our 25 largest managers which serve as investment fiduciaries responsible for \$14 billion of SIB client investments including:** 1) LSV - \$1.4 billion; 2) L.A. Capital - \$1.4 billion; 3) Western Asset Management - \$1.3 billion; 4) JPMorgan - \$1 billion; 5) Parametric - \$950 million; 6) Wells Capital - \$800 million; 7) Prudential - \$750 million; 8) Northern Trust - \$700 million; 9) William Blair - \$700 million; 10) PIMCO - \$600 million; 11) Invesco - \$580 million; 12) State Street - \$570 million; 13) Epoch - \$425 million; 14) Declaration - \$350 million; 15) Dimensional Fund Advisors - \$260 million; 16) Research Affiliates - \$250 million; 17) SEI \$225 million; 18) Loomis Sayles - \$200 million; 19) Timber Investment Resources - \$180 million; 20) Atlanta Capital - \$170 million; 21) Axiom - \$160 million; 22) Ares - \$125 million; 23) Vanguard - \$120 million; 24) Cerberus - \$115 million; and 25) Grosvenor - \$100 million.

**On August 28, Parametric** will provide a portfolio review (at 11:00 am) of our Enhanced U.S. Large Cap and Small Cap Equity strategies including \$500 million in Large Cap and \$450 million in Small Cap). *Parametric (Clifton Group) has a near 10-year investment relationship with the SIB.* (See Callan's Investment Reports for one page account summaries.)

**On September 5, Western Asset Management** has been invited (at 2:30 pm) to provide a performance update on our \$870 million Core Fixed Income portfolio (held within the Legacy Fund and Insurance Trust). *WAMCO has a 27-year investment relationship with the SIB (and includes a \$500 million global inflation linked securities mandate).*

**On November 6, LSV** will offer a portfolio update (at 2:30 pm). 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.* LSV CEO, CIO and Founder, Mr. Josef Lakonishok, presented to the Board on February 23<sup>rd</sup>.

**On November 15, Timber Investment Resources** has been invited (at 9:00 am) to provide a performance update on our \$183 million timber portfolio (held within the Pension and Insurance Trusts).



# Asset and Investment Performance Highlights

- SIB assets reached a new high of \$13.7 billion at June 30, 2018, up \$1.4 billion in fiscal 2018.
- Net investment returns exceeded policy benchmarks for 99% of SIB client assets under management for the 5-years ended June 30, 2018, noting that prescribed risk levels were adhered to for all client portfolios without exception.
- PERS and TFFR earned 9.1% for the year ended June 30, 2018, exceeding their policy benchmarks by over 1%. For the 5-years ended June 30, 2018, PERS and TFFR each earned 8.3% per annum, including over 0.60% of excess return which translates into \$125 million of incremental income the last 5 years (e.g. \$5 billion x 0.60% = \$30 million/year x 5 years = \$150 million).
- Legacy Fund earned over 7.5% for the year ended June 30, 2018, surpassing its policy benchmark of 6.5% by 1% which translates into \$50 million of incremental income in fiscal 2018 (e.g. \$5 billion x 1% = \$50 million). For the 5-years ended June 30, 2018, the Legacy Fund earned 6% per annum, including 0.90% of excess return which translates into \$135 million of incremental income the last 5 years (e.g. \$3 billion x 0.90% = \$27 million/year x 5 years = \$135 million).
- WSI earned 5.3% in fiscal 2018 surpassing its performance benchmark by well over 1%. For the 5-years ended June 30, 2018 WSI earned 6.3% per annum, again beating its policy benchmarks by over 1% which translates into \$100 million of incremental income for WSI the last 5-years (e.g. \$2 billion x 1% = \$20 million/year x 5 years = \$100 million).
- Based on preliminary market valuations, SIB client investments exceeded \$14 billion in August of 2018 including over \$5.8 billion in the Pension Trust and over \$5.7 billion in the Legacy Fund in addition to nearly \$2.5 billion of insurance related assets.

June 30, 2018



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

**Investment Measurement Service  
Quarterly Review**

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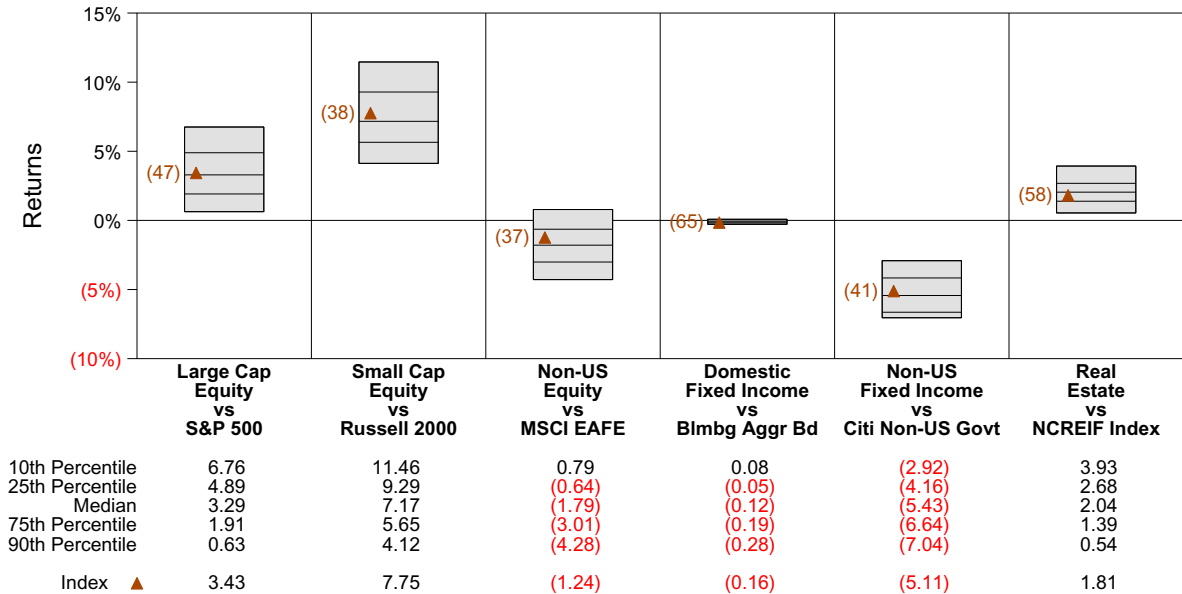
## Market Overview

### Active Management vs Index Returns

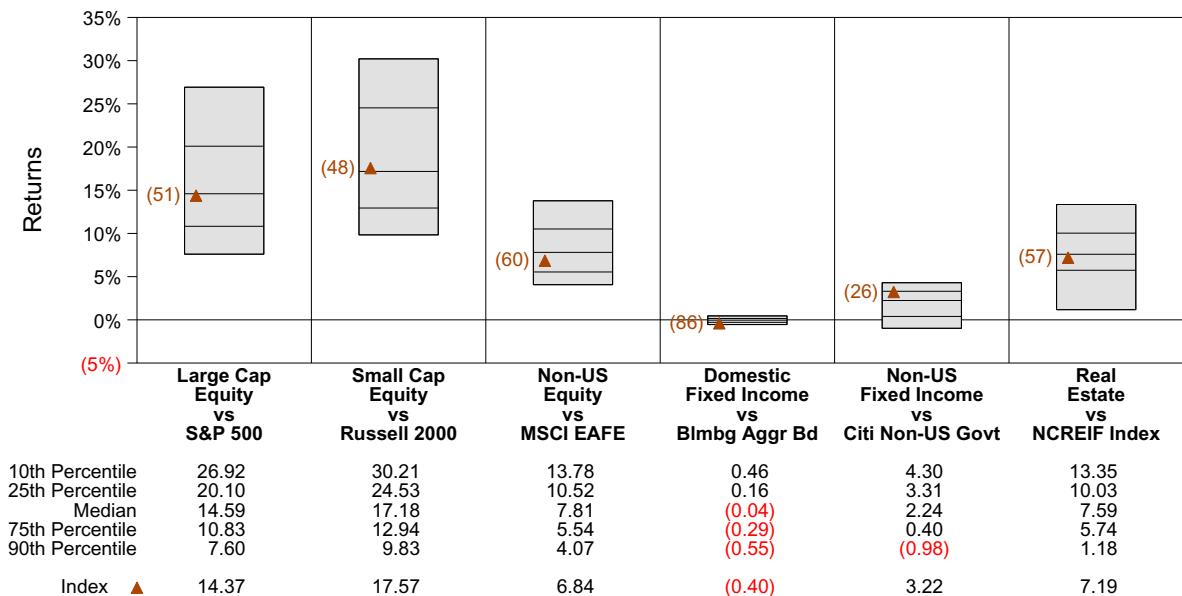
#### Market Overview

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 June 30, 2018



#### Range of Separate Account Manager Returns by Asset Class One Year Ended June 30, 2018





Second Quarter 2018

### Is This It for the Economic Recovery?

#### ECONOMY

**2** GDP growth hit 4.1% in the second quarter, the strongest rate since 2014. Many other economic indicators corroborate a story of a thriving U.S. economy. But are imbalances arising that mean we are reaching the peak in the current cycle?

### Tough Quarter but Brighter in Long Term

#### FUND SPONSOR

**4** The median fund sponsor in Callan's database rose 0.9% in the quarter, while a 60% equity/40% fixed income benchmark increased 2%. Over a 15-year time period all plans, by type and size, grew roughly in line with the benchmark.

### Another Gap Between U.S. and Overseas

#### EQUITY

**6** U.S. stocks rose on strong earnings and robust economic growth. Small cap stocks outperformed large caps, which were held down by trade worries. Trade woes also hit non-U.S. stocks, with most major indices in the red. Emerging market stocks were hit particularly hard.

### Trade Turbulence Troubles Bonds

#### FIXED INCOME

**8** U.S. rates rose in the quarter, and the yield curve continued to flatten. The Bloomberg Barclays US Aggregate Bond Index fell 0.2%, while high yield rebounded. Most non-U.S. indices fell in the quarter; emerging market bonds were the biggest losers.

### Show Me the Money: Income Helps Returns

#### REAL ESTATE

**10** U.S. core real estate returns are shifting toward income, rather than appreciation. Spreads between core and value-add strategies remain tight. Industrial was the best-performing sector in the quarter. Overseas markets are attracting interest.

### Languid Summer for Private Markets

#### PRIVATE EQUITY

**12** With the public market zig-zagging sideways, private equity activity slowed modestly. Fundraising picked up in the quarter but is slightly behind last year's first half. Company investments and exits trended down, with the venture-backed IPO market a bright spot.

### Trade Spat Rains on Risk Parade

#### HEDGE FUNDS/MACs

**13** Event-driven hedge funds were the quarter's steadier contributors. Emerging market-focused hedge funds fell but avoided the big losses of underlying indices. Rising rates should be a tailwind for managers. Callan's MAC Style Groups struggled and trailed a 60/40 benchmark.

### DC Plans Struggle in Turbulent Market

#### DEFINED CONTRIBUTION

**15** The Callan DC Index™ fell 0.2% in the first quarter, although it performed better than the Age 45 Target Date Fund, which dropped 0.5%. DC plan balances grew slightly (+0.1%) in the quarter. The DC Index's equity allocation fell for the first time in seven quarters.

## Broad Market Quarterly Returns

U.S. Equity  
Russell 3000



+3.9%

Non-U.S. Equity  
MSCI ACWI ex USA



-2.6%

U.S. Fixed Income  
Bloomberg Barclays Agg



-0.2%

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



-4.8%

Sources: Bloomberg Barclays, MSCI, FTSE Russell

# Is This It?

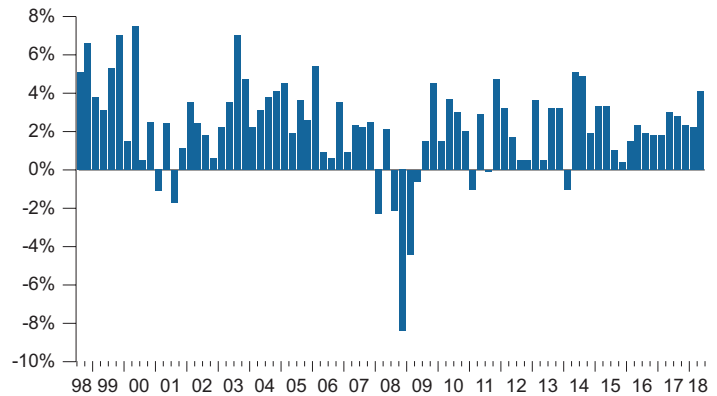
ECONOMY | Jay Kloepfer

Real GDP growth in the U.S. hit 4.1% in the second quarter of 2018, the strongest quarterly gain since 2014. Many indicators corroborate the story of a thriving American economy: low unemployment, robust consumer spending, elevated business and consumer confidence, and growth in non-residential investment. However, a big contributor to growth was a surge in exports, likely due to stockpiling ahead of tariffs imposed at the end of the quarter, which may not be sustained for long. Global growth is de-synchronizing, with signs of deceleration emerging in Europe, Japan, and China. Oil prices have rebounded from the lows of 2014, and inflationary pressures such as wages are gradually building. The Fed raised interest rates for the second time this year in June, and it is telegraphing two more hikes before the end of 2018 and perhaps three in 2019. While the tax cuts at the end of 2017 (a form of stimulative spending by the federal government) are buoying consumer spending, we may be reaching a peak in the current cycle.

Expansions do not die of “old age”; elapsed time is not an economic variable. In addition, the current expansion has seen one of the slowest rates of GDP growth, an average of just 2.2%, compared to a typical expansion average of 3% or greater. That said, the current expansion is one of the longest on record, and it is the imbalances that can develop during long expansions that ultimately lead to a correction. Diverging global growth, and the resetting of monetary policy in the U.S. to return to “normal” ahead of plans by other countries’ central banks, means higher interest rates in the economy with the strongest growth and upward pressure on the U.S. dollar. A more expensive dollar will make U.S. exports more costly, at a time of increased trade uncertainty following the imposition of tariffs. Higher interest rates mean higher borrowing costs, after a decade of cheap debt for those who could get it. The tight labor market poses another source of imbalance, with unemployment dipping to a generational low of 3.8% in May, employers facing challenges hiring talent, and wage pressures gradually building.

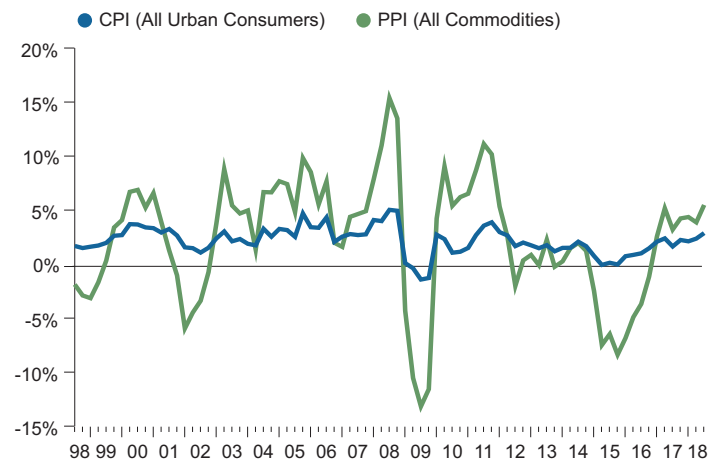
## Quarterly Real GDP Growth

(20 Years)



Source: Bureau of Economic Analysis

## Inflation Year-Over-Year



Source: Bureau of Labor Statistics

The second quarter was clearly another high point for the U.S. economy in the long rebound since 2009. U.S. exports surged 9.3% in the quarter, accounting for a fourth of total GDP growth. With growth weakening in American trading partners, the increase in exports to them does not likely represent a surge in demand but a shift in timing, which will show up in subsequent



quarters. The tax cut represents a potentially large fiscal stimulus, and consumers have certainly responded, driving consumption spending 4% during the quarter and accounting for two-thirds of GDP growth. Business investment of the tax cut is mixed; equipment spending grew more slowly in the first half of the year compared to 2017, while investment in structures surged at an annual rate of more than 13% in each of the first two quarters. One surprise in the quarter was a drop in inventory investment, which actually subtracted 1 percentage point from GDP. The upshot is that GDP growth could have been as high as 5%, and the economy now has greater capacity to rebuild inventory, suggesting a boost to future growth.

Another surprise in the GDP report was a drop in residential investment. The housing market has been a bit of a riddle as this long recovery has unfolded. The inventory of existing single-family homes reached its lowest reading on record for the month of May (1.65 million). Inventory levels keep dropping, reaching a supply of 4.1 months in June while a 6-month supply is considered normal. Yet home prices are high and rising everywhere. The FHA reported that home price indices rose year-over-year in the first quarter in all 50 states and in each of the 100 largest metro areas. The number of homes worth less than their mortgage has dropped by 80% since 2011, which should lead to an increase in potential inventory. Three factors have weighed on the inventory of homes for sale. A substantial number of single-family homes were converted to rental units starting in 2006. Second, Americans don't move as much; mobility in 2017 dropped to a post-World War II low. Third, starts have been hindered for 10 years on the supply side, with high

### The Long-Term View

Index	2018 2nd Qtr	Periods ended Dec. 31, 2017			
		Year	5 Yrs	10 Yrs	25 Yrs
<b>U.S. Equity</b>					
Russell 3000	3.89	21.13	15.58	8.60	9.72
S&P 500	3.43	21.83	15.79	8.50	9.69
Russell 2000	7.75	14.65	14.12	8.71	9.54
<b>Non-U.S. Equity</b>					
MSCI ACWI ex USA	-2.61	27.19	6.80	1.84	–
MSCI Emerging Markets	-7.96	37.28	4.35	1.68	–
MSCI ACWI ex USA Small Cap	-2.60	31.65	10.03	4.69	–
<b>Fixed Income</b>					
Bloomberg Barclays Agg	-0.16	3.54	2.10	4.01	5.48
90-Day T-Bill	0.45	0.86	0.27	0.39	2.60
Bloomberg Barclays Long G/C	-1.45	10.71	4.43	7.26	7.67
Bloomberg Barclays GI Agg ex US	-4.76	10.51	-0.20	2.40	5.02
<b>Real Estate</b>					
NCREIF Property	1.76	6.96	10.19	6.08	9.12
FTSE NAREIT Equity	10.04	5.23	9.46	7.44	10.76
<b>Alternatives</b>					
CS Hedge Fund	0.10	7.12	4.23	3.24	–
Cambridge PE*	3.03	19.33	13.86	9.09	15.62
Bloomberg Commodity	0.40	1.70	-8.45	-6.83	2.47
Gold Spot Price	-5.48	13.68	-4.82	4.56	5.63
<b>Inflation – CPI-U</b>	0.98	2.11	1.43	1.61	2.23

\*Data for most recent period lags by a quarter

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

timber and construction costs, a shortage of building sites, and restricted access to credit. Demand may be there, but builders have been unable to put up enough homes.

### Recent Quarterly Economic Indicators

	2Q18	1Q18	4Q17	3Q17	2Q17	1Q17	4Q16	3Q16
Employment Cost–Total Compensation Growth	2.8%	2.7%	2.6%	2.5%	2.4%	2.4%	2.2%	2.3%
Nonfarm Business–Productivity Growth	3.6%	0.4%	0.3%	2.6%	1.7%	0.2%	1.1%	2.4%
GDP Growth	4.1%	2.2%	2.3%	2.8%	3.0%	1.8%	1.8%	1.9%
Manufacturing Capacity Utilization	75.4%	75.3%	75.2%	74.4%	74.9%	74.6%	74.4%	74.3%
Consumer Sentiment Index (1966=100)	98.3	98.9	98.4	95.1	96.4	97.2	93.2	90.3

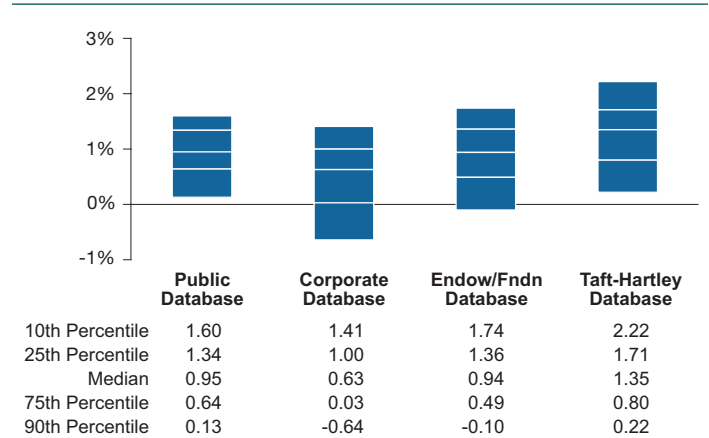
Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve, IHS Economics, Reuters/University of Michigan

# Tough Quarter, but Long-Term Results Are Brighter

## FUND SPONSOR

- The median fund sponsor in Callan’s database gained 0.9% in the second quarter.
- By fund type, Taft-Hartley plans (+1.4%) were the top performers; corporate plans (+0.6%) came in last.
- The dispersion of returns for funds by size was quite narrow; small plans (under \$100 million) rose 0.94% while large plans (more than \$1 billion) were up 0.89% and medium plans grew by 0.87%.
- All fund types and sizes lagged a benchmark consisting of **60% S&P 500/40% Bloomberg Barclays US Aggregate Bond Index**, which rose 2%.
- Over the last year plans also trailed the benchmark, which was up 8.3%. Endowments/foundations came close, while corporate plans (+6.7%) underperformed.
- Over longer time periods, plans advanced at rates closer to that benchmark. The 60/40 benchmark rose 7.3% annually over the last 15 years. Endowments/foundations did best over that time period, up 7.6%, while Taft-Hartley plans were the laggards at 7.1%. Large plans (+7.7%) topped the benchmark, while medium and small plans reported returns slightly below it.

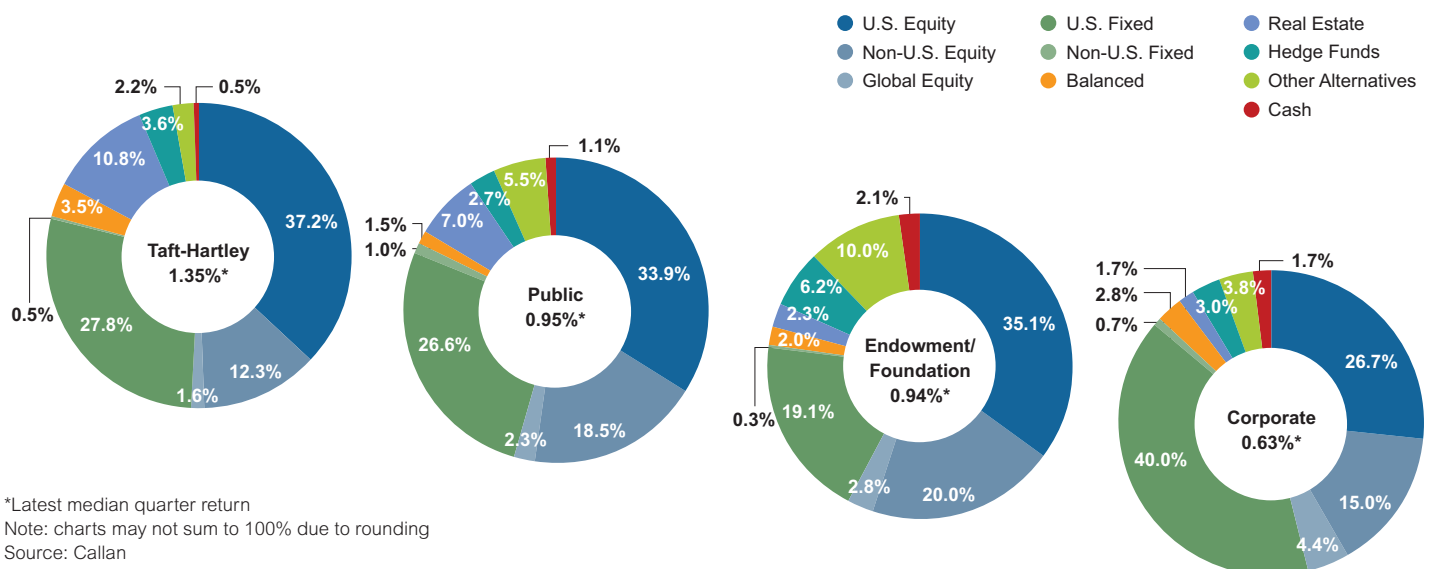
## Callan Fund Sponsor Returns for the Quarter



Source: Callan

- Plans continue to focus on managing an environment of rising interest rates, continued low return expectations, and the desire for strong risk controls in anticipation of a late cycle market downturn.
- Some fund sponsors are looking for downside protection while others are seeking higher yield in less-efficient markets in order to reach return targets.

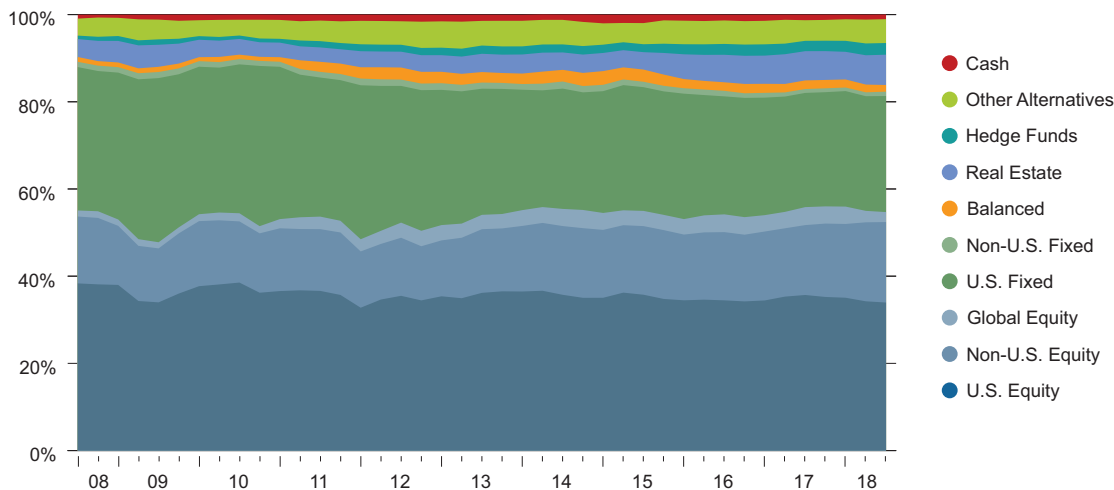
## Callan Fund Sponsor Average Asset Allocation



- Still others want strong, transparent risk controls and lower performance volatility while examining lower fee structures.
- The debate continues about whether active or passive management provides investors with the right balance between higher performance and lower costs.
- Passive investing is primarily visible in equity asset classes, including both large cap U.S. equity and non-U.S. equity.
- Some fund sponsors are considering new or additional investments in private assets including real estate, private equity, and private credit.
- Topics that concern plan sponsors are rising interest rates and the uncertain outcomes of tariffs with global trade partners. Despite these concerns, some plans will seek enhanced returns at the expense of increased risk.
- Corporate defined benefit (DB) plans are embracing de-risking (increasing fixed income and extending duration). They are moving along their de-risking glidepath and working at different stages of the process. Implementation of de-risking plans depends largely on interest rate movements this year.
- Return enhancement continues to be the focus of public plans and endowment and foundation funds. As endowments and foundations seek higher returns, asset classes such as global equity, non-U.S. equity, and real estate benefit. Risk and funded status for public plans are ongoing concerns.
- Defined contribution (DC) plans are evaluating different levels of service offered by recordkeepers and shifting away from off-the-shelf target date funds (TDFs). Examination of managed account offerings on a standalone basis in order to improve participant outcomes and experiences is ongoing and will continue into the future.
- TDFs' share of DC assets grew to 31.3% in the first quarter, marking another high for the category, according to the Callan DC Index™.

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. Equities

U.S. equities (**S&P 500 Index**: +3.4%) rose on a strong earnings season and positive economic data. Energy was the best-performing sector (+13.5%) as oil prices trended higher after the U.S. withdrew from the Iran nuclear accord.

Small cap (+7.8%) outperformed large cap (+3.6%) on trade war fears. Large cap companies derive a big portion of revenues from foreign markets and are more negatively impacted by trade wars than domestically focused small cap firms.

Growth (+5.8%) continued to outperform value (+1.2%) due to the Consumer Discretionary (+8.2%) and Tech (+7.1%) sectors.

The concentration of returns within broad indices remains a concern. Excluding the performance of the FAANG stocks (Facebook, Amazon, Apple, Netflix, Google), S&P 500 performance was negative.

### Large Cap Trails Small Cap Amid Trade War Concerns

- Retaliatory tariffs hit the U.S. agriculture, auto, and industrial metals sectors, among others. The ongoing decline of U.S. export market share is exacerbating the impact on large caps, which may continue to face macro headwinds in the coming quarters.

- Small cap (+7.7% YTD) is outperforming large cap (+2.9% YTD) as investors view small companies as more insulated against potential trade wars/looming tariffs. S&P 500 companies generate 38% of revenue overseas versus 20% for the S&P SmallCap 600.
- The rising dollar and concerns over the divergence between the strong U.S. economy and slower global growth are also driving investors to the relative safety of smaller companies.

### Large Growth Continues to Dominate

- Large value trailed large growth by nearly 900 bps in the first half of 2018 (-1.7% vs. +7.3%), driven by ongoing outperformance of the Tech sector and tech-exposed Consumer Discretionary companies.

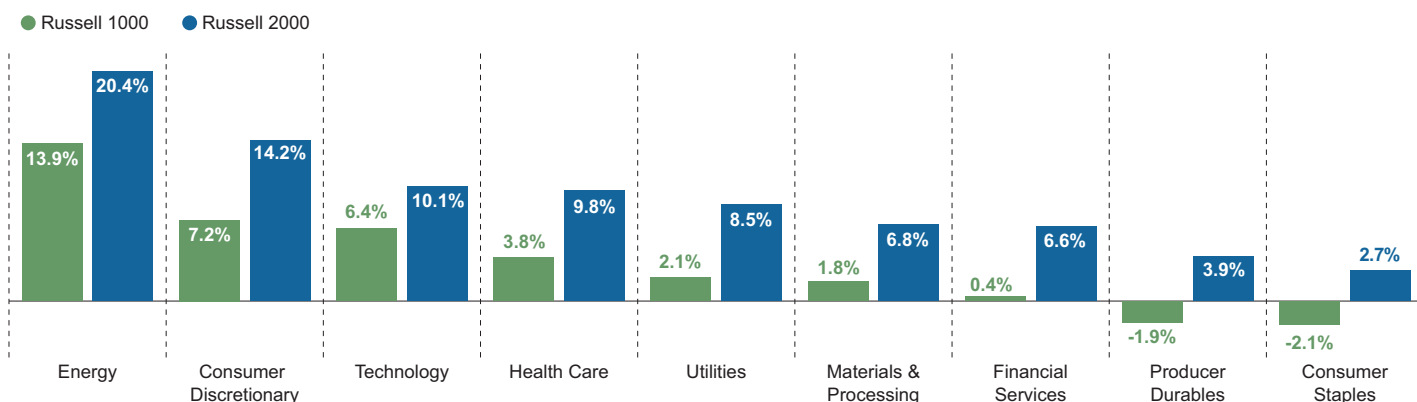
### Concentration Risk

- FAANG stocks continue to drive an outsized proportion of returns within equity indices.
- Biotech represents half of the Health Care sector's weight of the **Russell 2000 Growth Index** (12% vs. 25%), and many small growth managers have struggled in selecting biotech names given the binary outcomes of research and depth of resources needed to do it well.

### Amazon Effect Continues

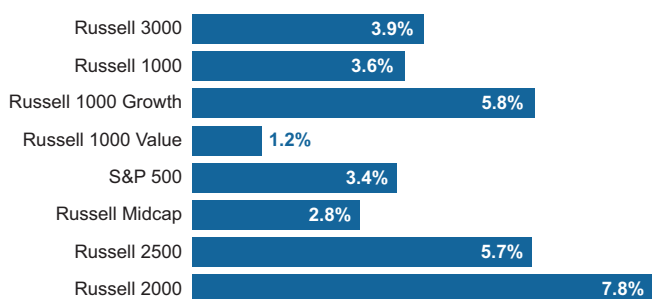
Amazon (+17%) increased in size by over 69% since last year's Russell reconstitution, with continued market share expansion

## Quarterly Performance of Select Sectors



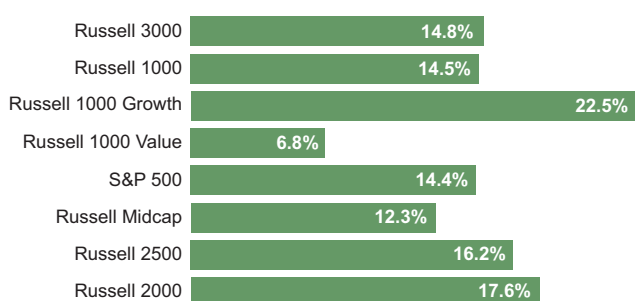
Source: FTSE Russell

### U.S. Equity: Quarterly Returns



Sources: FTSE Russell and Standard & Poor's

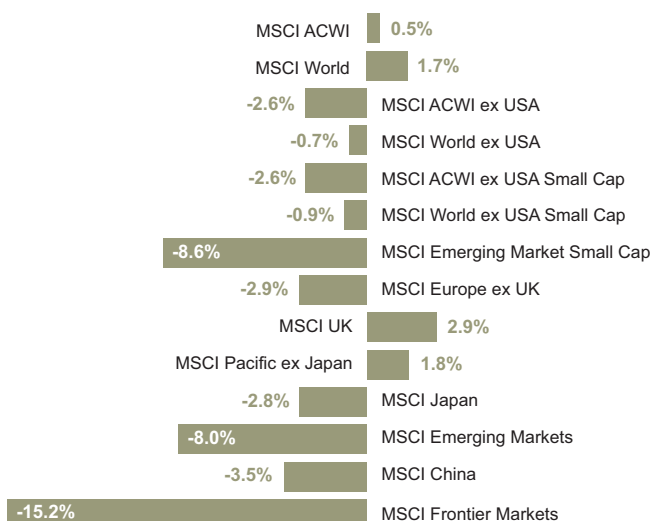
### U.S. Equity: One-Year Returns



Sources: FTSE Russell and Standard & Poor's

in the retailing space (including food) and now into Health Care. Active large cap managers with underweight positions to Amazon will likely continue to lag their benchmarks given Amazon's looming presence in large cap indices.

### Non-U.S. Equity: Quarterly Returns (U.S. Dollar)



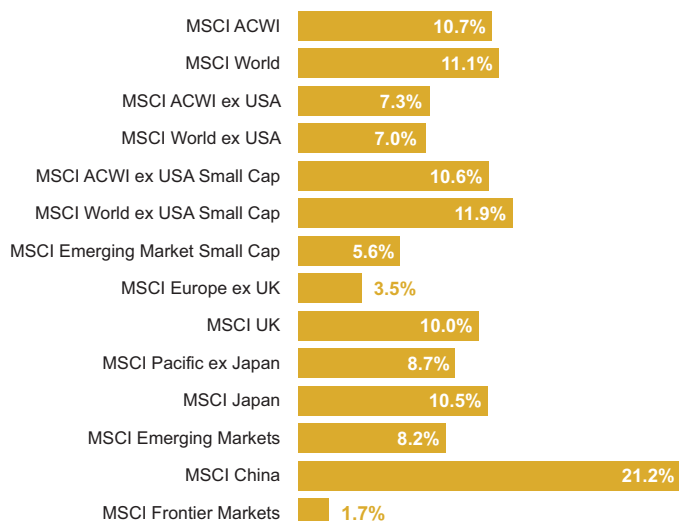
Source: MSCI

### Non-U.S. / Global Equity

Non-U.S. markets ended in the red as trade war talk moved into action. Although initial tariffs levied by the U.S. were targeted, retaliatory actions and supply chain disruptions broadened their effects.

- Growth outpaced value—although no factor category showed significant strength.
- Cyclical sectors were hurt later in the quarter as the prospect of slower growth led to reduced expectations.
- The U.S. dollar was up, hurting non-U.S. returns. The euro and British pound were hit especially hard with the rise of populism and Brexit turmoil.
- Frontier markets were singed by Argentina (-42%) on continuing political unrest, severe drought, and a devaluing currency.
- Emerging markets were among the hardest hit, with Latin America taking the brunt of the sell-off. In May, Brazil's central bank unexpectedly left rates unchanged, while a trucking strike and growing concern about October elections weighed on markets. The Brazilian real fell 14% in the quarter versus the U.S. dollar.
- China reversed a five-quarter rally on concerns surrounding growing debt burdens, slower growth, and trade uncertainty.

### Non-U.S. Equity: One-Year Returns (U.S. Dollar)



Source: MSCI

# Global Fixed Income

## U.S. Fixed Income

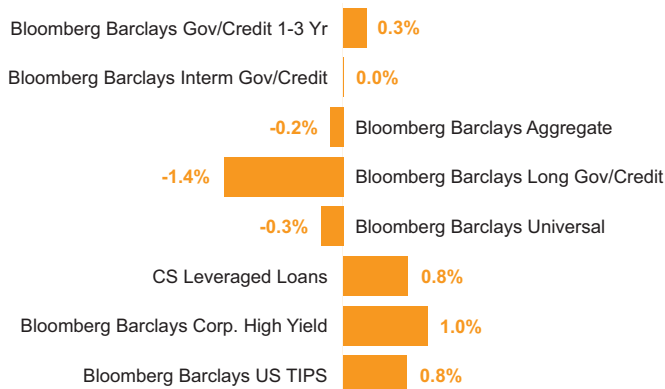
Fixed income markets grappled with multiple issues, resulting in continued volatility. Trade conflicts due to the imposition of tariffs, emerging market elections, and the rising U.S. dollar contributed to the unstable environment.

U.S. rates rose in the second quarter and the yield curve continued its flattening trend.

### Treasury Spreads Tightened

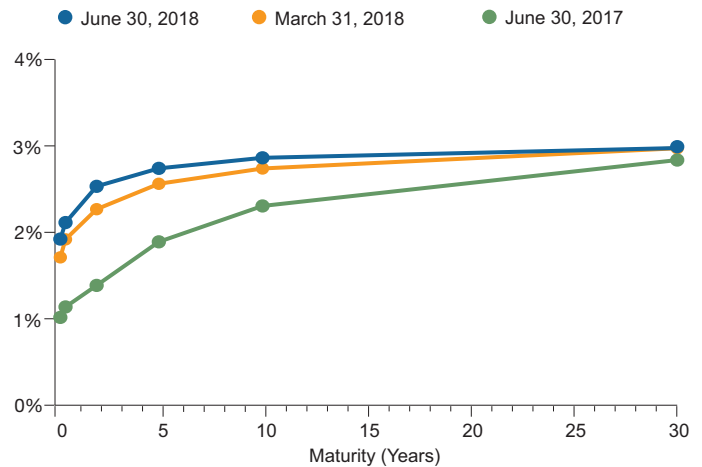
- The spread between the 2-year and 10-year ended at its lowest level (33 bps) in more than 10 years.
- The **Bloomberg Barclays US Aggregate Bond Index** fell 0.2%.
- Investment-grade (IG) corporates faced increased headwinds during the quarter, dragging returns lower. Concerns over potential trade wars and rising rates increasingly weighed on IG credit despite rising earnings and revenues.
- High yield corporates (**Bloomberg Barclays High Yield Index: +1.0%**) rebounded in the second quarter, pushing year-to-date returns into positive territory.
- CCC-rated credits continued to outperform higher-rated credits within high yield.

## U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg Barclays and Credit Suisse

## U.S. Treasury Yield Curves



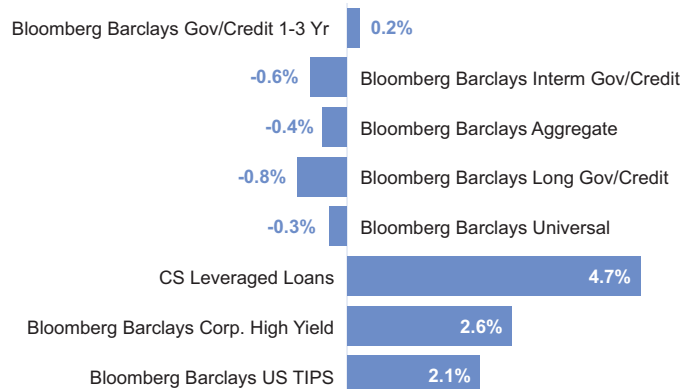
Source: Bloomberg

- Earnings growth remains strong and defaults remain benign amid the positive economic outlook.

### Yield Curve Nears Inversion

- The Fed's preferred measure of inflation, personal consumption expenditures (PCE), is on the precipice of its 2% target.

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



Sources: Bloomberg Barclays and Credit Suisse

## GLOBAL FIXED INCOME (Continued)

- The impact of increased tariffs and fiscal policy may lead to even higher levels.
- Only the recent strength of the U.S. dollar and a drop in energy prices have curtailed the dramatic rise over the past year.
- With two more hikes forecasted for this year and three more next year, the curve is inching closer to inversion.
- While not an immediate cause of recession, an inverted curve has been a reliable signal of recession in the past.

### Non-U.S. Fixed Income

#### Most Indices Fell in Second Quarter

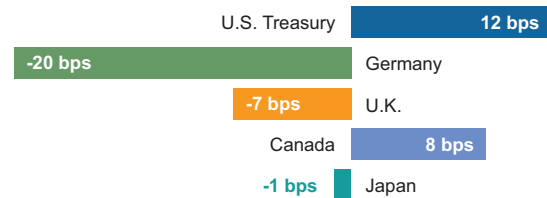
- The **Bloomberg Barclays Global Aggregate Bond Index** dropped 2.8%.
- The ex-U.S. version of the Index fell even more, declining 4.8%.
- Emerging market (EM) indices were especially hard hit (**JPM GBI-EM Global Diversified Index: -10.4%**).
- For the last year, broad indices were narrowly positive but EM indices were lower.

#### Uncertainty of Trade War May Have Biggest Impact

- Announced tariffs are not expected to have a meaningful impact on growth; however, the extent of the costs ultimately depends on the degree to which other countries counter.
- An OECD study that looks at the far larger shock of a 10% across-the-board increase in tariffs by the U.S., euro zone, and China finds that global GDP would fall by 1.4%.
- The more impactful result may be an increase in uncertainty, which tends to precede weaker economic activity.
- These effects will take time to ultimately play out and are even more difficult to quantify.

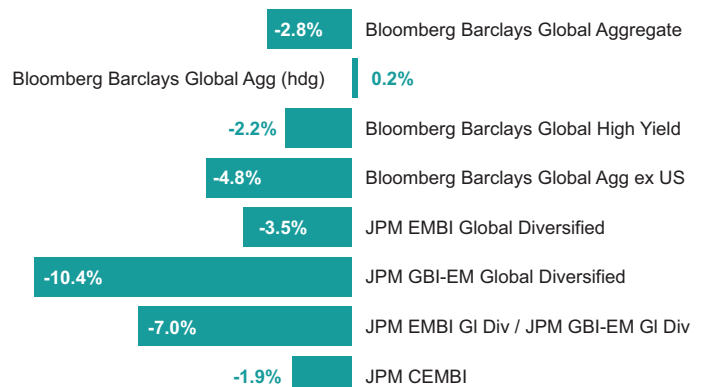
### Change in 10-year Global Government Bond Yields

1Q18 to 2Q18



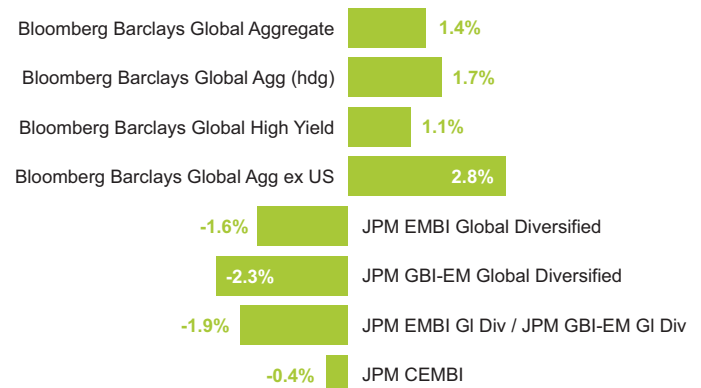
Source: Bloomberg Barclays

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



Sources: Bloomberg Barclays and JPMorgan Chase

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



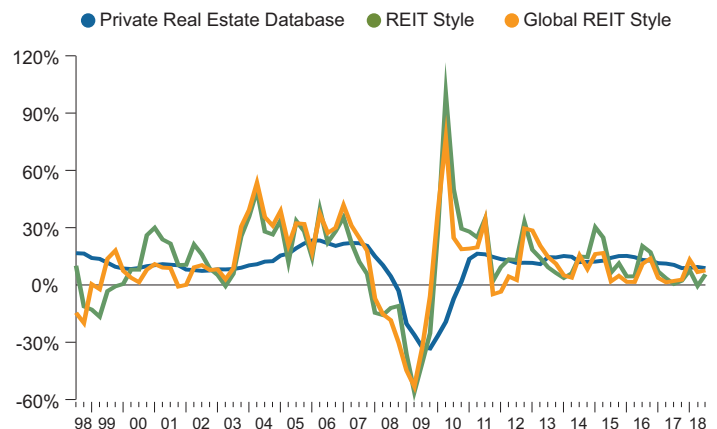
Sources: Bloomberg Barclays and JPMorgan Chase

# U.S. Returns Moderate; Interest in Overseas Markets Is High

## REAL ESTATE

- U.S. core real estate returns continue to moderate and shift toward income. The limited appreciation that did occur in the second quarter came from net operating income growth rather than further cap rate compression.
- The **NCREIF Open End Diversified Core Equity Index** rose 1.8% in the second quarter, while the **Callan Real Estate ODCE Style Group** gained 1.6%.
- Spreads remain relatively tight between core and value-add due to large amounts of capital in both strategies chasing fewer available deals, combined with many investors seeking to create core assets by using their non-core buckets to buy and stabilize non-core properties.
- As private real estate valuations continue to test historical highs, investors are looking at other sectors such as real estate debt and REITs to access the best risk-adjusted returns from real estate. Both U.S. and non-U.S. REITs are trading at discounts to net asset value, indicating relative value for public market securities compared to private real estate valuations.
- The **EPRA/NAREIT Developed Index** jumped 5.1% in the second quarter, versus the +4.5% return for the **Callan Global Real Estate Style Group**. The **EPRA/NAREIT Developed ex US Index** increased only 0.6%, compared to the 0.4% gain for the **Callan Global ex-U.S. Real Estate Style Group**. The **NAREIT Equity REITs Index** spiked 10.0%; the **Callan U.S. REIT Style Group** nearly matched that with a 8.6% return.
- Supply and demand fundamentals are balanced but peaking. Supply is in check and aided by strict commercial real estate lending standards. Demand continues on the back of synchronized U.S. growth. Transaction volumes have begun to take a step back in recent quarters from current cycle peak levels but have yet to substantially affect pricing, as property remains expensive.
- The industrial sector performed the strongest (+3.4%), benefiting as structural shifts in the economy, property markets, and consumer habits continue to dampen demand for traditional retail space. Office is performing as expected late in the cycle (+1.7%), and tenant improvements and other capital expenditures are increasingly eroding cash flow. Multifamily remains strong due to positive demographic trends, except for the Class A luxury segment in prime markets such as New York.
- European real estate markets (ex-U.K.) are gaining momentum due to strong fundamentals in major European cities and despite continued political concerns across the region.
- Value-add and opportunistic real estate owners and operators continue to see significant prospects for creating and selling core product to a robust market of buyers. Paris, Berlin, Frankfurt, Amsterdam, Stockholm, and Madrid continue to see increased levels of investment activity.
- Asian real estate products are seeing strong fundraising momentum, with existing managers reaching target fund sizes and an increase in Asia-focused open-end funds.
- The Chinese government is implementing policies to increase domestic growth and consumption, including support for the development of multi-family rental property, a relatively new concept in China. Over the summer, the Chinese renminbi weakened against the dollar, due to monetary easing in China and global trade tensions, and more stringent

## Rolling One-Year Returns



Source: Callan

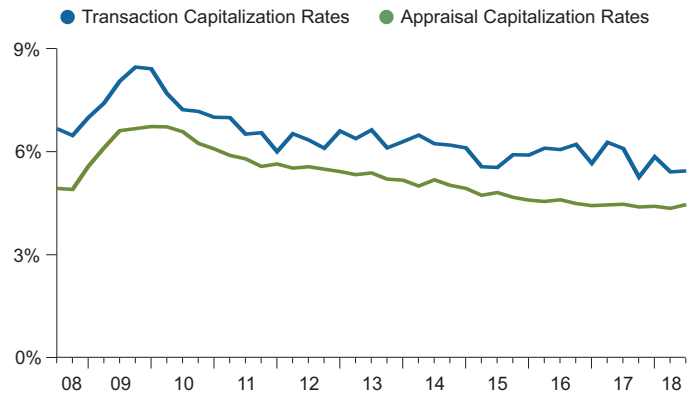


## REAL ESTATE (Continued)

capital controls have increased the amount of capital looking to invest within the country; investment activity remains steady in China.

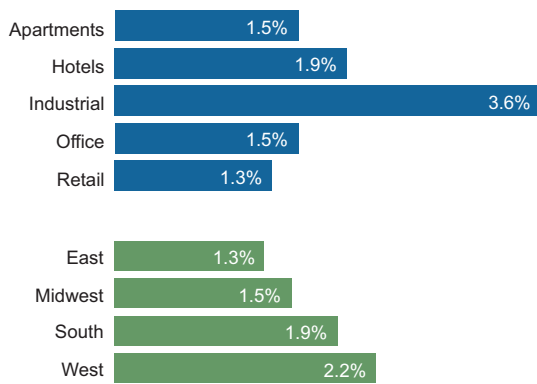
- Other major markets such as Japan, Australia, South Korea, and India continue to see investment activity across multiple sectors.
- Infrastructure strategies are raising significant capital. Open-end infrastructure managers have secured substantial new commitments this year. Infrastructure managers have reported mixed impact to their portfolios following the implementation of the latest tax law changes. The variety of closed-end infrastructure products continues to increase with new offerings in debt and emerging markets-focused strategies.

## NCREIF Transaction and Appraisal Capitalization Rates



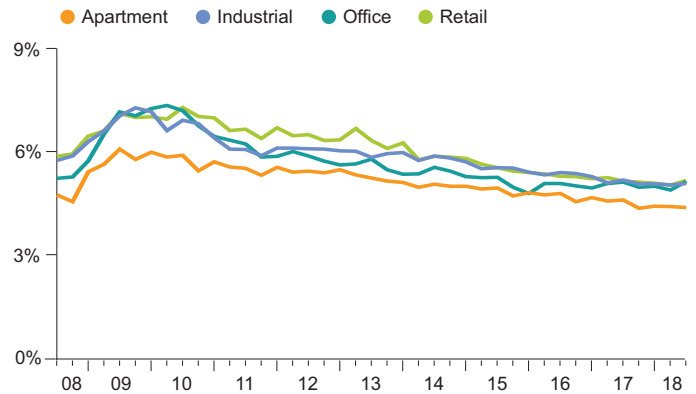
Source: NCREIF  
Note: Transaction capitalization rate is equal weighted.

## Sector Quarterly Returns by Property Type and Region



Source: NCREIF

## NCREIF Capitalization Rates by Property Type



Source: NCREIF  
Note: Capitalization rates are appraisal-based.

## Callan Database Median and Index Returns\* for Periods ended June 30, 2018

Private Real Assets	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
Real Estate ODCE Style	1.60	3.67	7.55	8.85	10.19	4.53	7.18
NFI-ODCE (value wt net)	1.81	3.82	7.47	8.38	10.03	4.33	7.29
NCREIF Property	1.76	3.49	7.13	8.23	9.76	6.22	8.98
NCREIF Farmland	1.13	2.46	6.55	7.58	10.25	11.73	14.61
NCREIF Timberland	0.48	1.41	3.57	3.43	6.00	4.00	7.45
Public Real Estate							
Global Real Estate Style	4.50	0.75	7.53	6.73	7.58	6.61	10.38
EPRA/NAREIT Developed	5.12	0.36	5.64	5.71	5.97	4.88	–
Global ex-U.S. Real Estate Style	0.44	0.72	11.45	5.36	6.24	5.08	10.31
EPRA/NAREIT Developed ex US	0.55	0.03	9.77	5.67	5.69	4.27	9.59
U.S. REIT Style	8.57	1.30	4.48	8.47	8.91	8.66	10.94
NAREIT Equity REITs	10.04	1.02	3.50	8.06	8.31	7.94	10.02

\*Returns less than one year are not annualized.  
Sources: Callan, FTSE Russell, NAREIT, NCREIF

# Languid Summer Days

PRIVATE EQUITY | Gary Robertson

- Second quarter private equity partnership commitments totaled \$90.3 billion, with 329 new partnerships formed. The dollar volumes and number of funds both rose 36% from \$66.5 billion and 242 in the prior quarter. (Source: *Private Equity Analyst*)
- For the first half, 2018 is running \$9 billion or 5% behind a year ago. This year's fundraising should end up in the high \$300 billion range, similar to the past two years. Some large fundraising events are slated to start in the fourth quarter.
- New buyout transactions fell although activity remained brisk overall. Funds closed 443 investments with \$36.0 billion in disclosed deal value, a 26% dip in count and a 47% decline in value from the first quarter's very robust 597 investments and \$67.9 billion of announced value. (Source: *Buyouts*)
- The \$17.9 billion add-on of Toshiba Memory by Bain's portfolio company KK Pangea was the quarter's largest buyout. Nine acquisitions with announced values of \$1 billion or more closed in the quarter, the same as last quarter. (Source: *Buyouts*)
- New investments in venture capital companies totaled 1,895 rounds of financing with \$27.3 billion of announced value. Investments were down 10% from the prior quarter, and value fell 13%. The median pre-money valuations continued to increase across the board. The smallest and largest increases were seed (+17%) and Series C (+44%). (Source: National Venture Capital Association)

## Funds Closed January 1 to June 30, 2018

Strategy	No. of Funds	Amt (\$mm)	Percent
Venture Capital	273	24,612	16%
Buyouts	193	108,047	69%
Private Debt	39	8,457	5%
Secondary and Other	23	8,537	5%
Fund-of-funds	43	7,140	5%
<b>Totals</b>	<b>571</b>	<b>156,793</b>	<b>100%</b>

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

- There were 132 private M&A exits of buyout-backed companies with disclosed values totaling \$24.5 billion. Both the count and dollar volume were down from the prior quarter's 164 sales and \$28.8 billion. (Source: *Buyouts*)
- Six buyout-backed IPOs raised an aggregate \$2.5 billion, down from 11 totaling \$3.9 billion previously. (Source: *Buyouts*)
- Venture-backed M&A exits totaled 173 transactions with disclosed value of \$8.8 billion, compared to 203 sales with values of \$13.6 billion in the first quarter. (Source: *Buyouts*)
- There were 28 VC-backed IPOs in the second quarter with a combined float of \$1.9 billion. The first quarter had 15 IPOs and total issuance of \$2.2 billion. (Source: *Buyouts*)

Please see our upcoming issue of *Private Markets Trends* for more in-depth coverage.

## Private Equity Performance Database (%) (Pooled Horizon IRRs through December 31, 2017\*)

Strategy	3 Months	Year	3 Years	5 Years	10 Years	15 Years	20 Years
All Venture	3.68	12.97	9.23	16.18	9.51	9.70	17.90
Growth Equity	5.83	20.09	12.21	13.63	9.95	13.04	13.47
All Buyouts	5.38	22.64	13.65	14.41	8.83	14.59	12.43
Mezzanine	3.18	14.72	9.70	10.18	8.80	9.67	8.67
Distressed	2.45	10.99	6.72	9.52	9.49	10.77	10.34
<b>All Private Equity</b>	<b>3.63</b>	<b>15.26</b>	<b>10.10</b>	<b>10.82</b>	<b>9.25</b>	<b>11.47</b>	<b>11.24</b>
S&P 500	4.82	19.11	11.94	13.97	9.12	12.97	12.81

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.

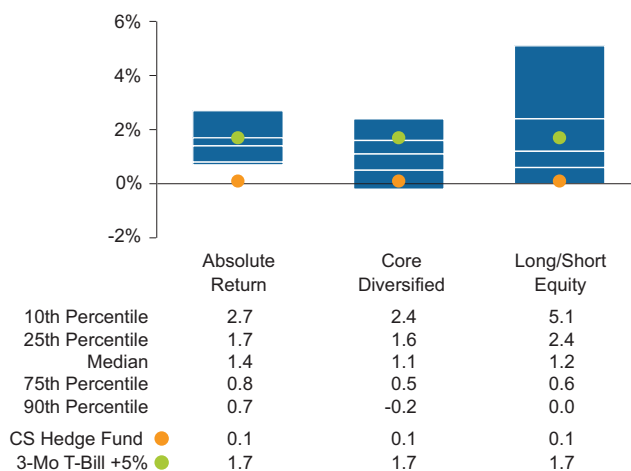
# Trade Spat Rains on Risk Parade

HEDGE FUNDS/MACs | Jim McKee

## Hedge Funds

- During the quarter, Trump’s tough talk on trade upset markets, particularly abroad, while positive momentum from tax cuts and corporate earnings growth lifted U.S. markets.
- Benefiting from a strong corporate environment, particularly in the U.S., event-driven strategies (Event-Driven Multi, Distressed, Risk Arb) were the quarter’s steadier contributors.
- As fiscal and monetary policies diverged globally, Global Macro gained 1.3% with its discretionary bets; however, Managed Futures (-0.3%) lacked any meaningful systematic trends.
- Actively managing risks in foreign markets hurt by a stronger dollar, Emerging Markets (-4.3%) suffered fewer losses than the underlying market indices.
- Long/Short Equity (-0.3%) went nowhere, on average, amid turbulent markets across geographies and styles.

## Hedge Fund-of-Funds Style Group Returns



Sources: Callan, Credit Suisse, Federal Reserve

## Callan Database Median and Index Returns\* for Periods ended June 30, 2018

Hedge Fund Universe	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Callan Fund-of-Funds Database	1.29	5.61	2.76	4.23	3.32	4.82
Callan Absolute Return FOF Style	1.36	4.99	2.71	4.07	3.09	4.49
Callan Core Diversified FOF Style	1.06	5.05	2.22	4.18	3.25	5.03
Callan Long/Short Equity FOF Style	1.21	7.34	3.90	5.56	3.85	5.98
Credit Suisse Hedge Fund	0.10	4.74	2.02	3.60	3.24	5.51
CS Equity Market Neutral	-0.64	5.89	1.88	2.05	-3.36	0.33
CS Fixed Income Arb	-0.27	3.96	4.02	3.92	4.27	4.02
CS Distressed	0.51	4.15	2.95	3.73	4.08	6.61
CS Event-Driven Multi	2.02	3.69	-0.42	2.13	2.92	5.84
CS Emerging Markets	-4.34	5.69	4.68	4.77	3.43	7.46
CS Managed Futures	-0.29	4.00	-1.47	1.88	0.62	2.87
CS Convertible Arbitrage	-0.77	2.56	3.12	2.55	4.28	3.96
CS Multi-Strategy	0.14	3.46	4.53	6.03	5.28	6.48
CS Risk Arbitrage	0.80	1.98	3.26	2.74	2.72	4.08
CS Long/Short Equity	-0.35	7.06	3.31	5.80	4.12	6.56
CS Global Macro	1.27	5.65	1.71	2.76	3.63	6.67
HFRI Asset Wtd Composite	0.87	5.31	2.68	4.17	3.52	–
90-Day T-Bill + 5%	1.66	6.36	5.68	5.42	5.35	6.29

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

### Rates a Tailwind for Managers

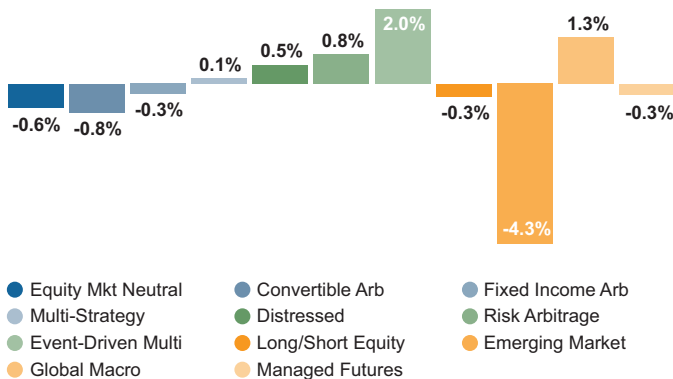
- Rising short-term rates are now providing a tailwind to hedge fund performance with growing returns on cash and short-interest rebates.
- Higher rates, with accompanying inflation risks, are also likely to create more market volatility, leading to more trading opportunities for active managers like hedge funds.

### Multi-Asset Class (MAC) Strategies

Liquid alternatives to hedge funds have become popular among investors for their attractive risk-adjusted returns that are similarly uncorrelated with traditional stock and bond investments but constructed at a lower cost.

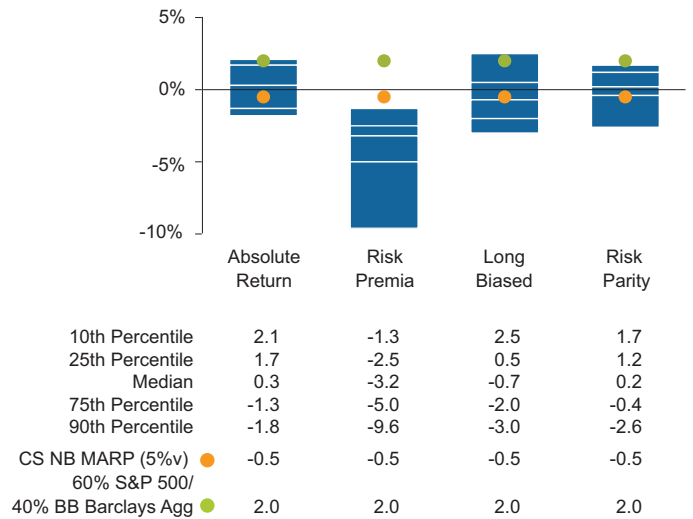
- Callan’s Multi-Asset Class (MAC) style groups struggled with a tough top-down market environment, leading to flat or negative returns in the second quarter.
- **CS Neuberger MARP** (-0.5%) is an equal risk-weighted index of alternative risk factors (value, carry, momentum, and liquidity) across four capital markets (equity, fixed income, currency, and commodities) targeting 5% volatility.
- Equity Value (-4.6%) sank again after a similar loss in the first quarter, reflecting a continuing Tech-led growth story. Although Commodity Momentum (+9.5%) got traction, conflicting economic signals around the world undermined other momentum factors.

### Credit Suisse Hedge Fund Strategy Returns



Source: Credit Suisse

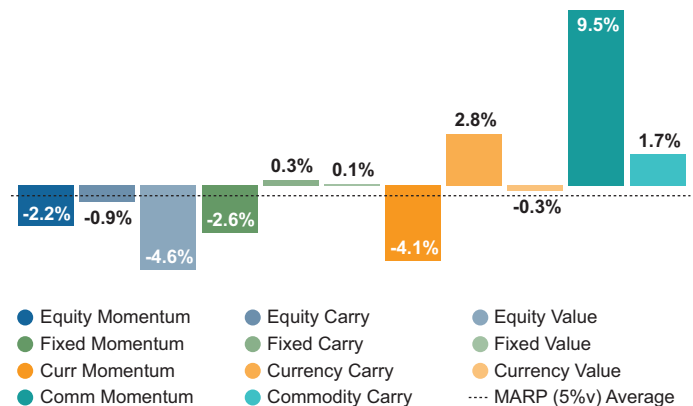
### MAC Style Group Returns



Sources: Bloomberg Barclays, Callan, Credit Suisse, Neuberger Berman, Standard & Poor’s

- The **Risk Premia MAC Style Group** (-3.2%) experienced systematic weakness, as noted above with the CS NB MARP. Normally diversifying exposures of value and momentum risk factors were key detractors again this quarter. Reflecting different vol targets and factor exposures, returns of underlying Risk Premia managers showed significant dispersion over the quarter.
- Other MAC group returns hovered around zero, trailing the traditional 60/40 benchmark (+2.0%).

### Alternative Risk Factor Breakdown



Sources: Credit Suisse, Neuberger Berman

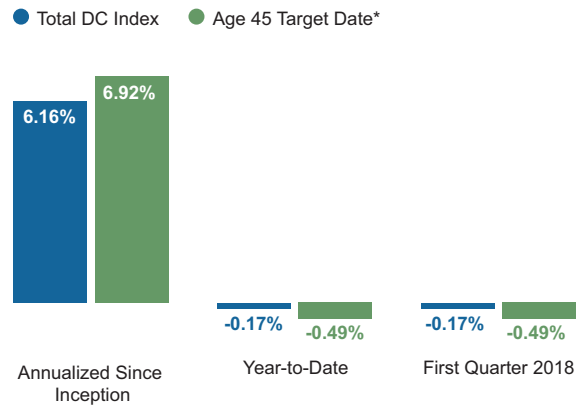
# DC Plans Struggle in Turbulent Market

## DEFINED CONTRIBUTION | Tom Szkwarla

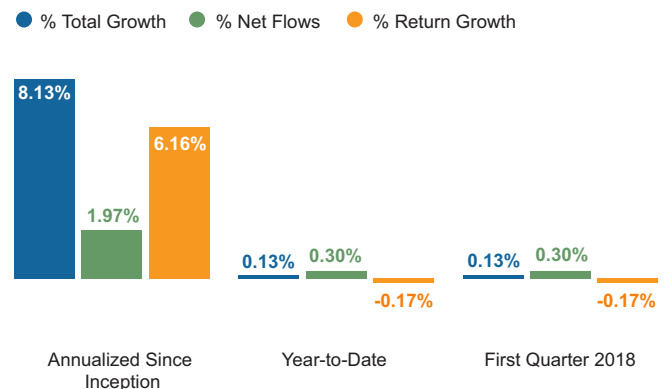
- The Callan DC Index™ fell 0.2% in the first quarter, reflecting widespread declines in global markets.
- But the DC Index outpaced the Age 45 Target Date Fund, which lost 0.5%.
- Since inception, the DC Index's annual return of 6.2% has trailed the Age 45 TDF by 76 basis points.
- Driven primarily by participant inflows, DC plan balances slightly increased by 0.1% during the quarter. Inflows (participant and plan sponsor contributions) added 0.3% to total growth, overcoming the 0.2% drop in returns.
- Over the long term, participant balances have increased an average of 8.1% annually, with market appreciation contributing 6.2% and net cash flows adding the remainder.
- U.S. fixed income experienced net inflows of 13.1% during the period. Riskier assets like U.S. equity and company stock experienced significant outflows.
- For the quarter, nearly 70 cents of every dollar that moved within DC plans flowed to TDFs.
- Turnover (i.e., net transfer activity levels within DC plans) in the DC Index of 0.3% came in well below the historical average at 0.6% and was at its lowest level since the first quarter of 2011.
- The Callan DC Index's overall equity allocation fell for the first time in seven quarters, ending at 70%, still slightly above the Index's historical average (68%).
- TDFs' share of DC assets grew to 31.3% during the quarter, another all-time high. The allocation to U.S. large cap equity declined slightly from last quarter, but U.S. large cap continues to be the second-highest allocation, at 23.3%.
- When TDFs are available in a DC plan, they hold a much greater portion of assets (34%) than any other option.

*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 (First Quarter 2018) (Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Target Date Funds	69.83%
U.S. Fixed Income	13.13%
U.S. Smid Cap	-32.65%
U.S. Large Cap	-21.99%
<b>Total Turnover**</b>	<b>0.31%</b>

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

Source: Callan DC Index

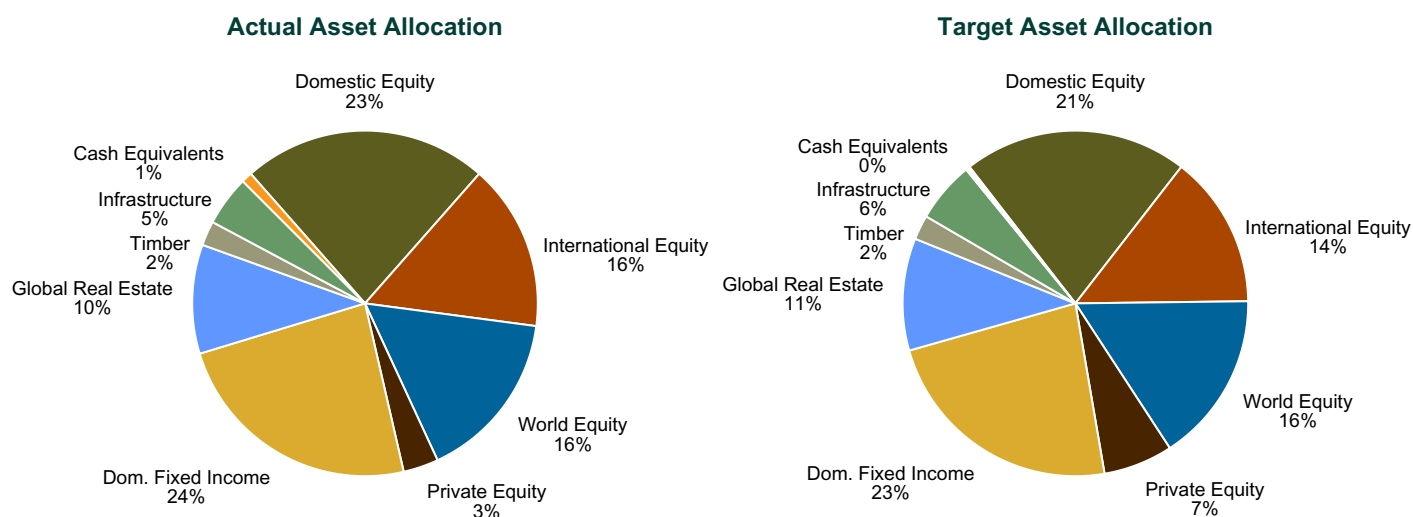
Note: DC Index inception date is January 2006.

\* 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.

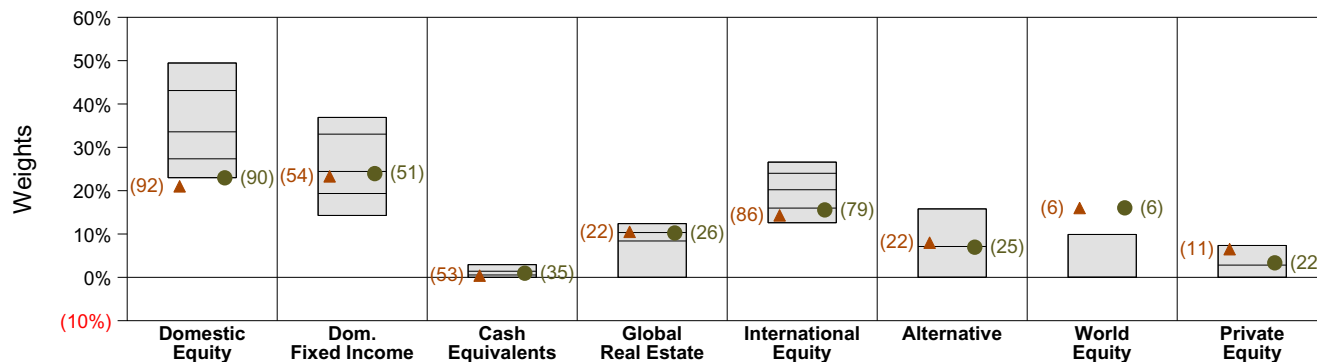
## Actual vs Target Asset Allocation As of June 30, 2018

The top left chart shows the Fund's asset allocation as of June 30, 2018. 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.



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	1,313,463	23.0%	21.0%	2.0%	112,316
International Equity	890,174	15.6%	14.3%	1.3%	72,250
World Equity	917,222	16.0%	16.0%	0.0%	2,063
Private Equity	191,437	3.3%	6.5%	(3.2%)	(180,347)
Dom. Fixed Income	1,369,096	23.9%	23.3%	0.6%	36,394
Global Real Estate	585,428	10.2%	10.5%	(0.3%)	(15,145)
Timber	129,004	2.3%	2.3%	(0.0%)	(2,550)
Infrastructure	268,920	4.7%	5.7%	(1.0%)	(57,106)
Cash Equivalents	55,004	1.0%	0.4%	0.6%	32,125
<b>Total</b>	<b>5,719,748</b>	<b>100.0%</b>	<b>100.0%</b>		

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



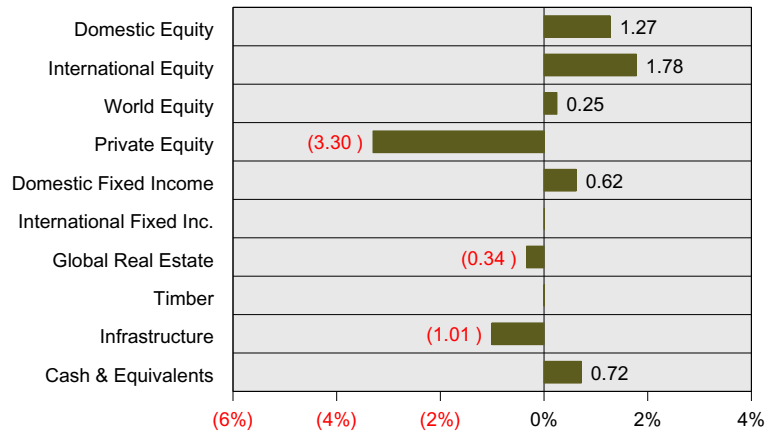
	Domestic Equity	Dom. Fixed Income	Cash Equivalents	Global Real Estate	International Equity	Alternative	World Equity	Private Equity
10th Percentile	49.46	36.90	2.94	12.40	26.59	15.80	9.89	7.35
25th Percentile	43.10	33.04	1.41	10.33	24.01	7.12	0.00	2.83
Median	33.58	24.44	0.54	8.39	20.22	0.00	0.00	0.00
75th Percentile	27.35	19.35	0.00	0.00	15.98	0.00	0.00	0.00
90th Percentile	23.00	14.28	0.00	0.00	12.60	0.00	0.00	0.00
<b>Fund</b> ●	22.96	23.94	0.96	10.24	15.56	6.96	16.04	3.35
<b>Target</b> ▲	21.00	23.30	0.40	10.50	14.30	8.00	16.00	6.50
% Group Invested	96.99%	96.24%	72.18%	72.93%	90.98%	15.04%	12.78%	30.83%

\* Current Quarter Target = 16.3% Blmbg Aggregate, 16.1% Russell 1000 Index, 16.0% MSCI World, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.5% NDSIB PEN - Private Equity, 5.7% CPI-W, 4.9% Russell 2000 Index, 3.1% MSCI EM, 2.3% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

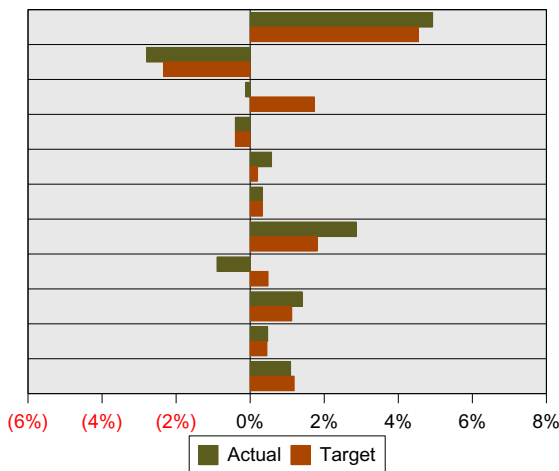
## Quarterly Total Fund Relative Attribution - June 30, 2018

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.

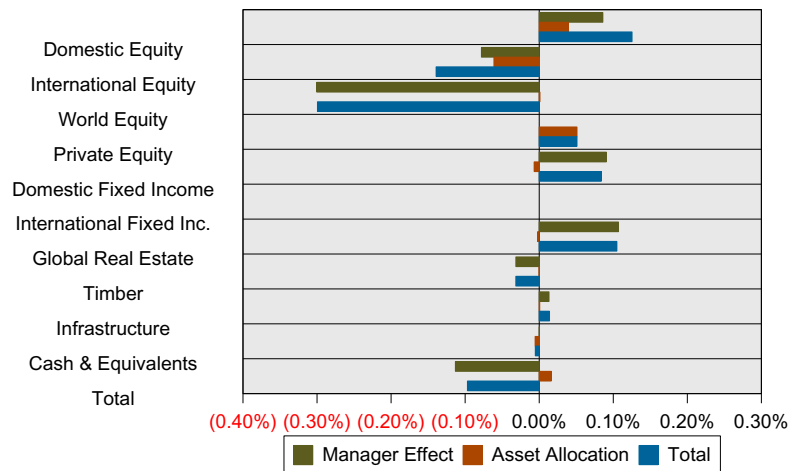
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended June 30, 2018

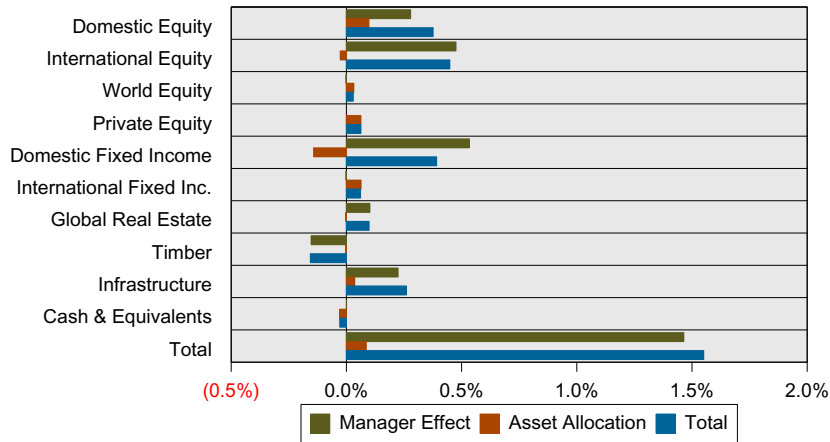
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	22%	21%	4.93%	4.54%	0.09%	0.04%	0.13%
International Equity	16%	14%	(2.80%)	(2.34%)	(0.08%)	(0.06%)	(0.14%)
World Equity	16%	16%	(0.12%)	1.73%	(0.30%)	0.00%	(0.30%)
Private Equity	3%	6%	(0.40%)	(0.40%)	0.00%	0.05%	0.05%
Domestic Fixed Income	24%	23%	0.58%	0.20%	0.09%	(0.01%)	0.08%
International Fixed Inc.	0%	0%	0.33%	0.33%	0.00%	0.00%	0.00%
Global Real Estate	10%	10%	2.86%	1.81%	0.11%	(0.00%)	0.10%
Timber	2%	2%	(0.90%)	0.48%	(0.03%)	(0.00%)	(0.03%)
Infrastructure	5%	6%	1.41%	1.12%	0.01%	0.00%	0.01%
Cash & Equivalents	1%	0%	0.47%	0.45%	0.00%	(0.01%)	(0.01%)
<b>Total</b>					<b>1.19%</b>	<b>(0.11%)</b>	<b>(0.10%)</b>

\* Current Quarter Target = 16.3% Blmbg Aggregate, 16.1% Russell 1000 Index, 16.0% MSCI World, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.5% NDSIB PEN - Private Equity, 5.7% CPI-W, 4.9% Russell 2000 Index, 3.1% MSCI EM, 2.3% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

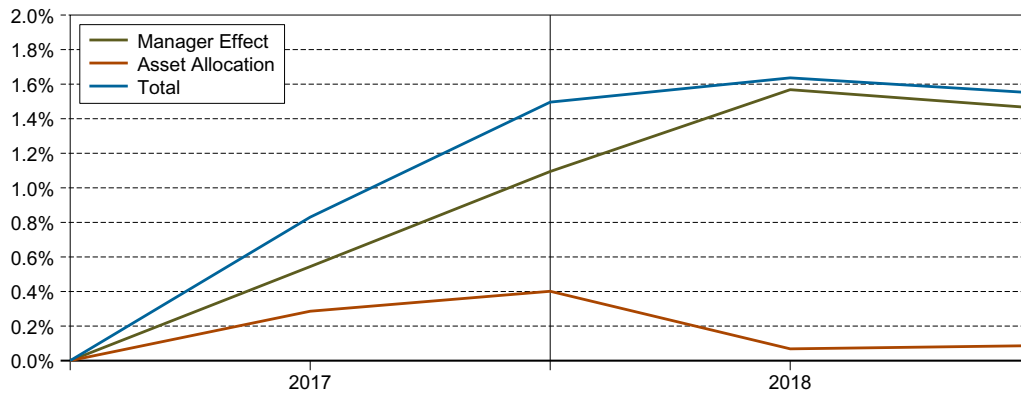
## Cumulative Total Fund Relative Attribution - June 30, 2018

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	22%	21%	16.59%	15.29%	0.28%	0.10%	0.38%
International Equity	16%	14%	10.32%	7.35%	0.48%	(0.03%)	0.45%
World Equity	17%	16%	10.94%	11.09%	(0.00%)	0.03%	0.03%
Private Equity	3%	6%	5.25%	5.25%	0.00%	0.06%	0.06%
Domestic Fixed Income	20%	20%	2.88%	0.38%	0.53%	(0.14%)	0.39%
International Fixed Inc.	3%	3%	(16.83%)	(16.77%)	(0.00%)	0.06%	0.06%
Global Real Estate	10%	10%	8.22%	7.19%	0.10%	(0.00%)	0.10%
Timber	2%	2%	(2.52%)	3.57%	(0.15%)	(0.00%)	(0.16%)
Infrastructure	5%	6%	7.87%	3.09%	0.22%	0.04%	0.26%
Cash & Equivalents	1%	0%	1.45%	1.36%	0.00%	(0.03%)	(0.03%)
<b>Total</b>			<b>9.40%</b>	<b>7.85%</b>	<b>+ 1.46%</b>	<b>+ 0.09%</b>	<b>1.55%</b>

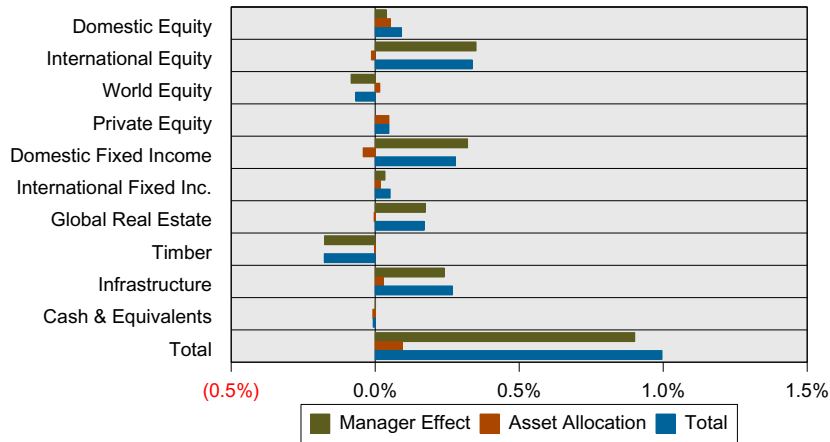
\* Current Quarter Target = 16.3% Blmbg Aggregate, 16.1% Russell 1000 Index, 16.0% MSCI World, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.5% NDSIB PEN - Private Equity, 5.7% CPI-W, 4.9% Russell 2000 Index, 3.1% MSCI EM, 2.3% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.



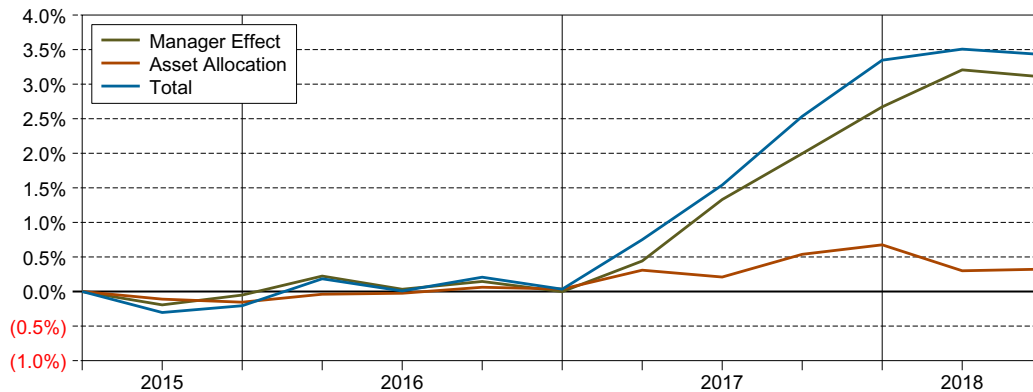
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

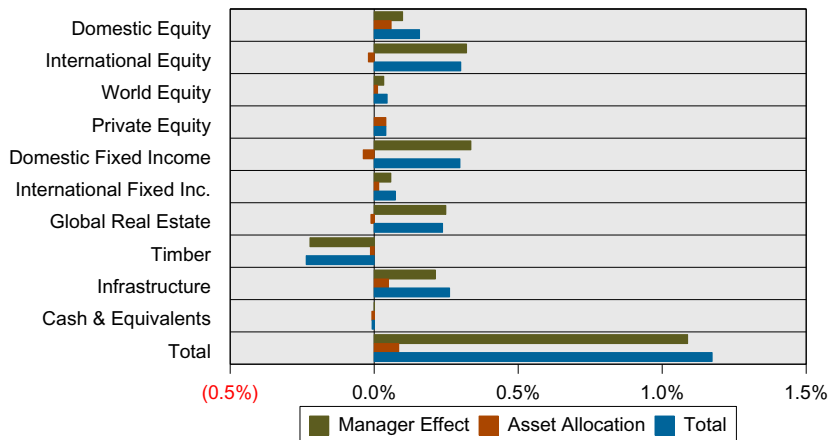
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	11.76%	11.56%	0.04%	0.05%	0.09%
International Equity	15%	14%	7.28%	5.03%	0.35%	(0.01%)	0.34%
World Equity	16%	16%	7.85%	8.48%	(0.08%)	0.02%	(0.07%)
Private Equity	3%	6%	2.77%	2.77%	0.00%	0.05%	0.05%
Domestic Fixed Income	19%	18%	4.39%	2.74%	0.32%	(0.04%)	0.28%
International Fixed Inc.	4%	5%	(3.18%)	(3.78%)	0.03%	0.02%	0.05%
Global Real Estate	11%	10%	9.91%	8.25%	0.17%	(0.00%)	0.17%
Timber	3%	4%	(2.70%)	3.43%	(0.18%)	(0.00%)	(0.18%)
Infrastructure	5%	5%	7.05%	1.74%	0.24%	0.03%	0.27%
Cash & Equivalents	1%	1%	0.82%	0.68%	0.00%	(0.01%)	(0.01%)
<b>Total</b>			<b>7.64%</b>	<b>6.64%</b>	<b>+ 0.90%</b>	<b>+ 0.09%</b>	<b>1.00%</b>

\* Current Quarter Target = 16.3% Blmbg Aggregate, 16.1% Russell 1000 Index, 16.0% MSCI World, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.5% NDSIB PEN - Private Equity, 5.7% CPI-W, 4.9% Russell 2000 Index, 3.1% MSCI EM, 2.3% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

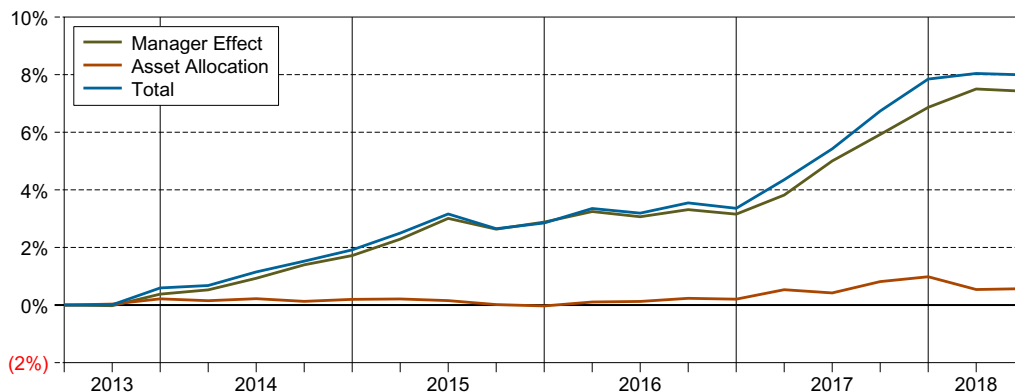
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

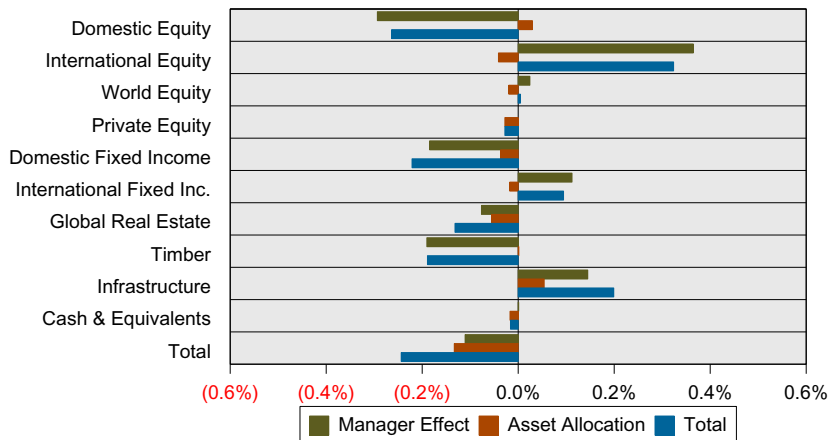
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	13.71%	13.24%	0.10%	0.06%	0.16%
International Equity	15%	14%	8.25%	6.14%	0.32%	(0.02%)	0.30%
World Equity	16%	16%	10.12%	9.94%	0.03%	0.01%	0.04%
Private Equity	4%	6%	1.35%	1.35%	0.00%	0.04%	0.04%
Domestic Fixed Income	19%	18%	4.86%	3.15%	0.34%	(0.04%)	0.30%
International Fixed Inc.	5%	5%	(2.24%)	(3.29%)	0.06%	0.02%	0.07%
Global Real Estate	10%	10%	12.38%	9.77%	0.25%	(0.01%)	0.24%
Timber	3%	4%	(0.36%)	6.00%	(0.22%)	(0.01%)	(0.24%)
Infrastructure	4%	5%	6.34%	1.37%	0.21%	0.05%	0.26%
Cash & Equivalents	1%	1%	0.51%	0.42%	0.00%	(0.01%)	(0.01%)
<b>Total</b>			<b>8.62%</b>	<b>7.44%</b>	<b>+ 1.09%</b>	<b>+ 0.09%</b>	<b>1.17%</b>

\* Current Quarter Target = 16.3% Blmbg Aggregate, 16.1% Russell 1000 Index, 16.0% MSCI World, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.5% NDSIB PEN - Private Equity, 5.7% CPI-W, 4.9% Russell 2000 Index, 3.1% MSCI EM, 2.3% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

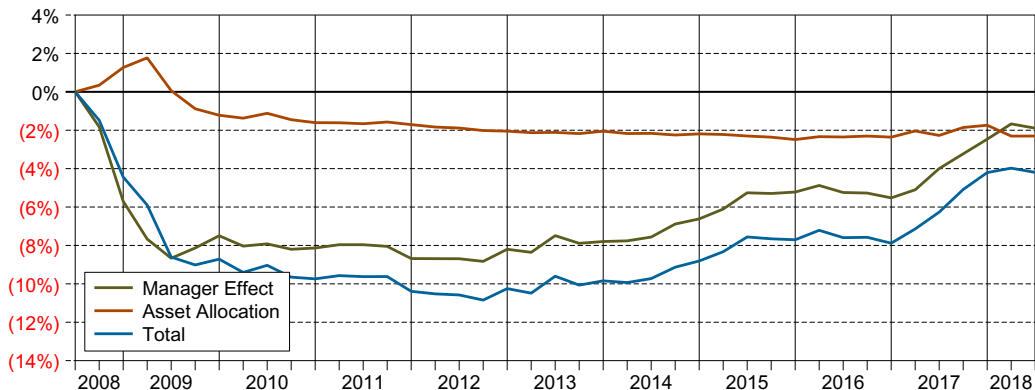
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

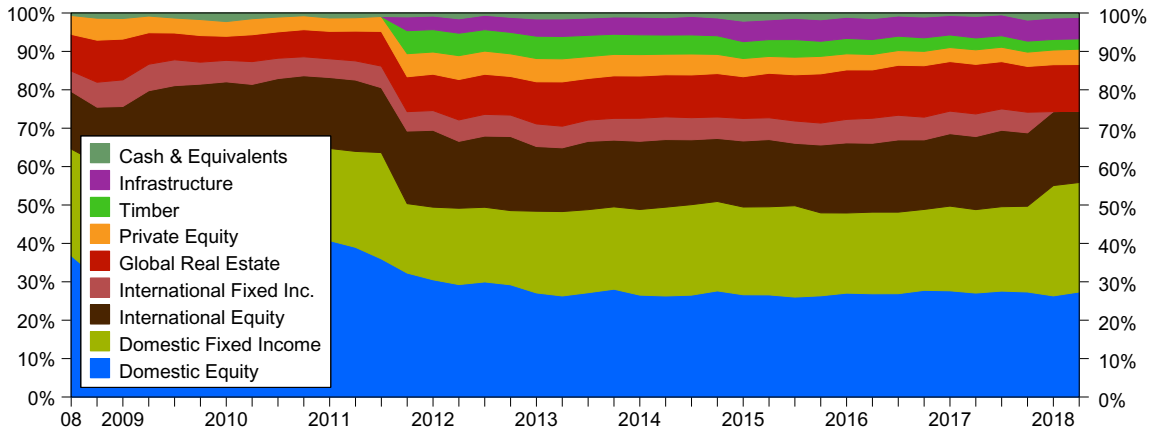
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	28%	28%	9.53%	10.37%	(0.29%)	0.03%	(0.26%)
International Equity	16%	16%	5.25%	3.13%	0.36%	(0.04%)	0.32%
World Equity	9%	9%	-	-	0.02%	(0.02%)	0.00%
Private Equity	4%	5%	0.48%	0.48%	0.00%	(0.03%)	(0.03%)
Domestic Fixed Income	22%	21%	5.03%	5.04%	(0.18%)	(0.04%)	(0.22%)
International Fixed Inc.	5%	5%	1.78%	(0.19%)	0.11%	(0.02%)	0.09%
Global Real Estate	9%	9%	5.22%	6.22%	(0.08%)	(0.06%)	(0.13%)
Timber	3%	3%	-	-	(0.19%)	0.00%	(0.19%)
Infrastructure	3%	3%	-	-	0.14%	0.05%	0.20%
Cash & Equivalents	1%	1%	0.43%	0.35%	0.00%	(0.02%)	(0.02%)
<b>Total</b>			<b>6.10%</b>	<b>6.34%</b>	<b>(0.11%)</b>	<b>(0.13%)</b>	<b>(0.24%)</b>

\* Current Quarter Target = 16.3% Blmbg Aggregate, 16.1% Russell 1000 Index, 16.0% MSCI World, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.5% NDSIB PEN - Private Equity, 5.7% CPI-W, 4.9% Russell 2000 Index, 3.1% MSCI EM, 2.3% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

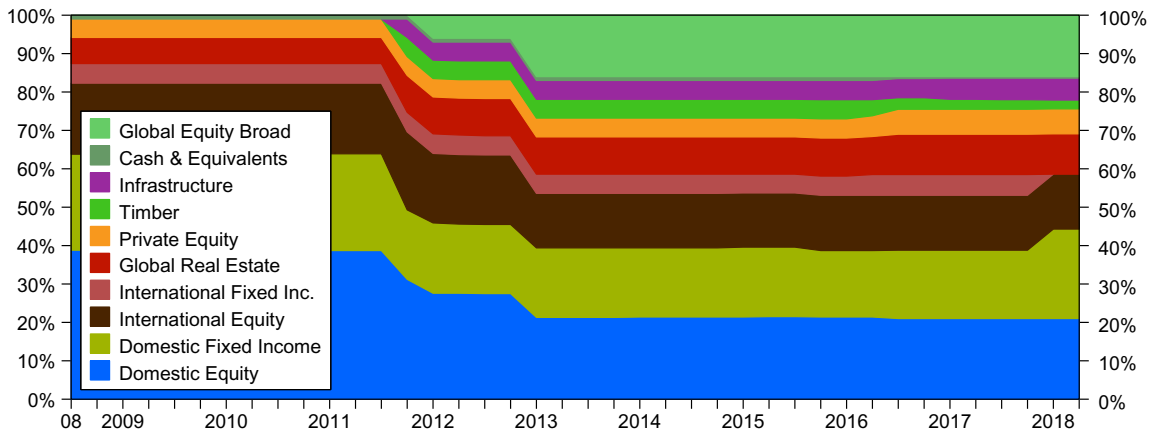
## Actual vs Target Historical Asset Allocation

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.

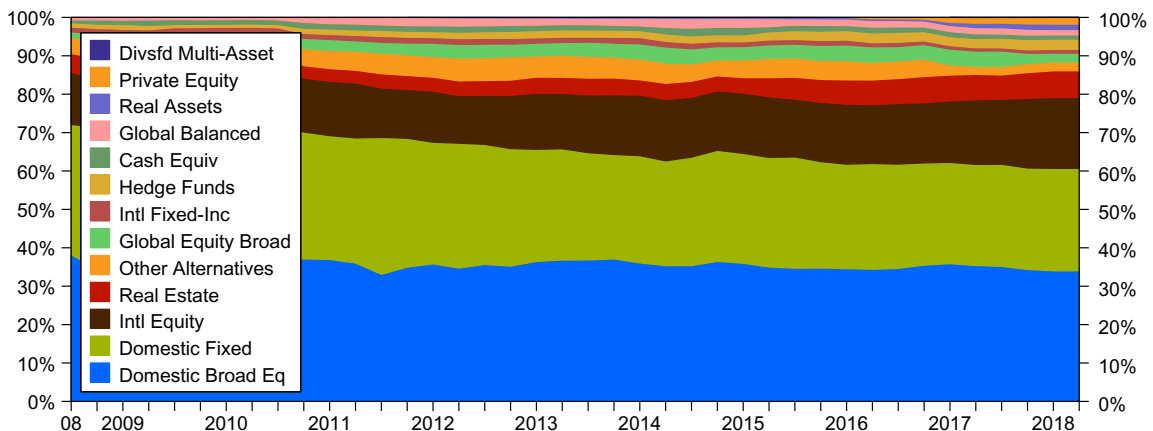
### Actual Historical Asset Allocation



### Target Historical Asset Allocation



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

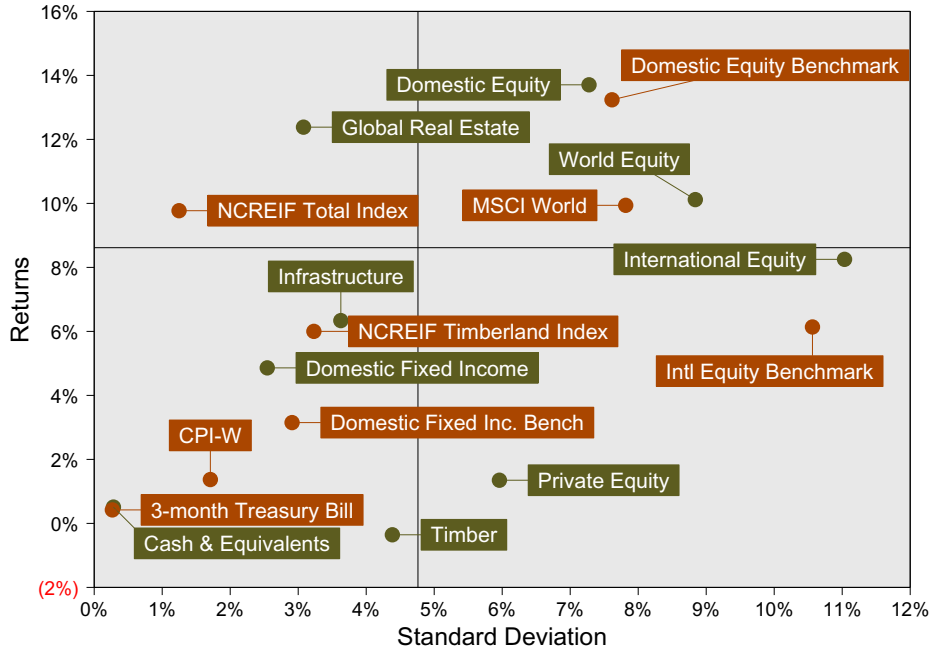


\* Current Quarter Target = 16.3% Blmbg Aggregate, 16.1% Russell 1000 Index, 16.0% MSCI World, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.5% NDSIB PEN - Private Equity, 5.7% CPI-W, 4.9% Russell 2000 Index, 3.1% MSCI EM, 2.3% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

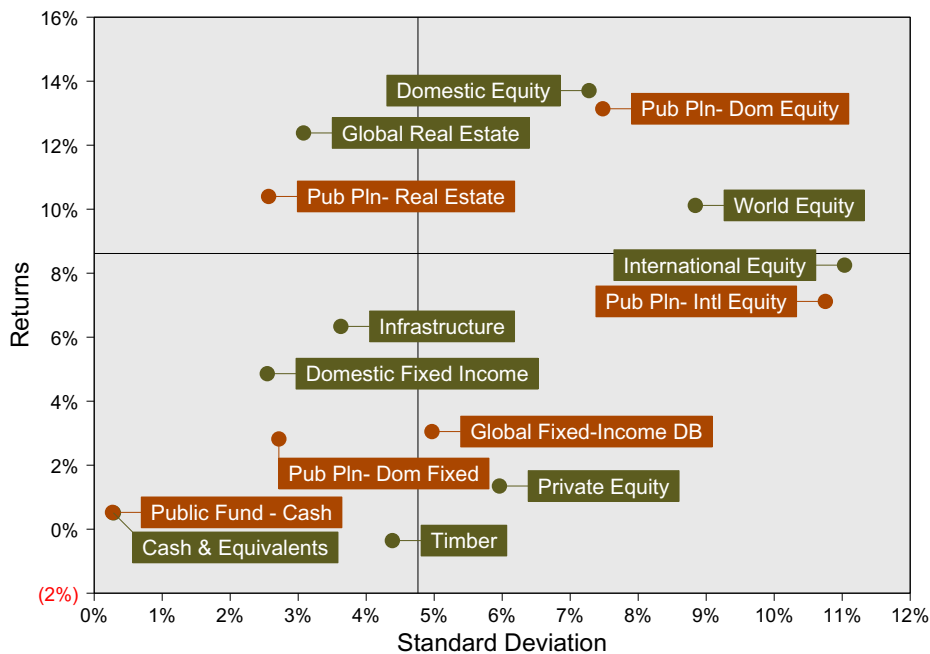
## Asset Class Risk and Return

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



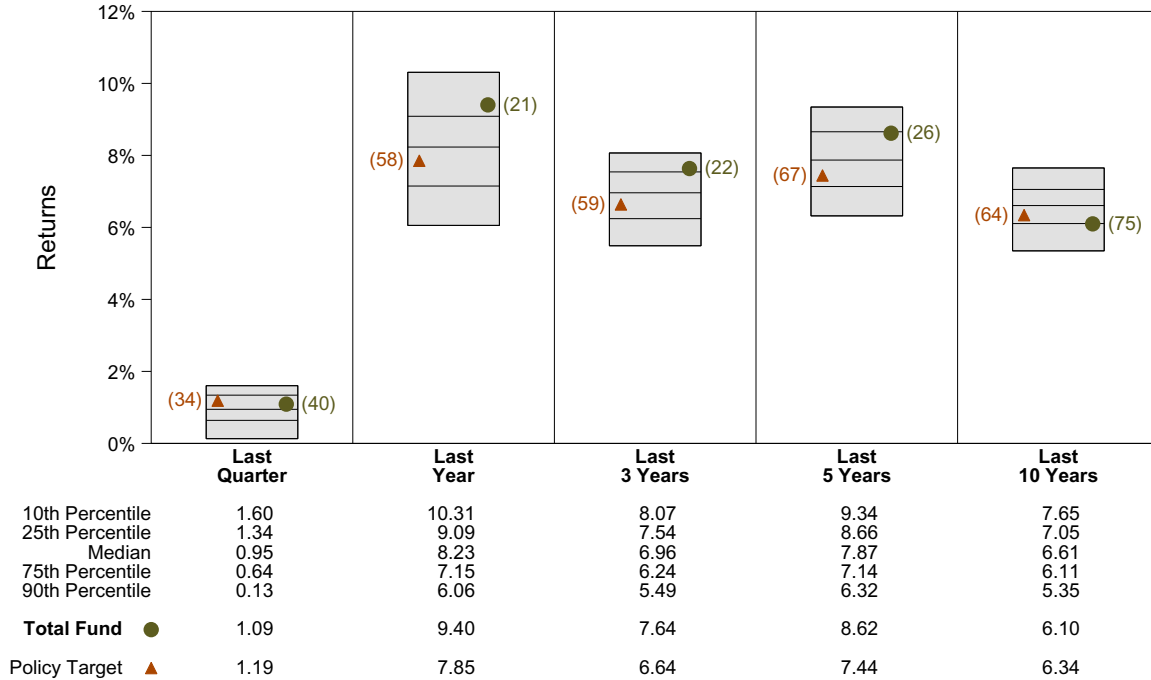
### Five Year Annualized Risk vs Return Asset Classes vs Asset Class Median



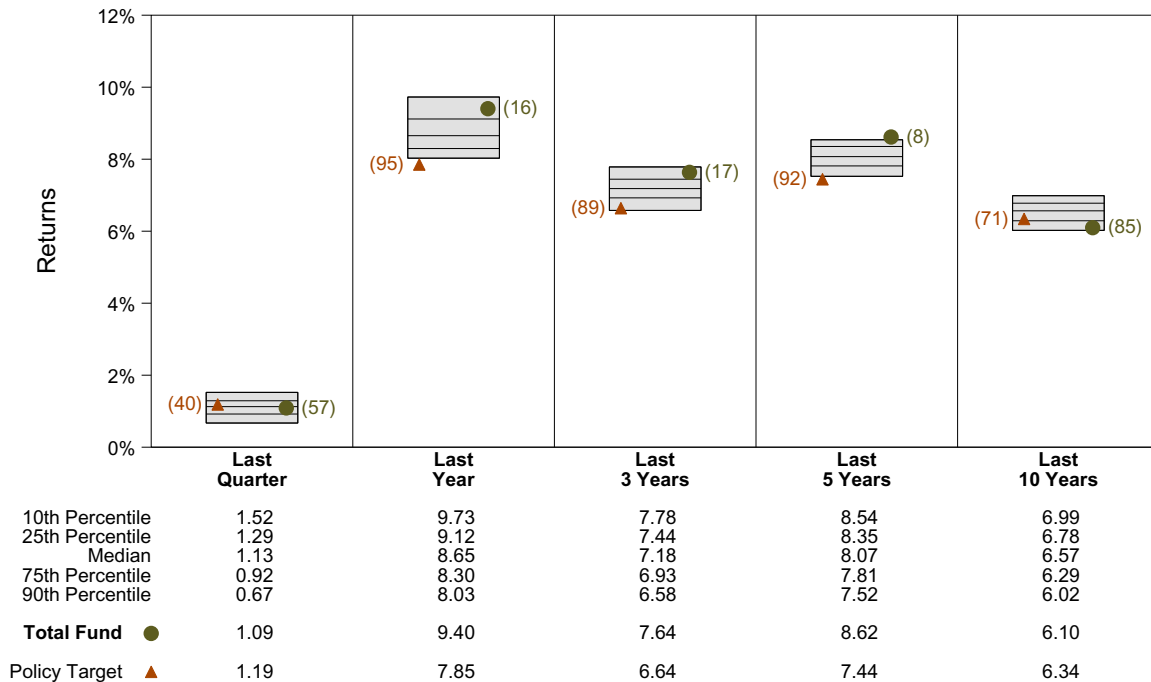
## Total Fund Ranking

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 June 30, 2018. 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

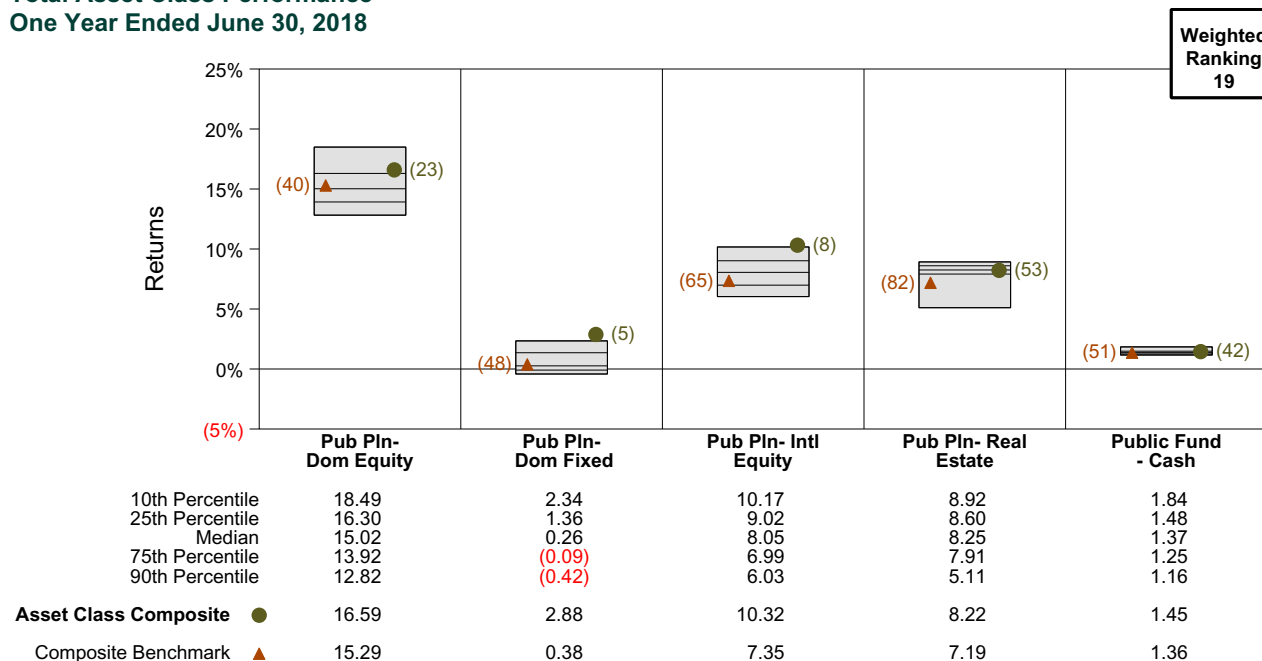


\* Current Quarter Target = 16.3% Blmbg Aggregate, 16.1% Russell 1000 Index, 16.0% MSCI World, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.5% NDSIB PEN - Private Equity, 5.7% CPI-W, 4.9% Russell 2000 Index, 3.1% MSCI EM, 2.3% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

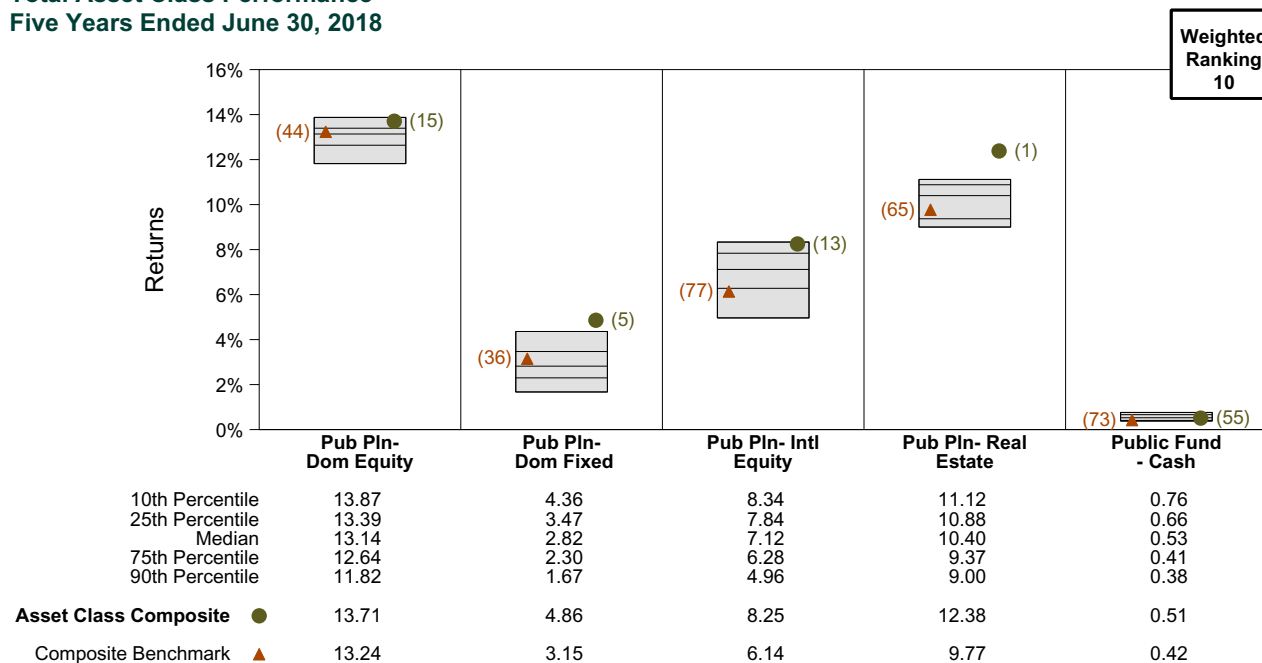
## Asset Class Rankings

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 June 30, 2018



### Total Asset Class Performance Five Years Ended June 30, 2018



\* Current Quarter Target = 16.3% Bimbg Aggregate, 16.1% Russell 1000 Index, 16.0% MSCI World, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 7.0% Bimbg HY 2% Iss Cap, 6.5% NDSIB PEN - Private Equity, 5.7% CPI-W, 4.9% Russell 2000 Index, 3.1% MSCI EM, 2.3% 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 June 30, 2018, with the distribution as of March 31, 2018. 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

	June 30, 2018		Net New Inv.	Inv. Return	March 31, 2018	
	Market Value	Weight			Market Value	Weight
<b>GLOBAL EQUITY</b>	<b>\$3,312,295,305</b>	<b>57.91%</b>	<b>\$8,550,412</b>	<b>\$34,305,233</b>	<b>\$3,269,439,660</b>	<b>57.61%</b>
<b>Domestic Equity</b>	<b>\$1,313,462,599</b>	<b>22.96%</b>	<b>\$(523,122)</b>	<b>\$61,686,953</b>	<b>\$1,252,298,768</b>	<b>22.07%</b>
<b>Large Cap Domestic Equity</b>	<b>\$992,571,172</b>	<b>17.35%</b>	<b>\$(257,589)</b>	<b>\$39,587,986</b>	<b>\$953,240,774</b>	<b>16.80%</b>
L.A. Capital	394,892,650	6.90%	(201,223)	22,528,920	372,564,954	6.57%
LACM Enhanced Index	206,543,164	3.61%	(56,365)	6,984,601	199,614,929	3.52%
Northern Trust AM Enh S&P 500	195,978,202	3.43%	0	3,777,722	192,200,480	3.39%
Parametric Clifton Enh S&P 500	195,157,156	3.41%	0	6,296,744	188,860,412	3.33%
<b>Small Cap Domestic Equity</b>	<b>\$320,891,427</b>	<b>5.61%</b>	<b>\$(265,533)</b>	<b>\$22,098,966</b>	<b>\$299,057,994</b>	<b>5.27%</b>
Atlanta Capital	162,348,262	2.84%	(265,533)	10,592,014	152,021,780	2.68%
Parametric Clifton Enh Small Cap	158,543,165	2.77%	0	11,506,952	147,036,214	2.59%
<b>International Equity</b>	<b>\$890,173,789</b>	<b>15.56%</b>	<b>\$(375,898)</b>	<b>\$(25,637,589)</b>	<b>\$916,187,276</b>	<b>16.15%</b>
<b>Developed Int'l Equity</b>	<b>\$679,545,767</b>	<b>11.88%</b>	<b>\$(375,898)</b>	<b>\$(5,365,065)</b>	<b>\$685,286,729</b>	<b>12.08%</b>
DFA Int'l Small Cap	87,432,016	1.53%	0	(3,147,068)	90,579,085	1.60%
Northern Trust AM World Ex US	323,474,429	5.66%	(27,301)	(2,702,651)	326,204,381	5.75%
Wellington Management Co.	87,119,856	1.52%	(191,560)	(3,028,323)	90,339,739	1.59%
William Blair	181,519,465	3.17%	(157,037)	3,512,978	178,163,524	3.14%
<b>Emerging Markets Equity</b>	<b>\$210,628,022</b>	<b>3.68%</b>	<b>\$0</b>	<b>\$(20,272,525)</b>	<b>\$230,900,547</b>	<b>4.07%</b>
Axiom	153,738,158	2.69%	0	(14,156,734)	167,894,892	2.96%
DFA	56,889,864	0.99%	0	(6,115,791)	63,005,655	1.11%
<b>World Equity</b>	<b>\$917,222,182</b>	<b>16.04%</b>	<b>\$(766,736)</b>	<b>\$(1,090,838)</b>	<b>\$919,079,756</b>	<b>16.20%</b>
EPOCH Investment Partners	414,436,403	7.25%	(637,320)	14,673,397	400,400,325	7.06%
LSV Asset Management	502,785,780	8.79%	(129,416)	(15,764,235)	518,679,431	9.14%



## Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2018, with the distribution as of March 31, 2018. 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

	June 30, 2018		Net New Inv.	Inv. Return	March 31, 2018	
	Market Value	Weight			Market Value	Weight
<b>Private Equity</b>	<b>\$191,436,734</b>	<b>3.35%</b>	<b>\$10,216,167</b>	<b>\$(653,292)</b>	<b>\$181,873,860</b>	<b>3.21%</b>
Adams Street Direct Co-Invest Fd	1,104,239	0.02%	(124,687)	(108,831)	1,337,757	0.02%
Adams Street Direct Fund 2010	957,315	0.02%	0	54,208	903,107	0.02%
Adams Street 1998 Partnership	126,169	0.00%	0	283	125,886	0.00%
Adams Street 1999 Partnership	126,759	0.00%	0	2,726	124,033	0.00%
Adams Street 2000 Partnership	597,183	0.01%	0	15,774	581,409	0.01%
Adams Street 2001 Partnership	847,692	0.01%	0	14,207	833,485	0.01%
Adams Street 2002 Partnership	150,527	0.00%	0	(7,580)	158,107	0.00%
Adams Street 2003 Partnership	191,370	0.00%	(59,143)	13,145	237,368	0.00%
Adams Street 2010 Partnership	6,631,201	0.12%	(184,274)	403,417	6,412,058	0.11%
Adams Street 2008 Fund	7,604,665	0.13%	(219,389)	232,459	7,591,595	0.13%
Adams Street 1999 Non-US	71,393	0.00%	0	17	71,376	0.00%
Adams Street 2000 Non-US	444,489	0.01%	0	8,846	435,643	0.01%
Adams Street 2001 Non-US	173,538	0.00%	0	2,399	171,139	0.00%
Adams Street 2002 Non-US	92,321	0.00%	0	3,082	89,239	0.00%
Adams Street 2003 Non-US	209,358	0.00%	0	2,369	206,989	0.00%
Adams Street 2004 Non-US	254,349	0.00%	0	(3,280)	257,629	0.00%
Adams Street 2010 Non-US	3,223,967	0.06%	0	61,000	3,162,967	0.06%
Adams Street 2010 Non-US Emg	1,679,744	0.03%	0	85,752	1,593,992	0.03%
Adams Street 2015 Global Fd	14,476,815	0.25%	2,145,000	682,559	11,649,256	0.21%
Adams Street 2016 Global Fd	8,689,650	0.15%	2,048,805	433,717	6,207,128	0.11%
Adams Street 2017 Global Fd	7,664,244	0.13%	4,680,000	317,559	2,666,685	0.05%
Adams Street BVCF IV Fund	3,396,515	0.06%	0	50,898	3,345,617	0.06%
BlackRock	29,938,614	0.52%	1,242,752	415,398	28,280,464	0.50%
Capital International V	1,107,351	0.02%	19,994	(1,040)	1,088,397	0.02%
Capital International VI	27,732,206	0.48%	1,249,129	(587,032)	27,070,109	0.48%
CorsAir III	8,275,172	0.14%	(36,201)	(5,853,317)	14,164,690	0.25%
CorsAir IV	28,315,139	0.50%	(73,315)	3,508,333	24,880,122	0.44%
EIG Energy Fund XIV	6,632,929	0.12%	(472,503)	1,544,777	5,560,655	0.10%
Hearthstone Advisors MS II	1	0.00%	0	0	1	0.00%
Hearthstone Advisors MS III	2,482,362	0.04%	0	116,462	2,365,900	0.04%
Lewis & Clark, LP	2,545,360	0.04%	0	907,059	1,638,301	0.03%
Lewis & Clark II	6,009,823	0.11%	0	(610,093)	6,619,916	0.12%
Matlin Patterson II	1,221,685	0.02%	0	68,892	1,152,793	0.02%
Matlin Patterson III	15,442,024	0.27%	0	(1,640,492)	17,082,516	0.30%
Quantum Energy Partners	3,020,565	0.05%	0	(786,966)	3,807,531	0.07%

## Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2018, with the distribution as of March 31, 2018. 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

	June 30, 2018			March 31, 2018		
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
<b>GLOBAL FIXED INCOME</b>	<b>\$1,369,095,811</b>	<b>23.94%</b>	<b>\$(4,981,883)</b>	<b>\$7,856,098</b>	<b>\$1,366,221,597</b>	<b>24.08%</b>
<b>Domestic Fixed Income</b>	<b>\$1,369,095,811</b>	<b>23.94%</b>	<b>\$(4,981,555)</b>	<b>\$7,856,090</b>	<b>\$1,366,221,276</b>	<b>24.08%</b>
<b>Inv. Grade Fixed Income</b>	<b>\$977,608,332</b>	<b>17.09%</b>	<b>\$(268,216)</b>	<b>\$779,854</b>	<b>\$977,096,694</b>	<b>17.22%</b>
Declaration Total Return	116,618,892	2.04%	(49,704)	734,699	115,933,897	2.04%
J. P. Morgan MBS	0	0.00%	(172)	(2,422)	2,594	0.00%
PIMCO DiSCO II	118,135,275	2.07%	0	1,860,357	116,274,918	2.05%
PIMCO Core Plus Constrained	308,894,658	5.40%	(161,572)	(1,243,330)	310,299,561	5.47%
Prudential	315,960,960	5.52%	(47,513)	(935,418)	316,943,890	5.59%
SSgA Long US Treas Index	117,998,548	2.06%	(7,137)	366,604	117,639,081	2.07%
Transition Account	0	0.00%	(2,117)	(636)	2,753	0.00%
<b>Below Inv. Grade Fixed Income</b>	<b>\$391,487,480</b>	<b>6.84%</b>	<b>\$(4,713,338)</b>	<b>\$7,076,235</b>	<b>\$389,124,583</b>	<b>6.86%</b>
Ares ND Credit Strategies Fd	72,957,381	1.28%	0	2,562,654	70,394,727	1.24%
Cerberus ND Private Credit Fd	69,906,646	1.22%	0	2,486,926	67,419,720	1.19%
Goldman Sachs 2006 Offshore	126,476	0.00%	0	1,573	124,903	0.00%
Goldman Sachs Offshore V	413,310	0.01%	(193,944)	39,830	567,424	0.01%
Loomis Sayles	204,757,178	3.58%	(256,019)	197,676	204,815,521	3.61%
PIMCO Bravo II Fund	43,326,489	0.76%	(4,263,375)	1,787,576	45,802,288	0.81%
<b>Internationall Fixed Income</b>	<b>\$0</b>	<b>0.00%</b>	<b>\$(329)</b>	<b>\$8</b>	<b>\$321</b>	<b>0.00%</b>
Brandywine	0	0.00%	(329)	8	321	0.00%
<b>GLOBAL REAL ASSETS</b>	<b>\$983,352,364</b>	<b>17.19%</b>	<b>\$(12,924,891)</b>	<b>\$19,025,957</b>	<b>\$977,251,298</b>	<b>17.22%</b>
<b>Global Real Estate</b>	<b>\$585,428,115</b>	<b>10.24%</b>	<b>\$(11,538,147)</b>	<b>\$16,498,132</b>	<b>\$580,468,130</b>	<b>10.23%</b>
Invesco Core Real Estate	303,224,615	5.30%	(516,415)	12,675,333	291,065,698	5.13%
Invesco Fund II	185,886	0.00%	0	(5,068)	190,954	0.00%
Invesco Fund III	19,073,619	0.33%	0	249,501	18,824,118	0.33%
Invesco Asia RE Feeder	242,164	0.00%	0	(13,397)	255,561	0.00%
Invesco Asia RE Fund III	2,957,570	0.05%	(12,721,796)	891,182	14,788,184	0.26%
Invesco Value Added Fd IV	45,189,475	0.79%	1,705,844	1,774,311	41,709,320	0.74%
JP Morgan	208,194,937	3.64%	0	4,628,309	203,566,628	3.59%
JP Morgan Alternative Fd	316,577	0.01%	0	2,502	314,075	0.01%
JP Morgan China Property Fd	725,274	0.01%	118	417,112	308,044	0.01%
JP Morgan Greater European Opp Fd	5,317,997	0.09%	(5,897)	(4,121,653)	9,445,548	0.17%
<b>Timber</b>	<b>\$129,004,272</b>	<b>2.26%</b>	<b>\$(1,140,000)</b>	<b>\$(1,160,892)</b>	<b>\$131,305,164</b>	<b>2.31%</b>
TIR Teredo	30,194,823	0.53%	0	(372,449)	30,567,272	0.54%
TIR Springbank	98,809,449	1.73%	(1,140,000)	(788,443)	100,737,892	1.78%
<b>Infrastructure</b>	<b>\$268,919,977</b>	<b>4.70%</b>	<b>\$(246,744)</b>	<b>\$3,688,717</b>	<b>\$265,478,004</b>	<b>4.68%</b>
ISQ Global Infrastructure II	3,500,000	0.06%	4,304,060	(804,060)	-	-
JP Morgan Asian Infrastructure	21,179,795	0.37%	(664,258)	(1,327,514)	23,171,567	0.41%
JP Morgan IIF	193,288,694	3.38%	(3,886,546)	4,263,940	192,911,300	3.40%
Grosvenor Cust. Infrastructure	35,004,954	0.61%	0	1,251,222	33,753,732	0.59%
Grosvenor Cust. Infrastructure II	15,946,534	0.28%	0	305,129	15,641,405	0.28%
<b>CASH &amp; CASH EQUIVALENTS</b>	<b>\$55,004,434</b>	<b>0.96%</b>	<b>\$(7,063,950)</b>	<b>\$332,141</b>	<b>\$61,736,243</b>	<b>1.09%</b>
Northern Trust Cash Account	44,807,543	0.78%	(7,063,950)	285,911	51,585,583	0.91%
Bank of ND	10,196,891	0.18%	0	46,230	10,150,660	0.18%
<b>Securities Lending Income</b>	<b>\$0</b>	<b>0.00%</b>	<b>\$(138,776)</b>	<b>\$138,776</b>	<b>-</b>	<b>-</b>
<b>Total Fund</b>	<b>\$5,719,747,915</b>	<b>100.0%</b>	<b>\$(16,559,088)</b>	<b>\$61,658,205</b>	<b>\$5,674,648,798</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 June 30, 2018. 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 June 30, 2018

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Global Equity</b>					
Gross	1.05%	12.62%	8.94%	10.40%	-
Net	1.00%	12.37%	8.66%	10.07%	-
Wtd Avg Global Equity Benchmark	1.51%	11.09%	8.26%	9.49%	-
<b>Domestic Equity</b>					
Gross	4.93%	16.59%	11.76%	13.71%	9.53%
Net	4.88%	16.39%	11.56%	13.47%	9.26%
Wtd Avg Domestic Equity Benchmark	4.54%	15.29%	11.56%	13.24%	10.37%
<b>Large Cap Equity</b>					
Gross	4.15%	16.09%	12.24%	14.17%	8.80%
Net	4.13%	15.97%	12.10%	14.00%	8.60%
Large Cap Benchmark (1)	3.57%	14.54%	11.64%	13.37%	10.19%
L.A. Capital - Gross	6.05%	20.11%	13.55%	15.74%	11.44%
L.A. Capital - Net	5.99%	19.87%	13.32%	15.50%	11.21%
Russell 1000 Growth Index	5.76%	22.51%	14.98%	16.36%	11.83%
LACM Enhanced Index - Gross	3.50%	12.60%	11.33%	13.20%	10.39%
LACM Enhanced Index - Net	3.47%	12.49%	11.21%	13.07%	10.23%
Russell 1000 Index	3.57%	14.54%	11.64%	13.37%	10.20%
Northern Tr AM Enh S&P500 - Gross	1.97%	14.66%	10.78%	12.87%	10.49%
Northern Tr AM Enh S&P500 - Net	1.97%	14.66%	10.78%	12.63%	10.30%
S&P 500 Index	3.43%	14.37%	11.93%	13.42%	10.17%
Parametric Clifton Enh S&P500 - Gross	3.33%	13.26%	11.81%	13.36%	-
Parametric Clifton Enh S&P500 - Net	3.33%	13.24%	11.72%	13.30%	-
S&P 500 Index	3.43%	14.37%	11.93%	13.42%	10.17%
<b>Small Cap Equity</b>					
Gross	7.39%	18.15%	9.94%	11.96%	11.28%
Net	7.30%	17.69%	9.53%	11.53%	10.75%
Russell 2000 Index	7.75%	17.57%	10.96%	12.46%	10.60%
Atlanta Capital - Gross	6.98%	18.84%	-	-	-
Atlanta Capital - Net	6.79%	18.02%	-	-	-
S&P 600 Small Cap Index	8.77%	20.50%	13.84%	14.60%	12.25%
Parametric Clifton Enh SmCap - Gross	7.83%	17.15%	11.43%	13.22%	-
Parametric Clifton Enh SmCap - Net	7.83%	17.03%	11.10%	12.80%	-
Russell 2000 Index	7.75%	17.57%	10.96%	12.46%	10.60%

(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 June 30, 2018. 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 June 30, 2018

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>International Equity</b>					
Gross	(2.80%)	10.32%	7.28%	8.25%	5.25%
Net	(2.84%)	10.14%	7.10%	8.01%	4.91%
Wtd Avg Int'l Equity Benchmark	(2.34%)	7.35%	5.03%	6.14%	3.13%
<b>Developed Intl Equity</b>					
Gross	(0.78%)	10.55%	7.36%	8.67%	5.34%
Net	(0.84%)	10.31%	7.12%	8.40%	5.03%
Benchmark(1)	(0.75%)	7.04%	4.74%	6.34%	-
DFA Int'l Small Cap Value - Net	(3.47%)	5.40%	7.19%	10.09%	6.11%
World ex US SC Value	(2.18%)	8.13%	7.86%	8.96%	6.09%
Northern Tr AM World ex US - Gross	(0.83%)	7.50%	5.28%	-	-
Northern Tr AM World ex US - Net	(0.84%)	7.45%	5.24%	-	-
MSCI World ex US	(0.75%)	7.04%	4.87%	6.23%	2.63%
Wellington Management - Gross	(3.36%)	16.53%	12.72%	13.22%	9.46%
Wellington Management - Net	(3.56%)	15.57%	11.79%	12.29%	8.51%
BMI, EPAC, <\$2 B	(2.91%)	10.47%	8.87%	10.53%	5.79%
William Blair - Gross	1.97%	15.84%	-	-	-
William Blair - Net	1.88%	15.43%	-	-	-
MSCI ACWI ex US IMI	(2.61%)	7.75%	5.46%	6.39%	2.93%
<b>Emerging Markets Equity</b>					
Gross	(8.78%)	9.46%	6.48%	6.23%	4.02%
Net	(8.78%)	9.46%	6.48%	6.09%	3.65%
Emerging Mkts - Net	(7.96%)	8.20%	5.60%	5.01%	2.26%
Axiom - Net	(8.43%)	10.83%	6.72%	-	-
Emerging Mkts - Net	(7.96%)	8.20%	5.60%	5.01%	2.26%
DFA - Net	(9.71%)	5.47%	5.96%	6.26%	6.08%
Emerging Mkts - Net	(7.96%)	8.20%	5.60%	5.01%	2.26%
<b>World Equity</b>					
Gross	(0.12%)	10.94%	7.85%	10.12%	-
Net	(0.20%)	10.52%	7.31%	9.50%	-
MSCI World Index	1.73%	11.09%	8.48%	9.94%	6.26%
EPOCH Investment - Gross(2)	3.67%	14.73%	8.31%	10.28%	-
EPOCH Investment - Net	3.51%	14.02%	7.62%	9.56%	-
MSCI World Index	1.73%	11.09%	8.48%	9.94%	6.26%
LSV Asset Management - Gross(3)	(3.04%)	7.98%	7.42%	10.05%	-
LSV Asset Management - Net	(3.06%)	7.78%	6.98%	9.51%	-
MSCI ACWI Idx	0.72%	11.31%	8.78%	10.00%	6.37%

(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 June 30, 2018. 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 June 30, 2018

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Private Equity*</b>					
Net	(0.40%)	5.25%	2.76%	1.33%	0.44%
Adams Street Direct Co-Invest Fd	(8.53%)	(12.18%)	(3.10%)	5.58%	3.53%
Adams Street Direct Fund 2010	6.00%	18.57%	12.60%	15.26%	-
Adams Street 1998 Partnership	0.22%	0.45%	1.46%	1.12%	(2.31%)
Adams Street 1999 Partnership	2.20%	0.12%	3.81%	1.53%	0.82%
Adams Street 2000 Partnership	2.71%	7.82%	2.95%	1.05%	1.77%
Adams Street 2001 Partnership	1.70%	6.04%	0.85%	4.09%	4.32%
Adams Street 2002 Partnership	(4.79%)	(0.30%)	9.26%	4.60%	4.52%
Adams Street 2003 Partnership	5.72%	14.74%	7.61%	13.20%	7.42%
Adams Street 2010 Partnership	6.48%	17.71%	12.89%	14.78%	-
Adams Street 2008 Fund	3.15%	16.99%	14.81%	14.14%	5.67%
Adams Street 1999 Non-US	0.02%	2.53%	5.72%	1.60%	5.82%
Adams Street 2000 Non-US	2.03%	10.80%	4.97%	2.95%	0.22%
Adams Street 2001 Non-US	1.40%	6.80%	8.00%	14.30%	2.65%
Adams Street 2002 Non-US	3.45%	5.99%	9.13%	4.93%	1.10%
Adams Street 2003 Non-US	1.14%	5.41%	16.34%	12.83%	9.36%
Adams Street 2004 Non-US	(1.27%)	10.08%	3.38%	7.36%	2.29%
Adams Street 2010 Non-US	1.93%	18.95%	16.62%	11.94%	-
Adams Street 2010 Non-US Emg	5.38%	21.66%	13.97%	13.38%	-
Adams Street 2015 Global Fd	4.95%	17.58%	-	-	-
Adams Street 2016 Global Fd	5.25%	13.58%	-	-	-
Adams Street 2017 Global Fd	10.71%	-	-	-	-
Adams Street BVCF IV Fund	1.52%	(1.84%)	1.37%	11.83%	30.95%
BlackRock	1.47%	1.53%	-	-	-
Capital International V	(0.11%)	(48.22%)	(42.03%)	(28.50%)	(14.30%)
Capital International VI	(2.12%)	5.98%	5.47%	(2.84%)	-
CorsAir III	(41.43%)	(34.35%)	(1.99%)	(2.96%)	(4.96%)
CorsAir IV	14.14%	26.61%	14.98%	17.93%	-
EIG Energy Fund XIV	30.20%	18.70%	(24.45%)	(20.74%)	(6.58%)
Hearthstone Advisors MS III	4.92%	8.27%	(18.32%)	283.21%	-
Lewis & Clark, LP	55.37%	51.46%	(3.37%)	(13.13%)	(3.18%)
Lewis & Clark II	(9.22%)	0.90%	4.44%	(1.95%)	-
Matlin Patterson II	5.98%	5.59%	(6.94%)	(3.76%)	(27.78%)
Matlin Patterson III	(9.60%)	8.51%	3.03%	2.20%	8.54%
Quantum Energy Partners	(20.67%)	(50.52%)	(13.61%)	(7.37%)	(0.04%)

\* 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 June 30, 2018. 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 June 30, 2018

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Global Fixed Income</b>					
Gross	0.58%	3.76%	4.57%	4.45%	-
Net	0.53%	3.56%	4.33%	4.22%	-
Wtd Avg Global FI Benchmark	0.20%	1.93%	3.24%	2.90%	-
<b>Domestic Fixed Income</b>					
Gross	0.58%	2.88%	4.39%	4.86%	5.03%
Net	0.54%	2.71%	4.18%	4.65%	4.79%
Wtd Avg Domestic FI Benchmark	0.20%	0.38%	2.74%	3.15%	5.04%
<b>Inv. Grade Fixed Income</b>					
Gross	0.08%	1.71%	3.53%	3.98%	4.04%
Net	0.05%	1.61%	3.41%	3.86%	3.83%
Blmbg Aggregate Index	(0.16%)	(0.40%)	1.72%	2.27%	3.72%
Declaration Total Return - Net	0.63%	3.33%	3.63%	4.24%	-
Libor-3 Month	0.58%	1.75%	1.07%	0.74%	0.73%
PIMCO Core Plus Cons. - Gross(1)	(0.40%)	1.68%	3.49%	2.65%	-
PIMCO Core Plus Cons. - Net	(0.45%)	1.48%	3.16%	2.36%	-
Blended Benchmark(2)	0.58%	1.75%	1.07%	0.78%	-
PIMCO DiSCO II - Net	1.60%	10.02%	10.37%	9.45%	-
Blmbg Aggregate Index	(0.16%)	(0.40%)	1.72%	2.27%	3.72%
SSgA Long US Treas Idx - Gross	0.31%	(0.12%)	3.39%	4.53%	-
SSgA Long US Treas Idx - Net	0.31%	(0.15%)	3.35%	4.50%	-
Blmbg Long Treas	0.31%	(0.13%)	3.40%	4.55%	6.05%
<b>Below Inv. Grade Fixed Income</b>					
Gross	1.83%	5.49%	6.38%	6.98%	7.49%
Net	1.76%	5.17%	5.99%	6.56%	7.16%
Blmbg HY Corp 2% Issue	1.03%	2.62%	5.54%	5.52%	8.23%
Ares ND Credit Strategies Fd - Net	3.64%	-	-	-	-
Cerberus ND Private Credit Fd - Net	3.69%	-	-	-	-
S&P/LSTA Leveraged Loan B	0.79%	4.47%	4.37%	4.21%	5.39%
Goldman Sachs 2006 Offshore - Net	1.26%	13.17%	23.04%	24.06%	12.45%
Goldman Sachs Offshore V - Net	14.20%	16.70%	(1.34%)	3.87%	8.54%
PIMCO Bravo II Fund - Net	4.05%	6.00%	8.75%	-	-
Blmbg HY Corp 2% Issue	1.03%	2.62%	5.54%	5.52%	8.23%
Loomis Sayles - Gross	0.10%	3.18%	5.31%	6.04%	8.13%
Loomis Sayles - Net	(0.03%)	2.66%	4.78%	5.51%	7.77%
Blmbg HY Corp 2% Issue	1.03%	2.62%	5.54%	5.52%	8.23%

(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 June 30, 2018. 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.

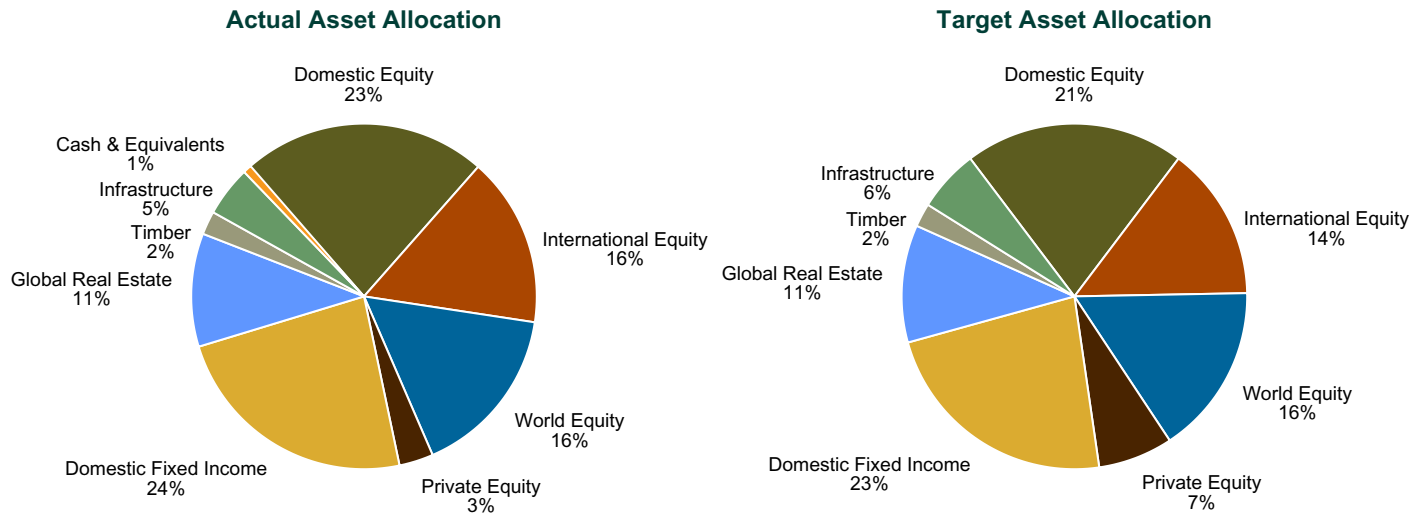
### Returns for Periods Ended June 30, 2018

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Global Real Assets</b>					
Gross	1.96%	6.57%	7.12%	8.41%	-
Net	1.75%	6.13%	6.65%	7.97%	-
Wtd Avg Global Real Assets Benchmark	1.43%	5.46%	5.51%	6.75%	-
<b>Global Real Estate</b>					
Gross	2.86%	8.22%	9.91%	12.38%	5.22%
Net	2.62%	7.70%	9.35%	11.84%	3.83%
NCREIF Total Index	1.81%	7.19%	8.25%	9.77%	6.22%
Invesco Core Real Estate - Gross	4.36%	8.27%	9.24%	10.97%	5.37%
Invesco Core Real Estate - Net	4.18%	7.91%	8.88%	10.58%	4.95%
Invesco Fund II - Net	(2.65%)	(1.24%)	8.93%	9.47%	(4.47%)
Invesco Fund III - Net	1.33%	0.30%	8.54%	12.42%	-
Invesco Asia RE Feeder - Net	(5.24%)	(13.25%)	174.96%	94.50%	-
Invesco Asia RE Fund III - Net	52.56%	83.23%	-	-	-
Invesco Value Added Fd IV - Net	4.09%	11.65%	8.09%	-	-
JP Morgan - Gross	2.27%	8.76%	9.67%	11.74%	5.81%
JP Morgan - Net	1.83%	7.81%	8.60%	10.67%	4.78%
JP Morgan Alternative Fd - Net	0.80%	8.18%	5.88%	(3.77%)	(5.49%)
JP Morgan China Property Fd - Net	135.36%	134.93%	55.55%	48.90%	20.40%
JPM Greater European Opp Fd - Net	(43.66%)	(46.30%)	(12.72%)	5.79%	-
NCREIF Total Index	1.81%	7.19%	8.25%	9.77%	6.22%
<b>Timber</b>					
Net	(0.90%)	(2.52%)	(2.70%)	(0.36%)	-
TIR Teredo	(1.22%)	(3.98%)	(0.82%)	3.75%	4.49%
TIR Springbank	(0.79%)	(2.07%)	(3.23%)	(2.30%)	(3.61%)
NCREIF Timberland Index	0.48%	3.57%	3.43%	6.00%	4.00%
<b>Infrastructure</b>					
Gross	1.41%	7.87%	7.05%	6.34%	-
Net	1.17%	7.37%	6.45%	5.75%	-
JP Morgan Asian Infrastructure - Net	(5.91%)	(8.86%)	3.71%	2.42%	-
JP Morgan IIF - Gross	2.21%	10.60%	7.57%	6.67%	3.22%
JP Morgan IIF - Net	1.88%	9.89%	6.69%	5.78%	2.06%
Grosvenor Cust. Infrastructure - Net	3.71%	7.10%	8.07%	8.47%	-
Grosvenor Cust. Infrastructure II - Net	1.95%	7.98%	5.77%	-	-
CPI-W	1.12%	3.09%	1.74%	1.37%	1.35%
<b>Cash &amp; Cash Equivalents - Net</b>					
Cash Account - Net	0.47%	1.45%	0.83%	0.52%	0.43%
Bank of ND - Net	0.46%	1.42%	-	-	-
3-month Treasury Bill	0.45%	1.36%	0.68%	0.42%	0.35%
<b>Total Fund</b>					
Gross	1.09%	9.40%	7.64%	8.62%	6.10%
Net	1.01%	9.14%	7.33%	8.29%	5.66%
Target*	1.19%	7.85%	6.64%	7.44%	6.34%

\* Current Quarter Target = 16.3% Blmbg Aggregate, 16.1% Russell 1000 Index, 16.0% MSCI World, 11.2% MSCI World ex US, 10.5% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.5% NDSIB PEN - Private Equity, 5.7% CPI-W, 4.9% Russell 2000 Index, 3.1% MSCI EM, 2.3% NCREIF Timberland Index and 0.4% 3-month Treasury Bill.

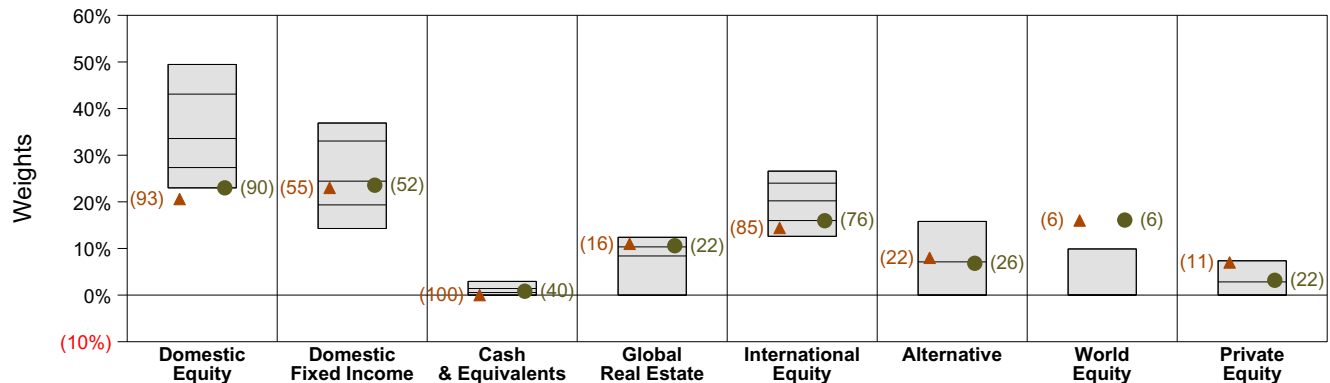
## Actual vs Target Asset Allocation As of June 30, 2018

The top left chart shows the Fund's asset allocation as of June 30, 2018. 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.



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	695,451	23.0%	20.6%	2.4%	72,461
International Equity	482,185	15.9%	14.4%	1.5%	46,697
World Equity	486,630	16.1%	16.0%	0.1%	2,754
Private Equity	96,041	3.2%	7.0%	(3.8%)	(115,655)
Domestic Fixed Income	712,642	23.6%	23.0%	0.6%	17,071
Global Real Estate	320,064	10.6%	11.0%	(0.4%)	(12,601)
Timber	65,236	2.2%	2.2%	(0.0%)	(1,297)
Infrastructure	140,968	4.7%	5.8%	(1.1%)	(34,437)
Cash & Equivalents	25,005	0.8%	0.0%	0.8%	25,005
<b>Total</b>	<b>3,024,223</b>	<b>100.0%</b>	<b>100.0%</b>		

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



10th Percentile	49.46	36.90	2.94	12.40	26.59	15.80	9.89	7.35
25th Percentile	43.10	33.04	1.41	10.33	24.01	7.12	0.00	2.83
Median	33.58	24.44	0.54	8.39	20.22	0.00	0.00	0.00
75th Percentile	27.35	19.35	0.00	0.00	15.98	0.00	0.00	0.00
90th Percentile	23.00	14.28	0.00	0.00	12.60	0.00	0.00	0.00
<b>Fund</b>	<b>23.00</b>	<b>23.56</b>	<b>0.83</b>	<b>10.58</b>	<b>15.94</b>	<b>6.82</b>	<b>16.09</b>	<b>3.18</b>
<b>Target</b>	<b>20.60</b>	<b>23.00</b>	<b>0.00</b>	<b>11.00</b>	<b>14.40</b>	<b>8.00</b>	<b>16.00</b>	<b>7.00</b>
% Group Invested	96.99%	96.24%	72.18%	72.93%	90.98%	15.04%	12.78%	30.83%

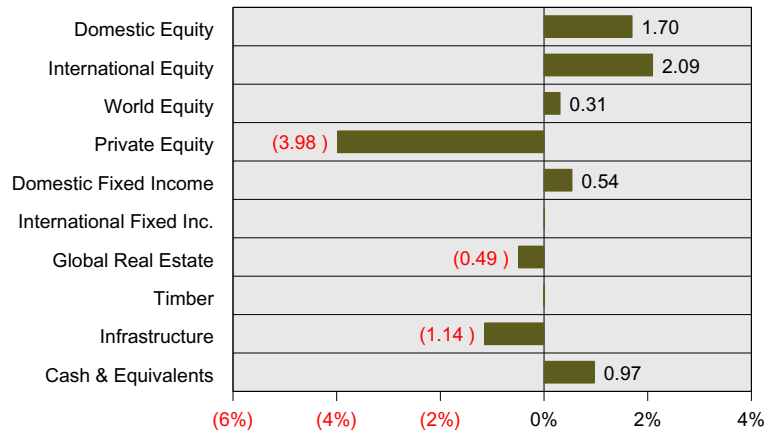
\* Current Quarter Target = 16.0% Blmbg Aggregate, 16.0% MSCI World, 15.8% Russell 1000 Index, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 7.0% NDSIB PERS - Private Equity, 5.8% CPI-W, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.2% NCREIF Timberland Index.



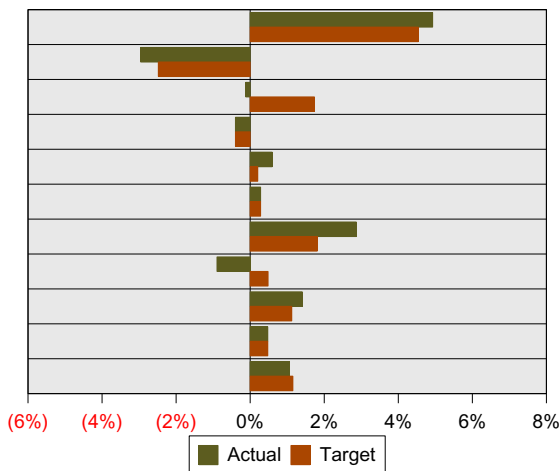
## Quarterly Total Fund Relative Attribution - June 30, 2018

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.

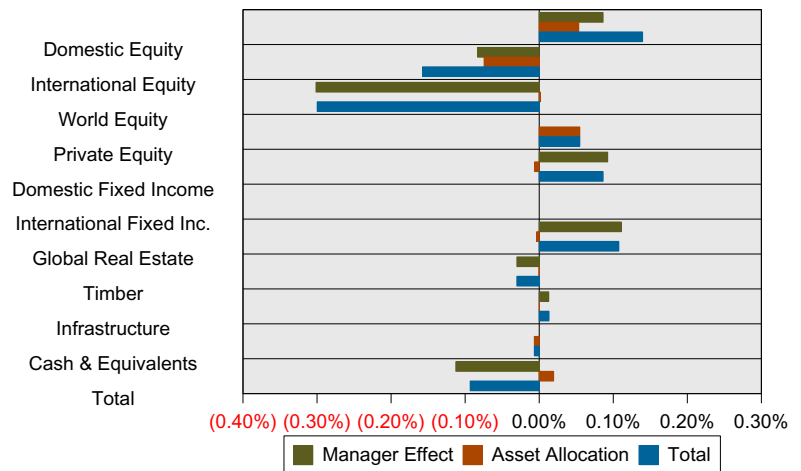
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended June 30, 2018

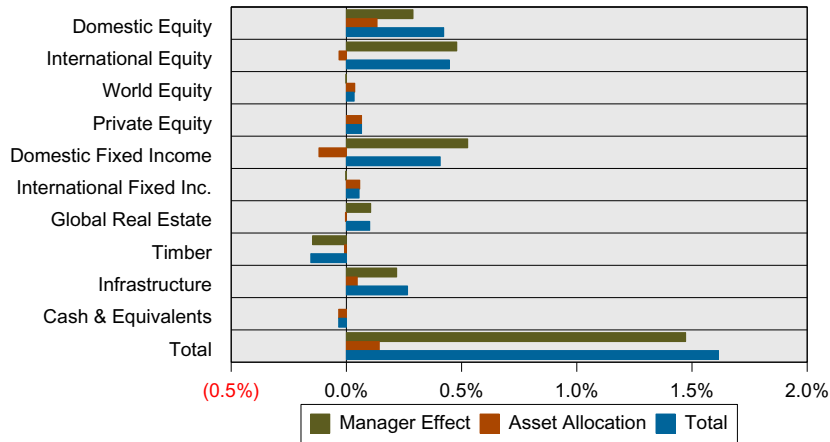
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	22%	21%	4.93%	4.54%	0.09%	0.05%	0.14%
International Equity	16%	14%	(2.96%)	(2.48%)	(0.08%)	(0.07%)	(0.16%)
World Equity	16%	16%	(0.12%)	1.73%	(0.30%)	0.00%	(0.30%)
Private Equity	3%	7%	(0.40%)	(0.40%)	0.00%	0.05%	0.05%
Domestic Fixed Income	24%	23%	0.59%	0.20%	0.09%	(0.01%)	0.09%
International Fixed Inc.	0%	0%	0.28%	0.28%	0.00%	0.00%	0.00%
Global Real Estate	11%	11%	2.86%	1.81%	0.11%	(0.00%)	0.11%
Timber	2%	2%	(0.90%)	0.48%	(0.03%)	(0.00%)	(0.03%)
Infrastructure	5%	6%	1.41%	1.12%	0.01%	0.00%	0.01%
Cash & Equivalents	1%	0%	0.48%	0.48%	0.00%	(0.01%)	(0.01%)
<b>Total</b>					<b>1.06%</b>	<b>1.15%</b>	<b>0.09%</b>

\* Current Quarter Target = 16.0% Blmbg Aggregate, 16.0% MSCI World, 15.8% Russell 1000 Index, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 7.0% NDSIB PERS - Private Equity, 5.8% CPI-W, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.2% NCREIF Timberland Index.

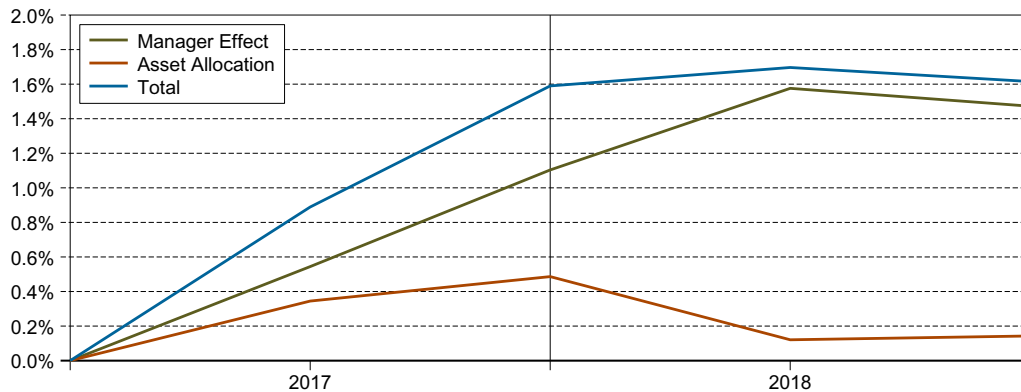
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

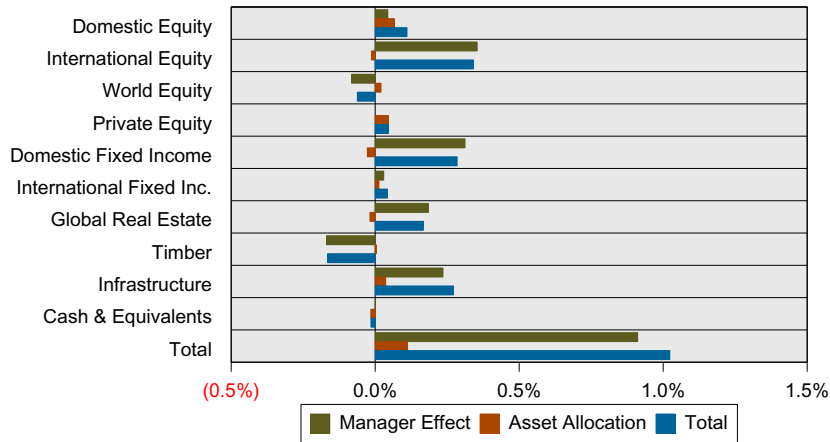
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	16.63%	15.29%	0.29%	0.13%	0.42%
International Equity	16%	14%	10.32%	7.38%	0.48%	(0.03%)	0.45%
World Equity	17%	16%	10.94%	11.09%	(0.00%)	0.04%	0.03%
Private Equity	3%	7%	5.27%	5.27%	0.00%	0.07%	0.07%
Domestic Fixed Income	20%	20%	2.91%	0.44%	0.53%	(0.12%)	0.41%
International Fixed Inc.	3%	3%	(16.88%)	(16.82%)	(0.00%)	0.06%	0.06%
Global Real Estate	11%	11%	8.22%	7.19%	0.11%	(0.00%)	0.10%
Timber	2%	2%	(2.52%)	3.57%	(0.15%)	(0.01%)	(0.15%)
Infrastructure	4%	6%	7.87%	3.09%	0.22%	0.05%	0.27%
Cash & Equivalents	1%	0%	1.47%	1.47%	0.00%	(0.03%)	(0.03%)
<b>Total</b>			<b>9.46%</b>	<b>7.85%</b>	<b>+ 1.47%</b>	<b>+ 0.14%</b>	<b>1.62%</b>

\* Current Quarter Target = 16.0% Blmbg Aggregate, 16.0% MSCI World, 15.8% Russell 1000 Index, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 7.0% NDSIB PERS - Private Equity, 5.8% CPI-W, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.2% NCREIF Timberland Index.

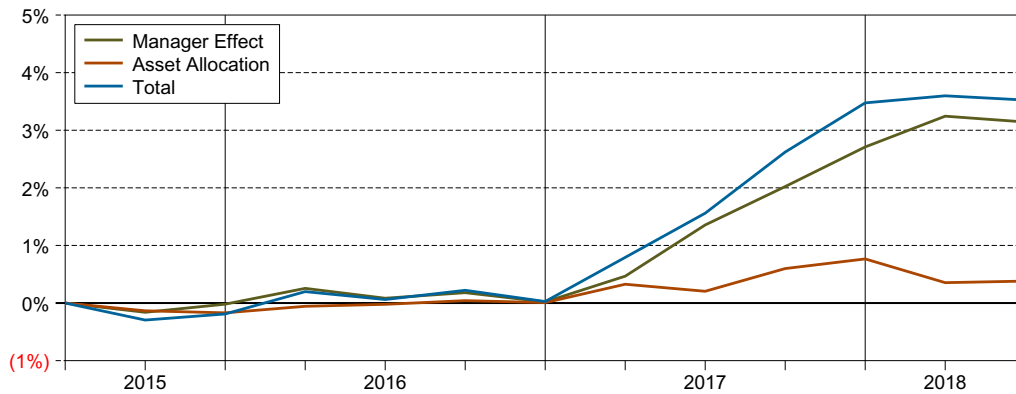
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

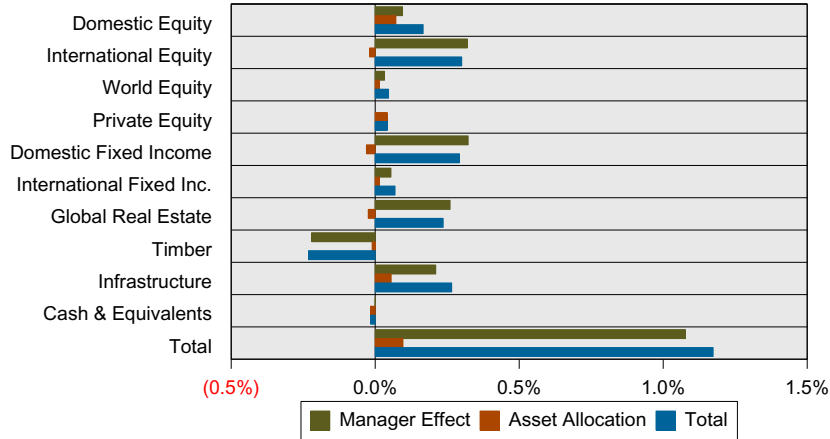
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	11.78%	11.57%	0.04%	0.07%	0.11%
International Equity	16%	14%	7.29%	5.04%	0.35%	(0.01%)	0.34%
World Equity	17%	16%	7.86%	8.48%	(0.08%)	0.02%	(0.06%)
Private Equity	3%	6%	2.78%	2.78%	0.00%	0.05%	0.05%
Domestic Fixed Income	19%	18%	4.42%	2.80%	0.31%	(0.03%)	0.28%
International Fixed Inc.	4%	4%	(3.20%)	(3.80%)	0.03%	0.01%	0.04%
Global Real Estate	11%	11%	9.93%	8.25%	0.19%	(0.02%)	0.17%
Timber	3%	4%	(2.70%)	3.43%	(0.17%)	0.00%	(0.17%)
Infrastructure	4%	5%	7.06%	1.74%	0.24%	0.04%	0.27%
Cash & Equivalents	1%	0%	0.83%	0.79%	0.00%	(0.02%)	(0.01%)
<b>Total</b>			<b>7.68%</b>	<b>6.65%</b>	<b>+ 0.91%</b>	<b>+ 0.11%</b>	<b>1.02%</b>

\* Current Quarter Target = 16.0% Blmbg Aggregate, 16.0% MSCI World, 15.8% Russell 1000 Index, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 7.0% NDSIB PERS - Private Equity, 5.8% CPI-W, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.2% NCREIF Timberland Index.

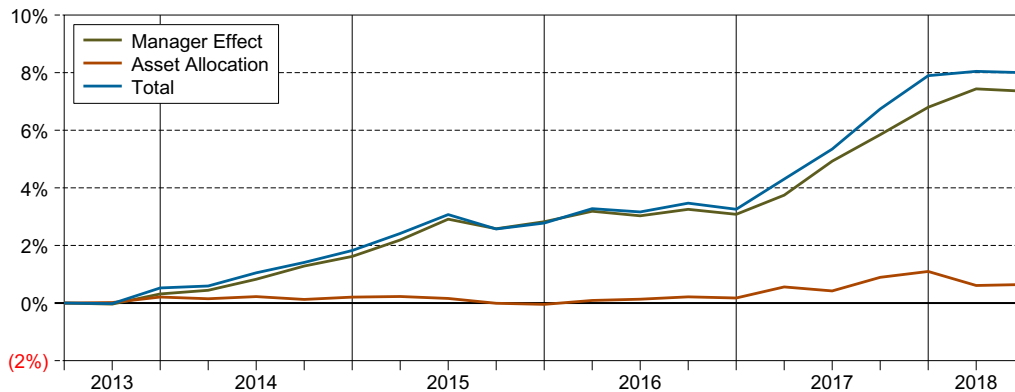
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

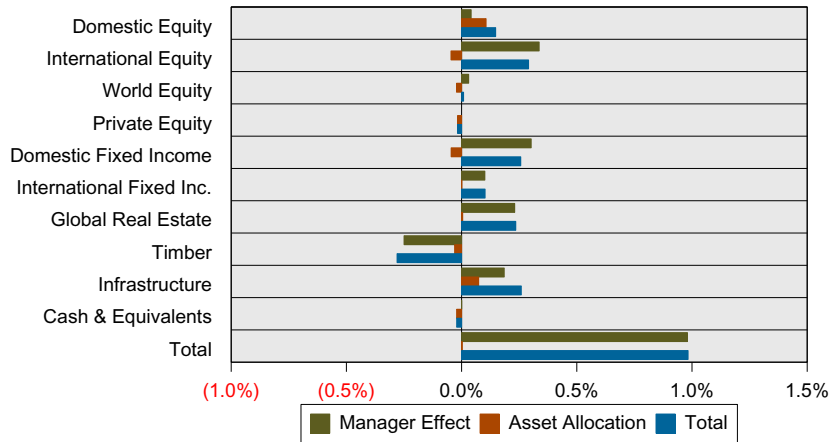
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	13.68%	13.24%	0.09%	0.07%	0.17%
International Equity	15%	15%	8.18%	6.11%	0.32%	(0.02%)	0.30%
World Equity	16%	16%	10.11%	9.94%	0.03%	0.01%	0.05%
Private Equity	4%	6%	1.35%	1.35%	0.00%	0.04%	0.04%
Domestic Fixed Income	18%	18%	4.90%	3.21%	0.32%	(0.03%)	0.29%
International Fixed Inc.	5%	5%	(2.25%)	(3.30%)	0.05%	0.01%	0.07%
Global Real Estate	10%	10%	12.43%	9.77%	0.26%	(0.02%)	0.24%
Timber	3%	4%	(0.35%)	6.00%	(0.22%)	(0.01%)	(0.23%)
Infrastructure	4%	5%	6.34%	1.37%	0.21%	0.06%	0.27%
Cash & Equivalents	1%	1%	0.52%	0.49%	0.00%	(0.02%)	(0.02%)
<b>Total</b>			<b>8.64%</b>	<b>7.47%</b>	<b>+ 1.08%</b>	<b>+ 0.10%</b>	<b>1.17%</b>

\* Current Quarter Target = 16.0% Blmbg Aggregate, 16.0% MSCI World, 15.8% Russell 1000 Index, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 7.0% NDSIB PERS - Private Equity, 5.8% CPI-W, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.2% NCREIF Timberland Index.

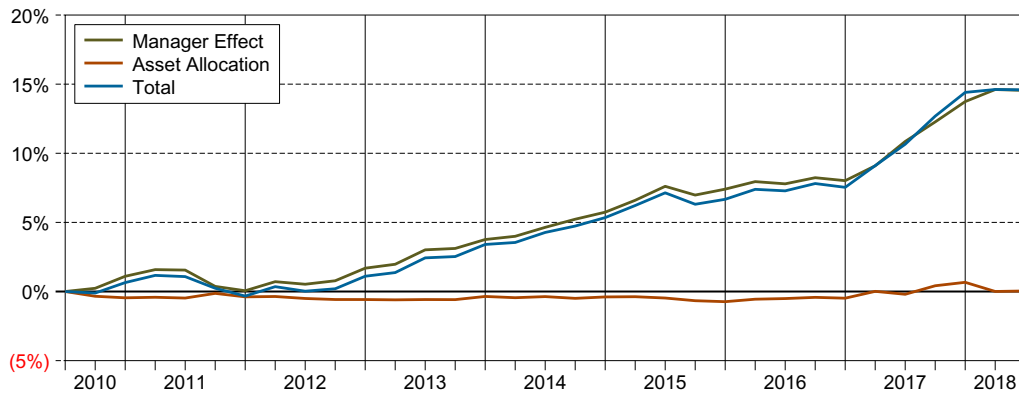
## Cumulative Total Fund Relative Attribution - June 30, 2018

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.

### Eight Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Eight Year Annualized Relative Attribution Effects

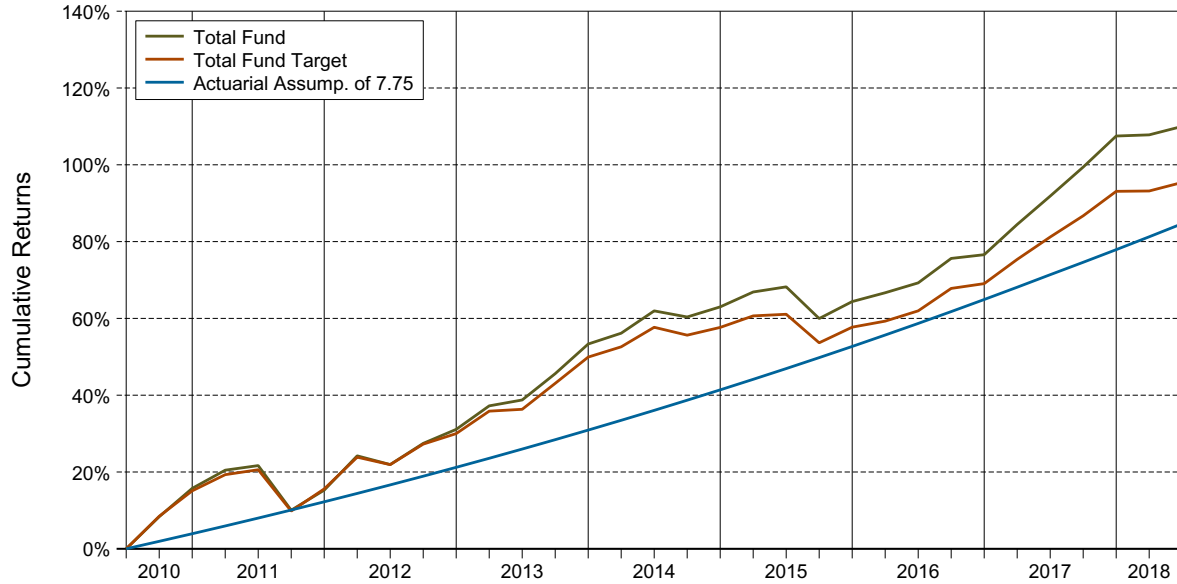
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	26%	25%	15.59%	15.24%	0.04%	0.11%	0.15%
International Equity	16%	15%	8.67%	6.47%	0.34%	(0.05%)	0.29%
World Equity	12%	12%	-	-	0.03%	(0.02%)	0.01%
Private Equity	4%	5%	4.08%	4.08%	0.00%	(0.02%)	(0.02%)
Domestic Fixed Income	20%	19%	5.81%	4.10%	0.30%	(0.05%)	0.26%
International Fixed Inc.	5%	5%	1.09%	(0.78%)	0.10%	0.00%	0.10%
Global Real Estate	9%	9%	13.80%	11.02%	0.23%	0.00%	0.24%
Timber	3%	4%	-	-	(0.25%)	(0.03%)	(0.28%)
Infrastructure	3%	4%	-	-	0.19%	0.07%	0.26%
Cash & Equivalents	1%	1%	0.37%	0.35%	0.00%	(0.02%)	(0.02%)
<b>Total</b>			<b>9.72%</b>	<b>8.73%</b>	<b>+ 0.98%</b>	<b>+ 0.00%</b>	<b>0.98%</b>

\* Current Quarter Target = 16.0% Blmbg Aggregate, 16.0% MSCI World, 15.8% Russell 1000 Index, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 7.0% NDSIB PERS - Private Equity, 5.8% CPI-W, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.2% NCREIF Timberland Index.

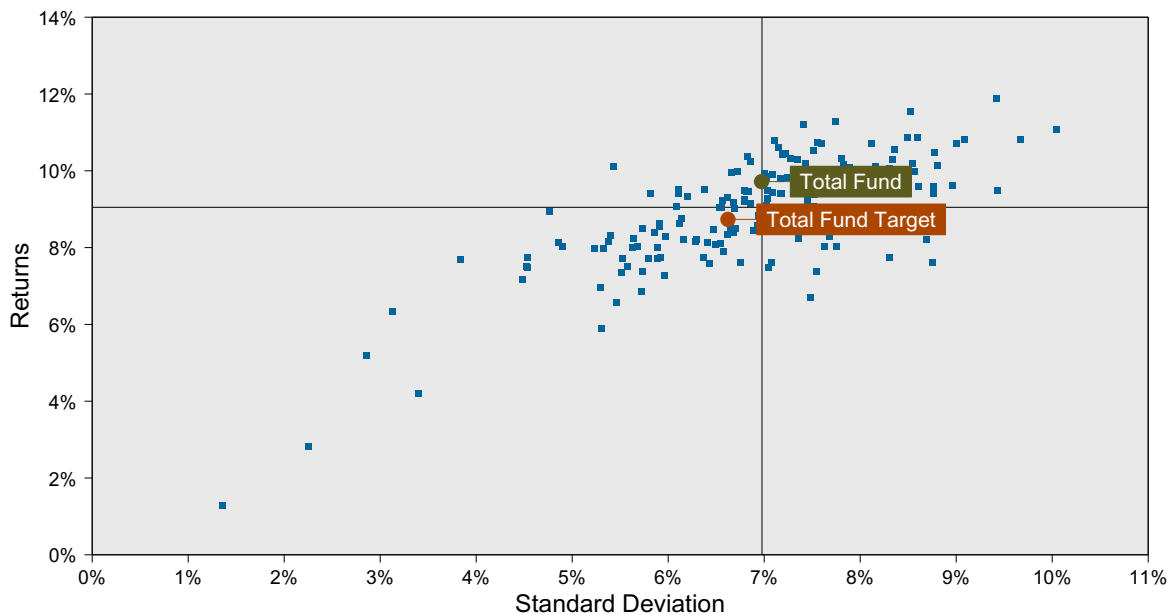
## Cumulative Performance Relative to Target

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



### Eight Year Annualized Risk vs Return



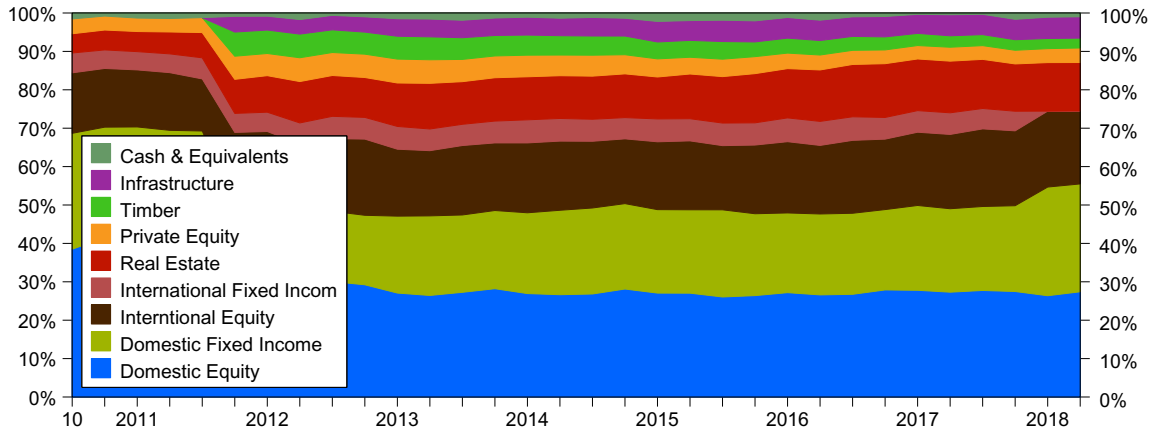
Squares represent membership of the Callan Public Fund Sponsor Database

\* Current Quarter Target = 16.0% Blmbg Aggregate, 16.0% MSCI World, 15.8% Russell 1000 Index, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 7.0% NDSIB PERS - Private Equity, 5.8% CPI-W, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.2% NCREIF Timberland Index.

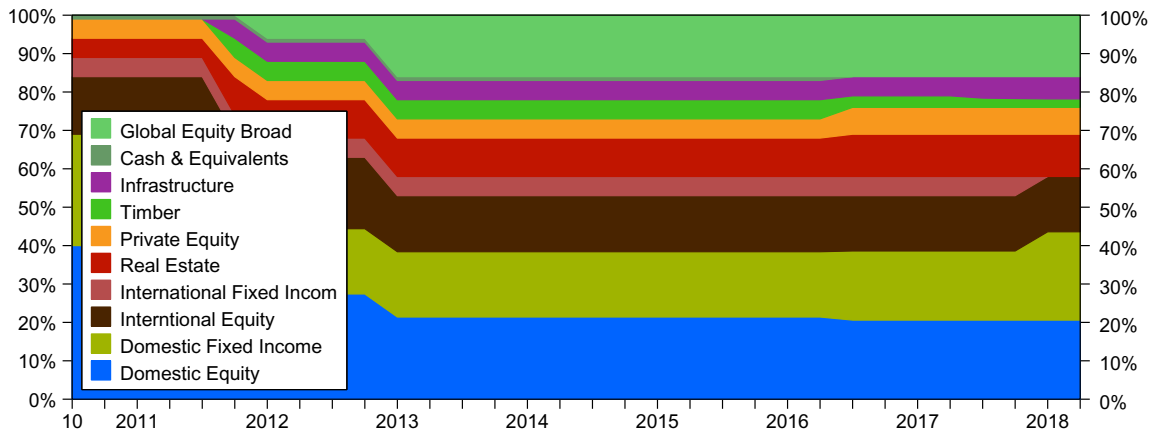
## Actual vs Target Historical Asset Allocation

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.

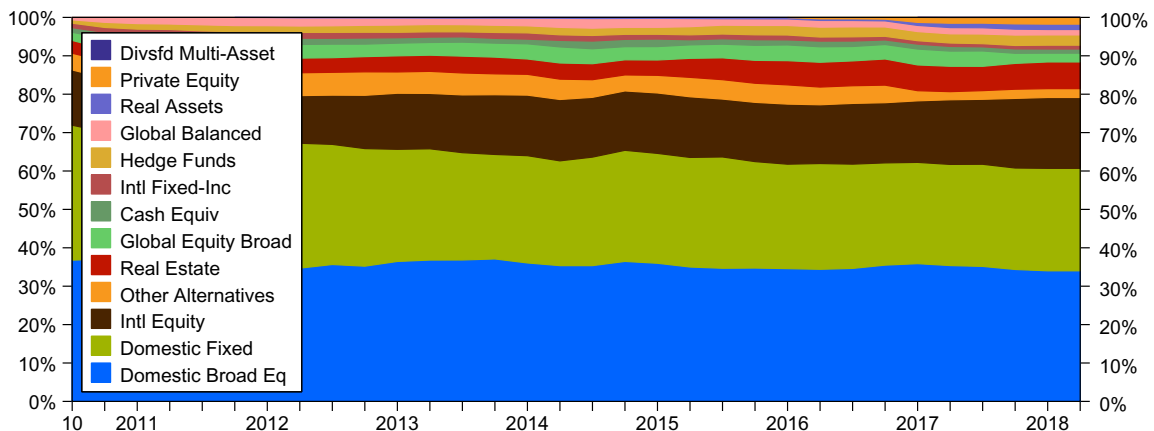
### Actual Historical Asset Allocation



### Target Historical Asset Allocation



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

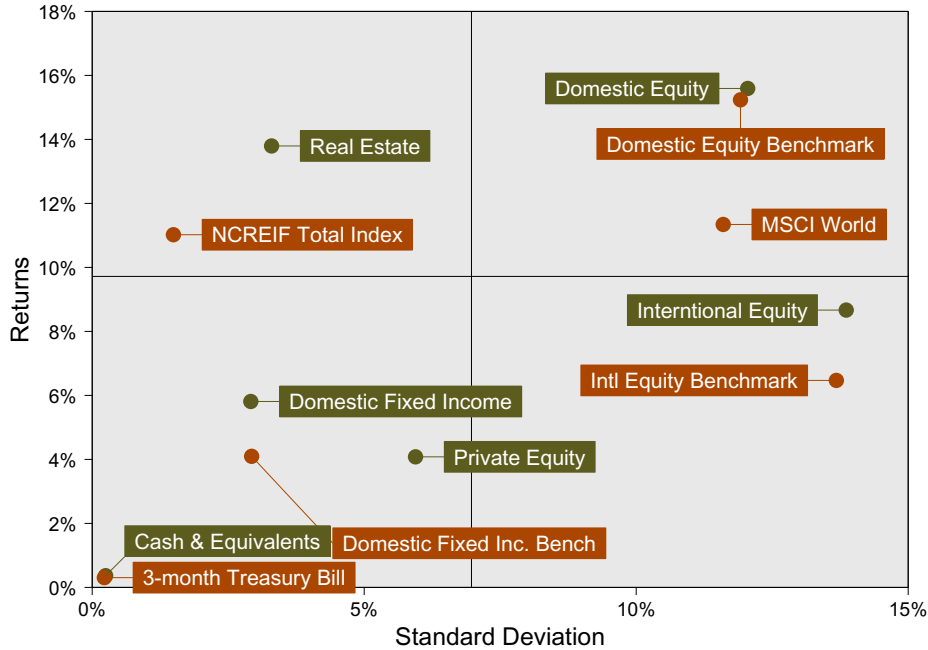


\* Current Quarter Target = 16.0% Blmbg Aggregate, 16.0% MSCI World, 15.8% Russell 1000 Index, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 7.0% NDSIB PERS - Private Equity, 5.8% CPI-W, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.2% NCREIF Timberland Index.

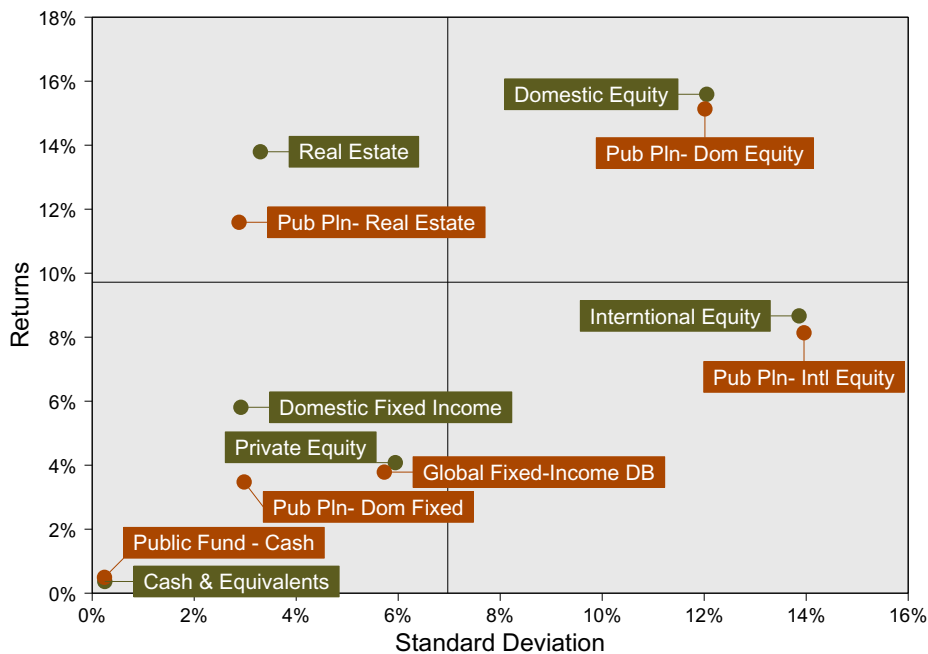
## Asset Class Risk and Return

The charts below show the eight 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.

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



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

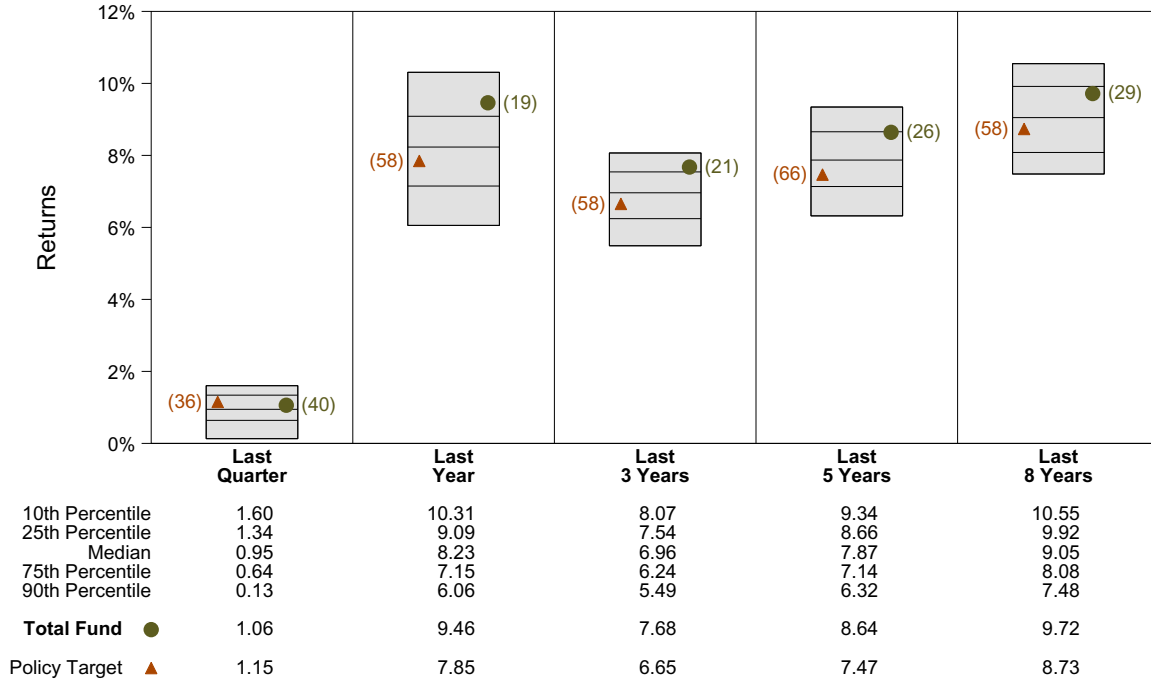




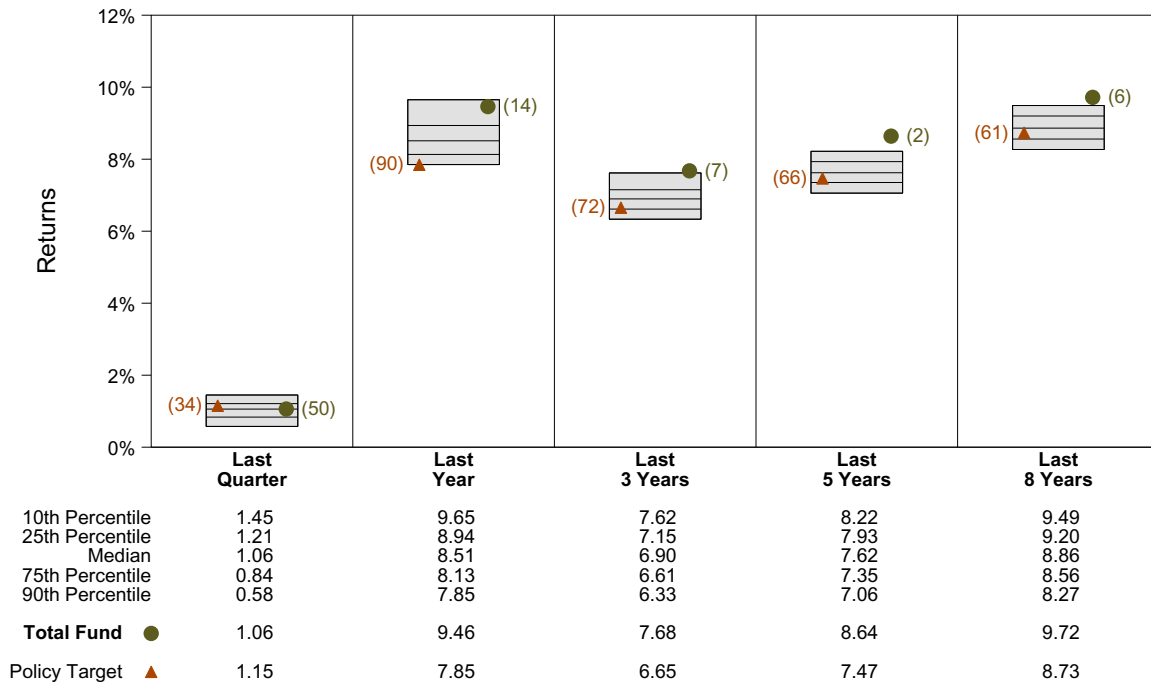
## Total Fund Ranking

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 June 30, 2018. 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

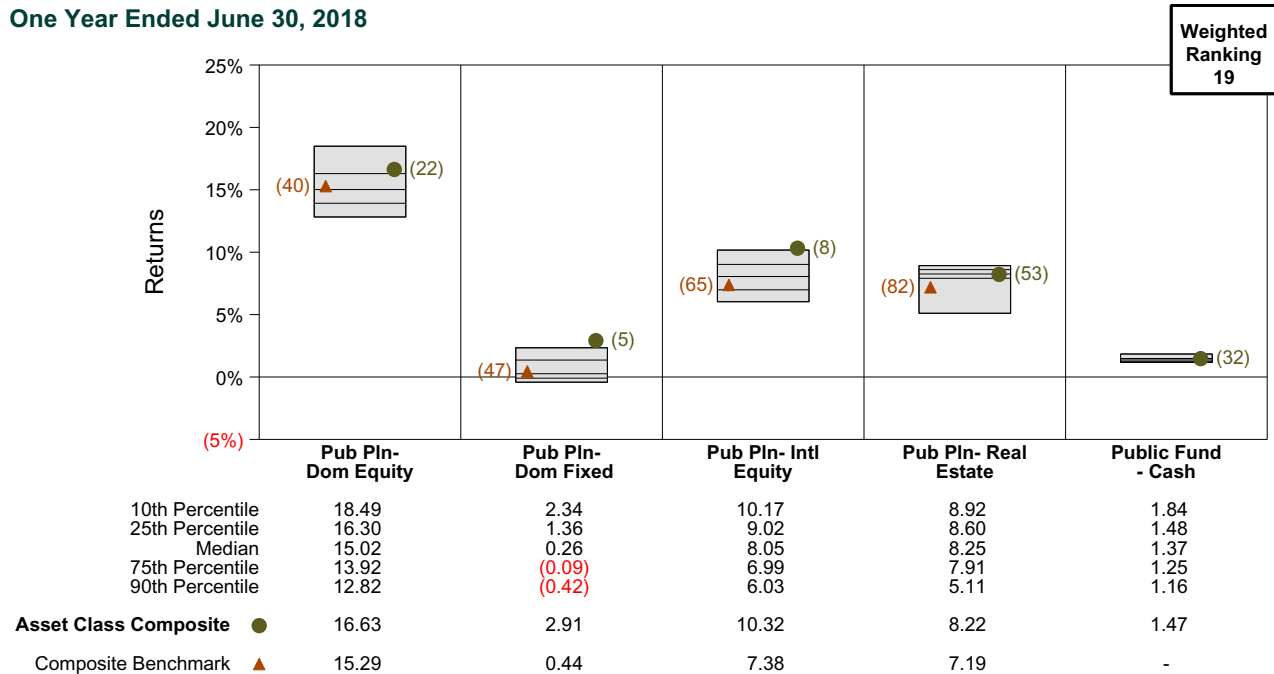


\* Current Quarter Target = 16.0% Blmbg Aggregate, 16.0% MSCI World, 15.8% Russell 1000 Index, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 7.0% NDSIB PERS - Private Equity, 5.8% CPI-W, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.2% NCREIF Timberland Index.

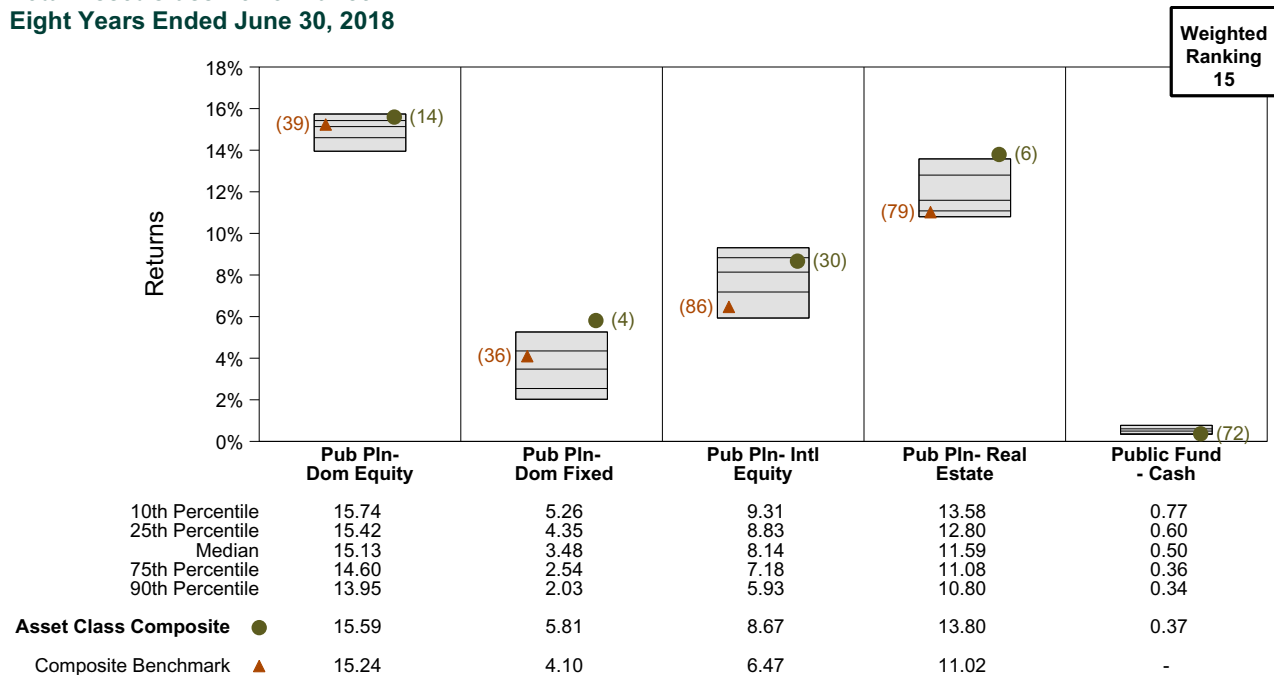
## Asset Class Rankings

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 June 30, 2018



### Total Asset Class Performance Eight Years Ended June 30, 2018



\* Current Quarter Target = 16.0% Blmbg Aggregate, 16.0% MSCI World, 15.8% Russell 1000 Index, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 7.0% NDSIB PERS - Private Equity, 5.8% CPI-W, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.2% NCREIF Timberland Index.

## Asset Class Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2018, with the distribution as of March 31, 2018. 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

	June 30, 2018		Net New Inv.	Inv. Return	March 31, 2018	
	Market Value	Weight			Market Value	Weight
<b>GLOBAL EQUITY</b>	<b>\$1,760,306,970</b>	<b>58.21%</b>	<b>\$5,317,727</b>	<b>\$16,973,113</b>	<b>\$1,738,016,130</b>	<b>57.95%</b>
<b>Domestic Equity</b>	<b>\$695,451,188</b>	<b>23.00%</b>	<b>\$358,357</b>	<b>\$32,634,754</b>	<b>\$662,458,076</b>	<b>22.09%</b>
Large Cap	525,509,761	17.38%	138,679	20,951,822	504,419,260	16.82%
Small Cap	169,941,426	5.62%	219,678	11,682,932	158,038,816	5.27%
<b>International Equity</b>	<b>\$482,184,807</b>	<b>15.94%</b>	<b>\$181,520</b>	<b>\$(14,695,811)</b>	<b>\$496,699,098</b>	<b>16.56%</b>
Developed Intl Equity	358,939,766	11.87%	81,520	(2,838,176)	361,696,422	12.06%
Emerging Markets	123,245,041	4.08%	100,000	(11,857,635)	135,002,676	4.50%
<b>World Equity</b>	<b>\$486,630,042</b>	<b>16.09%</b>	<b>\$(406,790)</b>	<b>\$(578,741)</b>	<b>\$487,615,573</b>	<b>16.26%</b>
<b>Private Equity</b>	<b>\$96,040,933</b>	<b>3.18%</b>	<b>\$5,184,640</b>	<b>\$(387,090)</b>	<b>\$91,243,383</b>	<b>3.04%</b>
<b>GLOBAL FIXED INCOME</b>	<b>\$712,642,395</b>	<b>23.56%</b>	<b>\$(2,350,655)</b>	<b>\$4,235,089</b>	<b>\$710,757,961</b>	<b>23.70%</b>
<b>Domestic Fixed Income</b>	<b>\$712,642,395</b>	<b>23.56%</b>	<b>\$(2,350,490)</b>	<b>\$4,235,085</b>	<b>\$710,757,801</b>	<b>23.70%</b>
Inv. Grade Fixed Income	504,904,839	16.70%	71,510	403,485	504,429,844	16.82%
Below Inv. Grade Fixed Income	207,737,557	6.87%	(2,422,000)	3,831,600	206,327,957	6.88%
<b>International Fixed Income</b>	<b>\$0</b>	<b>0.00%</b>	<b>\$(165)</b>	<b>\$4</b>	<b>\$161</b>	<b>0.00%</b>
<b>GLOBAL REAL ASSETS</b>	<b>\$526,268,313</b>	<b>17.40%</b>	<b>\$(7,014,006)</b>	<b>\$10,366,464</b>	<b>\$522,915,855</b>	<b>17.43%</b>
Real Estate	320,063,999	10.58%	(6,308,175)	9,019,887	317,352,287	10.58%
Timber	65,236,240	2.16%	(576,487)	(587,052)	66,399,779	2.21%
Infrastructure	140,968,074	4.66%	(129,344)	1,933,629	139,163,789	4.64%
<b>Cash &amp; Equivalents</b>	<b>\$25,005,314</b>	<b>0.83%</b>	<b>\$(2,780,551)</b>	<b>\$139,986</b>	<b>\$27,645,878</b>	<b>0.92%</b>
<b>Securities Lending Income</b>	<b>\$0</b>	<b>0.00%</b>	<b>\$(73,106)</b>	<b>\$73,106</b>	<b>-</b>	<b>-</b>
<b>Total Fund</b>	<b>\$3,024,222,992</b>	<b>100.0%</b>	<b>\$(6,900,590)</b>	<b>\$31,787,757</b>	<b>\$2,999,335,825</b>	<b>100.0%</b>

PLEASE REFER TO PAGES 29-31 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 June 30, 2018. 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 June 30, 2018

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 8 Years
<b>Global Equity</b>					
Gross	0.98%	12.62%	8.96%	10.37%	-
Net	0.93%	12.37%	8.67%	10.05%	-
Wtd Avg Global Equity Benchmark	1.46%	11.15%	8.25%	9.39%	-
<b>Domestic Equity</b>					
Gross	4.93%	16.63%	11.78%	13.68%	15.59%
Net	4.88%	16.43%	11.58%	13.47%	15.34%
Wtd Avg Domestci Equity Benchmark	4.54%	15.29%	11.57%	13.24%	15.24%
<b>Large Cap Equity</b>					
Gross	4.15%	16.11%	12.23%	14.15%	15.79%
Net	4.13%	15.99%	12.10%	13.98%	15.56%
Benchmark(1)	3.57%	14.54%	11.64%	13.37%	15.31%
<b>Small Cap Equity</b>					
Gross	7.40%	18.15%	9.94%	11.88%	14.79%
Net	7.30%	17.69%	9.52%	11.52%	14.48%
Russell 2000 Index	7.75%	17.57%	10.96%	12.46%	14.75%
<b>International Equity</b>					
Gross	(2.96%)	10.32%	7.29%	8.18%	8.67%
Net	(3.00%)	10.14%	7.11%	7.97%	8.37%
Wtd Avg Intl Equity Benchmark	(2.48%)	7.38%	5.04%	6.11%	6.47%
<b>Developed Intl Equity</b>					
Gross	(0.78%)	10.54%	7.37%	8.64%	9.25%
Net	(0.84%)	10.30%	7.13%	8.39%	8.94%
Benchmark(2)	(0.75%)	7.04%	4.74%	6.34%	7.00%
<b>Emerging Markets</b>					
Gross	(8.78%)	9.46%	6.48%	6.15%	6.37%
Net	(8.78%)	9.46%	6.48%	6.06%	6.11%
Benchmark(3)	(7.96%)	8.20%	5.60%	5.01%	4.44%
<b>World Equity</b>					
Gross	(0.12%)	10.94%	7.86%	10.11%	-
Net	(0.20%)	10.52%	7.31%	9.49%	-
MSCI World Index	1.73%	11.09%	8.48%	9.94%	11.34%
<b>Private Equity</b>					
Net	(0.40%)	5.27%	2.77%	1.33%	4.01%

(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 32-36 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 June 30, 2018. 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 June 30, 2018

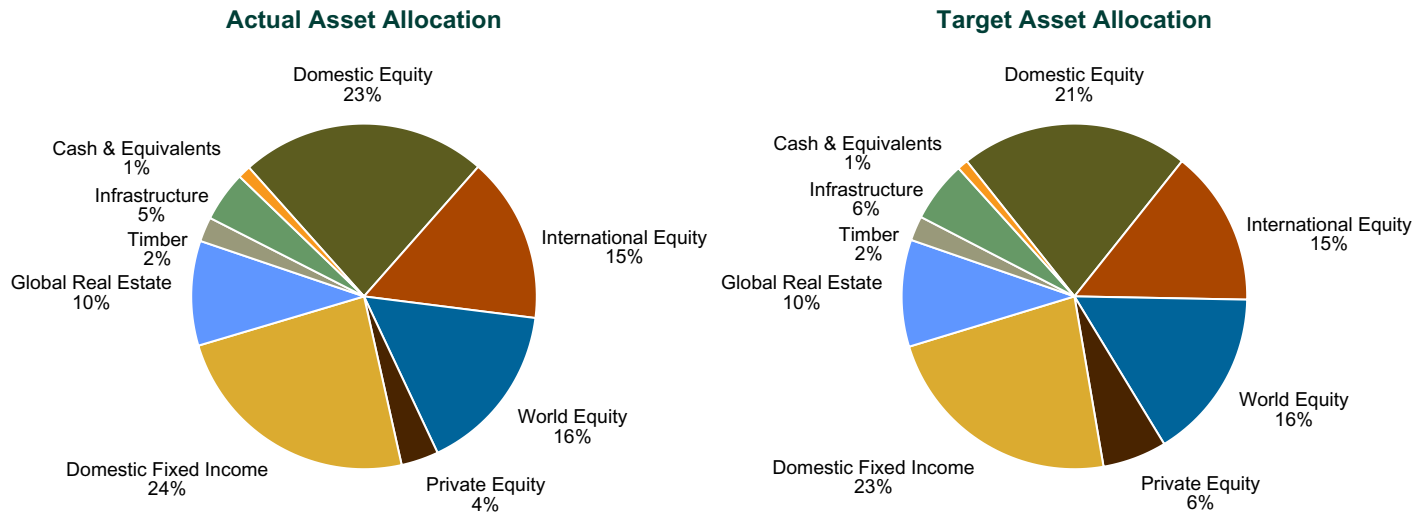
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 8 Years
<b>Global Fixed Income</b>					
Gross	0.59%	3.79%	4.60%	4.47%	-
Net	0.55%	3.59%	4.37%	4.23%	-
Wtd Avg Global FI Benchmark	0.20%	1.82%	3.22%	2.88%	-
<b>Domestic Fixed Income</b>					
Gross	0.59%	2.91%	4.42%	4.90%	5.81%
Net	0.56%	2.75%	4.22%	4.69%	5.57%
Wtd Avg Domestic FI Benchmark	0.20%	0.44%	2.80%	3.21%	4.10%
<b>Inv. Grade Fixed Income</b>					
Gross	0.08%	1.70%	3.54%	3.98%	4.67%
Net	0.05%	1.60%	3.41%	3.86%	4.51%
Blmbg Aggregate Index	(0.16%)	(0.40%)	1.72%	2.27%	2.73%
<b>Below Inv. Grade Fixed Income</b>					
Gross	1.84%	5.55%	6.39%	6.98%	8.75%
Net	1.77%	5.25%	6.01%	6.57%	8.32%
Blmbg HY Corp 2% Issue	1.03%	2.62%	5.54%	5.52%	7.43%
<b>Global Real Assets</b>					
Gross	1.99%	6.64%	7.25%	8.51%	-
Net	1.78%	6.20%	6.78%	8.07%	-
Wtd Avg Global Real Assets Benchmark	1.45%	5.51%	5.54%	6.78%	-
<b>Real Estate</b>					
Gross	2.86%	8.22%	9.93%	12.43%	13.80%
Net	2.62%	7.70%	9.38%	11.88%	13.23%
NCREIF Total Index	1.81%	7.19%	8.25%	9.77%	11.02%
<b>Timber</b>					
Net	(0.90%)	(2.52%)	(2.70%)	(0.35%)	-
NCREIF Timberland Index	0.48%	3.57%	3.43%	6.00%	5.09%
<b>Infrastructure</b>					
Gross	1.41%	7.87%	7.06%	6.34%	-
Net	1.17%	7.37%	6.45%	5.75%	-
CPI-W	1.12%	3.09%	1.74%	1.37%	1.78%
<b>Cash &amp; Equivalents - Net</b>					
3-month Treasury Bill	0.48%	1.47%	0.83%	0.52%	0.37%
<b>Total Fund</b>					
Gross	1.06%	9.46%	7.68%	8.64%	9.72%
Net	0.98%	9.19%	7.37%	8.33%	9.39%
Target*	1.15%	7.85%	6.65%	7.47%	8.73%

\* Current Quarter Target = 16.0% Blmbg Aggregate, 16.0% MSCI World, 15.8% Russell 1000 Index, 11.0% MSCI World ex US, 11.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 7.0% NDSIB PERS - Private Equity, 5.8% CPI-W, 4.8% Russell 2000 Index, 3.4% MSCI EM and 2.2% NCREIF Timberland Index.

PLEASE REFER TO PAGES 32-36 FOR INVESTMENT MANAGER LEVEL RETURNS.

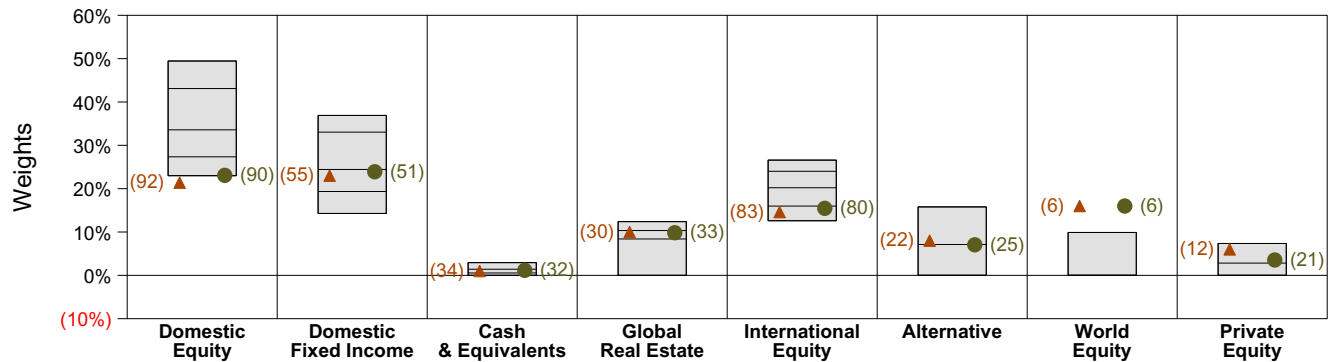
## Actual vs Target Asset Allocation As of June 30, 2018

The top left chart shows the Fund's asset allocation as of June 30, 2018. 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.



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	573,580	23.1%	21.4%	1.7%	41,611
International Equity	384,397	15.5%	14.6%	0.9%	21,465
World Equity	397,489	16.0%	16.0%	(0.0%)	(245)
Private Equity	88,155	3.5%	6.0%	(2.5%)	(60,996)
Domestic Fixed Income	594,069	23.9%	23.0%	0.9%	22,327
Global Real Estate	244,345	9.8%	10.0%	(0.2%)	(4,239)
Timber	58,232	2.3%	2.3%	0.0%	1,058
Infrastructure	116,890	4.7%	5.7%	(1.0%)	(24,803)
Cash & Equivalents	28,679	1.2%	1.0%	0.2%	3,821
<b>Total</b>	<b>2,485,835</b>	<b>100.0%</b>	<b>100.0%</b>		

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



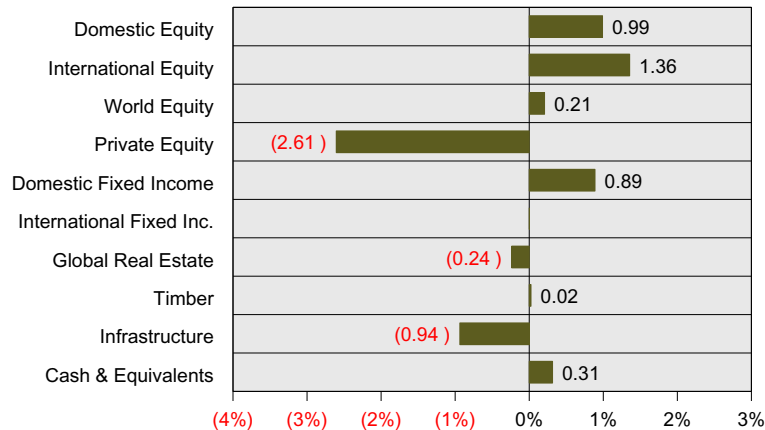
	Domestic Equity	Domestic Fixed Income	Cash & Equivalents	Global Real Estate	International Equity	Alternative	World Equity	Private Equity
10th Percentile	49.46	36.90	2.94	12.40	26.59	15.80	9.89	7.35
25th Percentile	43.10	33.04	1.41	10.33	24.01	7.12	0.00	2.83
Median	33.58	24.44	0.54	8.39	20.22	0.00	0.00	0.00
75th Percentile	27.35	19.35	0.00	0.00	15.98	0.00	0.00	0.00
90th Percentile	23.00	14.28	0.00	0.00	12.60	0.00	0.00	0.00
<b>Fund</b> ●	23.07	23.90	1.15	9.83	15.46	7.04	15.99	3.55
<b>Target</b> ▲	21.40	23.00	1.00	10.00	14.60	8.00	16.00	6.00
% Group Invested	96.99%	96.24%	72.18%	72.93%	90.98%	15.04%	12.78%	30.83%

\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% Blmbg Aggregate, 16.0% MSCI World, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.0% NDSIB TFFR - Private Equity, 5.7% CPI-W, 4.8% Russell 2000 Index, 2.8% MSCI EM, 2.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

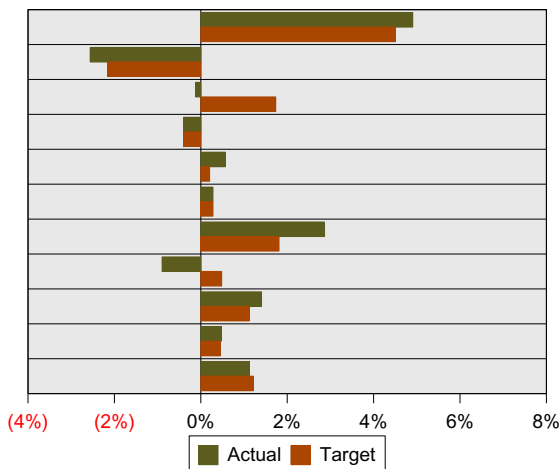
## Quarterly Total Fund Relative Attribution - June 30, 2018

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.

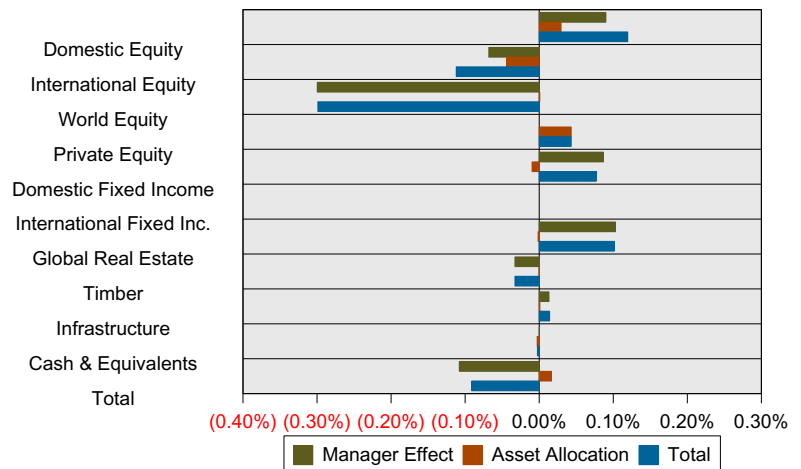
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended June 30, 2018

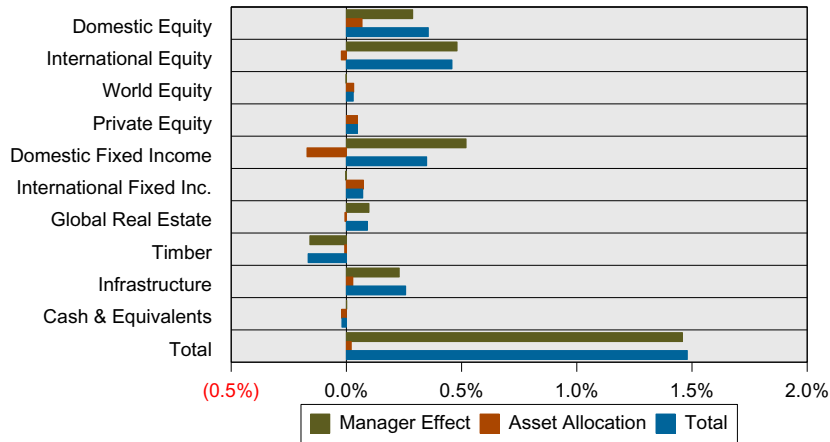
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	22%	21%	4.91%	4.50%	0.09%	0.03%	0.12%
International Equity	16%	15%	(2.56%)	(2.16%)	(0.07%)	(0.04%)	(0.11%)
World Equity	16%	16%	(0.12%)	1.73%	(0.30%)	0.00%	(0.30%)
Private Equity	3%	6%	(0.40%)	(0.40%)	0.00%	0.04%	0.04%
Domestic Fixed Income	24%	23%	0.56%	0.20%	0.09%	(0.01%)	0.08%
International Fixed Inc.	0%	0%	0.28%	0.28%	0.00%	0.00%	0.00%
Global Real Estate	10%	10%	2.86%	1.81%	0.10%	(0.00%)	0.10%
Timber	2%	2%	(0.90%)	0.48%	(0.03%)	0.00%	(0.03%)
Infrastructure	5%	6%	1.41%	1.12%	0.01%	0.00%	0.01%
Cash & Equivalents	1%	1%	0.48%	0.45%	0.00%	(0.00%)	(0.00%)
<b>Total</b>					<b>1.12%</b>	<b>1.21%</b>	<b>(0.09%)</b>

\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% Blmbg Aggregate, 16.0% MSCI World, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.0% NDSIB TFFR - Private Equity, 5.7% CPI-W, 4.8% Russell 2000 Index, 2.8% MSCI EM, 2.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

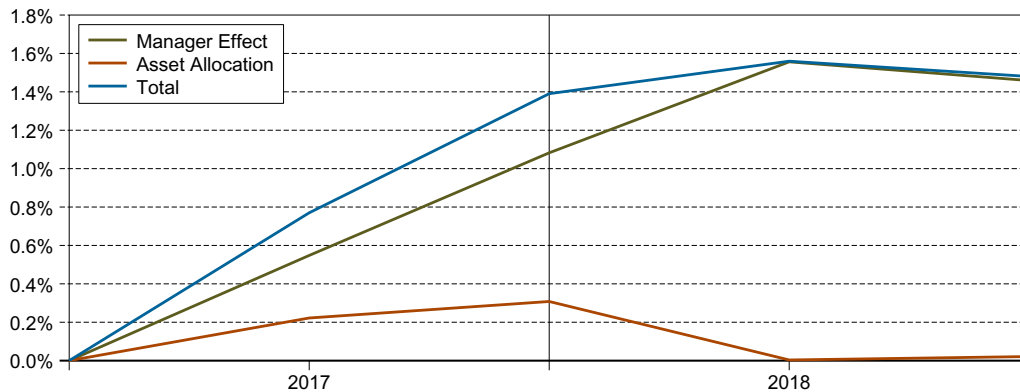
## Cumulative Total Fund Relative Attribution - June 30, 2018

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%	16.60%	15.27%	0.29%	0.07%	0.36%
International Equity	16%	15%	10.31%	7.32%	0.48%	(0.02%)	0.46%
World Equity	17%	16%	10.94%	11.09%	(0.00%)	0.03%	0.03%
Private Equity	3%	6%	5.27%	5.27%	0.00%	0.05%	0.05%
Domestic Fixed Income	20%	19%	2.80%	0.32%	0.52%	(0.17%)	0.35%
International Fixed Inc.	3%	3%	(16.88%)	(16.82%)	(0.00%)	0.07%	0.07%
Global Real Estate	10%	10%	8.22%	7.19%	0.10%	(0.01%)	0.09%
Timber	2%	2%	(2.52%)	3.57%	(0.16%)	(0.01%)	(0.17%)
Infrastructure	5%	6%	7.87%	3.09%	0.23%	0.03%	0.26%
Cash & Equivalents	1%	1%	1.47%	1.36%	0.00%	(0.02%)	(0.02%)
<b>Total</b>			<b>9.37%</b>	<b>7.89%</b>	<b>1.46%</b>	<b>0.02%</b>	<b>1.48%</b>

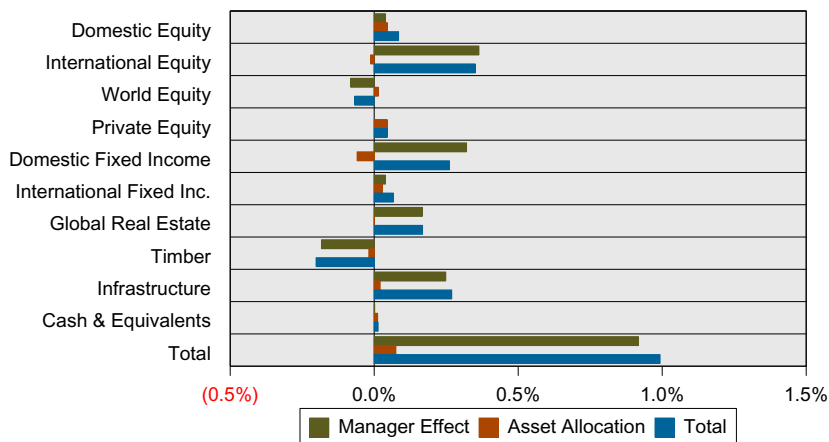
\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% Blmbg Aggregate, 16.0% MSCI World, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.0% NDSIB TFFR - Private Equity, 5.7% CPI-W, 4.8% Russell 2000 Index, 2.8% MSCI EM, 2.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.



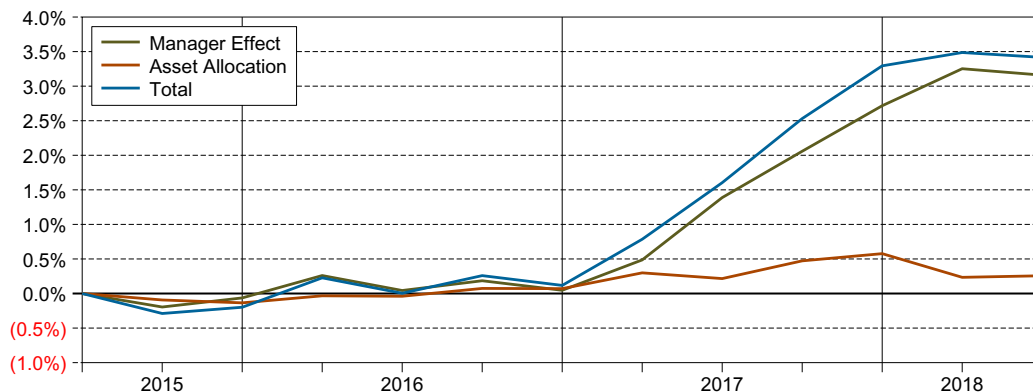
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

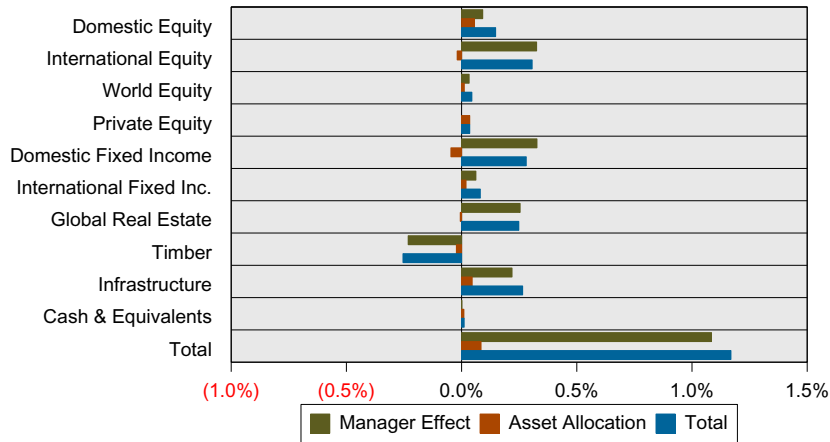
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	11.76%	11.55%	0.04%	0.05%	0.08%
International Equity	16%	15%	7.31%	4.99%	0.36%	(0.01%)	0.35%
World Equity	16%	16%	7.86%	8.48%	(0.08%)	0.01%	(0.07%)
Private Equity	4%	6%	2.78%	2.78%	0.00%	0.05%	0.05%
Domestic Fixed Income	18%	18%	4.28%	2.57%	0.32%	(0.06%)	0.26%
International Fixed Inc.	5%	5%	(3.20%)	(3.80%)	0.04%	0.03%	0.07%
Global Real Estate	10%	10%	9.93%	8.25%	0.17%	0.00%	0.17%
Timber	3%	3%	(2.70%)	3.43%	(0.18%)	(0.02%)	(0.20%)
Infrastructure	5%	5%	7.06%	1.74%	0.25%	0.02%	0.27%
Cash & Equivalents	1%	1%	0.83%	0.68%	0.00%	0.01%	0.01%
<b>Total</b>			<b>7.60%</b>	<b>6.61%</b>	<b>+ 0.92%</b>	<b>+ 0.08%</b>	<b>0.99%</b>

\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% Blmbg Aggregate, 16.0% MSCI World, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.0% NDSIB TFFR - Private Equity, 5.7% CPI-W, 4.8% Russell 2000 Index, 2.8% MSCI EM, 2.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

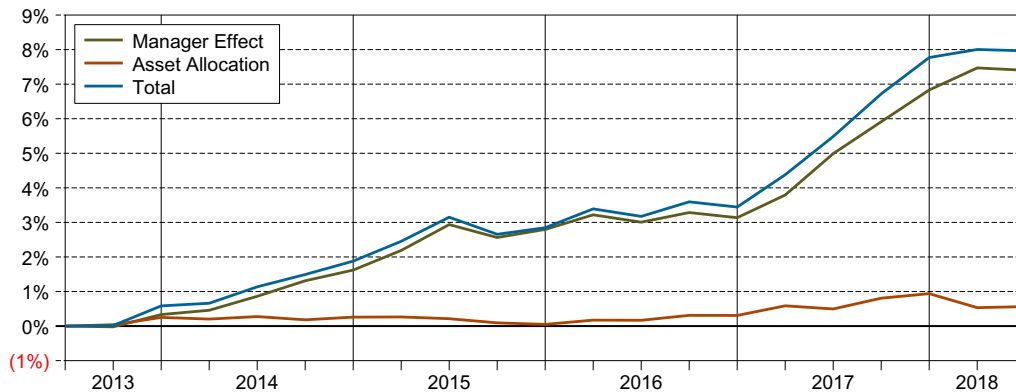
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

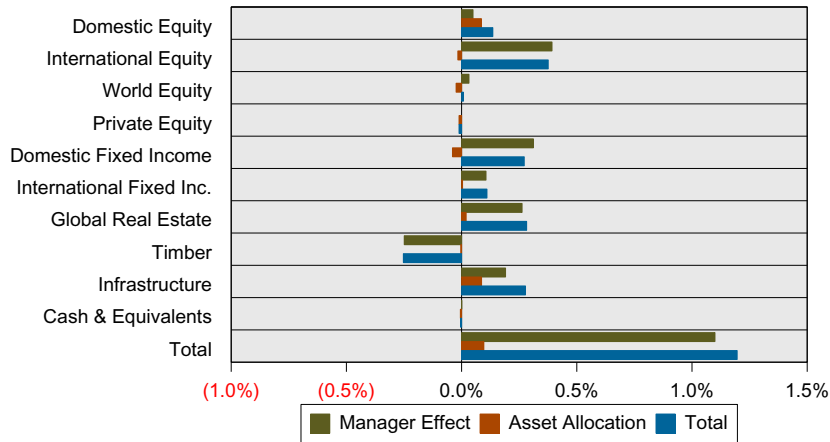
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	13.68%	13.23%	0.09%	0.06%	0.15%
International Equity	15%	15%	8.26%	6.16%	0.33%	(0.02%)	0.31%
World Equity	16%	16%	10.11%	9.94%	0.03%	0.01%	0.04%
Private Equity	4%	5%	1.35%	1.35%	0.00%	0.04%	0.04%
Domestic Fixed Income	18%	18%	4.81%	3.07%	0.33%	(0.05%)	0.28%
International Fixed Inc.	5%	5%	(2.25%)	(3.30%)	0.06%	0.02%	0.08%
Global Real Estate	10%	10%	12.43%	9.77%	0.25%	(0.01%)	0.25%
Timber	4%	4%	(0.35%)	6.00%	(0.23%)	(0.02%)	(0.25%)
Infrastructure	4%	5%	6.34%	1.37%	0.22%	0.05%	0.26%
Cash & Equivalents	1%	1%	0.52%	0.42%	0.00%	0.01%	0.01%
<b>Total</b>			<b>8.62%</b>	<b>7.45%</b>	<b>+ 1.08%</b>	<b>+ 0.08%</b>	<b>1.17%</b>

\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% Blmbg Aggregate, 16.0% MSCI World, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.0% NDSIB TFFR - Private Equity, 5.7% CPI-W, 4.8% Russell 2000 Index, 2.8% MSCI EM, 2.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

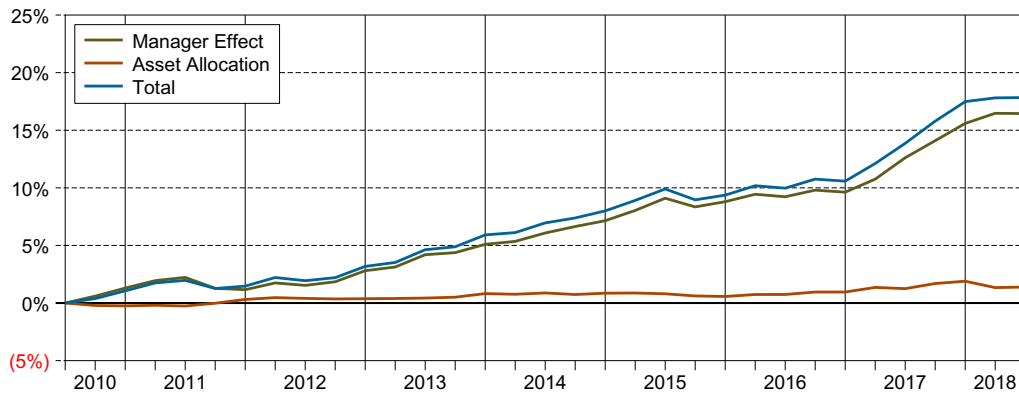
## Cumulative Total Fund Relative Attribution - June 30, 2018

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.

### Eight Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Eight Year Annualized Relative Attribution Effects

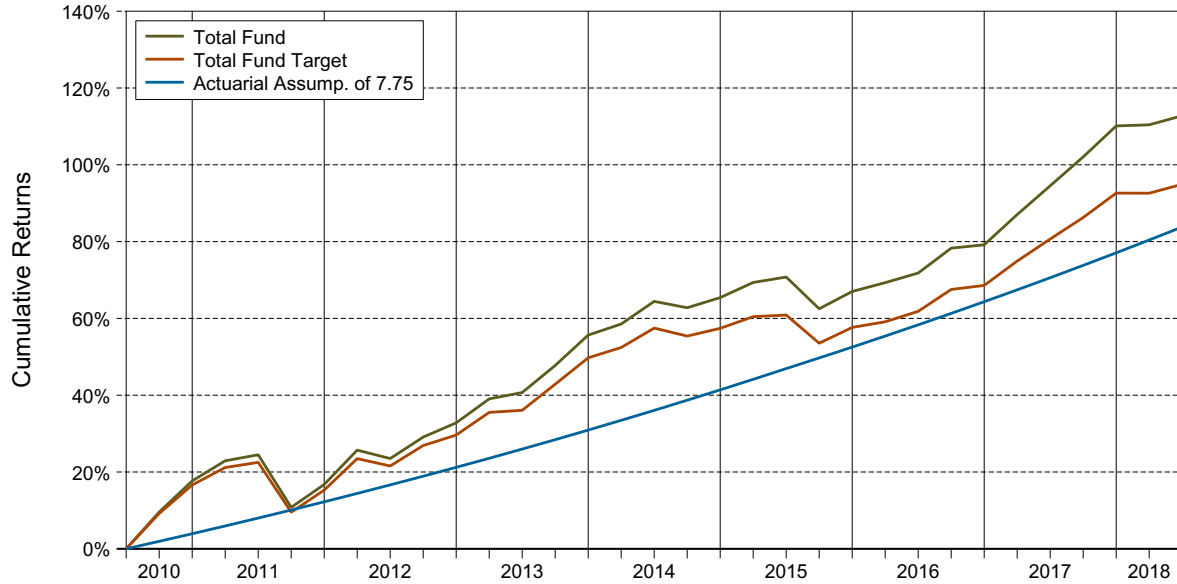
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	26%	25%	15.59%	15.22%	0.05%	0.09%	0.14%
International Equity	17%	17%	8.79%	6.58%	0.39%	(0.02%)	0.38%
World Equity	12%	12%	-	-	0.03%	(0.02%)	0.01%
Private Equity	4%	5%	4.10%	4.10%	0.00%	(0.01%)	(0.01%)
Domestic Fixed Income	18%	18%	5.77%	4.03%	0.31%	(0.04%)	0.27%
International Fixed Inc.	5%	5%	1.09%	(0.78%)	0.11%	0.00%	0.11%
Global Real Estate	10%	10%	13.79%	11.02%	0.26%	0.02%	0.28%
Timber	3%	4%	-	-	(0.25%)	(0.00%)	(0.25%)
Infrastructure	3%	4%	-	-	0.19%	0.09%	0.28%
Cash & Equivalents	1%	1%	0.37%	0.30%	0.00%	(0.01%)	(0.00%)
<b>Total</b>			<b>9.90%</b>	<b>8.70%</b>	<b>+ 1.10%</b>	<b>+ 0.10%</b>	<b>1.20%</b>

\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% Blmbg Aggregate, 16.0% MSCI World, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.0% NDSIB TFFR - Private Equity, 5.7% CPI-W, 4.8% Russell 2000 Index, 2.8% MSCI EM, 2.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

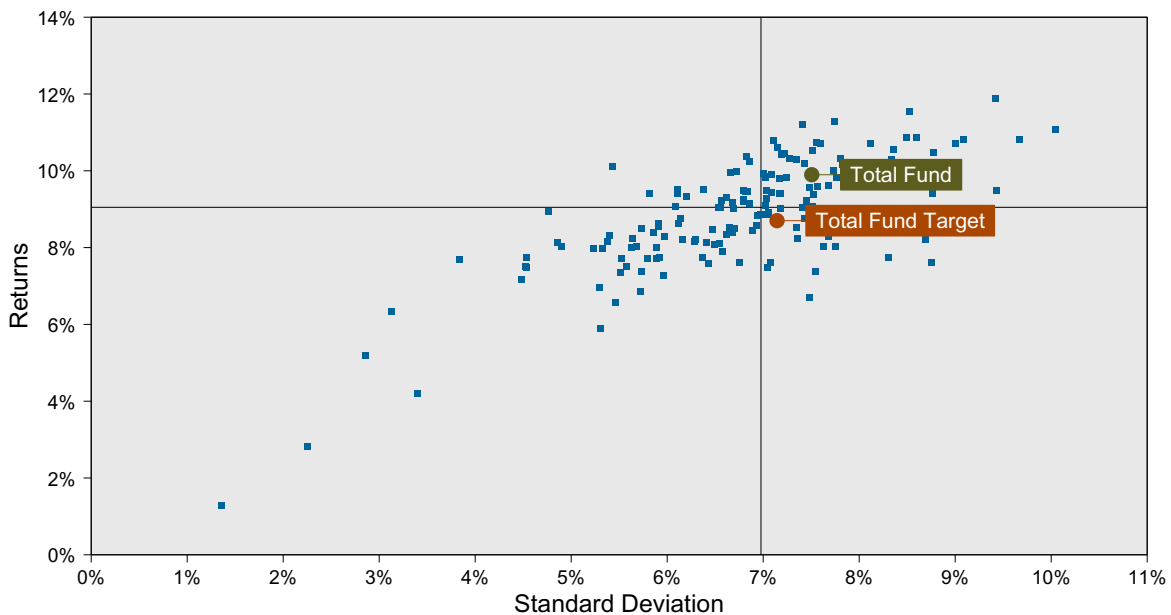
## Cumulative Performance Relative to Target

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



### Eight Year Annualized Risk vs Return



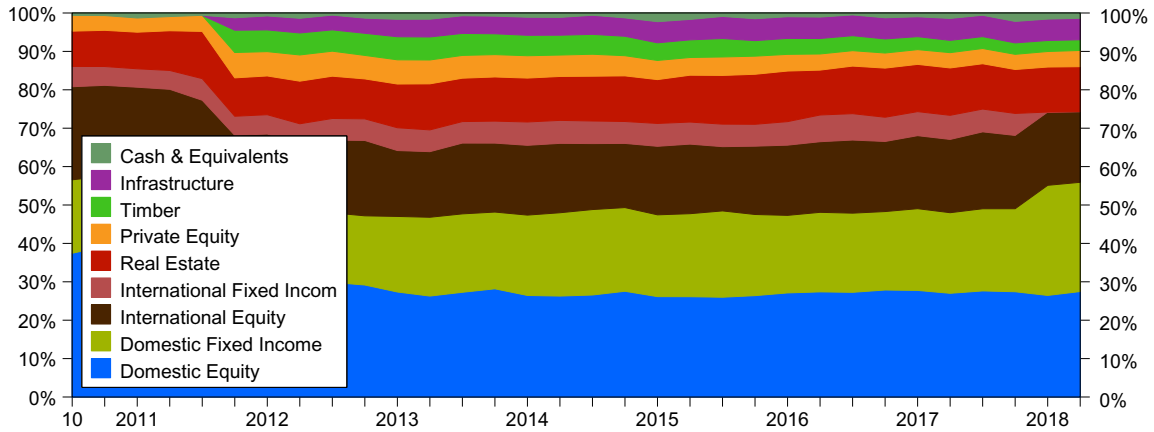
Squares represent membership of the Callan Public Fund Sponsor Database

\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% Blmbg Aggregate, 16.0% MSCI World, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.0% NDSIB TFFR - Private Equity, 5.7% CPI-W, 4.8% Russell 2000 Index, 2.8% MSCI EM, 2.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

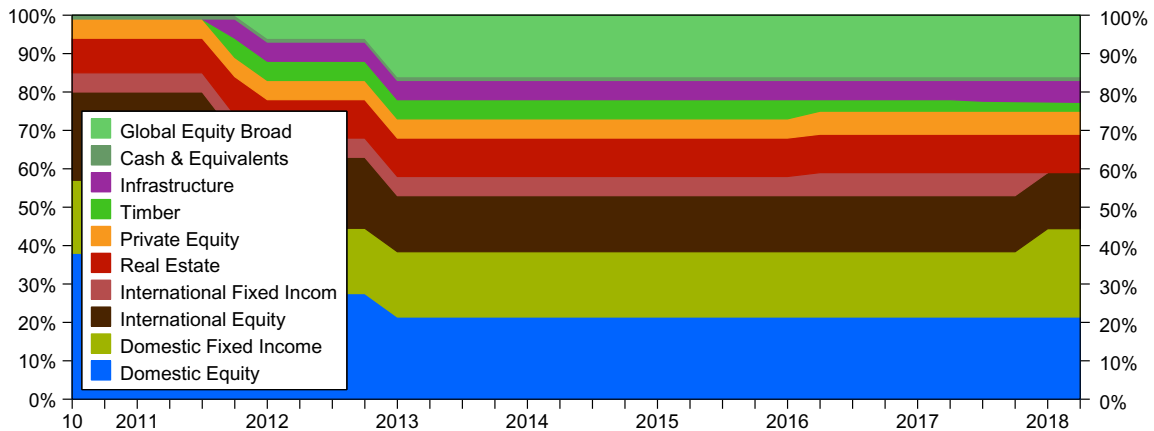
## Actual vs Target Historical Asset Allocation

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.

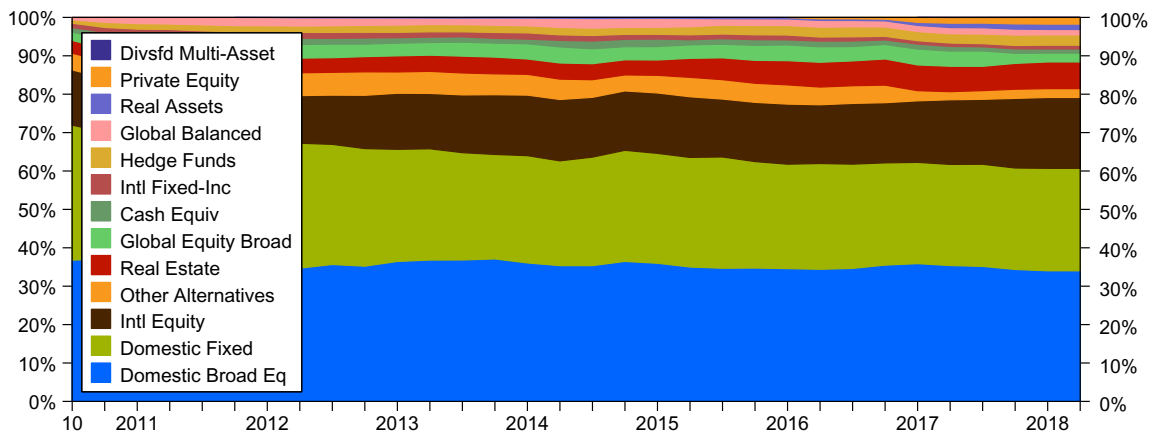
### Actual Historical Asset Allocation



### Target Historical Asset Allocation



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

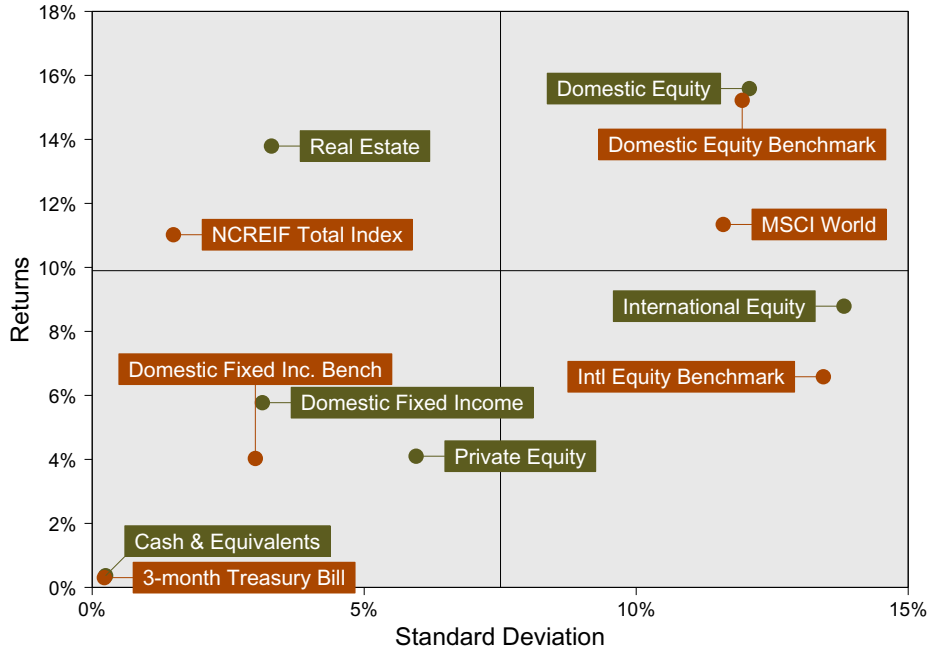


\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% Blmgb Aggregate, 16.0% MSCI World, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 7.0% Blmgb HY 2% Iss Cap, 6.0% NDSIB TFFR - Private Equity, 5.7% CPI-W, 4.8% Russell 2000 Index, 2.8% MSCI EM, 2.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

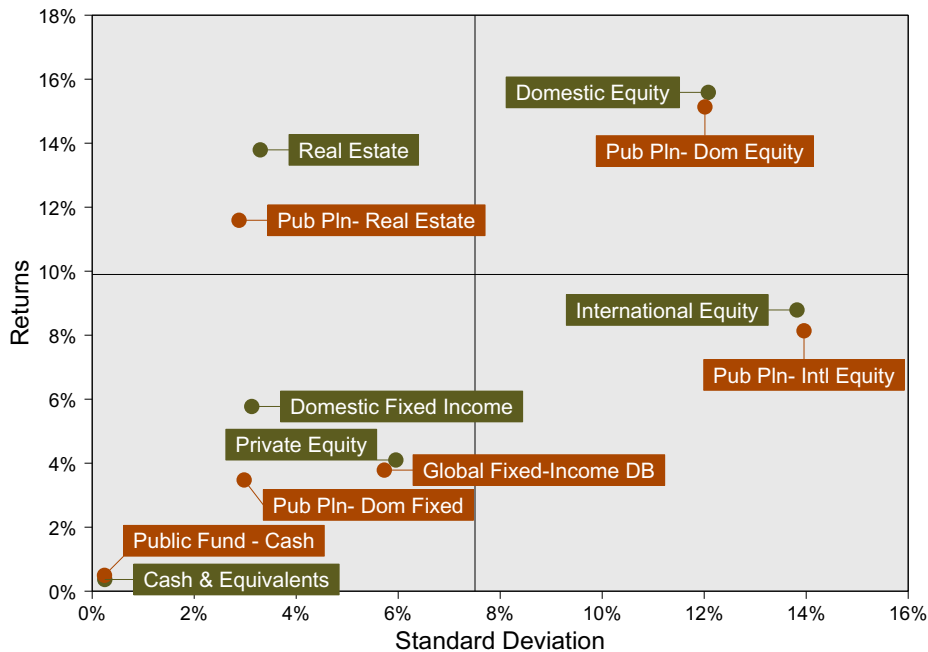
## Asset Class Risk and Return

The charts below show the eight 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.

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



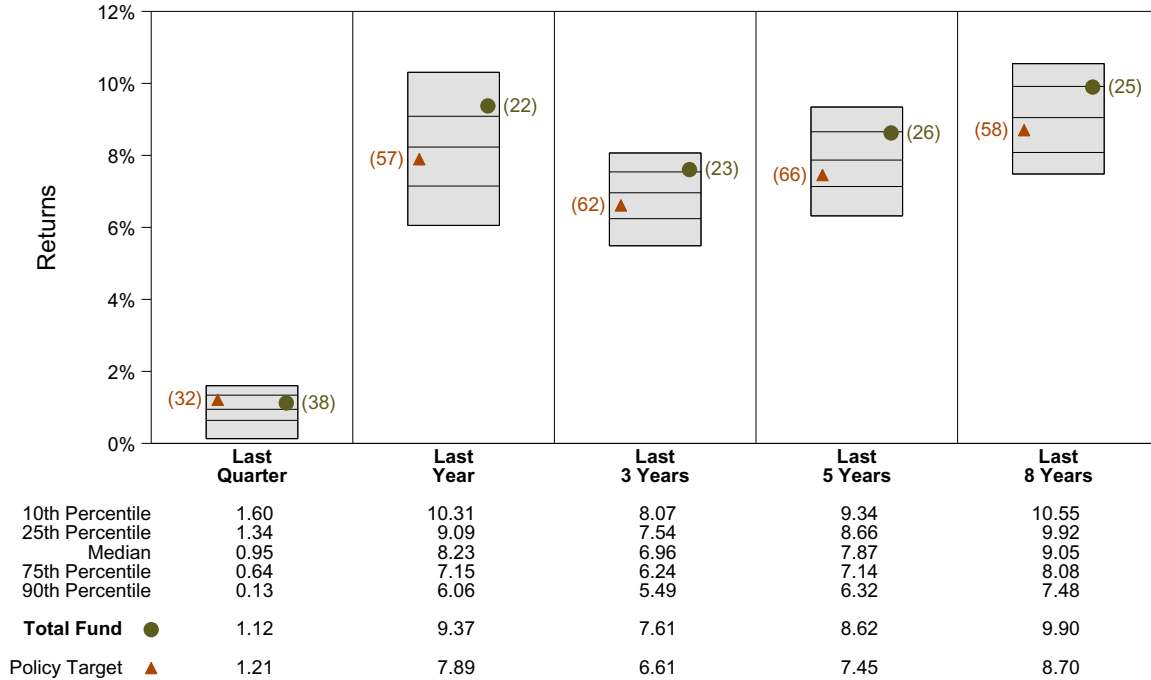
### Eight Year Annualized Risk vs Return Asset Classes vs Asset Class Median



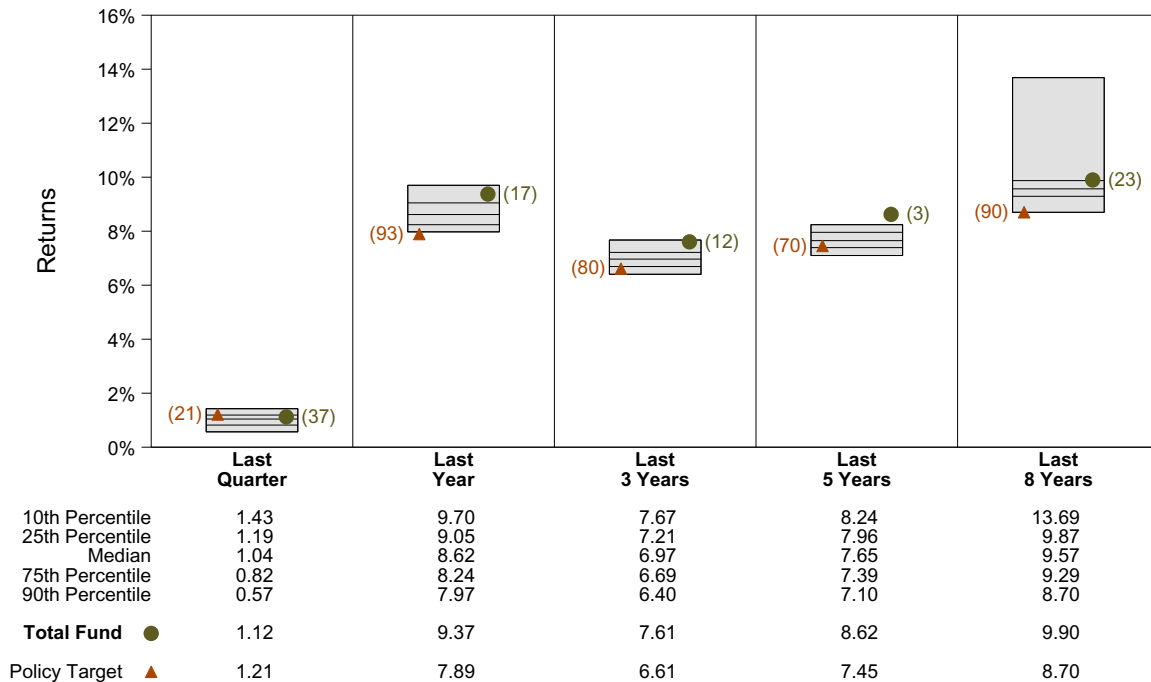
## Total Fund Ranking

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 June 30, 2018. 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

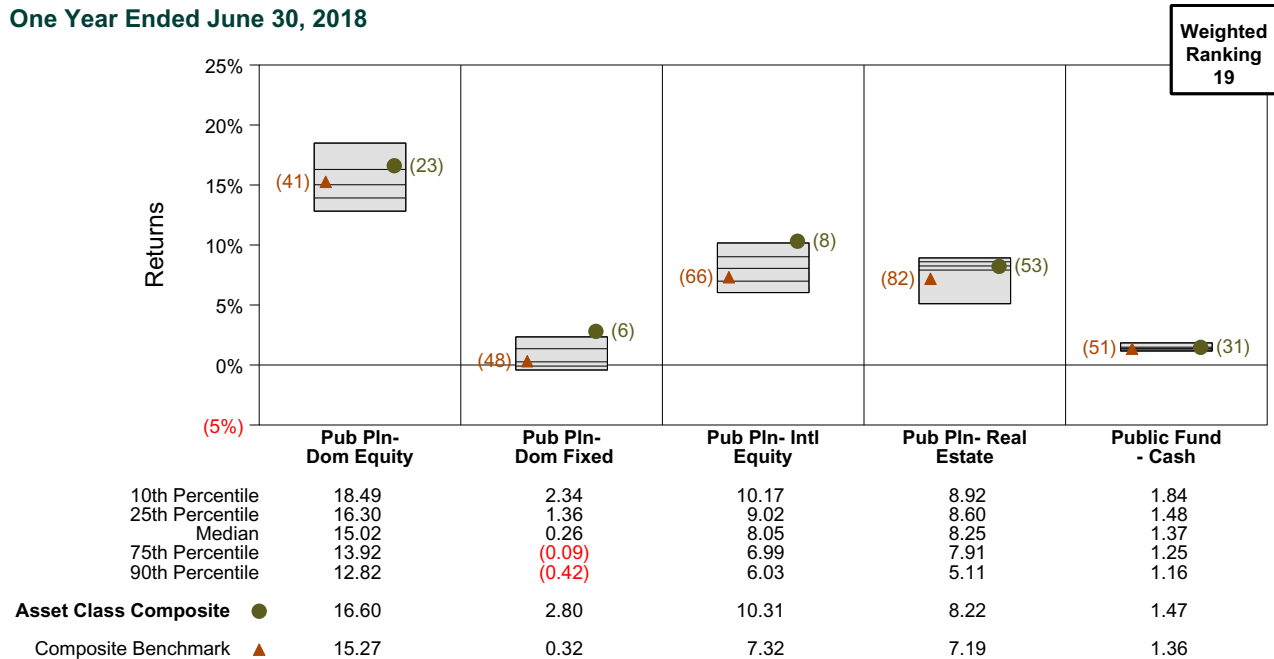


\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% Blmbg Aggregate, 16.0% MSCI World, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.0% NDSIB TFFR - Private Equity, 5.7% CPI-W, 4.8% Russell 2000 Index, 2.8% MSCI EM, 2.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

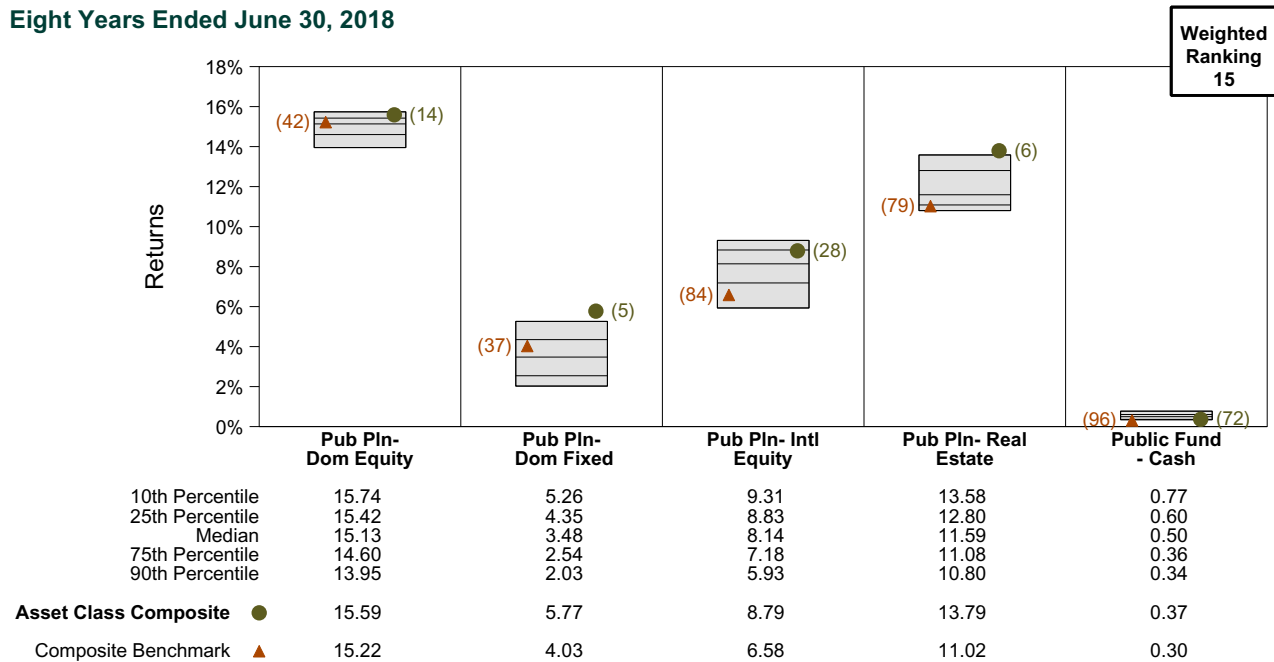
## Asset Class Rankings

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 June 30, 2018



### Total Asset Class Performance Eight Years Ended June 30, 2018



\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% Blmbg Aggregate, 16.0% MSCI World, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.0% NDSIB TFFR - Private Equity, 5.7% CPI-W, 4.8% Russell 2000 Index, 2.8% MSCI EM, 2.3% 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 June 30, 2018, with the distribution as of March 31, 2018. 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

	June 30, 2018		Net New Inv.	Inv. Return	March 31, 2018	
	Market Value	Weight			Market Value	Weight
<b>GLOBAL EQUITY</b>	<b>\$1,443,620,672</b>	<b>58.07%</b>	<b>\$3,965,541</b>	<b>\$15,952,046</b>	<b>\$1,423,703,085</b>	<b>57.72%</b>
<b>Domestic Equity</b>	<b>\$573,579,810</b>	<b>23.07%</b>	<b>\$(226,214)</b>	<b>\$26,825,797</b>	<b>\$546,980,228</b>	<b>22.18%</b>
Large Cap	437,393,843	17.60%	(113,522)	17,447,020	420,060,346	17.03%
Small Cap	136,185,967	5.48%	(112,692)	9,378,777	126,919,882	5.15%
<b>International Equity</b>	<b>\$384,397,282</b>	<b>15.46%</b>	<b>\$(168,399)</b>	<b>\$(10,100,180)</b>	<b>\$394,665,861</b>	<b>16.00%</b>
Developed Intl Equity	304,430,088	12.25%	(168,399)	(2,403,498)	307,001,985	12.45%
Emerging Markets	79,967,194	3.22%	0	(7,696,682)	87,663,876	3.55%
<b>World Equity</b>	<b>\$397,488,966</b>	<b>15.99%</b>	<b>\$(344,284)</b>	<b>\$(472,736)</b>	<b>\$398,305,986</b>	<b>16.15%</b>
<b>Private Equity</b>	<b>\$88,154,614</b>	<b>3.55%</b>	<b>\$4,704,438</b>	<b>\$(300,835)</b>	<b>\$83,751,011</b>	<b>3.40%</b>
<b>GLOBAL FIXED INCOME</b>	<b>\$594,069,158</b>	<b>23.90%</b>	<b>\$(2,295,099)</b>	<b>\$3,306,472</b>	<b>\$593,057,785</b>	<b>24.05%</b>
<b>Fixed Income Comp</b>	<b>\$594,069,158</b>	<b>23.90%</b>	<b>\$(2,294,946)</b>	<b>\$3,306,469</b>	<b>\$593,057,636</b>	<b>24.05%</b>
Investment Grade Fixed	424,553,981	17.08%	(146,489)	338,672	424,361,798	17.21%
Below Inv. Grade Fixed Income	169,515,177	6.82%	(2,148,458)	2,967,796	168,695,838	6.84%
<b>International Fixed Income</b>	<b>\$0</b>	<b>0.00%</b>	<b>\$(153)</b>	<b>\$4</b>	<b>\$149</b>	<b>0.00%</b>
<b>GLOBAL REAL ASSETS</b>	<b>\$419,466,355</b>	<b>16.87%</b>	<b>\$(5,437,654)</b>	<b>\$7,965,337</b>	<b>\$416,938,672</b>	<b>16.90%</b>
Real Estate	244,344,606	9.83%	(4,815,814)	6,886,001	242,274,419	9.82%
Timber	58,231,736	2.34%	(514,589)	(524,020)	59,270,344	2.40%
Infrastructure	116,890,013	4.70%	(107,251)	1,603,355	115,393,909	4.68%
<b>Cash &amp; Equivalents</b>	<b>\$28,679,119</b>	<b>1.15%</b>	<b>\$(4,234,456)</b>	<b>\$185,195</b>	<b>\$32,728,380</b>	<b>1.33%</b>
<b>Securities Lending Income</b>	<b>\$0</b>	<b>0.00%</b>	<b>\$(60,734)</b>	<b>\$60,734</b>	<b>-</b>	<b>-</b>
<b>Total Fund</b>	<b>\$2,485,835,304</b>	<b>100.0%</b>	<b>\$(8,062,402)</b>	<b>\$27,469,785</b>	<b>\$2,466,427,922</b>	<b>100.0%</b>

PLEASE REFER TO PAGES 29-31 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 June 30, 2018. 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 June 30, 2018

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 8 Years
<b>Global Equity</b>					
Gross	1.12%	12.63%	8.94%	10.36%	-
Net	1.07%	12.38%	8.65%	10.05%	-
Wtd Avg Global Equity Benchmark	1.56%	11.13%	8.20%	9.38%	-
<b>Domestic Equity</b>					
Gross	4.91%	16.60%	11.76%	13.68%	15.59%
Net	4.86%	16.41%	11.56%	13.47%	15.34%
Wtd Avg Domestic Equity Benchmark	4.50%	15.27%	11.55%	13.23%	15.22%
<b>Large Cap Equity</b>					
Gross	4.15%	16.11%	12.23%	14.15%	15.78%
Net	4.13%	15.99%	12.10%	13.98%	15.55%
Benchmark(1)	3.57%	14.54%	11.64%	13.37%	15.31%
<b>Small Cap Equity</b>					
Gross	7.40%	18.15%	9.94%	11.88%	14.81%
Net	7.30%	17.69%	9.52%	11.52%	14.50%
Russell 2000 Index	7.75%	17.57%	10.96%	12.46%	14.75%
<b>International Equity</b>					
Gross	(2.56%)	10.31%	7.31%	8.26%	8.79%
Net	(2.60%)	10.12%	7.11%	8.05%	8.49%
Wtd Avg Intl Equity Benchmark	(2.16%)	7.32%	4.99%	6.16%	6.58%
<b>Developed Intl Equity</b>					
Gross	(0.78%)	10.54%	7.37%	8.64%	9.29%
Net	(0.84%)	10.30%	7.12%	8.39%	8.99%
Benchmark(2)	(0.75%)	7.04%	4.74%	6.34%	7.00%
<b>Emerging Markets</b>					
Gross	(8.78%)	9.46%	6.49%	6.15%	6.34%
Net	(8.78%)	9.46%	6.49%	6.06%	6.09%
Benchmark(3)	(7.96%)	8.20%	5.60%	5.01%	4.44%
<b>World Equity</b>					
Gross	(0.12%)	10.94%	7.86%	10.11%	-
Net	(0.20%)	10.53%	7.31%	9.49%	-
MSCI World Index	1.73%	11.09%	8.48%	9.94%	11.34%
<b>Private Equity</b>					
Net	(0.40%)	5.27%	2.77%	1.33%	4.03%

(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 32-36 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 June 30, 2018. 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 June 30, 2018

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 8 Years
<b>Global Fixed Income</b>					
Gross	0.56%	3.78%	4.49%	4.39%	-
Net	0.52%	3.58%	4.25%	4.14%	-
Wtd Avg Global Fixed Inc. Benchmark	0.20%	2.00%	3.08%	2.79%	-
<b>Domestic Fixed Income</b>					
Gross	0.56%	2.80%	4.28%	4.81%	5.77%
Net	0.52%	2.64%	4.08%	4.61%	5.62%
Wtd Avg Domestic FI Benchmark	0.20%	0.32%	2.57%	3.07%	4.03%
<b>Inv. Grade Fixed Income</b>					
Gross	0.08%	1.70%	3.54%	3.98%	4.68%
Net	0.05%	1.60%	3.41%	3.86%	4.52%
Blmbg Aggregate Index	(0.16%)	(0.40%)	1.72%	2.27%	2.73%
<b>Below Inv. Grade Fixed Income</b>					
Gross	1.84%	5.55%	6.39%	6.98%	8.74%
Net	1.77%	5.24%	6.00%	6.56%	8.32%
Blmbg HY Corp 2% Issue	1.03%	2.62%	5.54%	5.52%	7.43%
<b>Global Real Assets</b>					
Gross	1.92%	6.49%	7.02%	8.38%	-
Net	1.71%	6.06%	6.55%	7.94%	-
Wtd Avg Global Real Assets Benchmark	1.42%	5.42%	5.50%	6.75%	-
<b>Real Estate</b>					
Gross	2.86%	8.22%	9.93%	12.43%	13.79%
Net	2.62%	7.70%	9.38%	11.88%	13.23%
NCREIF Total Index	1.81%	7.19%	8.25%	9.77%	11.02%
<b>Timber</b>					
Net	(0.90%)	(2.52%)	(2.70%)	(0.35%)	-
NCREIF Timberland Index	0.48%	3.57%	3.43%	6.00%	5.09%
<b>Infrastructure</b>					
Gross	1.41%	7.87%	7.06%	6.34%	-
Net	1.17%	7.37%	6.45%	5.75%	-
CPI-W	1.12%	3.09%	1.74%	1.37%	1.78%
<b>Cash &amp; Equivalents - Net</b>					
3-month Treasury Bill	0.48%	1.47%	0.83%	0.52%	0.37%
<b>Total Fund</b>					
Gross	1.12%	9.37%	7.61%	8.62%	9.90%
Net	1.05%	9.11%	7.30%	8.31%	9.56%
Target*	1.21%	7.89%	6.61%	7.45%	8.70%

\* Current Quarter Target = 16.6% Russell 1000 Index, 16.0% Blmbg Aggregate, 16.0% MSCI World, 11.8% MSCI World ex US, 10.0% NCREIF Total Index, 7.0% Blmbg HY 2% Iss Cap, 6.0% NDSIB TFFR - Private Equity, 5.7% CPI-W, 4.8% Russell 2000 Index, 2.8% MSCI EM, 2.3% NCREIF Timberland Index and 1.0% 3-month Treasury Bill.

PLEASE REFER TO PAGES 32-36 FOR INVESTMENT MANAGER LEVEL RETURNS.

# Domestic Equity

## Period Ended June 30, 2018

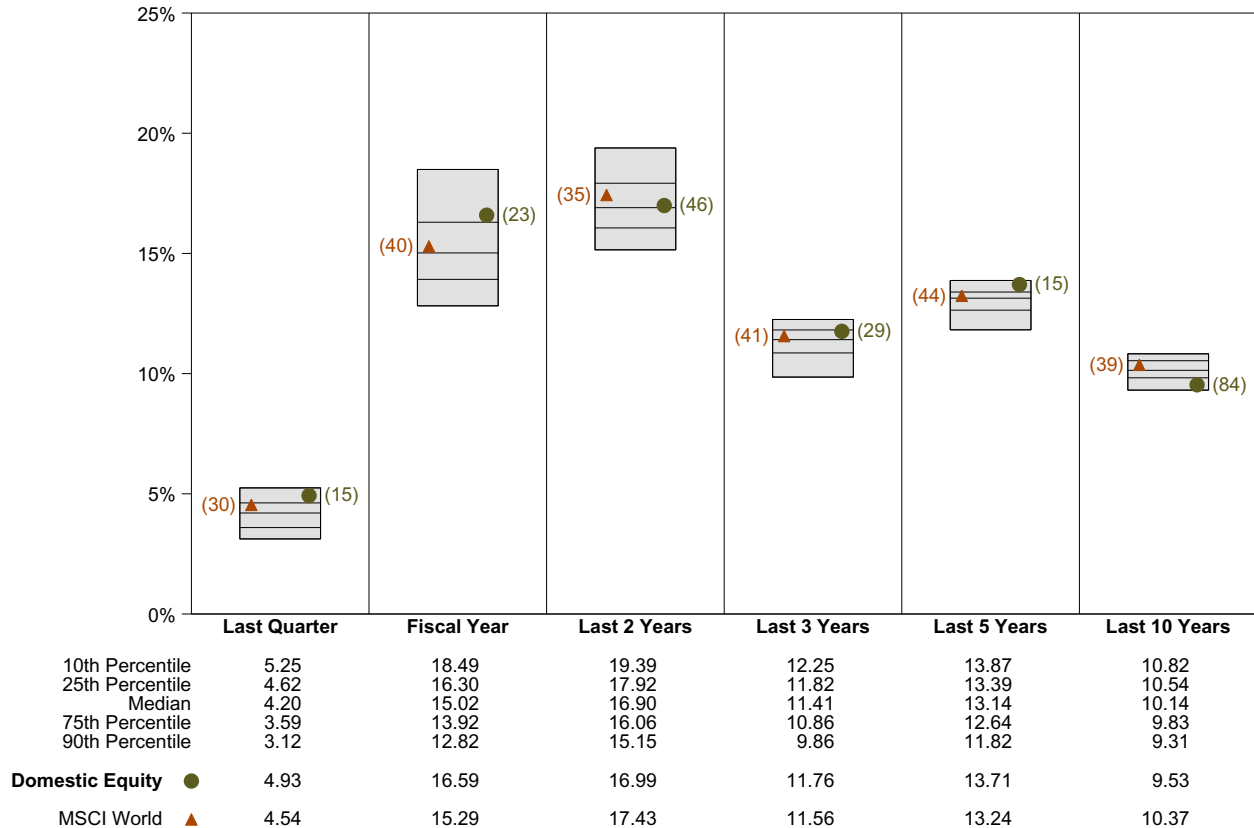
### Quarterly Summary and Highlights

- Domestic Equity's portfolio posted a 4.93% return for the quarter placing it in the 15 percentile of the Public Fund - Domestic Equity group for the quarter and in the 23 percentile for the last year.
- Domestic Equity's portfolio outperformed the MSCI World by 0.39% for the quarter and outperformed the MSCI World for the year by 1.30%.

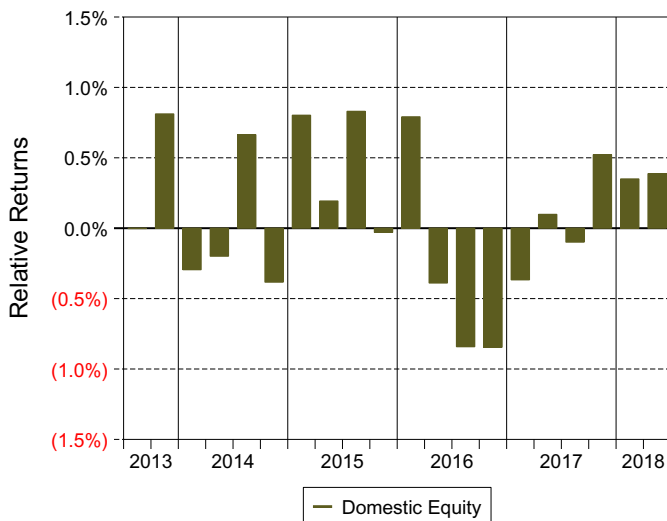
### Quarterly Asset Growth

Beginning Market Value	\$1,252,298,768
Net New Investment	\$-523,122
Investment Gains/(Losses)	\$61,686,953
Ending Market Value	\$1,313,462,599

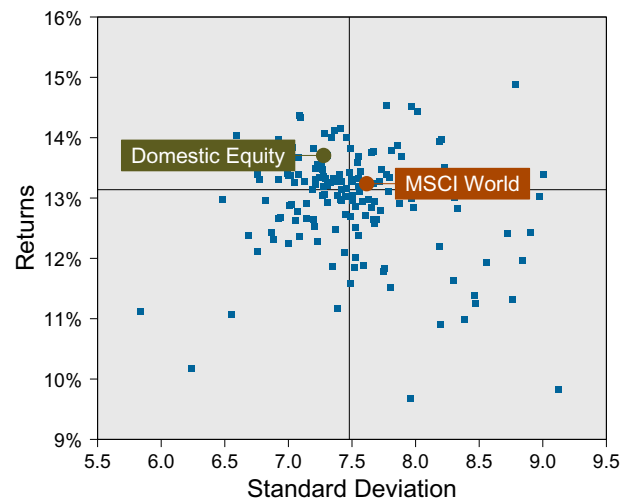
### Performance vs Public Fund - Domestic Equity (Gross)



### Relative Return vs MSCI World



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



# L.A. Capital Period Ended June 30, 2018

## 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.

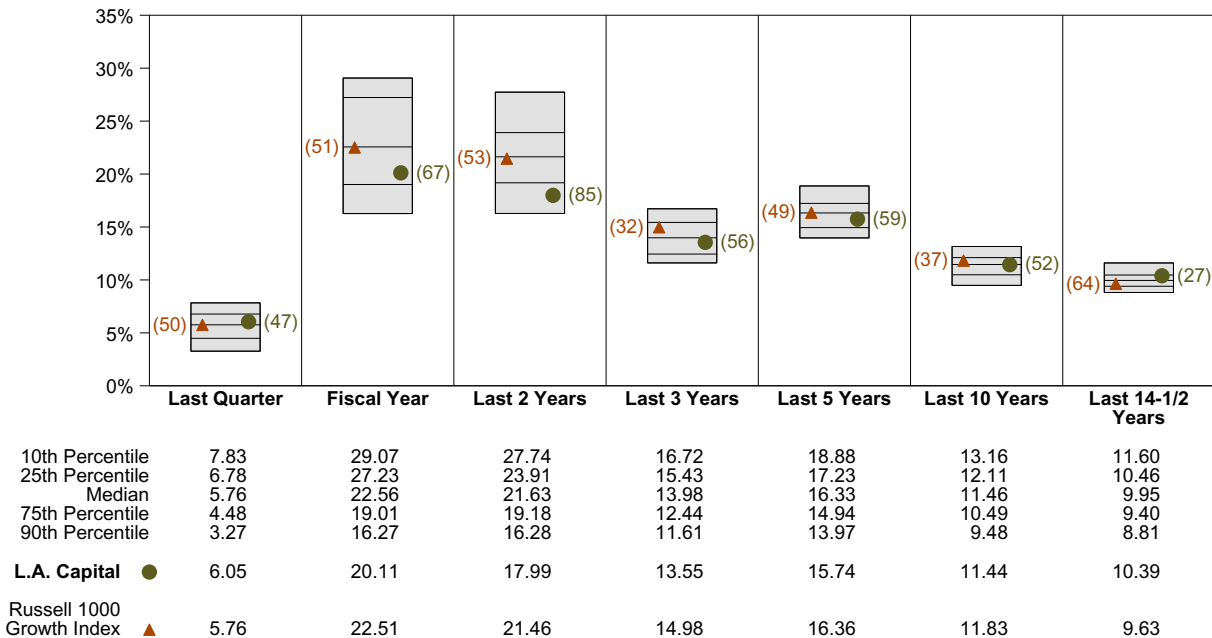
## Quarterly Summary and Highlights

- L.A. Capital's portfolio posted a 6.05% return for the quarter placing it in the 47 percentile of the Callan Large Cap Growth group for the quarter and in the 67 percentile for the last year.
- L.A. Capital's portfolio outperformed the Russell 1000 Growth Index by 0.29% for the quarter and underperformed the Russell 1000 Growth Index for the year by 2.40%.

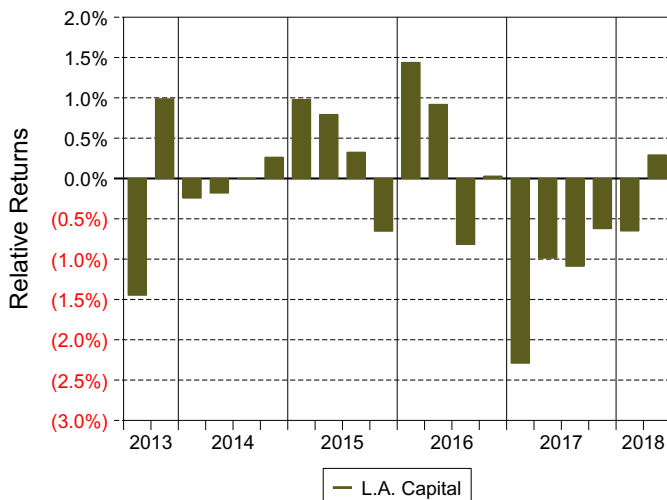
## Quarterly Asset Growth

Beginning Market Value	\$372,564,954
Net New Investment	\$-201,223
Investment Gains/(Losses)	\$22,528,920
Ending Market Value	\$394,892,650

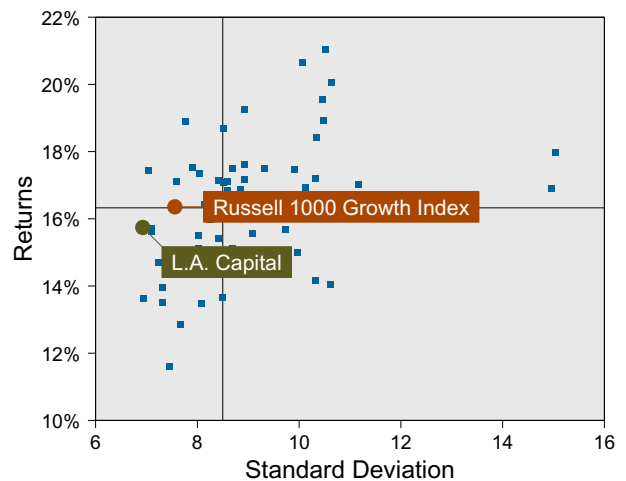
## Performance vs Callan Large Cap Growth (Gross)



## 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 June 30, 2018

## 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.

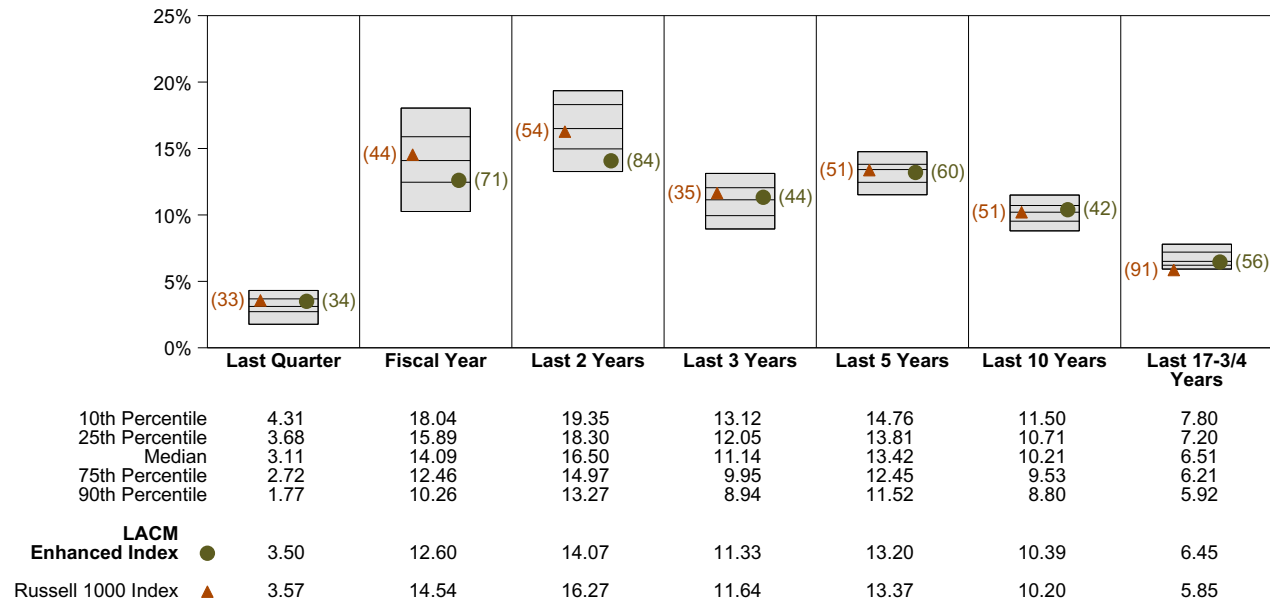
## Quarterly Summary and Highlights

- LACM Enhanced Index's portfolio posted a 3.50% return for the quarter placing it in the 34 percentile of the Callan Large Cap Core group for the quarter and in the 71 percentile for the last year.
- LACM Enhanced Index's portfolio underperformed the Russell 1000 Index by 0.07% for the quarter and underperformed the Russell 1000 Index for the year by 1.93%.

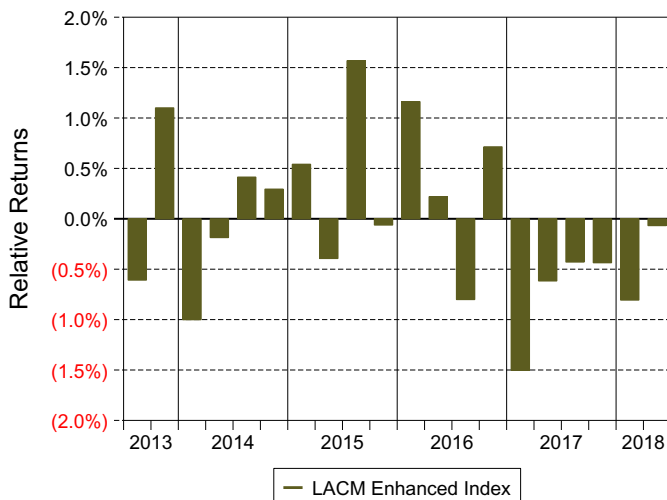
## Quarterly Asset Growth

Beginning Market Value	\$199,614,929
Net New Investment	\$-56,365
Investment Gains/(Losses)	\$6,984,601
Ending Market Value	\$206,543,164

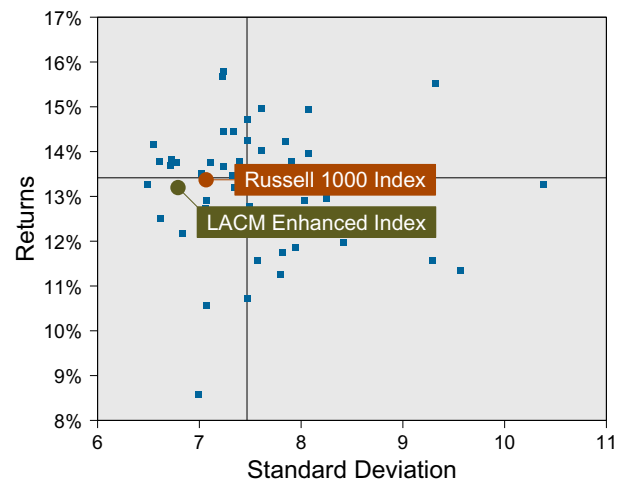
## Performance vs Callan Large Cap Core (Gross)



## 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 June 30, 2018

## 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.

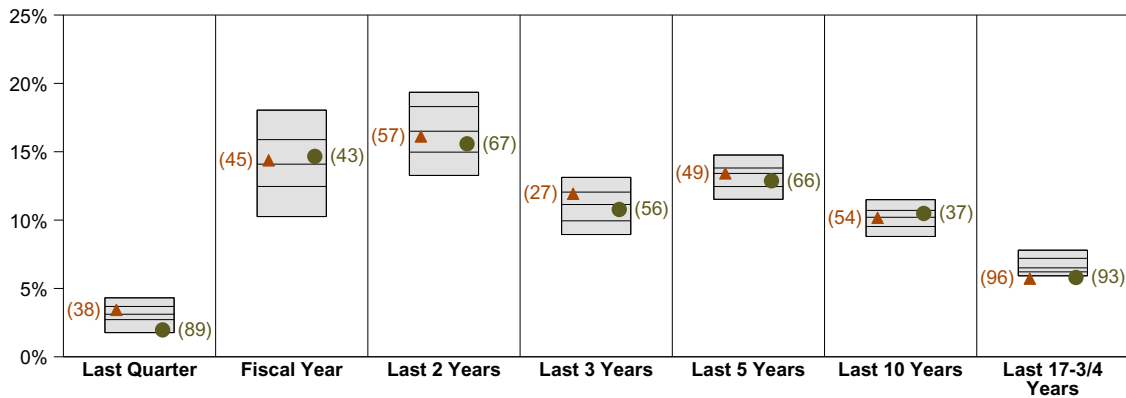
## Quarterly Summary and Highlights

- Northern Trust AM Enh S&P500's portfolio posted a 1.97% return for the quarter placing it in the 89 percentile of the Callan Large Cap Core group for the quarter and in the 43 percentile for the last year.
- Northern Trust AM Enh S&P500's portfolio underperformed the S&P 500 Index by 1.47% for the quarter and outperformed the S&P 500 Index for the year by 0.29%.

## Quarterly Asset Growth

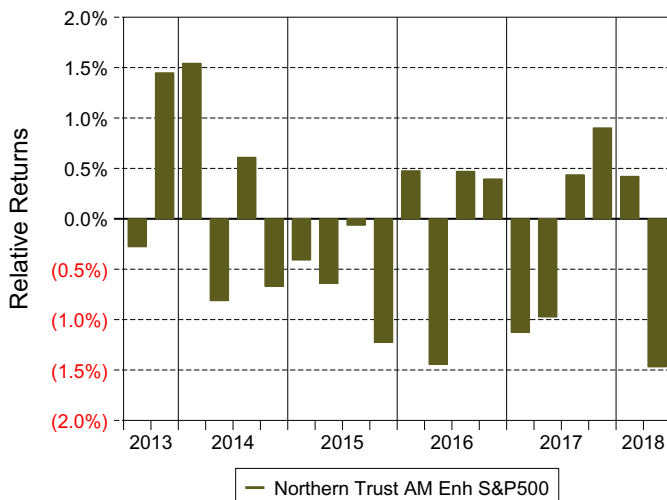
Beginning Market Value	\$192,200,480
Net New Investment	\$0
Investment Gains/(Losses)	\$3,777,722
Ending Market Value	\$195,978,202

## Performance vs Callan Large Cap Core (Gross)

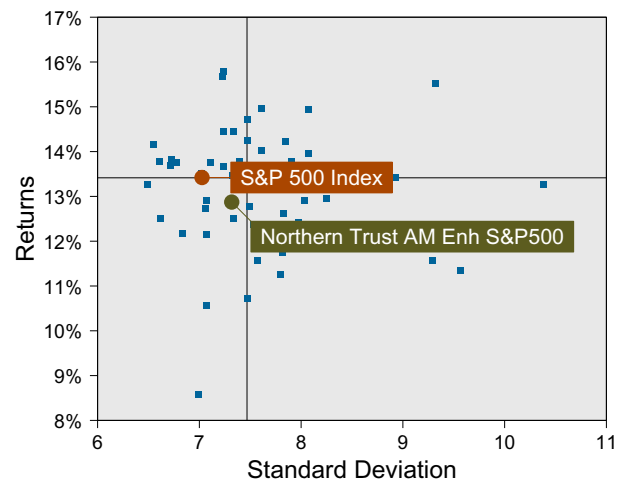


10th Percentile	4.31	18.04	19.35	13.12	14.76	11.50	7.80
25th Percentile	3.68	15.89	18.30	12.05	13.81	10.71	7.20
Median	3.11	14.09	16.50	11.14	13.42	10.21	6.51
75th Percentile	2.72	12.46	14.97	9.95	12.45	9.53	6.21
90th Percentile	1.77	10.26	13.27	8.94	11.52	8.80	5.92
<b>Northern Trust AM Enh S&amp;P500</b>	● 1.97	14.66	15.58	10.78	12.87	10.49	5.80
S&P 500 Index	▲ 3.43	14.37	16.12	11.93	13.42	10.17	5.72

## 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 June 30, 2018

## 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.

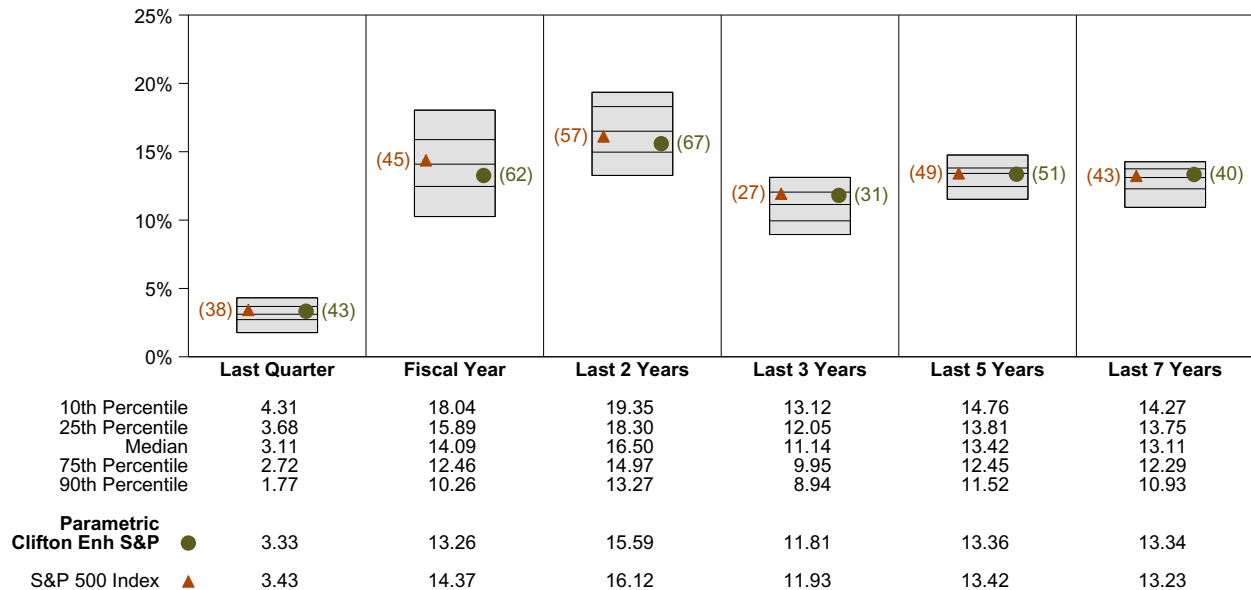
## Quarterly Summary and Highlights

- Parametric Clifton Enh S&P's portfolio posted a 3.33% return for the quarter placing it in the 43 percentile of the Callan Large Cap Core group for the quarter and in the 62 percentile for the last year.
- Parametric Clifton Enh S&P's portfolio underperformed the S&P 500 Index by 0.10% for the quarter and underperformed the S&P 500 Index for the year by 1.11%.

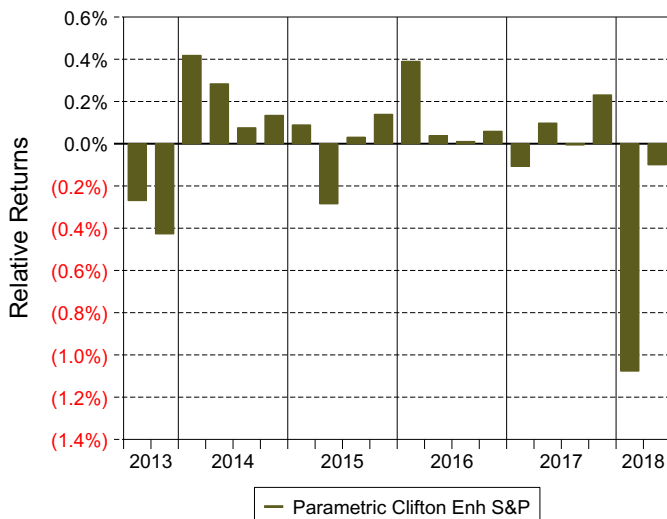
## Quarterly Asset Growth

Beginning Market Value	\$188,860,412
Net New Investment	\$0
Investment Gains/(Losses)	\$6,296,744
Ending Market Value	\$195,157,156

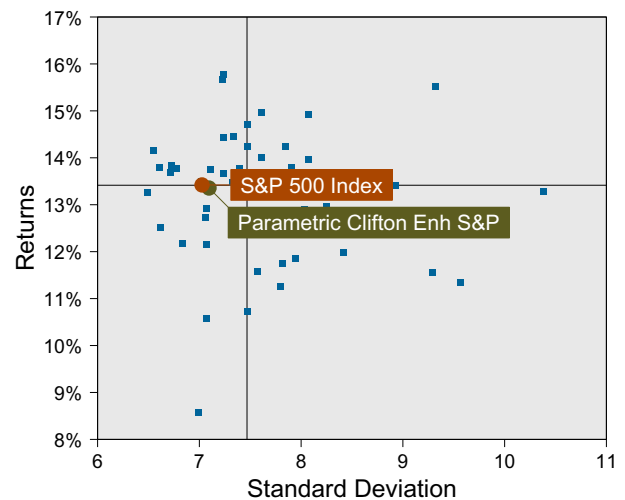
## Performance vs Callan Large Cap Core (Gross)



## Relative Return vs S&P 500 Index



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





# Atlanta Capital Period Ended June 30, 2018

## 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 6.98% return for the quarter placing it in the 53 percentile of the Callan Small Capitalization group for the quarter and in the 45 percentile for the last year.
- Atlanta Capital's portfolio underperformed the S&P 600 Small Cap Index by 1.80% for the quarter and underperformed the S&P 600 Small Cap Index for the year by 1.66%.

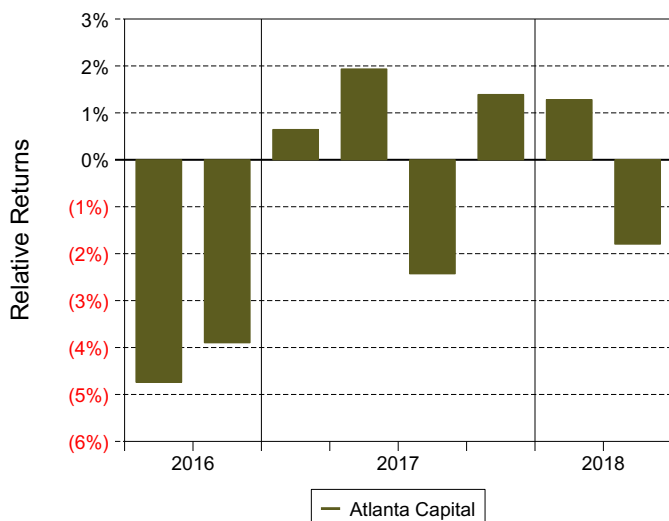
## Quarterly Asset Growth

Beginning Market Value	\$152,021,780
Net New Investment	\$-265,533
Investment Gains/(Losses)	\$10,592,014
Ending Market Value	\$162,348,262

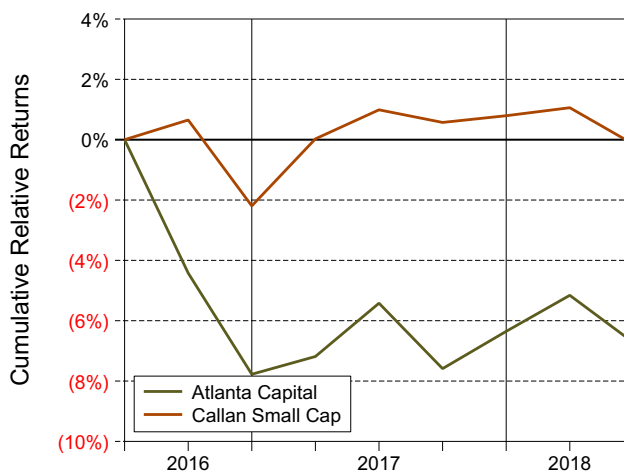
## Performance vs Callan Small Capitalization (Gross)



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



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



# Parametric Clifton Enh SmCap Period Ended June 30, 2018

## 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.

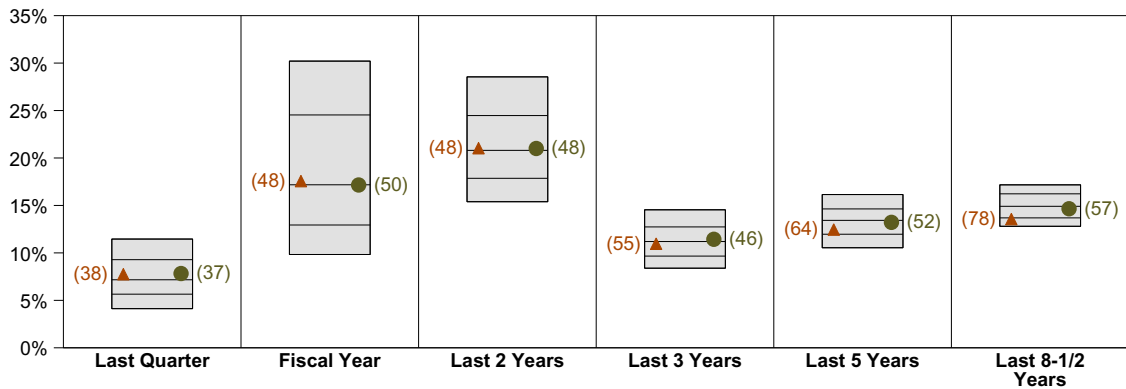
## Quarterly Summary and Highlights

- Parametric Clifton Enh SmCap's portfolio posted a 7.83% return for the quarter placing it in the 37 percentile of the Callan Small Capitalization group for the quarter and in the 50 percentile for the last year.
- Parametric Clifton Enh SmCap's portfolio outperformed the Russell 2000 Index by 0.07% for the quarter and underperformed the Russell 2000 Index for the year by 0.41%.

## Quarterly Asset Growth

Beginning Market Value	\$147,036,214
Net New Investment	\$0
Investment Gains/(Losses)	\$11,506,952
Ending Market Value	\$158,543,165

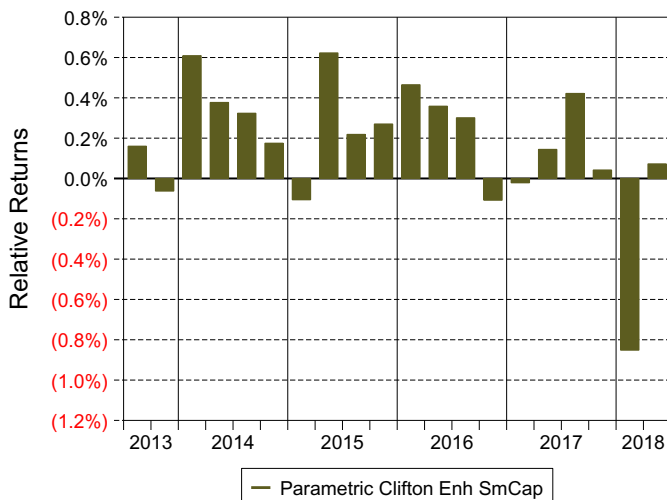
## Performance vs Callan Small Capitalization (Gross)



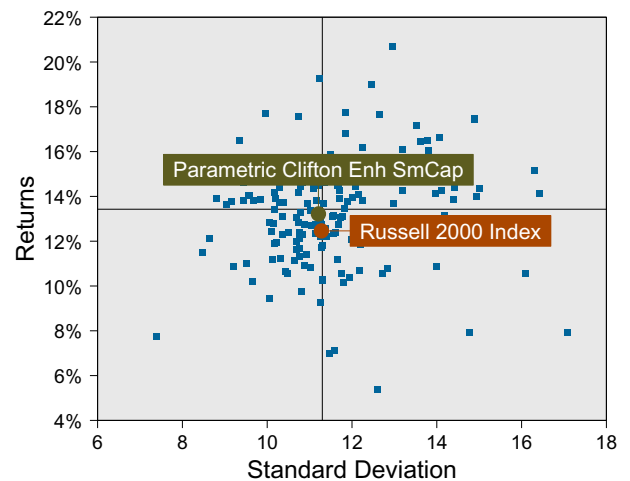
	Last Quarter	Fiscal Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 8-1/2 Years
10th Percentile	11.46	30.21	28.55	14.54	16.15	17.17
25th Percentile	9.29	24.53	24.47	12.74	14.63	16.22
Median	7.17	17.18	20.80	11.20	13.43	14.91
75th Percentile	5.65	12.94	17.86	9.66	11.97	13.69
90th Percentile	4.12	9.83	15.39	8.39	10.54	12.80

	Last Quarter	Fiscal Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 8-1/2 Years
Parametric Clifton Enh SmCap ●	7.83	17.15	21.00	11.43	13.22	14.65
Russell 2000 Index ▲	7.75	17.57	21.03	10.96	12.46	13.56

## Relative Return vs Russell 2000 Index



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



# International Equity Period Ended June 30, 2018

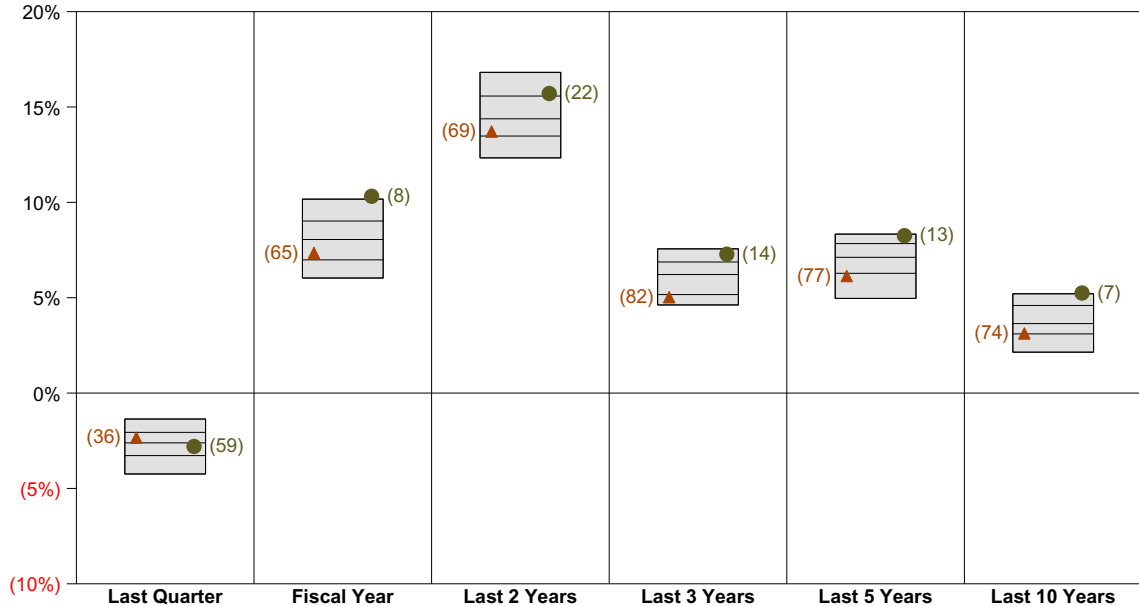
## Quarterly Summary and Highlights

- International Equity's portfolio posted a (2.80)% return for the quarter placing it in the 59 percentile of the Public Fund - International Equity group for the quarter and in the 8 percentile for the last year.
- International Equity's portfolio underperformed the International Equity Target by 0.46% for the quarter and outperformed the International Equity Target for the year by 2.97%.

## Quarterly Asset Growth

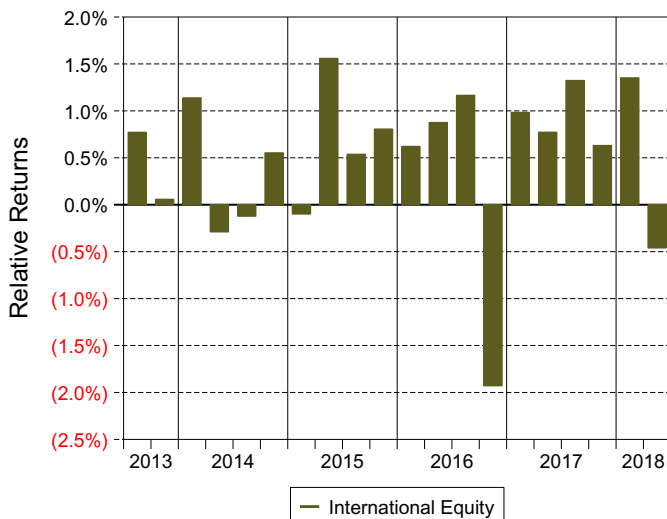
Beginning Market Value	\$916,187,276
Net New Investment	\$-375,898
Investment Gains/(Losses)	\$-25,637,589
Ending Market Value	\$890,173,789

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

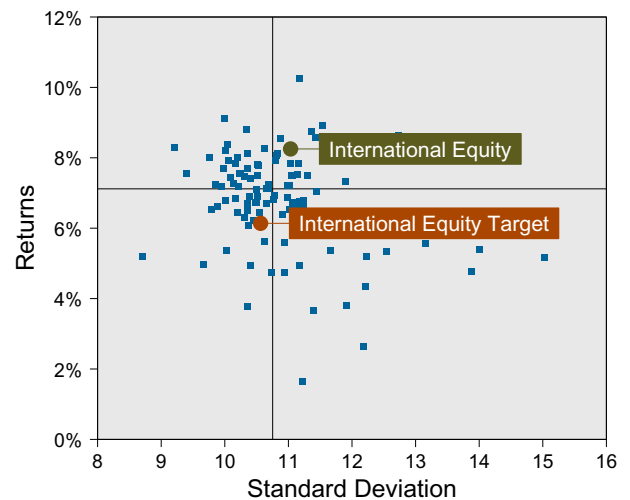


10th Percentile	(1.36)	10.17	16.82	7.56	8.34	5.21
25th Percentile	(2.06)	9.02	15.57	6.87	7.84	4.59
Median	(2.61)	8.05	14.38	6.22	7.12	3.64
75th Percentile	(3.28)	6.99	13.48	5.16	6.28	3.10
90th Percentile	(4.24)	6.03	12.33	4.62	4.96	2.15
<b>International Equity</b>	<b>(2.80)</b>	10.32	15.71	7.28	8.25	5.25
International Equity Target	(2.34)	7.35	13.71	5.03	6.14	3.13

## 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 June 30, 2018

### 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.

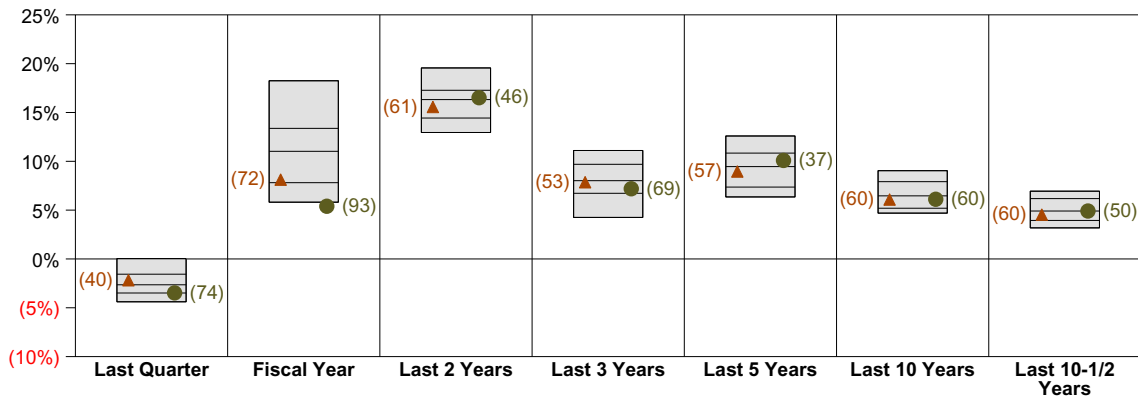
### Quarterly Summary and Highlights

- DFA Intl Small Cap Value's portfolio posted a (3.47)% return for the quarter placing it in the 74 percentile of the Callan International Small Cap Mut Funds group for the quarter and in the 93 percentile for the last year.
- DFA Intl Small Cap Value's portfolio underperformed the World ex US SC Value by 1.30% for the quarter and underperformed the World ex US SC Value for the year by 2.73%.

### Quarterly Asset Growth

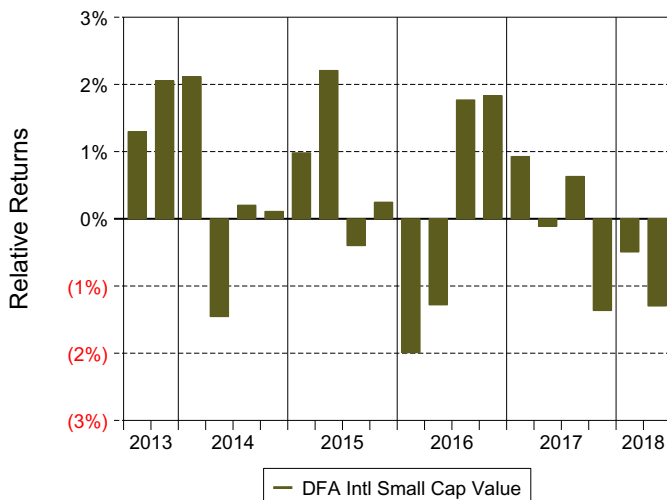
Beginning Market Value	\$90,579,085
Net New Investment	\$0
Investment Gains/(Losses)	\$-3,147,068
Ending Market Value	\$87,432,016

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

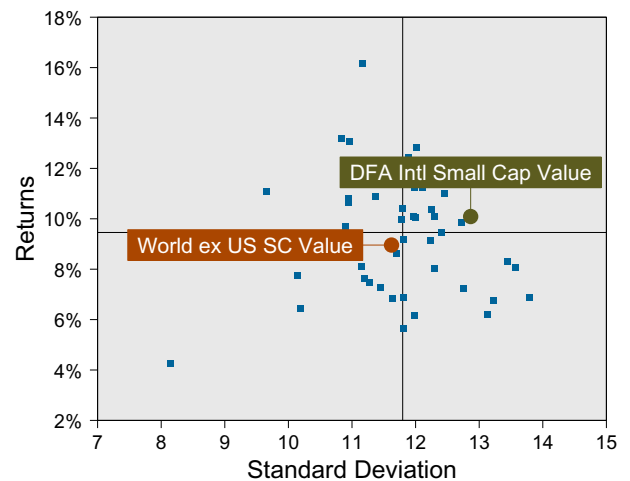


10th Percentile	0.03	18.25	19.56	11.11	12.59	9.04	6.94
25th Percentile	(1.56)	13.37	17.28	9.69	10.84	7.92	6.18
Median	(2.64)	11.02	16.32	8.02	9.46	6.46	4.91
75th Percentile	(3.49)	7.81	14.43	6.72	7.36	5.19	3.94
90th Percentile	(4.39)	5.81	12.95	4.25	6.35	4.69	3.18
<b>DFA Intl Small Cap Value</b>	<b>● (3.47)</b>	5.40	16.51	7.19	10.09	6.11	4.91
World ex US SC Value	<b>▲ (2.18)</b>	8.13	15.57	7.86	8.96	6.09	4.54

### 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 June 30, 2018

## 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 (0.83)% return for the quarter placing it in the 29 percentile of the Callan Non-US Equity group for the quarter and in the 52 percentile for the last year.
- Northern Tr AM Wrld ex US's portfolio underperformed the MSCI World ex US by 0.08% for the quarter and outperformed the MSCI World ex US for the year by 0.45%.

## Quarterly Asset Growth

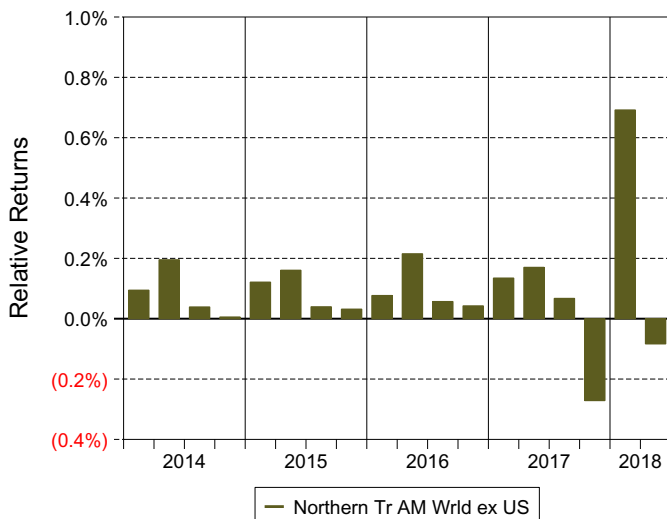
Beginning Market Value	\$326,204,381
Net New Investment	\$-27,301
Investment Gains/(Losses)	\$-2,702,651
Ending Market Value	\$323,474,429

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



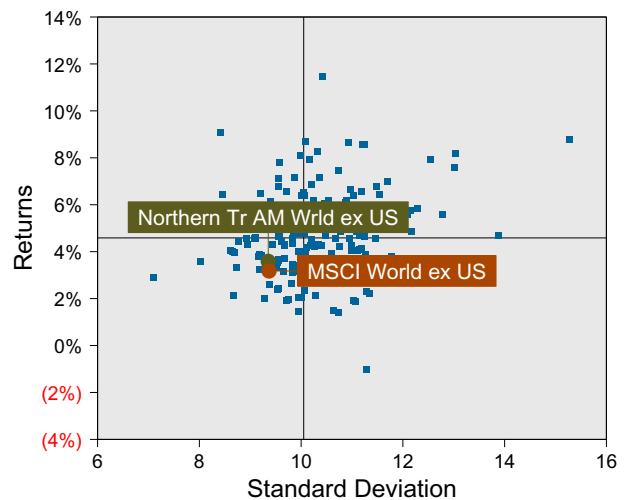
	Last Quarter	Fiscal Year	Last 2 Years	Last 3 Years	Last 4-1/2 Years
10th Percentile	0.79	13.78	18.49	9.26	6.96
25th Percentile	(0.64)	10.52	16.26	7.35	5.73
Median	(1.79)	7.81	14.43	6.02	4.59
75th Percentile	(3.01)	5.54	12.37	4.58	3.54
90th Percentile	(4.28)	4.07	10.58	3.69	2.61
<b>Northern Tr AM Wrld ex US</b>	<b>(0.83)</b>	<b>7.50</b>	<b>13.55</b>	<b>5.28</b>	<b>3.59</b>
<b>MSCI World ex US</b>	<b>(0.75)</b>	<b>7.04</b>	<b>13.09</b>	<b>4.87</b>	<b>3.18</b>

## Relative Return vs MSCI World ex US



## Callan Non-US Equity (Gross)

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



# Wellington Management Period Ended June 30, 2018

## 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.

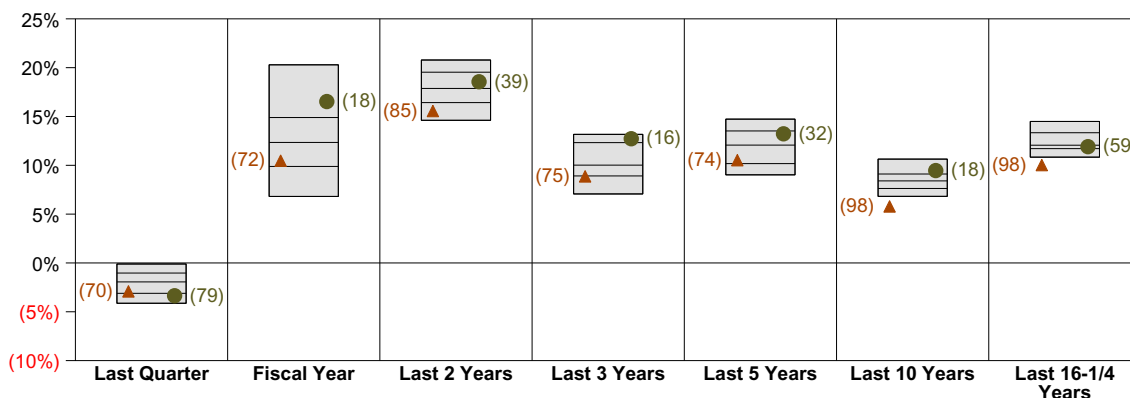
## Quarterly Summary and Highlights

- Wellington Management's portfolio posted a (3.36)% return for the quarter placing it in the 79 percentile of the Callan International Small Cap group for the quarter and in the 18 percentile for the last year.
- Wellington Management's portfolio underperformed the S&P BMI EPAC <\$2 B by 0.45% for the quarter and outperformed the S&P BMI EPAC <\$2 B for the year by 6.05%.

## Quarterly Asset Growth

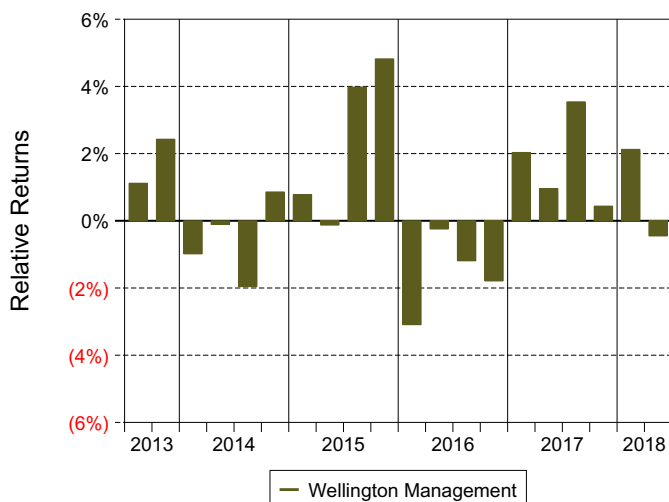
Beginning Market Value	\$90,339,739
Net New Investment	\$-191,560
Investment Gains/(Losses)	\$-3,028,323
Ending Market Value	\$87,119,856

## Performance vs Callan International Small Cap (Gross)

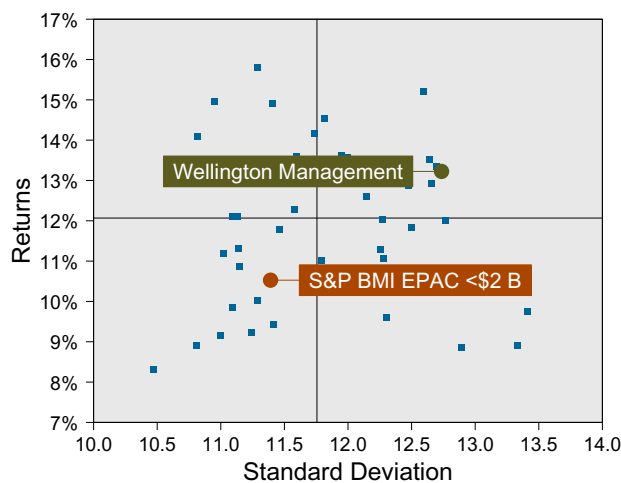


10th Percentile	(0.11)	20.29	20.78	13.17	14.73	10.64	14.49
25th Percentile	(1.03)	14.89	19.54	12.32	13.52	9.11	13.34
Median	(1.94)	12.34	17.87	10.02	12.07	8.40	12.06
75th Percentile	(3.11)	9.88	16.42	8.91	10.17	7.63	11.71
90th Percentile	(4.13)	6.81	14.61	7.07	9.02	6.82	10.84
<b>Wellington Management</b>	<b>● (3.36)</b>	16.53	18.56	12.72	13.22	9.46	11.91
<b>S&amp;P BMI EPAC &lt;\$2 B</b>	<b>▲ (2.91)</b>	10.47	15.56	8.87	10.53	5.79	10.03

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



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



# William Blair

## Period Ended June 30, 2018

### 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.

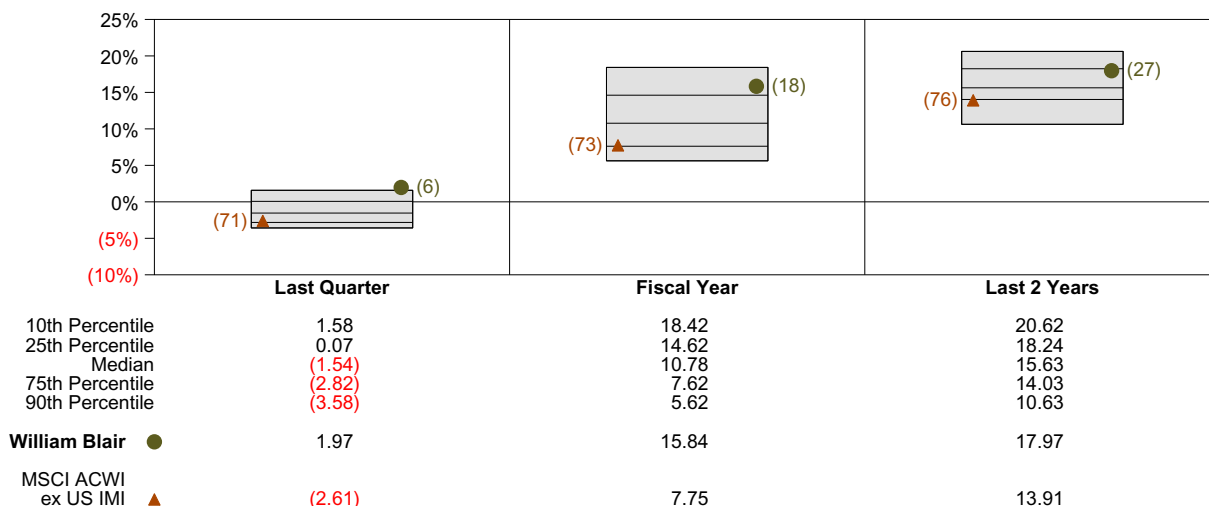
### Quarterly Summary and Highlights

- William Blair's portfolio posted a 1.97% return for the quarter placing it in the 6 percentile of the Callan Non-US All Country Growth Equity group for the quarter and in the 18 percentile for the last year.
- William Blair's portfolio outperformed the MSCI ACWI ex US IMI by 4.58% for the quarter and outperformed the MSCI ACWI ex US IMI for the year by 8.09%.

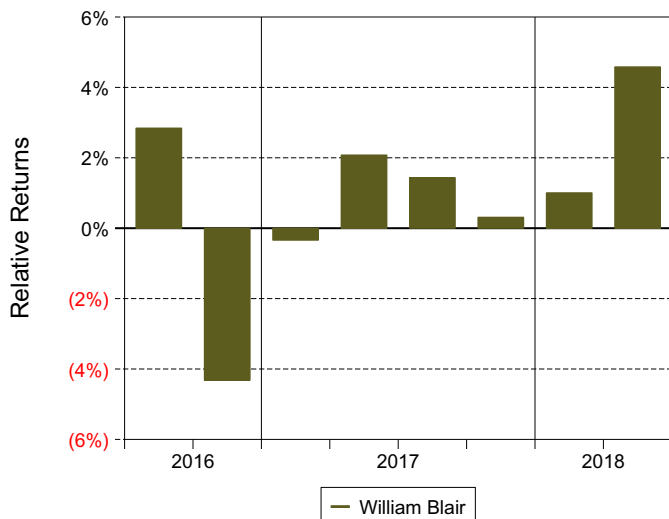
### Quarterly Asset Growth

Beginning Market Value	\$178,163,524
Net New Investment	\$-157,037
Investment Gains/(Losses)	\$3,512,978
Ending Market Value	\$181,519,465

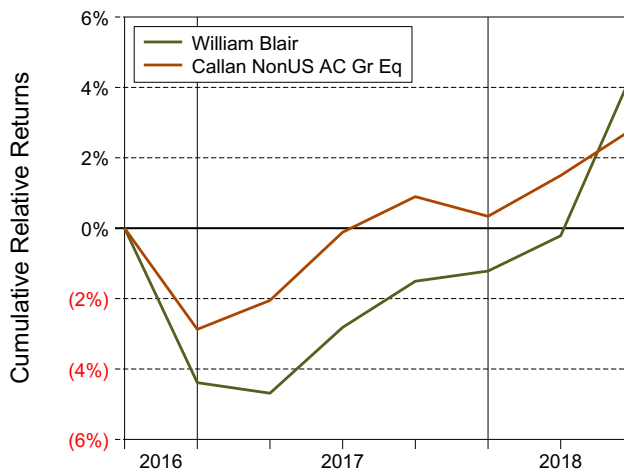
### Performance vs Callan Non-US All Country Growth Equity (Gross)



### Relative Return vs MSCI ACWI ex US IMI



### Cumulative Returns vs MSCI ACWI ex US IMI



# Axiom Emerging Markets Period Ended June 30, 2018

## 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.

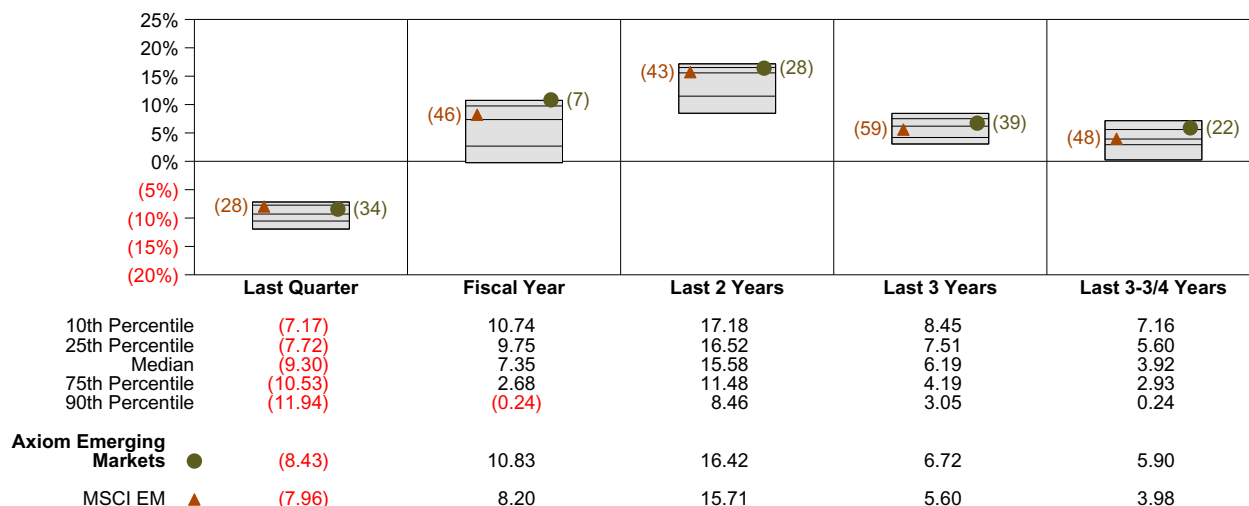
## Quarterly Summary and Highlights

- Axiom Emerging Markets's portfolio posted a (8.43)% return for the quarter placing it in the 34 percentile of the Callan Emerging Markets Equity Mut Funds group for the quarter and in the 7 percentile for the last year.
- Axiom Emerging Markets's portfolio underperformed the MSCI EM by 0.47% for the quarter and outperformed the MSCI EM for the year by 2.62%.

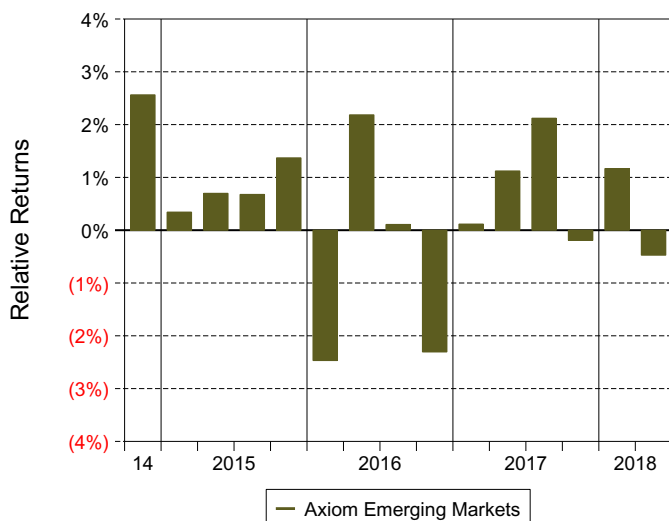
## Quarterly Asset Growth

Beginning Market Value	\$167,894,892
Net New Investment	\$0
Investment Gains/(Losses)	\$-14,156,734
Ending Market Value	\$153,738,158

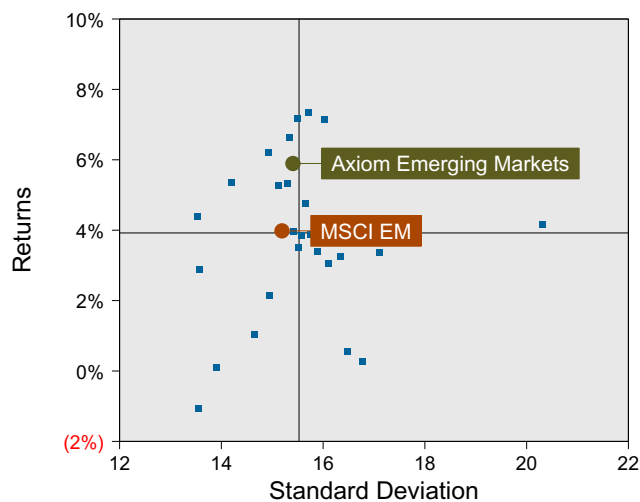
## Performance vs Callan Emerging Markets Equity Mut Funds (Net)



## Relative Return vs MSCI EM



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





# DFA Emerging Markets Period Ended June 30, 2018

## 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.

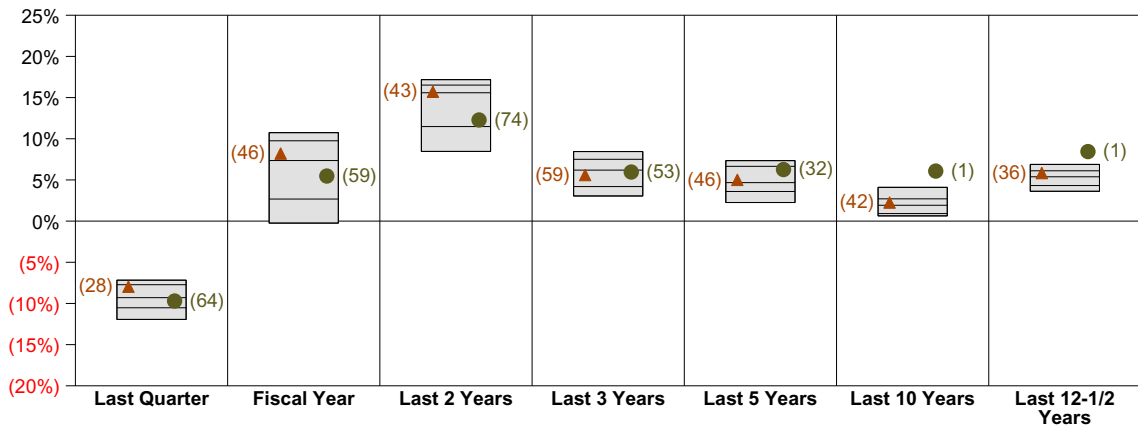
## Quarterly Summary and Highlights

- DFA Emerging Markets's portfolio posted a (9.71)% return for the quarter placing it in the 64 percentile of the Callan Emerging Markets Equity Mut Funds group for the quarter and in the 59 percentile for the last year.
- DFA Emerging Markets's portfolio underperformed the MSCI EM by 1.75% for the quarter and underperformed the MSCI EM for the year by 2.73%.

## Quarterly Asset Growth

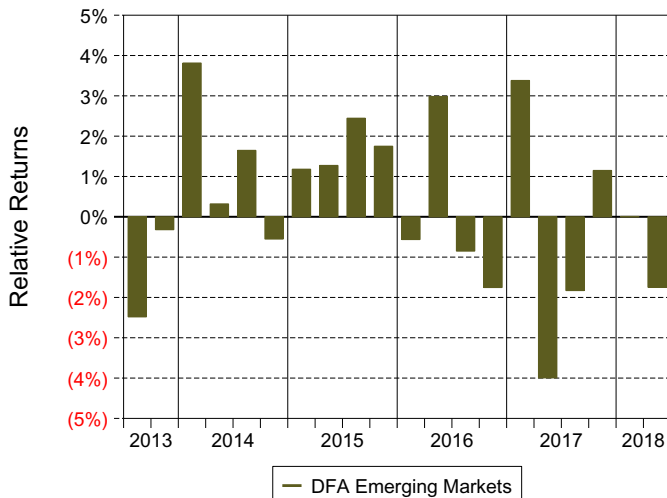
Beginning Market Value	\$63,005,655
Net New Investment	\$0
Investment Gains/(Losses)	\$-6,115,791
Ending Market Value	\$56,889,864

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

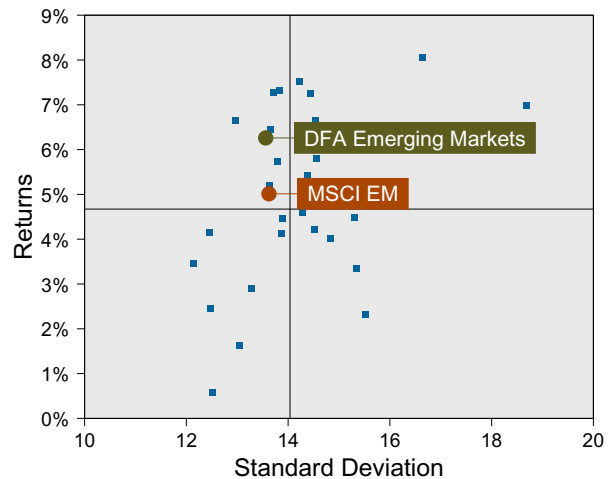


10th Percentile	(7.17)	10.74	17.18	8.45	7.35	4.10	6.88
25th Percentile	(7.72)	9.75	16.52	7.51	6.65	2.71	6.11
Median	(9.30)	7.35	15.58	6.19	4.67	1.92	5.38
75th Percentile	(10.53)	2.68	11.48	4.19	3.60	0.92	4.32
90th Percentile	(11.94)	(0.24)	8.46	3.05	2.26	0.63	3.62
<b>DFA Emerging Markets</b>	● (9.71)	5.47	12.28	5.96	6.26	6.08	8.44
<b>MSCI EM</b>	▲ (7.96)	8.20	15.71	5.60	5.01	2.26	5.84

## Relative Return vs MSCI EM



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



# EPOCH Investment Period Ended June 30, 2018

## 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.

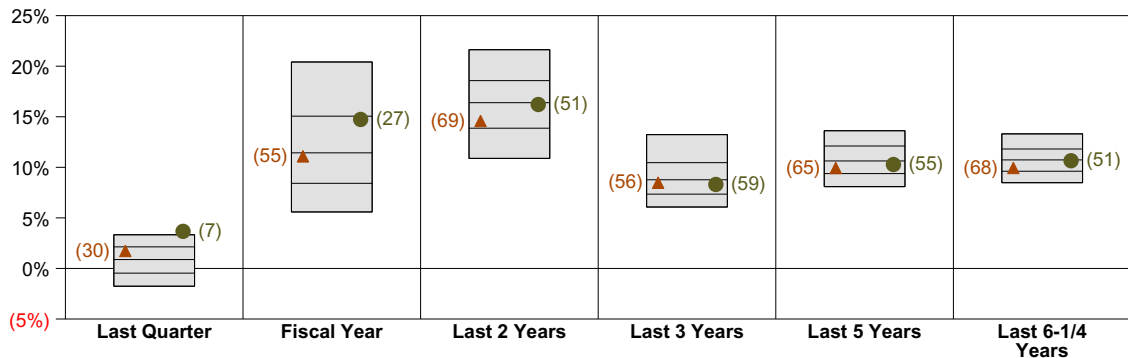
## Quarterly Summary and Highlights

- EPOCH Investment's portfolio posted a 3.67% return for the quarter placing it in the 7 percentile of the Callan Global Equity group for the quarter and in the 27 percentile for the last year.
- EPOCH Investment's portfolio outperformed the MSCI World by 1.93% for the quarter and outperformed the MSCI World for the year by 3.65%.

## Quarterly Asset Growth

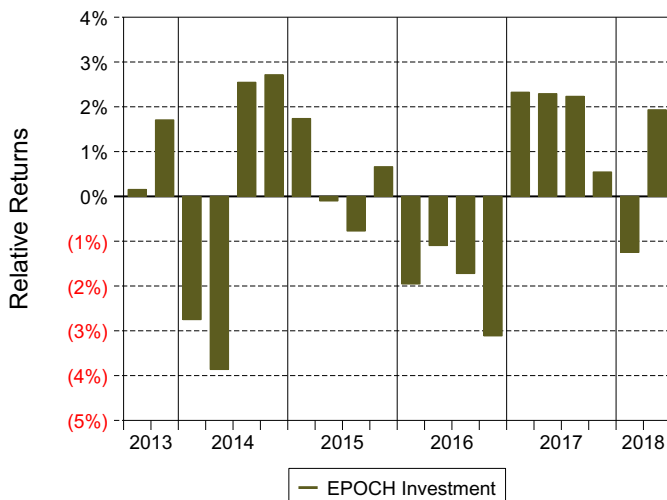
Beginning Market Value	\$400,400,325
Net New Investment	\$-637,320
Investment Gains/(Losses)	\$14,673,397
Ending Market Value	\$414,436,403

## Performance vs Callan Global Equity (Gross)

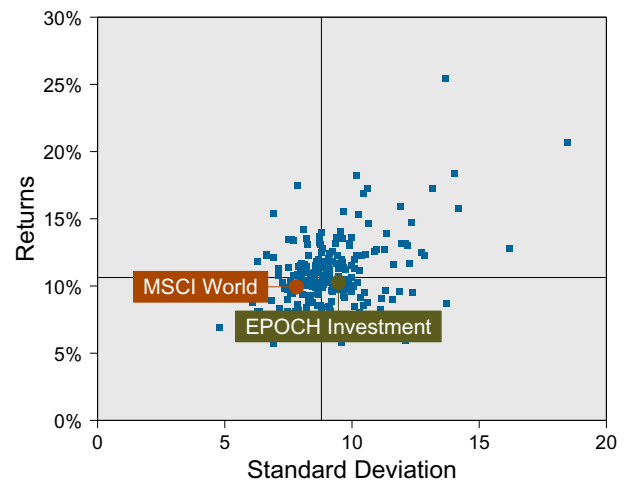


10th Percentile	3.33	20.42	21.63	13.23	13.62	13.31
25th Percentile	2.13	15.06	18.57	10.46	12.11	11.81
Median	0.88	11.43	16.39	8.77	10.63	10.73
75th Percentile	(0.46)	8.42	13.87	7.35	9.38	9.61
90th Percentile	(1.76)	5.59	10.88	6.07	8.09	8.48
<b>EPOCH Investment</b>	● 3.67	14.73	16.21	8.31	10.28	10.65
<b>MSCI World</b>	▲ 1.73	11.09	14.59	8.48	9.94	9.94

## Relative Return vs MSCI World



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



# LSV Asset Management Period Ended June 30, 2018

## 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 explainers of performance.

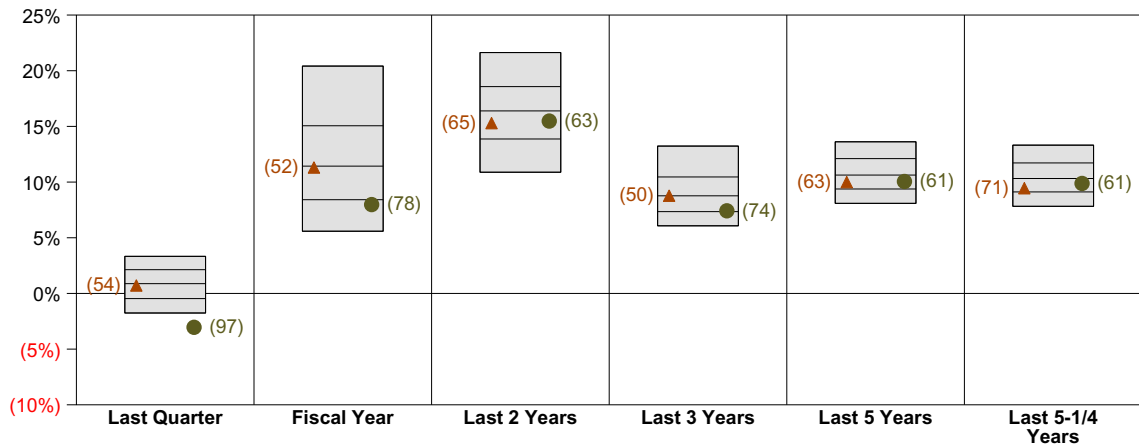
## Quarterly Summary and Highlights

- LSV Asset Management's portfolio posted a (3.04)% return for the quarter placing it in the 97 percentile of the Callan Global Equity group for the quarter and in the 78 percentile for the last year.
- LSV Asset Management's portfolio underperformed the MSCI ACWI Gross by 3.76% for the quarter and underperformed the MSCI ACWI Gross for the year by 3.33%.

## Quarterly Asset Growth

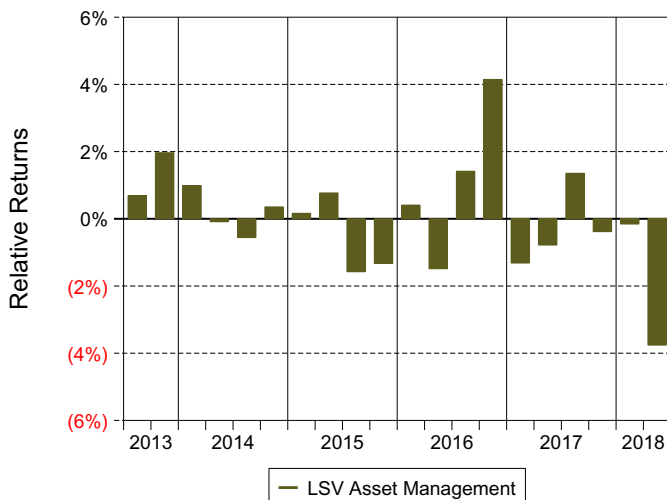
Beginning Market Value	\$518,679,431
Net New Investment	\$-129,416
Investment Gains/(Losses)	\$-15,764,235
Ending Market Value	\$502,785,780

## Performance vs Callan Global Equity (Gross)

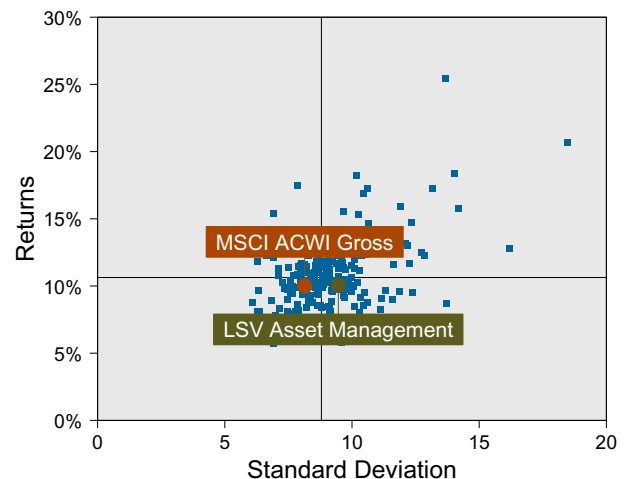


10th Percentile	3.33	20.42	21.63	13.23	13.62	13.32
25th Percentile	2.13	15.06	18.57	10.46	12.11	11.72
Median	0.88	11.43	16.39	8.77	10.63	10.32
75th Percentile	(0.46)	8.42	13.87	7.35	9.38	9.12
90th Percentile	(1.76)	5.59	10.88	6.07	8.09	7.82
<b>LSV Asset Management</b> ●	<b>(3.04)</b>	7.98	15.48	7.42	10.05	9.88
<b>MSCI ACWI Gross</b> ▲	0.72	11.31	15.29	8.78	10.00	9.45

## Relative Return vs MSCI ACWI Gross



## Callan Global Equity (Gross) Annualized Five 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 June 30, 2018. 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 June 30, 2018

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 17-1/2 Years
<b>Private Equity</b>	<b>(0.40%)</b>	<b>5.25%</b>	<b>2.76%</b>	<b>1.33%</b>	<b>2.53%</b>
Adams Street Direct Co-Invest Fd	(8.53%)	(12.18%)	(3.10%)	5.58%	-
Adams Street Direct Fd 2010	6.00%	18.57%	12.60%	15.26%	-
Adams Street 1998 Partnership	0.22%	0.45%	1.46%	1.12%	1.60%
Adams Street 1999 Partnership	2.20%	0.12%	3.81%	1.53%	2.59%
Adams Street 2000 Partnership	2.71%	7.82%	2.95%	1.05%	3.47%
Adams Street 2001 Partnership	1.70%	6.04%	0.85%	4.09%	3.83%
Adams Street 2002 Partnership	(4.79%)	(0.30%)	9.26%	4.60%	-
Adams Street 2003 Partnership	5.72%	14.74%	7.61%	13.20%	-
Adams Street 2010 Partnership	6.48%	17.71%	12.89%	14.78%	-
Adams Street 2008 Fund	3.15%	16.99%	14.81%	14.14%	-
Adams Street 1999 Non-US	0.02%	2.53%	5.72%	1.60%	6.00%
Adams Street 2000 Non-US	2.03%	10.80%	4.97%	2.95%	3.57%
Adams Street 2001 Non-US	1.40%	6.80%	8.00%	14.30%	-
Adams Street 2002 Non-US	3.45%	5.99%	9.13%	4.93%	-
Adams Street 2003 Non-US	1.14%	5.41%	16.34%	12.83%	-
Adams Street 2004 Non-US	(1.27%)	10.08%	3.38%	7.36%	-
Adams Street 2010 Non-US	1.93%	18.95%	16.62%	11.94%	-
Adams Street 2010 NonUS Emg	5.38%	21.66%	13.97%	13.38%	-
Adams Street 2015 Global Fd	4.95%	17.58%	-	-	-
Adams Street 2016 Global Fd	5.25%	13.58%	-	-	-
Adams Street 2017 Global Fd	10.71%	-	-	-	-
Adams Street BVCF IV Fund	1.52%	(1.84%)	1.37%	11.83%	16.69%
BlackRock	1.47%	1.53%	-	-	-
Capital International V	(0.11%)	(48.22%)	(42.03%)	(28.50%)	-
Capital International VI	(2.12%)	5.98%	5.47%	(2.84%)	-
CorsAir III	(41.43%)	(34.35%)	(1.99%)	(2.96%)	-
CorsAir IV	14.14%	26.61%	14.98%	17.93%	-
EIG Energy Fund XIV	30.20%	18.70%	(24.45%)	(20.74%)	-
Hearthstone Advisors MS III	4.92%	8.27%	(18.32%)	283.21%	-
Lewis & Clark	55.37%	51.46%	(3.37%)	(13.13%)	-
Lewis & Clark II	(9.22%)	0.90%	4.44%	(1.95%)	-
Matlin Patterson II	5.98%	5.59%	(6.94%)	(3.76%)	-
Matlin Patterson III	(9.60%)	8.51%	3.03%	2.20%	-
Quantum Energy Partners	(20.67%)	(50.52%)	(13.61%)	(7.37%)	-
Russell 1000 Index	3.57%	14.54%	11.64%	13.37%	6.52%
Russell 2000 Index	7.75%	17.57%	10.96%	12.46%	8.68%

# Domestic Fixed Income Period Ended June 30, 2018

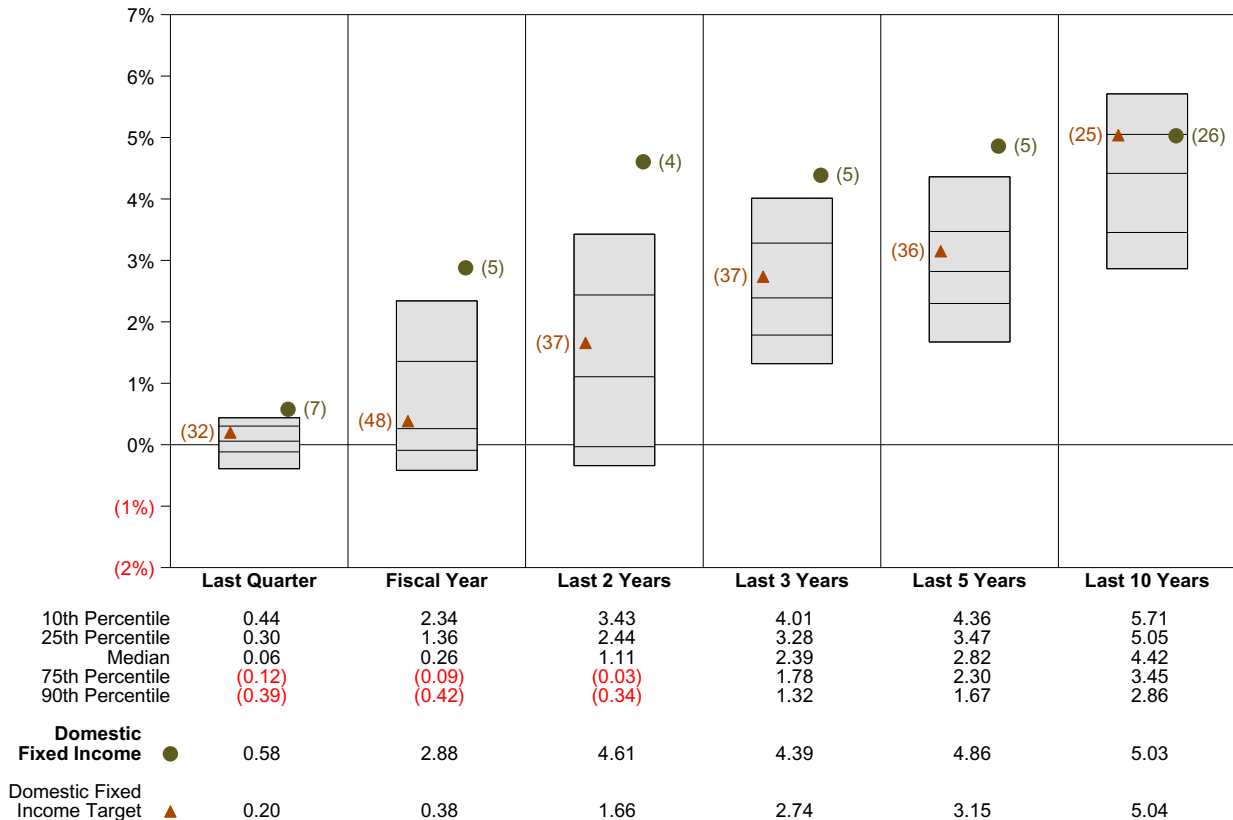
## Quarterly Summary and Highlights

- Domestic Fixed Income's portfolio posted a 0.58% return for the quarter placing it in the 7 percentile of the Public Fund - Domestic Fixed group for the quarter and in the 5 percentile for the last year.
- Domestic Fixed Income's portfolio outperformed the Domestic Fixed Income Target by 0.38% for the quarter and outperformed the Domestic Fixed Income Target for the year by 2.49%.

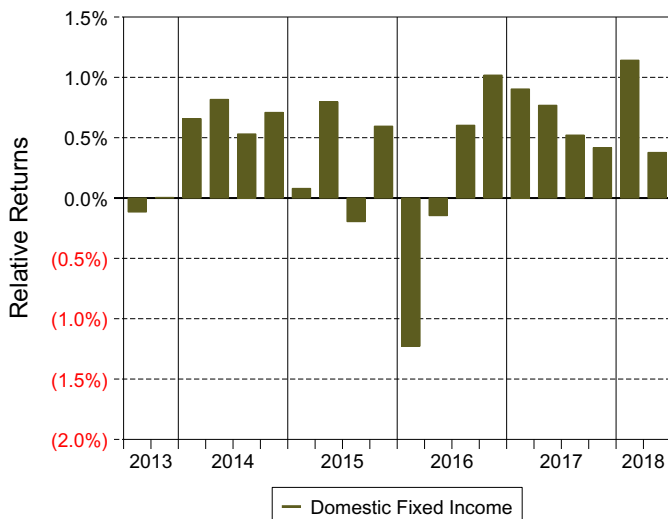
## Quarterly Asset Growth

Beginning Market Value	\$1,366,221,276
Net New Investment	\$-4,981,555
Investment Gains/(Losses)	\$7,856,090
Ending Market Value	\$1,369,095,811

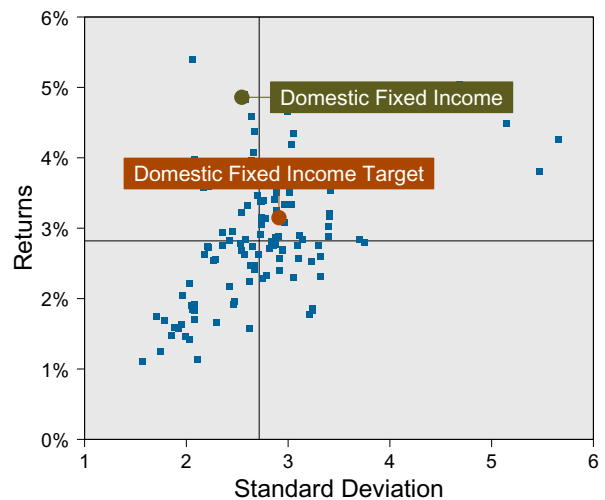
## Performance vs Public Fund - Domestic Fixed (Gross)



## Relative Returns vs Domestic Fixed Income Target



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



# Declaration Total Return Period Ended June 30, 2018

## 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.

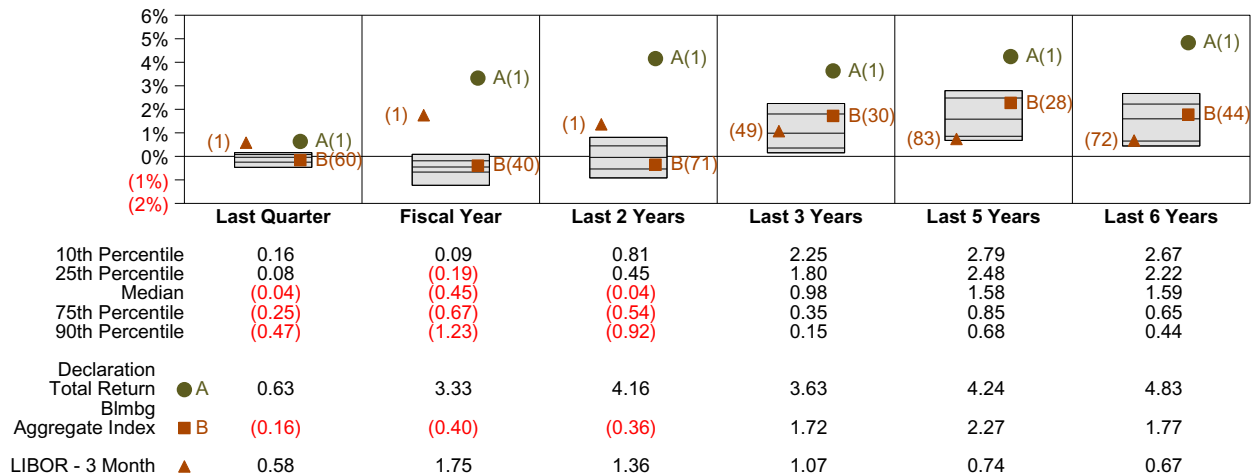
## Quarterly Summary and Highlights

- Declaration Total Return's portfolio posted a 0.63% 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 0.05% for the quarter and outperformed the LIBOR - 3 Month for the year by 1.58%.

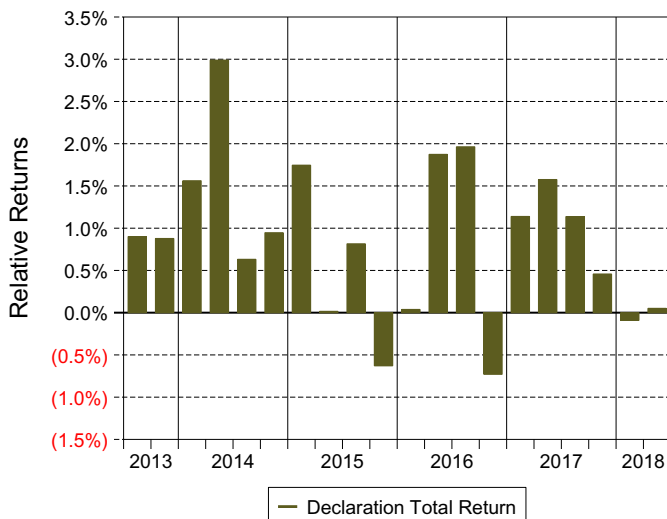
## Quarterly Asset Growth

Beginning Market Value	\$115,933,897
Net New Investment	-\$49,704
Investment Gains/(Losses)	\$734,699
Ending Market Value	\$116,618,892

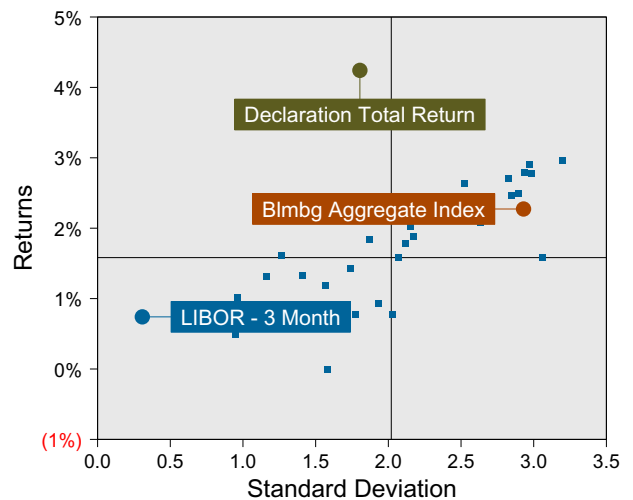
## Performance vs Callan Intermediate Fixed Inc Mut Funds (Net)



## Relative Return vs LIBOR - 3 Month



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



# PIMCO DiSCO II

## Period Ended June 30, 2018

### 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.

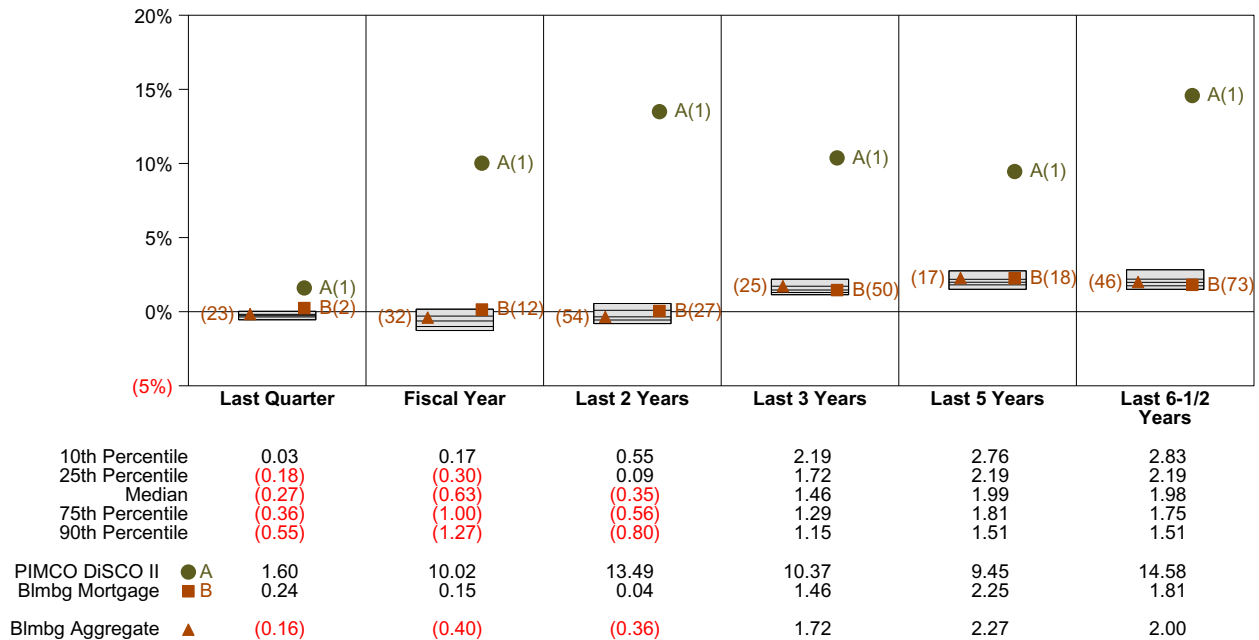
### Quarterly Summary and Highlights

- PIMCO DiSCO II's portfolio posted a 1.60% 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 1.76% for the quarter and outperformed the Blmbg Aggregate for the year by 10.42%.

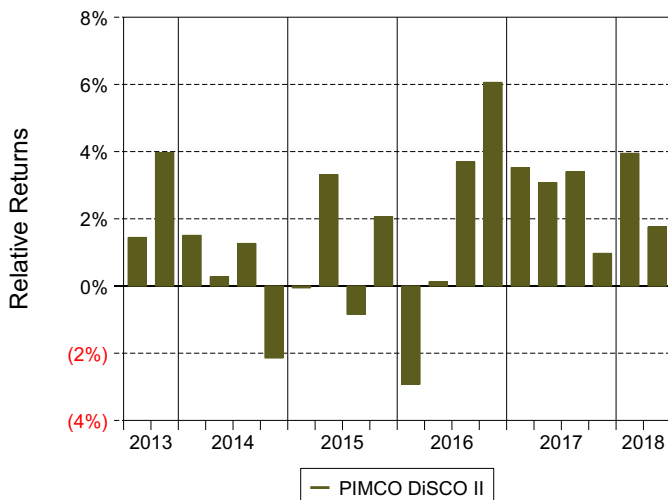
### Quarterly Asset Growth

Beginning Market Value	\$116,274,918
Net New Investment	\$0
Investment Gains/(Losses)	\$1,860,357
Ending Market Value	\$118,135,275

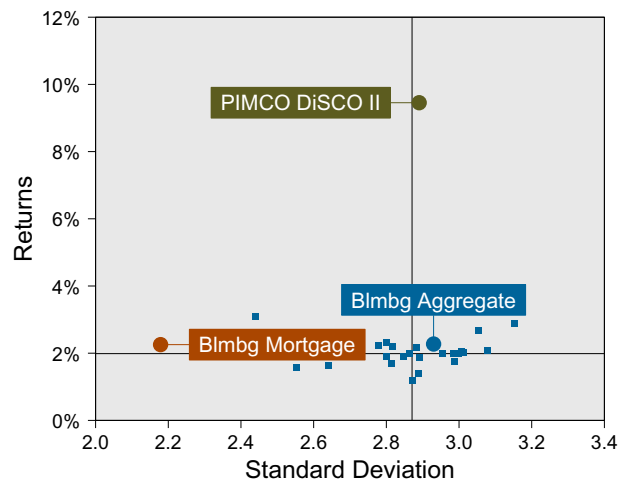
### Performance vs Callan Core Bond Mutual Funds (Net)



### Relative Return vs Blmbg Aggregate



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



# PIMCO Core Plus Constrained Period Ended June 30, 2018

## 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.**

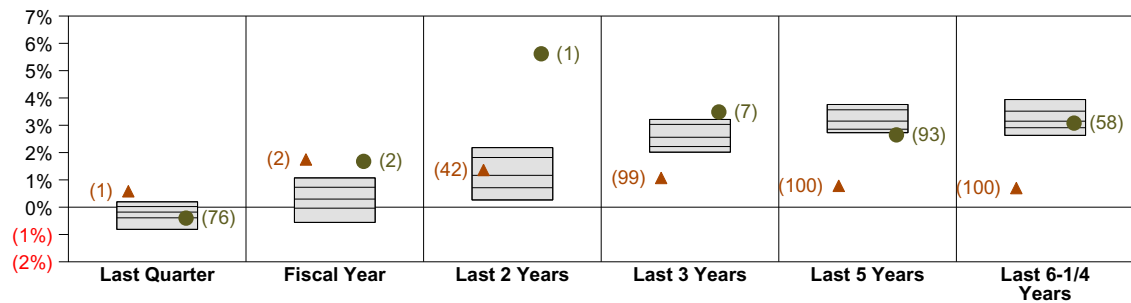
## Quarterly Summary and Highlights

- PIMCO Core Plus Constrained's portfolio posted a (0.40)% return for the quarter placing it in the 76 percentile of the Callan Core Plus Fixed Income group for the quarter and in the 2 percentile for the last year.
- PIMCO Core Plus Constrained's portfolio underperformed the Blended Benchmark\* by 0.98% for the quarter and underperformed the Blended Benchmark\* for the year by 0.07%.

## Quarterly Asset Growth

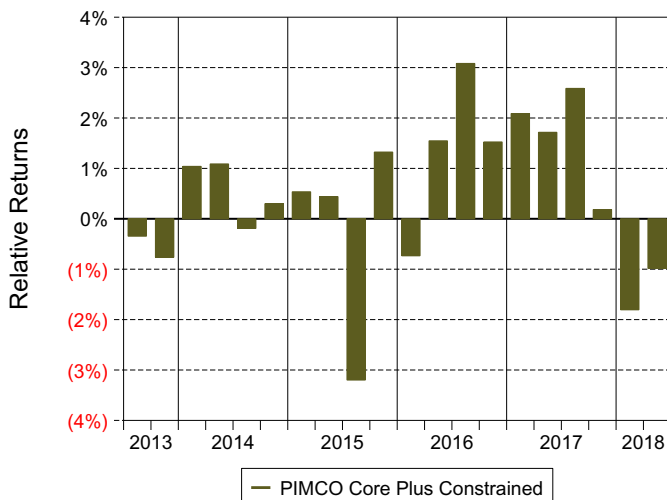
Beginning Market Value	\$310,299,561
Net New Investment	\$-161,572
Investment Gains/(Losses)	\$-1,243,330
Ending Market Value	\$308,894,658

## Performance vs Callan Core Plus Fixed Income (Gross)

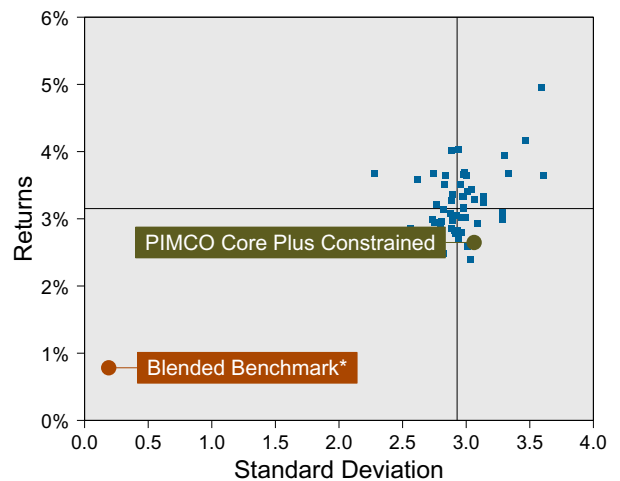


10th Percentile	0.20	1.07	2.18	3.21	3.76	3.94
25th Percentile	0.02	0.73	1.82	3.03	3.57	3.52
Median	(0.18)	0.30	1.17	2.56	3.15	3.15
75th Percentile	(0.39)	(0.04)	0.71	2.22	2.86	2.91
90th Percentile	(0.81)	(0.56)	0.26	2.01	2.73	2.63
<b>PIMCO Core Plus Constrained</b>	<b>● (0.40)</b>	<b>1.68</b>	<b>5.62</b>	<b>3.49</b>	<b>2.65</b>	<b>3.08</b>
<b>Blended Benchmark*</b>	<b>▲ 0.58</b>	<b>1.75</b>	<b>1.36</b>	<b>1.07</b>	<b>0.78</b>	<b>0.70</b>

## Relative Return vs Blended Benchmark\*



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





# SSgA Long US Treas Index Period Ended June 30, 2018

## 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.

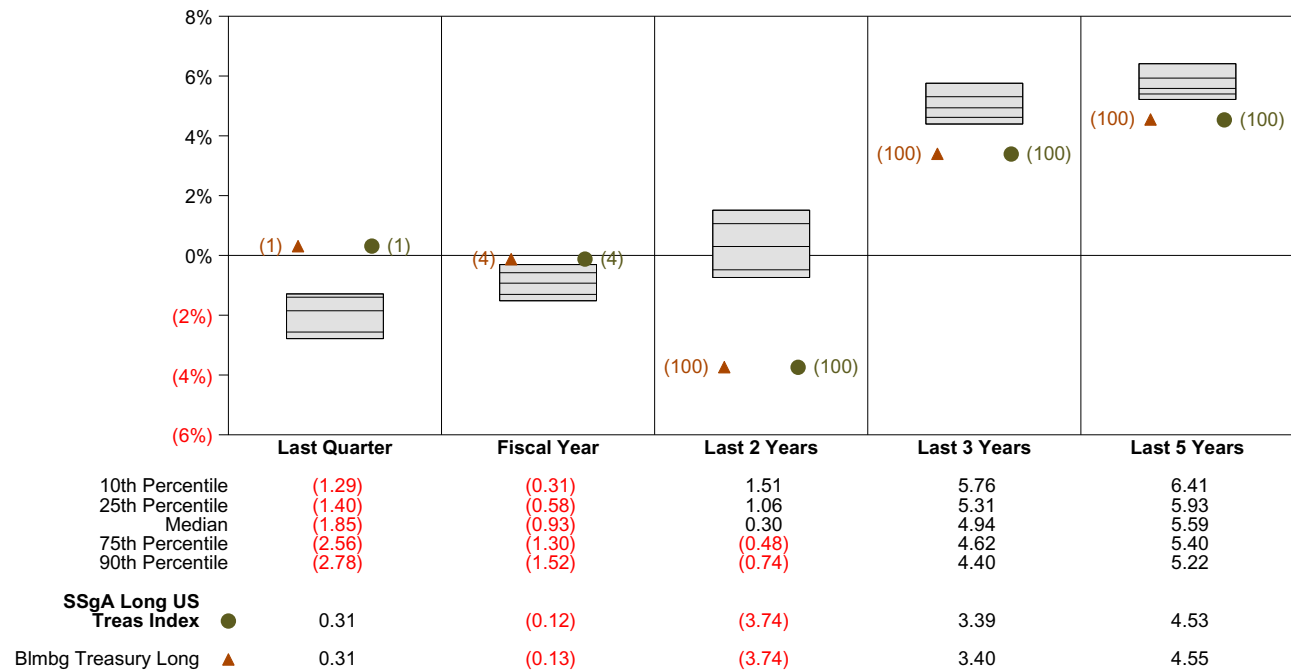
## Quarterly Summary and Highlights

- SSgA Long US Treas Index's portfolio posted a 0.31% return for the quarter placing it in the 1 percentile of the Callan Extended Maturity Fixed Income group for the quarter and in the 4 percentile for the last year.
- SSgA Long US Treas Index's portfolio outperformed the Blmbg Treasury Long by 0.00% for the quarter and outperformed the Blmbg Treasury Long for the year by 0.00%.

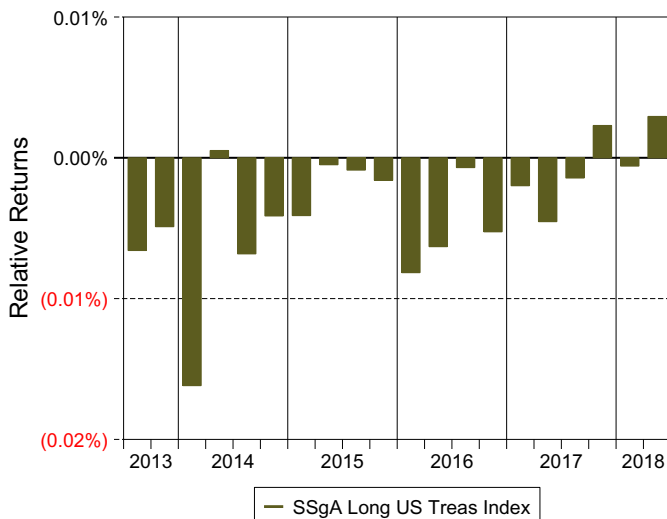
## Quarterly Asset Growth

Beginning Market Value	\$117,639,081
Net New Investment	\$-7,137
Investment Gains/(Losses)	\$366,604
Ending Market Value	\$117,998,548

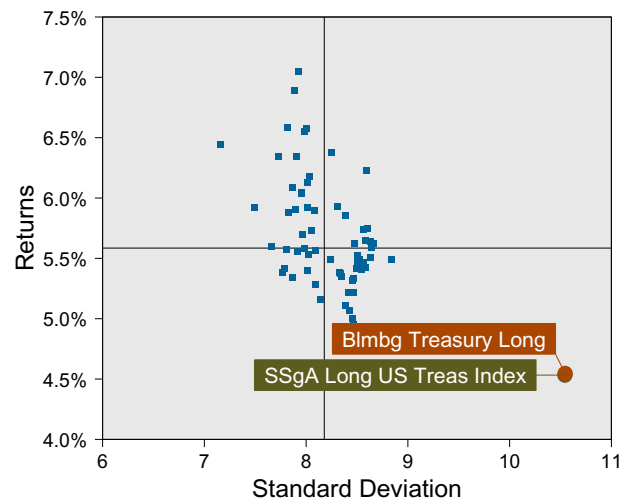
## Performance vs Callan Extended Maturity Fixed Income (Gross)



## Relative Return vs Blmbg Treasury Long



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



# Goldman Sachs 2006 Offshore Period Ended June 30, 2018

## 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.

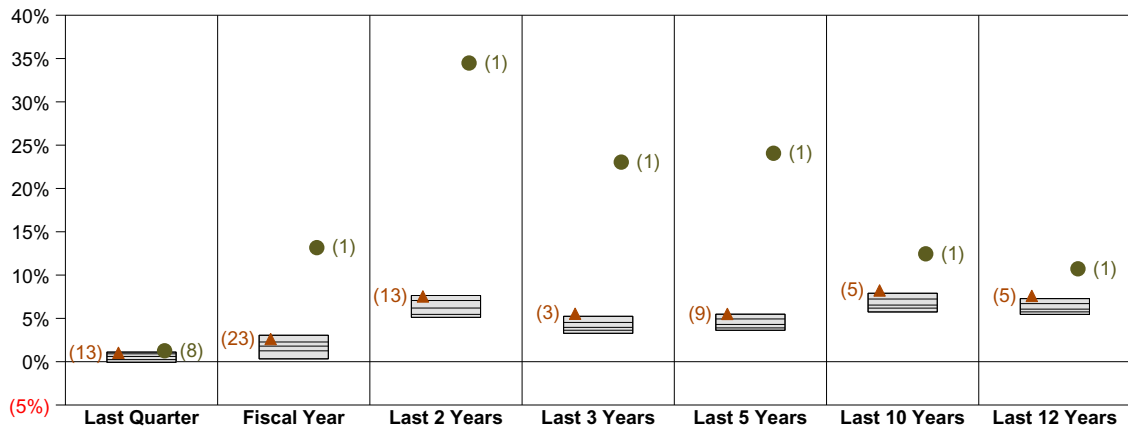
## Quarterly Summary and Highlights

- Goldman Sachs's portfolio posted a 1.26% return for the quarter placing it in the 8 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 0.23% for the quarter and outperformed the Blmbg HY 2% Iss Cap for the year by 10.55%.

## Quarterly Asset Growth

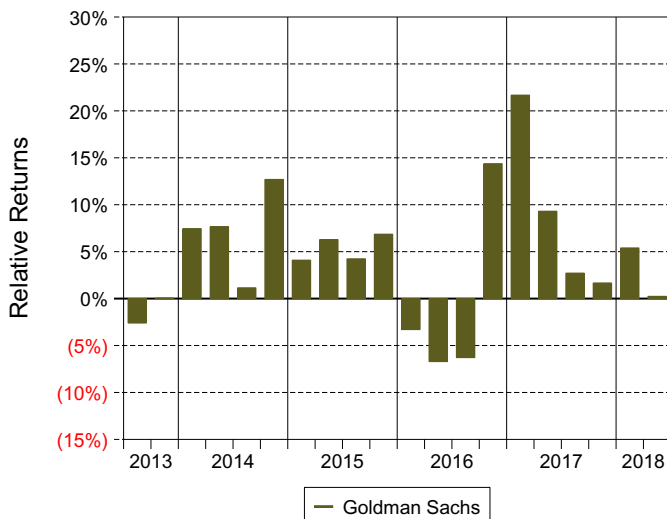
Beginning Market Value	\$124,903
Net New Investment	\$0
Investment Gains/(Losses)	\$1,573
Ending Market Value	\$126,476

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

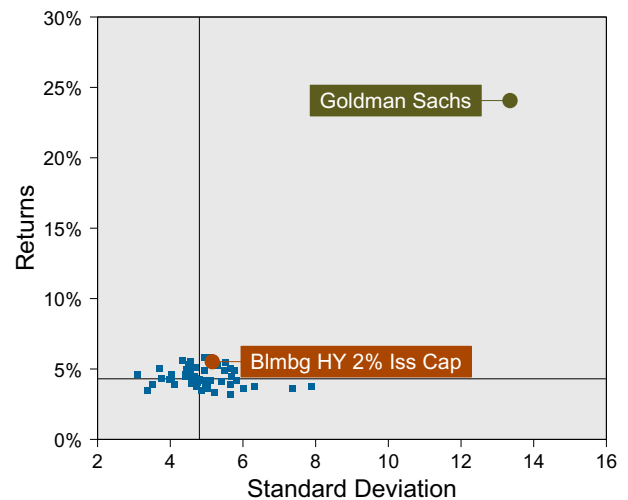


10th Percentile	1.11	3.05	7.64	5.24	5.48	7.90	7.28
25th Percentile	0.91	2.27	7.06	4.53	4.94	7.24	6.70
Median	0.61	1.80	6.19	3.96	4.30	6.54	6.07
75th Percentile	0.24	1.25	5.46	3.63	3.90	6.18	5.75
90th Percentile	(0.07)	0.33	5.12	3.28	3.63	5.74	5.46
<b>Goldman Sachs</b>	1.26	13.17	34.48	23.04	24.06	12.45	10.72
<b>Blmbg HY 2% Iss Cap</b>	1.03	2.62	7.54	5.54	5.52	8.23	7.60

## 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 June 30, 2018

## 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.

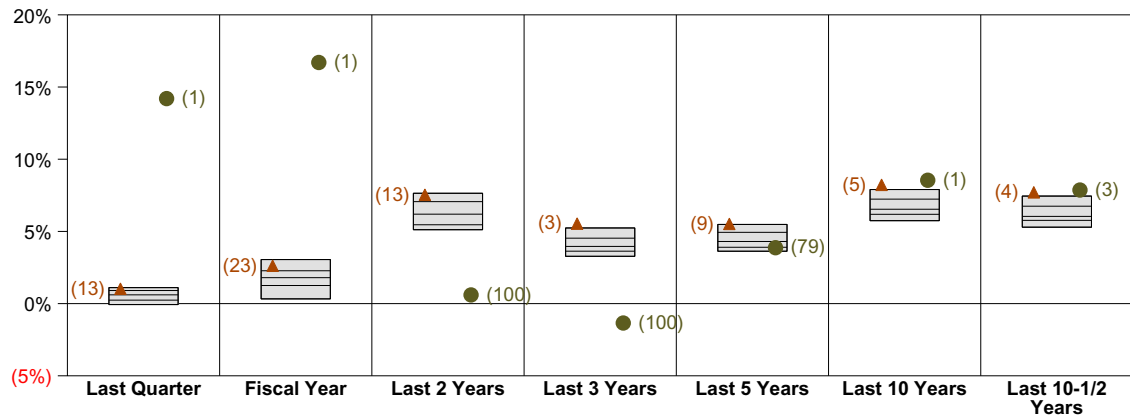
## Quarterly Summary and Highlights

- Goldman Sachs Offshore V's portfolio posted a 14.20% 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 Offshore V's portfolio outperformed the Blmbg HY 2% Iss Cap by 13.17% for the quarter and outperformed the Blmbg HY 2% Iss Cap for the year by 14.08%.

## Quarterly Asset Growth

Beginning Market Value	\$567,424
Net New Investment	\$-193,944
Investment Gains/(Losses)	\$39,830
Ending Market Value	\$413,310

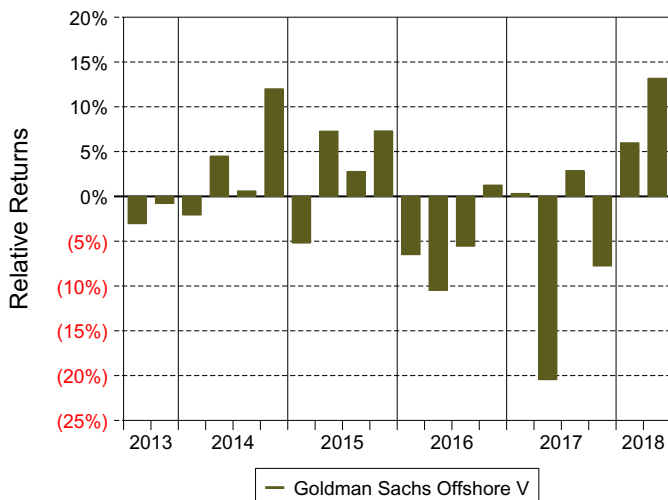
## Performance vs Callan High Yield Mutual Funds (Net)



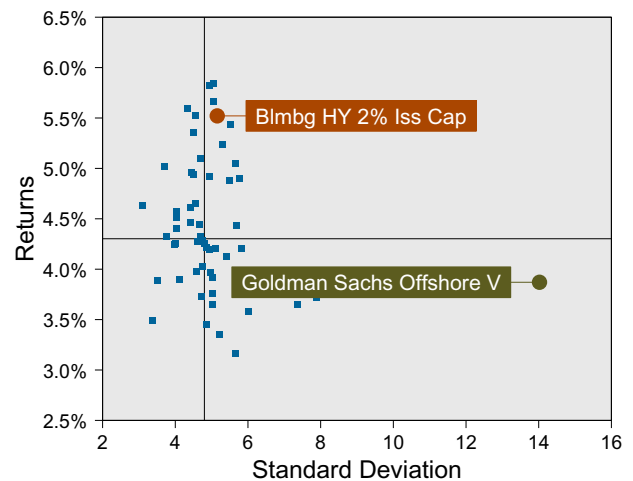
10th Percentile	1.11	3.05	7.64	5.24	5.48	7.90	7.45
25th Percentile	0.91	2.27	7.06	4.53	4.94	7.24	6.75
Median	0.61	1.80	6.19	3.96	4.30	6.54	6.04
75th Percentile	0.24	1.25	5.46	3.63	3.90	6.18	5.77
90th Percentile	(0.07)	0.33	5.12	3.28	3.63	5.74	5.29

<b>Goldman Sachs Offshore V</b> ●	14.20	16.70	0.60	(1.34)	3.87	8.54	7.87
Blmbg HY 2% Iss Cap ▲	1.03	2.62	7.54	5.54	5.52	8.23	7.71

## Relative Return vs Blmbg HY 2% Iss Cap



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



# Loomis Sayles

## Period Ended June 30, 2018

### 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.

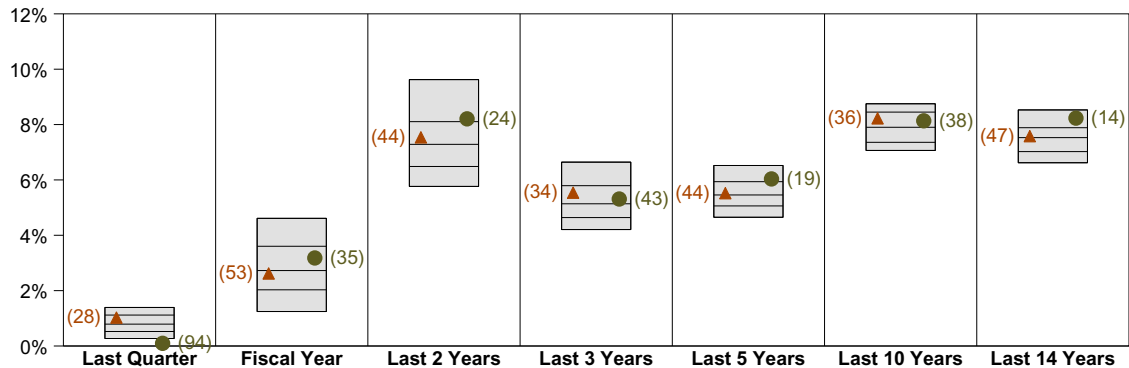
### Quarterly Summary and Highlights

- Loomis Sayles's portfolio posted a 0.10% return for the quarter placing it in the 94 percentile of the Callan High Yield Fixed Income group for the quarter and in the 35 percentile for the last year.
- Loomis Sayles's portfolio underperformed the Blmbg HY 2% Iss Cap by 0.93% for the quarter and outperformed the Blmbg HY 2% Iss Cap for the year by 0.56%.

### Quarterly Asset Growth

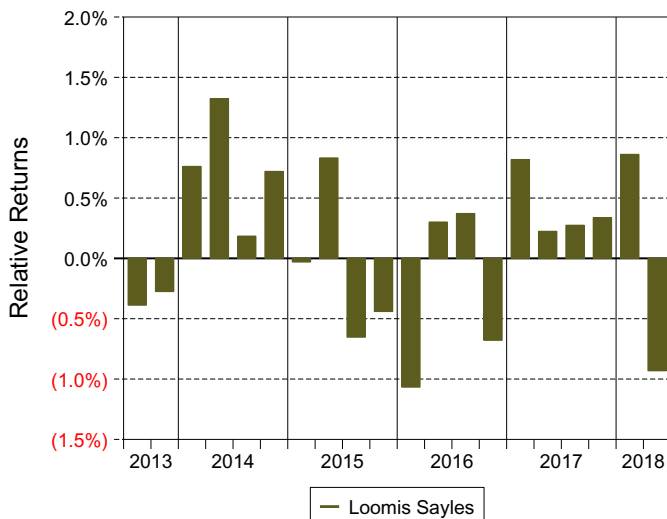
Beginning Market Value	\$204,815,521
Net New Investment	\$-256,019
Investment Gains/(Losses)	\$197,676
Ending Market Value	\$204,757,178

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

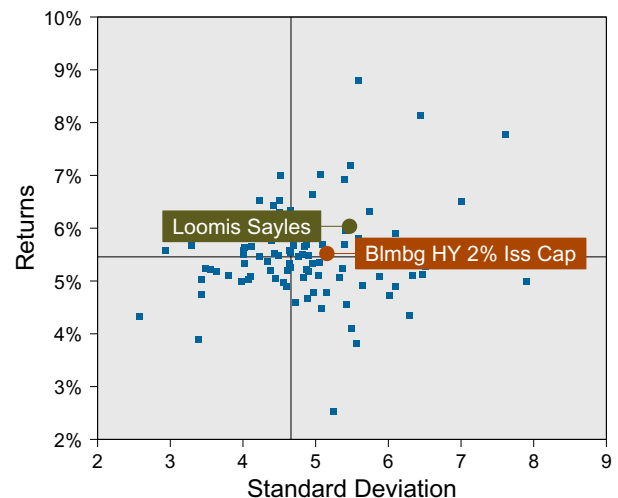


10th Percentile	1.39	4.61	9.62	6.64	6.52	8.75	8.53
25th Percentile	1.12	3.60	8.10	5.79	5.94	8.45	7.89
Median	0.79	2.73	7.28	5.14	5.46	7.90	7.53
75th Percentile	0.52	2.03	6.49	4.64	5.06	7.36	7.02
90th Percentile	0.27	1.25	5.76	4.21	4.65	7.06	6.62
<b>Loomis Sayles</b>	● 0.10	3.18	8.21	5.31	6.04	8.13	8.23
Blmbg HY 2% Iss Cap	▲ 1.03	2.62	7.54	5.54	5.52	8.23	7.58

### 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 June 30, 2018

### 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.

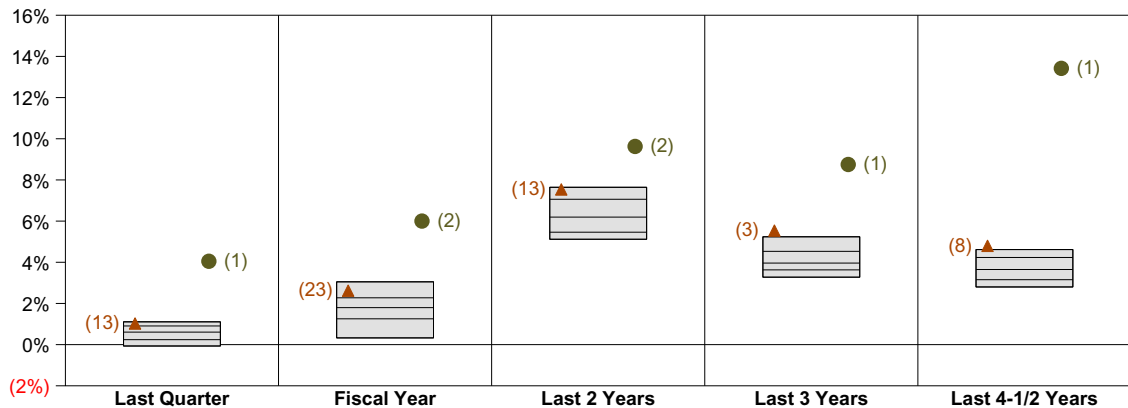
### Quarterly Summary and Highlights

- PIMCO Bravo II Fund's portfolio posted a 4.05% return for the quarter placing it in the 1 percentile of the Callan High Yield Mutual Funds group for the quarter and in the 2 percentile for the last year.
- PIMCO Bravo II Fund's portfolio outperformed the Blmbg HY 2% Iss Cap by 3.02% for the quarter and outperformed the Blmbg HY 2% Iss Cap for the year by 3.38%.

### Quarterly Asset Growth

Beginning Market Value	\$45,802,288
Net New Investment	\$-4,263,375
Investment Gains/(Losses)	\$1,787,576
Ending Market Value	\$43,326,489

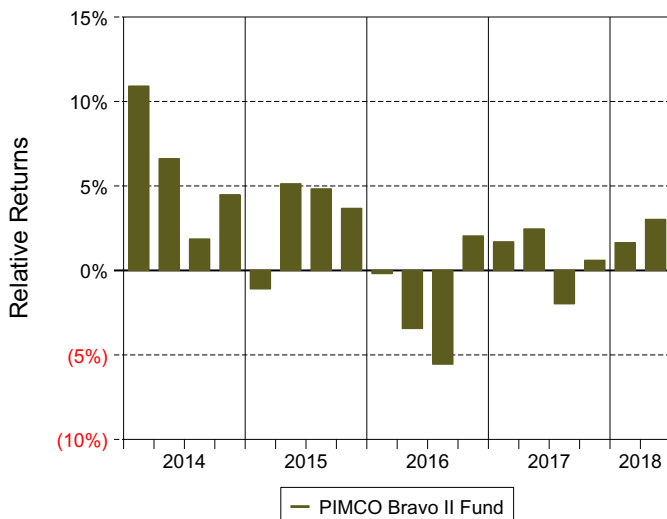
### Performance vs Callan High Yield Mutual Funds (Net)



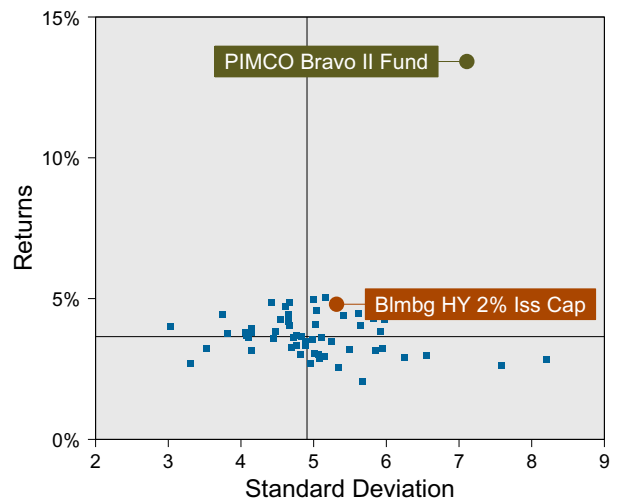
	Last Quarter	Fiscal Year	Last 2 Years	Last 3 Years	Last 4-1/2 Years
10th Percentile	1.11	3.05	7.64	5.24	4.62
25th Percentile	0.91	2.27	7.06	4.53	4.23
Median	0.61	1.80	6.19	3.96	3.65
75th Percentile	0.24	1.25	5.46	3.63	3.15
90th Percentile	(0.07)	0.33	5.12	3.28	2.80

	Last Quarter	Fiscal Year	Last 2 Years	Last 3 Years	Last 4-1/2 Years
<b>PIMCO Bravo II Fund</b> ●	4.05	6.00	9.63	8.75	13.42
Blmbg HY 2% Iss Cap ▲	1.03	2.62	7.54	5.54	4.80

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



### Callan High Yield Mutual Funds (Net) Annualized Four and One-Half Year Risk vs Return



# Global Real Estate Composite Period Ended June 30, 2018

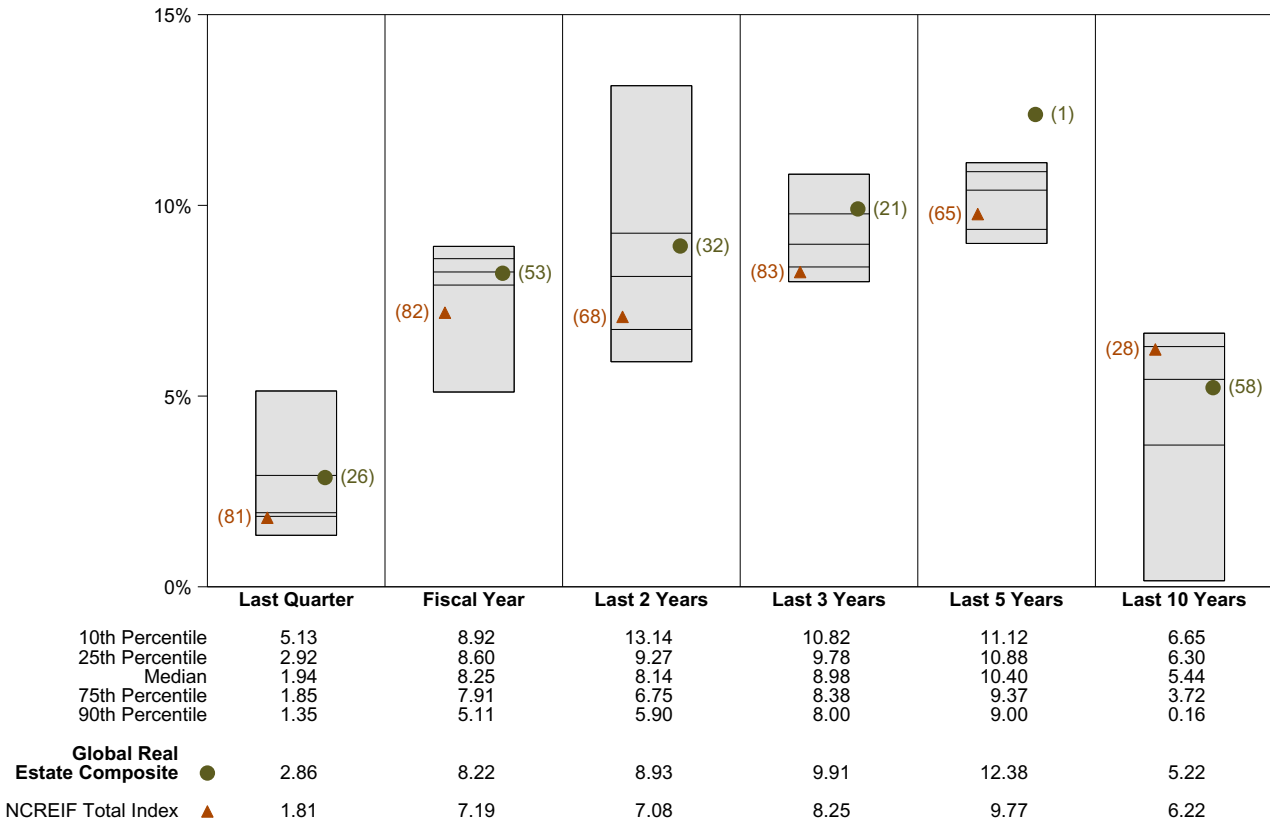
## Quarterly Summary and Highlights

- Global Real Estate Composite's portfolio posted a 2.86% return for the quarter placing it in the 26 percentile of the Public Fund - Real Estate group for the quarter and in the 53 percentile for the last year.
- Global Real Estate Composite's portfolio outperformed the NCREIF Total Index by 1.05% for the quarter and outperformed the NCREIF Total Index for the year by 1.03%.

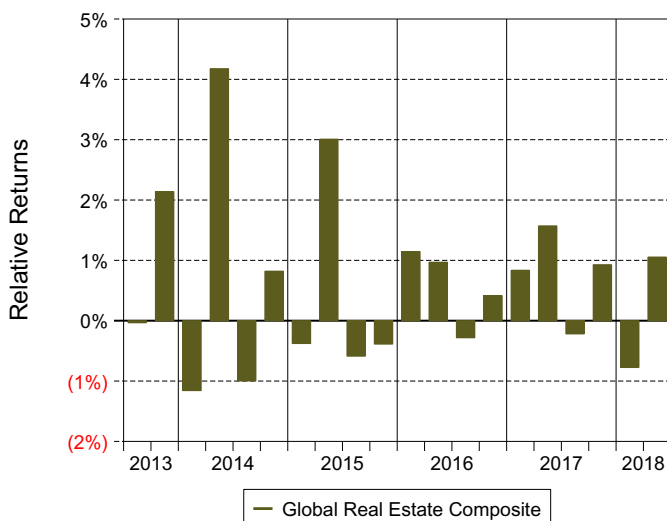
## Quarterly Asset Growth

Beginning Market Value	\$580,468,130
Net New Investment	\$-11,538,147
Investment Gains/(Losses)	\$16,498,132
Ending Market Value	\$585,428,115

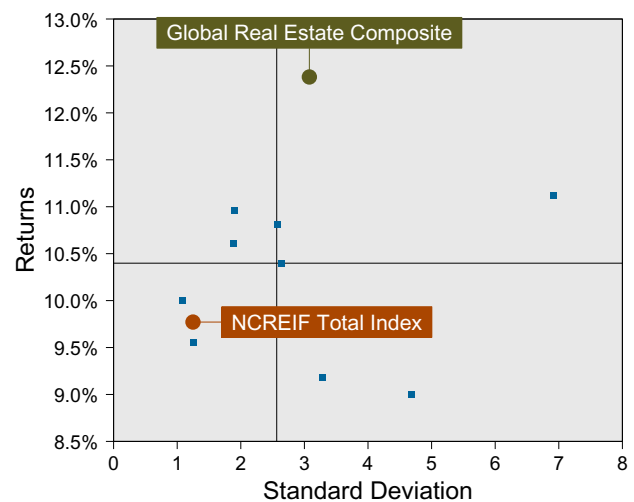
## Performance vs Public Fund - Real Estate (Gross)



## Relative Return vs NCREIF Total Index



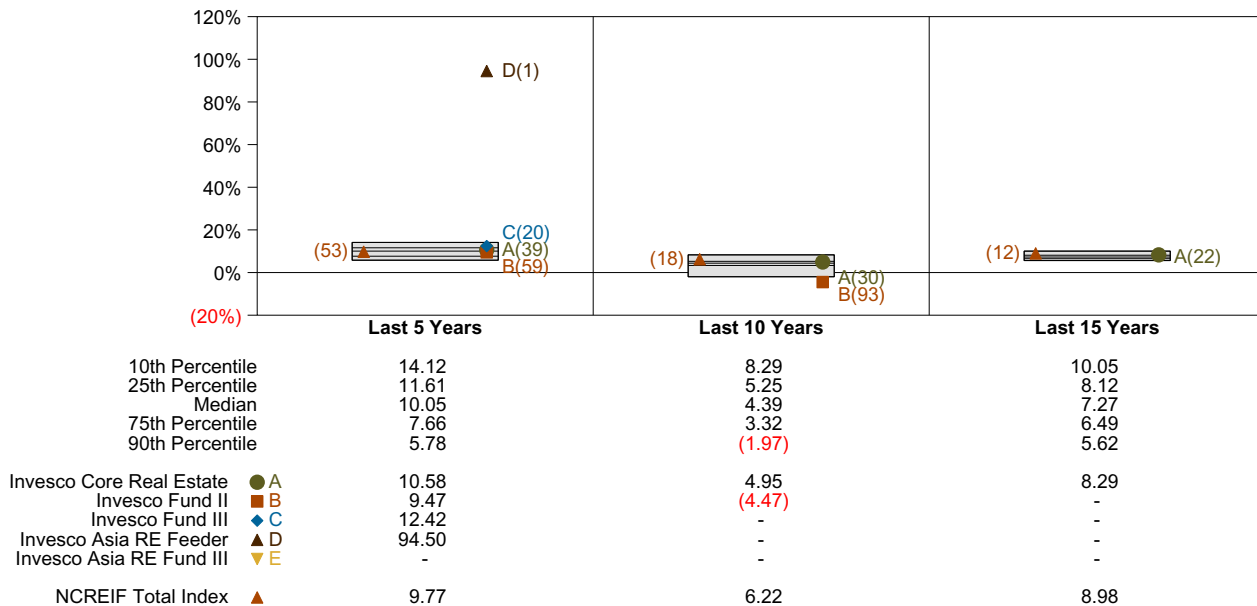
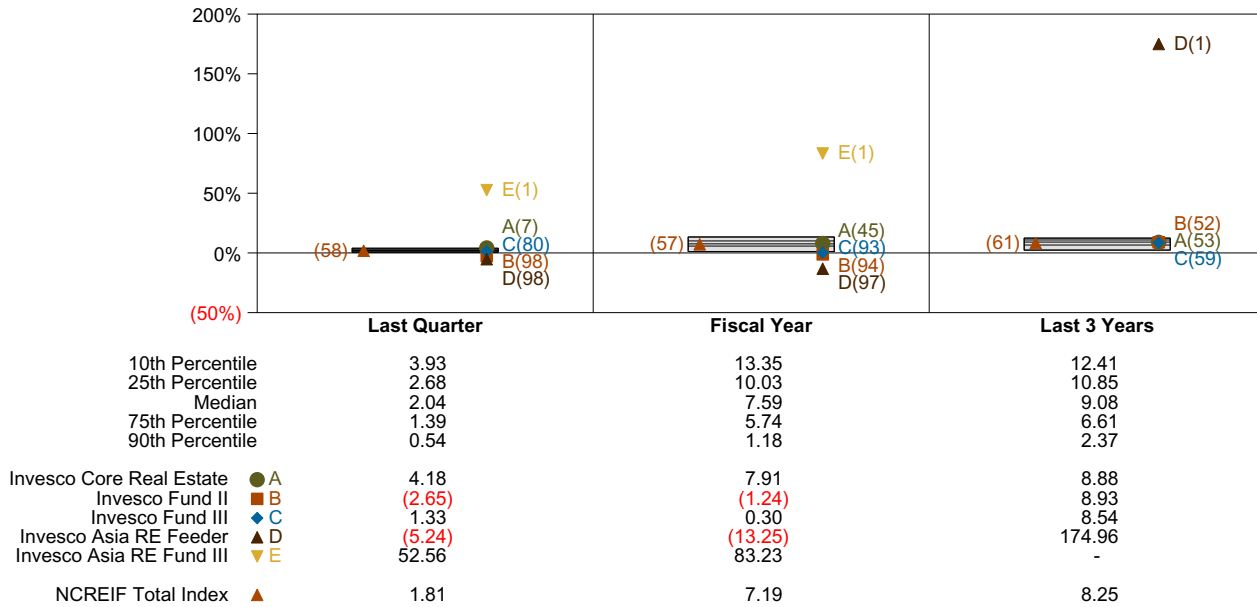
## Public Fund - Real Estate (Gross) Annualized Five Year Risk vs Return



# North Dakota State Investment Board Pension Funds Performance vs Callan Total Domestic Real Estate DB Periods Ended June 30, 2018

## Return Ranking

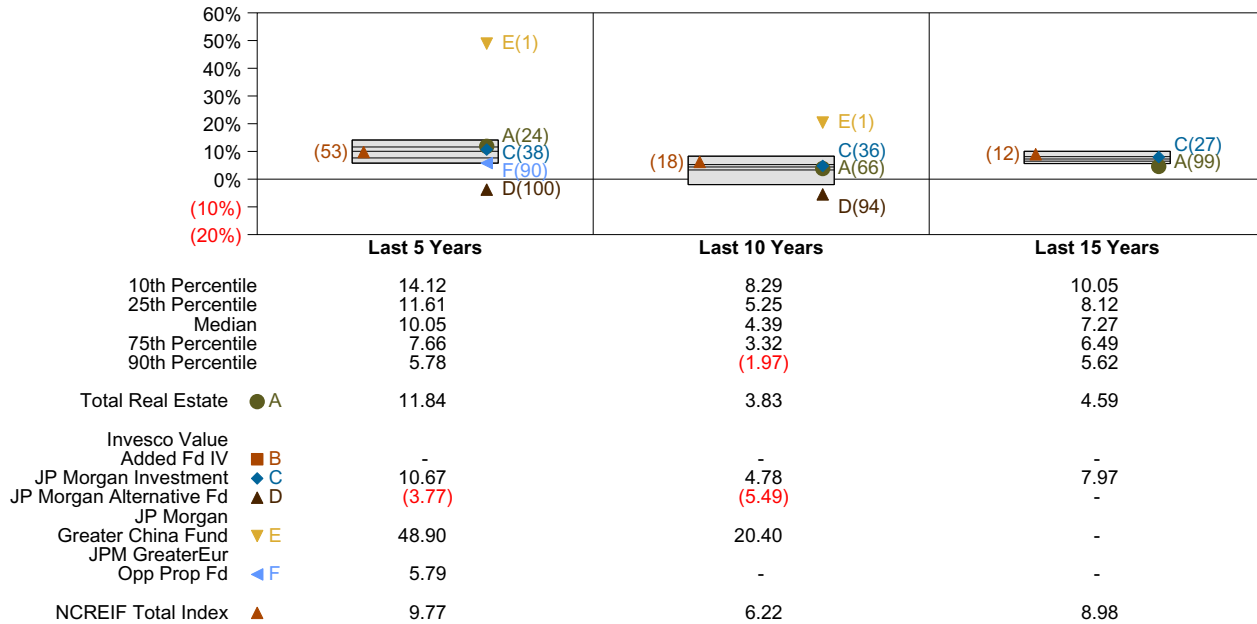
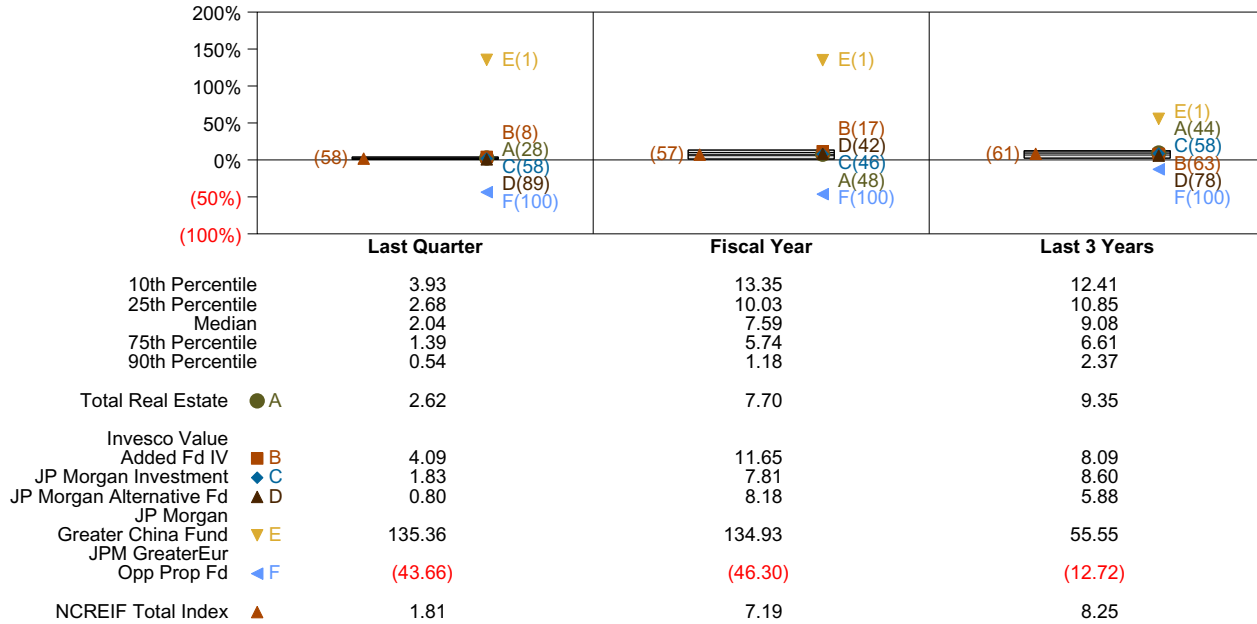
The chart below illustrates fund rankings over various periods versus the Callan Total Domestic Real Estate DB. The bars represent the range of returns from the 10th percentile to the 90th percentile for each period for all funds in the Callan Total Domestic Real Estate DB. The numbers to the right of 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 June 30, 2018

## 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 June 30, 2018

### Investment Philosophy

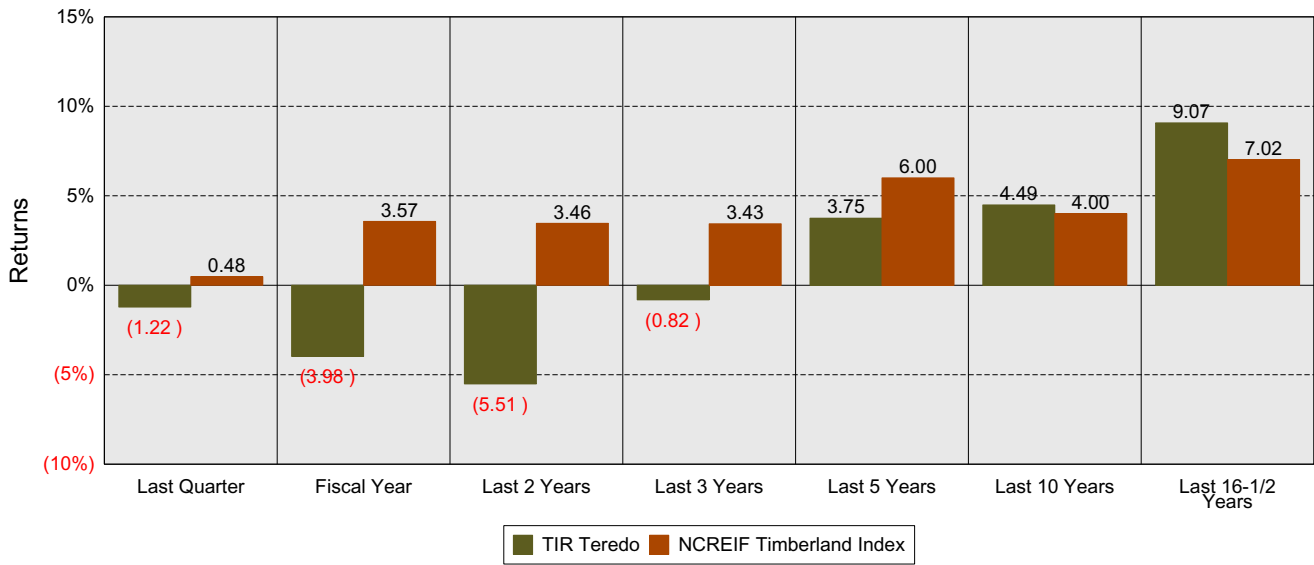
Teredo Timber LLC - The investment objective of Teredo is to provide competitive investment returns from increasing saw timber production through the 20 year term of the partnership. TIR's management strategy is to maximize saw timber volume by applying intensive forest management techniques which accelerate 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

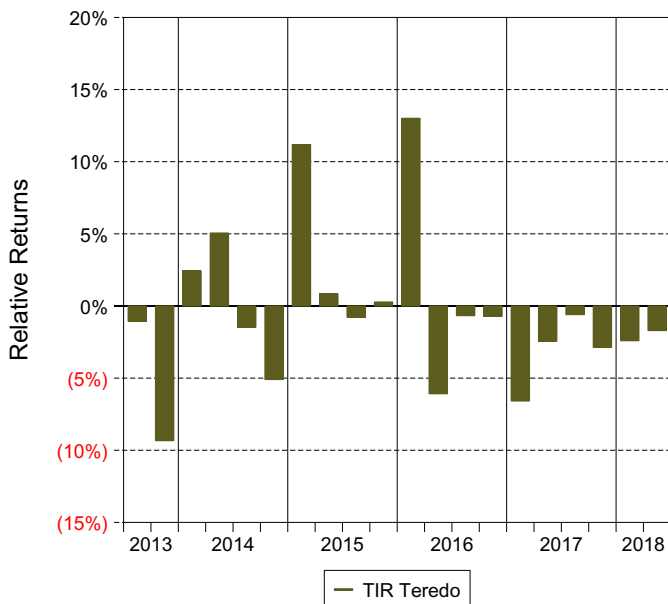
- TIR Teredo's portfolio underperformed the NCREIF Timberland Index by 1.70% for the quarter and underperformed the NCREIF Timberland Index for the year by 7.54%.

### Quarterly Asset Growth

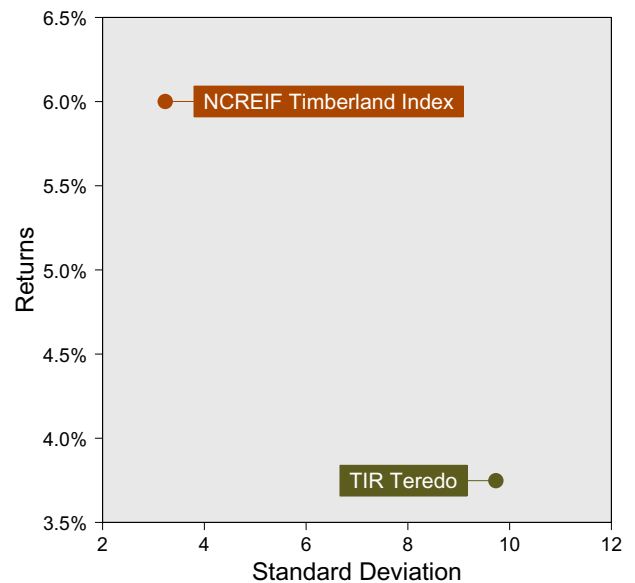
Beginning Market Value	\$30,567,272
Net New Investment	\$0
Investment Gains/(Losses)	\$-372,449
Ending Market Value	\$30,194,823



Relative Return vs NCREIF Timberland Index



Annualized Five Year Risk vs Return



# TIR Springbank

## Period Ended June 30, 2018

### Investment Philosophy

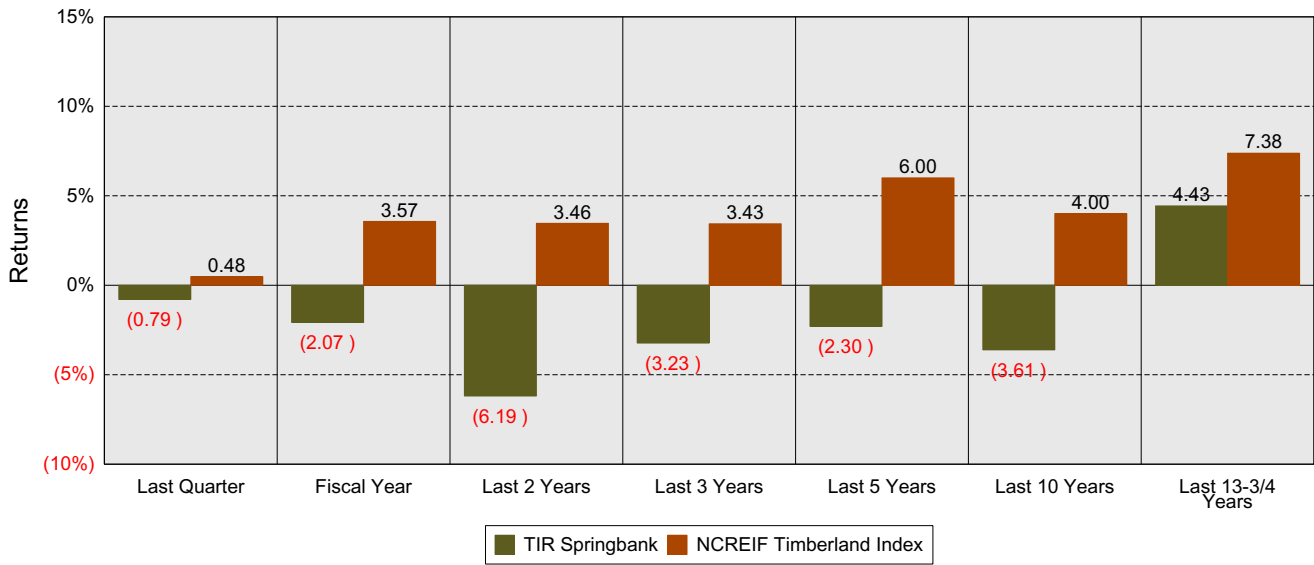
Springbank LLC - The investment objective of Springbank is to maximize long-term investment potential by means of the formation of a dedicated land management group, intensive timber management to increase timber production, the coordination of timber harvesting with land management activities and direct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

### Quarterly Summary and Highlights

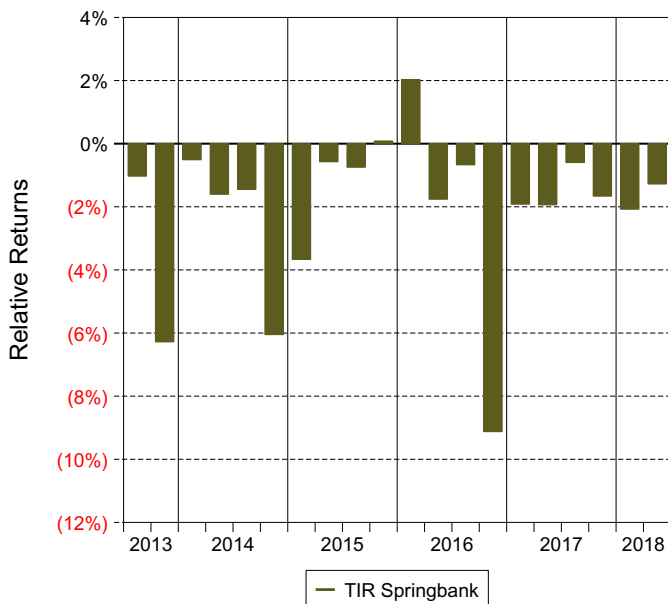
- TIR Springbank's portfolio underperformed the NCREIF Timberland Index by 1.28% for the quarter and underperformed the NCREIF Timberland Index for the year by 5.64%.

### Quarterly Asset Growth

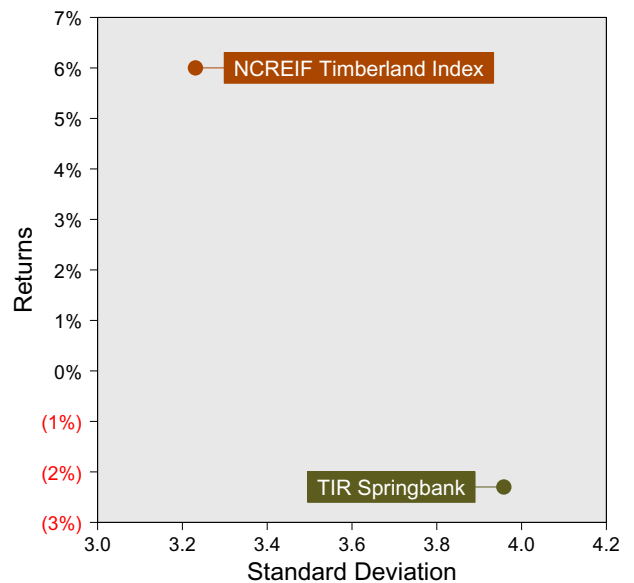
Beginning Market Value	\$100,737,892
Net New Investment	\$-1,140,000
Investment Gains/(Losses)	\$-788,443
Ending Market Value	\$98,809,449



Relative Return vs NCREIF Timberland Index



Annualized Five Year Risk vs Return



# JP Morgan Asian Infrastructure Period Ended June 30, 2018

## Investment Philosophy

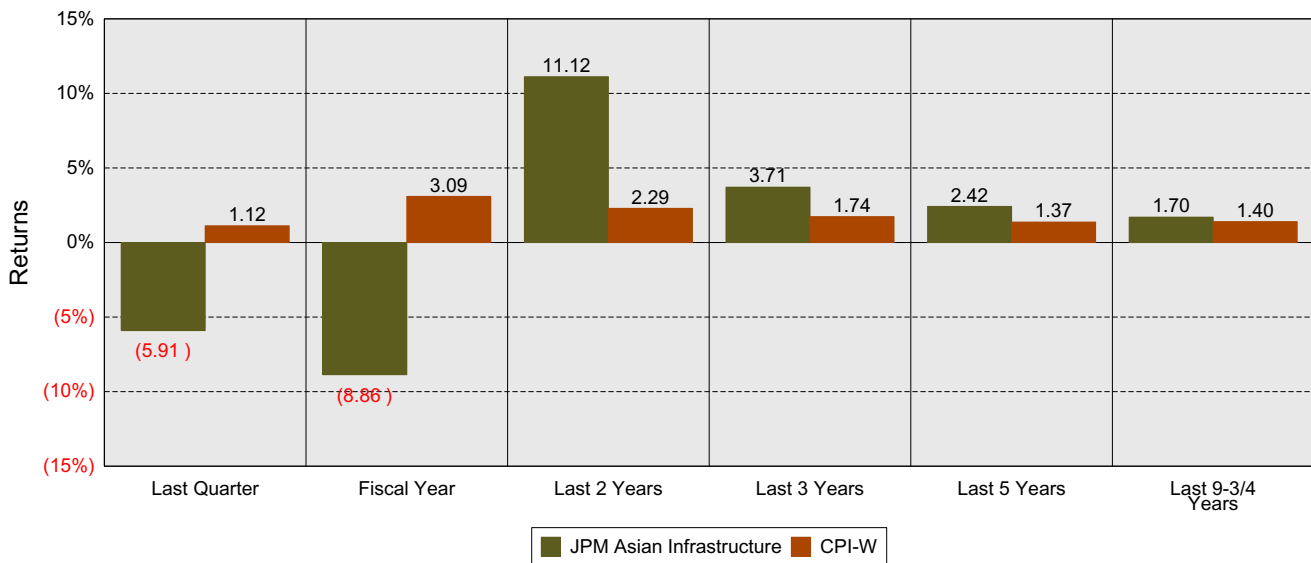
The JPMorgan Asian Infrastructure & Related Resources Opportunity ("AIRRO") Fund seeks to invest in infrastructure and related resources opportunities across the greater Asia Pacific region. The Fund seeks to invest in a broad range of assets, including: core infrastructure, power both from conventional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

## Quarterly Summary and Highlights

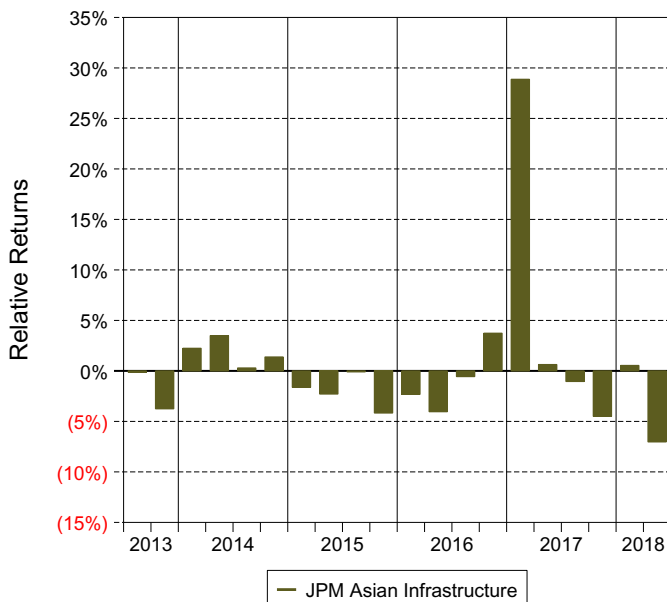
- JPM Asian Infrastructure's portfolio underperformed the CPI-W by 7.03% for the quarter and underperformed the CPI-W for the year by 11.95%.

## Quarterly Asset Growth

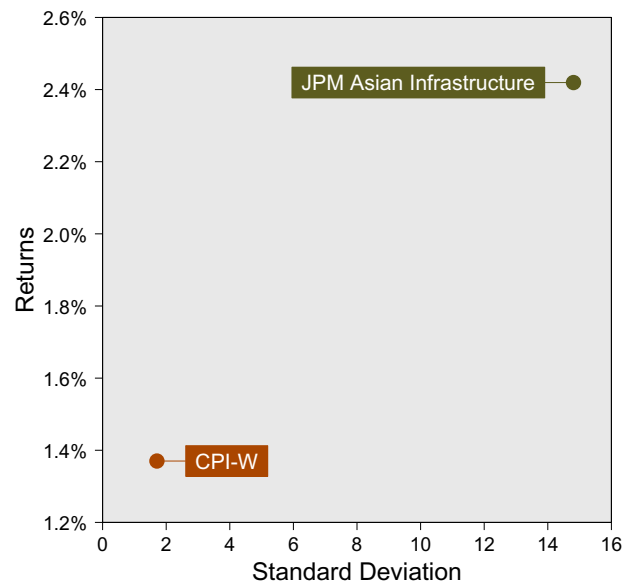
Beginning Market Value	\$23,171,567
Net New Investment	\$-664,258
Investment Gains/(Losses)	\$-1,327,514
Ending Market Value	\$21,179,795



Relative Return vs CPI-W



Annualized Five Year Risk vs Return



# JPM Infrastructure Fund Period Ended June 30, 2018

## Investment Philosophy

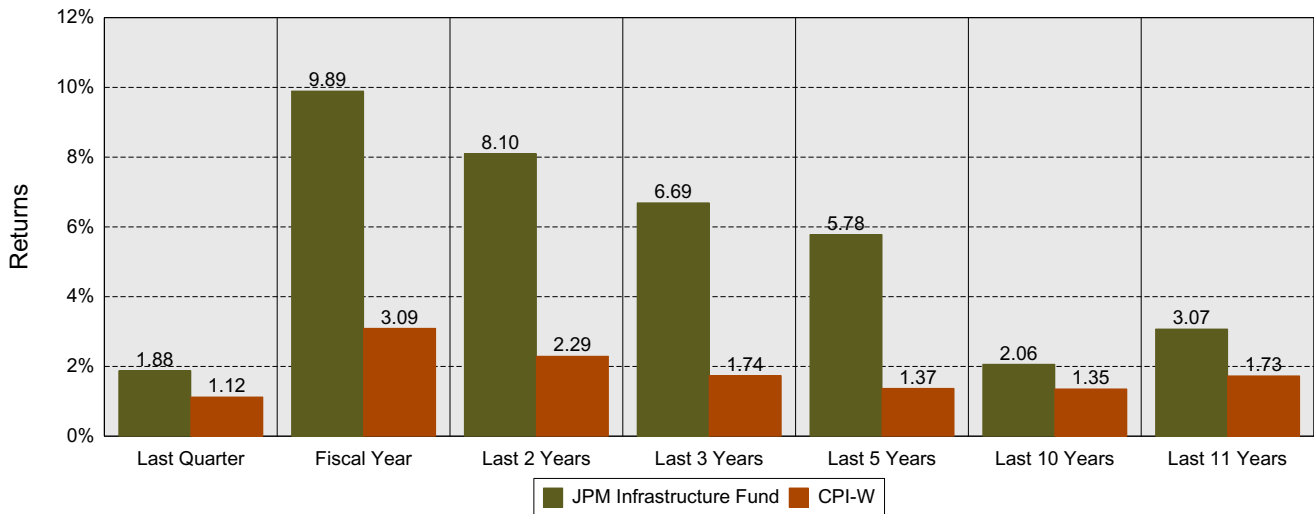
The only open-ended private commingled infrastructure fund in the U.S, the JPMorgan Infrastructure Investments Fund invests in stabilized assets in OECD countries with selected value-added opportunities, across infrastructure industry sub-sectors, including: toll roads, bridges and tunnels; oil and gas 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

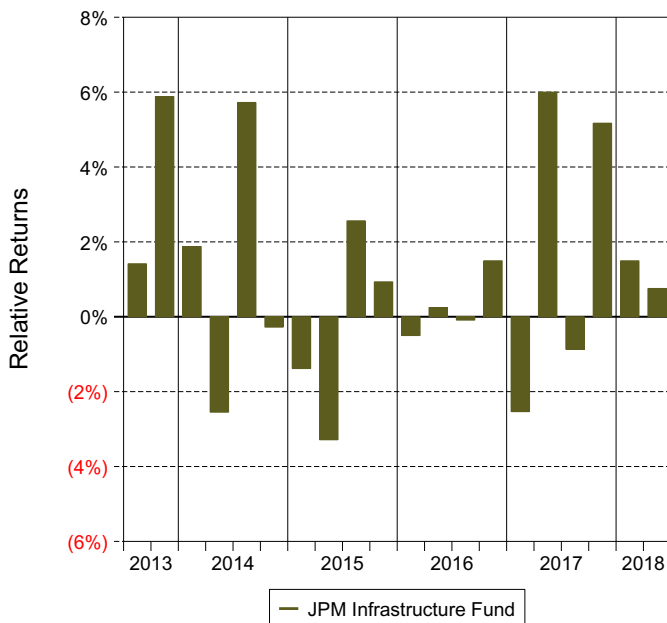
- JPM Infrastructure Fund's portfolio outperformed the CPI-W by 0.75% for the quarter and outperformed the CPI-W for the year by 6.80%.

## Quarterly Asset Growth

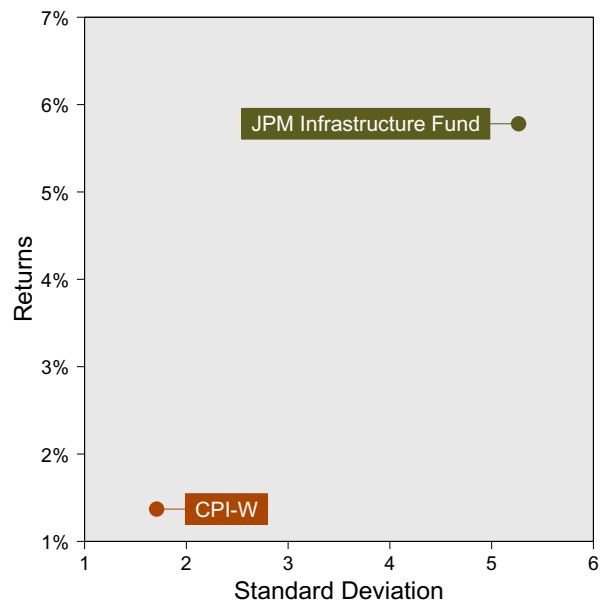
Beginning Market Value	\$192,911,300
Net New Investment	\$-3,245,005
Investment Gains/(Losses)	\$3,622,399
Ending Market Value	\$193,288,694



Relative Return vs CPI-W



Annualized Five Year Risk vs Return



# Grosvenor Cust. Infrastructure Period Ended June 30, 2018

## Investment Philosophy

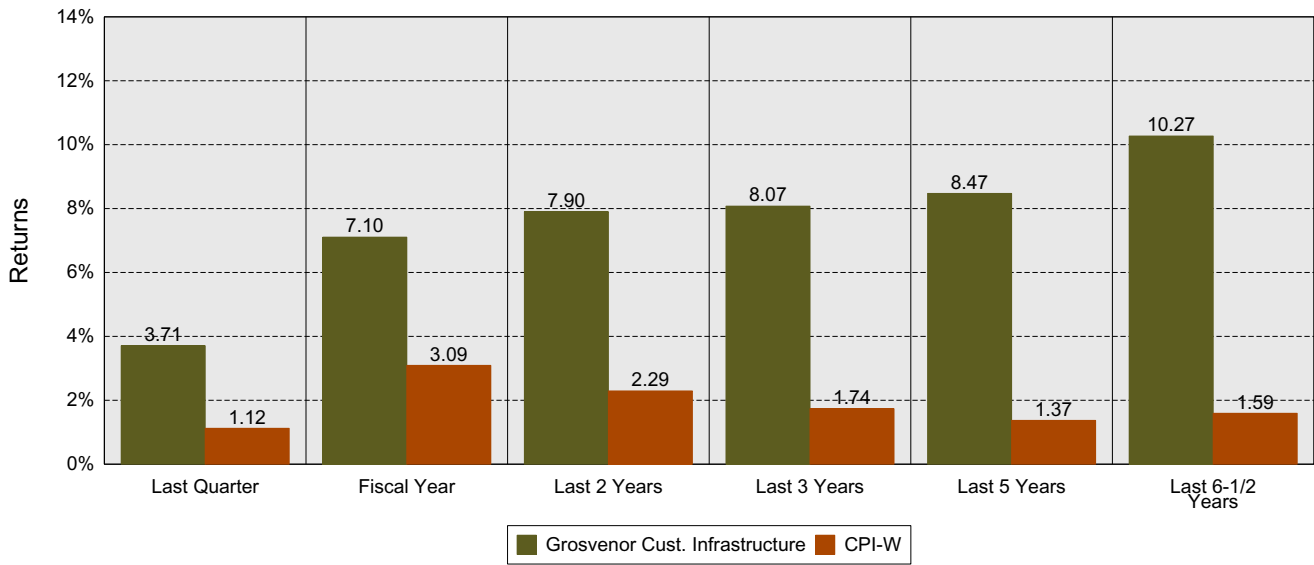
The Customized Infrastructure Strategies LP is a commingled fund focused on providing a comprehensive, diversified solution for investors looking to access the infrastructure asset class. The Fund seeks to generate stable, long-term yield and attractive risk-adjusted returns by investing in a diversified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

## Quarterly Summary and Highlights

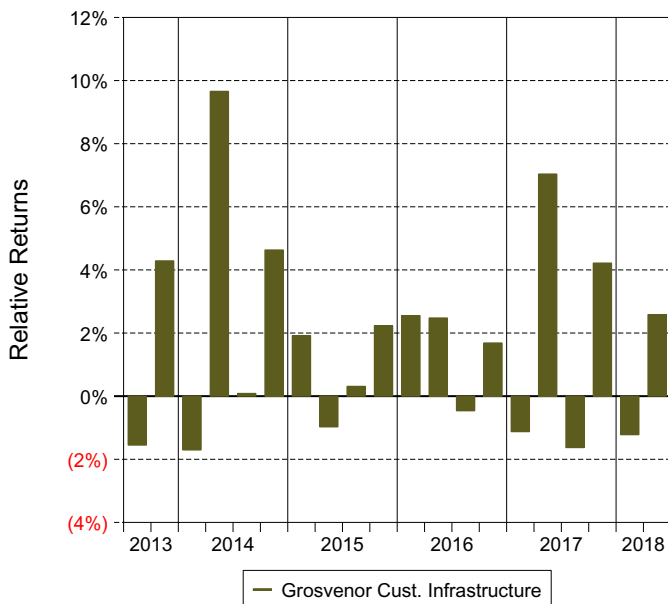
- Grosvenor Cust. Infrastructure's portfolio outperformed the CPI-W by 2.58% for the quarter and outperformed the CPI-W for the year by 4.01%.

## Quarterly Asset Growth

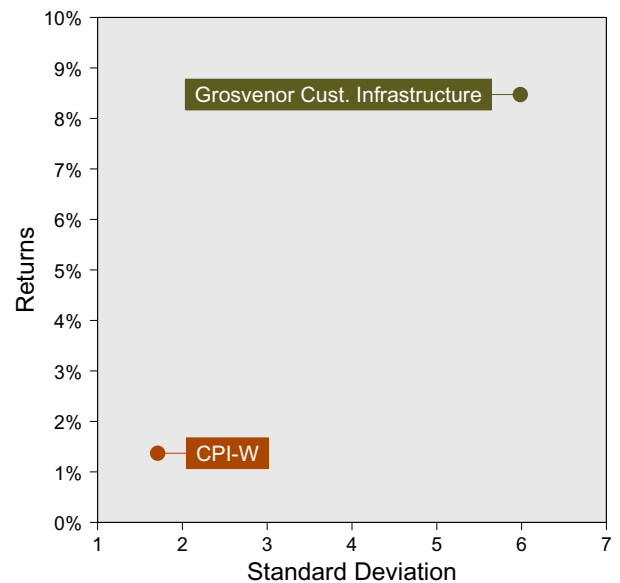
Beginning Market Value	\$33,753,732
Net New Investment	\$0
Investment Gains/(Losses)	\$1,251,222
Ending Market Value	\$35,004,954



Relative Return vs CPI-W



Annualized Five Year Risk vs Return



# Grosvenor Cust. Infrastructure II Period Ended June 30, 2018

## Investment Philosophy

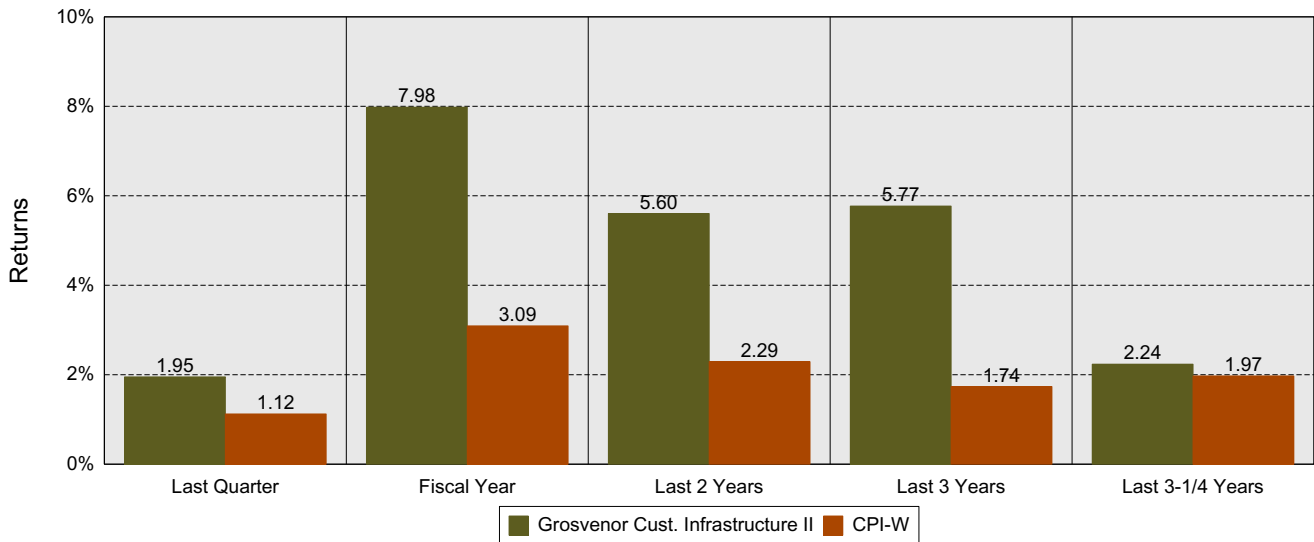
The Customized Infrastructure Strategies LP is a commingled fund focused on providing a comprehensive, diversified solution for investors looking to access the infrastructure asset class. The Fund seeks to generate stable, long-term yield and attractive risk-adjusted returns by investing in a diversified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

## Quarterly Summary and Highlights

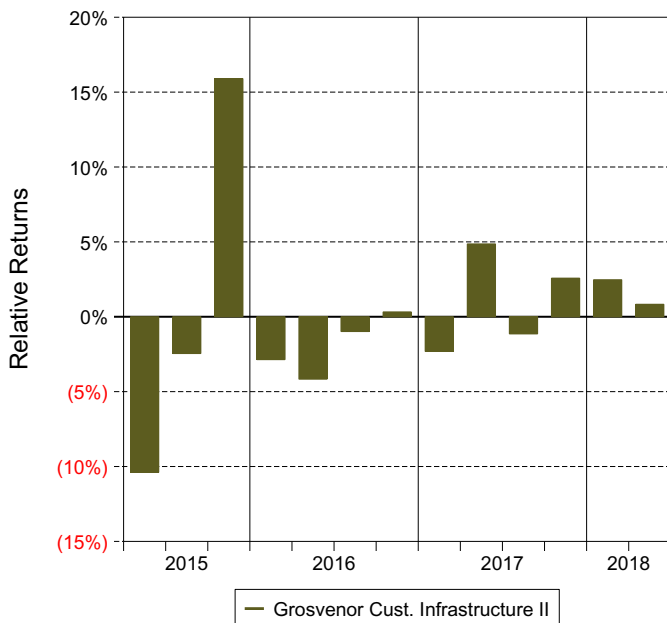
- Grosvenor Cust. Infrastructure II's portfolio outperformed the CPI-W by 0.83% for the quarter and outperformed the CPI-W for the year by 4.89%.

## Quarterly Asset Growth

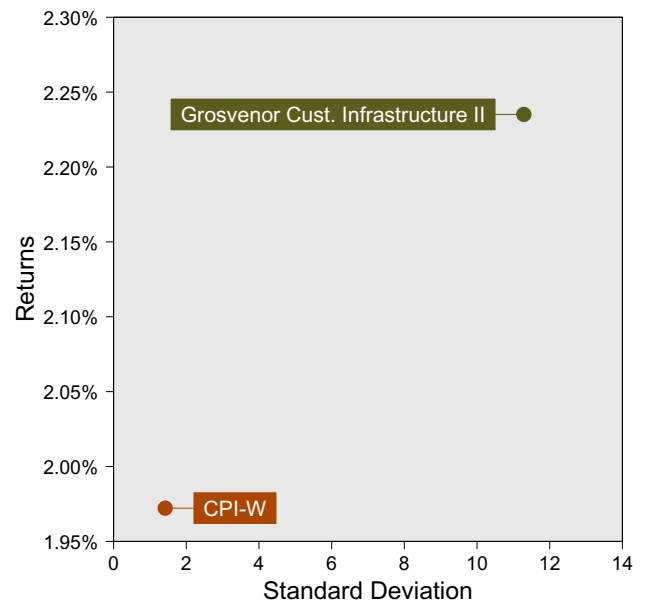
Beginning Market Value	\$15,641,405
Net New Investment	\$0
Investment Gains/(Losses)	\$305,129
Ending Market Value	\$15,946,534



Relative Return vs CPI-W



Annualized Three and One-Quarter Year Risk vs Return



## Research and Educational Programs

The Callan Institute provides 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 Corry Walsh at 312.346.3536 / [institute@callan.com](mailto:institute@callan.com).

## New Research from Callan’s Experts



**Handle With Extreme Care: Callan’s Take on Cryptocurrencies** | In this paper, author Mark Wood provides a brief overview of cryptocurrencies and addresses primary considerations for potential investors.

He describes why Callan does not currently recommend our clients allocate to cryptocurrency investment strategies, and where we see the greatest future potential in this space.

**Risk Parity: Silver Bullet or a Bridge Too Far?** | In this chapter from the CFA Institute’s book “Multi-Asset Strategies: The Future of Investment Management,” Callan’s Greg Allen describes risk parity strategies, a category of investment strategies in which capital is allocated across asset classes so that each contributes an equal amount of volatility to the portfolio’s total volatility.

**China A-Shares: Key Issues for Investors to Consider** | China is opening up its securities markets to more non-Chinese institutional investors. In particular, expanded access to China A-shares creates new opportunities for investors. But investing in China presents a set of risks that range from the country’s slowing GDP growth to stock trading suspensions. Although China A-shares present an attractive opportunity, implementation is challenged by a shallow manager universe and high fees.

**June 2018 Regional Workshop Summary: Governance Alpha** | Investment committees face complex challenges overseeing institutional investment funds. They must navigate myriad laws and regulations, select the right managers and strategies, monitor their portfolios, and ensure their funds can deliver the returns needed for their beneficiaries. Governance describes the policies and practices established to guide these decisions. What if implementing the

astute governance required to meet these challenges also resulted in better portfolio performance? At this workshop, Callan experts described the most effective institutional fund governance practices and explored new research that connects strong plan governance with performance (i.e., governance alpha), and reviewed how investment managers fit into this framework.

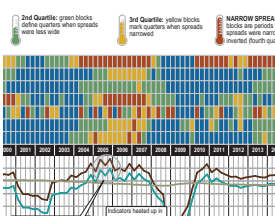
## Quarterly Periodicals

**Private Markets Trends** | This newsletter offers the latest data on activity in private equity fundraising, buyouts, venture capital, and returns for this asset class.

**Market Pulse Flipbook** | 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** | This quarterly publication provides analysis and a broad overview of the economy and public and private market activity each quarter across a wide range of asset classes.

**Active vs. Passive Report** | This series of charts maps active managers alongside relevant benchmarks over the last two decades.



**Real Estate Indicators: Too Hot to Touch or Cool Enough to Handle?** |

Callan’s Real Assets Consulting group identifies seven indicators—based on spreads in real estate and fixed income markets—that, combined with

an understanding of prevailing market dynamics, have helped signal when the institutional real estate market is overheated or cooled.

## 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 **October Regional Workshops** will be held on October 16 in New York and October 18 in Atlanta. Please visit the Events page on our website ([www.callan.com/events/](http://www.callan.com/events/)) for additional information.

Callan's **2019 National Conference** will be held January 28-30, 2019. Mark your calendars for this upcoming event!

**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

*Chicago, October 2-3, 2018*

*Atlanta, October 23-24, 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



**"Research is the foundation of all we do at Callan, and sharing our best thinking with the investment community is our way of helping to foster dialog to raise the bar across the industry."**

Greg Allen, CEO and CRO



## 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 a complimentary basis (e.g. attending and 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
Acadian Asset Management LLC
AEGON USA Investment Management
Affiliated Managers Group, Inc.
Alcentra
AllianceBernstein
Allianz Global Investors
Allianz Life Insurance Company of North America
American Century Investments
Apollo Global Management
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Atlanta Capital Management Co., LLC
Aviva Investors Americas
AXA Investment Managers
Baillie Gifford International, LLC
Baird Advisors
Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
BlackRock
BMO Global Asset Management
BNP Paribas Asset Management
BNY Mellon Asset Management
Boston Partners
Brandes Investment Partners, L.P.
Brandywine Global Investment Management, LLC
BrightSphere Investment Group (FKA Old Mutual Asset)
Brown Brothers Harriman & Company
Cambiar Investors, LLC
Capital Group
Carillon Tower Advisers
CastleArk Management, LLC
Causeway Capital Management
Chartwell Investment Partners

Manager Name
ClearBridge Investments, LLC
Cohen & Steers Capital Management, Inc.
Columbia Threadneedle Investments
Columbus Circle Investors
Credit Suisse Asset Management
DePrince, Race & Zollo, Inc.
Deutsche Asset Management
Diamond Hill Capital Management, Inc.
Dimensional Fund Advisors LP
Doubleline
Duff & Phelps Investment Management Co.
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
Fred Alger Management, Inc.
GAM (USA) Inc.
Global Evolution USA
GlobeFlex Capital, L.P.
GMO
Goldman Sachs Asset Management
Green Square Capital LLC
Guggenheim Investments
GW&K Investment Management
Harbor Capital Group Trust
Hartford Funds
Hartford Investment Management Co.

Manager Name
Heitman LLC
Henderson Global Investors
Hotchkis & Wiley Capital Management, LLC
HSBC Global Asset Management
Income Research + Management, Inc.
Insight Investment Management Limited
Intech Investment Management, LLC
Invesco
Investec Asset Management
Ivy Investments
J.P. Morgan
Janus Henderson Investors
Jennison Associates LLC
Jensen Investment Management
Jobs Peak Advisors
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 (MIM)
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.
Natixis Investment Managers
Neuberger Berman
Newton Investment Management
Nikko Asset Management Co., Ltd.
Northern Trust Asset Management
Nuveen Investments, Inc.
OFI Global Asset Management
O'Shaughnessy Asset Management, LLC
P/E Investments
Pacific Investment Management Company
Pathway Capital Management
Peregrine Capital Management, Inc.
Perkins Investment Management

Manager Name
PGIM
PGIM Fixed Income
PineBridge Investments
Pioneer Investments
PNC Capital Advisors, LLC
Principal Global Investors
Private Advisors, LLC
Putnam Investments, LLC
QMA
RBC Global Asset Management
Regions Financial Corporation
Robeco Institutional Asset Management, US Inc.
Rockefeller & Co., Inc.
Rothschild Asset Management, Inc.
Russell Investments
Santander Global Facilities
Schroder Investment Management North America Inc.
Smith Graham & Co. Investment Advisors, L.P.
Smith Group Asset Management
South Texas Money Management, Ltd.
Standard Life Investments Limited
State Street Global Advisors
Stone Harbor Investment Partners, L.P.
Sun Life Investment Management
T. Rowe Price Associates, Inc.
The Boston Company Asset Management, LLC
The London Company
The TCW Group, Inc.
Thompson, Siegel & Walmsley LLC
Thornburg Investment Management, Inc.
Tri-Star Trust Bank
UBS Asset Management
VanEck
Velanne Asset Management Ltd.
Versus Capital Group
Victory Capital Management Inc.
Virtus Investment Partners, Inc.
Vontobel Asset Management, Inc.
Voya
WCM Investment Management
WEDGE Capital Management
Wellington Management Company, LLP
Wells Capital Management
Western Asset Management Company
Westfield Capital Management Company, LP
Westwood Holdings Group
William Blair & Company

June 30, 2018



## **North Dakota State Investment Board Legacy Fund**

**Investment Measurement Service  
Quarterly Review**

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Information contained herein includes confidential, trade secret and proprietary information. Neither this Report nor any specific information contained herein is to be used other than by the intended recipient for its intended purpose or disseminated to any other person without Callan's permission. Certain information herein has been compiled by Callan and is based on information provided by a variety of sources believed to be reliable for which Callan has not necessarily verified the accuracy or completeness of or updated. This content may consist of statements of opinion, which are made as of the date they are expressed and are not statements of fact. This content is for informational purposes only and should not be construed as legal or tax advice on any matter. Any decision you make on the basis of this content is your sole responsibility. You should consult with legal and tax advisers before applying any of this information to your particular situation. Past performance is no guarantee of future results. For further information, please see Appendix for Important Information and Disclosures.

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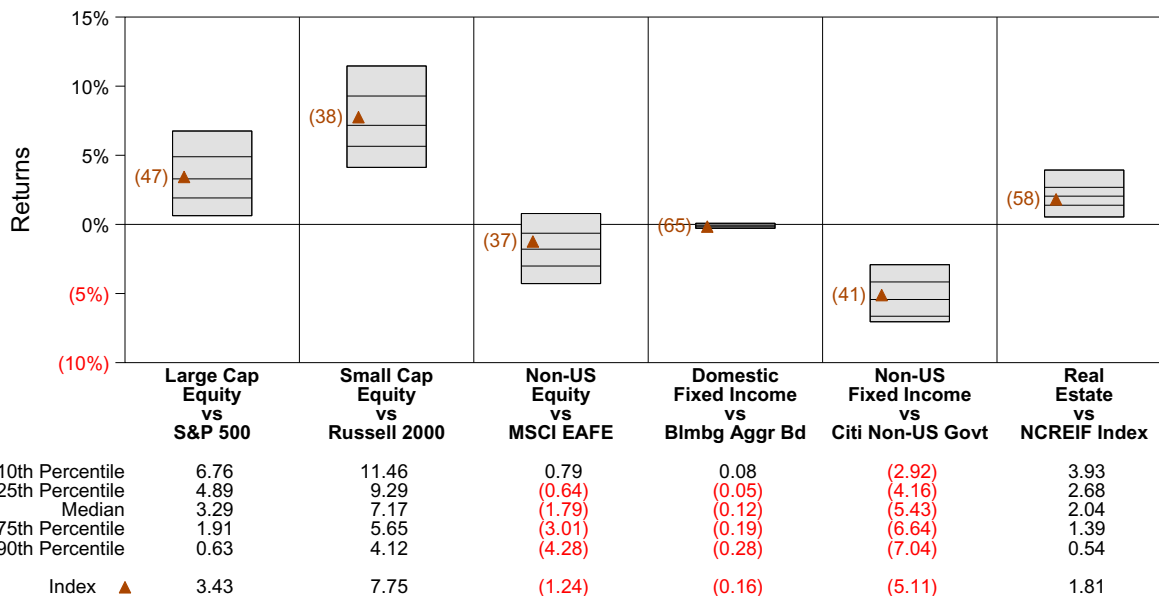
## Market Overview

### Active Management vs Index Returns

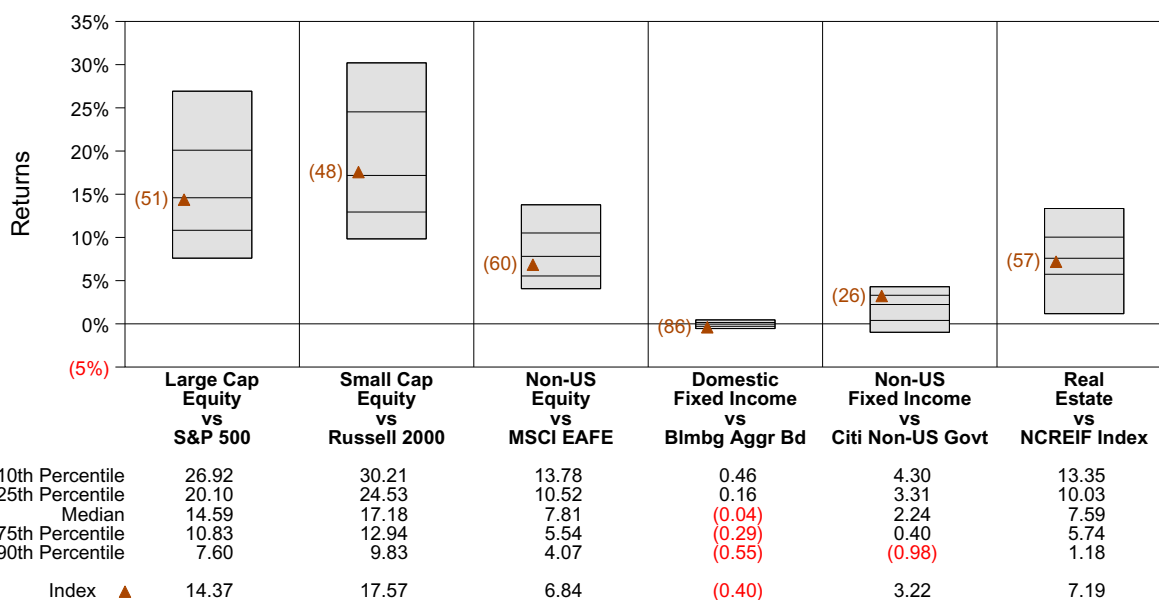
#### Market Overview

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 June 30, 2018



#### Range of Separate Account Manager Returns by Asset Class One Year Ended June 30, 2018





Second Quarter 2018

### Is This It for the Economic Recovery?

#### ECONOMY

**2** GDP growth hit 4.1% in the second quarter, the strongest rate since 2014. Many other economic indicators corroborate a story of a thriving U.S. economy. But are imbalances arising that mean we are reaching the peak in the current cycle?

### Tough Quarter but Brighter in Long Term

#### FUND SPONSOR

**4** The median fund sponsor in Callan's database rose 0.9% in the quarter, while a 60% equity/40% fixed income benchmark increased 2%. Over a 15-year time period all plans, by type and size, grew roughly in line with the benchmark.

### Another Gap Between U.S. and Overseas

#### EQUITY

**6** U.S. stocks rose on strong earnings and robust economic growth. Small cap stocks outperformed large caps, which were held down by trade worries. Trade woes also hit non-U.S. stocks, with most major indices in the red. Emerging market stocks were hit particularly hard.

### Trade Turbulence Troubles Bonds

#### FIXED INCOME

**8** U.S. rates rose in the quarter, and the yield curve continued to flatten. The Bloomberg Barclays US Aggregate Bond Index fell 0.2%, while high yield rebounded. Most non-U.S. indices fell in the quarter; emerging market bonds were the biggest losers.

### Show Me the Money: Income Helps Returns

#### REAL ESTATE

**10** U.S. core real estate returns are shifting toward income, rather than appreciation. Spreads between core and value-add strategies remain tight. Industrial was the best-performing sector in the quarter. Overseas markets are attracting interest.

### Languid Summer for Private Markets

#### PRIVATE EQUITY

**12** With the public market zig-zagging sideways, private equity activity slowed modestly. Fundraising picked up in the quarter but is slightly behind last year's first half. Company investments and exits trended down, with the venture-backed IPO market a bright spot.

### Trade Spat Rains on Risk Parade

#### HEDGE FUNDS/MACs

**13** Event-driven hedge funds were the quarter's steadier contributors. Emerging market-focused hedge funds fell but avoided the big losses of underlying indices. Rising rates should be a tailwind for managers. Callan's MAC Style Groups struggled and trailed a 60/40 benchmark.

### DC Plans Struggle in Turbulent Market

#### DEFINED CONTRIBUTION

**15** The Callan DC Index™ fell 0.2% in the first quarter, although it performed better than the Age 45 Target Date Fund, which dropped 0.5%. DC plan balances grew slightly (+0.1%) in the quarter. The DC Index's equity allocation fell for the first time in seven quarters.

## Broad Market Quarterly Returns

U.S. Equity  
Russell 3000



+3.9%

Non-U.S. Equity  
MSCI ACWI ex USA



-2.6%

U.S. Fixed Income  
Bloomberg Barclays Agg



-0.2%

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



-4.8%

Sources: Bloomberg Barclays, MSCI, FTSE Russell

# Is This It?

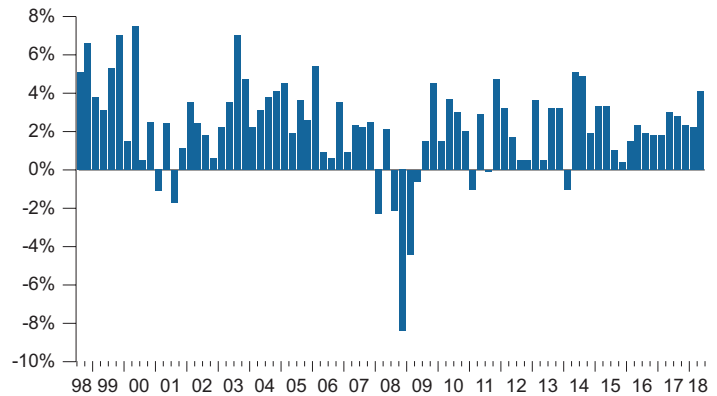
ECONOMY | Jay Kloepfer

Real GDP growth in the U.S. hit 4.1% in the second quarter of 2018, the strongest quarterly gain since 2014. Many indicators corroborate the story of a thriving American economy: low unemployment, robust consumer spending, elevated business and consumer confidence, and growth in non-residential investment. However, a big contributor to growth was a surge in exports, likely due to stockpiling ahead of tariffs imposed at the end of the quarter, which may not be sustained for long. Global growth is de-synchronizing, with signs of deceleration emerging in Europe, Japan, and China. Oil prices have rebounded from the lows of 2014, and inflationary pressures such as wages are gradually building. The Fed raised interest rates for the second time this year in June, and it is telegraphing two more hikes before the end of 2018 and perhaps three in 2019. While the tax cuts at the end of 2017 (a form of stimulative spending by the federal government) are buoying consumer spending, we may be reaching a peak in the current cycle.

Expansions do not die of “old age”; elapsed time is not an economic variable. In addition, the current expansion has seen one of the slowest rates of GDP growth, an average of just 2.2%, compared to a typical expansion average of 3% or greater. That said, the current expansion is one of the longest on record, and it is the imbalances that can develop during long expansions that ultimately lead to a correction. Diverging global growth, and the resetting of monetary policy in the U.S. to return to “normal” ahead of plans by other countries’ central banks, means higher interest rates in the economy with the strongest growth and upward pressure on the U.S. dollar. A more expensive dollar will make U.S. exports more costly, at a time of increased trade uncertainty following the imposition of tariffs. Higher interest rates mean higher borrowing costs, after a decade of cheap debt for those who could get it. The tight labor market poses another source of imbalance, with unemployment dipping to a generational low of 3.8% in May, employers facing challenges hiring talent, and wage pressures gradually building.

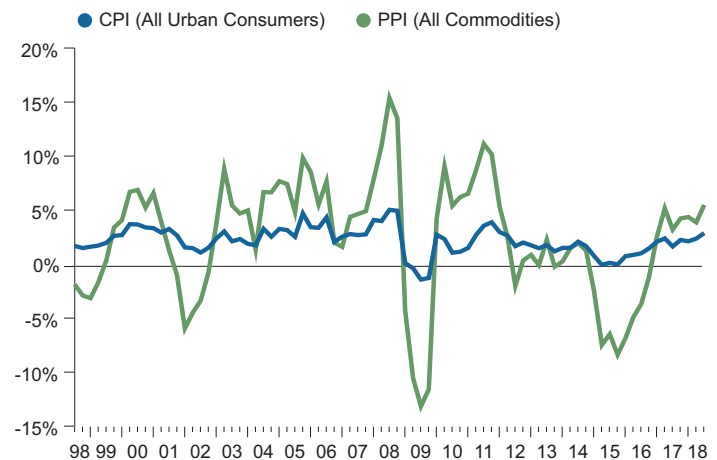
## Quarterly Real GDP Growth

(20 Years)



Source: Bureau of Economic Analysis

## Inflation Year-Over-Year



Source: Bureau of Labor Statistics

The second quarter was clearly another high point for the U.S. economy in the long rebound since 2009. U.S. exports surged 9.3% in the quarter, accounting for a fourth of total GDP growth. With growth weakening in American trading partners, the increase in exports to them does not likely represent a surge in demand but a shift in timing, which will show up in subsequent



quarters. The tax cut represents a potentially large fiscal stimulus, and consumers have certainly responded, driving consumption spending 4% during the quarter and accounting for two-thirds of GDP growth. Business investment of the tax cut is mixed; equipment spending grew more slowly in the first half of the year compared to 2017, while investment in structures surged at an annual rate of more than 13% in each of the first two quarters. One surprise in the quarter was a drop in inventory investment, which actually subtracted 1 percentage point from GDP. The upshot is that GDP growth could have been as high as 5%, and the economy now has greater capacity to rebuild inventory, suggesting a boost to future growth.

Another surprise in the GDP report was a drop in residential investment. The housing market has been a bit of a riddle as this long recovery has unfolded. The inventory of existing single-family homes reached its lowest reading on record for the month of May (1.65 million). Inventory levels keep dropping, reaching a supply of 4.1 months in June while a 6-month supply is considered normal. Yet home prices are high and rising everywhere. The FHA reported that home price indices rose year-over-year in the first quarter in all 50 states and in each of the 100 largest metro areas. The number of homes worth less than their mortgage has dropped by 80% since 2011, which should lead to an increase in potential inventory. Three factors have weighed on the inventory of homes for sale. A substantial number of single-family homes were converted to rental units starting in 2006. Second, Americans don't move as much; mobility in 2017 dropped to a post-World War II low. Third, starts have been hindered for 10 years on the supply side, with high

### The Long-Term View

Index	2018 2nd Qtr	Periods ended Dec. 31, 2017			
		Year	5 Yrs	10 Yrs	25 Yrs
<b>U.S. Equity</b>					
Russell 3000	3.89	21.13	15.58	8.60	9.72
S&P 500	3.43	21.83	15.79	8.50	9.69
Russell 2000	7.75	14.65	14.12	8.71	9.54
<b>Non-U.S. Equity</b>					
MSCI ACWI ex USA	-2.61	27.19	6.80	1.84	–
MSCI Emerging Markets	-7.96	37.28	4.35	1.68	–
MSCI ACWI ex USA Small Cap	-2.60	31.65	10.03	4.69	–
<b>Fixed Income</b>					
Bloomberg Barclays Agg	-0.16	3.54	2.10	4.01	5.48
90-Day T-Bill	0.45	0.86	0.27	0.39	2.60
Bloomberg Barclays Long G/C	-1.45	10.71	4.43	7.26	7.67
Bloomberg Barclays GI Agg ex US	-4.76	10.51	-0.20	2.40	5.02
<b>Real Estate</b>					
NCREIF Property	1.76	6.96	10.19	6.08	9.12
FTSE NAREIT Equity	10.04	5.23	9.46	7.44	10.76
<b>Alternatives</b>					
CS Hedge Fund	0.10	7.12	4.23	3.24	–
Cambridge PE*	3.03	19.33	13.86	9.09	15.62
Bloomberg Commodity	0.40	1.70	-8.45	-6.83	2.47
Gold Spot Price	-5.48	13.68	-4.82	4.56	5.63
<b>Inflation – CPI-U</b>	0.98	2.11	1.43	1.61	2.23

\*Data for most recent period lags by a quarter

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

timber and construction costs, a shortage of building sites, and restricted access to credit. Demand may be there, but builders have been unable to put up enough homes.

### Recent Quarterly Economic Indicators

	2Q18	1Q18	4Q17	3Q17	2Q17	1Q17	4Q16	3Q16
Employment Cost–Total Compensation Growth	2.8%	2.7%	2.6%	2.5%	2.4%	2.4%	2.2%	2.3%
Nonfarm Business–Productivity Growth	3.6%	0.4%	0.3%	2.6%	1.7%	0.2%	1.1%	2.4%
GDP Growth	4.1%	2.2%	2.3%	2.8%	3.0%	1.8%	1.8%	1.9%
Manufacturing Capacity Utilization	75.4%	75.3%	75.2%	74.4%	74.9%	74.6%	74.4%	74.3%
Consumer Sentiment Index (1966=100)	98.3	98.9	98.4	95.1	96.4	97.2	93.2	90.3

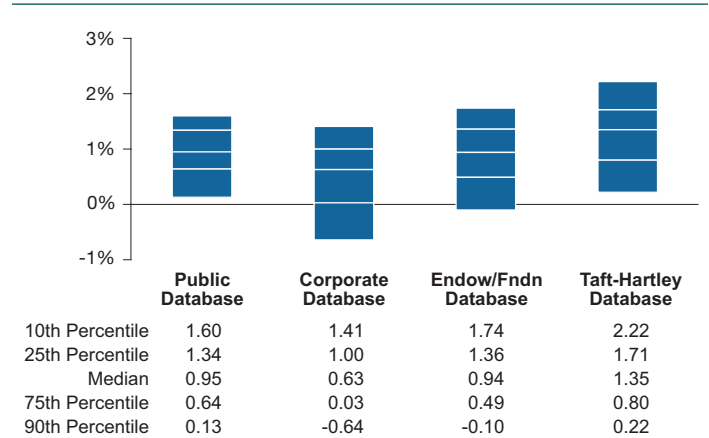
Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve, IHS Economics, Reuters/University of Michigan

# Tough Quarter, but Long-Term Results Are Brighter

## FUND SPONSOR

- The median fund sponsor in Callan’s database gained 0.9% in the second quarter.
- By fund type, Taft-Hartley plans (+1.4%) were the top performers; corporate plans (+0.6%) came in last.
- The dispersion of returns for funds by size was quite narrow; small plans (under \$100 million) rose 0.94% while large plans (more than \$1 billion) were up 0.89% and medium plans grew by 0.87%.
- All fund types and sizes lagged a benchmark consisting of **60% S&P 500/40% Bloomberg Barclays US Aggregate Bond Index**, which rose 2%.
- Over the last year plans also trailed the benchmark, which was up 8.3%. Endowments/foundations came close, while corporate plans (+6.7%) underperformed.
- Over longer time periods, plans advanced at rates closer to that benchmark. The 60/40 benchmark rose 7.3% annually over the last 15 years. Endowments/foundations did best over that time period, up 7.6%, while Taft-Hartley plans were the laggards at 7.1%. Large plans (+7.7%) topped the benchmark, while medium and small plans reported returns slightly below it.

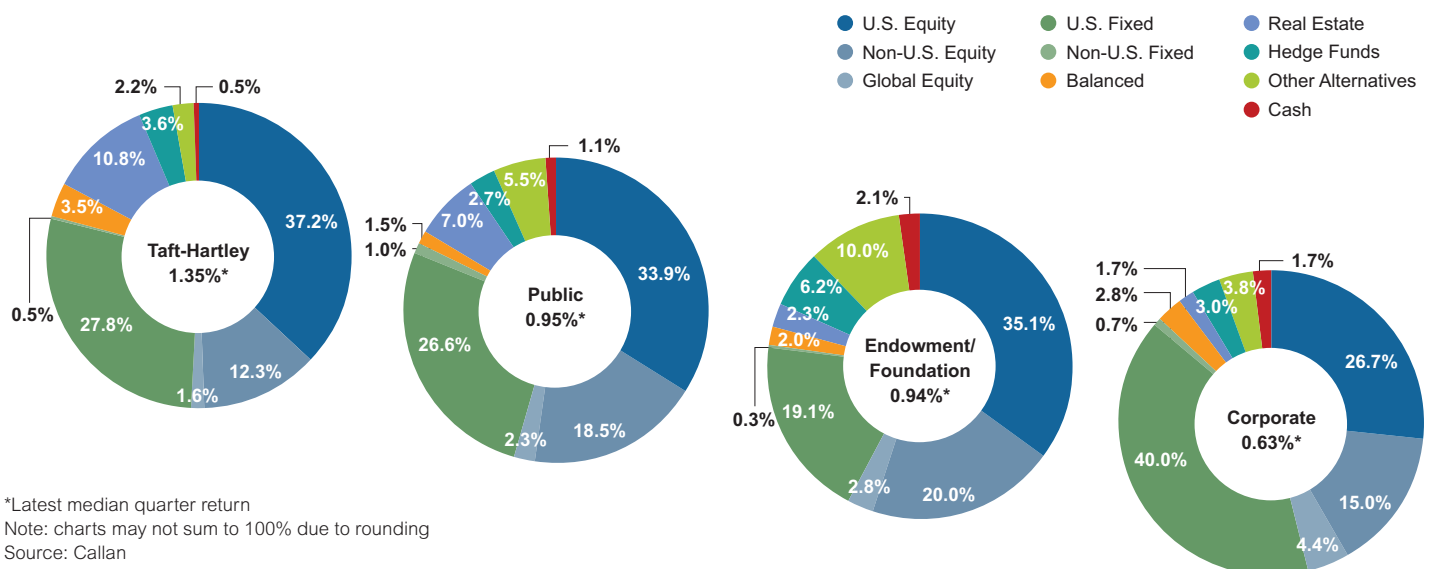
## Callan Fund Sponsor Returns for the Quarter



Source: Callan

- Plans continue to focus on managing an environment of rising interest rates, continued low return expectations, and the desire for strong risk controls in anticipation of a late cycle market downturn.
- Some fund sponsors are looking for downside protection while others are seeking higher yield in less-efficient markets in order to reach return targets.

## Callan Fund Sponsor Average Asset Allocation

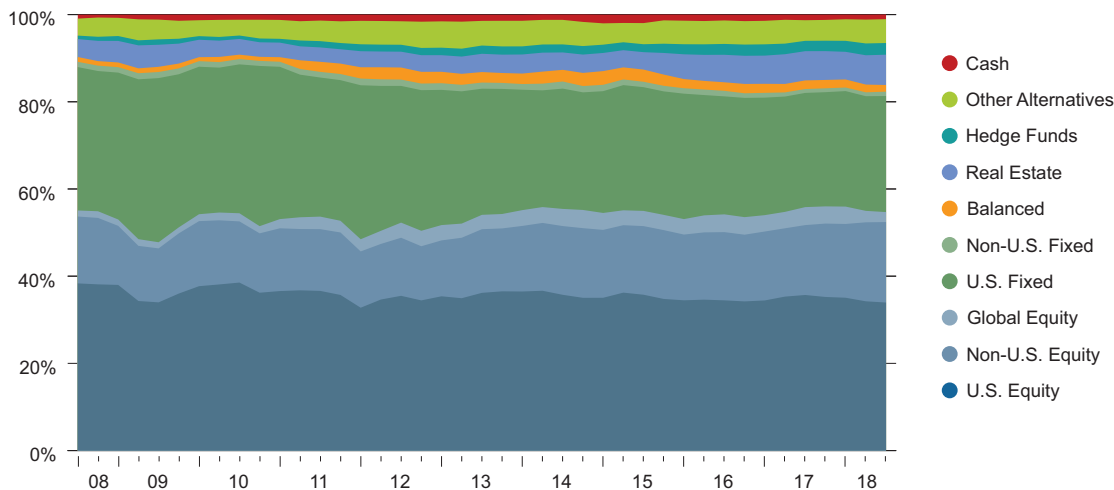


\*Latest median quarter return  
 Note: charts may not sum to 100% due to rounding  
 Source: Callan

- Still others want strong, transparent risk controls and lower performance volatility while examining lower fee structures.
- The debate continues about whether active or passive management provides investors with the right balance between higher performance and lower costs.
- Passive investing is primarily visible in equity asset classes, including both large cap U.S. equity and non-U.S. equity.
- Some fund sponsors are considering new or additional investments in private assets including real estate, private equity, and private credit.
- Topics that concern plan sponsors are rising interest rates and the uncertain outcomes of tariffs with global trade partners. Despite these concerns, some plans will seek enhanced returns at the expense of increased risk.
- Corporate defined benefit (DB) plans are embracing de-risking (increasing fixed income and extending duration). They are moving along their de-risking glidepath and working at different stages of the process. Implementation of de-risking plans depends largely on interest rate movements this year.
- Return enhancement continues to be the focus of public plans and endowment and foundation funds. As endowments and foundations seek higher returns, asset classes such as global equity, non-U.S. equity, and real estate benefit. Risk and funded status for public plans are ongoing concerns.
- Defined contribution (DC) plans are evaluating different levels of service offered by recordkeepers and shifting away from off-the-shelf target date funds (TDFs). Examination of managed account offerings on a standalone basis in order to improve participant outcomes and experiences is ongoing and will continue into the future.
- TDFs' share of DC assets grew to 31.3% in the first quarter, marking another high for the category, according to the Callan DC Index™.

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. Equities

U.S. equities (**S&P 500 Index**: +3.4%) rose on a strong earnings season and positive economic data. Energy was the best-performing sector (+13.5%) as oil prices trended higher after the U.S. withdrew from the Iran nuclear accord.

Small cap (+7.8%) outperformed large cap (+3.6%) on trade war fears. Large cap companies derive a big portion of revenues from foreign markets and are more negatively impacted by trade wars than domestically focused small cap firms.

Growth (+5.8%) continued to outperform value (+1.2%) due to the Consumer Discretionary (+8.2%) and Tech (+7.1%) sectors.

The concentration of returns within broad indices remains a concern. Excluding the performance of the FAANG stocks (Facebook, Amazon, Apple, Netflix, Google), S&P 500 performance was negative.

### Large Cap Trails Small Cap Amid Trade War Concerns

- Retaliatory tariffs hit the U.S. agriculture, auto, and industrial metals sectors, among others. The ongoing decline of U.S. export market share is exacerbating the impact on large caps, which may continue to face macro headwinds in the coming quarters.

- Small cap (+7.7% YTD) is outperforming large cap (+2.9% YTD) as investors view small companies as more insulated against potential trade wars/looming tariffs. S&P 500 companies generate 38% of revenue overseas versus 20% for the S&P SmallCap 600.
- The rising dollar and concerns over the divergence between the strong U.S. economy and slower global growth are also driving investors to the relative safety of smaller companies.

### Large Growth Continues to Dominate

- Large value trailed large growth by nearly 900 bps in the first half of 2018 (-1.7% vs. +7.3%), driven by ongoing outperformance of the Tech sector and tech-exposed Consumer Discretionary companies.

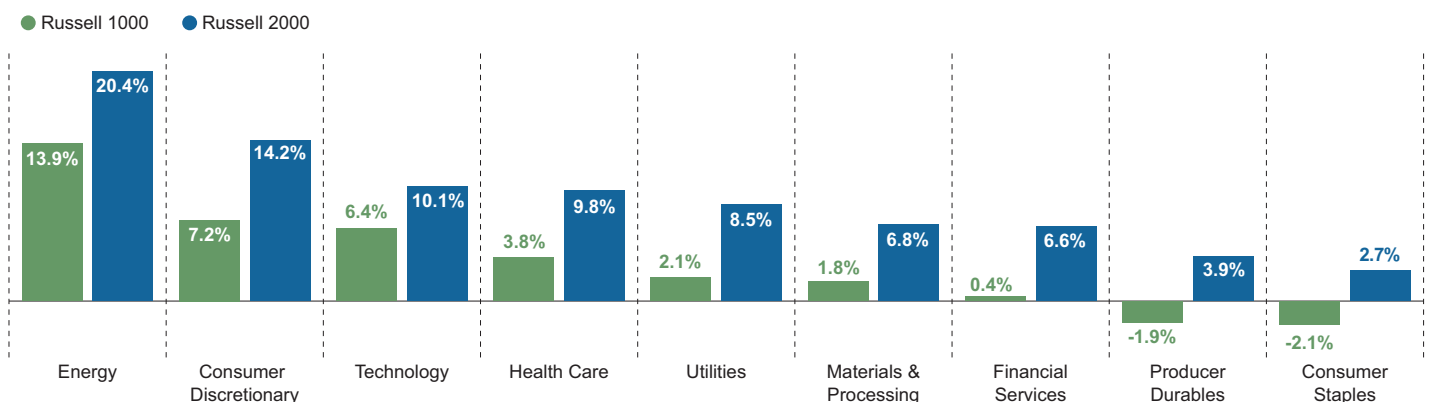
### Concentration Risk

- FAANG stocks continue to drive an outsized proportion of returns within equity indices.
- Biotech represents half of the Health Care sector's weight of the **Russell 2000 Growth Index** (12% vs. 25%), and many small growth managers have struggled in selecting biotech names given the binary outcomes of research and depth of resources needed to do it well.

### Amazon Effect Continues

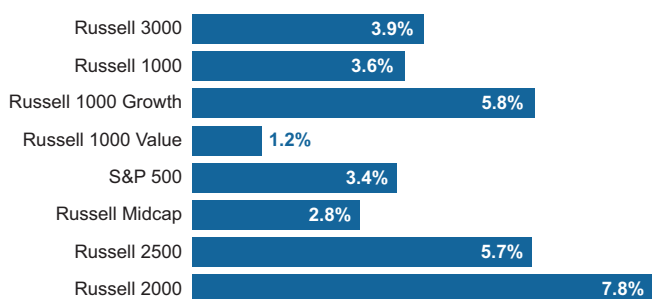
Amazon (+17%) increased in size by over 69% since last year's Russell reconstitution, with continued market share expansion

## Quarterly Performance of Select Sectors



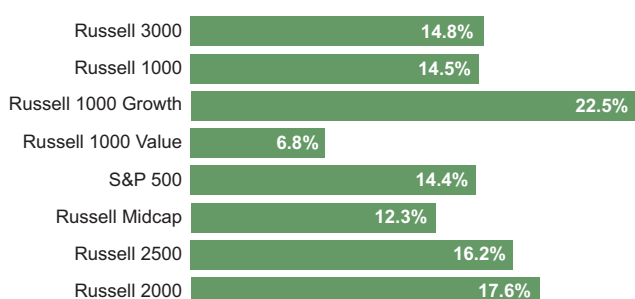
Source: FTSE Russell

### U.S. Equity: Quarterly Returns



Sources: FTSE Russell and Standard & Poor's

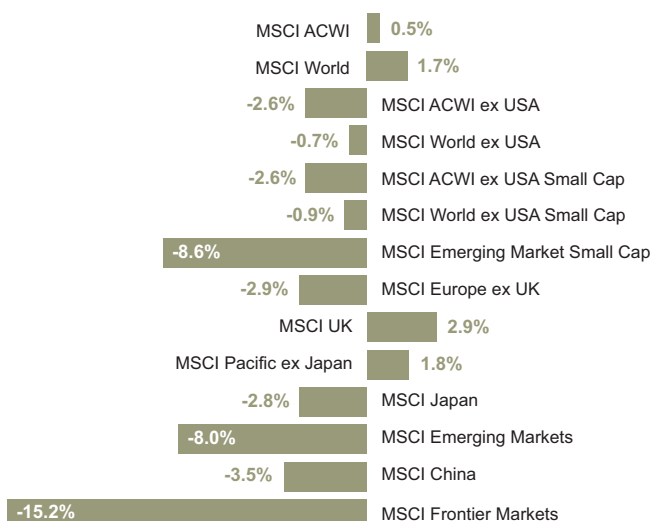
### U.S. Equity: One-Year Returns



Sources: FTSE Russell and Standard & Poor's

in the retailing space (including food) and now into Health Care. Active large cap managers with underweight positions to Amazon will likely continue to lag their benchmarks given Amazon's looming presence in large cap indices.

### Non-U.S. Equity: Quarterly Returns (U.S. Dollar)



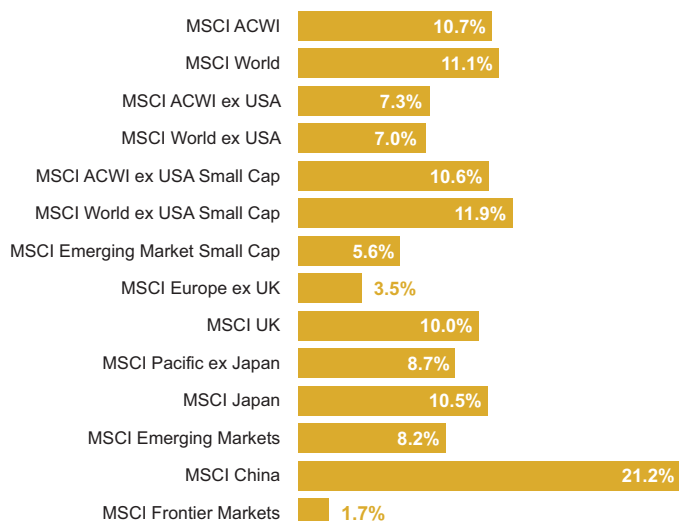
Source: MSCI

### Non-U.S. / Global Equity

Non-U.S. markets ended in the red as trade war talk moved into action. Although initial tariffs levied by the U.S. were targeted, retaliatory actions and supply chain disruptions broadened their effects.

- Growth outpaced value—although no factor category showed significant strength.
- Cyclical sectors were hurt later in the quarter as the prospect of slower growth led to reduced expectations.
- The U.S. dollar was up, hurting non-U.S. returns. The euro and British pound were hit especially hard with the rise of populism and Brexit turmoil.
- Frontier markets were singed by Argentina (-42%) on continuing political unrest, severe drought, and a devaluing currency.
- Emerging markets were among the hardest hit, with Latin America taking the brunt of the sell-off. In May, Brazil's central bank unexpectedly left rates unchanged, while a trucking strike and growing concern about October elections weighed on markets. The Brazilian real fell 14% in the quarter versus the U.S. dollar.
- China reversed a five-quarter rally on concerns surrounding growing debt burdens, slower growth, and trade uncertainty.

### Non-U.S. Equity: One-Year Returns (U.S. Dollar)



Source: MSCI

# Global Fixed Income

## U.S. Fixed Income

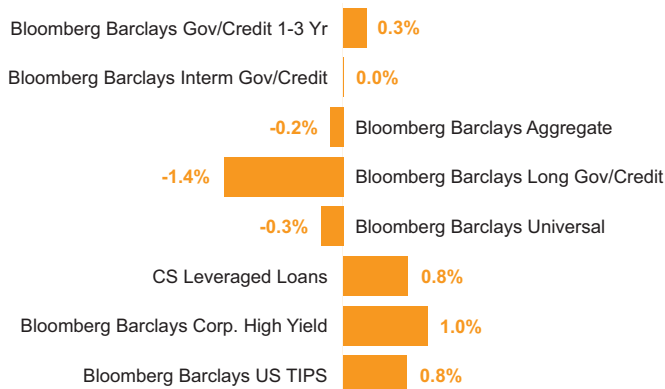
Fixed income markets grappled with multiple issues, resulting in continued volatility. Trade conflicts due to the imposition of tariffs, emerging market elections, and the rising U.S. dollar contributed to the unstable environment.

U.S. rates rose in the second quarter and the yield curve continued its flattening trend.

### Treasury Spreads Tightened

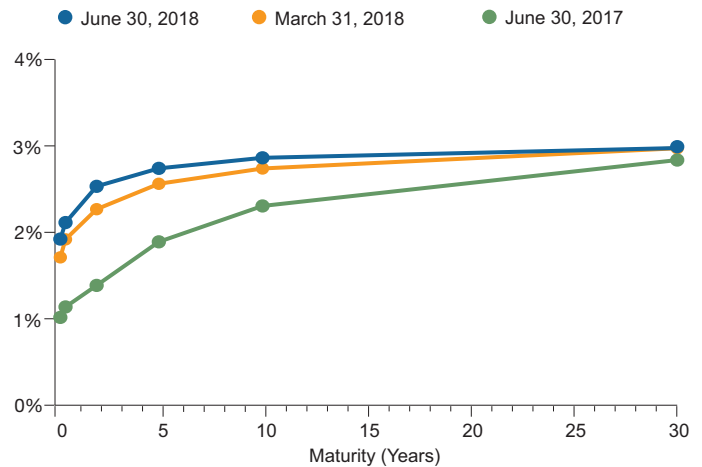
- The spread between the 2-year and 10-year ended at its lowest level (33 bps) in more than 10 years.
- The **Bloomberg Barclays US Aggregate Bond Index** fell 0.2%.
- Investment-grade (IG) corporates faced increased headwinds during the quarter, dragging returns lower. Concerns over potential trade wars and rising rates increasingly weighed on IG credit despite rising earnings and revenues.
- High yield corporates (**Bloomberg Barclays High Yield Index**: +1.0%) rebounded in the second quarter, pushing year-to-date returns into positive territory.
- CCC-rated credits continued to outperform higher-rated credits within high yield.

## U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg Barclays and Credit Suisse

## U.S. Treasury Yield Curves



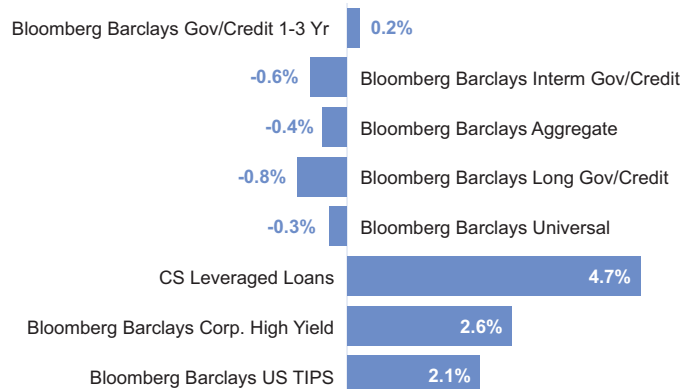
Source: Bloomberg

- Earnings growth remains strong and defaults remain benign amid the positive economic outlook.

### Yield Curve Nears Inversion

- The Fed's preferred measure of inflation, personal consumption expenditures (PCE), is on the precipice of its 2% target.

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



Sources: Bloomberg Barclays and Credit Suisse

## GLOBAL FIXED INCOME (Continued)

- The impact of increased tariffs and fiscal policy may lead to even higher levels.
- Only the recent strength of the U.S. dollar and a drop in energy prices have curtailed the dramatic rise over the past year.
- With two more hikes forecasted for this year and three more next year, the curve is inching closer to inversion.
- While not an immediate cause of recession, an inverted curve has been a reliable signal of recession in the past.

### Non-U.S. Fixed Income

#### Most Indices Fell in Second Quarter

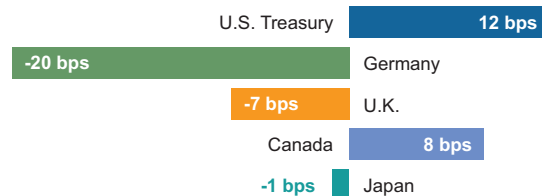
- The **Bloomberg Barclays Global Aggregate Bond Index** dropped 2.8%.
- The ex-U.S. version of the Index fell even more, declining 4.8%.
- Emerging market (EM) indices were especially hard hit (**JPM GBI-EM Global Diversified Index: -10.4%**).
- For the last year, broad indices were narrowly positive but EM indices were lower.

#### Uncertainty of Trade War May Have Biggest Impact

- Announced tariffs are not expected to have a meaningful impact on growth; however, the extent of the costs ultimately depends on the degree to which other countries counter.
- An OECD study that looks at the far larger shock of a 10% across-the-board increase in tariffs by the U.S., euro zone, and China finds that global GDP would fall by 1.4%.
- The more impactful result may be an increase in uncertainty, which tends to precede weaker economic activity.
- These effects will take time to ultimately play out and are even more difficult to quantify.

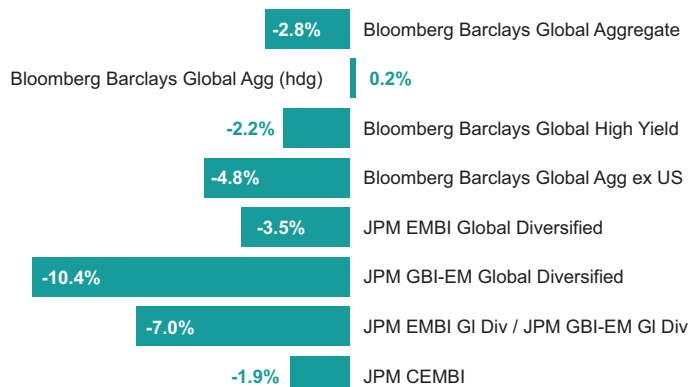
### Change in 10-year Global Government Bond Yields

1Q18 to 2Q18



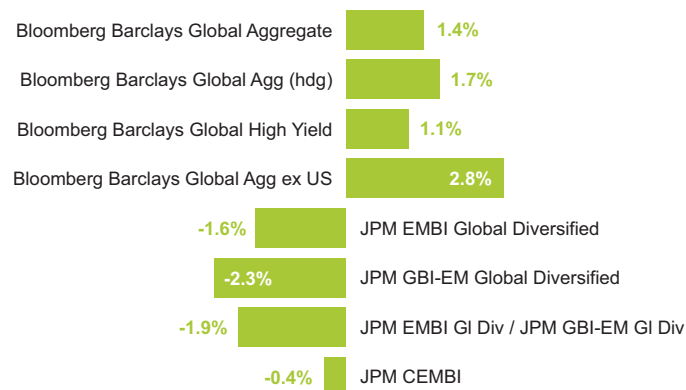
Source: Bloomberg Barclays

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



Sources: Bloomberg Barclays and JPMorgan Chase

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



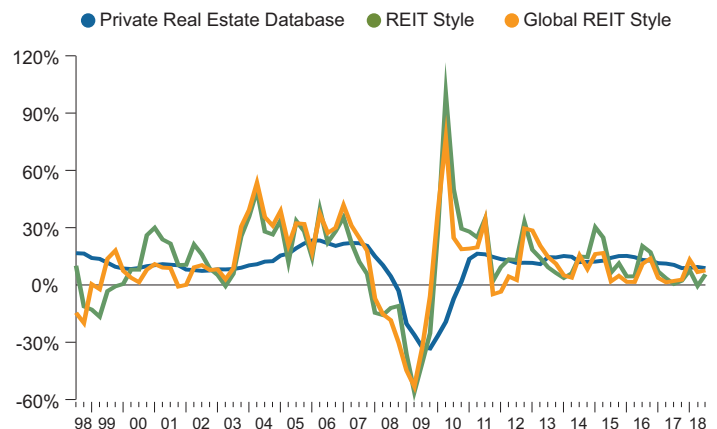
Sources: Bloomberg Barclays and JPMorgan Chase

# U.S. Returns Moderate; Interest in Overseas Markets Is High

## REAL ESTATE

- U.S. core real estate returns continue to moderate and shift toward income. The limited appreciation that did occur in the second quarter came from net operating income growth rather than further cap rate compression.
- The **NCREIF Open End Diversified Core Equity Index** rose 1.8% in the second quarter, while the **Callan Real Estate ODCE Style Group** gained 1.6%.
- Spreads remain relatively tight between core and value-add due to large amounts of capital in both strategies chasing fewer available deals, combined with many investors seeking to create core assets by using their non-core buckets to buy and stabilize non-core properties.
- As private real estate valuations continue to test historical highs, investors are looking at other sectors such as real estate debt and REITs to access the best risk-adjusted returns from real estate. Both U.S. and non-U.S. REITs are trading at discounts to net asset value, indicating relative value for public market securities compared to private real estate valuations.
- The **EPRA/NAREIT Developed Index** jumped 5.1% in the second quarter, versus the +4.5% return for the **Callan Global Real Estate Style Group**. The **EPRA/NAREIT Developed ex US Index** increased only 0.6%, compared to the 0.4% gain for the **Callan Global ex-U.S. Real Estate Style Group**. The **NAREIT Equity REITs Index** spiked 10.0%; the **Callan U.S. REIT Style Group** nearly matched that with a 8.6% return.
- Supply and demand fundamentals are balanced but peaking. Supply is in check and aided by strict commercial real estate lending standards. Demand continues on the back of synchronized U.S. growth. Transaction volumes have begun to take a step back in recent quarters from current cycle peak levels but have yet to substantially affect pricing, as property remains expensive.
- The industrial sector performed the strongest (+3.4%), benefiting as structural shifts in the economy, property markets, and consumer habits continue to dampen demand for traditional retail space. Office is performing as expected late in the cycle (+1.7%), and tenant improvements and other capital expenditures are increasingly eroding cash flow. Multifamily remains strong due to positive demographic trends, except for the Class A luxury segment in prime markets such as New York.
- European real estate markets (ex-U.K.) are gaining momentum due to strong fundamentals in major European cities and despite continued political concerns across the region.
- Value-add and opportunistic real estate owners and operators continue to see significant prospects for creating and selling core product to a robust market of buyers. Paris, Berlin, Frankfurt, Amsterdam, Stockholm, and Madrid continue to see increased levels of investment activity.
- Asian real estate products are seeing strong fundraising momentum, with existing managers reaching target fund sizes and an increase in Asia-focused open-end funds.
- The Chinese government is implementing policies to increase domestic growth and consumption, including support for the development of multi-family rental property, a relatively new concept in China. Over the summer, the Chinese renminbi weakened against the dollar, due to monetary easing in China and global trade tensions, and more stringent

## Rolling One-Year Returns



Source: Callan

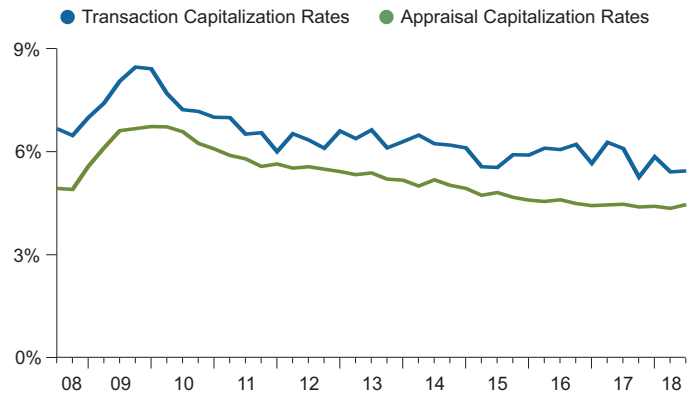


## REAL ESTATE (Continued)

capital controls have increased the amount of capital looking to invest within the country; investment activity remains steady in China.

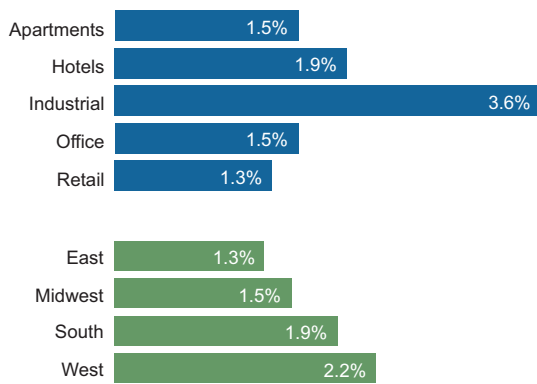
- Other major markets such as Japan, Australia, South Korea, and India continue to see investment activity across multiple sectors.
- Infrastructure strategies are raising significant capital. Open-end infrastructure managers have secured substantial new commitments this year. Infrastructure managers have reported mixed impact to their portfolios following the implementation of the latest tax law changes. The variety of closed-end infrastructure products continues to increase with new offerings in debt and emerging markets-focused strategies.

## NCREIF Transaction and Appraisal Capitalization Rates



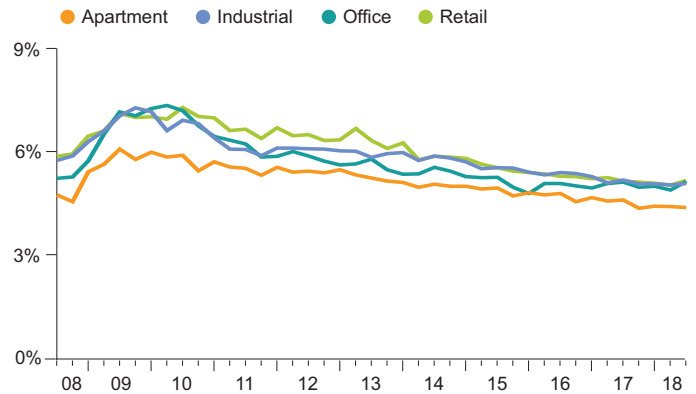
Source: NCREIF  
Note: Transaction capitalization rate is equal weighted.

## Sector Quarterly Returns by Property Type and Region



Source: NCREIF

## NCREIF Capitalization Rates by Property Type



Source: NCREIF  
Note: Capitalization rates are appraisal-based.

## Callan Database Median and Index Returns\* for Periods ended June 30, 2018

	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
<b>Private Real Assets</b>							
Real Estate ODCE Style	1.60	3.67	7.55	8.85	10.19	4.53	7.18
NFI-ODCE (value wt net)	1.81	3.82	7.47	8.38	10.03	4.33	7.29
NCREIF Property	1.76	3.49	7.13	8.23	9.76	6.22	8.98
NCREIF Farmland	1.13	2.46	6.55	7.58	10.25	11.73	14.61
NCREIF Timberland	0.48	1.41	3.57	3.43	6.00	4.00	7.45
<b>Public Real Estate</b>							
Global Real Estate Style	4.50	0.75	7.53	6.73	7.58	6.61	10.38
EPRA/NAREIT Developed	5.12	0.36	5.64	5.71	5.97	4.88	—
Global ex-U.S. Real Estate Style	0.44	0.72	11.45	5.36	6.24	5.08	10.31
EPRA/NAREIT Developed ex US	0.55	0.03	9.77	5.67	5.69	4.27	9.59
U.S. REIT Style	8.57	1.30	4.48	8.47	8.91	8.66	10.94
NAREIT Equity REITs	10.04	1.02	3.50	8.06	8.31	7.94	10.02

\*Returns less than one year are not annualized.  
Sources: Callan, FTSE Russell, NAREIT, NCREIF

# Languid Summer Days

PRIVATE EQUITY | Gary Robertson

- Second quarter private equity partnership commitments totaled \$90.3 billion, with 329 new partnerships formed. The dollar volumes and number of funds both rose 36% from \$66.5 billion and 242 in the prior quarter. (Source: *Private Equity Analyst*)
- For the first half, 2018 is running \$9 billion or 5% behind a year ago. This year's fundraising should end up in the high \$300 billion range, similar to the past two years. Some large fundraising events are slated to start in the fourth quarter.
- New buyout transactions fell although activity remained brisk overall. Funds closed 443 investments with \$36.0 billion in disclosed deal value, a 26% dip in count and a 47% decline in value from the first quarter's very robust 597 investments and \$67.9 billion of announced value. (Source: *Buyouts*)
- The \$17.9 billion add-on of Toshiba Memory by Bain's portfolio company KK Pangea was the quarter's largest buyout. Nine acquisitions with announced values of \$1 billion or more closed in the quarter, the same as last quarter. (Source: *Buyouts*)
- New investments in venture capital companies totaled 1,895 rounds of financing with \$27.3 billion of announced value. Investments were down 10% from the prior quarter, and value fell 13%. The median pre-money valuations continued to increase across the board. The smallest and largest increases were seed (+17%) and Series C (+44%). (Source: National Venture Capital Association)

## Funds Closed January 1 to June 30, 2018

Strategy	No. of Funds	Amt (\$mm)	Percent
Venture Capital	273	24,612	16%
Buyouts	193	108,047	69%
Private Debt	39	8,457	5%
Secondary and Other	23	8,537	5%
Fund-of-funds	43	7,140	5%
<b>Totals</b>	<b>571</b>	<b>156,793</b>	<b>100%</b>

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

- There were 132 private M&A exits of buyout-backed companies with disclosed values totaling \$24.5 billion. Both the count and dollar volume were down from the prior quarter's 164 sales and \$28.8 billion. (Source: *Buyouts*)
- Six buyout-backed IPOs raised an aggregate \$2.5 billion, down from 11 totaling \$3.9 billion previously. (Source: *Buyouts*)
- Venture-backed M&A exits totaled 173 transactions with disclosed value of \$8.8 billion, compared to 203 sales with values of \$13.6 billion in the first quarter. (Source: *Buyouts*)
- There were 28 VC-backed IPOs in the second quarter with a combined float of \$1.9 billion. The first quarter had 15 IPOs and total issuance of \$2.2 billion. (Source: *Buyouts*)

Please see our upcoming issue of *Private Markets Trends* for more in-depth coverage.

## Private Equity Performance Database (%) (Pooled Horizon IRRs through December 31, 2017\*)

Strategy	3 Months	Year	3 Years	5 Years	10 Years	15 Years	20 Years
All Venture	3.68	12.97	9.23	16.18	9.51	9.70	17.90
Growth Equity	5.83	20.09	12.21	13.63	9.95	13.04	13.47
All Buyouts	5.38	22.64	13.65	14.41	8.83	14.59	12.43
Mezzanine	3.18	14.72	9.70	10.18	8.80	9.67	8.67
Distressed	2.45	10.99	6.72	9.52	9.49	10.77	10.34
<b>All Private Equity</b>	<b>3.63</b>	<b>15.26</b>	<b>10.10</b>	<b>10.82</b>	<b>9.25</b>	<b>11.47</b>	<b>11.24</b>
S&P 500	4.82	19.11	11.94	13.97	9.12	12.97	12.81

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.

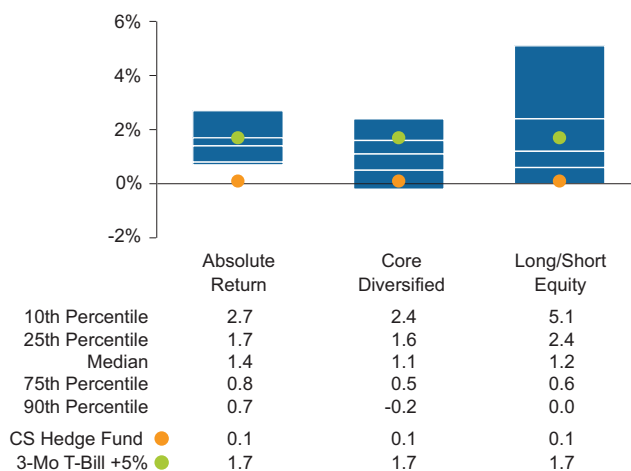
# Trade Spat Rains on Risk Parade

HEDGE FUNDS/MACs | Jim McKee

## Hedge Funds

- During the quarter, Trump’s tough talk on trade upset markets, particularly abroad, while positive momentum from tax cuts and corporate earnings growth lifted U.S. markets.
- Benefiting from a strong corporate environment, particularly in the U.S., event-driven strategies (Event-Driven Multi, Distressed, Risk Arb) were the quarter’s steadier contributors.
- As fiscal and monetary policies diverged globally, Global Macro gained 1.3% with its discretionary bets; however, Managed Futures (-0.3%) lacked any meaningful systematic trends.
- Actively managing risks in foreign markets hurt by a stronger dollar, Emerging Markets (-4.3%) suffered fewer losses than the underlying market indices.
- Long/Short Equity (-0.3%) went nowhere, on average, amid turbulent markets across geographies and styles.

## Hedge Fund-of-Funds Style Group Returns



Sources: Callan, Credit Suisse, Federal Reserve

## Callan Database Median and Index Returns\* for Periods ended June 30, 2018

Hedge Fund Universe	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Callan Fund-of-Funds Database	1.29	5.61	2.76	4.23	3.32	4.82
Callan Absolute Return FOF Style	1.36	4.99	2.71	4.07	3.09	4.49
Callan Core Diversified FOF Style	1.06	5.05	2.22	4.18	3.25	5.03
Callan Long/Short Equity FOF Style	1.21	7.34	3.90	5.56	3.85	5.98
Credit Suisse Hedge Fund	0.10	4.74	2.02	3.60	3.24	5.51
CS Equity Market Neutral	-0.64	5.89	1.88	2.05	-3.36	0.33
CS Fixed Income Arb	-0.27	3.96	4.02	3.92	4.27	4.02
CS Distressed	0.51	4.15	2.95	3.73	4.08	6.61
CS Event-Driven Multi	2.02	3.69	-0.42	2.13	2.92	5.84
CS Emerging Markets	-4.34	5.69	4.68	4.77	3.43	7.46
CS Managed Futures	-0.29	4.00	-1.47	1.88	0.62	2.87
CS Convertible Arbitrage	-0.77	2.56	3.12	2.55	4.28	3.96
CS Multi-Strategy	0.14	3.46	4.53	6.03	5.28	6.48
CS Risk Arbitrage	0.80	1.98	3.26	2.74	2.72	4.08
CS Long/Short Equity	-0.35	7.06	3.31	5.80	4.12	6.56
CS Global Macro	1.27	5.65	1.71	2.76	3.63	6.67
HFRI Asset Wtd Composite	0.87	5.31	2.68	4.17	3.52	–
90-Day T-Bill + 5%	1.66	6.36	5.68	5.42	5.35	6.29

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

### Rates a Tailwind for Managers

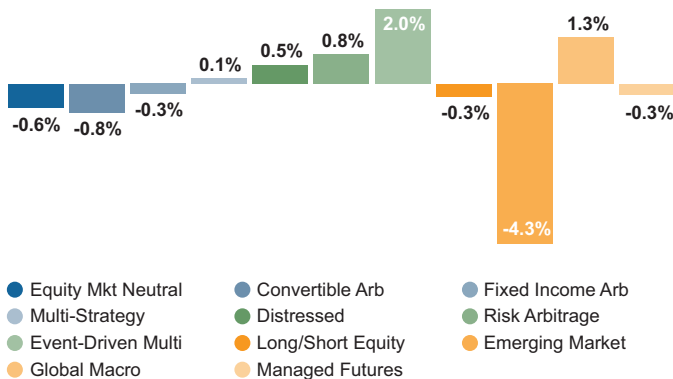
- Rising short-term rates are now providing a tailwind to hedge fund performance with growing returns on cash and short-interest rebates.
- Higher rates, with accompanying inflation risks, are also likely to create more market volatility, leading to more trading opportunities for active managers like hedge funds.

### Multi-Asset Class (MAC) Strategies

Liquid alternatives to hedge funds have become popular among investors for their attractive risk-adjusted returns that are similarly uncorrelated with traditional stock and bond investments but constructed at a lower cost.

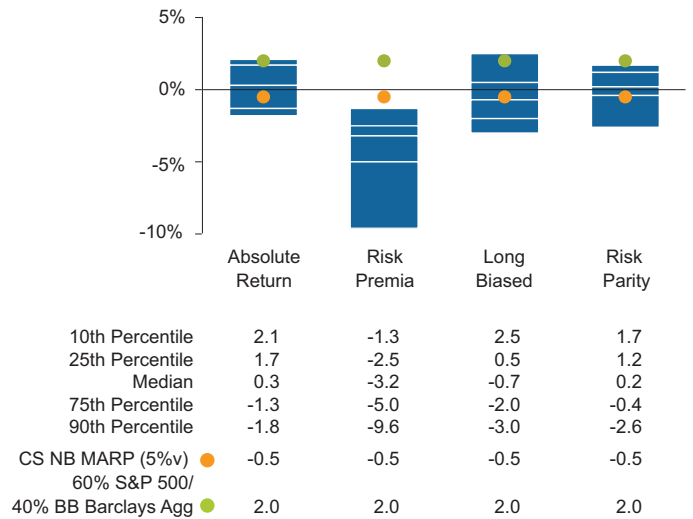
- Callan’s Multi-Asset Class (MAC) style groups struggled with a tough top-down market environment, leading to flat or negative returns in the second quarter.
- **CS Neuberger MARP** (-0.5%) is an equal risk-weighted index of alternative risk factors (value, carry, momentum, and liquidity) across four capital markets (equity, fixed income, currency, and commodities) targeting 5% volatility.
- Equity Value (-4.6%) sank again after a similar loss in the first quarter, reflecting a continuing Tech-led growth story. Although Commodity Momentum (+9.5%) got traction, conflicting economic signals around the world undermined other momentum factors.

### Credit Suisse Hedge Fund Strategy Returns



Source: Credit Suisse

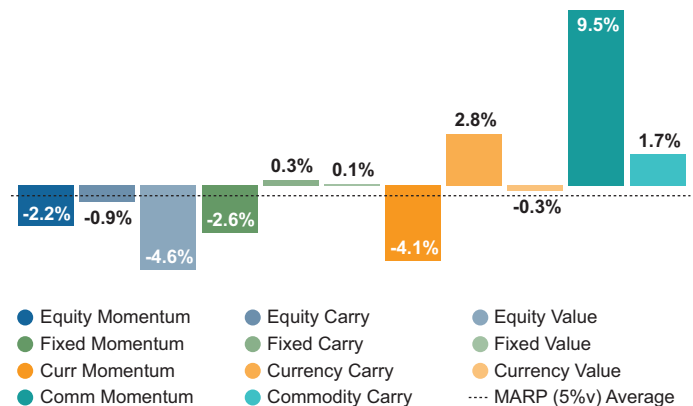
### MAC Style Group Returns



Sources: Bloomberg Barclays, Callan, Credit Suisse, Neuberger Berman, Standard & Poor’s

- The **Risk Premia MAC Style Group** (-3.2%) experienced systematic weakness, as noted above with the CS NB MARP. Normally diversifying exposures of value and momentum risk factors were key detractors again this quarter. Reflecting different vol targets and factor exposures, returns of underlying Risk Premia managers showed significant dispersion over the quarter.
- Other MAC group returns hovered around zero, trailing the traditional 60/40 benchmark (+2.0%).

### Alternative Risk Factor Breakdown



Sources: Credit Suisse, Neuberger Berman

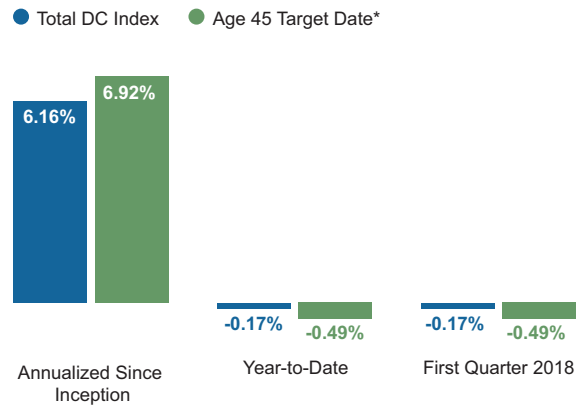
# DC Plans Struggle in Turbulent Market

## DEFINED CONTRIBUTION | Tom Szkwarla

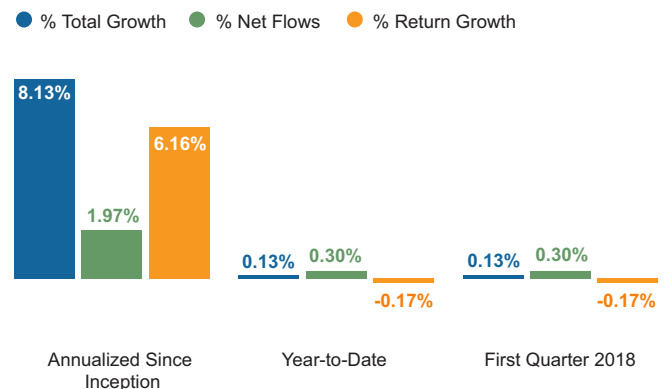
- The Callan DC Index™ fell 0.2% in the first quarter, reflecting widespread declines in global markets.
- But the DC Index outpaced the Age 45 Target Date Fund, which lost 0.5%.
- Since inception, the DC Index's annual return of 6.2% has trailed the Age 45 TDF by 76 basis points.
- Driven primarily by participant inflows, DC plan balances slightly increased by 0.1% during the quarter. Inflows (participant and plan sponsor contributions) added 0.3% to total growth, overcoming the 0.2% drop in returns.
- Over the long term, participant balances have increased an average of 8.1% annually, with market appreciation contributing 6.2% and net cash flows adding the remainder.
- U.S. fixed income experienced net inflows of 13.1% during the period. Riskier assets like U.S. equity and company stock experienced significant outflows.
- For the quarter, nearly 70 cents of every dollar that moved within DC plans flowed to TDFs.
- Turnover (i.e., net transfer activity levels within DC plans) in the DC Index of 0.3% came in well below the historical average at 0.6% and was at its lowest level since the first quarter of 2011.
- The Callan DC Index's overall equity allocation fell for the first time in seven quarters, ending at 70%, still slightly above the Index's historical average (68%).
- TDFs' share of DC assets grew to 31.3% during the quarter, another all-time high. The allocation to U.S. large cap equity declined slightly from last quarter, but U.S. large cap continues to be the second-highest allocation, at 23.3%.
- When TDFs are available in a DC plan, they hold a much greater portion of assets (34%) than any other option.

*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 (First Quarter 2018) (Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Target Date Funds	69.83%
U.S. Fixed Income	13.13%
U.S. Smid Cap	-32.65%
U.S. Large Cap	-21.99%
<b>Total Turnover**</b>	<b>0.31%</b>

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

Source: Callan DC Index

Note: DC Index inception date is January 2006.

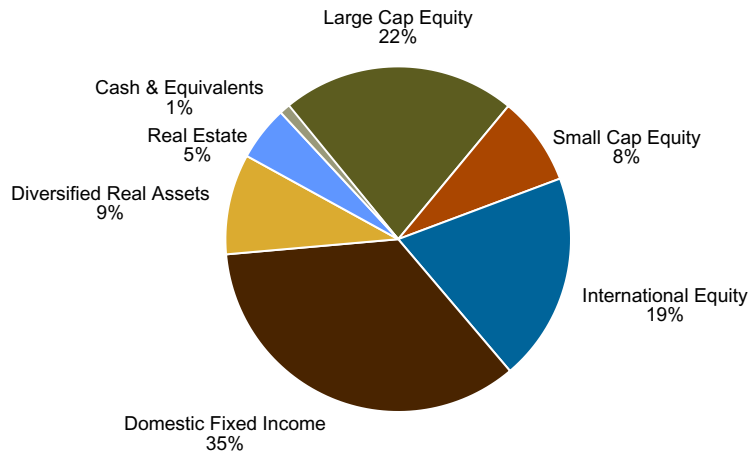
\* The Age 45 Fund transitioned from the average 2030 TDF to the 2035 TDF in June 2013.

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

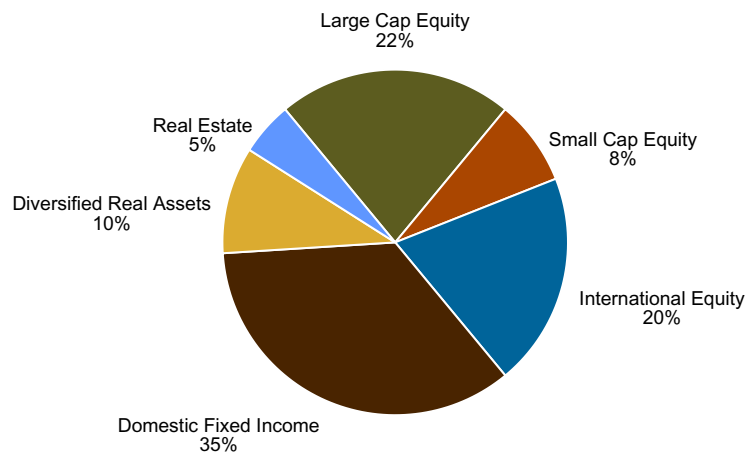
## Actual vs Target Asset Allocation As of June 30, 2018

The first chart below shows the Fund's asset allocation as of June 30, 2018. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.

### Actual Asset Allocation



### Target Asset Allocation



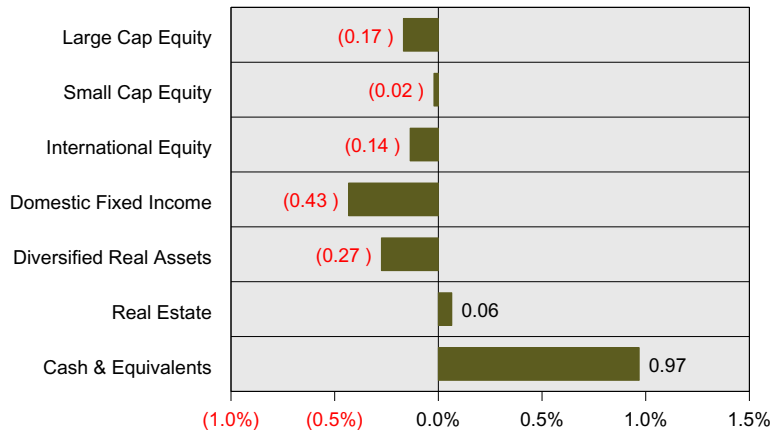
Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Large Cap Equity	1,224,497	22.0%	22.0%	(0.0%)	(2,514)
Small Cap Equity	460,559	8.3%	8.0%	0.3%	14,374
International Equity	1,086,275	19.5%	20.0%	(0.5%)	(29,189)
Domestic Fixed Income	1,941,289	34.8%	35.0%	(0.2%)	(10,773)
Diversified Real Assets	526,559	9.4%	10.0%	(0.6%)	(31,173)
Real Estate	283,299	5.1%	5.0%	0.1%	4,434
Cash & Equivalents	54,840	1.0%	0.0%	1.0%	54,840
Total	5,577,319	100.0%	100.0%		

\* Current Quarter Target = 35.0% Blmbg 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.

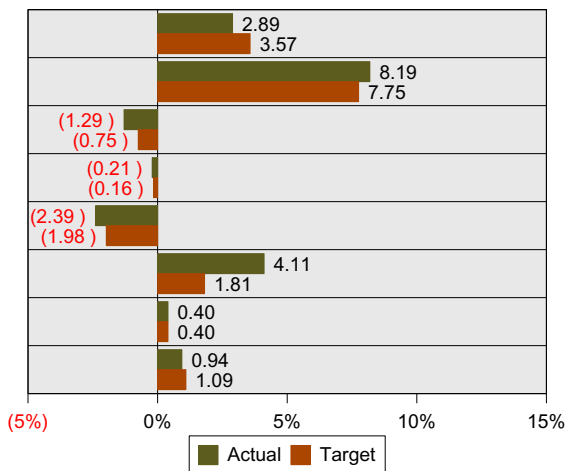
## Quarterly Total Fund Relative Attribution - June 30, 2018

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.

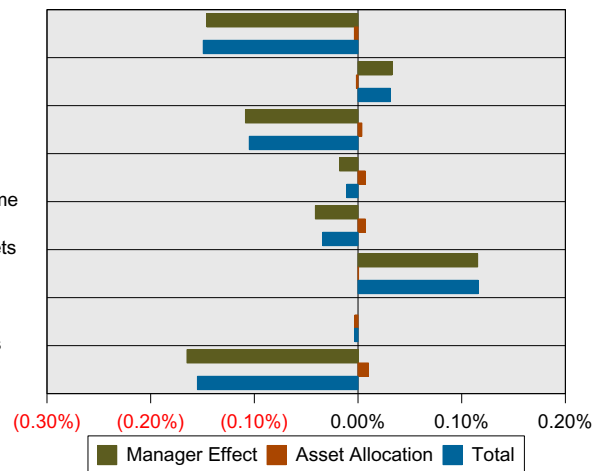
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended June 30, 2018

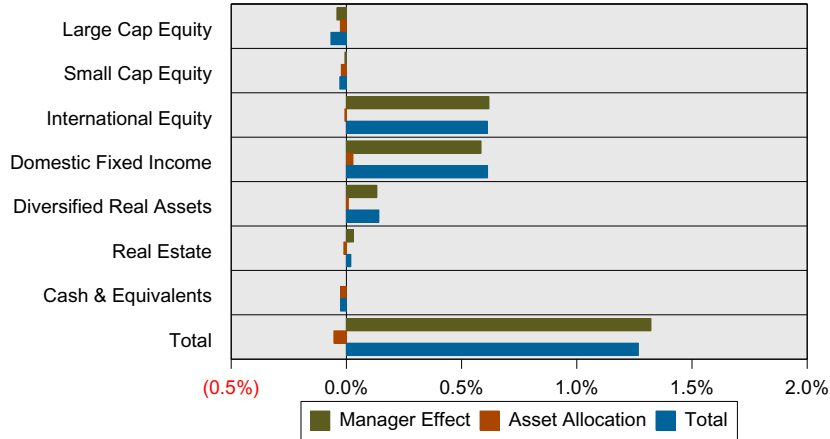
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	22%	22%	2.89%	3.57%	(0.15%)	(0.00%)	(0.15%)
Small Cap Equity	8%	8%	8.19%	7.75%	0.03%	(0.00%)	0.03%
International Equity	20%	20%	(1.29)%	(0.75)%	(0.11%)	0.00%	(0.10%)
Domestic Fixed Income	35%	35%	(0.21)%	(0.16)%	(0.02%)	0.01%	(0.01%)
Diversified Real Assets	10%	10%	(2.39)%	(1.98)%	(0.04%)	0.01%	(0.03%)
Real Estate	5%	5%	4.11%	1.81%	0.12%	0.00%	0.12%
Cash & Equivalents	1%	0%	0.40%	0.40%	0.00%	(0.00%)	(0.00%)
<b>Total</b>			<b>0.94%</b>	<b>1.09%</b>	<b>(0.16%)</b>	<b>0.01%</b>	<b>(0.15%)</b>

\* 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.

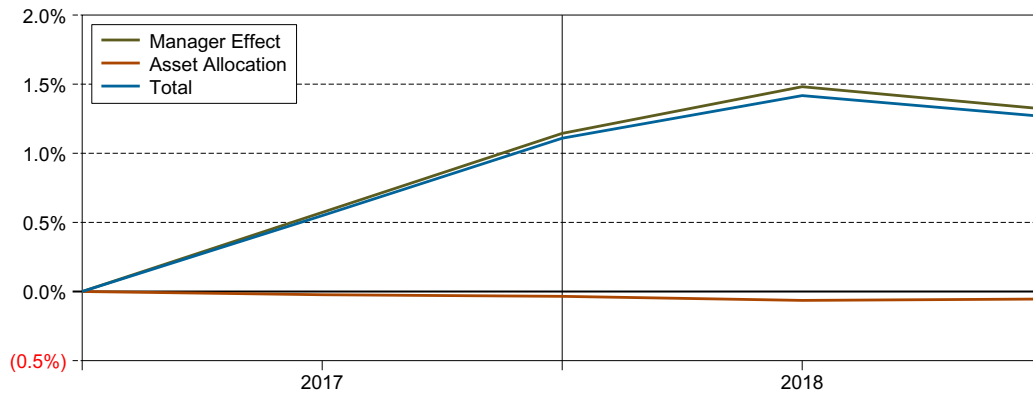
## Cumulative Total Fund Relative Attribution - June 30, 2018

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%	14.33%	14.54%	(0.04%)	(0.03%)	(0.07%)
Small Cap Equity	8%	8%	17.42%	17.57%	(0.01%)	(0.02%)	(0.03%)
International Equity	20%	20%	10.11%	7.04%	0.62%	(0.01%)	0.61%
Domestic Fixed Income	34%	35%	1.23%	(0.40%)	0.58%	0.03%	0.61%
Diversified Real Assets	10%	10%	4.66%	3.31%	0.13%	0.01%	0.14%
Real Estate	5%	5%	7.87%	7.19%	0.03%	(0.01%)	0.02%
Cash & Equivalents	1%	0%	1.21%	1.21%	0.00%	(0.03%)	(0.03%)
<b>Total</b>			<b>7.78%</b>	<b>6.51%</b>	<b>+ 1.32%</b>	<b>+ (0.05%)</b>	<b>1.27%</b>

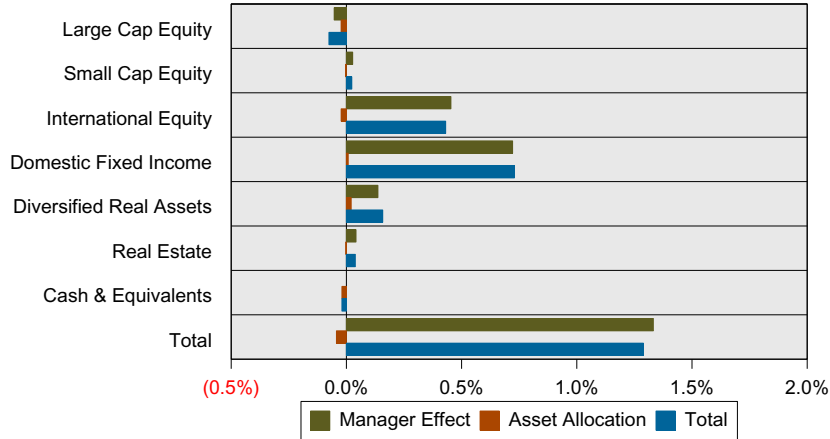
\* Current Quarter Target = 35.0% Blmbg Aggregate, 22.0% Russell 1000 Index, 20.0% MSCI World ex US, 10.0% NDSIB Legacy DRA Weighted Benchmark, 8.0% Russell 2000 Index and 5.0% NCREIF Total Index.



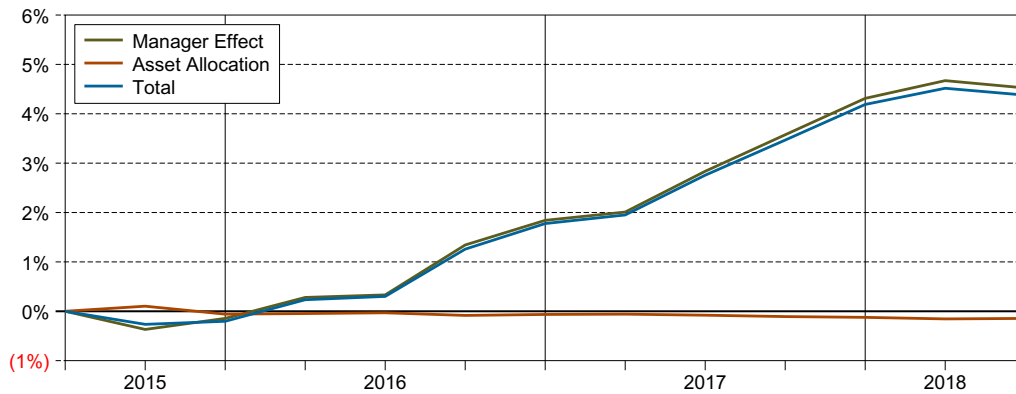
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

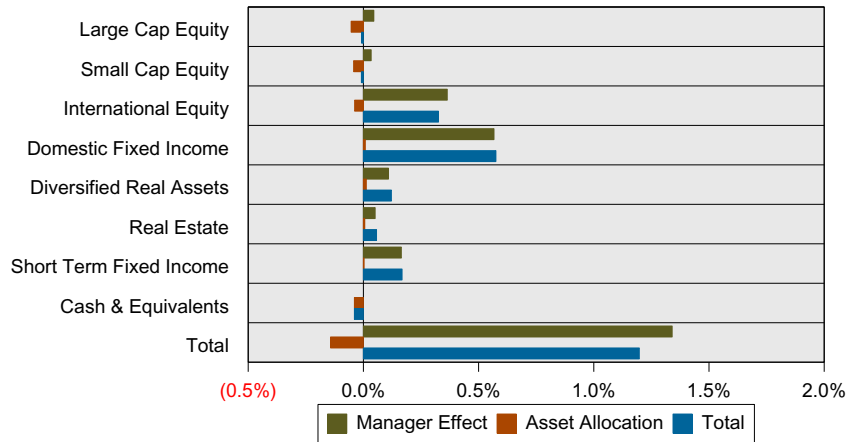
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	22%	22%	11.41%	11.64%	(0.05%)	(0.02%)	(0.08%)
Small Cap Equity	8%	8%	11.39%	10.96%	0.03%	(0.00%)	0.02%
International Equity	20%	20%	7.00%	4.74%	0.45%	(0.02%)	0.43%
Domestic Fixed Income	35%	35%	3.79%	1.72%	0.72%	0.01%	0.73%
Diversified Real Assets	10%	10%	3.50%	2.11%	0.14%	0.02%	0.16%
Real Estate	6%	5%	9.04%	8.25%	0.04%	(0.00%)	0.04%
Cash & Equivalents	0%	0%	0.59%	0.59%	0.00%	(0.02%)	(0.02%)
<b>Total</b>			<b>7.04%</b>	<b>5.75%</b>	<b>+ 1.33%</b>	<b>+ (0.04%)</b>	<b>1.29%</b>

\* 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.

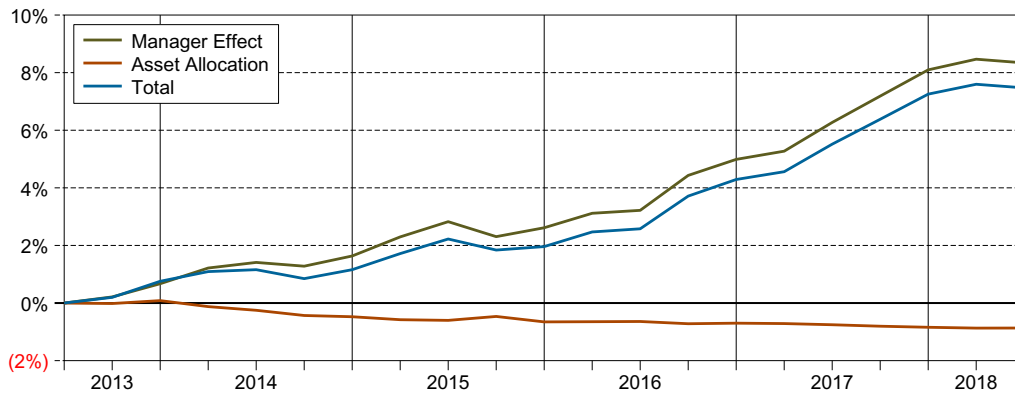
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

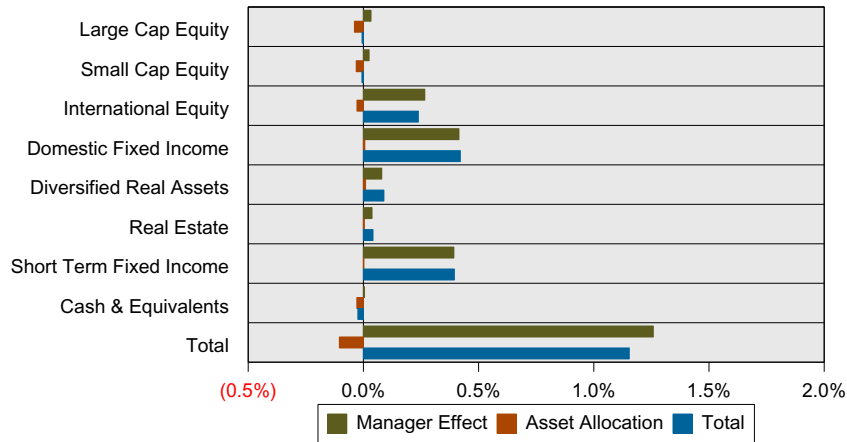
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	19%	19%	13.12%	12.78%	0.05%	(0.05%)	(0.01%)
Small Cap Equity	7%	7%	12.30%	11.62%	0.03%	(0.04%)	(0.01%)
International Equity	17%	18%	7.50%	5.52%	0.36%	(0.04%)	0.33%
Domestic Fixed Income	30%	30%	-	-	0.57%	0.01%	0.58%
Diversified Real Assets	7%	8%	-	-	0.11%	0.01%	0.12%
Real Estate	5%	4%	10.70%	9.41%	0.05%	0.01%	0.06%
Short Term Fixed Income	13%	14%	-	-	0.16%	0.00%	0.17%
Cash & Equivalents	1%	0%	0.36%	0.36%	0.00%	(0.04%)	(0.04%)
<b>Total</b>			<b>6.28%</b>	<b>5.09%</b>	<b>+ 1.34%</b>	<b>+ (0.14%)</b>	<b>1.20%</b>

\* 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.

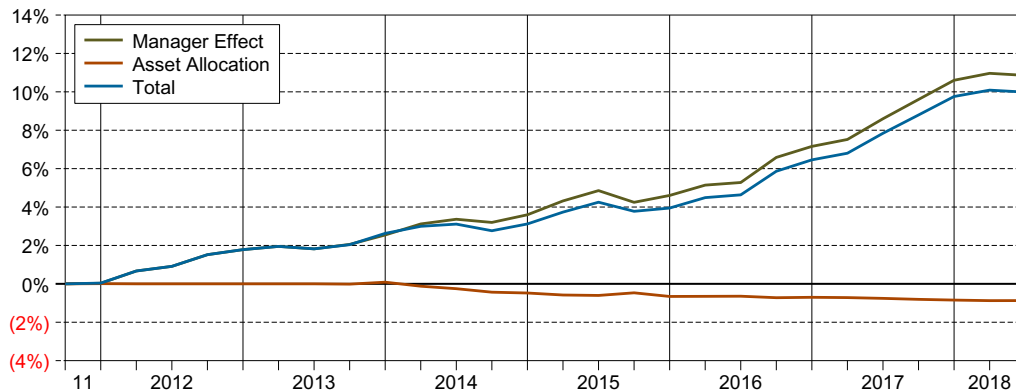
## Cumulative Total Fund Relative Attribution - June 30, 2018

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 Three-Quarter Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects



### Six and Three-Quarter Year Annualized Relative Attribution Effects

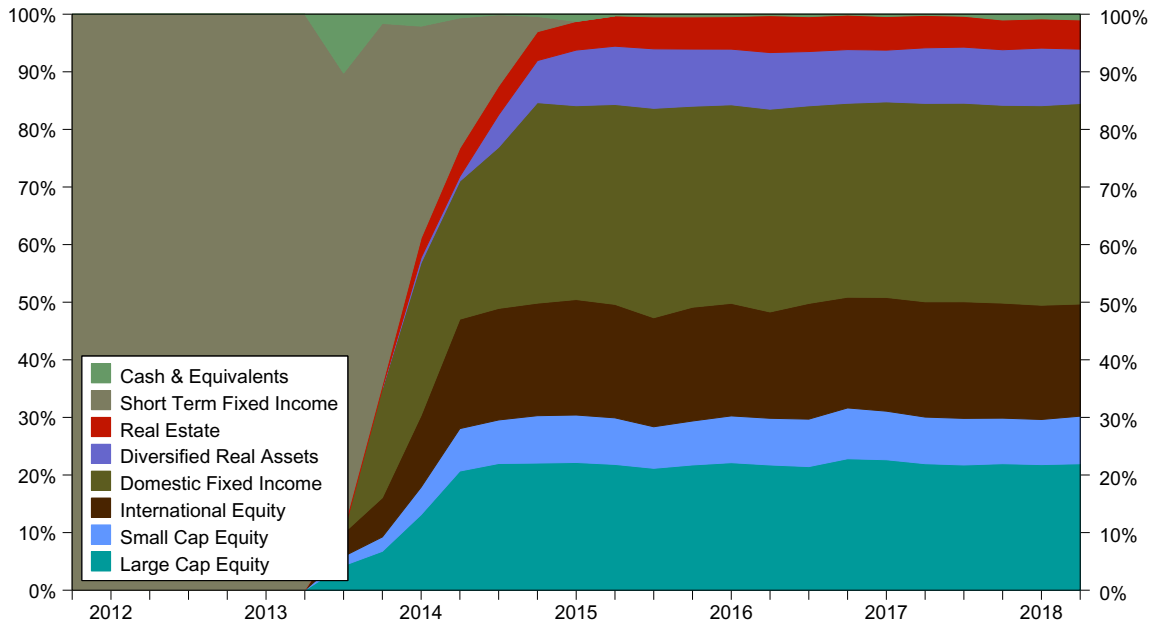
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	14%	14%	-	-	0.03%	(0.04%)	(0.01%)
Small Cap Equity	5%	5%	-	-	0.02%	(0.03%)	(0.01%)
International Equity	13%	13%	-	-	0.27%	(0.03%)	0.24%
Domestic Fixed Income	22%	22%	-	-	0.41%	0.01%	0.42%
Diversified Real Assets	5%	6%	-	-	0.08%	0.01%	0.09%
Real Estate	4%	3%	-	-	0.04%	0.00%	0.04%
Short Term Fixed Income	33%	34%	-	-	0.39%	0.00%	0.39%
Cash & Equivalents	3%	2%	0.32%	0.31%	0.00%	(0.03%)	(0.02%)
<b>Total</b>			<b>4.99%</b>	<b>3.83%</b>	<b>+ 1.26%</b>	<b>+ (0.10%)</b>	<b>1.15%</b>

\* 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.

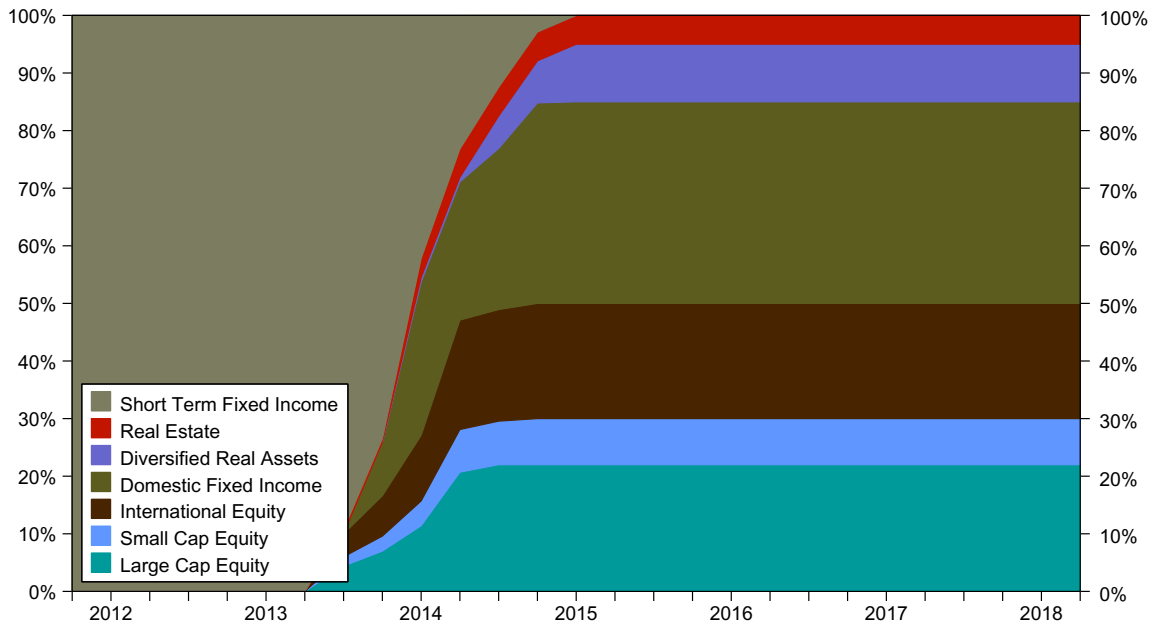
## Actual vs Target Historical Asset Allocation

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

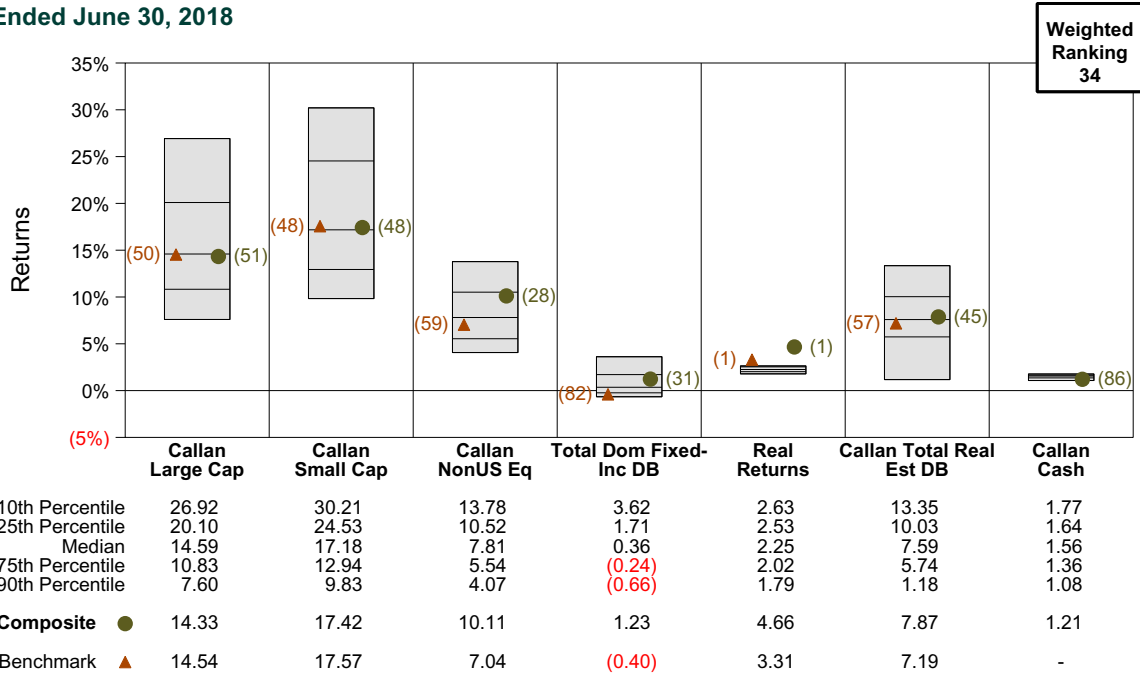


\* Current Quarter Target = 35.0% Blmbg Aggregate, 22.0% Russell 1000 Index, 20.0% MSCI World ex US, 10.0% NDSIB Legacy DRA Weighted Benchmark, 8.0% Russell 2000 Index and 5.0% NCREIF Total Index.

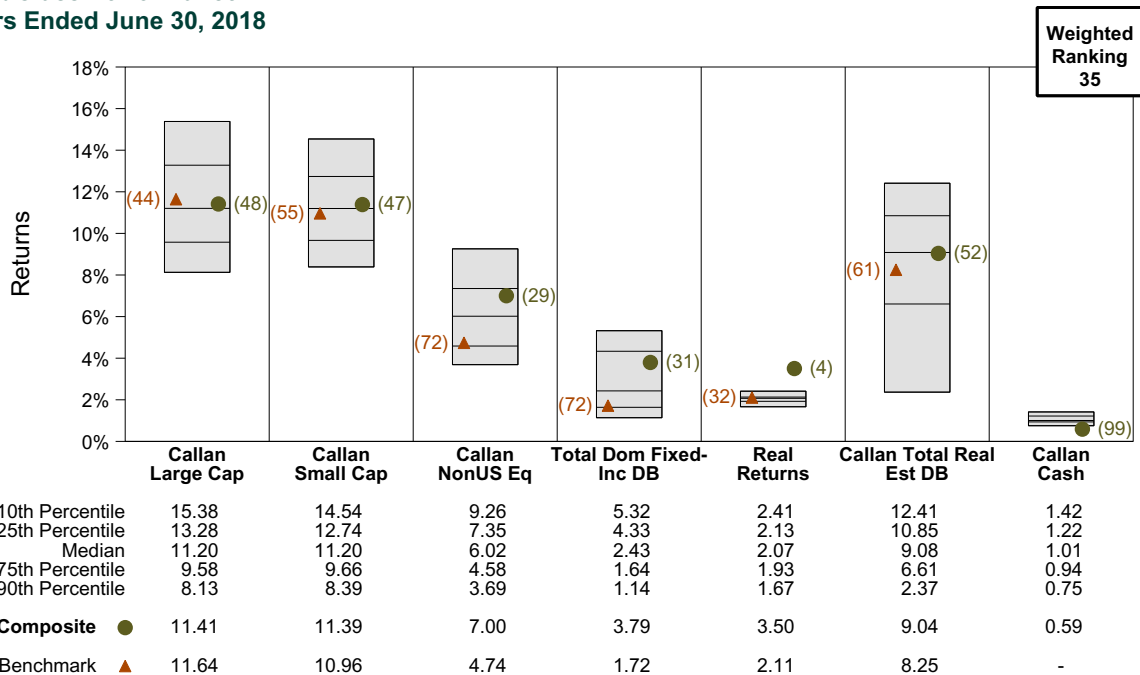
## Asset Class Rankings

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 June 30, 2018



### Total Asset Class Performance Three Years Ended June 30, 2018



\* 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 June 30, 2018, with the distribution as of March 31, 2018. 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

	June 30, 2018		Net New Inv.	Inv. Return	March 31, 2018	
	Market Value	Weight			Market Value	Weight
<b>Domestic Equity</b>	<b>\$1,685,056,062</b>	<b>30.21%</b>	<b>\$23,370,897</b>	<b>\$68,692,130</b>	<b>\$1,592,993,035</b>	<b>29.64%</b>
<b>Large Cap Equity</b>	<b>\$1,224,496,687</b>	<b>21.95%</b>	<b>\$18,488,041</b>	<b>\$33,946,388</b>	<b>\$1,172,062,257</b>	<b>21.81%</b>
L.A. Capital Enhanced	241,693,150	4.33%	4,925,547	8,451,504	228,316,099	4.25%
L.A. Capital Large Cap Growth	381,219,276	6.84%	7,812,369	20,606,843	352,800,064	6.56%
Parametric Clifton Large Cap	248,264,932	4.45%	6,000,000	7,843,456	234,421,476	4.36%
LSV Large Cap Value	353,319,329	6.33%	(249,875)	(2,955,415)	356,524,619	6.63%
<b>Small Cap Equity</b>	<b>\$460,559,375</b>	<b>8.26%</b>	<b>\$4,882,856</b>	<b>\$34,745,741</b>	<b>\$420,930,778</b>	<b>7.83%</b>
Parametric Clifton SmallCap	244,815,339	4.39%	0	17,703,834	227,111,505	4.23%
PIMCO RAE	215,744,036	3.87%	4,882,856	17,041,907	193,819,273	3.61%
<b>International Equity</b>	<b>\$1,086,275,102</b>	<b>19.48%</b>	<b>\$34,187,123</b>	<b>\$(14,247,693)</b>	<b>\$1,066,335,672</b>	<b>19.84%</b>
DFA Intl SmallCap Value	103,698,376	1.86%	5,000,000	(3,562,139)	102,260,514	1.90%
LSV Intl Value	423,873,636	7.60%	16,605,717	(16,037,951)	423,305,870	7.88%
Vanguard Intl Explorer Fund	108,393,661	1.94%	4,000,000	(3,026,783)	107,420,444	2.00%
William Blair	450,309,429	8.07%	8,581,406	8,379,180	433,348,844	8.06%
<b>Domestic Fixed Income</b>	<b>\$1,941,289,018</b>	<b>34.81%</b>	<b>\$82,797,268</b>	<b>\$(3,625,244)</b>	<b>\$1,862,116,994</b>	<b>34.64%</b>
Ares ND Credit Strategies Fd	48,638,254	0.87%	0	1,708,437	46,929,817	0.87%
BND CDs	58,636,284	1.05%	(5,046,374)	459,939	63,222,719	1.18%
Cerberus ND Private Credit Fd	46,604,431	0.84%	0	1,657,951	44,946,480	0.84%
Declaration Total Return	145,517,209	2.61%	(73,782)	928,519	144,662,471	2.69%
Prudential	237,403,408	4.26%	42,874,331	(471,591)	195,000,668	3.63%
SSgA US Govt Credit Bd Idx	270,628,242	4.85%	10,484,688	(734,729)	260,878,283	4.85%
Wells Capital	527,930,462	9.47%	21,803,597	(7,260,827)	513,387,692	9.55%
Western Asset Management	532,794,978	9.55%	14,840,036	(1,605,259)	519,560,201	9.67%
Pooled Fixed Income(1)	73,135,751	1.31%	(2,085,227)	1,692,316	73,528,662	1.37%
<b>Diversified Real Assets</b>	<b>\$526,559,251</b>	<b>9.44%</b>	<b>\$2,392,273</b>	<b>\$(12,863,458)</b>	<b>\$537,030,436</b>	<b>9.99%</b>
Western TIPS	360,484,139	6.46%	(116,649)	(15,356,234)	375,957,022	6.99%
ISQ Global Infrastructure II	4,000,000	0.07%	4,966,223	(966,223)	-	-
JP Morgan Infrastructure	122,208,511	2.19%	(2,457,301)	2,695,913	121,969,900	2.27%
Grosvenor Cust. Infrastructure	39,866,601	0.71%	0	763,087	39,103,514	0.73%
<b>Real Estate</b>	<b>\$283,299,479</b>	<b>5.08%</b>	<b>\$(872,505)</b>	<b>\$11,206,499</b>	<b>\$272,965,486</b>	<b>5.08%</b>
Invesco Core Real Estate	137,080,616	2.46%	(233,458)	5,729,271	131,584,803	2.45%
JP Morgan RE Inc & Growth	146,218,863	2.62%	(639,047)	5,477,228	141,380,682	2.63%
<b>Cash &amp; Equivalents</b>	<b>\$54,840,206</b>	<b>0.98%</b>	<b>\$11,025,646</b>	<b>\$203,650</b>	<b>\$43,610,910</b>	<b>0.81%</b>
<b>Securities Lending Income</b>	<b>\$0</b>	<b>0.00%</b>	<b>\$(202,836)</b>	<b>\$202,836</b>	<b>-</b>	<b>-</b>
<b>Total Fund</b>	<b>\$5,577,319,120</b>	<b>100.0%</b>	<b>\$152,697,867</b>	<b>\$49,568,720</b>	<b>\$5,375,052,532</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 June 30, 2018. 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 June 30, 2018

	Last Quarter	Last Year	Last 3 Years	Last 6-3/4 Years
<b>Domestic Equity</b>				
Gross	4.29%	15.16%	11.46%	-
Net	4.25%	14.97%	11.20%	-
<b>Large Cap Equity</b>				
Gross	2.89%	14.33%	11.41%	-
Net	2.85%	14.14%	11.20%	-
Russell 1000 Index	3.57%	14.54%	11.64%	16.34%
L.A. Capital Enhanced - Gross	3.67%	12.79%	11.14%	-
L.A. Capital Enhanced - Net	3.63%	12.65%	10.98%	-
Russell 1000 Index	3.57%	14.54%	11.64%	16.34%
L.A. Capital LargeCap Growth - Gross	5.80%	19.38%	13.09%	-
L.A. Capital LargeCap Growth - Net	5.75%	19.14%	12.86%	-
Russell 1000 Growth Index	5.76%	22.51%	14.98%	17.91%
Parametric Clifton Large Cap - Gross	3.31%	13.76%	11.93%	-
Parametric Clifton Large Cap - Net	3.31%	13.83%	11.84%	-
S&P 500 Index	3.43%	14.37%	11.93%	16.30%
LSV Large Cap Value - Gross	(0.83%)	10.55%	9.43%	-
LSV Large Cap Value - Net	(0.90%)	10.24%	9.11%	-
Russell 1000 Value Index	1.18%	6.77%	8.26%	14.67%
<b>Small Cap Equity</b>				
Gross	8.19%	17.42%	11.39%	-
Net	8.16%	17.22%	11.02%	-
Russell 2000 Index	7.75%	17.57%	10.96%	16.48%
Parametric Clifton Small Cap - Gross	7.80%	17.68%	11.67%	-
Parametric Clifton Small Cap - Net	7.80%	17.56%	11.27%	-
Russell 2000 Index	7.75%	17.57%	10.96%	16.48%
PIMCO RAE - Gross	8.63%	17.01%	11.01%	-
PIMCO RAE - Net	8.57%	16.73%	10.73%	-
Russell 2000 Index	7.75%	17.57%	10.96%	16.48%
<b>International Equity</b>				
Gross	(1.29%)	10.11%	7.00%	-
Net	(1.37%)	9.79%	6.69%	-
Benchmark(1)	(0.75%)	7.04%	4.74%	8.33%
DFA Intl Small Cap Value	(3.47%)	5.40%	7.19%	-
World ex US SC Va	(2.18%)	8.13%	7.86%	10.24%
LSV Intl Value - Gross	(3.67%)	5.35%	5.97%	-
LSV Intl Value - Net	(3.76%)	4.95%	5.57%	-
MSCI EAFE Index	(1.24%)	6.84%	4.90%	8.41%
Vanguard Intl Explorer Fund	(2.75%)	11.47%	9.38%	-
BMI, EPAC, <\$2 B	(2.91%)	10.47%	8.87%	10.90%
William Blair - Gross	1.94%	15.78%	-	-
William Blair - Net	1.85%	15.35%	-	-
MSCI ACWI ex US IMI	(2.61%)	7.75%	5.46%	7.71%

(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 June 30, 2018. 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 June 30, 2018

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 6-3/4 Years
<b>Domestic Fixed Income</b>					
Gross	(0.21%)	1.23%	3.79%	-	-
Net	(0.24%)	1.12%	3.67%	-	-
Blmbg Aggregate Index	(0.16%)	(0.40%)	1.72%	2.27%	2.10%
Ares ND Credit Strategies Fd - Net	3.64%	-	-	-	-
Cerberus ND Private Credit Fd - Net	3.69%	-	-	-	-
S&P/LSTA Leveraged Loan B	0.79%	4.47%	4.37%	4.21%	5.53%
BND CDs - Net	0.81%	2.86%	-	-	-
Declaration Total Return - Net	0.64%	3.34%	3.64%	-	-
Libor-3 Month	0.58%	1.75%	1.07%	0.74%	0.66%
Prudential - Gross	(0.31%)	1.04%	3.85%	-	-
Prudential - Net	(0.37%)	0.78%	3.58%	-	-
Blmbg Aggregate Index	(0.16%)	(0.40%)	1.72%	2.27%	2.10%
Wells Capital - Gross	(1.39%)	(0.11%)	4.05%	-	-
Wells Capital - Net	(1.43%)	(0.26%)	3.88%	-	-
Blmbg Credit Baa	(1.22%)	(0.57%)	3.25%	3.81%	4.22%
Western Asset - Gross	(0.31%)	0.48%	3.19%	-	-
Western Asset - Net	(0.34%)	0.36%	3.06%	-	-
Blmbg Aggregate Index	(0.16%)	(0.40%)	1.72%	2.27%	2.10%
SSgA US Govt Credit Bd Idx - Gross	(0.32%)	(0.60%)	1.84%	-	-
SSgA US Govt Credit Bd Idx - Net	(0.32%)	(0.62%)	1.81%	-	-
Blmbg Govt/Credit Bd	(0.33%)	(0.63%)	1.83%	2.29%	2.17%
Pooled Fixed Income - Net(1)	2.33%	8.46%	9.75%	-	-
Blmbg Aggregate Index	(0.16%)	(0.40%)	1.72%	2.27%	2.10%
<b>Diversified Real Assets</b>					
Gross	(2.39%)	4.66%	3.50%	-	-
Net	(2.49%)	4.41%	3.21%	-	-
Weighted Benchmark	(1.98%)	3.31%	2.11%	-	-
Western Asset TIPS - Gross	(4.08%)	2.59%	2.08%	-	-
Western Asset TIPS - Net	(4.12%)	2.46%	1.95%	-	-
Blmbg Gbl Infrn-Lnked	(3.28%)	3.31%	2.25%	2.48%	2.33%
JP Morgan Infrastructure - Gross	2.21%	10.60%	7.55%	-	-
JP Morgan Infrastructure - Net	1.88%	9.89%	6.68%	-	-
CPI-W	1.12%	3.09%	1.74%	1.37%	1.43%
Grosvenor Cust. Infrastructure - Net	1.95%	7.98%	5.77%	-	-
CPI-W	1.12%	3.09%	1.74%	1.37%	1.43%
<b>Real Estate</b>					
Gross	4.11%	7.87%	9.04%	-	-
Net	3.83%	7.31%	8.39%	-	-
NCREIF Total Index	1.81%	7.19%	8.25%	9.77%	10.10%
Invesco Core Real Estate - Gross	4.36%	8.27%	9.24%	-	-
Invesco Core Real Estate - Net	4.18%	7.91%	8.88%	-	-
NCREIF Total Index	1.81%	7.19%	8.25%	9.77%	10.10%
JP Morgan RE Inc & Growth - Gross	3.88%	7.50%	8.86%	-	-
JP Morgan RE Inc & Growth - Net	3.50%	6.75%	7.93%	-	-
NCREIF Total Index	1.81%	7.19%	8.25%	9.77%	10.10%
<b>Cash &amp; Equivalents - Net</b>					
90 Day Treasury Bills	0.40%	1.21%	0.59%	0.36%	0.32%
	0.45%	1.36%	0.68%	0.42%	0.33%
<b>Total Fund</b>					
Gross	0.94%	7.78%	7.04%	6.28%	4.99%
Net	0.88%	7.57%	6.79%	6.06%	4.81%
Target*	1.09%	6.51%	5.75%	5.09%	3.83%

\* 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.

(2) CPI-W through March 31, 2018; 50% CPI-U lagged one quarter and 50% NFI-ODCE Equal Weight Net thereafter.



# Domestic Equity Period Ended June 30, 2018

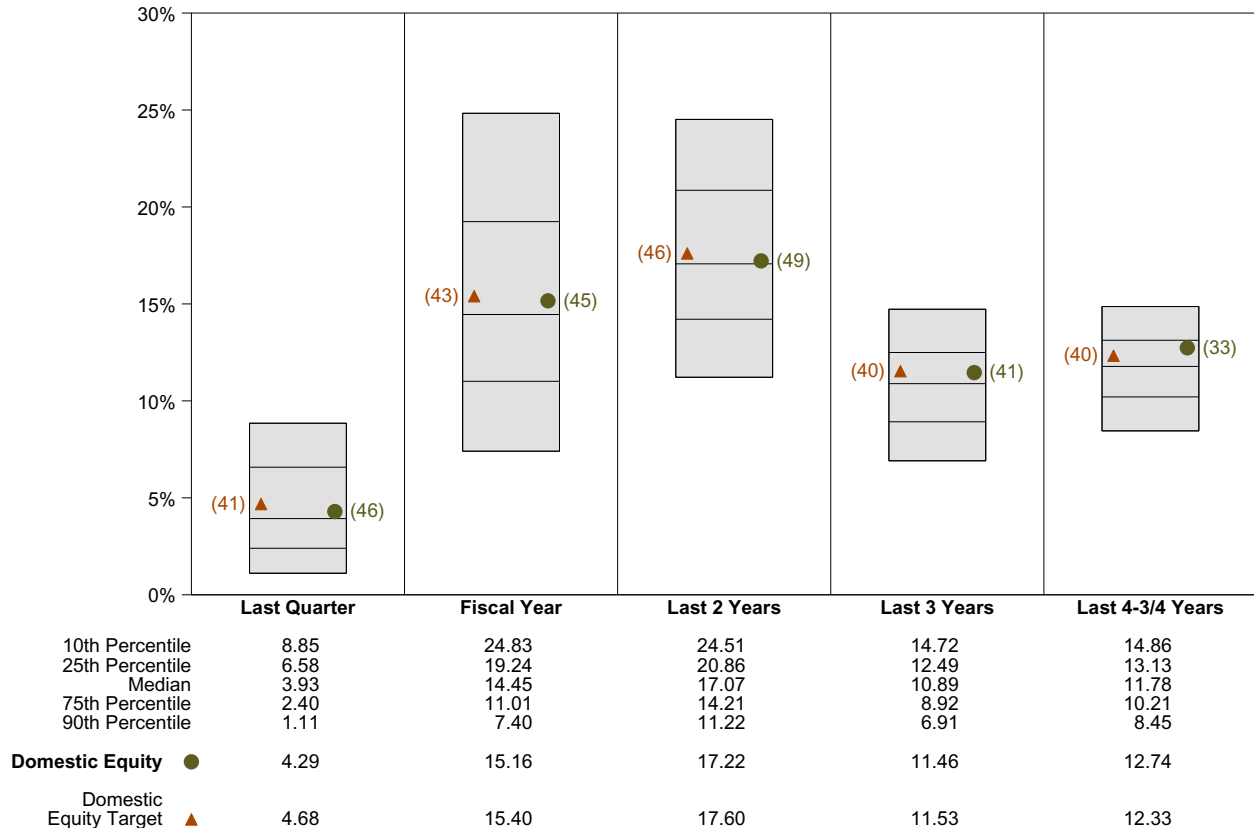
## Quarterly Summary and Highlights

- Domestic Equity's portfolio posted a 4.29% return for the quarter placing it in the 46 percentile of the Total Domestic Equity Database group for the quarter and in the 45 percentile for the last year.
- Domestic Equity's portfolio underperformed the Domestic Equity Target by 0.39% for the quarter and underperformed the Domestic Equity Target for the year by 0.24%.

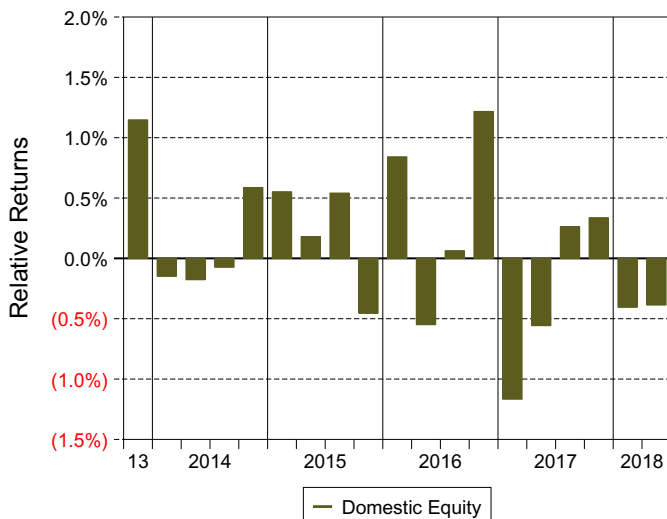
## Quarterly Asset Growth

Beginning Market Value	\$1,592,993,035
Net New Investment	\$23,370,897
Investment Gains/(Losses)	\$68,692,130
Ending Market Value	\$1,685,056,062

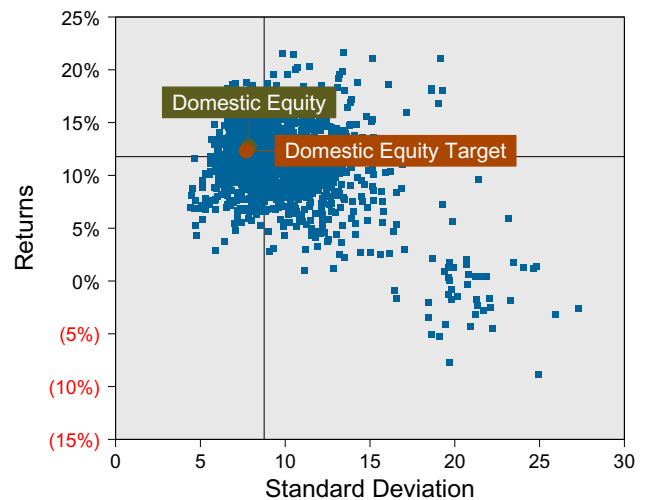
## Performance vs Total Domestic Equity Database (Gross)



## Relative Return vs Domestic Equity Target



## Total Domestic Equity Database (Gross) Annualized Four and Three-Quarter Year Risk vs Return



# Parametric Clifton Large Cap Period Ended June 30, 2018

## 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.

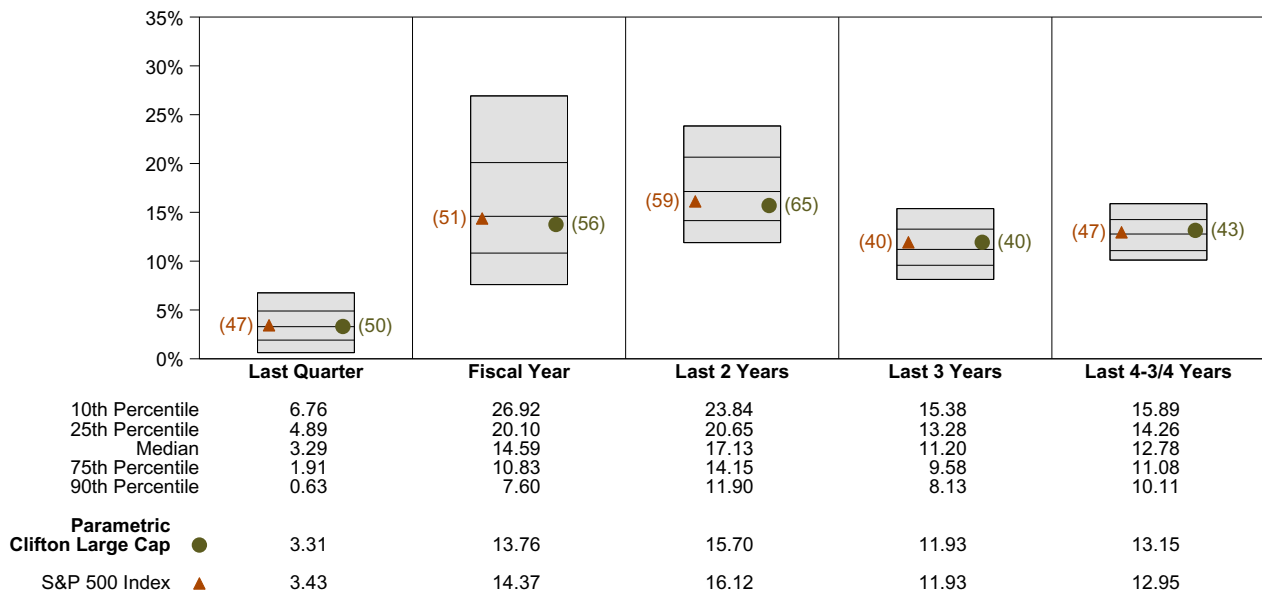
## Quarterly Summary and Highlights

- Parametric Clifton Large Cap's portfolio posted a 3.31% return for the quarter placing it in the 50 percentile of the Callan Large Capitalization group for the quarter and in the 56 percentile for the last year.
- Parametric Clifton Large Cap's portfolio underperformed the S&P 500 Index by 0.12% for the quarter and underperformed the S&P 500 Index for the year by 0.62%.

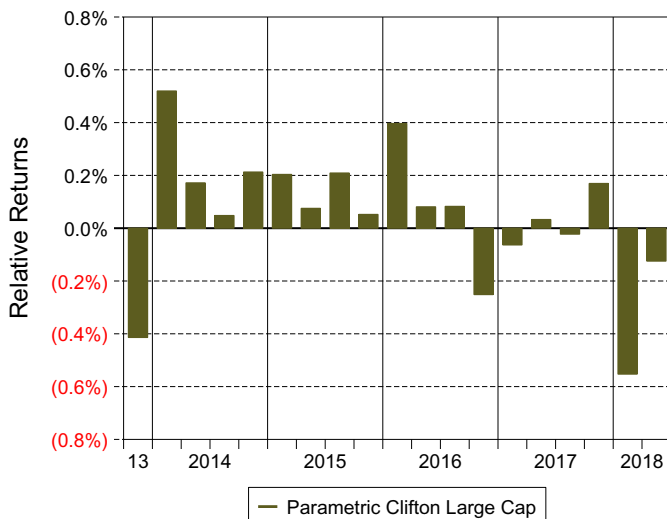
## Quarterly Asset Growth

Beginning Market Value	\$234,421,476
Net New Investment	\$6,000,000
Investment Gains/(Losses)	\$7,843,456
Ending Market Value	\$248,264,932

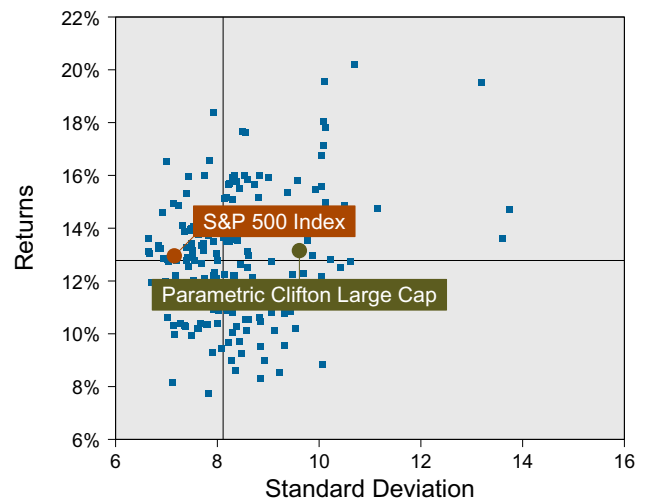
## Performance vs Callan Large Capitalization (Gross)



## Relative Return vs S&P 500 Index



## Callan Large Capitalization (Gross) Annualized Four and Three-Quarter Year Risk vs Return



# L.A. Capital Period Ended June 30, 2018

## 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.

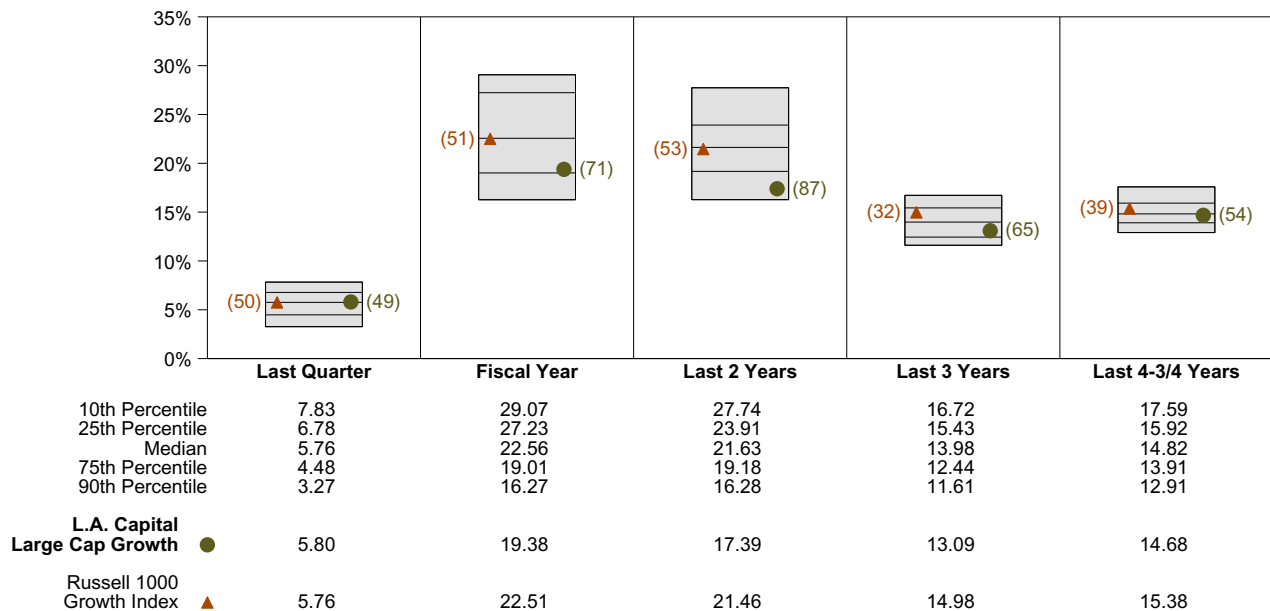
## Quarterly Summary and Highlights

- L.A. Capital Large Cap Growth's portfolio posted a 5.80% return for the quarter placing it in the 49 percentile of the Callan Large Cap Growth group for the quarter and in the 71 percentile for the last year.
- L.A. Capital Large Cap Growth's portfolio outperformed the Russell 1000 Growth Index by 0.04% for the quarter and underperformed the Russell 1000 Growth Index for the year by 3.13%.

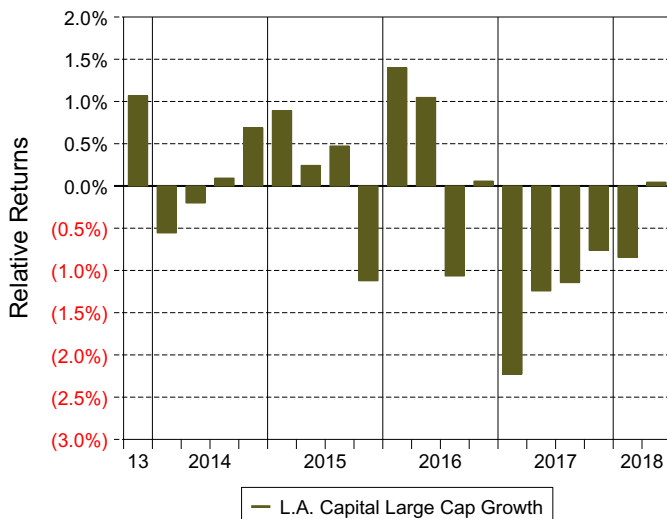
## Quarterly Asset Growth

Beginning Market Value	\$352,800,064
Net New Investment	\$7,812,369
Investment Gains/(Losses)	\$20,606,843
Ending Market Value	\$381,219,276

## Performance vs Callan Large Cap Growth (Gross)

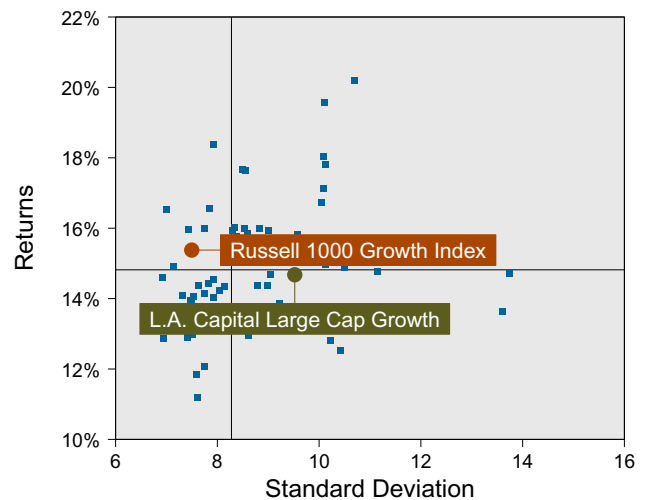


## Relative Return vs Russell 1000 Growth Index



## Callan Large Cap Growth (Gross)

## Annualized Four and Three-Quarter Year Risk vs Return



# L.A. Capital Enhanced Period Ended June 30, 2018

## 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.

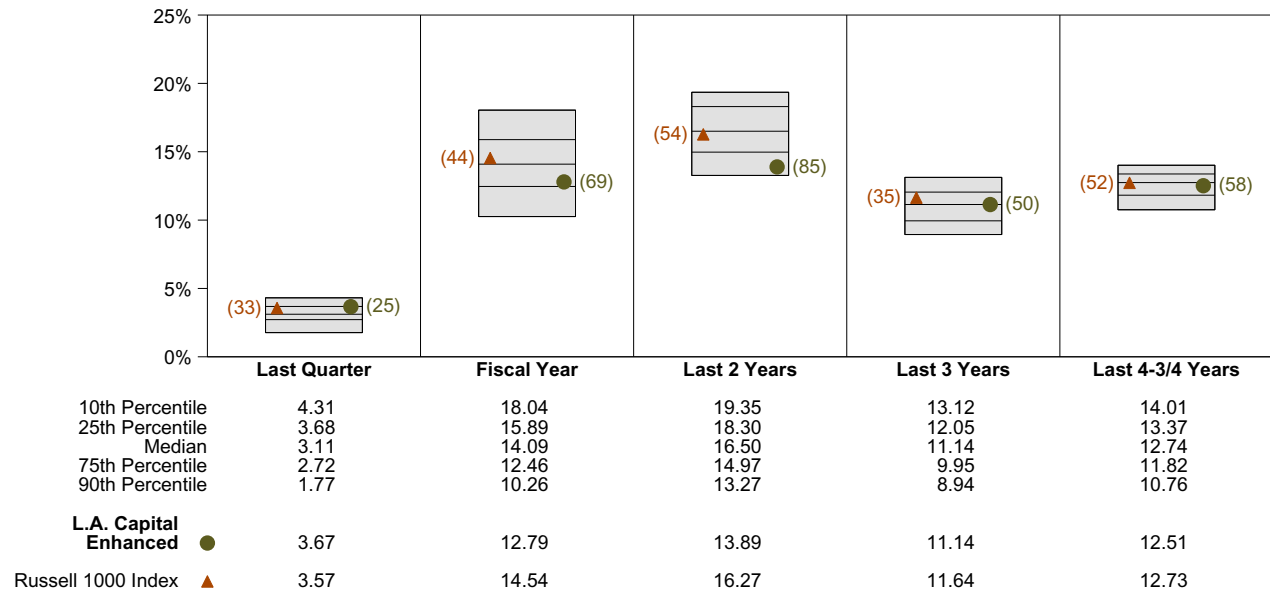
## Quarterly Summary and Highlights

- L.A. Capital Enhanced's portfolio posted a 3.67% return for the quarter placing it in the 25 percentile of the Callan Large Cap Core group for the quarter and in the 69 percentile for the last year.
- L.A. Capital Enhanced's portfolio outperformed the Russell 1000 Index by 0.10% for the quarter and underperformed the Russell 1000 Index for the year by 1.74%.

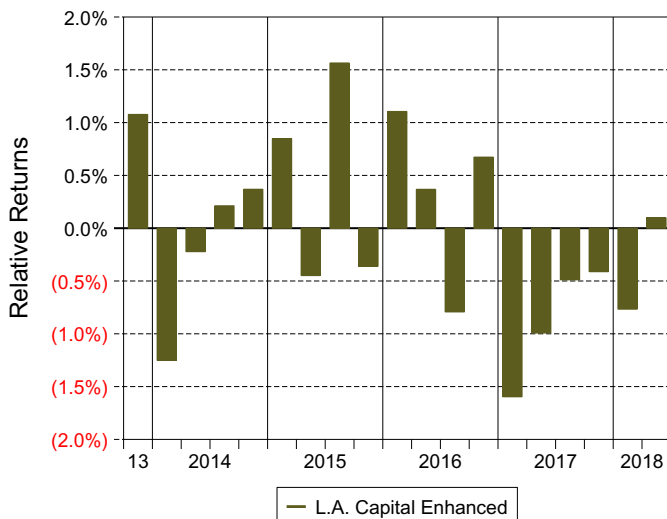
## Quarterly Asset Growth

Beginning Market Value	\$228,316,099
Net New Investment	\$4,925,547
Investment Gains/(Losses)	\$8,451,504
Ending Market Value	\$241,693,150

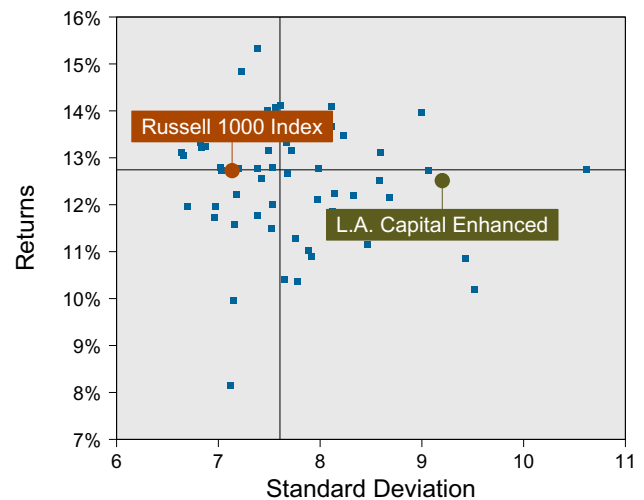
## Performance vs Callan Large Cap Core (Gross)



## Relative Return vs Russell 1000 Index



## Callan Large Cap Core (Gross) Annualized Four and Three-Quarter Year Risk vs Return



# LSV Asset Management

## Period Ended June 30, 2018

### 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.

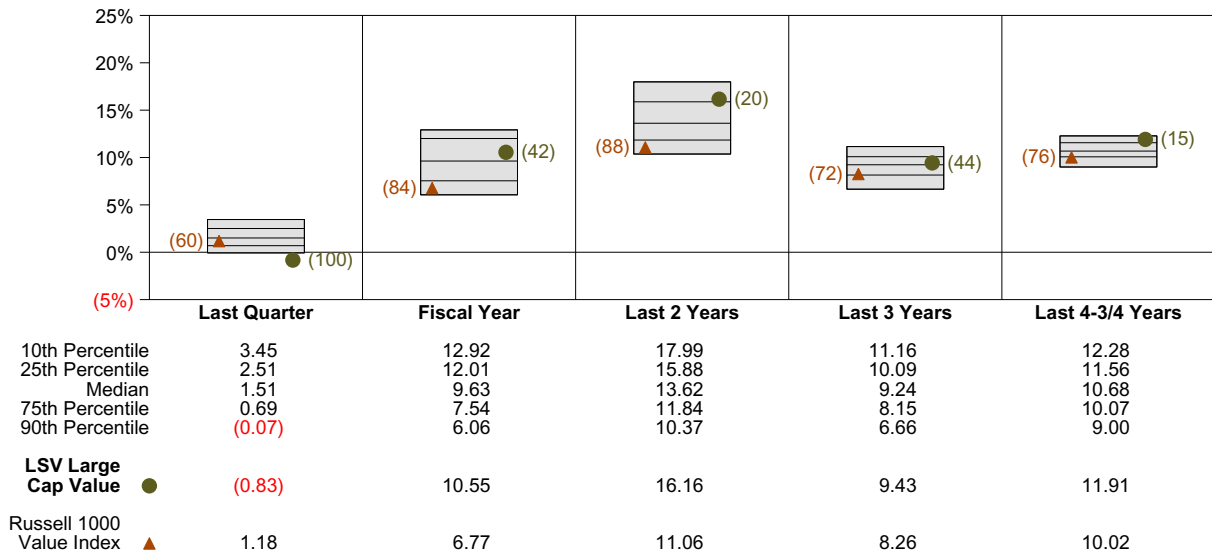
### Quarterly Summary and Highlights

- LSV Large Cap Value's portfolio posted a (0.83)% return for the quarter placing it in the 100 percentile of the Callan Large Cap Value group for the quarter and in the 42 percentile for the last year.
- LSV Large Cap Value's portfolio underperformed the Russell 1000 Value Index by 2.01% for the quarter and outperformed the Russell 1000 Value Index for the year by 3.78%.

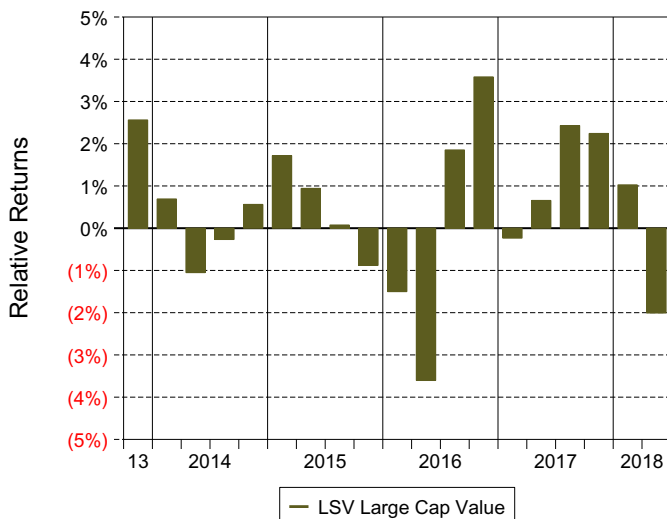
### Quarterly Asset Growth

Beginning Market Value	\$356,524,619
Net New Investment	\$-249,875
Investment Gains/(Losses)	\$-2,955,415
Ending Market Value	\$353,319,329

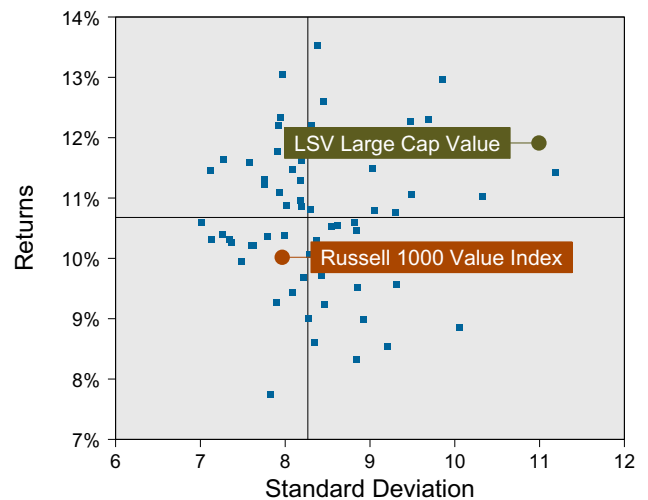
### Performance vs Callan Large Cap Value (Gross)



### Relative Return vs Russell 1000 Value Index



### Callan Large Cap Value (Gross) Annualized Four and Three-Quarter Year Risk vs Return



# Parametric Clifton Small Cap Period Ended June 30, 2018

## 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.

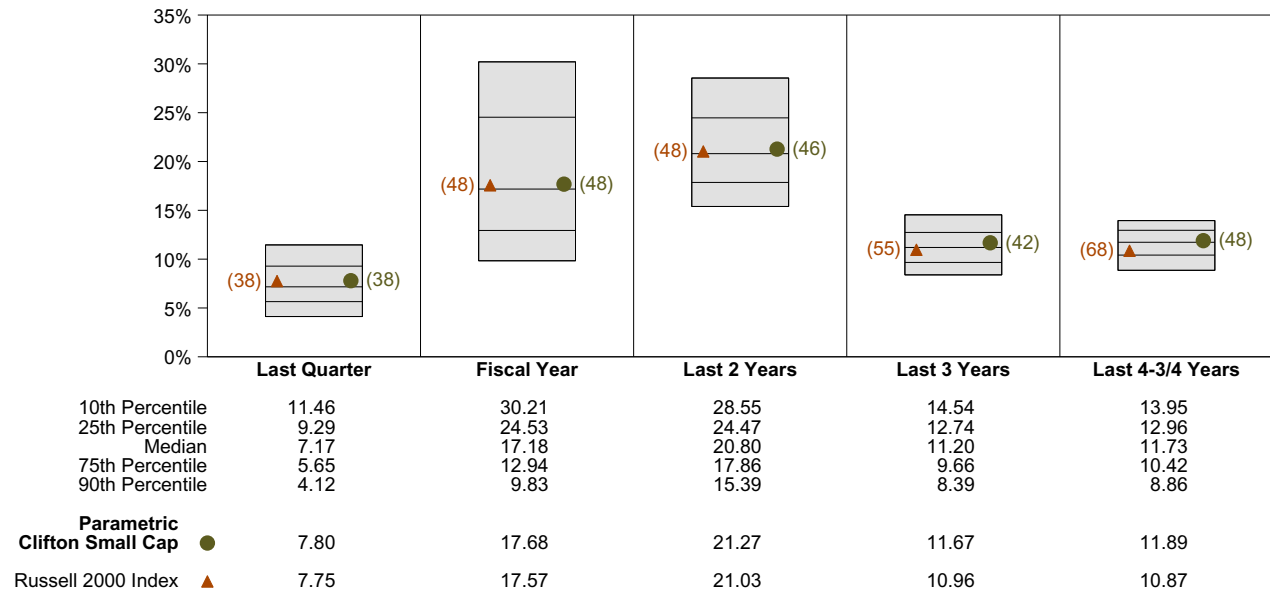
## Quarterly Summary and Highlights

- Parametric Clifton Small Cap's portfolio posted a 7.80% return for the quarter placing it in the 38 percentile of the Callan Small Capitalization group for the quarter and in the 48 percentile for the last year.
- Parametric Clifton Small Cap's portfolio outperformed the Russell 2000 Index by 0.04% for the quarter and outperformed the Russell 2000 Index for the year by 0.11%.

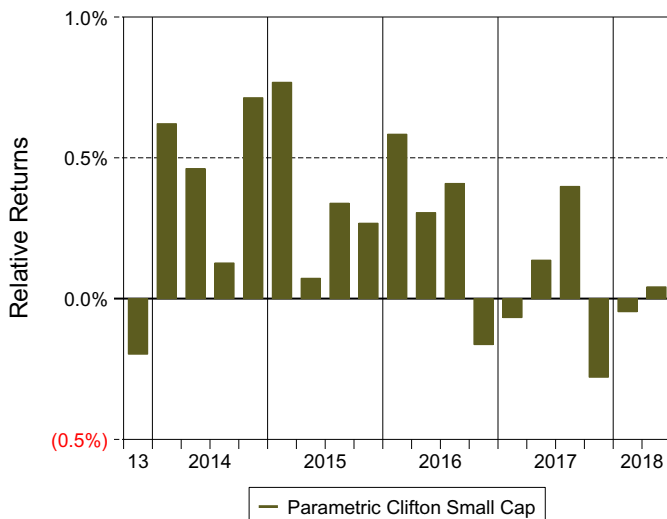
## Quarterly Asset Growth

Beginning Market Value	\$227,111,505
Net New Investment	\$0
Investment Gains/(Losses)	\$17,703,834
Ending Market Value	\$244,815,339

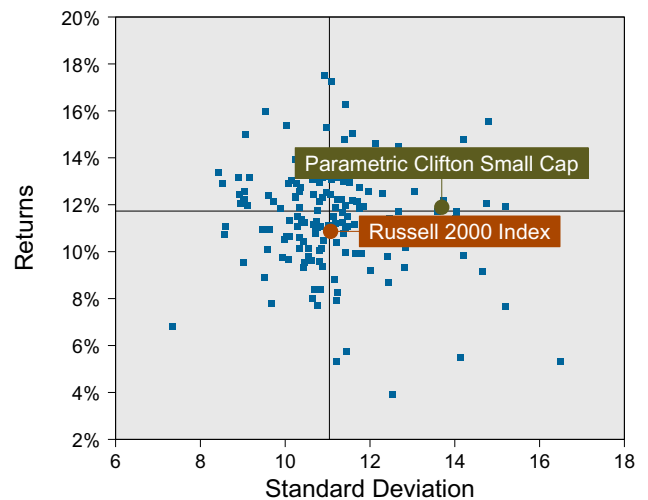
## Performance vs Callan Small Capitalization (Gross)



## Relative Return vs Russell 2000 Index



## Callan Small Capitalization (Gross) Annualized Four and Three-Quarter Year Risk vs Return



# PIMCO RAE

## Period Ended June 30, 2018

### 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.

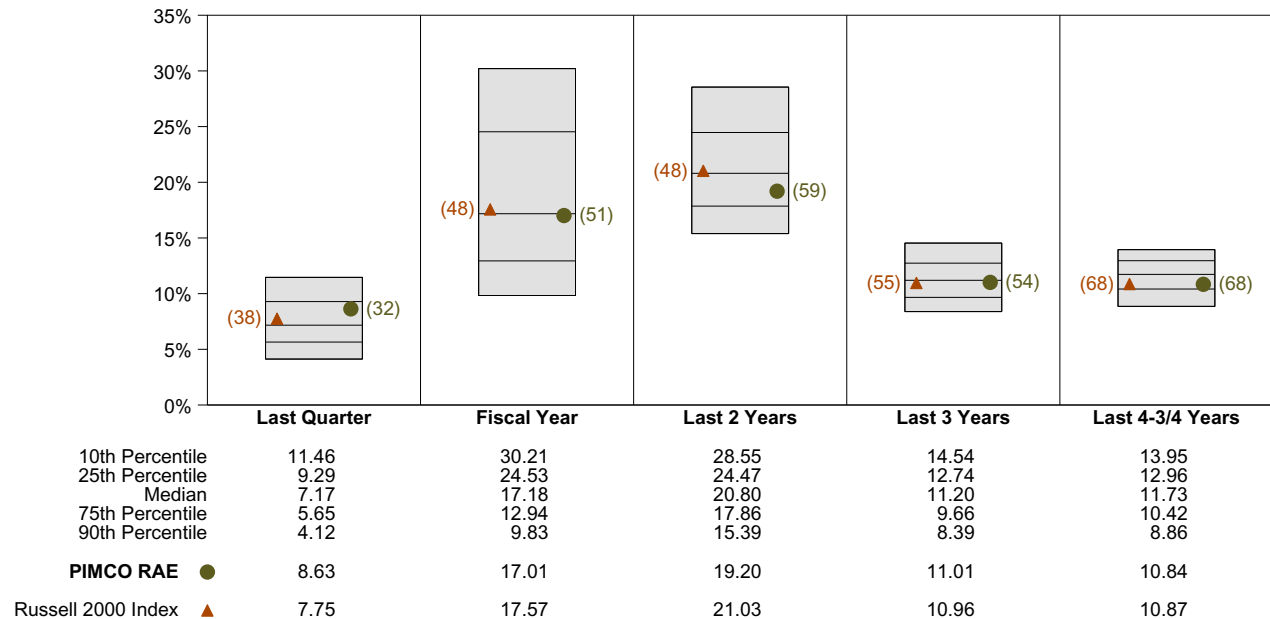
### Quarterly Summary and Highlights

- PIMCO RAE's portfolio posted a 8.63% return for the quarter placing it in the 32 percentile of the Callan Small Capitalization group for the quarter and in the 51 percentile for the last year.
- PIMCO RAE's portfolio outperformed the Russell 2000 Index by 0.88% for the quarter and underperformed the Russell 2000 Index for the year by 0.55%.

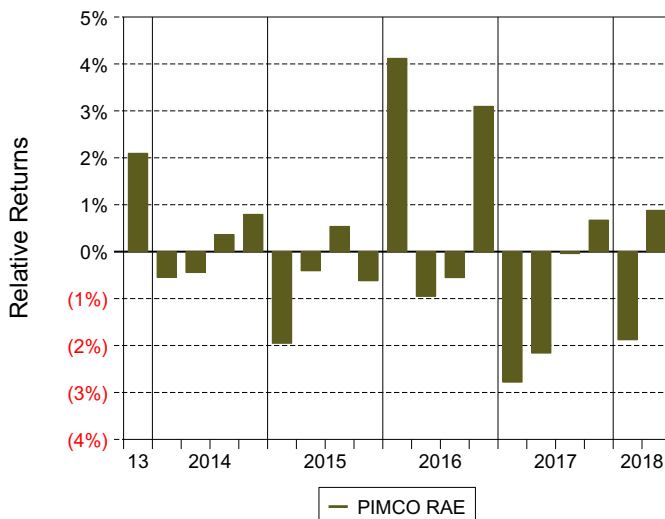
### Quarterly Asset Growth

Beginning Market Value	\$193,819,273
Net New Investment	\$4,882,856
Investment Gains/(Losses)	\$17,041,907
Ending Market Value	\$215,744,036

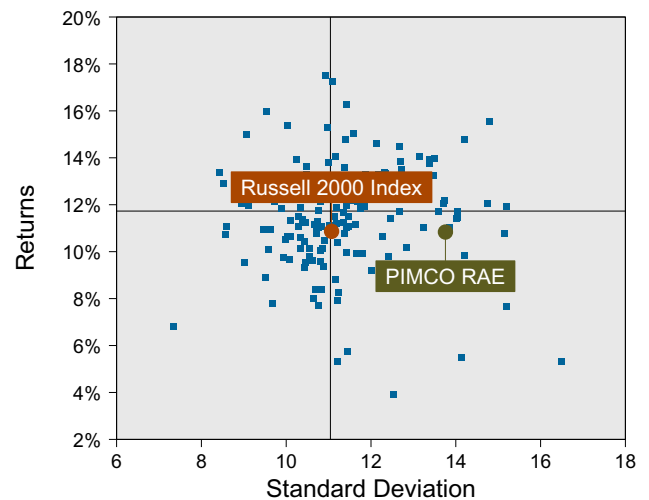
### Performance vs Callan Small Capitalization (Gross)



### Relative Return vs Russell 2000 Index



### Callan Small Capitalization (Gross) Annualized Four and Three-Quarter Year Risk vs Return



# International Equity Period Ended June 30, 2018

## Quarterly Summary and Highlights

- International Equity's portfolio posted a (1.29)% return for the quarter placing it in the 38 percentile of the Callan Non-US Equity group for the quarter and in the 28 percentile for the last year.
- International Equity's portfolio underperformed the International Equity Target by 0.55% for the quarter and outperformed the International Equity Target for the year by 3.07%.

## Quarterly Asset Growth

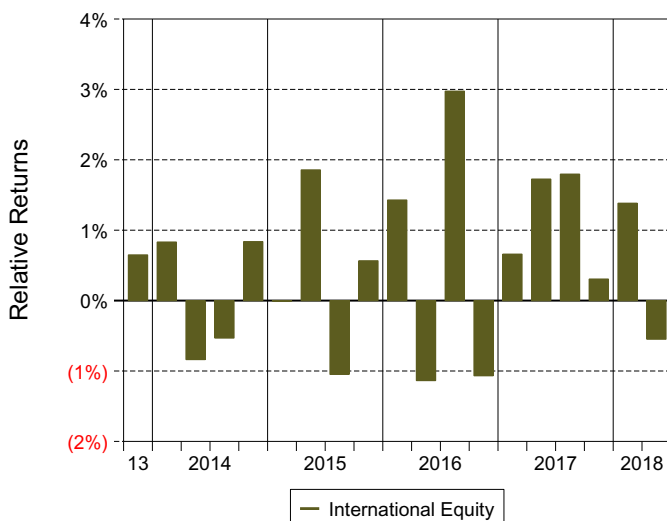
Beginning Market Value	\$1,066,335,672
Net New Investment	\$34,187,123
Investment Gains/(Losses)	\$-14,247,693
Ending Market Value	\$1,086,275,102

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

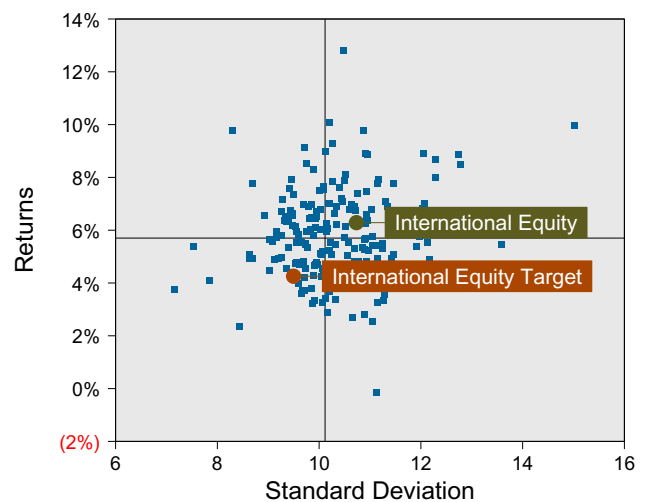


10th Percentile	0.79	13.78	18.49	9.26	7.92
25th Percentile	(0.64)	10.52	16.26	7.35	6.82
Median	(1.79)	7.81	14.43	6.02	5.70
75th Percentile	(3.01)	5.54	12.37	4.58	4.75
90th Percentile	(4.28)	4.07	10.58	3.69	3.76
<b>International Equity</b>	<b>(1.29)</b>	<b>10.11</b>	<b>16.97</b>	<b>7.00</b>	<b>6.29</b>
International Equity Target	(0.75)	7.04	13.09	4.74	4.26

## Relative Return vs International Equity Target



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





# DFA Intl Small Cap Value Period Ended June 30, 2018

## 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.

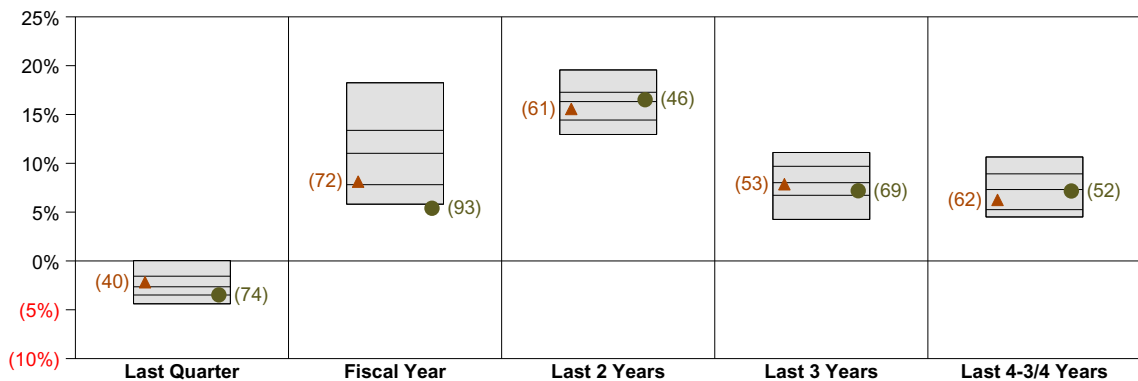
## Quarterly Summary and Highlights

- DFA Intl Small Cap Value's portfolio posted a (3.47)% return for the quarter placing it in the 74 percentile of the Callan International Small Cap Mut Funds group for the quarter and in the 93 percentile for the last year.
- DFA Intl Small Cap Value's portfolio underperformed the World ex US SC Value by 1.30% for the quarter and underperformed the World ex US SC Value for the year by 2.73%.

## Quarterly Asset Growth

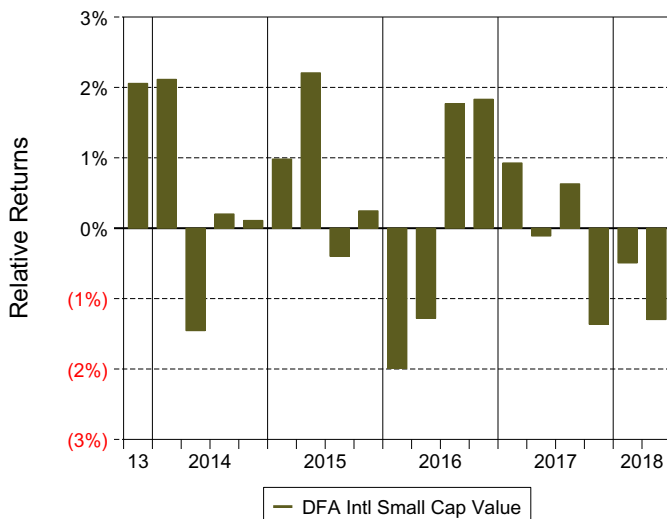
Beginning Market Value	\$102,260,514
Net New Investment	\$5,000,000
Investment Gains/(Losses)	\$-3,562,139
Ending Market Value	\$103,698,376

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

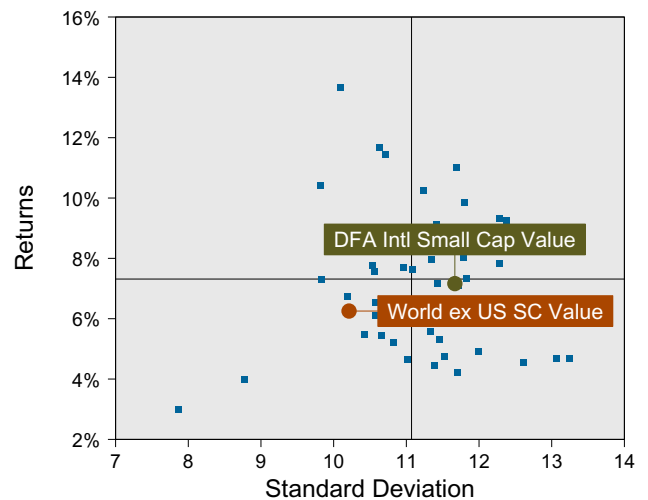


	Last Quarter	Fiscal Year	Last 2 Years	Last 3 Years	Last 4-3/4 Years
10th Percentile	0.03	18.25	19.56	11.11	10.65
25th Percentile	(1.56)	13.37	17.28	9.69	8.92
Median	(2.64)	11.02	16.32	8.02	7.31
75th Percentile	(3.49)	7.81	14.43	6.72	5.26
90th Percentile	(4.39)	5.81	12.95	4.25	4.50
DFA Intl Small Cap Value	(3.47)	5.40	16.51	7.19	7.16
World ex US SC Value	(2.18)	8.13	15.57	7.86	6.25

## Relative Return vs World ex US SC Value



## Callan International Small Cap Mut Funds (Net) Annualized Four and Three-Quarter Year Risk vs Return



# LSV Intl Value

## Period Ended June 30, 2018

### 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.

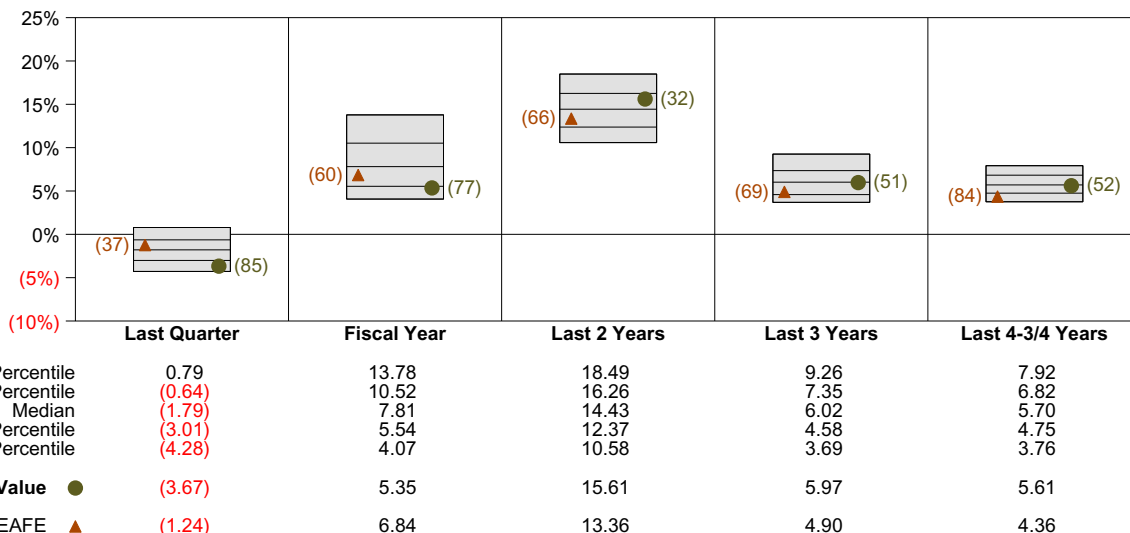
### Quarterly Summary and Highlights

- LSV Intl Value's portfolio posted a (3.67)% return for the quarter placing it in the 85 percentile of the Callan Non-US Equity group for the quarter and in the 77 percentile for the last year.
- LSV Intl Value's portfolio underperformed the MSCI EAFE by 2.44% for the quarter and underperformed the MSCI EAFE for the year by 1.49%.

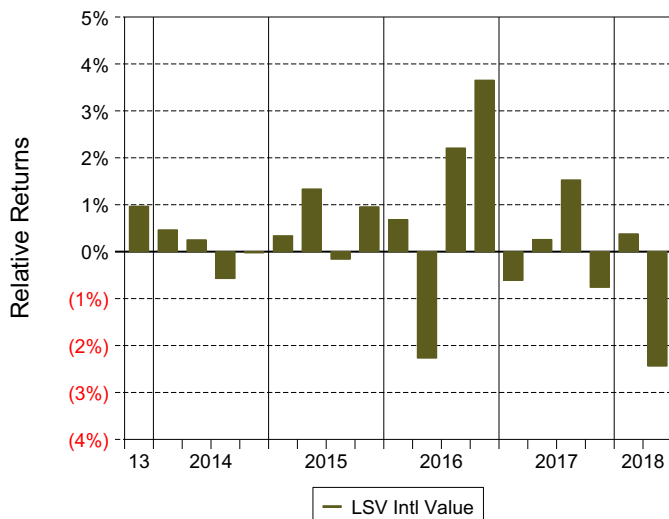
### Quarterly Asset Growth

Beginning Market Value	\$423,305,870
Net New Investment	\$16,605,717
Investment Gains/(Losses)	\$-16,037,951
Ending Market Value	\$423,873,636

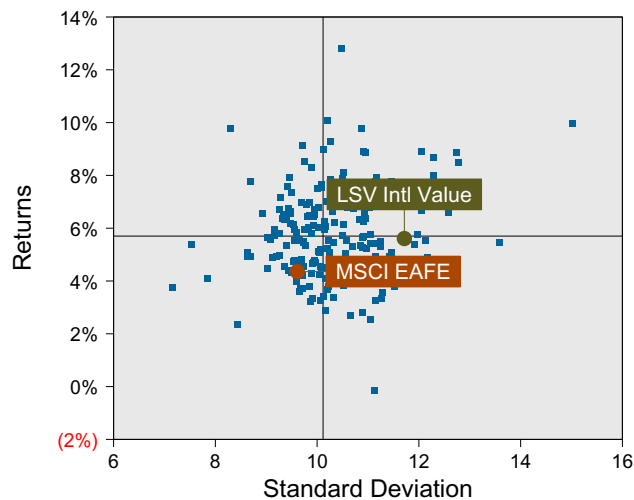
### Performance vs Callan Non-US Equity (Gross)



### Relative Return vs MSCI EAFE



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



# Vanguard Intl Explorer Fund

## Period Ended June 30, 2018

### 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.

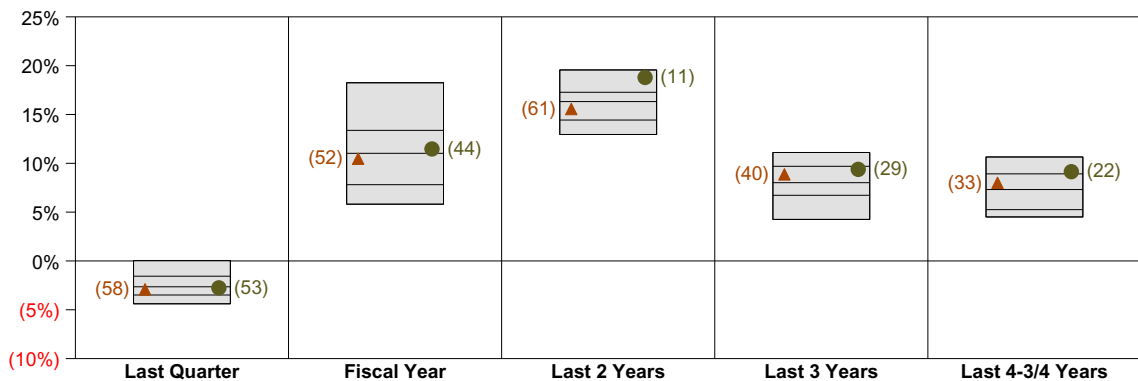
### Quarterly Summary and Highlights

- Vanguard Intl Explorer Fund's portfolio posted a (2.75)% return for the quarter placing it in the 53 percentile of the Callan International Small Cap Mut Funds group for the quarter and in the 44 percentile for the last year.
- Vanguard Intl Explorer Fund's portfolio outperformed the S&P BMI EPAC <\$2 B by 0.16% for the quarter and outperformed the S&P BMI EPAC <\$2 B for the year by 0.99%.

### Quarterly Asset Growth

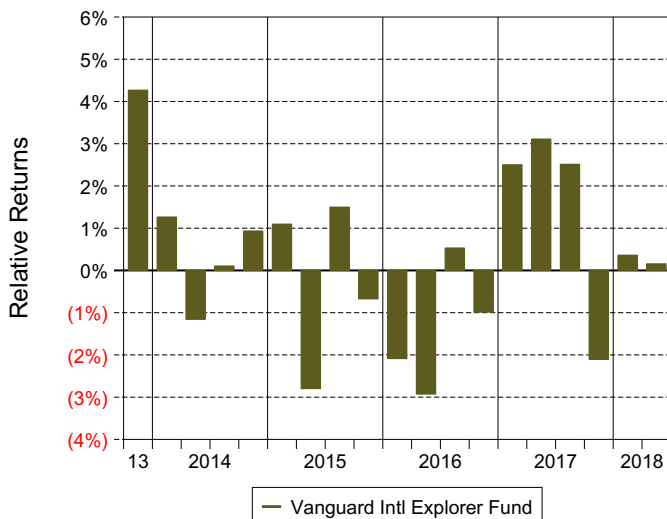
Beginning Market Value	\$107,420,444
Net New Investment	\$4,000,000
Investment Gains/(Losses)	\$-3,026,783
Ending Market Value	\$108,393,661

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

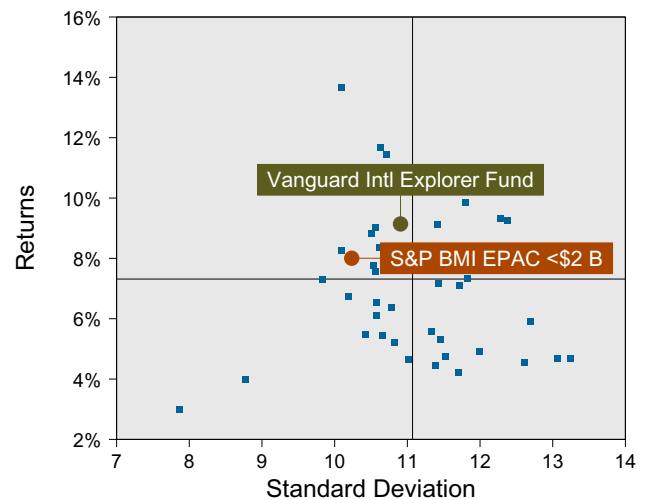


10th Percentile	0.03	18.25	19.56	11.11	10.65
25th Percentile	(1.56)	13.37	17.28	9.69	8.92
Median	(2.64)	11.02	16.32	8.02	7.31
75th Percentile	(3.49)	7.81	14.43	6.72	5.26
90th Percentile	(4.39)	5.81	12.95	4.25	4.50
<b>Vanguard Intl Explorer Fund</b>	<b>(2.75)</b>	11.47	18.79	9.38	9.14
<b>S&amp;P BMI EPAC &lt;\$2 B</b>	<b>(2.91)</b>	10.47	15.56	8.87	8.00

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



### Callan International Small Cap Mut Funds (Net) Annualized Four and Three-Quarter Year Risk vs Return



# William Blair

## Period Ended June 30, 2018

### 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.

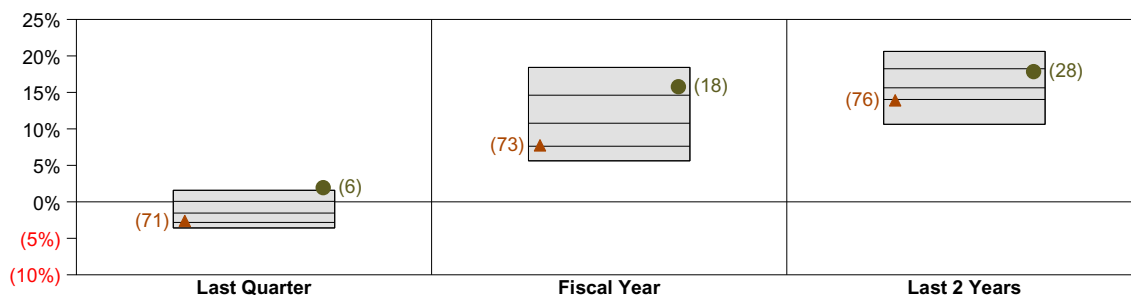
### Quarterly Summary and Highlights

- William Blair's portfolio posted a 1.94% return for the quarter placing it in the 6 percentile of the Callan Non-US All Country Growth Equity group for the quarter and in the 18 percentile for the last year.
- William Blair's portfolio outperformed the MSCI ACWI ex US IMI by 4.55% for the quarter and outperformed the MSCI ACWI ex US IMI for the year by 8.03%.

### Quarterly Asset Growth

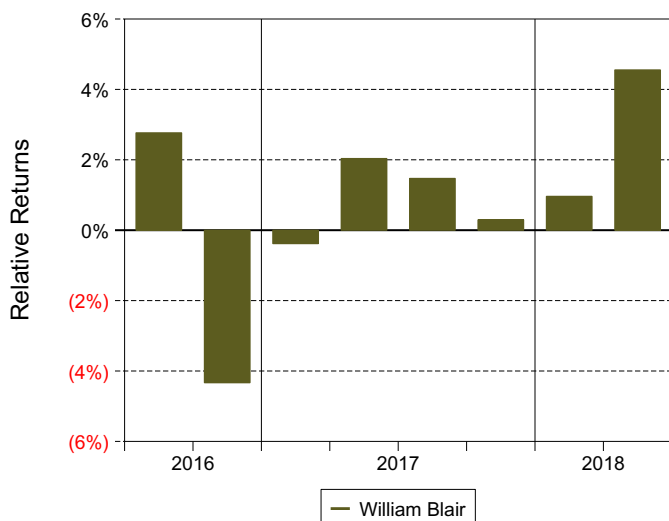
Beginning Market Value	\$433,348,844
Net New Investment	\$8,581,406
Investment Gains/(Losses)	\$8,379,180
Ending Market Value	\$450,309,429

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

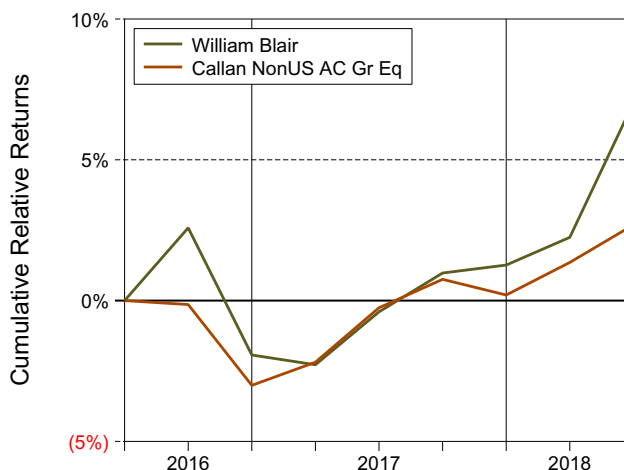


10th Percentile	1.58
25th Percentile	0.07
Median	(1.54)
75th Percentile	(2.82)
90th Percentile	(3.58)
William Blair	1.94
MSCI ACWI ex US IMI	(2.61)

### Relative Return vs MSCI ACWI ex US IMI



### Cumulative Returns vs MSCI ACWI ex US IMI



# Domestic Fixed Income Period Ended June 30, 2018

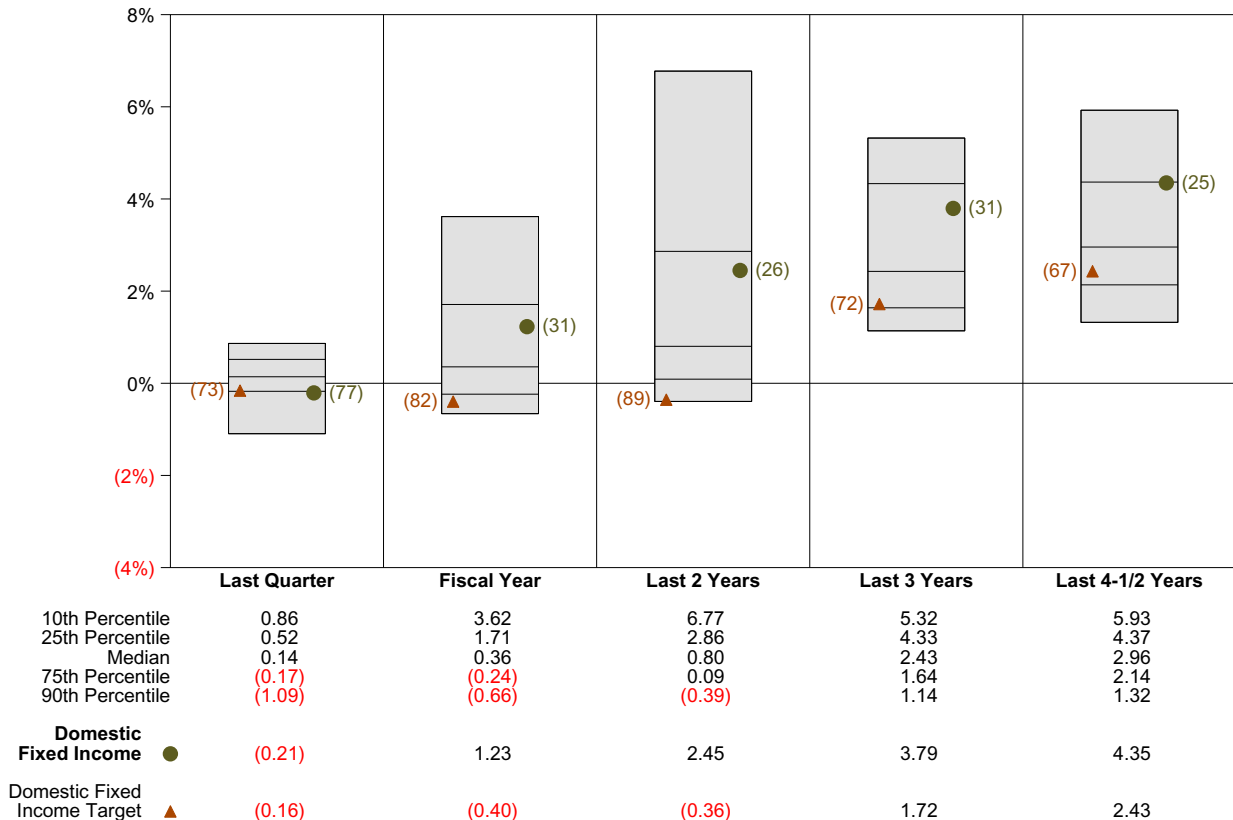
## Quarterly Summary and Highlights

- Domestic Fixed Income's portfolio posted a (0.21)% return for the quarter placing it in the 77 percentile of the Total Domestic Fixed-Inc Database group for the quarter and in the 31 percentile for the last year.
- Domestic Fixed Income's portfolio underperformed the Domestic Fixed Income Target by 0.05% for the quarter and outperformed the Domestic Fixed Income Target for the year by 1.63%.

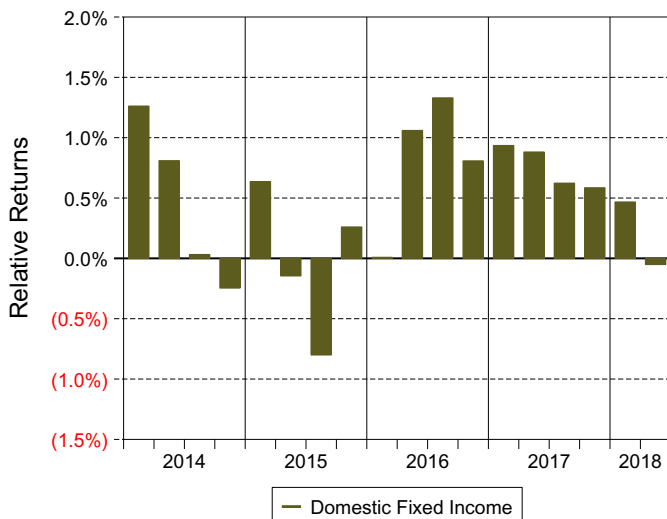
## Quarterly Asset Growth

Beginning Market Value	\$1,862,116,994
Net New Investment	\$82,797,268
Investment Gains/(Losses)	\$-3,625,244
Ending Market Value	\$1,941,289,018

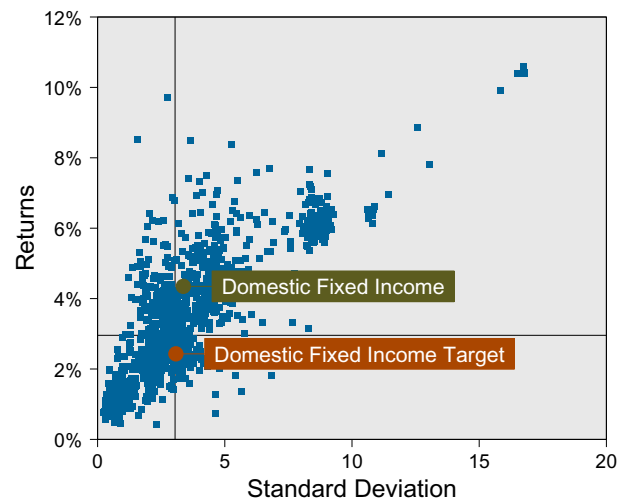
## Performance vs Total Domestic Fixed-Inc Database (Gross)



## Relative Returns vs Domestic Fixed Income Target



## Total Domestic Fixed-Inc Database (Gross) Annualized Four and One-Half Year Risk vs Return



# Declaration Total Return Period Ended June 30, 2018

## 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.

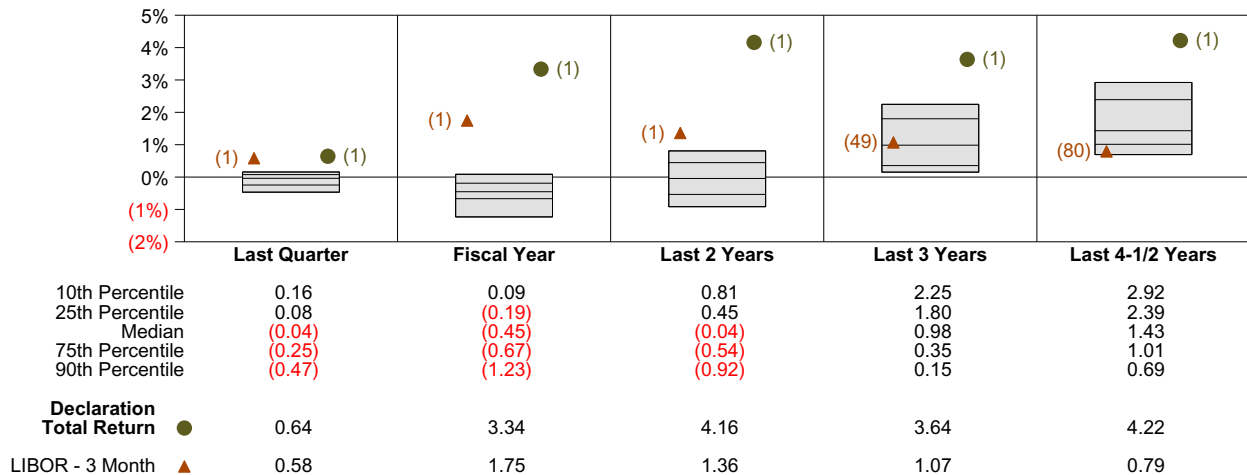
## Quarterly Summary and Highlights

- Declaration Total Return's portfolio posted a 0.64% 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 0.06% for the quarter and outperformed the LIBOR - 3 Month for the year by 1.59%.

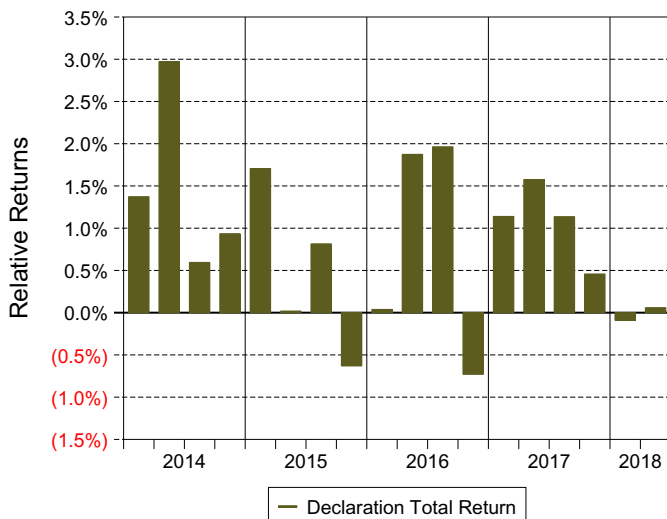
## Quarterly Asset Growth

Beginning Market Value	\$144,662,471
Net New Investment	-\$73,782
Investment Gains/(Losses)	\$928,519
Ending Market Value	\$145,517,209

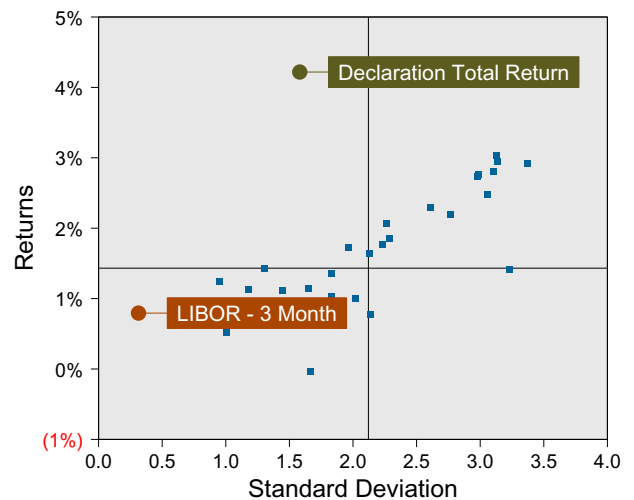
## Performance vs Callan Intermediate Fixed Inc Mut Funds (Net)



## Relative Return vs LIBOR - 3 Month



## Callan Intermediate Fixed Inc Mut Funds (Net) Annualized Four and One-Half Year Risk vs Return



# Prudential Period Ended June 30, 2018

## 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.

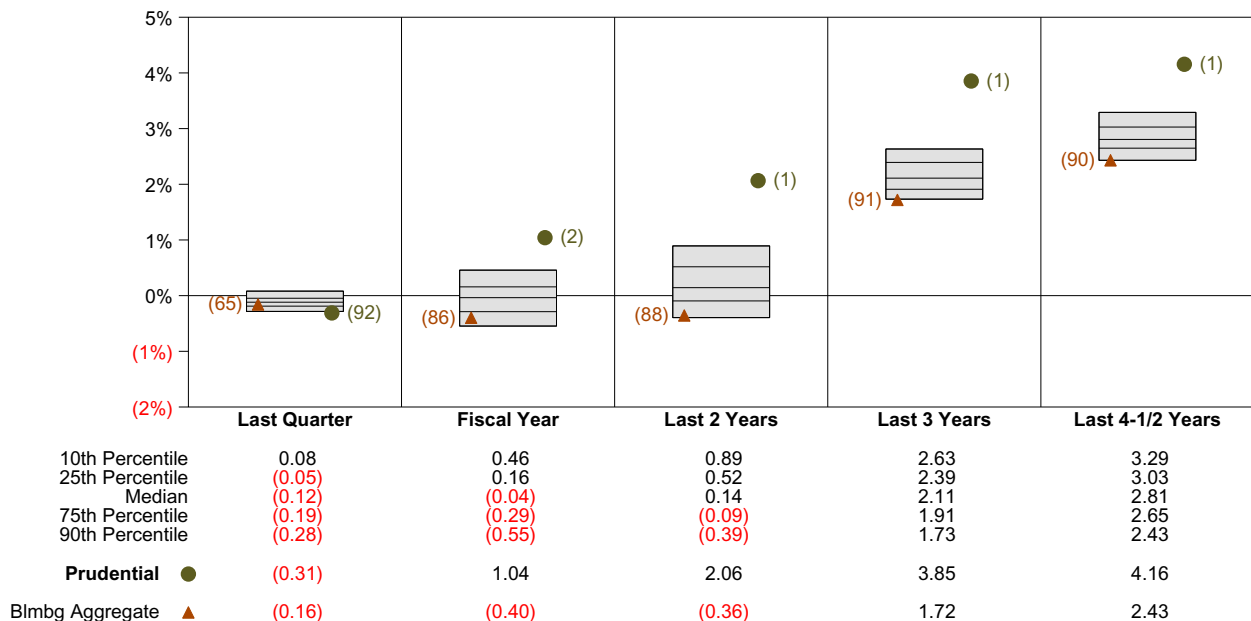
## Quarterly Summary and Highlights

- Prudential's portfolio posted a (0.31)% return for the quarter placing it in the 92 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 2 percentile for the last year.
- Prudential's portfolio underperformed the Blmbg Aggregate by 0.15% for the quarter and outperformed the Blmbg Aggregate for the year by 1.44%.

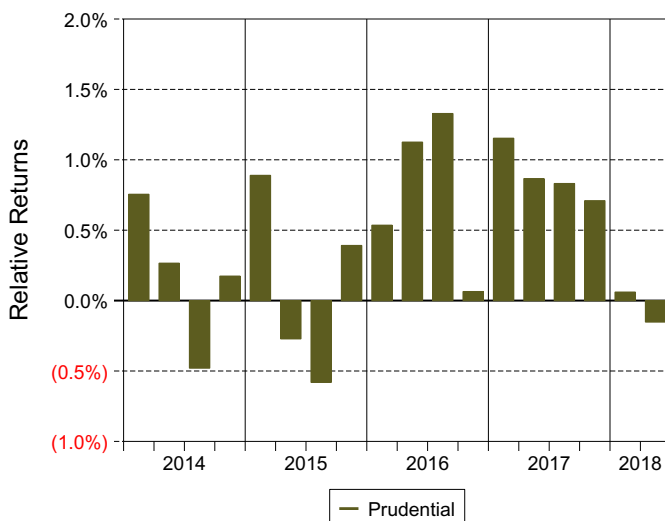
## Quarterly Asset Growth

Beginning Market Value	\$195,000,668
Net New Investment	\$42,874,331
Investment Gains/(Losses)	\$-471,591
Ending Market Value	\$237,403,408

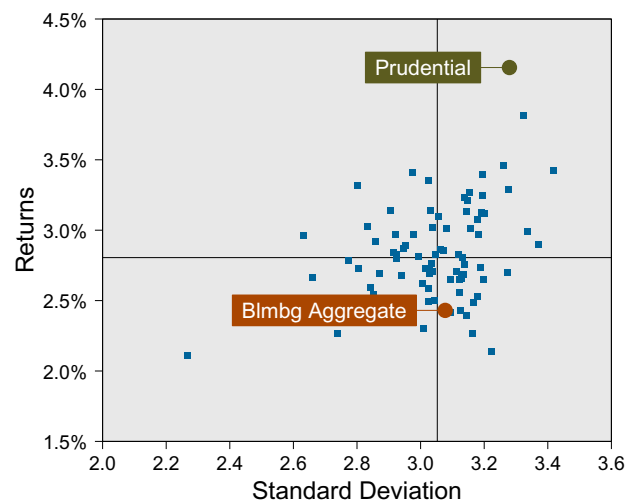
## Performance vs Callan Core Bond Fixed Income (Gross)



## Relative Return vs Blmbg Aggregate



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



# SSgA US Govt Credit Bd Idx Period Ended June 30, 2018

## 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.

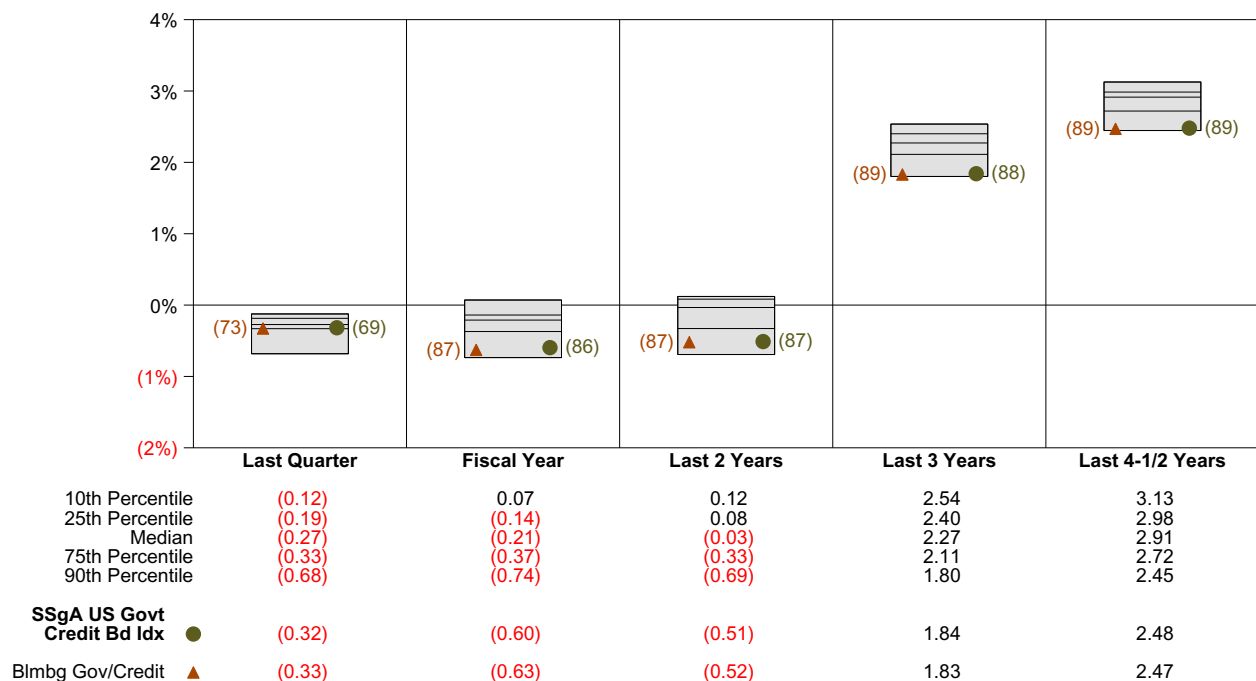
## Quarterly Summary and Highlights

- SSgA US Govt Credit Bd Idx's portfolio posted a (0.32)% return for the quarter placing it in the 69 percentile of the Callan Government/Credit group for the quarter and in the 86 percentile for the last year.
- SSgA US Govt Credit Bd Idx's portfolio outperformed the Blmbg Gov/Credit by 0.01% for the quarter and outperformed the Blmbg Gov/Credit for the year by 0.03%.

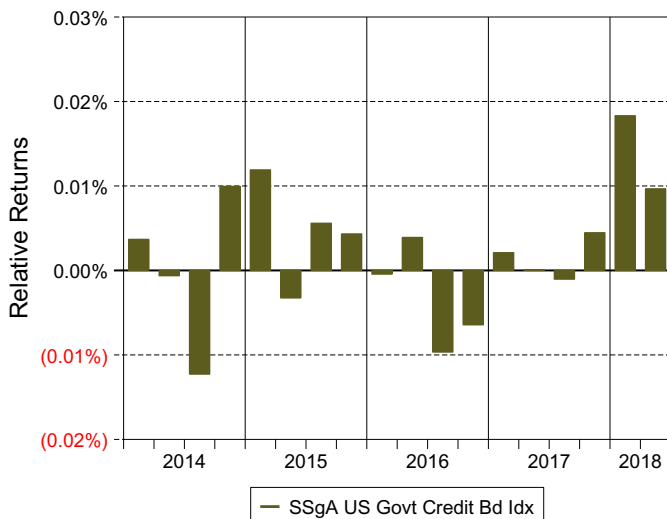
## Quarterly Asset Growth

Beginning Market Value	\$260,878,283
Net New Investment	\$10,484,688
Investment Gains/(Losses)	\$-734,729
Ending Market Value	\$270,628,242

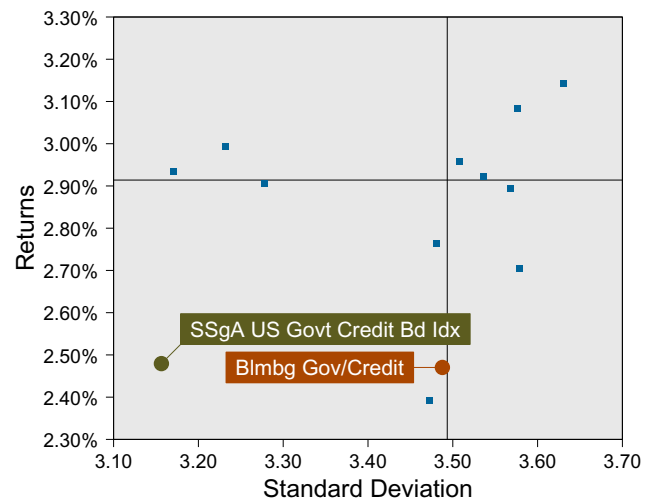
## Performance vs Callan Government/Credit (Gross)



## Relative Return vs Blmbg Gov/Credit



## Callan Government/Credit (Gross) Annualized Four and One-Half Year Risk vs Return





# Wells Capital Period Ended June 30, 2018

## 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.

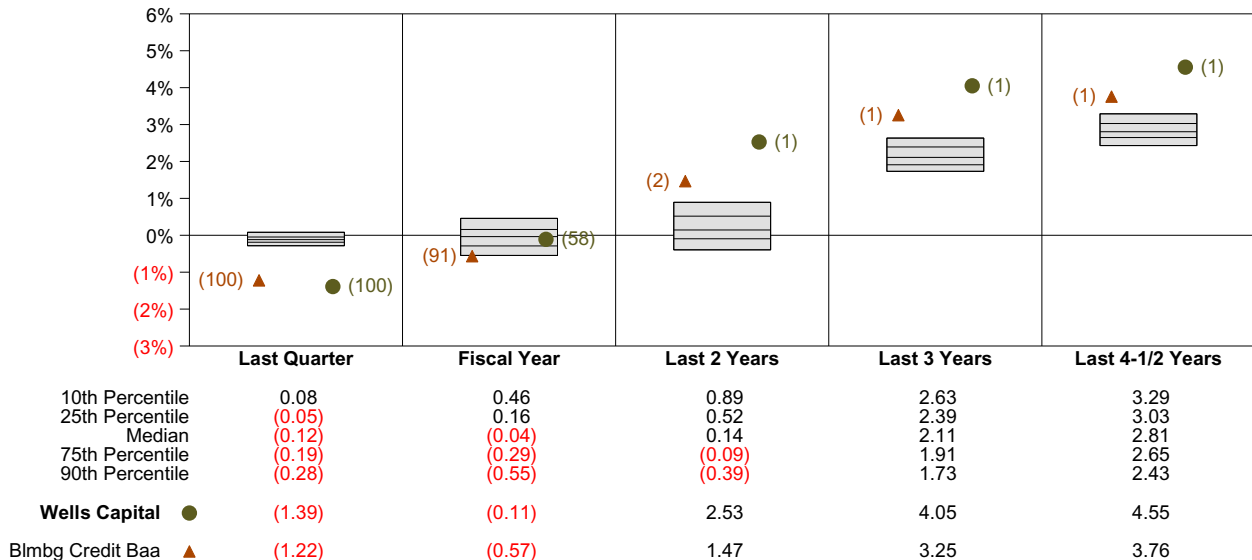
## Quarterly Summary and Highlights

- Wells Capital's portfolio posted a (1.39)% return for the quarter placing it in the 100 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 58 percentile for the last year.
- Wells Capital's portfolio underperformed the Blmbg Credit Baa by 0.17% for the quarter and outperformed the Blmbg Credit Baa for the year by 0.46%.

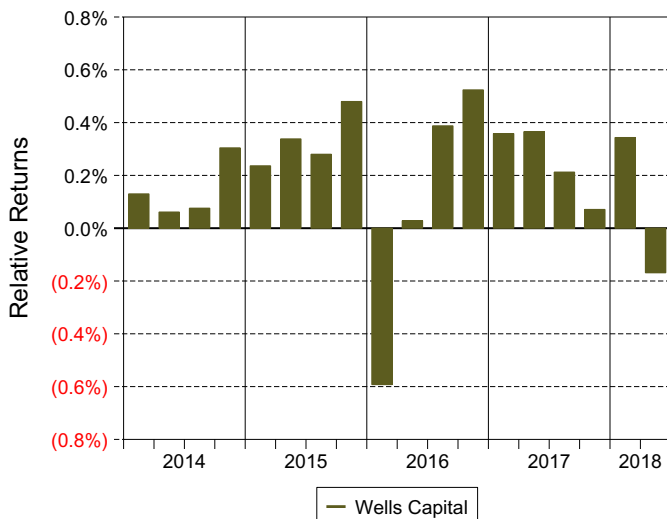
## Quarterly Asset Growth

Beginning Market Value	\$513,387,692
Net New Investment	\$21,803,597
Investment Gains/(Losses)	\$-7,260,827
Ending Market Value	\$527,930,462

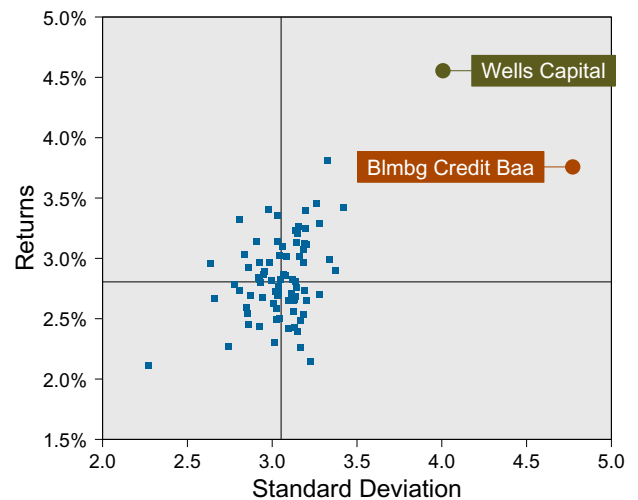
## Performance vs Callan Core Bond Fixed Income (Gross)



## Relative Return vs Blmbg Credit Baa



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



# Western Asset Management Company

## Period Ended June 30, 2018

### 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.

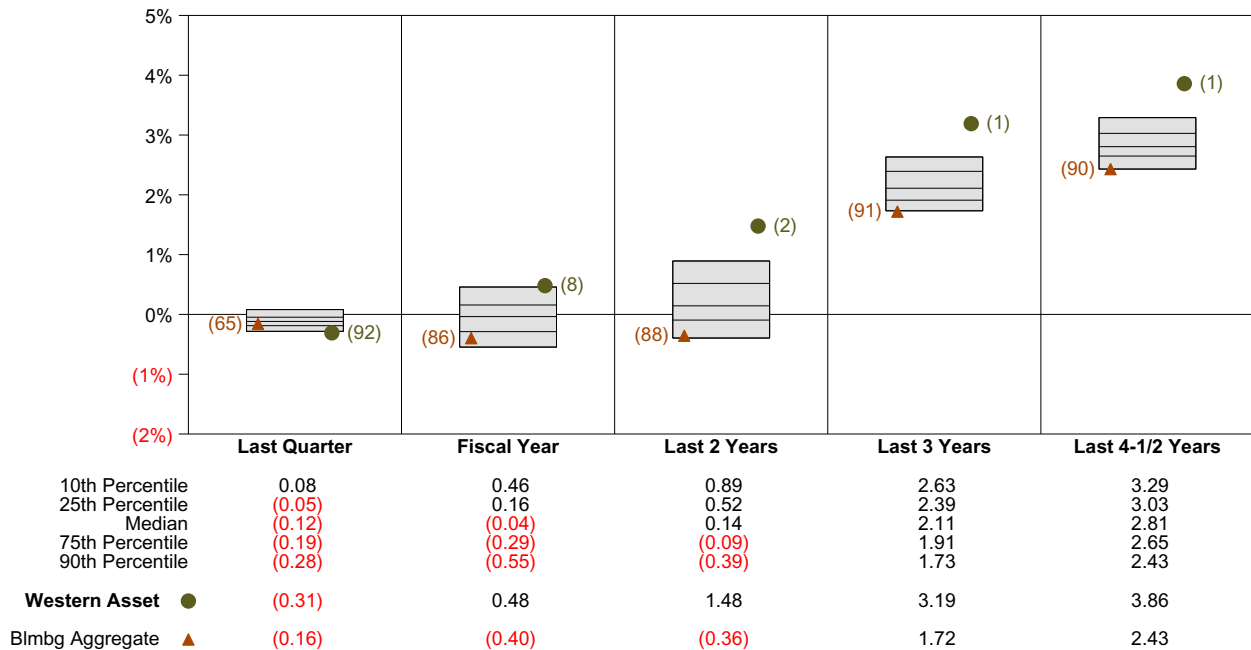
### Quarterly Summary and Highlights

- Western Asset's portfolio posted a (0.31)% return for the quarter placing it in the 92 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 8 percentile for the last year.
- Western Asset's portfolio underperformed the Blmbg Aggregate by 0.15% for the quarter and outperformed the Blmbg Aggregate for the year by 0.88%.

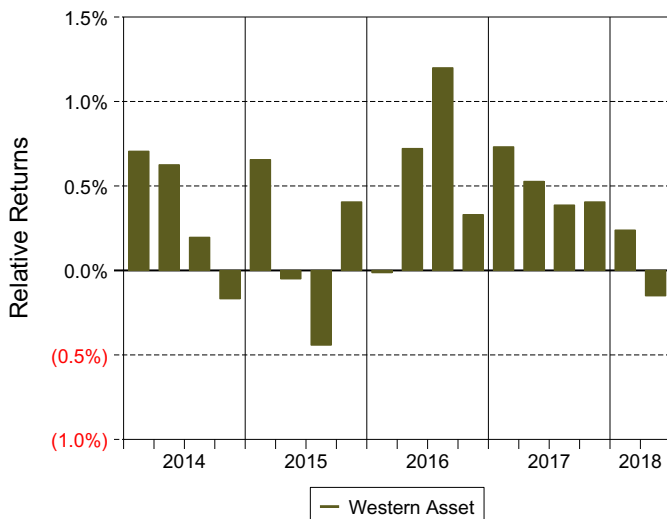
### Quarterly Asset Growth

Beginning Market Value	\$519,560,201
Net New Investment	\$14,840,036
Investment Gains/(Losses)	\$-1,605,259
Ending Market Value	\$532,794,978

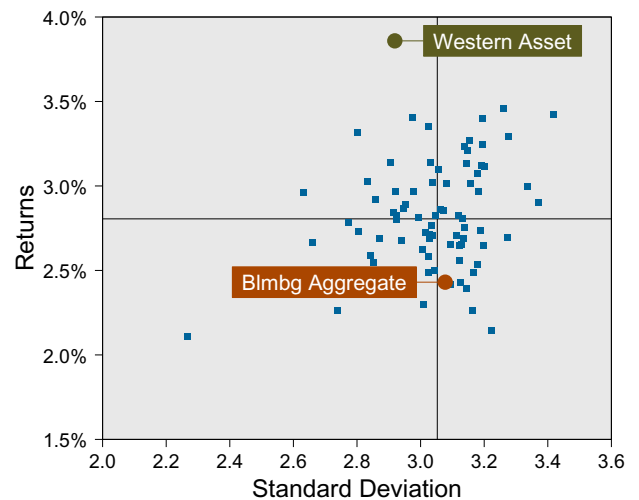
### Performance vs Callan Core Bond Fixed Income (Gross)



### Relative Return vs Blmbg Aggregate



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



# Western Asset TIPS Period Ended June 30, 2018

## Investment Philosophy

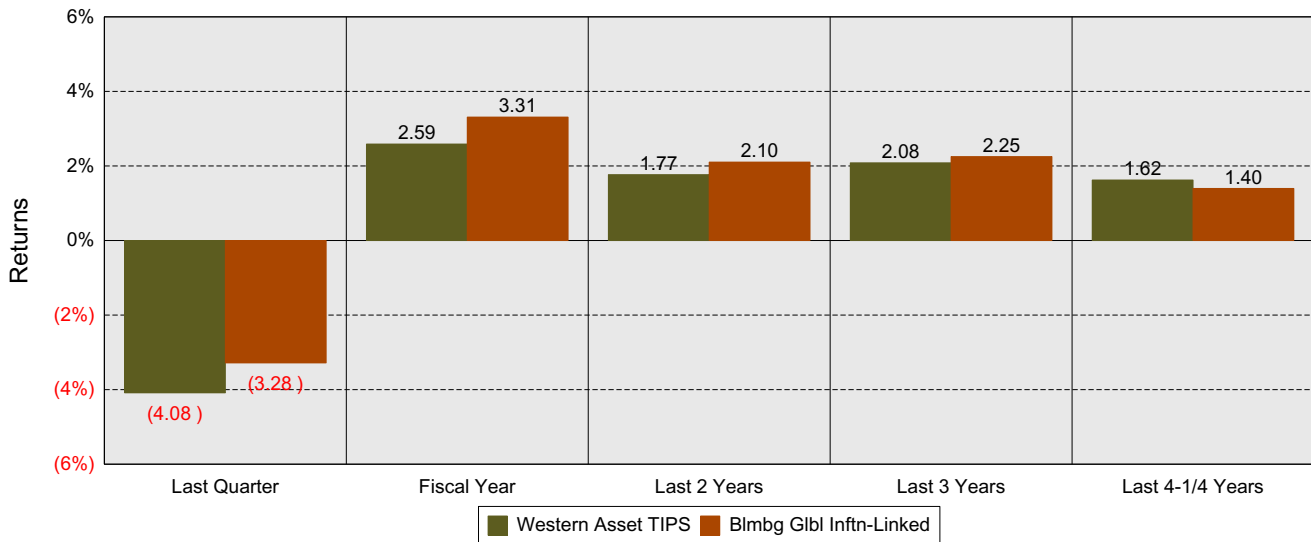
Western Asset's Global Inflation-Linked composite includes portfolios that employ an active, team-managed investment approach around a long-term, value-oriented investment philosophy. Constructed primarily of inflation-indexed securities, these portfolios use diversified strategies in seeking to add value while minimizing risk. Value can be added through country selection, term structure, issue selection, duration management and currency management.

## Quarterly Summary and Highlights

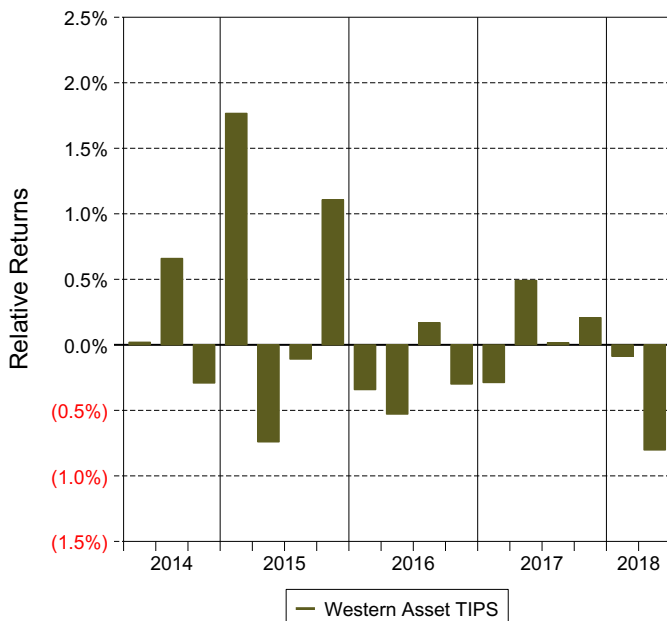
- Western Asset TIPS's portfolio underperformed the Blmbg Gbl Inftn-Linked by 0.80% for the quarter and underperformed the Blmbg Gbl Inftn-Linked for the year by 0.72%.

## Quarterly Asset Growth

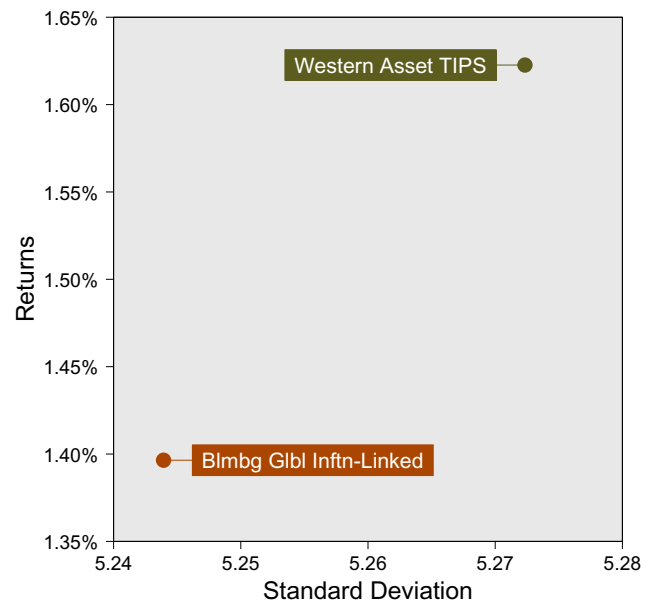
Beginning Market Value	\$375,957,022
Net New Investment	\$-116,649
Investment Gains/(Losses)	\$-15,356,234
Ending Market Value	\$360,484,139



Relative Return vs Blmbg Gbl Inftn-Linked



Annualized Four and One-Quarter Year Risk vs Return



# JP Morgan Infrastructure Period Ended June 30, 2018

## Investment Philosophy

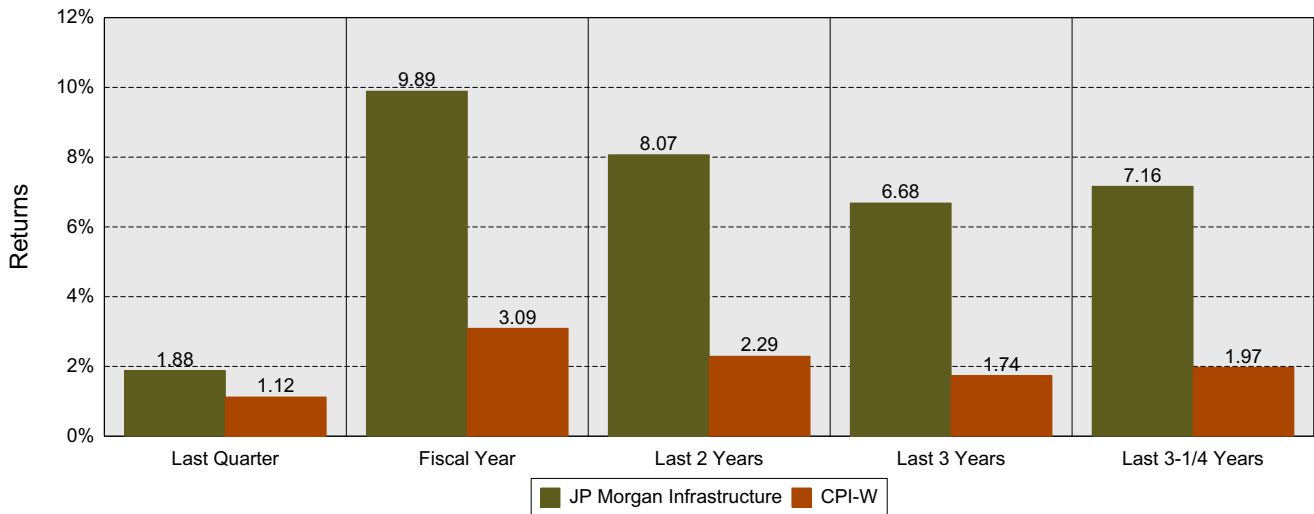
The only open-ended private commingled infrastructure fund in the U.S, the JPMorgan Infrastructure Investments Fund invests in stabilized assets in OECD countries with selected value-added opportunities, across infrastructure industry sub-sectors, including: toll roads, bridges and tunnels; oil and gas 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

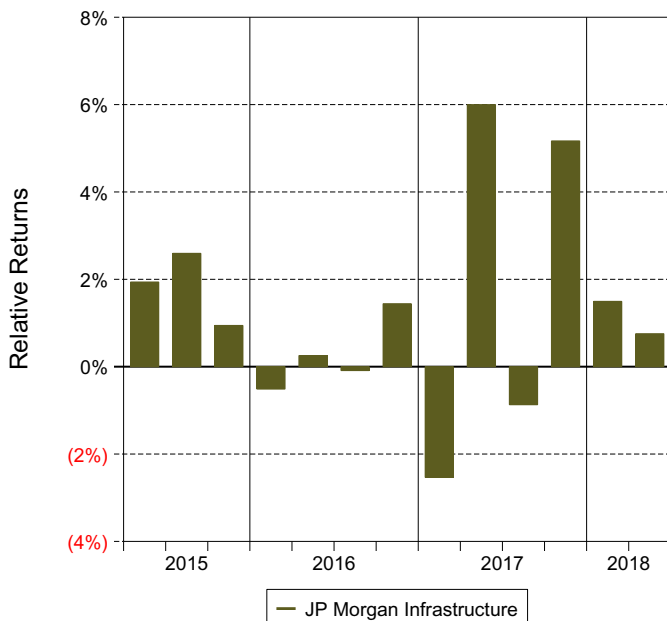
- JP Morgan Infrastructure's portfolio outperformed the CPI-W by 0.75% for the quarter and outperformed the CPI-W for the year by 6.80%.

## Quarterly Asset Growth

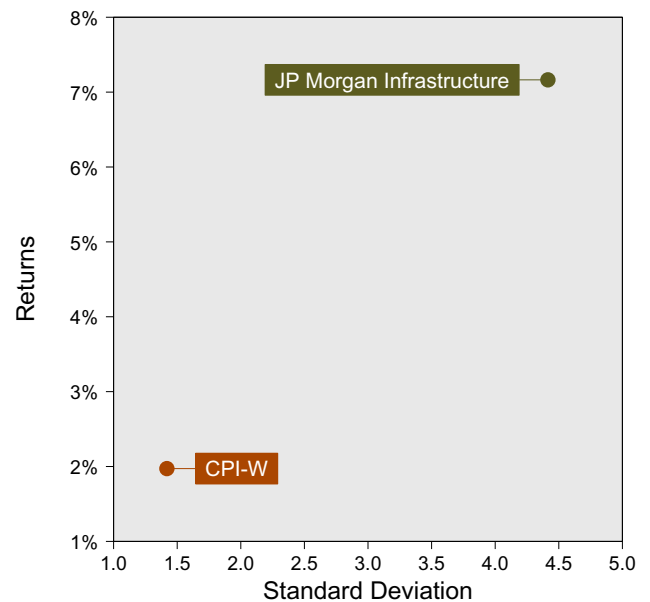
Beginning Market Value	\$121,969,900
Net New Investment	\$-2,051,682
Investment Gains/(Losses)	\$2,290,293
Ending Market Value	\$122,208,511



Relative Return vs CPI-W



Annualized Three and One-Quarter Year Risk vs Return



# Grosvenor Cust. Infrastructure Period Ended June 30, 2018

## Investment Philosophy

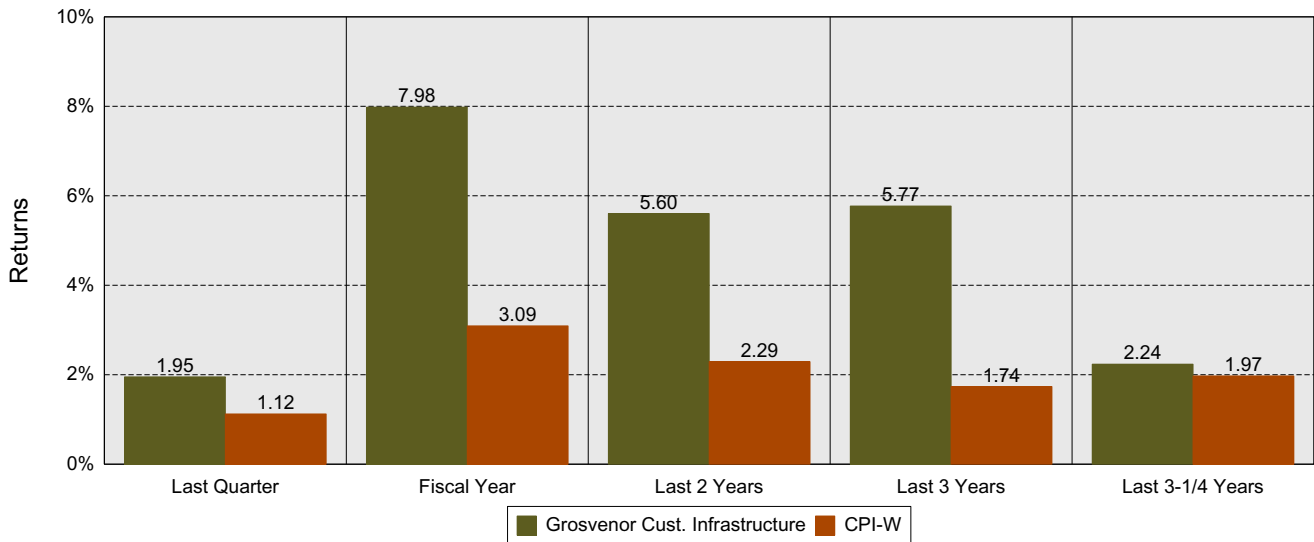
The Customized Infrastructure Strategies LP is a commingled fund focused on providing a comprehensive, diversified solution for investors looking to access the infrastructure asset class. The Fund seeks to generate stable, long-term yield and attractive risk-adjusted returns by investing in a diversified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

## Quarterly Summary and Highlights

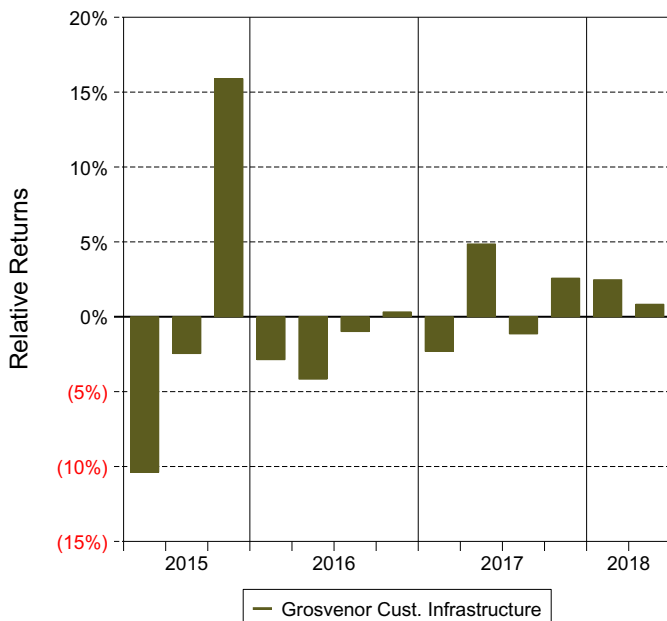
- Grosvenor Cust. Infrastructure's portfolio outperformed the CPI-W by 0.83% for the quarter and outperformed the CPI-W for the year by 4.89%.

## Quarterly Asset Growth

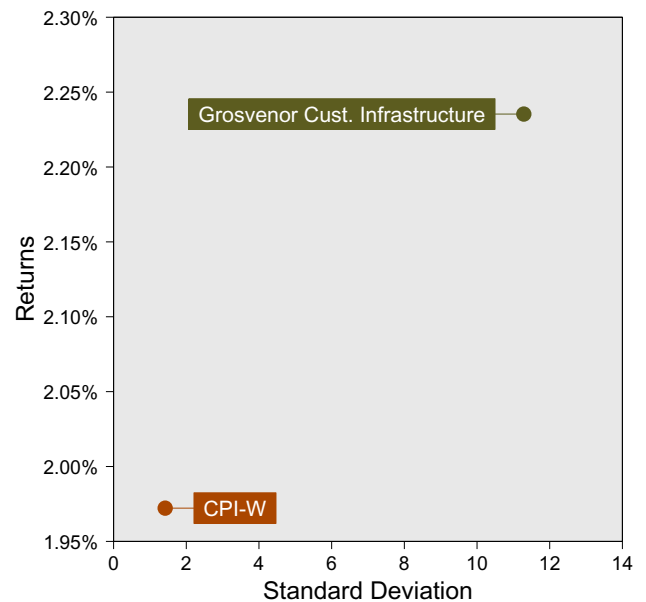
Beginning Market Value	\$39,103,514
Net New Investment	\$0
Investment Gains/(Losses)	\$763,087
Ending Market Value	\$39,866,601



Relative Return vs CPI-W



Annualized Three and One-Quarter Year Risk vs Return



# Invesco Core Real Estate Period Ended June 30, 2018

## 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.

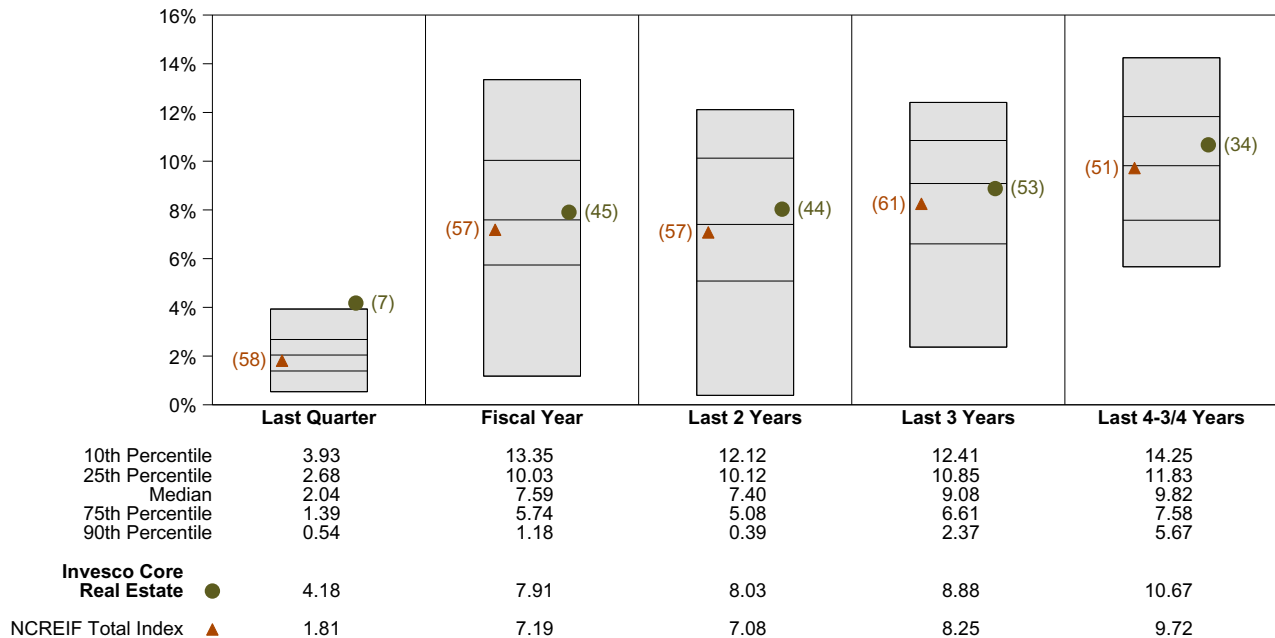
## Quarterly Summary and Highlights

- Invesco Core Real Estate's portfolio posted a 4.18% return for the quarter placing it in the 7 percentile of the Callan Total Domestic Real Estate DB group for the quarter and in the 45 percentile for the last year.
- Invesco Core Real Estate's portfolio outperformed the NCREIF Total Index by 2.37% for the quarter and outperformed the NCREIF Total Index for the year by 0.72%.

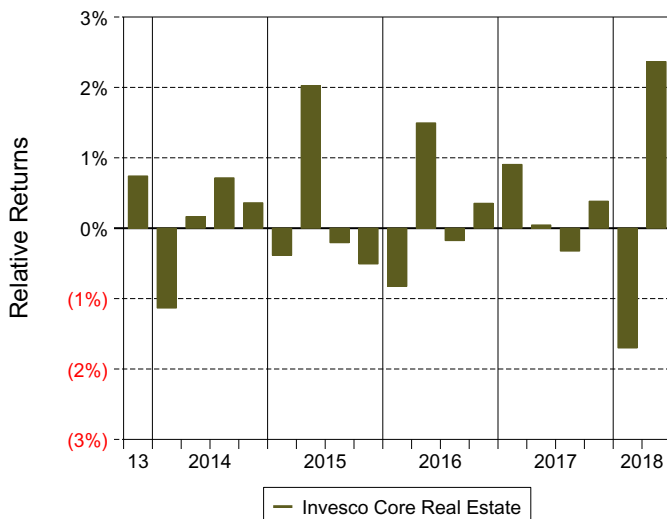
## Quarterly Asset Growth

Beginning Market Value	\$131,584,803
Net New Investment	\$0
Investment Gains/(Losses)	\$5,495,813
Ending Market Value	\$137,080,616

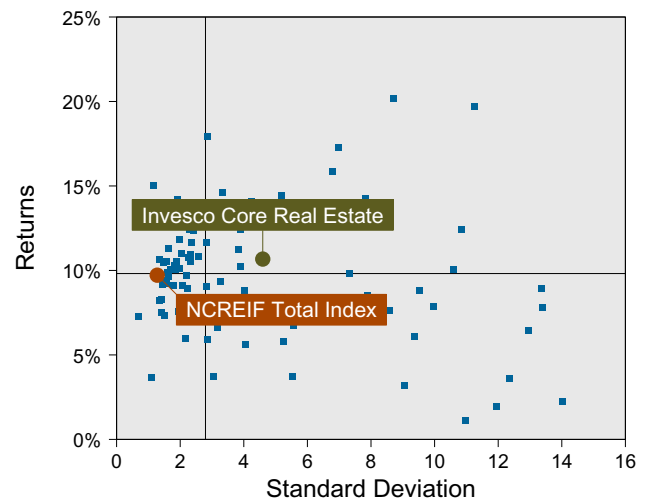
## Performance vs Callan Total Domestic Real Estate DB (Net)



## Relative Return vs NCREIF Total Index



## Callan Total Domestic Real Estate DB (Net) Annualized Four and Three-Quarter Year Risk vs Return



# JP Morgan RE Inc & Growth Period Ended June 30, 2018

## 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.

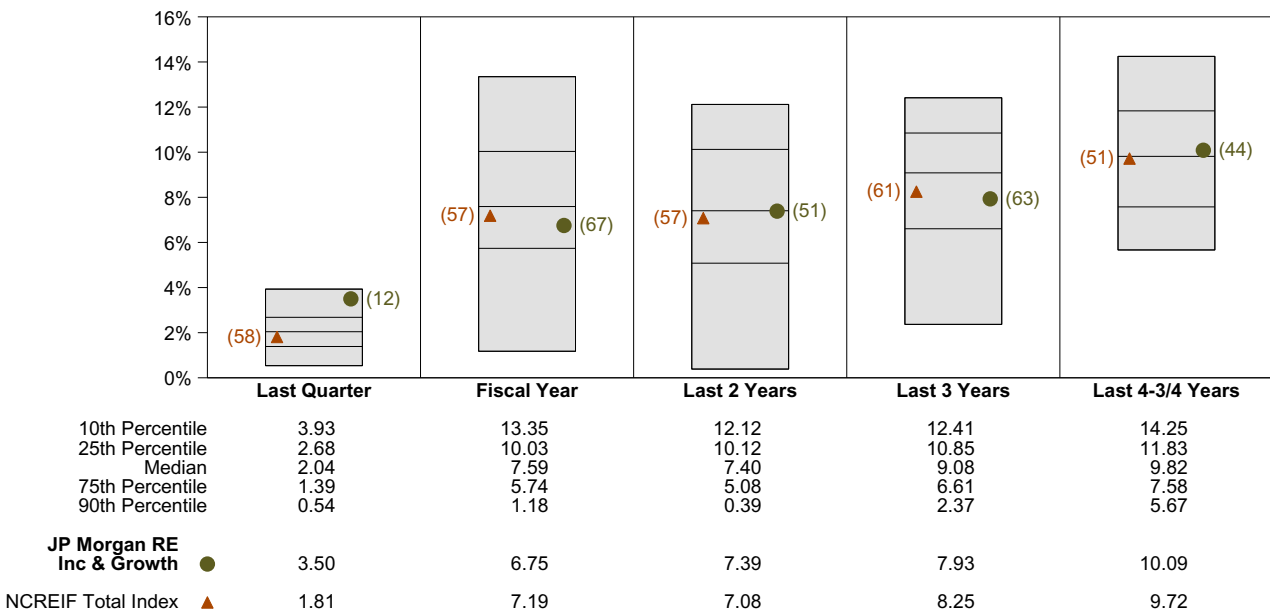
## Quarterly Summary and Highlights

- JP Morgan RE Inc & Growth's portfolio posted a 3.50% return for the quarter placing it in the 12 percentile of the Callan Total Domestic Real Estate DB group for the quarter and in the 67 percentile for the last year.
- JP Morgan RE Inc & Growth's portfolio outperformed the NCREIF Total Index by 1.69% for the quarter and underperformed the NCREIF Total Index for the year by 0.44%.

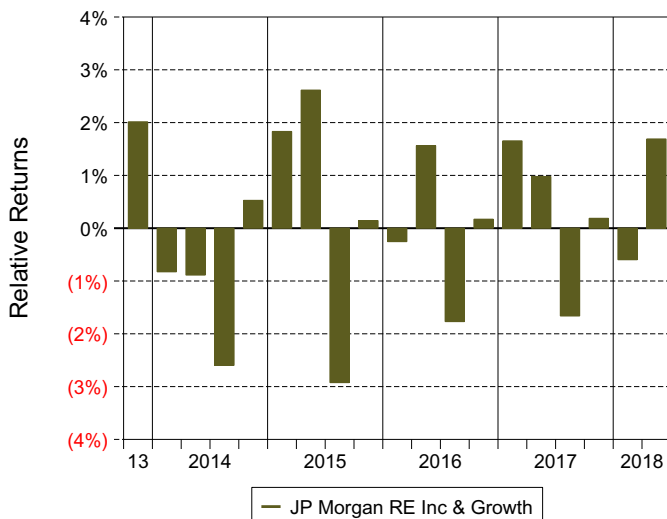
## Quarterly Asset Growth

Beginning Market Value	\$141,380,682
Net New Investment	\$-108,167
Investment Gains/(Losses)	\$4,946,348
Ending Market Value	\$146,218,863

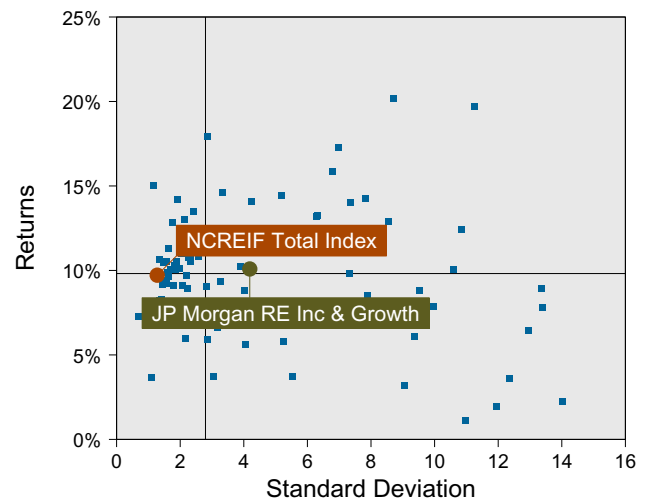
## Performance vs Callan Total Domestic Real Estate DB (Net)



## Relative Return vs NCREIF Total Index



## Callan Total Domestic Real Estate DB (Net) Annualized Four and Three-Quarter Year Risk vs Return



## Research and Educational Programs

The Callan Institute provides 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 Corry Walsh at 312.346.3536 / [institute@callan.com](mailto:institute@callan.com).

## New Research from Callan’s Experts



**Handle With Extreme Care: Callan’s Take on Cryptocurrencies** | In this paper, author Mark Wood provides a brief overview of cryptocurrencies and addresses primary considerations for potential investors.

He describes why Callan does not currently recommend our clients allocate to cryptocurrency investment strategies, and where we see the greatest future potential in this space.

**Risk Parity: Silver Bullet or a Bridge Too Far?** | In this chapter from the CFA Institute’s book “Multi-Asset Strategies: The Future of Investment Management,” Callan’s Greg Allen describes risk parity strategies, a category of investment strategies in which capital is allocated across asset classes so that each contributes an equal amount of volatility to the portfolio’s total volatility.

**China A-Shares: Key Issues for Investors to Consider** | China is opening up its securities markets to more non-Chinese institutional investors. In particular, expanded access to China A-shares creates new opportunities for investors. But investing in China presents a set of risks that range from the country’s slowing GDP growth to stock trading suspensions. Although China A-shares present an attractive opportunity, implementation is challenged by a shallow manager universe and high fees.

**June 2018 Regional Workshop Summary: Governance Alpha** | Investment committees face complex challenges overseeing institutional investment funds. They must navigate myriad laws and regulations, select the right managers and strategies, monitor their portfolios, and ensure their funds can deliver the returns needed for their beneficiaries. Governance describes the policies and practices established to guide these decisions. What if implementing the

astute governance required to meet these challenges also resulted in better portfolio performance? At this workshop, Callan experts described the most effective institutional fund governance practices and explored new research that connects strong plan governance with performance (i.e., governance alpha), and reviewed how investment managers fit into this framework.

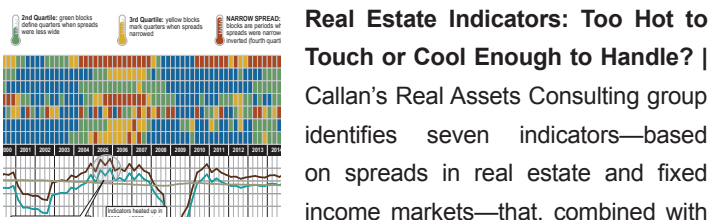
## Quarterly Periodicals

**Private Markets Trends** | This newsletter offers the latest data on activity in private equity fundraising, buyouts, venture capital, and returns for this asset class.

**Market Pulse Flipbook** | 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** | This quarterly publication provides analysis and a broad overview of the economy and public and private market activity each quarter across a wide range of asset classes.

**Active vs. Passive Report** | This series of charts maps active managers alongside relevant benchmarks over the last two decades.



an understanding of prevailing market dynamics, have helped signal when the institutional real estate market is overheated or cooled.



## 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 **October Regional Workshops** will be held on October 16 in New York and October 18 in Atlanta. Please visit the Events page on our website ([www.callan.com/events/](http://www.callan.com/events/)) for additional information.

Callan's **2019 National Conference** will be held January 28-30, 2019. Mark your calendars for this upcoming event!

**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

*Chicago, October 2-3, 2018*

*Atlanta, October 23-24, 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



**"Research is the foundation of all we do at Callan, and sharing our best thinking with the investment community is our way of helping to foster dialog to raise the bar across the industry."**

Greg Allen, CEO and CRO

## 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 a complimentary basis (e.g. attending and 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
Acadian Asset Management LLC
AEGON USA Investment Management
Affiliated Managers Group, Inc.
Alcentra
AllianceBernstein
Allianz Global Investors
Allianz Life Insurance Company of North America
American Century Investments
Apollo Global Management
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Atlanta Capital Management Co., LLC
Aviva Investors Americas
AXA Investment Managers
Baillie Gifford International, LLC
Baird Advisors
Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
BlackRock
BMO Global Asset Management
BNP Paribas Asset Management
BNY Mellon Asset Management
Boston Partners
Brandes Investment Partners, L.P.
Brandywine Global Investment Management, LLC
BrightSphere Investment Group (FKA Old Mutual Asset)
Brown Brothers Harriman & Company
Cambiar Investors, LLC
Capital Group
Carillon Tower Advisers
CastleArk Management, LLC
Causeway Capital Management
Chartwell Investment Partners

Manager Name
ClearBridge Investments, LLC
Cohen & Steers Capital Management, Inc.
Columbia Threadneedle Investments
Columbus Circle Investors
Credit Suisse Asset Management
DePrince, Race & Zollo, Inc.
Deutsche Asset Management
Diamond Hill Capital Management, Inc.
Dimensional Fund Advisors LP
Doubleline
Duff & Phelps Investment Management Co.
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
Fred Alger Management, Inc.
GAM (USA) Inc.
Global Evolution USA
GlobeFlex Capital, L.P.
GMO
Goldman Sachs Asset Management
Green Square Capital LLC
Guggenheim Investments
GW&K Investment Management
Harbor Capital Group Trust
Hartford Funds
Hartford Investment Management Co.

Manager Name
Heitman LLC
Henderson Global Investors
Hotchkis & Wiley Capital Management, LLC
HSBC Global Asset Management
Income Research + Management, Inc.
Insight Investment Management Limited
Intech Investment Management, LLC
Invesco
Investec Asset Management
Ivy Investments
J.P. Morgan
Janus Henderson Investors
Jennison Associates LLC
Jensen Investment Management
Jobs Peak Advisors
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 (MIM)
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.
Natixis Investment Managers
Neuberger Berman
Newton Investment Management
Nikko Asset Management Co., Ltd.
Northern Trust Asset Management
Nuveen Investments, Inc.
OFI Global Asset Management
O'Shaughnessy Asset Management, LLC
P/E Investments
Pacific Investment Management Company
Pathway Capital Management
Peregrine Capital Management, Inc.
Perkins Investment Management

Manager Name
PGIM
PGIM Fixed Income
PineBridge Investments
Pioneer Investments
PNC Capital Advisors, LLC
Principal Global Investors
Private Advisors, LLC
Putnam Investments, LLC
QMA
RBC Global Asset Management
Regions Financial Corporation
Robeco Institutional Asset Management, US Inc.
Rockefeller & Co., Inc.
Rothschild Asset Management, Inc.
Russell Investments
Santander Global Facilities
Schroder Investment Management North America Inc.
Smith Graham & Co. Investment Advisors, L.P.
Smith Group Asset Management
South Texas Money Management, Ltd.
Standard Life Investments Limited
State Street Global Advisors
Stone Harbor Investment Partners, L.P.
Sun Life Investment Management
T. Rowe Price Associates, Inc.
The Boston Company Asset Management, LLC
The London Company
The TCW Group, Inc.
Thompson, Siegel & Walmsley LLC
Thornburg Investment Management, Inc.
Tri-Star Trust Bank
UBS Asset Management
VanEck
Velanne Asset Management Ltd.
Versus Capital Group
Victory Capital Management Inc.
Virtus Investment Partners, Inc.
Vontobel Asset Management, Inc.
Voya
WCM Investment Management
WEDGE Capital Management
Wellington Management Company, LLP
Wells Capital Management
Western Asset Management Company
Westfield Capital Management Company, LP
Westwood Holdings Group
William Blair & Company

June 30, 2018



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

**Investment Measurement Service  
Quarterly Review**

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Information contained herein includes confidential, trade secret and proprietary information. Neither this Report nor any specific information contained herein is to be used other than by the intended recipient for its intended purpose or disseminated to any other person without Callan's permission. Certain information herein has been compiled by Callan and is based on information provided by a variety of sources believed to be reliable for which Callan has not necessarily verified the accuracy or completeness of or updated. This content may consist of statements of opinion, which are made as of the date they are expressed and are not statements of fact. This content is for informational purposes only and should not be construed as legal or tax advice on any matter. Any decision you make on the basis of this content is your sole responsibility. You should consult with legal and tax advisers before applying any of this information to your particular situation. Past performance is no guarantee of future results. For further information, please see Appendix for Important Information and Disclosures.

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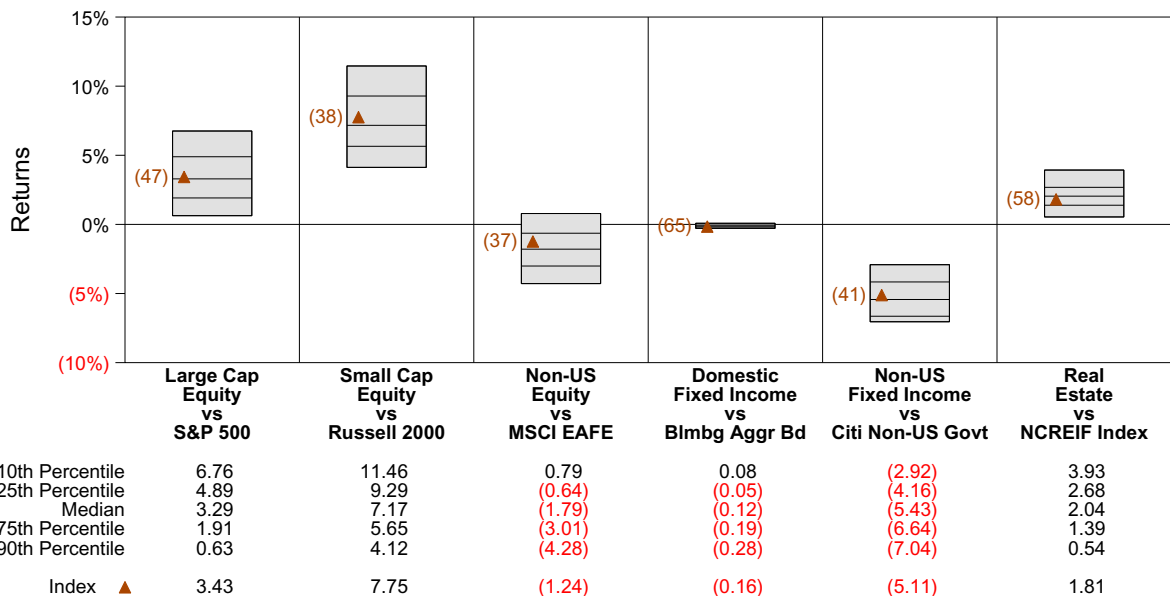
## Market Overview

### Active Management vs Index Returns

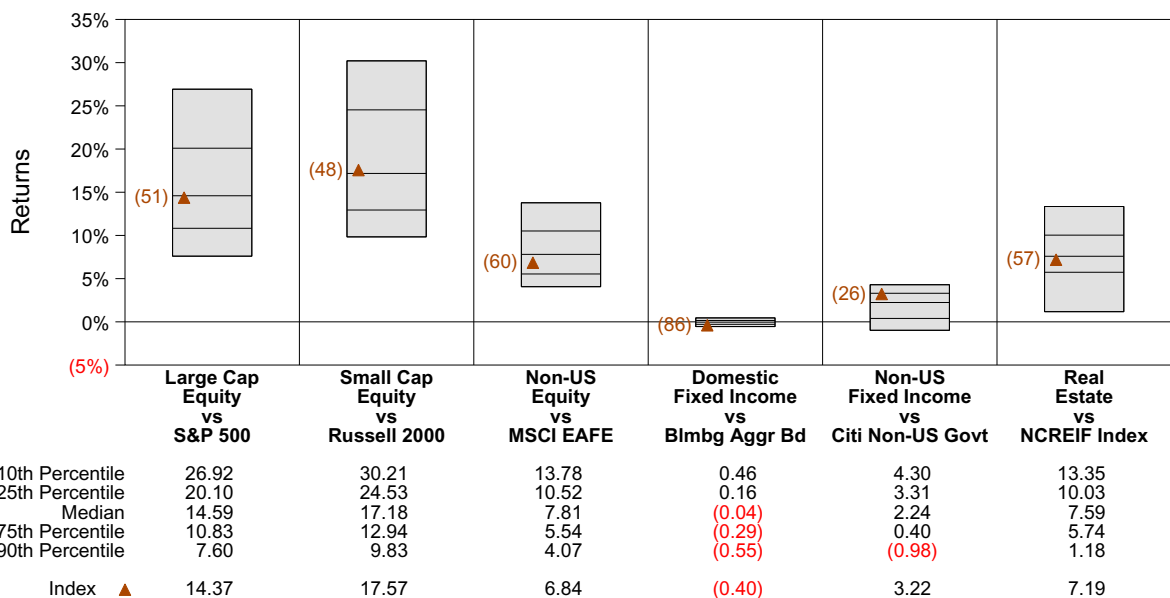
#### Market Overview

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 June 30, 2018



#### Range of Separate Account Manager Returns by Asset Class One Year Ended June 30, 2018





Second Quarter 2018

### Is This It for the Economic Recovery?

#### ECONOMY

**2** GDP growth hit 4.1% in the second quarter, the strongest rate since 2014. Many other economic indicators corroborate a story of a thriving U.S. economy. But are imbalances arising that mean we are reaching the peak in the current cycle?

### Tough Quarter but Brighter in Long Term

#### FUND SPONSOR

**4** The median fund sponsor in Callan's database rose 0.9% in the quarter, while a 60% equity/40% fixed income benchmark increased 2%. Over a 15-year time period all plans, by type and size, grew roughly in line with the benchmark.

### Another Gap Between U.S. and Overseas

#### EQUITY

**6** U.S. stocks rose on strong earnings and robust economic growth. Small cap stocks outperformed large caps, which were held down by trade worries. Trade woes also hit non-U.S. stocks, with most major indices in the red. Emerging market stocks were hit particularly hard.

### Trade Turbulence Troubles Bonds

#### FIXED INCOME

**8** U.S. rates rose in the quarter, and the yield curve continued to flatten. The Bloomberg Barclays US Aggregate Bond Index fell 0.2%, while high yield rebounded. Most non-U.S. indices fell in the quarter; emerging market bonds were the biggest losers.

### Show Me the Money: Income Helps Returns

#### REAL ESTATE

**10** U.S. core real estate returns are shifting toward income, rather than appreciation. Spreads between core and value-add strategies remain tight. Industrial was the best-performing sector in the quarter. Overseas markets are attracting interest.

### Languid Summer for Private Markets

#### PRIVATE EQUITY

**12** With the public market zig-zagging sideways, private equity activity slowed modestly. Fundraising picked up in the quarter but is slightly behind last year's first half. Company investments and exits trended down, with the venture-backed IPO market a bright spot.

### Trade Spat Rains on Risk Parade

#### HEDGE FUNDS/MACs

**13** Event-driven hedge funds were the quarter's steadier contributors. Emerging market-focused hedge funds fell but avoided the big losses of underlying indices. Rising rates should be a tailwind for managers. Callan's MAC Style Groups struggled and trailed a 60/40 benchmark.

### DC Plans Struggle in Turbulent Market

#### DEFINED CONTRIBUTION

**15** The Callan DC Index™ fell 0.2% in the first quarter, although it performed better than the Age 45 Target Date Fund, which dropped 0.5%. DC plan balances grew slightly (+0.1%) in the quarter. The DC Index's equity allocation fell for the first time in seven quarters.

## Broad Market Quarterly Returns

U.S. Equity  
Russell 3000



+3.9%

Non-U.S. Equity  
MSCI ACWI ex USA



-2.6%

U.S. Fixed Income  
Bloomberg Barclays Agg



-0.2%

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



-4.8%

Sources: Bloomberg Barclays, MSCI, FTSE Russell



# Is This It?

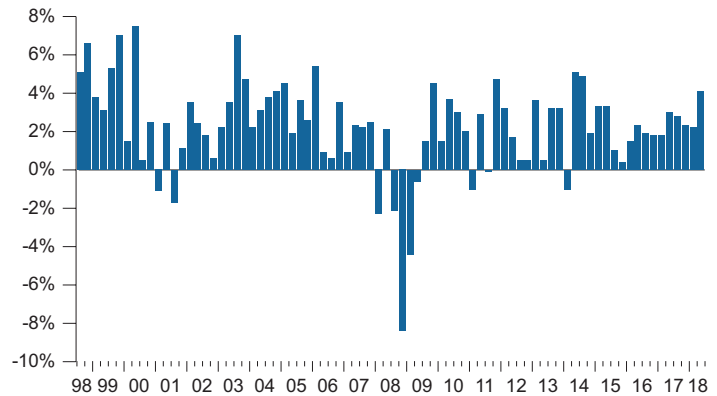
ECONOMY | Jay Kloepfer

Real GDP growth in the U.S. hit 4.1% in the second quarter of 2018, the strongest quarterly gain since 2014. Many indicators corroborate the story of a thriving American economy: low unemployment, robust consumer spending, elevated business and consumer confidence, and growth in non-residential investment. However, a big contributor to growth was a surge in exports, likely due to stockpiling ahead of tariffs imposed at the end of the quarter, which may not be sustained for long. Global growth is de-synchronizing, with signs of deceleration emerging in Europe, Japan, and China. Oil prices have rebounded from the lows of 2014, and inflationary pressures such as wages are gradually building. The Fed raised interest rates for the second time this year in June, and it is telegraphing two more hikes before the end of 2018 and perhaps three in 2019. While the tax cuts at the end of 2017 (a form of stimulative spending by the federal government) are buoying consumer spending, we may be reaching a peak in the current cycle.

Expansions do not die of “old age”; elapsed time is not an economic variable. In addition, the current expansion has seen one of the slowest rates of GDP growth, an average of just 2.2%, compared to a typical expansion average of 3% or greater. That said, the current expansion is one of the longest on record, and it is the imbalances that can develop during long expansions that ultimately lead to a correction. Diverging global growth, and the resetting of monetary policy in the U.S. to return to “normal” ahead of plans by other countries’ central banks, means higher interest rates in the economy with the strongest growth and upward pressure on the U.S. dollar. A more expensive dollar will make U.S. exports more costly, at a time of increased trade uncertainty following the imposition of tariffs. Higher interest rates mean higher borrowing costs, after a decade of cheap debt for those who could get it. The tight labor market poses another source of imbalance, with unemployment dipping to a generational low of 3.8% in May, employers facing challenges hiring talent, and wage pressures gradually building.

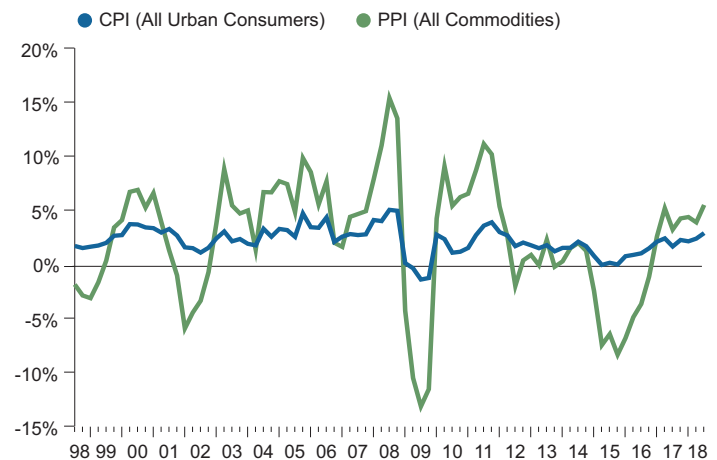
## Quarterly Real GDP Growth

(20 Years)



Source: Bureau of Economic Analysis

## Inflation Year-Over-Year



Source: Bureau of Labor Statistics

The second quarter was clearly another high point for the U.S. economy in the long rebound since 2009. U.S. exports surged 9.3% in the quarter, accounting for a fourth of total GDP growth. With growth weakening in American trading partners, the increase in exports to them does not likely represent a surge in demand but a shift in timing, which will show up in subsequent

quarters. The tax cut represents a potentially large fiscal stimulus, and consumers have certainly responded, driving consumption spending 4% during the quarter and accounting for two-thirds of GDP growth. Business investment of the tax cut is mixed; equipment spending grew more slowly in the first half of the year compared to 2017, while investment in structures surged at an annual rate of more than 13% in each of the first two quarters. One surprise in the quarter was a drop in inventory investment, which actually subtracted 1 percentage point from GDP. The upshot is that GDP growth could have been as high as 5%, and the economy now has greater capacity to rebuild inventory, suggesting a boost to future growth.

Another surprise in the GDP report was a drop in residential investment. The housing market has been a bit of a riddle as this long recovery has unfolded. The inventory of existing single-family homes reached its lowest reading on record for the month of May (1.65 million). Inventory levels keep dropping, reaching a supply of 4.1 months in June while a 6-month supply is considered normal. Yet home prices are high and rising everywhere. The FHA reported that home price indices rose year-over-year in the first quarter in all 50 states and in each of the 100 largest metro areas. The number of homes worth less than their mortgage has dropped by 80% since 2011, which should lead to an increase in potential inventory. Three factors have weighed on the inventory of homes for sale. A substantial number of single-family homes were converted to rental units starting in 2006. Second, Americans don't move as much; mobility in 2017 dropped to a post-World War II low. Third, starts have been hindered for 10 years on the supply side, with high

### The Long-Term View

Index	2018 2nd Qtr	Periods ended Dec. 31, 2017			
		Year	5 Yrs	10 Yrs	25 Yrs
<b>U.S. Equity</b>					
Russell 3000	3.89	21.13	15.58	8.60	9.72
S&P 500	3.43	21.83	15.79	8.50	9.69
Russell 2000	7.75	14.65	14.12	8.71	9.54
<b>Non-U.S. Equity</b>					
MSCI ACWI ex USA	-2.61	27.19	6.80	1.84	–
MSCI Emerging Markets	-7.96	37.28	4.35	1.68	–
MSCI ACWI ex USA Small Cap	-2.60	31.65	10.03	4.69	–
<b>Fixed Income</b>					
Bloomberg Barclays Agg	-0.16	3.54	2.10	4.01	5.48
90-Day T-Bill	0.45	0.86	0.27	0.39	2.60
Bloomberg Barclays Long G/C	-1.45	10.71	4.43	7.26	7.67
Bloomberg Barclays GI Agg ex US	-4.76	10.51	-0.20	2.40	5.02
<b>Real Estate</b>					
NCREIF Property	1.76	6.96	10.19	6.08	9.12
FTSE NAREIT Equity	10.04	5.23	9.46	7.44	10.76
<b>Alternatives</b>					
CS Hedge Fund	0.10	7.12	4.23	3.24	–
Cambridge PE*	3.03	19.33	13.86	9.09	15.62
Bloomberg Commodity	0.40	1.70	-8.45	-6.83	2.47
Gold Spot Price	-5.48	13.68	-4.82	4.56	5.63
<b>Inflation – CPI-U</b>	0.98	2.11	1.43	1.61	2.23

\*Data for most recent period lags by a quarter

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

timber and construction costs, a shortage of building sites, and restricted access to credit. Demand may be there, but builders have been unable to put up enough homes.

### Recent Quarterly Economic Indicators

	2Q18	1Q18	4Q17	3Q17	2Q17	1Q17	4Q16	3Q16
Employment Cost–Total Compensation Growth	2.8%	2.7%	2.6%	2.5%	2.4%	2.4%	2.2%	2.3%
Nonfarm Business–Productivity Growth	3.6%	0.4%	0.3%	2.6%	1.7%	0.2%	1.1%	2.4%
GDP Growth	4.1%	2.2%	2.3%	2.8%	3.0%	1.8%	1.8%	1.9%
Manufacturing Capacity Utilization	75.4%	75.3%	75.2%	74.4%	74.9%	74.6%	74.4%	74.3%
Consumer Sentiment Index (1966=100)	98.3	98.9	98.4	95.1	96.4	97.2	93.2	90.3

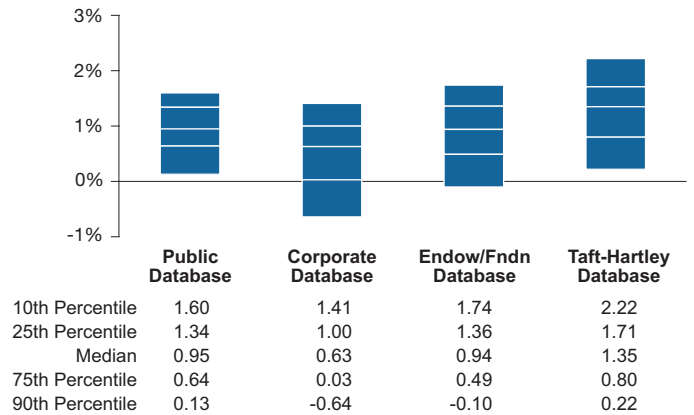
Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve, IHS Economics, Reuters/University of Michigan

# Tough Quarter, but Long-Term Results Are Brighter

## FUND SPONSOR

- The median fund sponsor in Callan’s database gained 0.9% in the second quarter.
- By fund type, Taft-Hartley plans (+1.4%) were the top performers; corporate plans (+0.6%) came in last.
- The dispersion of returns for funds by size was quite narrow; small plans (under \$100 million) rose 0.94% while large plans (more than \$1 billion) were up 0.89% and medium plans grew by 0.87%.
- All fund types and sizes lagged a benchmark consisting of **60% S&P 500/40% Bloomberg Barclays US Aggregate Bond Index**, which rose 2%.
- Over the last year plans also trailed the benchmark, which was up 8.3%. Endowments/foundations came close, while corporate plans (+6.7%) underperformed.
- Over longer time periods, plans advanced at rates closer to that benchmark. The 60/40 benchmark rose 7.3% annually over the last 15 years. Endowments/foundations did best over that time period, up 7.6%, while Taft-Hartley plans were the laggards at 7.1%. Large plans (+7.7%) topped the benchmark, while medium and small plans reported returns slightly below it.

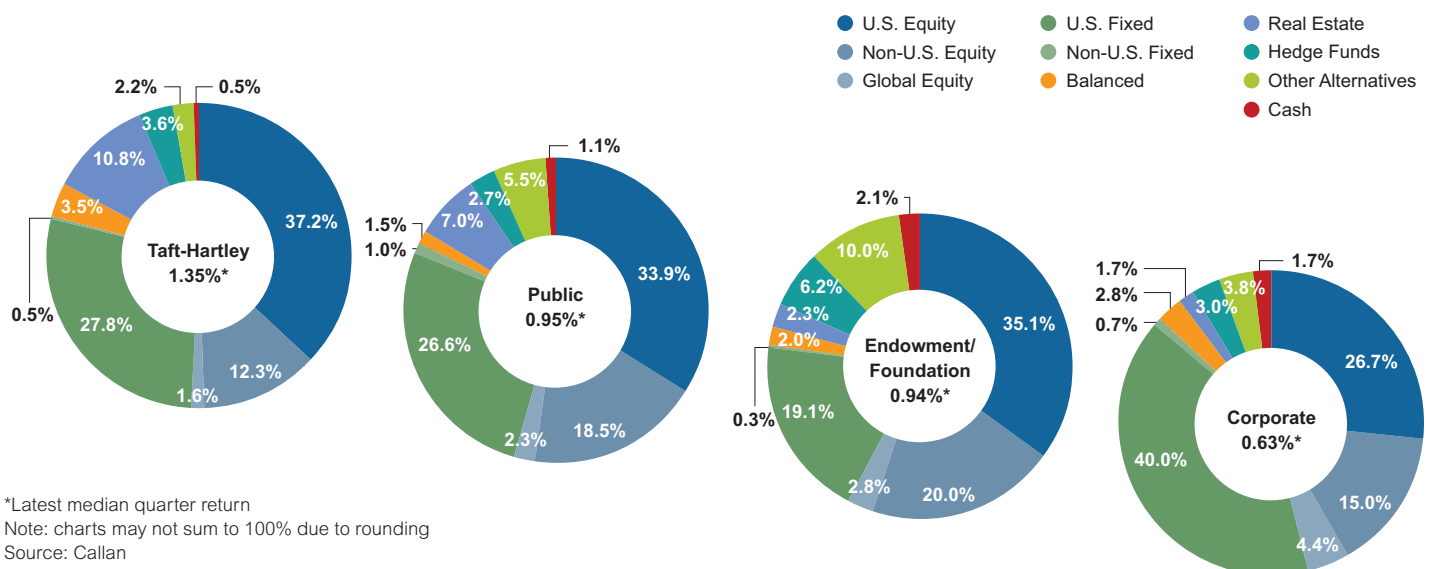
## Callan Fund Sponsor Returns for the Quarter



Source: Callan

- Plans continue to focus on managing an environment of rising interest rates, continued low return expectations, and the desire for strong risk controls in anticipation of a late cycle market downturn.
- Some fund sponsors are looking for downside protection while others are seeking higher yield in less-efficient markets in order to reach return targets.

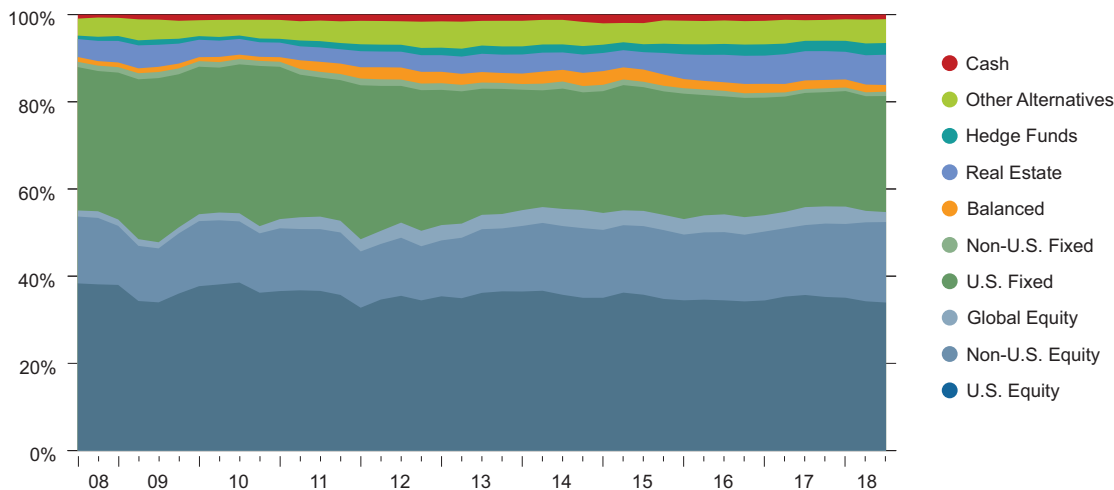
## Callan Fund Sponsor Average Asset Allocation



- Still others want strong, transparent risk controls and lower performance volatility while examining lower fee structures.
- The debate continues about whether active or passive management provides investors with the right balance between higher performance and lower costs.
- Passive investing is primarily visible in equity asset classes, including both large cap U.S. equity and non-U.S. equity.
- Some fund sponsors are considering new or additional investments in private assets including real estate, private equity, and private credit.
- Topics that concern plan sponsors are rising interest rates and the uncertain outcomes of tariffs with global trade partners. Despite these concerns, some plans will seek enhanced returns at the expense of increased risk.
- Corporate defined benefit (DB) plans are embracing de-risking (increasing fixed income and extending duration). They are moving along their de-risking glidepath and working at different stages of the process. Implementation of de-risking plans depends largely on interest rate movements this year.
- Return enhancement continues to be the focus of public plans and endowment and foundation funds. As endowments and foundations seek higher returns, asset classes such as global equity, non-U.S. equity, and real estate benefit. Risk and funded status for public plans are ongoing concerns.
- Defined contribution (DC) plans are evaluating different levels of service offered by recordkeepers and shifting away from off-the-shelf target date funds (TDFs). Examination of managed account offerings on a standalone basis in order to improve participant outcomes and experiences is ongoing and will continue into the future.
- TDFs' share of DC assets grew to 31.3% in the first quarter, marking another high for the category, according to the Callan DC Index™.

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. Equities

U.S. equities (**S&P 500 Index**: +3.4%) rose on a strong earnings season and positive economic data. Energy was the best-performing sector (+13.5%) as oil prices trended higher after the U.S. withdrew from the Iran nuclear accord.

Small cap (+7.8%) outperformed large cap (+3.6%) on trade war fears. Large cap companies derive a big portion of revenues from foreign markets and are more negatively impacted by trade wars than domestically focused small cap firms.

Growth (+5.8%) continued to outperform value (+1.2%) due to the Consumer Discretionary (+8.2%) and Tech (+7.1%) sectors.

The concentration of returns within broad indices remains a concern. Excluding the performance of the FAANG stocks (Facebook, Amazon, Apple, Netflix, Google), S&P 500 performance was negative.

### Large Cap Trails Small Cap Amid Trade War Concerns

- Retaliatory tariffs hit the U.S. agriculture, auto, and industrial metals sectors, among others. The ongoing decline of U.S. export market share is exacerbating the impact on large caps, which may continue to face macro headwinds in the coming quarters.

- Small cap (+7.7% YTD) is outperforming large cap (+2.9% YTD) as investors view small companies as more insulated against potential trade wars/looming tariffs. S&P 500 companies generate 38% of revenue overseas versus 20% for the S&P SmallCap 600.
- The rising dollar and concerns over the divergence between the strong U.S. economy and slower global growth are also driving investors to the relative safety of smaller companies.

### Large Growth Continues to Dominate

- Large value trailed large growth by nearly 900 bps in the first half of 2018 (-1.7% vs. +7.3%), driven by ongoing outperformance of the Tech sector and tech-exposed Consumer Discretionary companies.

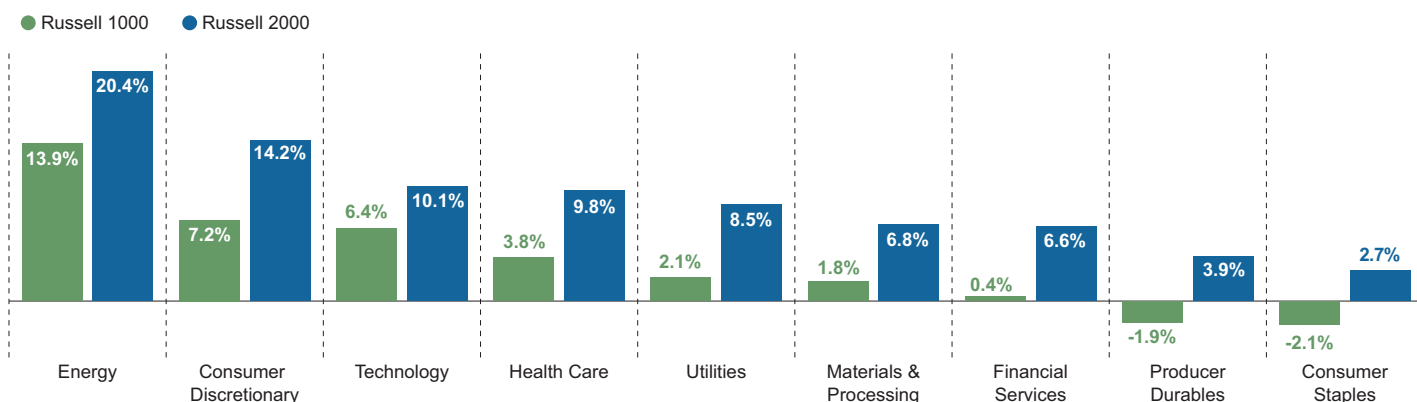
### Concentration Risk

- FAANG stocks continue to drive an outsized proportion of returns within equity indices.
- Biotech represents half of the Health Care sector's weight of the **Russell 2000 Growth Index** (12% vs. 25%), and many small growth managers have struggled in selecting biotech names given the binary outcomes of research and depth of resources needed to do it well.

### Amazon Effect Continues

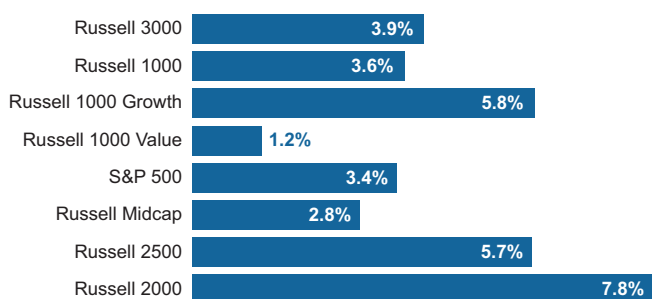
Amazon (+17%) increased in size by over 69% since last year's Russell reconstitution, with continued market share expansion

## Quarterly Performance of Select Sectors



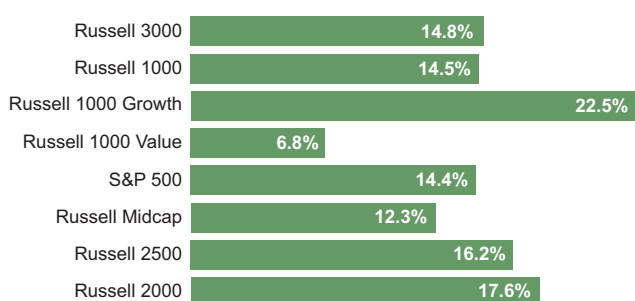
Source: FTSE Russell

### U.S. Equity: Quarterly Returns



Sources: FTSE Russell and Standard & Poor's

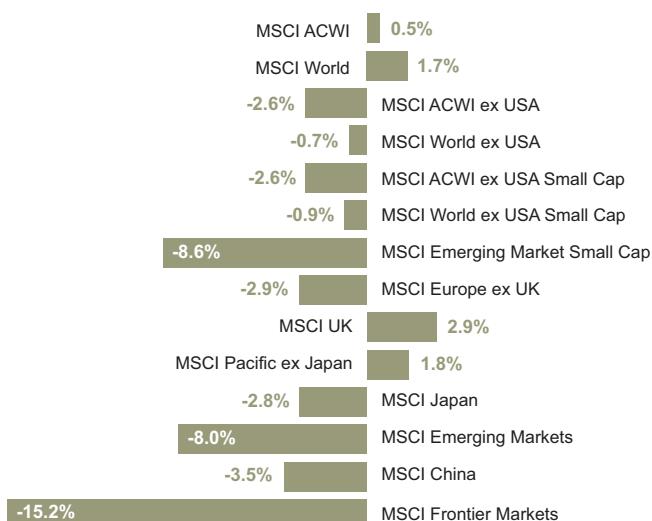
### U.S. Equity: One-Year Returns



Sources: FTSE Russell and Standard & Poor's

in the retailing space (including food) and now into Health Care. Active large cap managers with underweight positions to Amazon will likely continue to lag their benchmarks given Amazon's looming presence in large cap indices.

### Non-U.S. Equity: Quarterly Returns (U.S. Dollar)



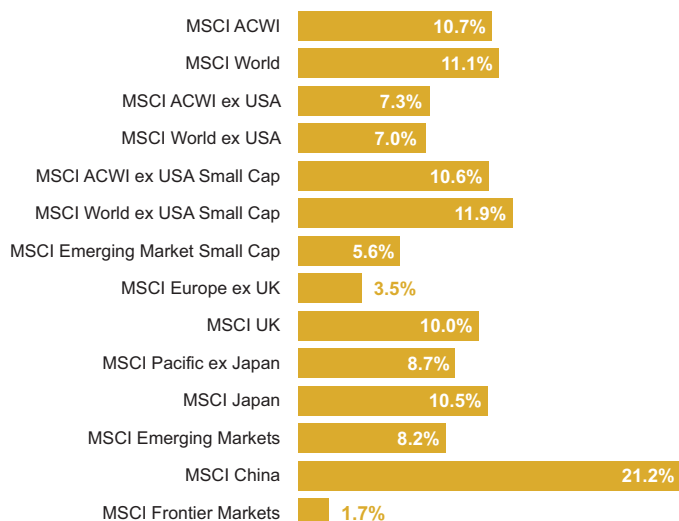
Source: MSCI

### Non-U.S. / Global Equity

Non-U.S. markets ended in the red as trade war talk moved into action. Although initial tariffs levied by the U.S. were targeted, retaliatory actions and supply chain disruptions broadened their effects.

- Growth outpaced value—although no factor category showed significant strength.
- Cyclical sectors were hurt later in the quarter as the prospect of slower growth led to reduced expectations.
- The U.S. dollar was up, hurting non-U.S. returns. The euro and British pound were hit especially hard with the rise of populism and Brexit turmoil.
- Frontier markets were singed by Argentina (-42%) on continuing political unrest, severe drought, and a devaluing currency.
- Emerging markets were among the hardest hit, with Latin America taking the brunt of the sell-off. In May, Brazil's central bank unexpectedly left rates unchanged, while a trucking strike and growing concern about October elections weighed on markets. The Brazilian real fell 14% in the quarter versus the U.S. dollar.
- China reversed a five-quarter rally on concerns surrounding growing debt burdens, slower growth, and trade uncertainty.

### Non-U.S. Equity: One-Year Returns (U.S. Dollar)



Source: MSCI

# Global Fixed Income

## U.S. Fixed Income

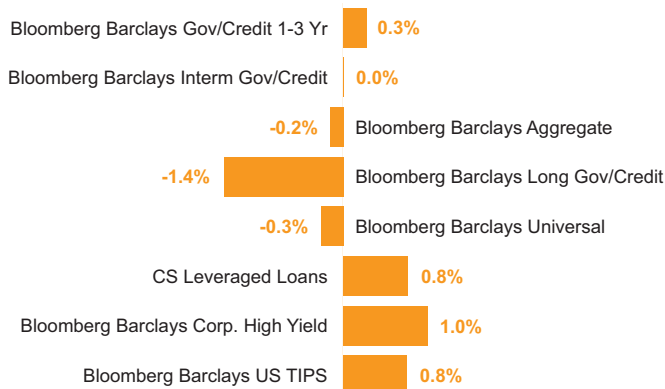
Fixed income markets grappled with multiple issues, resulting in continued volatility. Trade conflicts due to the imposition of tariffs, emerging market elections, and the rising U.S. dollar contributed to the unstable environment.

U.S. rates rose in the second quarter and the yield curve continued its flattening trend.

### Treasury Spreads Tightened

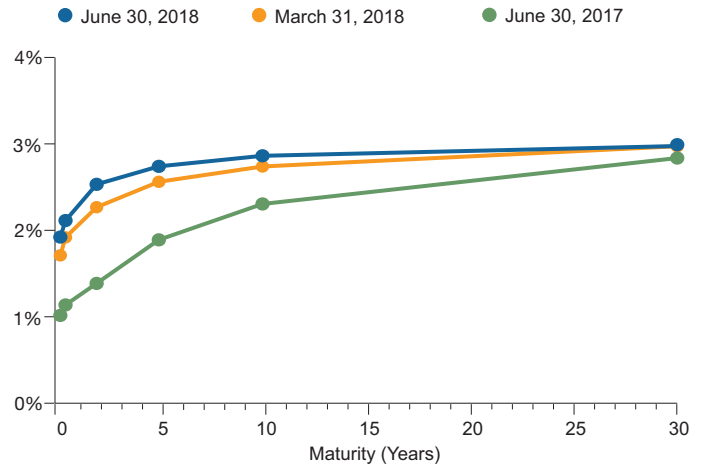
- The spread between the 2-year and 10-year ended at its lowest level (33 bps) in more than 10 years.
- The **Bloomberg Barclays US Aggregate Bond Index** fell 0.2%.
- Investment-grade (IG) corporates faced increased headwinds during the quarter, dragging returns lower. Concerns over potential trade wars and rising rates increasingly weighed on IG credit despite rising earnings and revenues.
- High yield corporates (**Bloomberg Barclays High Yield Index**: +1.0%) rebounded in the second quarter, pushing year-to-date returns into positive territory.
- CCC-rated credits continued to outperform higher-rated credits within high yield.

## U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg Barclays and Credit Suisse

## U.S. Treasury Yield Curves



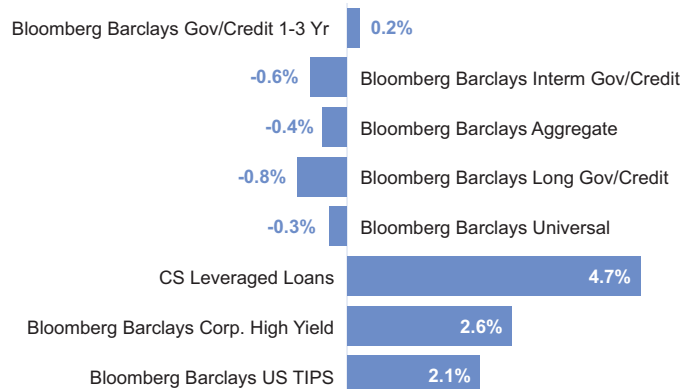
Source: Bloomberg

- Earnings growth remains strong and defaults remain benign amid the positive economic outlook.

### Yield Curve Nears Inversion

- The Fed's preferred measure of inflation, personal consumption expenditures (PCE), is on the precipice of its 2% target.

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



Sources: Bloomberg Barclays and Credit Suisse

## GLOBAL FIXED INCOME (Continued)

- The impact of increased tariffs and fiscal policy may lead to even higher levels.
- Only the recent strength of the U.S. dollar and a drop in energy prices have curtailed the dramatic rise over the past year.
- With two more hikes forecasted for this year and three more next year, the curve is inching closer to inversion.
- While not an immediate cause of recession, an inverted curve has been a reliable signal of recession in the past.

### Non-U.S. Fixed Income

#### Most Indices Fell in Second Quarter

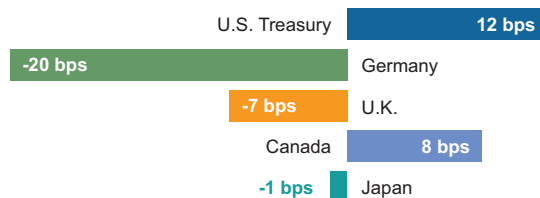
- The **Bloomberg Barclays Global Aggregate Bond Index** dropped 2.8%.
- The ex-U.S. version of the Index fell even more, declining 4.8%.
- Emerging market (EM) indices were especially hard hit (**JPM GBI-EM Global Diversified Index: -10.4%**).
- For the last year, broad indices were narrowly positive but EM indices were lower.

#### Uncertainty of Trade War May Have Biggest Impact

- Announced tariffs are not expected to have a meaningful impact on growth; however, the extent of the costs ultimately depends on the degree to which other countries counter.
- An OECD study that looks at the far larger shock of a 10% across-the-board increase in tariffs by the U.S., euro zone, and China finds that global GDP would fall by 1.4%.
- The more impactful result may be an increase in uncertainty, which tends to precede weaker economic activity.
- These effects will take time to ultimately play out and are even more difficult to quantify.

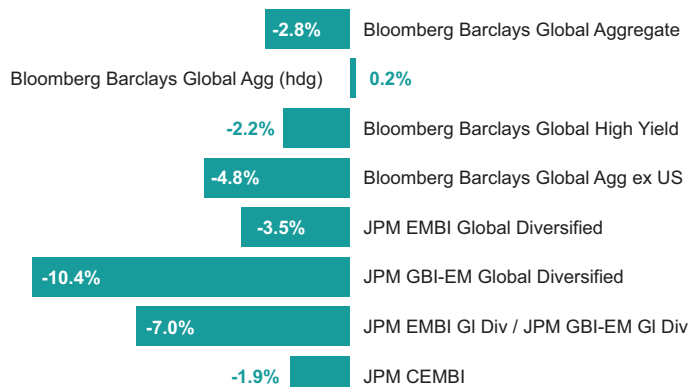
### Change in 10-year Global Government Bond Yields

1Q18 to 2Q18



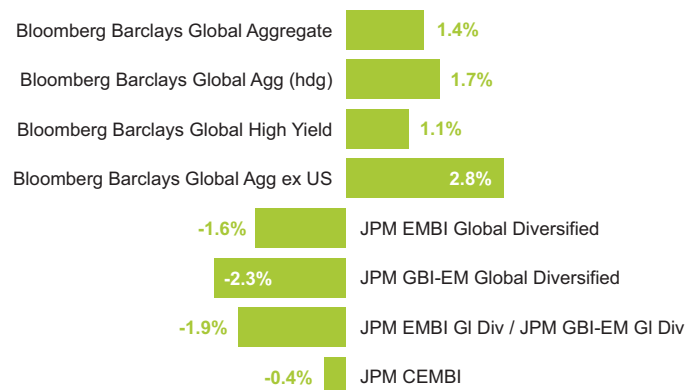
Source: Bloomberg Barclays

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



Sources: Bloomberg Barclays and JPMorgan Chase

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



Sources: Bloomberg Barclays and JPMorgan Chase

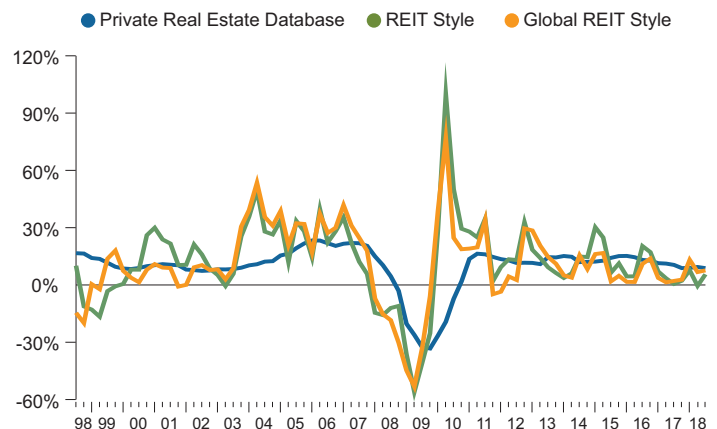


# U.S. Returns Moderate; Interest in Overseas Markets Is High

## REAL ESTATE

- U.S. core real estate returns continue to moderate and shift toward income. The limited appreciation that did occur in the second quarter came from net operating income growth rather than further cap rate compression.
- The **NCREIF Open End Diversified Core Equity Index** rose 1.8% in the second quarter, while the **Callan Real Estate ODCE Style Group** gained 1.6%.
- Spreads remain relatively tight between core and value-add due to large amounts of capital in both strategies chasing fewer available deals, combined with many investors seeking to create core assets by using their non-core buckets to buy and stabilize non-core properties.
- As private real estate valuations continue to test historical highs, investors are looking at other sectors such as real estate debt and REITs to access the best risk-adjusted returns from real estate. Both U.S. and non-U.S. REITs are trading at discounts to net asset value, indicating relative value for public market securities compared to private real estate valuations.
- The **EPRA/NAREIT Developed Index** jumped 5.1% in the second quarter, versus the +4.5% return for the **Callan Global Real Estate Style Group**. The **EPRA/NAREIT Developed ex US Index** increased only 0.6%, compared to the 0.4% gain for the **Callan Global ex-U.S. Real Estate Style Group**. The **NAREIT Equity REITs Index** spiked 10.0%; the **Callan U.S. REIT Style Group** nearly matched that with a 8.6% return.
- Supply and demand fundamentals are balanced but peaking. Supply is in check and aided by strict commercial real estate lending standards. Demand continues on the back of synchronized U.S. growth. Transaction volumes have begun to take a step back in recent quarters from current cycle peak levels but have yet to substantially affect pricing, as property remains expensive.
- The industrial sector performed the strongest (+3.4%), benefiting as structural shifts in the economy, property markets, and consumer habits continue to dampen demand for traditional retail space. Office is performing as expected late in the cycle (+1.7%), and tenant improvements and other capital expenditures are increasingly eroding cash flow. Multifamily remains strong due to positive demographic trends, except for the Class A luxury segment in prime markets such as New York.
- European real estate markets (ex-U.K.) are gaining momentum due to strong fundamentals in major European cities and despite continued political concerns across the region.
- Value-add and opportunistic real estate owners and operators continue to see significant prospects for creating and selling core product to a robust market of buyers. Paris, Berlin, Frankfurt, Amsterdam, Stockholm, and Madrid continue to see increased levels of investment activity.
- Asian real estate products are seeing strong fundraising momentum, with existing managers reaching target fund sizes and an increase in Asia-focused open-end funds.
- The Chinese government is implementing policies to increase domestic growth and consumption, including support for the development of multi-family rental property, a relatively new concept in China. Over the summer, the Chinese renminbi weakened against the dollar, due to monetary easing in China and global trade tensions, and more stringent

## Rolling One-Year Returns



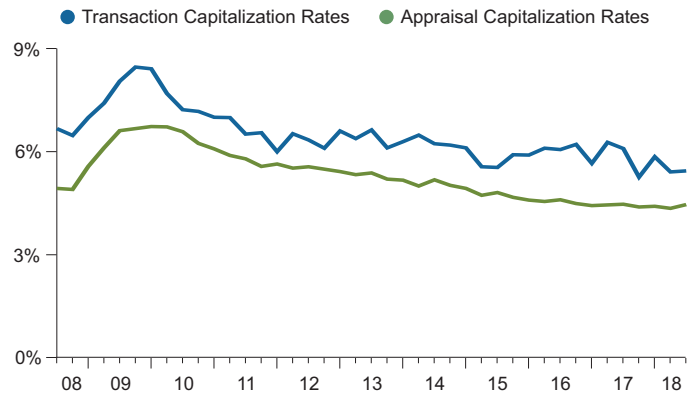
Source: Callan

## REAL ESTATE (Continued)

capital controls have increased the amount of capital looking to invest within the country; investment activity remains steady in China.

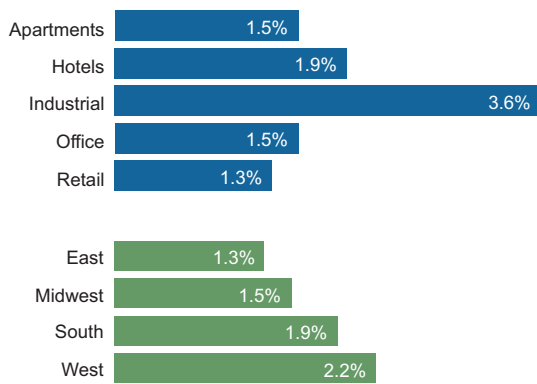
- Other major markets such as Japan, Australia, South Korea, and India continue to see investment activity across multiple sectors.
- Infrastructure strategies are raising significant capital. Open-end infrastructure managers have secured substantial new commitments this year. Infrastructure managers have reported mixed impact to their portfolios following the implementation of the latest tax law changes. The variety of closed-end infrastructure products continues to increase with new offerings in debt and emerging markets-focused strategies.

## NCREIF Transaction and Appraisal Capitalization Rates



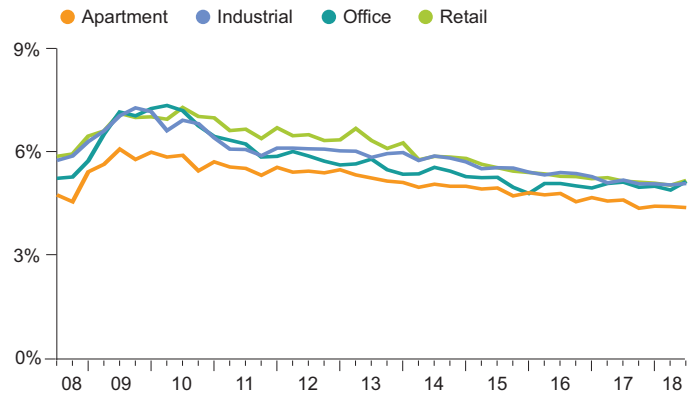
Source: NCREIF  
Note: Transaction capitalization rate is equal weighted.

## Sector Quarterly Returns by Property Type and Region



Source: NCREIF

## NCREIF Capitalization Rates by Property Type



Source: NCREIF  
Note: Capitalization rates are appraisal-based.

## Callan Database Median and Index Returns\* for Periods ended June 30, 2018

	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
<b>Private Real Assets</b>							
Real Estate ODCE Style	1.60	3.67	7.55	8.85	10.19	4.53	7.18
NFI-ODCE (value wt net)	1.81	3.82	7.47	8.38	10.03	4.33	7.29
NCREIF Property	1.76	3.49	7.13	8.23	9.76	6.22	8.98
NCREIF Farmland	1.13	2.46	6.55	7.58	10.25	11.73	14.61
NCREIF Timberland	0.48	1.41	3.57	3.43	6.00	4.00	7.45
<b>Public Real Estate</b>							
Global Real Estate Style	4.50	0.75	7.53	6.73	7.58	6.61	10.38
EPRA/NAREIT Developed	5.12	0.36	5.64	5.71	5.97	4.88	–
Global ex-U.S. Real Estate Style	0.44	0.72	11.45	5.36	6.24	5.08	10.31
EPRA/NAREIT Developed ex US	0.55	0.03	9.77	5.67	5.69	4.27	9.59
U.S. REIT Style	8.57	1.30	4.48	8.47	8.91	8.66	10.94
NAREIT Equity REITs	10.04	1.02	3.50	8.06	8.31	7.94	10.02

\*Returns less than one year are not annualized.  
Sources: Callan, FTSE Russell, NAREIT, NCREIF

# Languid Summer Days

PRIVATE EQUITY | Gary Robertson

- Second quarter private equity partnership commitments totaled \$90.3 billion, with 329 new partnerships formed. The dollar volumes and number of funds both rose 36% from \$66.5 billion and 242 in the prior quarter. (Source: *Private Equity Analyst*)
- For the first half, 2018 is running \$9 billion or 5% behind a year ago. This year's fundraising should end up in the high \$300 billion range, similar to the past two years. Some large fundraising events are slated to start in the fourth quarter.
- New buyout transactions fell although activity remained brisk overall. Funds closed 443 investments with \$36.0 billion in disclosed deal value, a 26% dip in count and a 47% decline in value from the first quarter's very robust 597 investments and \$67.9 billion of announced value. (Source: *Buyouts*)
- The \$17.9 billion add-on of Toshiba Memory by Bain's portfolio company KK Pangea was the quarter's largest buyout. Nine acquisitions with announced values of \$1 billion or more closed in the quarter, the same as last quarter. (Source: *Buyouts*)
- New investments in venture capital companies totaled 1,895 rounds of financing with \$27.3 billion of announced value. Investments were down 10% from the prior quarter, and value fell 13%. The median pre-money valuations continued to increase across the board. The smallest and largest increases were seed (+17%) and Series C (+44%). (Source: National Venture Capital Association)

## Funds Closed January 1 to June 30, 2018

Strategy	No. of Funds	Amt (\$mm)	Percent
Venture Capital	273	24,612	16%
Buyouts	193	108,047	69%
Private Debt	39	8,457	5%
Secondary and Other	23	8,537	5%
Fund-of-funds	43	7,140	5%
<b>Totals</b>	<b>571</b>	<b>156,793</b>	<b>100%</b>

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

- There were 132 private M&A exits of buyout-backed companies with disclosed values totaling \$24.5 billion. Both the count and dollar volume were down from the prior quarter's 164 sales and \$28.8 billion. (Source: *Buyouts*)
- Six buyout-backed IPOs raised an aggregate \$2.5 billion, down from 11 totaling \$3.9 billion previously. (Source: *Buyouts*)
- Venture-backed M&A exits totaled 173 transactions with disclosed value of \$8.8 billion, compared to 203 sales with values of \$13.6 billion in the first quarter. (Source: *Buyouts*)
- There were 28 VC-backed IPOs in the second quarter with a combined float of \$1.9 billion. The first quarter had 15 IPOs and total issuance of \$2.2 billion. (Source: *Buyouts*)

Please see our upcoming issue of *Private Markets Trends* for more in-depth coverage.

## Private Equity Performance Database (%) (Pooled Horizon IRRs through December 31, 2017\*)

Strategy	3 Months	Year	3 Years	5 Years	10 Years	15 Years	20 Years
All Venture	3.68	12.97	9.23	16.18	9.51	9.70	17.90
Growth Equity	5.83	20.09	12.21	13.63	9.95	13.04	13.47
All Buyouts	5.38	22.64	13.65	14.41	8.83	14.59	12.43
Mezzanine	3.18	14.72	9.70	10.18	8.80	9.67	8.67
Distressed	2.45	10.99	6.72	9.52	9.49	10.77	10.34
<b>All Private Equity</b>	<b>3.63</b>	<b>15.26</b>	<b>10.10</b>	<b>10.82</b>	<b>9.25</b>	<b>11.47</b>	<b>11.24</b>
S&P 500	4.82	19.11	11.94	13.97	9.12	12.97	12.81

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.

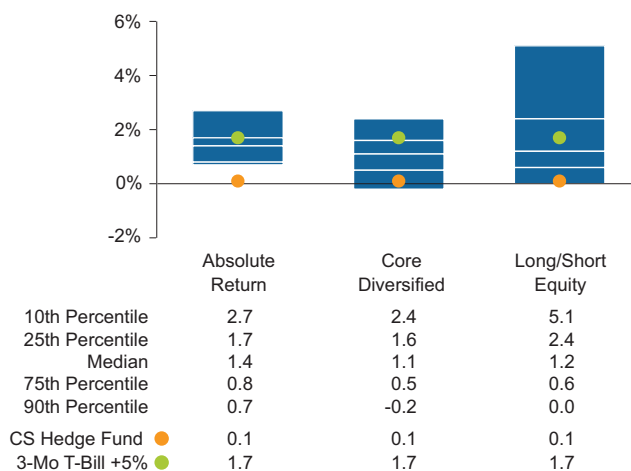
# Trade Spat Rains on Risk Parade

HEDGE FUNDS/MACs | Jim McKee

## Hedge Funds

- During the quarter, Trump’s tough talk on trade upset markets, particularly abroad, while positive momentum from tax cuts and corporate earnings growth lifted U.S. markets.
- Benefiting from a strong corporate environment, particularly in the U.S., event-driven strategies (Event-Driven Multi, Distressed, Risk Arb) were the quarter’s steadier contributors.
- As fiscal and monetary policies diverged globally, Global Macro gained 1.3% with its discretionary bets; however, Managed Futures (-0.3%) lacked any meaningful systematic trends.
- Actively managing risks in foreign markets hurt by a stronger dollar, Emerging Markets (-4.3%) suffered fewer losses than the underlying market indices.
- Long/Short Equity (-0.3%) went nowhere, on average, amid turbulent markets across geographies and styles.

## Hedge Fund-of-Funds Style Group Returns



Sources: Callan, Credit Suisse, Federal Reserve

## Callan Database Median and Index Returns\* for Periods ended June 30, 2018

Hedge Fund Universe	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Callan Fund-of-Funds Database	1.29	5.61	2.76	4.23	3.32	4.82
Callan Absolute Return FOF Style	1.36	4.99	2.71	4.07	3.09	4.49
Callan Core Diversified FOF Style	1.06	5.05	2.22	4.18	3.25	5.03
Callan Long/Short Equity FOF Style	1.21	7.34	3.90	5.56	3.85	5.98
Credit Suisse Hedge Fund	0.10	4.74	2.02	3.60	3.24	5.51
CS Equity Market Neutral	-0.64	5.89	1.88	2.05	-3.36	0.33
CS Fixed Income Arb	-0.27	3.96	4.02	3.92	4.27	4.02
CS Distressed	0.51	4.15	2.95	3.73	4.08	6.61
CS Event-Driven Multi	2.02	3.69	-0.42	2.13	2.92	5.84
CS Emerging Markets	-4.34	5.69	4.68	4.77	3.43	7.46
CS Managed Futures	-0.29	4.00	-1.47	1.88	0.62	2.87
CS Convertible Arbitrage	-0.77	2.56	3.12	2.55	4.28	3.96
CS Multi-Strategy	0.14	3.46	4.53	6.03	5.28	6.48
CS Risk Arbitrage	0.80	1.98	3.26	2.74	2.72	4.08
CS Long/Short Equity	-0.35	7.06	3.31	5.80	4.12	6.56
CS Global Macro	1.27	5.65	1.71	2.76	3.63	6.67
HFRI Asset Wtd Composite	0.87	5.31	2.68	4.17	3.52	–
90-Day T-Bill + 5%	1.66	6.36	5.68	5.42	5.35	6.29

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

### Rates a Tailwind for Managers

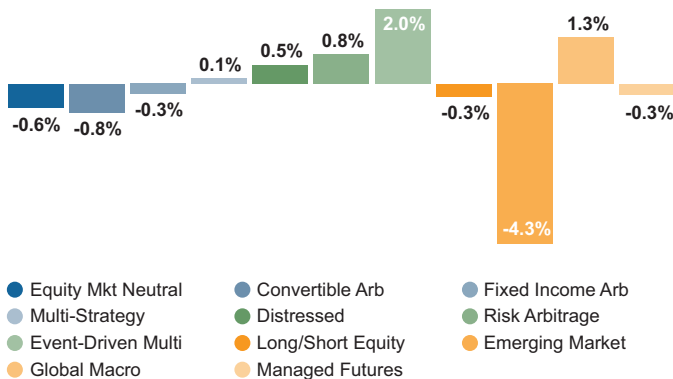
- Rising short-term rates are now providing a tailwind to hedge fund performance with growing returns on cash and short-interest rebates.
- Higher rates, with accompanying inflation risks, are also likely to create more market volatility, leading to more trading opportunities for active managers like hedge funds.

### Multi-Asset Class (MAC) Strategies

Liquid alternatives to hedge funds have become popular among investors for their attractive risk-adjusted returns that are similarly uncorrelated with traditional stock and bond investments but constructed at a lower cost.

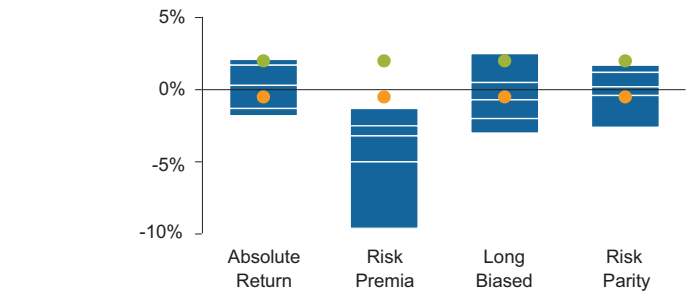
- Callan’s Multi-Asset Class (MAC) style groups struggled with a tough top-down market environment, leading to flat or negative returns in the second quarter.
- **CS Neuberger MARP** (-0.5%) is an equal risk-weighted index of alternative risk factors (value, carry, momentum, and liquidity) across four capital markets (equity, fixed income, currency, and commodities) targeting 5% volatility.
- Equity Value (-4.6%) sank again after a similar loss in the first quarter, reflecting a continuing Tech-led growth story. Although Commodity Momentum (+9.5%) got traction, conflicting economic signals around the world undermined other momentum factors.

### Credit Suisse Hedge Fund Strategy Returns



Source: Credit Suisse

### MAC Style Group Returns

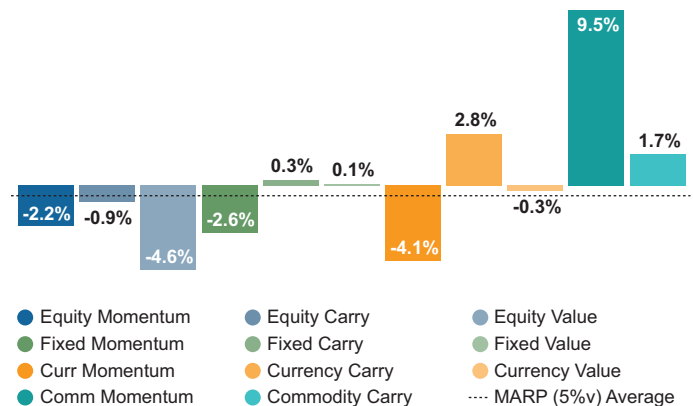


	Absolute Return	Risk Premia	Long Biased	Risk Parity
10th Percentile	2.1	-1.3	2.5	1.7
25th Percentile	1.7	-2.5	0.5	1.2
Median	0.3	-3.2	-0.7	0.2
75th Percentile	-1.3	-5.0	-2.0	-0.4
90th Percentile	-1.8	-9.6	-3.0	-2.6
CS NB MARP (5%v)	-0.5	-0.5	-0.5	-0.5
60% S&P 500/40% BB Barclays Agg	2.0	2.0	2.0	2.0

Sources: Bloomberg Barclays, Callan, Credit Suisse, Neuberger Berman, Standard & Poor’s

- The **Risk Premia MAC Style Group** (-3.2%) experienced systematic weakness, as noted above with the CS NB MARP. Normally diversifying exposures of value and momentum risk factors were key detractors again this quarter. Reflecting different vol targets and factor exposures, returns of underlying Risk Premia managers showed significant dispersion over the quarter.
- Other MAC group returns hovered around zero, trailing the traditional 60/40 benchmark (+2.0%).

### Alternative Risk Factor Breakdown



Sources: Credit Suisse, Neuberger Berman

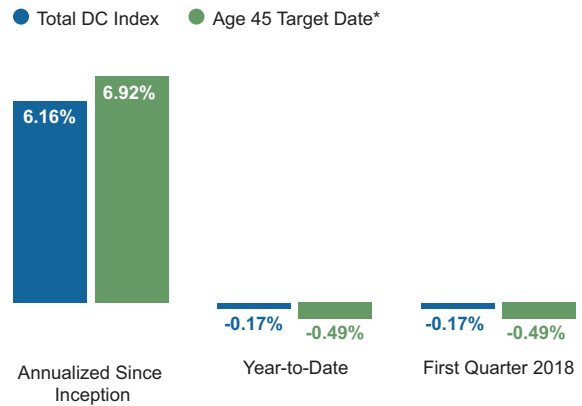
# DC Plans Struggle in Turbulent Market

## DEFINED CONTRIBUTION | Tom Szkwarla

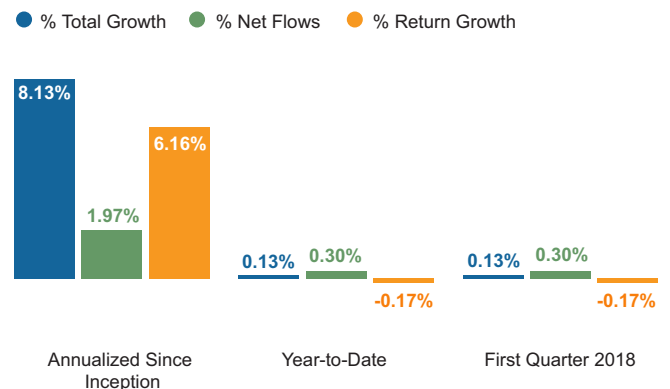
- The Callan DC Index™ fell 0.2% in the first quarter, reflecting widespread declines in global markets.
- But the DC Index outpaced the Age 45 Target Date Fund, which lost 0.5%.
- Since inception, the DC Index's annual return of 6.2% has trailed the Age 45 TDF by 76 basis points.
- Driven primarily by participant inflows, DC plan balances slightly increased by 0.1% during the quarter. Inflows (participant and plan sponsor contributions) added 0.3% to total growth, overcoming the 0.2% drop in returns.
- Over the long term, participant balances have increased an average of 8.1% annually, with market appreciation contributing 6.2% and net cash flows adding the remainder.
- U.S. fixed income experienced net inflows of 13.1% during the period. Riskier assets like U.S. equity and company stock experienced significant outflows.
- For the quarter, nearly 70 cents of every dollar that moved within DC plans flowed to TDFs.
- Turnover (i.e., net transfer activity levels within DC plans) in the DC Index of 0.3% came in well below the historical average at 0.6% and was at its lowest level since the first quarter of 2011.
- The Callan DC Index's overall equity allocation fell for the first time in seven quarters, ending at 70%, still slightly above the Index's historical average (68%).
- TDFs' share of DC assets grew to 31.3% during the quarter, another all-time high. The allocation to U.S. large cap equity declined slightly from last quarter, but U.S. large cap continues to be the second-highest allocation, at 23.3%.
- When TDFs are available in a DC plan, they hold a much greater portion of assets (34%) than any other option.

*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 (First Quarter 2018) (Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Target Date Funds	69.83%
U.S. Fixed Income	13.13%
U.S. Smid Cap	-32.65%
U.S. Large Cap	-21.99%
<b>Total Turnover**</b>	<b>0.31%</b>

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

Source: Callan DC Index

Note: DC Index inception date is January 2006.

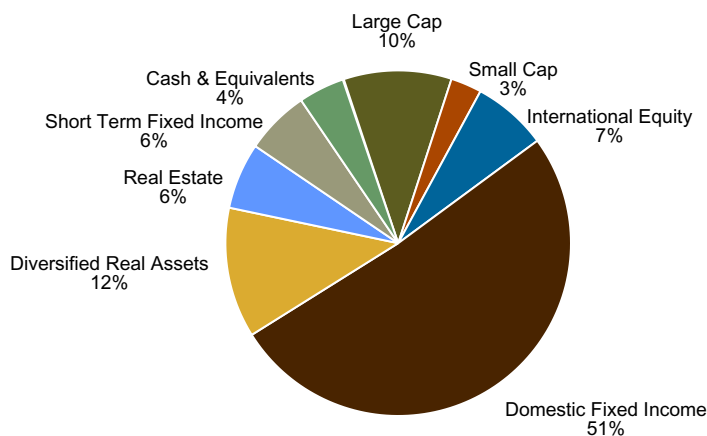
\* The Age 45 Fund transitioned from the average 2030 TDF to the 2035 TDF in June 2013.

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

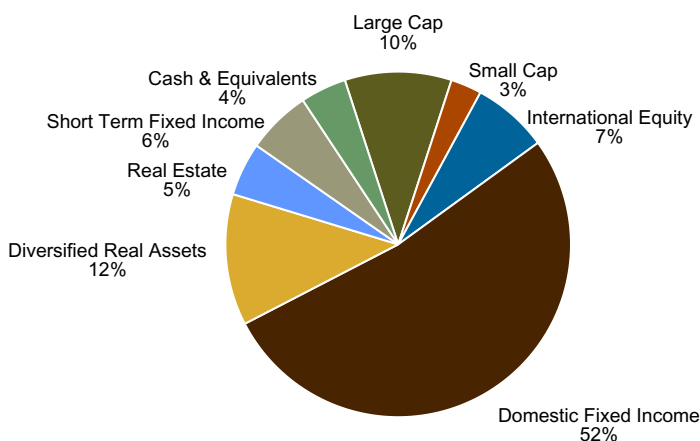
## Actual vs Target Asset Allocation As of June 30, 2018

The first chart below shows the Fund's asset allocation as of June 30, 2018. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.

### Actual Asset Allocation



### Target Asset Allocation



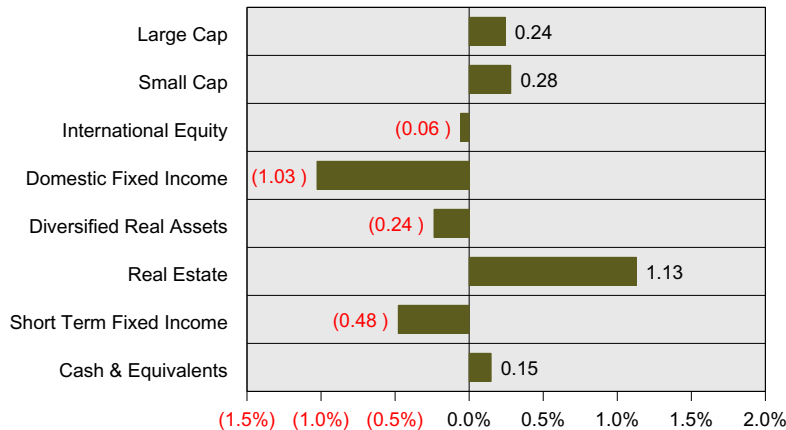
Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Large Cap	232,962	10.1%	10.0%	0.1%	2,153
Small Cap	67,961	2.9%	2.9%	0.0%	1,026
International Equity	161,726	7.0%	7.1%	(0.1%)	(2,148)
Domestic Fixed Income	1,181,219	51.2%	52.4%	(1.2%)	(28,222)
Diversified Real Assets	281,953	12.2%	12.3%	(0.1%)	(1,943)
Real Estate	142,934	6.2%	5.0%	1.2%	27,529
Short Term Fixed Income	138,978	6.0%	6.0%	0.0%	493
Cash & Equivalents	100,361	4.3%	4.3%	0.0%	1,113
Total	2,308,094	100.0%	100.0%		

\* Current Quarter Target = 52.4% Blmbg Aggregate, 12.3% NDSIB INS DRA Weighted Benchmark, 10.0% Russell 1000 Index, 7.1% MSCI World ex US, 6.0% Blmbg Gov/Cred 1-3 Yr, 5.0% NCREIF Total Index, 4.3% 3-month Treasury Bill and 2.9% Russell 2000 Index.

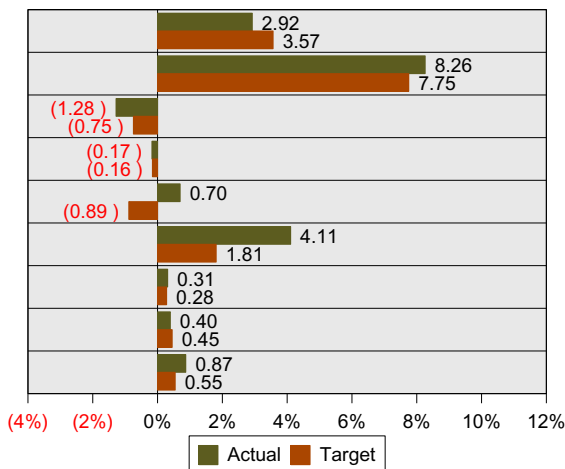
## Quarterly Total Fund Relative Attribution - June 30, 2018

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.

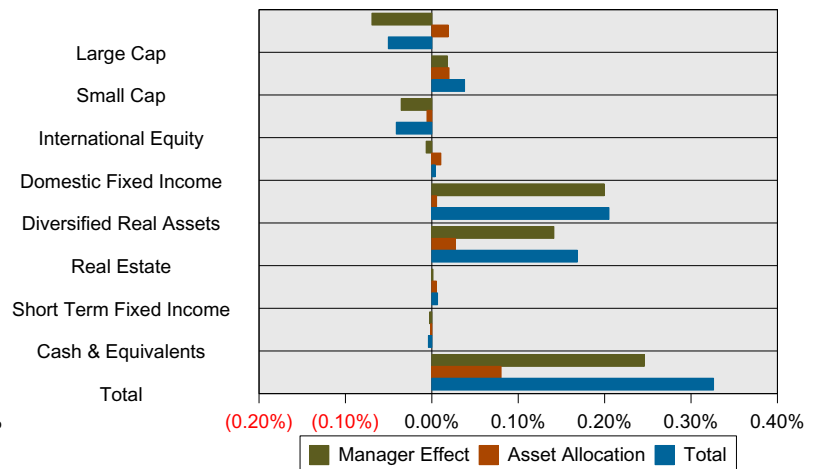
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended June 30, 2018

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap	11%	11%	2.92%	3.57%	(0.07%)	0.02%	(0.05%)
Small Cap	4%	3%	8.26%	7.75%	0.02%	0.02%	0.04%
International Equity	8%	8%	(1.28%)	(0.75%)	(0.04%)	(0.01%)	(0.04%)
Domestic Fixed Income	50%	51%	(0.17%)	(0.16%)	(0.01%)	0.01%	0.00%
Diversified Real Assets	12%	13%	0.70%	(0.89%)	0.20%	0.01%	0.20%
Real Estate	6%	5%	4.11%	1.81%	0.14%	0.03%	0.17%
Short Term Fixed Income	4%	5%	0.31%	0.28%	0.00%	0.01%	0.01%
Cash & Equivalents	4%	4%	0.40%	0.45%	(0.00%)	(0.00%)	(0.00%)
<b>Total</b>			<b>0.87%</b>	<b>0.55%</b>	<b>+ 0.25%</b>	<b>+ 0.08%</b>	<b>0.33%</b>

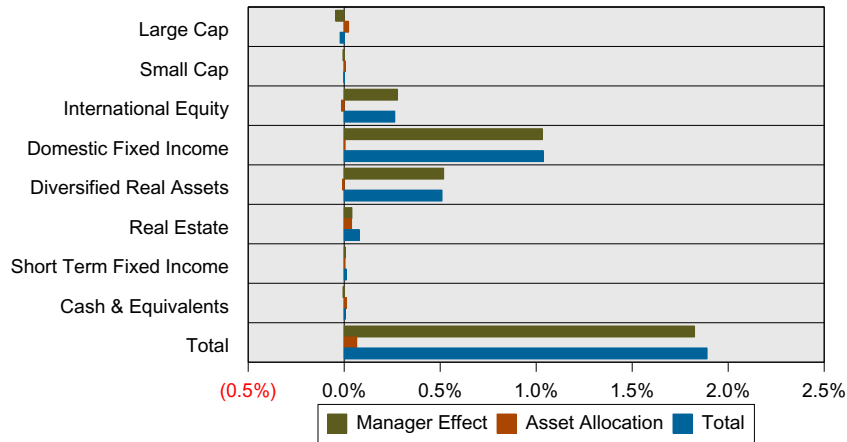
\* Current Quarter Target = 52.4% Blmbg Aggregate, 12.3% NDSIB INS DRA Weighted Benchmark, 10.0% Russell 1000 Index, 7.1% MSCI World ex US, 6.0% Blmbg Gov/Cred 1-3 Yr, 5.0% NCREIF Total Index, 4.3% 3-month Treasury Bill and 2.9% Russell 2000 Index.



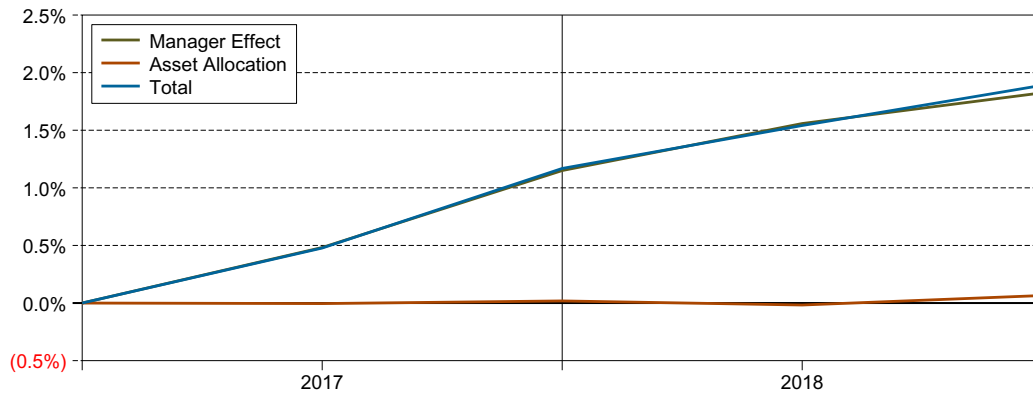
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

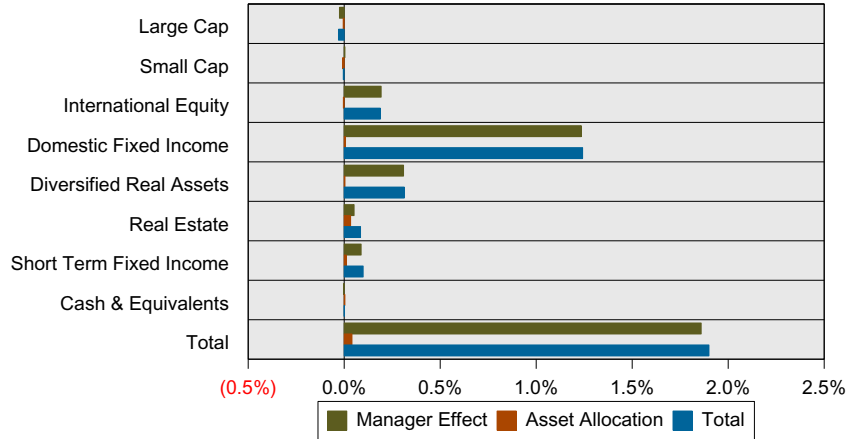
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap	11%	11%	14.05%	14.54%	(0.04%)	0.02%	(0.02%)
Small Cap	4%	4%	17.36%	17.57%	(0.01%)	0.01%	(0.00%)
International Equity	8%	8%	10.30%	7.04%	0.28%	(0.01%)	0.26%
Domestic Fixed Income	51%	51%	1.55%	(0.40%)	1.03%	0.00%	1.04%
Diversified Real Assets	12%	13%	7.54%	3.27%	0.52%	(0.01%)	0.51%
Real Estate	6%	5%	7.87%	7.19%	0.04%	0.04%	0.08%
Short Term Fixed Income	3%	4%	0.42%	0.21%	0.01%	0.00%	0.01%
Cash & Equivalents	4%	4%	1.20%	1.36%	(0.01%)	0.01%	0.01%
<b>Total</b>			<b>5.40%</b>	<b>3.51%</b>	<b>1.82%</b>	<b>0.07%</b>	<b>1.89%</b>

\* Current Quarter Target = 52.4% Blmbg Aggregate, 12.3% NDSIB INS DRA Weighted Benchmark, 10.0% Russell 1000 Index, 7.1% MSCI World ex US, 6.0% Blmbg Gov/Cred 1-3 Yr, 5.0% NCREIF Total Index, 4.3% 3-month Treasury Bill and 2.9% Russell 2000 Index.

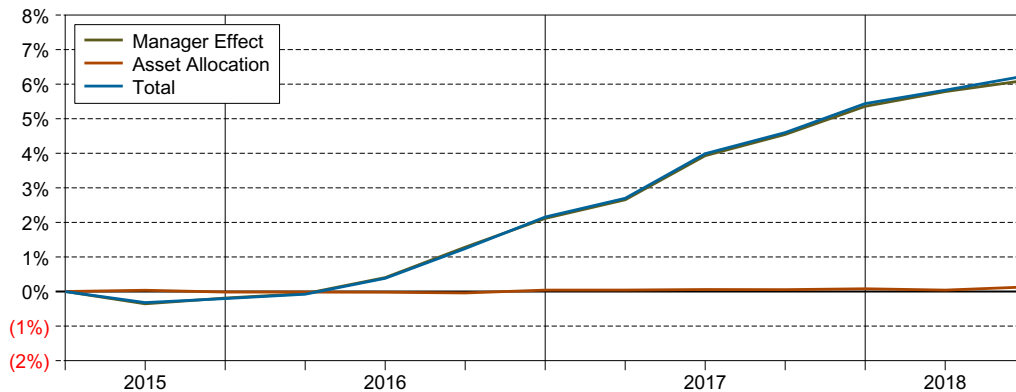
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

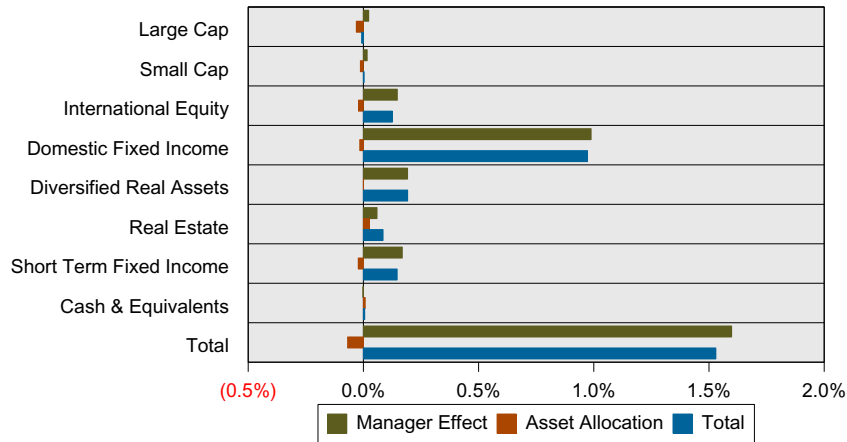
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap	10%	10%	11.43%	11.64%	(0.02%)	(0.01%)	(0.03%)
Small Cap	4%	4%	11.25%	10.96%	0.00%	(0.01%)	(0.00%)
International Equity	8%	8%	7.17%	4.74%	0.19%	(0.00%)	0.19%
Domestic Fixed Income	47%	48%	4.25%	1.72%	1.23%	0.01%	1.24%
Diversified Real Assets	12%	12%	4.87%	2.32%	0.31%	0.00%	0.31%
Real Estate	6%	5%	9.03%	8.25%	0.05%	0.03%	0.08%
Short Term Fixed Income	11%	11%	1.07%	0.52%	0.09%	0.01%	0.10%
Cash & Equivalents	3%	3%	0.59%	0.68%	(0.00%)	0.00%	0.00%
<b>Total</b>			<b>5.57%</b>	<b>3.67%</b>	<b>+ 1.86%</b>	<b>+ 0.04%</b>	<b>1.90%</b>

\* Current Quarter Target = 52.4% Blmbg Aggregate, 12.3% NDSIB INS DRA Weighted Benchmark, 10.0% Russell 1000 Index, 7.1% MSCI World ex US, 6.0% Blmbg Gov/Cred 1-3 Yr, 5.0% NCREIF Total Index, 4.3% 3-month Treasury Bill and 2.9% Russell 2000 Index.

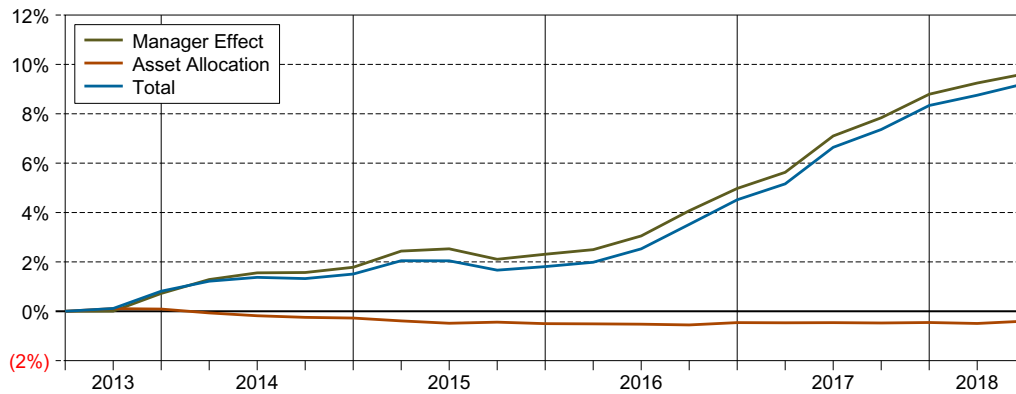
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

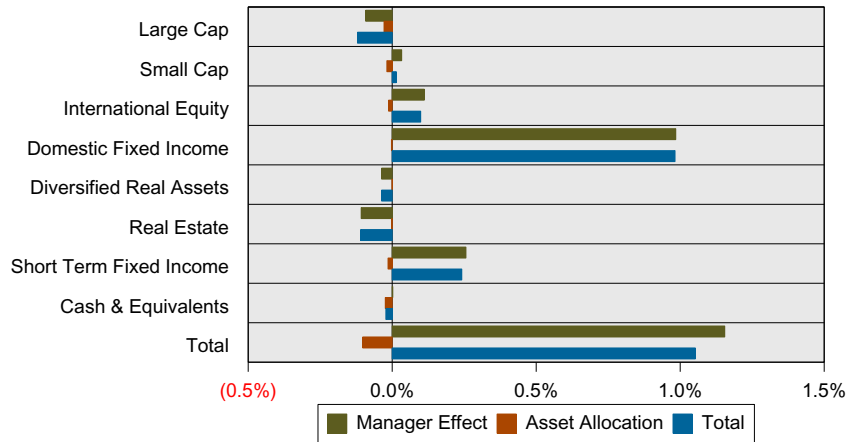
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap	11%	11%	13.71%	13.37%	0.02%	(0.03%)	(0.01%)
Small Cap	4%	4%	13.05%	12.46%	0.02%	(0.01%)	0.00%
International Equity	8%	8%	8.67%	6.34%	0.15%	(0.02%)	0.13%
Domestic Fixed Income	42%	42%	4.57%	2.27%	0.99%	(0.02%)	0.97%
Diversified Real Assets	11%	11%	4.80%	3.13%	0.19%	0.00%	0.19%
Real Estate	5%	5%	10.74%	9.77%	0.06%	0.03%	0.09%
Short Term Fixed Income	17%	16%	1.40%	0.65%	0.17%	(0.02%)	0.15%
Cash & Equivalents	3%	3%	0.36%	0.42%	(0.00%)	0.01%	0.01%
<b>Total</b>			<b>5.55%</b>	<b>4.02%</b>	<b>+ 1.60%</b>	<b>+ (0.07%)</b>	<b>1.53%</b>

\* Current Quarter Target = 52.4% Blmbg Aggregate, 12.3% NDSIB INS DRA Weighted Benchmark, 10.0% Russell 1000 Index, 7.1% MSCI World ex US, 6.0% Blmbg Gov/Cred 1-3 Yr, 5.0% NCREIF Total Index, 4.3% 3-month Treasury Bill and 2.9% Russell 2000 Index.

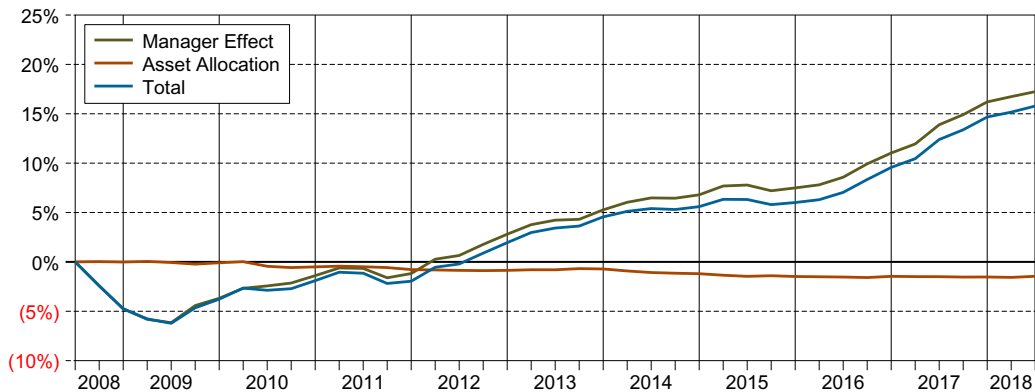
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

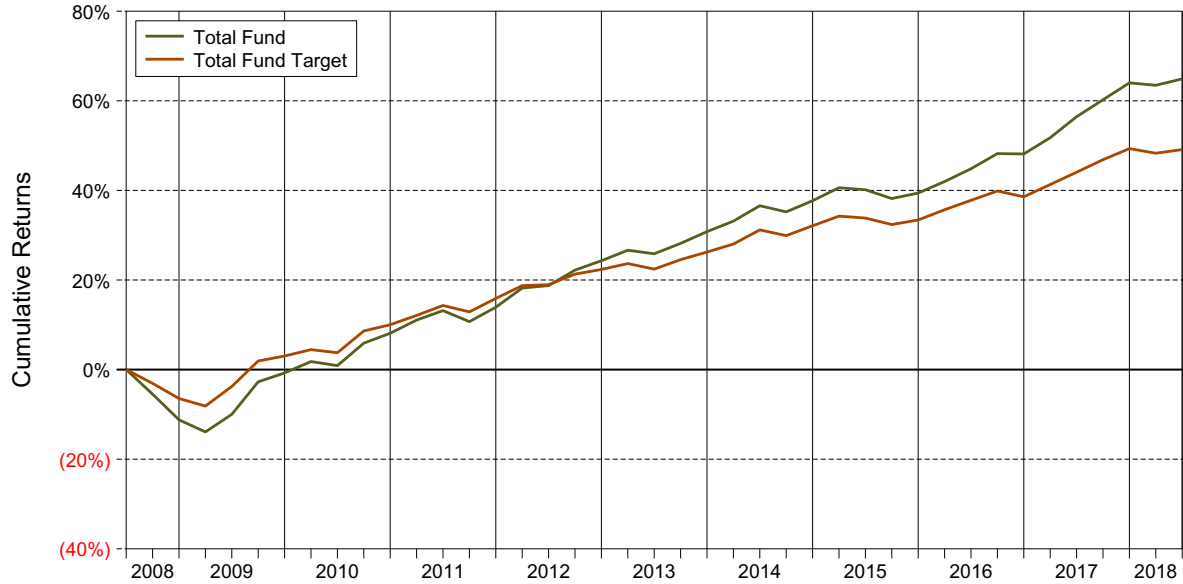
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap	10%	10%	9.42%	10.19%	(0.09%)	(0.03%)	(0.12%)
Small Cap	3%	3%	11.65%	10.60%	0.03%	(0.02%)	0.01%
International Equity	7%	7%	4.76%	3.12%	0.11%	(0.01%)	0.10%
Domestic Fixed Income	41%	42%	6.32%	3.72%	0.98%	(0.00%)	0.98%
Diversified Real Assets	14%	14%	3.62%	3.31%	(0.04%)	0.00%	(0.04%)
Real Estate	5%	5%	3.21%	6.22%	(0.11%)	(0.00%)	(0.11%)
Short Term Fixed Income	17%	16%	2.38%	0.96%	0.26%	(0.01%)	0.24%
Cash & Equivalents	3%	3%	0.40%	0.35%	0.00%	(0.02%)	(0.02%)
<b>Total</b>			<b>5.13%</b>	<b>4.08%</b>	<b>+ 1.15%</b>	<b>+ (0.10%)</b>	<b>1.05%</b>

\* Current Quarter Target = 52.4% Blmbg Aggregate, 12.3% NDSIB INS DRA Weighted Benchmark, 10.0% Russell 1000 Index, 7.1% MSCI World ex US, 6.0% Blmbg Gov/Cred 1-3 Yr, 5.0% NCREIF Total Index, 4.3% 3-month Treasury Bill and 2.9% Russell 2000 Index.

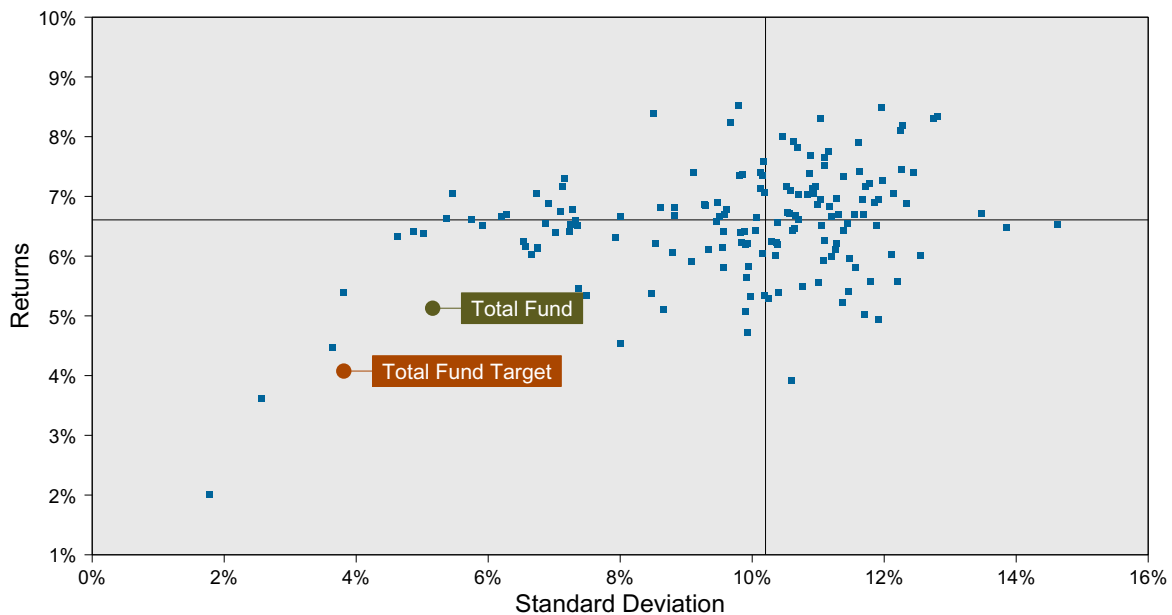
## Cumulative Performance Relative to Target

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



### Ten Year Annualized Risk vs Return



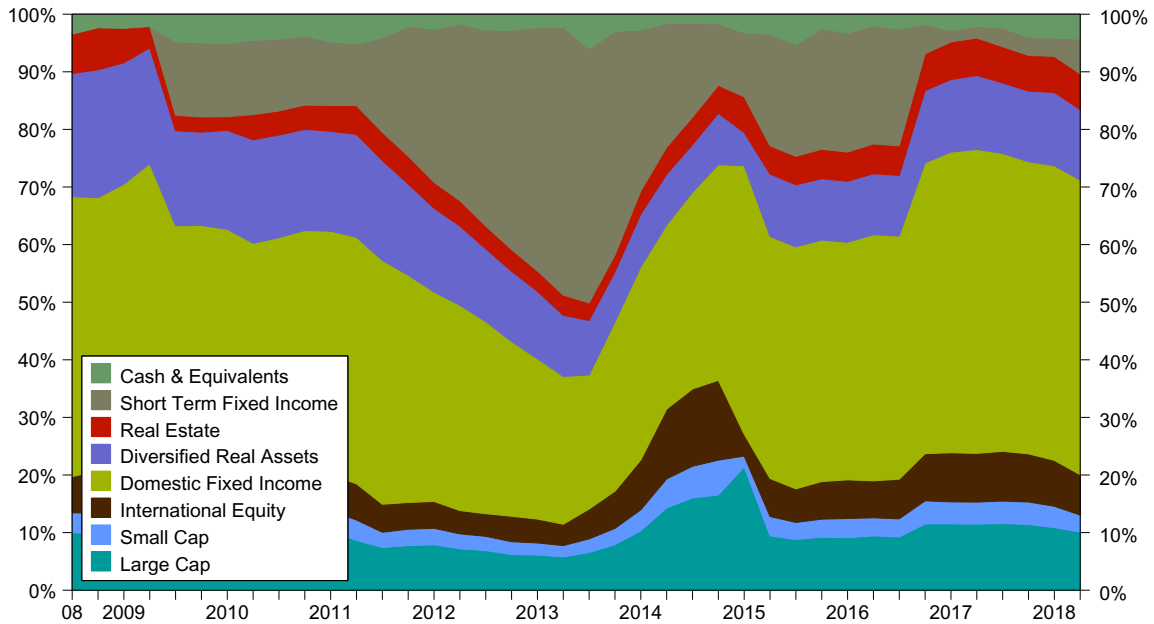
Squares represent membership of the Callan Public Fund Sponsor Database

\* Current Quarter Target = 52.4% Blmbg Aggregate, 12.3% NDSIB INS DRA Weighted Benchmark, 10.0% Russell 1000 Index, 7.1% MSCI World ex US, 6.0% Blmbg Gov/Cred 1-3 Yr, 5.0% NCREIF Total Index, 4.3% 3-month Treasury Bill and 2.9% Russell 2000 Index.

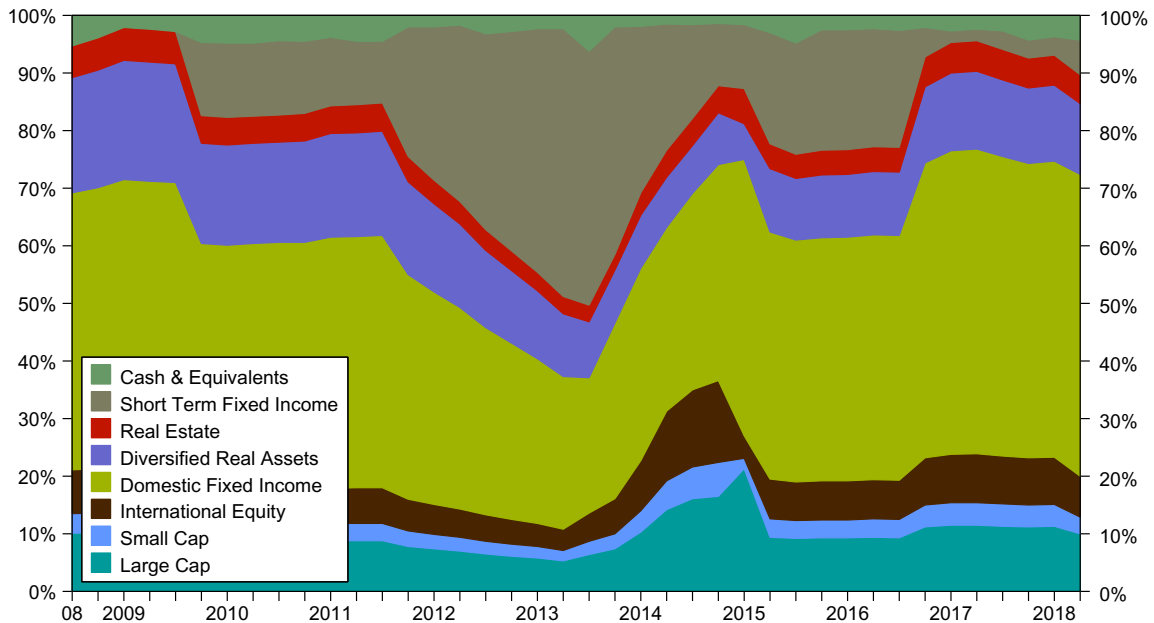
## Actual vs Target Historical Asset Allocation

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

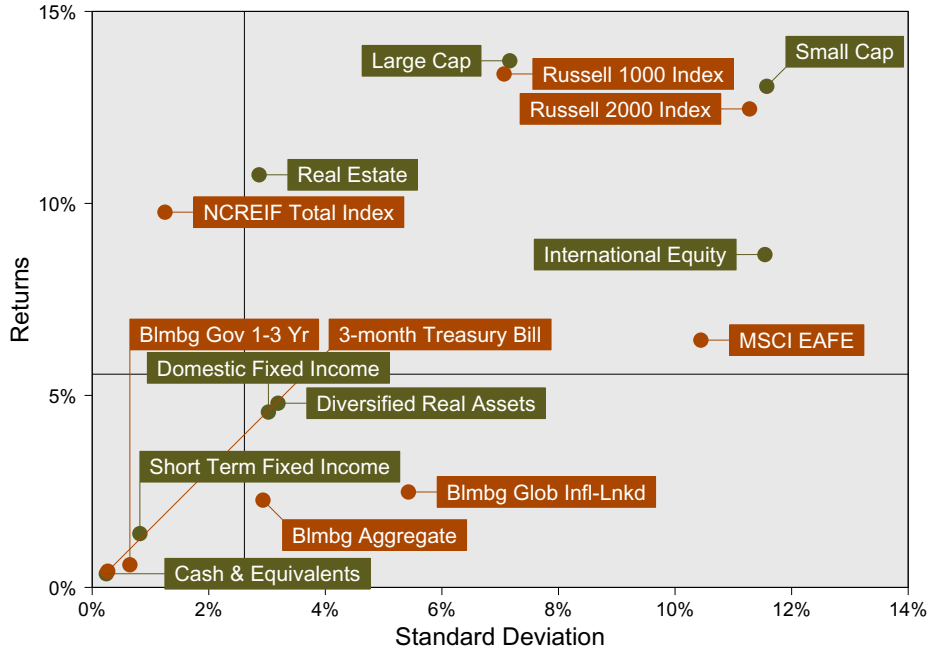


\* Current Quarter Target = 52.4% Blmbg Aggregate, 12.3% NDSIB INS DRA Weighted Benchmark, 10.0% Russell 1000 Index, 7.1% MSCI World ex US, 6.0% Blmbg Gov/Cred 1-3 Yr, 5.0% NCREIF Total Index, 4.3% 3-month Treasury Bill and 2.9% Russell 2000 Index.

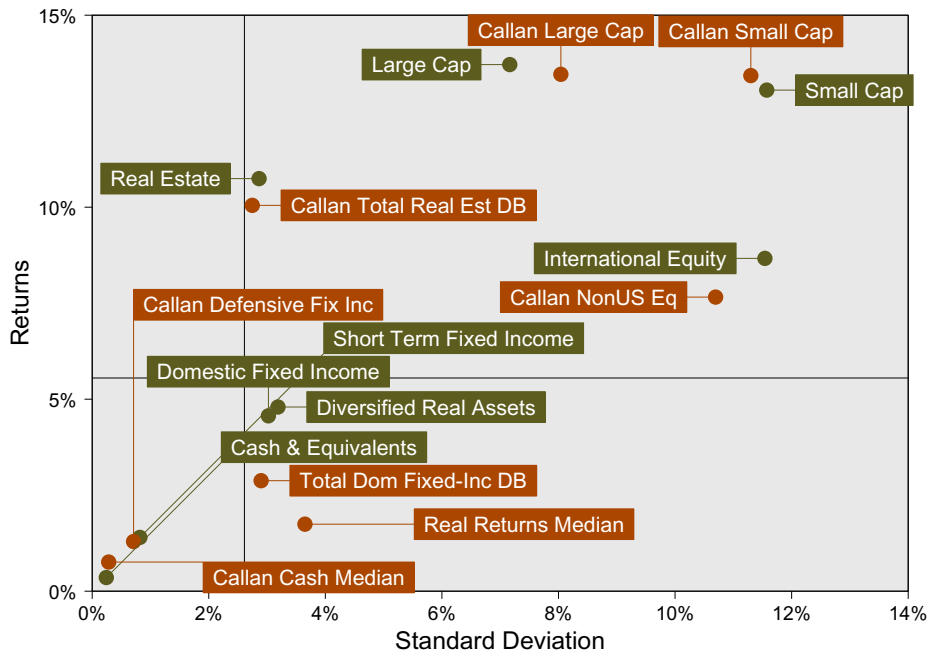
## Asset Class Risk and Return

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



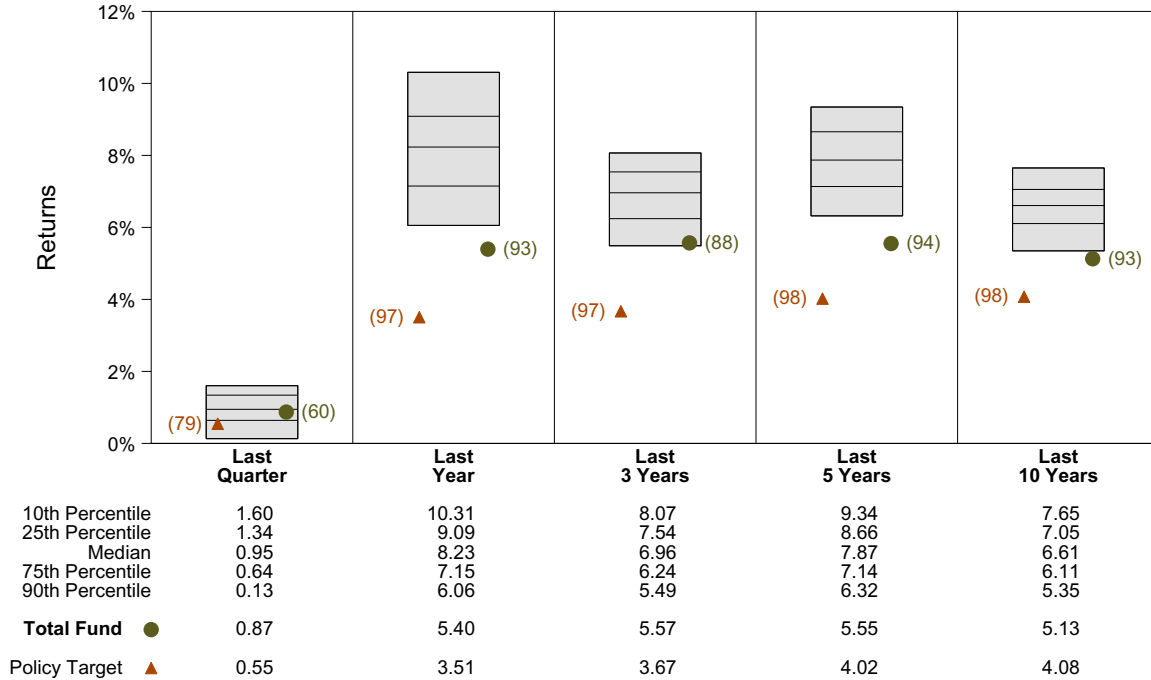
### Five Year Annualized Risk vs Return Asset Classes vs Asset Class Median



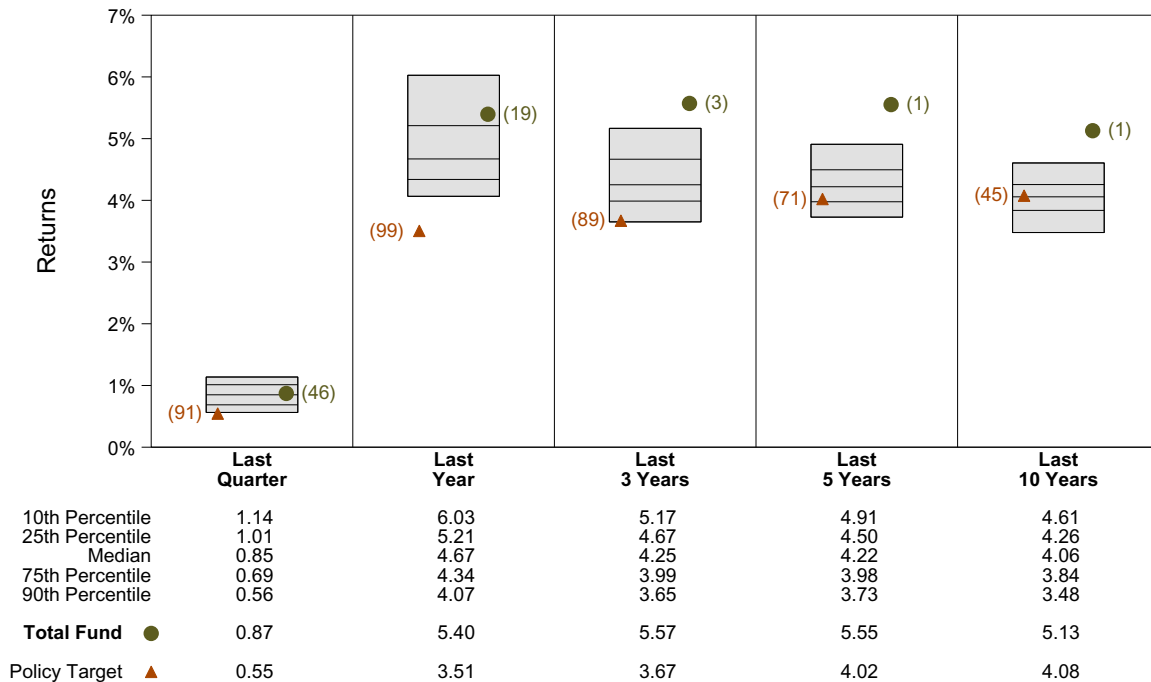
## Total Fund Ranking

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 June 30, 2018. 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



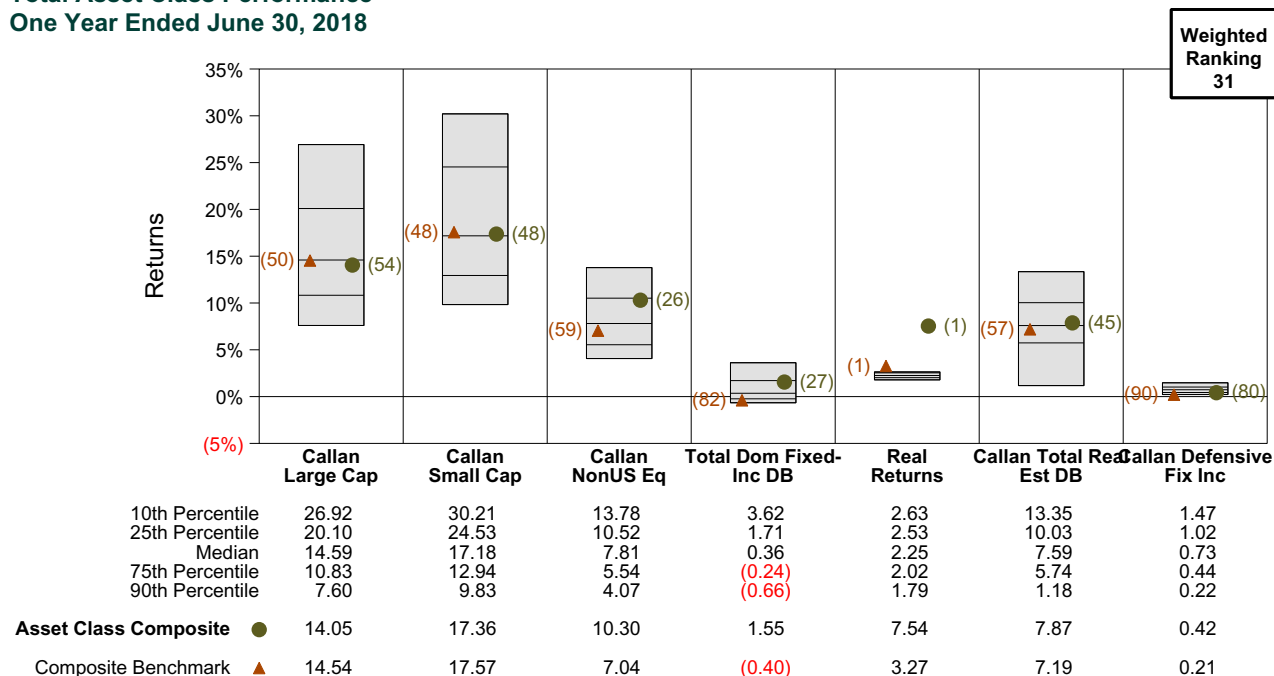
\* Current Quarter Target = 52.4% Blmbg Aggregate, 12.3% NDSIB INS DRA Weighted Benchmark, 10.0% Russell 1000 Index, 7.1% MSCI World ex US, 6.0% Blmbg Gov/Cred 1-3 Yr, 5.0% NCREIF Total Index, 4.3% 3-month Treasury Bill and 2.9% Russell 2000 Index.



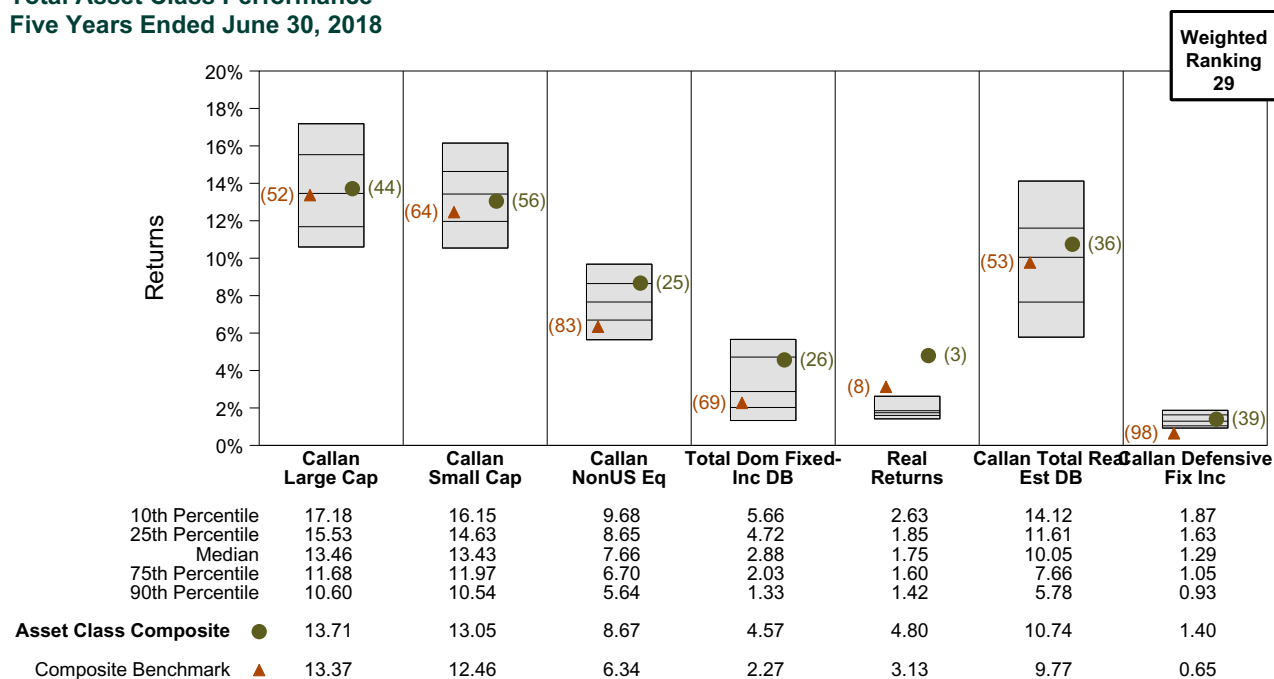
## Asset Class Rankings

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 June 30, 2018



### Total Asset Class Performance Five Years Ended June 30, 2018



\* Current Quarter Target = 52.4% Blmbg Aggregate, 12.3% NDSIB INS DRA Weighted Benchmark, 10.0% Russell 1000 Index, 7.1% MSCI World ex US, 6.0% Blmbg Gov/Cred 1-3 Yr, 5.0% NCREIF Total Index, 4.3% 3-month Treasury Bill and 2.9% Russell 2000 Index.

## Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2018, with the distribution as of March 31, 2018. 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

	June 30, 2018				March 31, 2018	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
<b>Domestic Equity</b>	<b>\$300,922,741</b>	<b>13.04%</b>	<b>\$(38,030,555)</b>	<b>\$15,073,078</b>	<b>\$323,880,218</b>	<b>14.58%</b>
<b>Large Cap</b>	<b>\$232,962,177</b>	<b>10.09%</b>	<b>\$(16,004,680)</b>	<b>\$7,705,273</b>	<b>\$241,261,584</b>	<b>10.86%</b>
Parametric Clifton Large Cap	46,814,212	2.03%	(1,597,722)	1,737,813	46,674,120	2.10%
L.A. Capital Large Cap Growth	70,994,336	3.08%	(8,639,814)	4,728,136	74,906,014	3.37%
L.A. Capital Enhanced	46,865,398	2.03%	(3,514,876)	1,796,303	48,583,971	2.19%
LSV Large Cap Value	68,288,231	2.96%	(2,252,269)	(556,980)	71,097,479	3.20%
<b>Small Cap</b>	<b>\$67,960,565</b>	<b>2.94%</b>	<b>\$(22,025,875)</b>	<b>\$7,367,806</b>	<b>\$82,618,634</b>	<b>3.72%</b>
Parametric Clifton Small Cap	33,784,170	1.46%	(11,000,000)	3,521,788	41,262,382	1.86%
PIMCO RAE	34,176,395	1.48%	(11,025,875)	3,846,018	41,356,252	1.86%
<b>International Equity</b>	<b>\$161,726,346</b>	<b>7.01%</b>	<b>\$(13,239,463)</b>	<b>\$(1,993,471)</b>	<b>\$176,959,280</b>	<b>7.96%</b>
DFA Int'l Small Cap Value	15,474,969	0.67%	(1,000,000)	(569,186)	17,044,155	0.77%
LSV Intl Value	62,854,098	2.72%	(3,968,007)	(2,555,610)	69,377,715	3.12%
Vanguard Intl Explorer Fund	16,013,817	0.69%	(1,000,000)	(452,651)	17,466,468	0.79%
William Blair	67,383,462	2.92%	(7,271,456)	1,583,976	73,070,942	3.29%
<b>Domestic Fixed Income</b>	<b>\$1,181,219,354</b>	<b>51.18%</b>	<b>\$46,787,008</b>	<b>\$(1,826,898)</b>	<b>\$1,136,259,244</b>	<b>51.14%</b>
Declaration Total Return	86,548,678	3.75%	(45,398)	553,766	86,040,309	3.87%
PIMCO DiSCO II	106,204,031	4.60%	0	1,672,468	104,531,563	4.70%
PIMCO Bravo II Fund	43,326,489	1.88%	(4,263,375)	1,787,576	45,802,288	2.06%
Prudential	181,117,533	7.85%	64,924,911	(323,096)	116,515,718	5.24%
SSgA US Govt Credit Bd Idx	155,308,837	6.73%	8,391,264	(450,194)	147,367,768	6.63%
Wells Capital	271,936,476	11.78%	(40,121,044)	(4,346,089)	316,403,609	14.24%
Western Asset Management	336,777,310	14.59%	17,900,651	(721,329)	319,597,989	14.38%
<b>Diversified Real Assets</b>	<b>\$281,952,624</b>	<b>12.22%</b>	<b>\$(3,039,864)</b>	<b>\$1,969,028</b>	<b>\$283,023,461</b>	<b>12.74%</b>
Western Asset Management	116,829,324	5.06%	(43,899)	(4,970,866)	121,844,089	5.48%
JP Morgan Infrastructure	92,111,246	3.99%	(1,852,117)	2,031,969	91,931,394	4.14%
Eastern Timber Opportunities	55,509,588	2.40%	(1,143,848)	4,282,313	52,371,123	2.36%
Grosvenor Cust. Infrastructure	17,502,466	0.76%	0	625,611	16,876,855	0.76%
<b>Real Estate</b>	<b>\$142,933,551</b>	<b>6.19%</b>	<b>\$(1,751,096)</b>	<b>\$5,682,530</b>	<b>\$139,002,116</b>	<b>6.26%</b>
Invesco Core Real Estate	68,647,129	2.97%	(616,580)	2,881,605	66,382,104	2.99%
JP Morgan RE	74,286,421	3.22%	(1,134,516)	2,800,925	72,620,012	3.27%
<b>Short Term Fixed Income</b>	<b>\$138,978,231</b>	<b>6.02%</b>	<b>\$68,045,831</b>	<b>\$464,755</b>	<b>\$70,467,645</b>	<b>3.17%</b>
JP Morgan Short Term Bonds	138,978,231	6.02%	68,045,831	464,755	70,467,645	3.17%
<b>Cash &amp; Equivalents</b>	<b>\$100,361,126</b>	<b>4.35%</b>	<b>\$7,749,281</b>	<b>\$409,981</b>	<b>\$92,201,864</b>	<b>4.15%</b>
Northern Trust Cash Account	74,861,960	3.24%	7,749,281	294,373	66,818,306	3.01%
Bank of ND	25,499,166	1.10%	0	115,608	25,383,558	1.14%
<b>Securities Lending Income</b>	<b>\$0</b>	<b>0.00%</b>	<b>\$(51,256)</b>	<b>\$51,256</b>	<b>-</b>	<b>-</b>
<b>Total Fund</b>	<b>\$2,308,093,974</b>	<b>100.0%</b>	<b>\$66,469,885</b>	<b>\$19,830,260</b>	<b>\$2,221,793,829</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 June 30, 2018. 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 June 30, 2018

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Domestic Equity</b>					
Gross	4.29%	14.93%	11.41%	13.54%	9.98%
Net	4.24%	14.71%	11.15%	13.29%	9.61%
<b>Large Cap Equity</b>					
Gross	2.92%	14.05%	11.43%	13.71%	9.42%
Net	2.88%	13.85%	11.21%	13.50%	9.10%
Benchmark(1)	3.57%	14.54%	11.64%	13.37%	10.19%
Parametric Clifton Large Cap - Gross	3.53%	13.72%	12.19%	13.55%	-
Parametric Clifton Large Cap - Net	3.53%	13.70%	12.09%	13.45%	-
S&P 500 Index	3.43%	14.37%	11.93%	13.42%	10.17%
L.A. Capital - Gross	5.99%	19.26%	13.18%	15.46%	11.53%
L.A. Capital - Net	5.94%	19.01%	12.95%	15.24%	11.31%
Russell 1000 Growth Index	5.76%	22.51%	14.98%	16.36%	11.83%
L.A. Capital Enhanced - Gross	3.55%	12.56%	11.32%	13.21%	10.61%
L.A. Capital Enhanced - Net	3.52%	12.42%	11.18%	13.07%	10.44%
Russell 1000 Index	3.57%	14.54%	11.64%	13.37%	10.20%
LSV Asset Management - Gross	(1.00%)	9.69%	9.01%	12.24%	10.22%
LSV Asset Management - Net	(1.07%)	9.37%	8.69%	11.92%	9.88%
Russell 1000 Value Index	1.18%	6.77%	8.26%	10.34%	8.49%
<b>Small Cap Equity</b>					
Gross	8.26%	17.36%	11.25%	13.05%	11.65%
Net	8.23%	17.09%	10.85%	12.67%	11.13%
Russell 2000 Index	7.75%	17.57%	10.96%	12.46%	10.60%
Parametric Clifton Small Cap - Gross	7.76%	17.37%	11.57%	13.39%	-
Parametric Clifton SmallCap - Net	7.76%	17.13%	11.12%	12.98%	-
Russell 2000 Index	7.75%	17.57%	10.96%	12.46%	10.60%
PIMCO RAE - Gross	8.76%	17.13%	11.04%	12.49%	11.77%
PIMCO RAE - Net	8.69%	16.84%	10.75%	12.17%	11.36%
Russell 2000	7.75%	17.57%	10.96%	12.46%	10.60%
<b>International Equity</b>					
Gross	(1.28%)	10.30%	7.17%	8.67%	4.76%
Net	(1.36%)	9.96%	6.84%	8.31%	4.47%
Benchmark(2)	(0.75%)	7.04%	4.74%	6.34%	3.12%
DFA Intl Small Cap Value - Net	(3.47%)	5.40%	7.19%	10.09%	6.11%
World ex US SC Va	(2.18%)	8.13%	7.86%	8.96%	6.09%
LSV Asset Management - Gross	(3.75%)	5.76%	6.09%	7.99%	4.18%
LSV Asset Management - Net	(3.85%)	5.34%	5.68%	7.57%	3.85%
Benchmark(3)	(1.24%)	6.84%	4.90%	6.44%	3.16%
Vanguard Intl Explorer Fund - Net	(2.75%)	11.47%	9.38%	11.25%	6.60%
BMI, EPAC, <\$2 B	(2.91%)	10.47%	8.87%	10.53%	5.79%
William Blair - Gross	1.91%	15.83%	-	-	-
William Blair - Net	1.81%	15.39%	-	-	-
MSCI ACWI ex US IMI	(2.61%)	7.75%	5.46%	6.39%	2.93%

(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 June 30, 2018. 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 June 30, 2018

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Domestic Fixed Income</b>					
Gross	(0.17%)	1.55%	4.25%	4.57%	6.32%
Net	(0.20%)	1.44%	4.13%	4.44%	6.15%
Blmbg Aggregate Index	(0.16%)	(0.40%)	1.72%	2.27%	3.72%
Declaration Total Return - Net	0.64%	3.34%	3.64%	-	-
Libor-3 Month	0.58%	1.75%	1.07%	0.74%	0.73%
PIMCO DiSCO II - Net	1.60%	10.02%	10.37%	9.46%	-
PIMCO Bravo II Fund - Net	4.05%	6.00%	8.75%	-	-
Blmbg Aggregate Index	(0.16%)	(0.40%)	1.72%	2.27%	3.72%
Prudential - Gross	(0.48%)	0.77%	3.53%	3.91%	6.00%
Prudential - Net	(0.55%)	0.51%	3.25%	3.64%	5.84%
Blmbg Aggregate Index	(0.16%)	(0.40%)	1.72%	2.27%	3.72%
Wells Capital - Gross	(1.35%)	0.05%	4.17%	4.66%	7.08%
Wells Capital - Net	(1.38%)	(0.11%)	4.00%	4.47%	6.87%
Blmbg Credit Baa	(1.22%)	(0.57%)	3.25%	3.81%	5.98%
Western Asset - Gross	(0.24%)	0.61%	3.34%	3.78%	5.45%
Western Asset - Net	(0.27%)	0.48%	3.21%	3.64%	5.27%
Blmbg Aggregate	(0.16%)	(0.40%)	1.72%	2.27%	3.72%
SSgA US Govt Cr Bd Idx - Gross	(0.32%)	(0.59%)	1.84%	2.29%	-
SSgA US Govt Cr Bd Idx - Net	(0.32%)	(0.62%)	1.81%	2.26%	-
Blmbg Govt/Credit Bd	(0.33%)	(0.63%)	1.83%	2.29%	3.78%
<b>Diversified Real Assets</b>					
Gross	0.70%	7.54%	4.87%	4.80%	3.62%
Net	0.58%	7.25%	4.56%	4.49%	3.28%
Weighted Benchmark	(0.89%)	3.27%	2.32%	3.13%	3.31%
Western TIPS - Gross	(4.08%)	2.59%	2.09%	2.60%	2.74%
Western TIPS - Net	(4.11%)	2.46%	1.95%	2.46%	2.56%
Blmbg Gbl Inftn-Linked(1)	(3.28%)	3.31%	2.25%	2.48%	2.99%
JP Morgan Infrastructure - Gross	2.21%	10.60%	7.58%	6.46%	-
JP Morgan Infrastructure - Net	1.88%	9.90%	6.71%	5.54%	-
CPI-W	1.12%	3.09%	1.74%	1.37%	1.35%
Eastern Timber Opportunities - Net	8.21%	13.95%	5.84%	6.35%	-
NCREIF Timberland Index	0.48%	3.57%	3.43%	6.00%	4.00%
Grosvenor Cust. Infrastructure - Net	3.71%	7.10%	8.07%	8.47%	-
CPI-W	1.12%	3.09%	1.74%	1.37%	1.35%

(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 June 30, 2018. 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 June 30, 2018

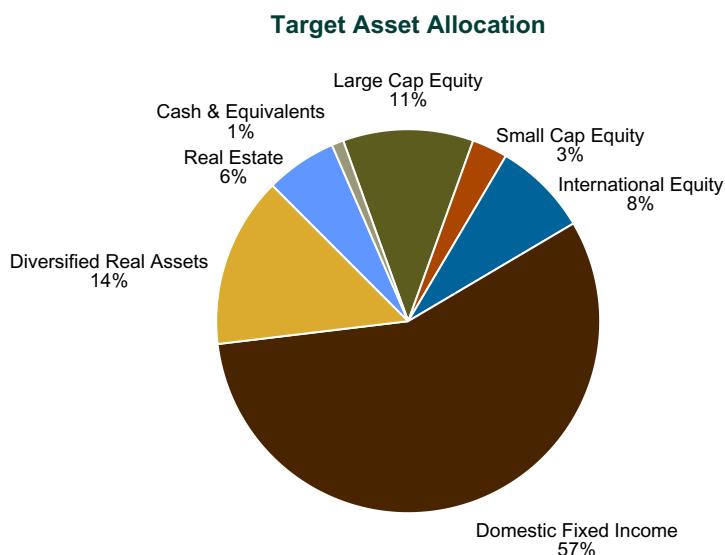
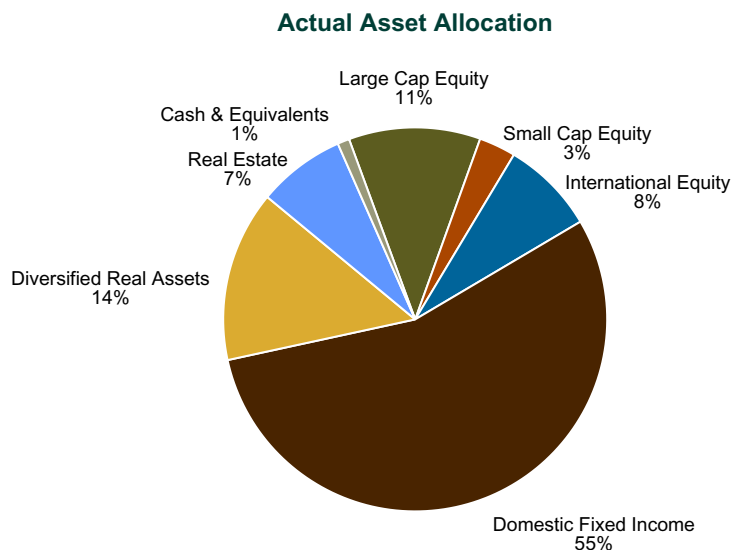
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Real Estate</b>					
Gross	4.11%	7.87%	9.03%	10.74%	3.21%
Net	3.83%	7.31%	8.37%	9.97%	2.24%
NCREIF Total Index	1.81%	7.19%	8.25%	9.77%	6.22%
Invesco Core Real Estate - Gross	4.36%	8.27%	9.25%	10.98%	-
Invesco Core Real Estate - Net	4.18%	7.91%	8.88%	10.56%	-
NCREIF Total Index	1.81%	7.19%	8.25%	9.77%	6.22%
JP Morgan - Gross	3.88%	7.50%	8.83%	10.62%	3.51%
JP Morgan - Net	3.50%	6.75%	7.92%	9.55%	2.36%
NCREIF Total Index	1.81%	7.19%	8.25%	9.77%	6.22%
<b>Short Term Fixed Income</b>					
Gross	0.31%	0.42%	1.07%	1.40%	-
Net	0.26%	0.30%	0.86%	1.22%	-
Blended Benchmark(1)	0.28%	0.21%	0.52%	0.65%	-
JP Morgan Short Term Bds - Gross	0.31%	0.42%	0.85%	1.02%	-
JP Morgan Short Term Bds - Net	0.26%	0.30%	0.67%	0.87%	-
Blmbg Gov/Credit 1-3 Y	0.28%	0.21%	0.71%	0.84%	1.65%
<b>Cash &amp; Equivalents - Net</b>					
Cash Account- Net	<b>0.40%</b>	<b>1.20%</b>	<b>0.59%</b>	<b>0.36%</b>	<b>0.40%</b>
Bank of ND - Net	0.37%	1.09%	0.51%	0.31%	0.38%
90 Day Treasury Bills	0.46%	1.42%	-	-	-
	0.45%	1.36%	0.68%	0.42%	0.35%
<b>Total Fund</b>					
Gross	0.87%	5.40%	5.57%	5.55%	5.13%
Net	0.81%	5.21%	5.36%	5.34%	4.88%
Target*	0.55%	3.51%	3.67%	4.02%	4.08%

\* Current Quarter Target = 52.4% Blmbg Aggregate, 12.3% NDSIB INS DRA Weighted Benchmark, 10.0% Russell 1000 Index, 7.1% MSCI World ex US, 6.0% Blmbg Gov/Cred 1-3 Yr, 5.0% NCREIF Total Index, 4.3% 3-month Treasury Bill and 2.9% Russell 2000 Index.

(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 June 30, 2018

The first chart below shows the Fund's asset allocation as of June 30, 2018. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.



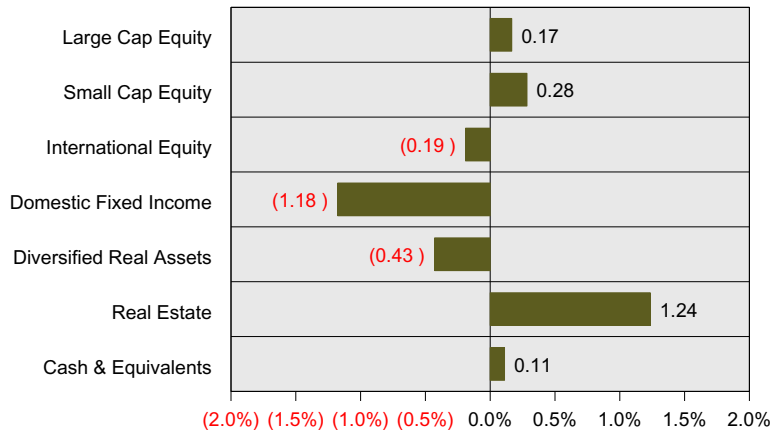
Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Large Cap Equity	213,157	11.1%	11.0%	0.1%	1,614
Small Cap Equity	59,512	3.1%	3.0%	0.1%	1,818
International Equity	151,224	7.9%	8.0%	(0.1%)	(2,625)
Domestic Fixed Income	1,059,552	55.1%	56.6%	(1.5%)	(28,933)
Diversified Real Assets	277,479	14.4%	14.4%	0.0%	550
Real Estate	142,865	7.4%	6.0%	1.4%	27,478
Cash & Equivalents	19,328	1.0%	1.0%	0.0%	97
<b>Total</b>	<b>1,923,118</b>	<b>100.0%</b>	<b>100.0%</b>		

\* Current Quarter Target = 56.6% Blmbg Agg, 14.4% WSI DRA Weighted, 11% Russell 1000, 8% MSCI World ex US, 6% NCREIF Total, 3% Russell 2000, 1% 3-mo T-Bill. "Current quarter tgt represents a transitional tgt allocation during implementation of revised target allocation. Upon full implementation, the tgt will be 11% Russell 1000, 3% Russell 2000, 8% MSCI World ex-US, 60% Blmbg Agg, 12% NDSIB DRA Weighted, 5% NCREIF Total, 1% 3-mo T-Bill."

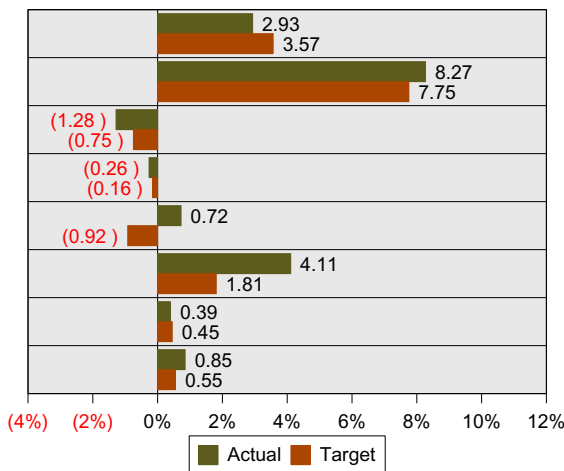
## Quarterly Total Fund Relative Attribution - June 30, 2018

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.

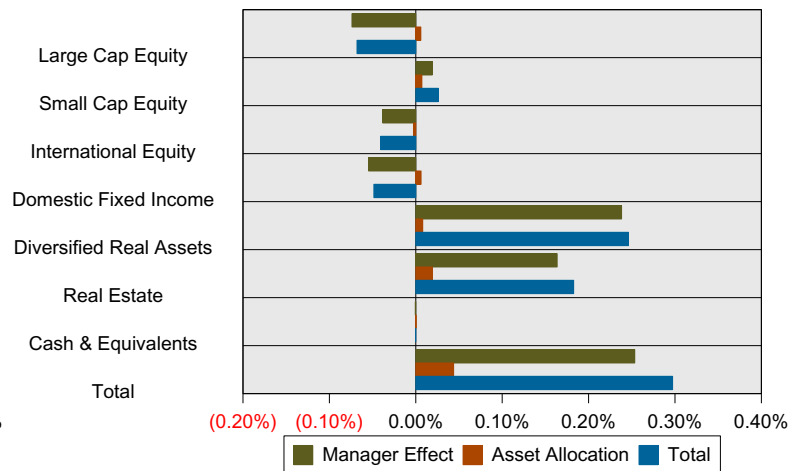
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended June 30, 2018

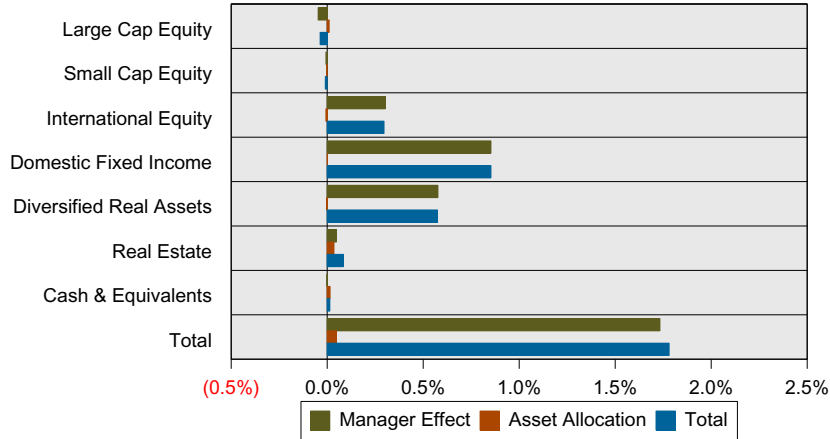
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	12%	12%	2.93%	3.57%	(0.07%)	0.01%	(0.07%)
Small Cap Equity	4%	4%	8.27%	7.75%	0.02%	0.01%	0.03%
International Equity	8%	9%	(1.28%)	(0.75%)	(0.04%)	(0.00%)	(0.04%)
Domestic Fixed Income	53%	54%	(0.26%)	(0.16%)	(0.05%)	0.01%	(0.05%)
Diversified Real Assets	14%	15%	0.72%	(0.92%)	0.24%	0.01%	0.25%
Real Estate	7%	6%	4.11%	1.81%	0.16%	0.02%	0.18%
Cash & Equivalents	1%	1%	0.39%	0.45%	(0.00%)	0.00%	(0.00%)
<b>Total</b>			<b>0.85%</b>	<b>0.55%</b>	<b>0.25%</b>	<b>0.04%</b>	<b>0.30%</b>

\* Current Quarter Target = 56.6% Blmbg Agg, 14.4% WSI DRA Weighted, 11% Russell 1000, 8% MSCI World ex US, 6% NCREIF Total, 3% Russell 2000, 1% 3-mo T-Bill. "Current quarter target represents a transitional target allocation during implementation of revised target allocation. Upon full implementation, the target will be 11% Russell 1000, 3% Russell 2000, 8% MSCI World ex-US, 60% Blmbg Agg, 12% NDSIB DRA Weighted, 5% NCREIF Total, 1% 3-mo T-Bill."

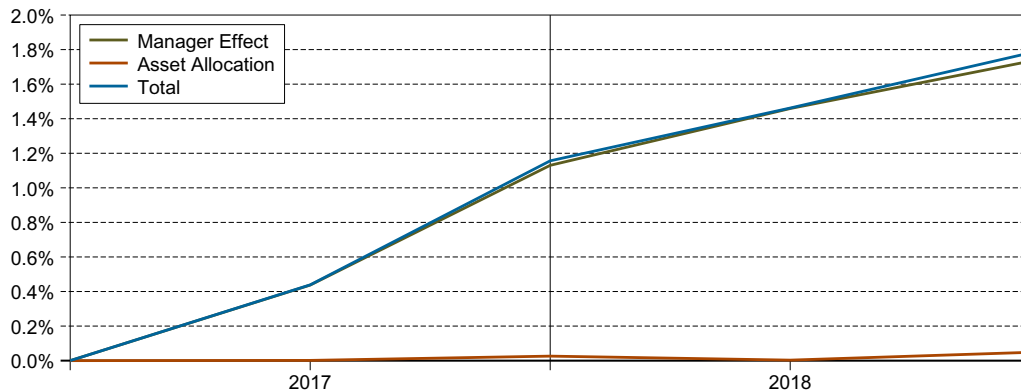
## Cumulative Total Fund Relative Attribution - June 30, 2018

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%	14.07%	14.54%	(0.05%)	0.01%	(0.04%)
Small Cap Equity	4%	4%	17.37%	17.57%	(0.01%)	(0.00%)	(0.01%)
International Equity	9%	9%	10.31%	7.04%	0.30%	(0.01%)	0.30%
Domestic Fixed Income	53%	53%	1.17%	(0.40%)	0.85%	(0.00%)	0.85%
Diversified Real Assets	14%	15%	7.56%	3.42%	0.58%	(0.00%)	0.57%
Real Estate	7%	6%	7.87%	7.19%	0.05%	0.04%	0.08%
Cash & Equivalents	1%	1%	1.21%	1.36%	(0.00%)	0.01%	0.01%
<b>Total</b>			<b>5.55%</b>	<b>3.77%</b>	<b>+ 1.73%</b>	<b>+ 0.05%</b>	<b>1.78%</b>

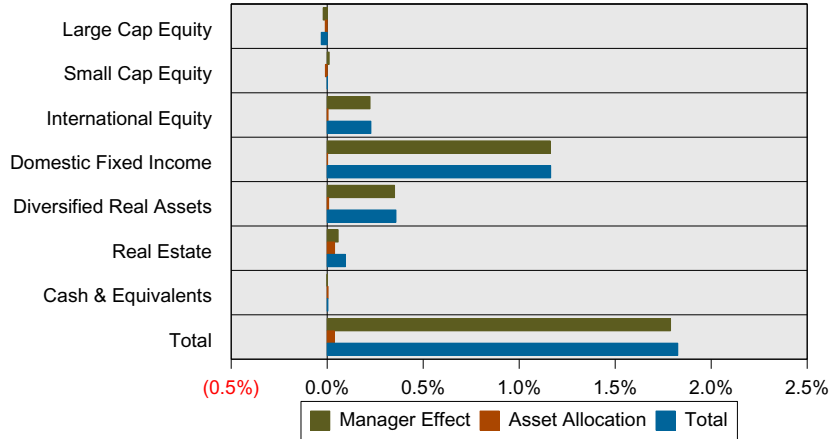
\* Current Quarter Target = 56.6% Blmbg Agg, 14.4% WSI DRA Weighted, 11% Russell 1000, 8% MSCI World ex US, 6% NCREIF Total, 3% Russell 2000, 1% 3-mo T-Bill. "Current quarter target represents a transitional target allocation during implementation of revised target allocation. Upon full implementation, the target will be 11% Russell 1000, 3% Russell 2000, 8% MSCI World ex-US, 60% Blmbg Agg, 12% NDSIB DRA Weighted, 5% NCREIF Total, 1% 3-mo T-Bill."



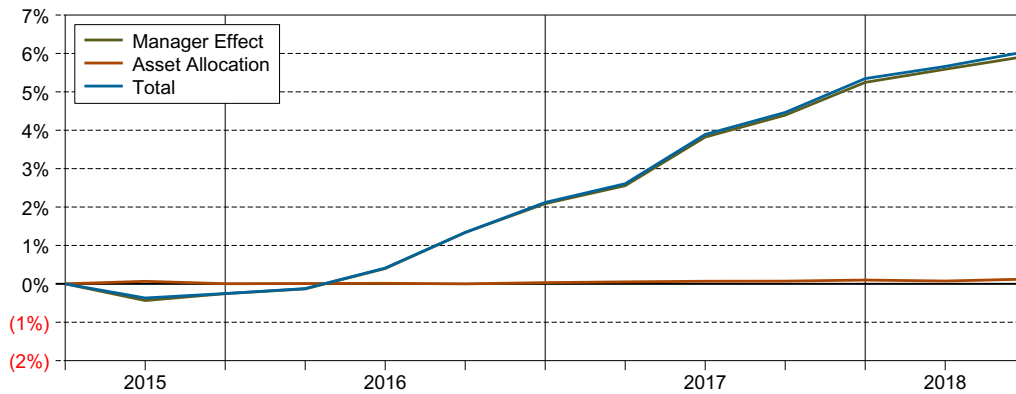
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

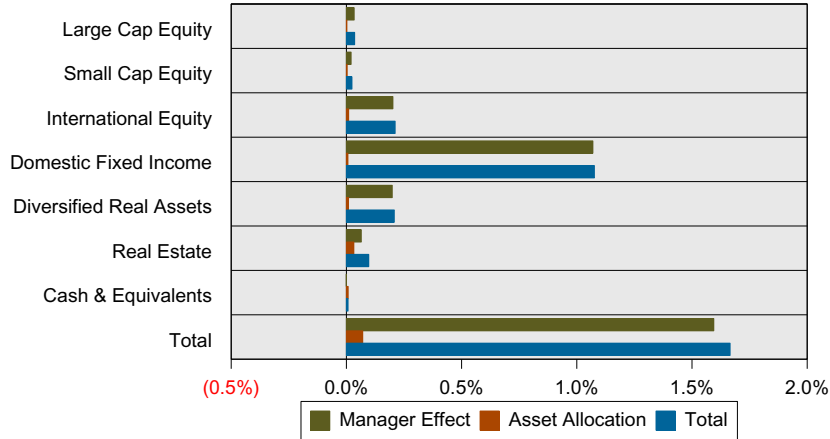
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	12%	12%	11.45%	11.64%	(0.02%)	(0.01%)	(0.03%)
Small Cap Equity	4%	4%	11.25%	10.96%	0.01%	(0.01%)	0.00%
International Equity	9%	9%	7.18%	4.74%	0.22%	0.00%	0.23%
Domestic Fixed Income	53%	53%	3.91%	1.72%	1.16%	0.00%	1.16%
Diversified Real Assets	14%	15%	4.90%	2.44%	0.35%	0.01%	0.36%
Real Estate	7%	6%	9.03%	8.25%	0.06%	0.04%	0.10%
Cash & Equivalents	1%	1%	0.59%	0.68%	(0.00%)	0.00%	0.00%
<b>Total</b>			<b>5.95%</b>	<b>4.13%</b>	<b>+ 1.79%</b>	<b>+ 0.04%</b>	<b>1.83%</b>

\* Current Quarter Target = 56.6% Blmbg Agg, 14.4% WSI DRA Weighted, 11% Russell 1000, 8% MSCI World ex US, 6% NCREIF Total, 3% Russell 2000, 1% 3-mo T-Bill. "Current quarter target represents a transitional target allocation during implementation of revised target allocation. Upon full implementation, the target will be 11% Russell 1000, 3% Russell 2000, 8% MSCI World ex-US, 60% Blmbg Agg, 12% NDSIB DRA Weighted, 5% NCREIF Total, 1% 3-mo T-Bill."

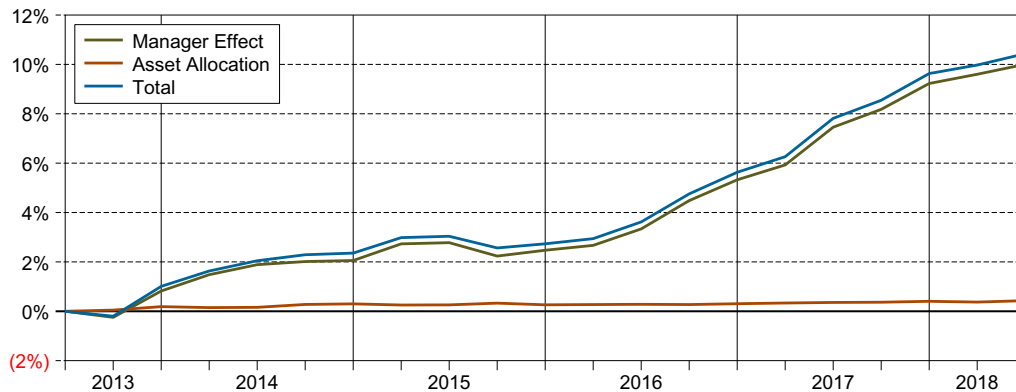
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

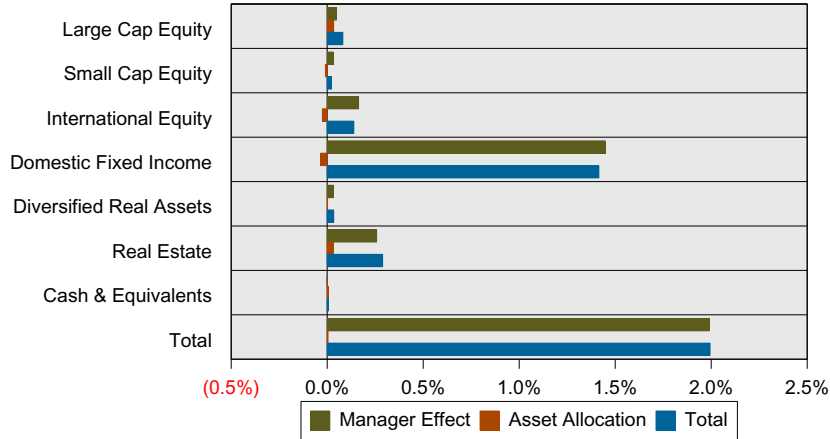
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	12%	12%	13.69%	13.37%	0.03%	0.00%	0.04%
Small Cap Equity	4%	4%	13.06%	12.46%	0.02%	0.00%	0.02%
International Equity	9%	9%	8.63%	6.34%	0.20%	0.01%	0.21%
Domestic Fixed Income	52%	53%	4.31%	2.27%	1.07%	0.01%	1.08%
Diversified Real Assets	16%	16%	4.99%	3.59%	0.20%	0.01%	0.21%
Real Estate	7%	6%	10.74%	9.77%	0.06%	0.03%	0.10%
Cash & Equivalents	1%	1%	0.36%	0.42%	(0.00%)	0.01%	0.01%
<b>Total</b>			<b>6.63%</b>	<b>4.97%</b>	<b>+ 1.59%</b>	<b>+ 0.07%</b>	<b>1.67%</b>

\* Current Quarter Target = 56.6% Blmbg Agg, 14.4% WSI DRA Weighted, 11% Russell 1000, 8% MSCI World ex US, 6% NCREIF Total, 3% Russell 2000, 1% 3-mo T-Bill. "Current quarter target represents a transitional target allocation during implementation of revised target allocation. Upon full implementation, the target will be 11% Russell 1000, 3% Russell 2000, 8% MSCI World ex-US, 60% Blmbg Agg, 12% NDSIB DRA Weighted, 5% NCREIF Total, 1% 3-mo T-Bill."

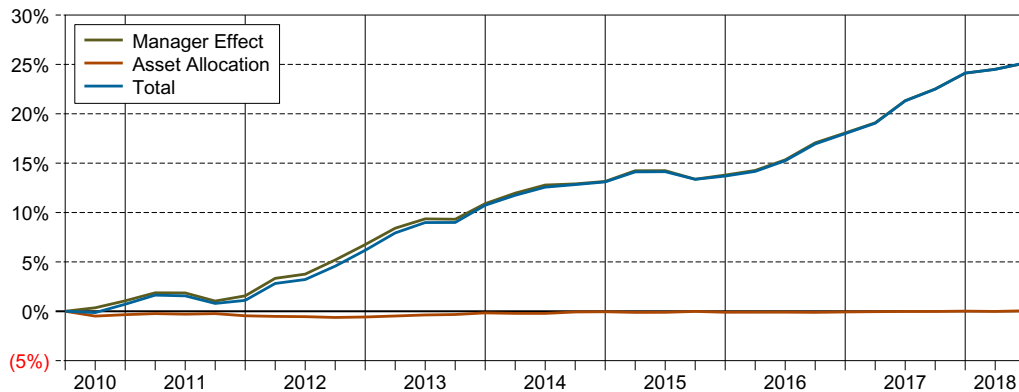
## Cumulative Total Fund Relative Attribution - June 30, 2018

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.

### Eight Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects

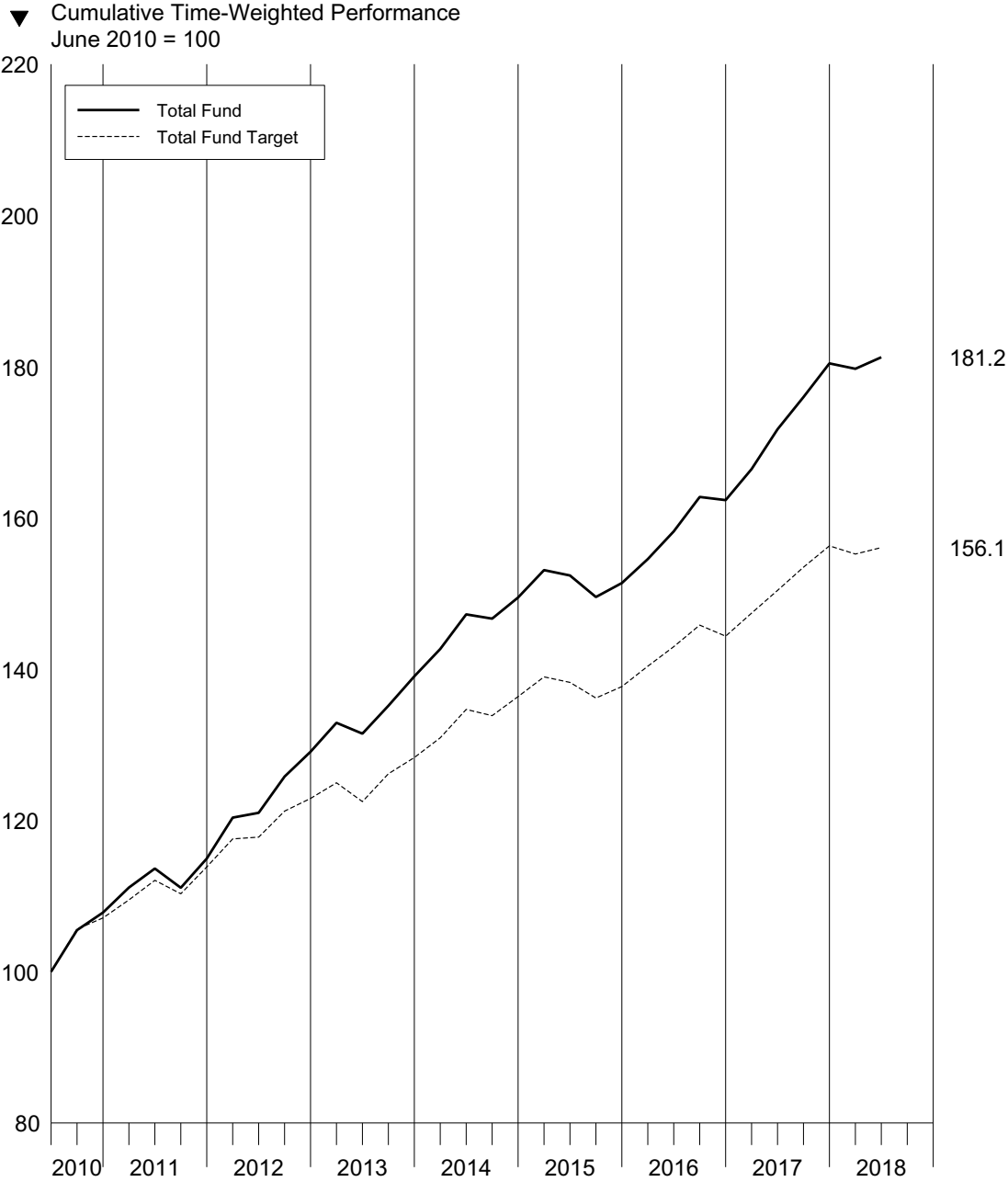


### Eight Year Annualized Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	11%	11%	15.78%	15.32%	0.05%	0.03%	0.08%
Small Cap Equity	4%	4%	15.71%	14.75%	0.03%	(0.01%)	0.02%
International Equity	8%	8%	8.97%	7.00%	0.16%	(0.02%)	0.14%
Domestic Fixed Income	52%	52%	5.48%	2.73%	1.45%	(0.03%)	1.41%
Diversified Real Assets	18%	18%	4.82%	4.45%	0.03%	0.00%	0.03%
Real Estate	7%	6%	15.31%	11.02%	0.26%	0.03%	0.29%
Cash & Equivalents	1%	1%	0.33%	0.30%	0.00%	0.01%	0.01%
<b>Total</b>			<b>7.72%</b>	<b>5.72%</b>	<b>+ 1.99%</b>	<b>+ 0.00%</b>	<b>1.99%</b>

\* Current Quarter Target = 56.6% Blmbg Agg, 14.4% WSI DRA Weighted, 11% Russell 1000, 8% MSCI World ex US, 6% NCREIF Total, 3% Russell 2000, 1% 3-mo T-Bill. "Current quarter target represents a transitional target allocation during implementation of revised target allocation. Upon full implementation, the target will be 11% Russell 1000, 3% Russell 2000, 8% MSCI World ex-US, 60% Blmbg Agg, 12% NDSIB DRA Weighted, 5% NCREIF Total, 1% 3-mo T-Bill."

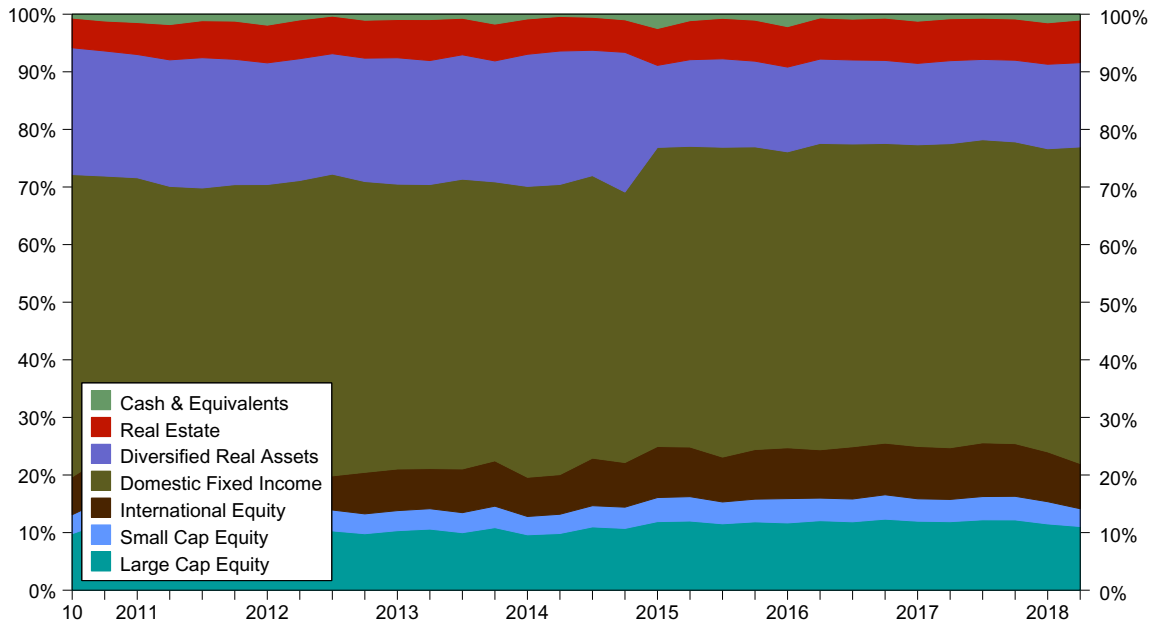
**NDSIB - Workforce Safety & Insurance  
Cumulative Results**



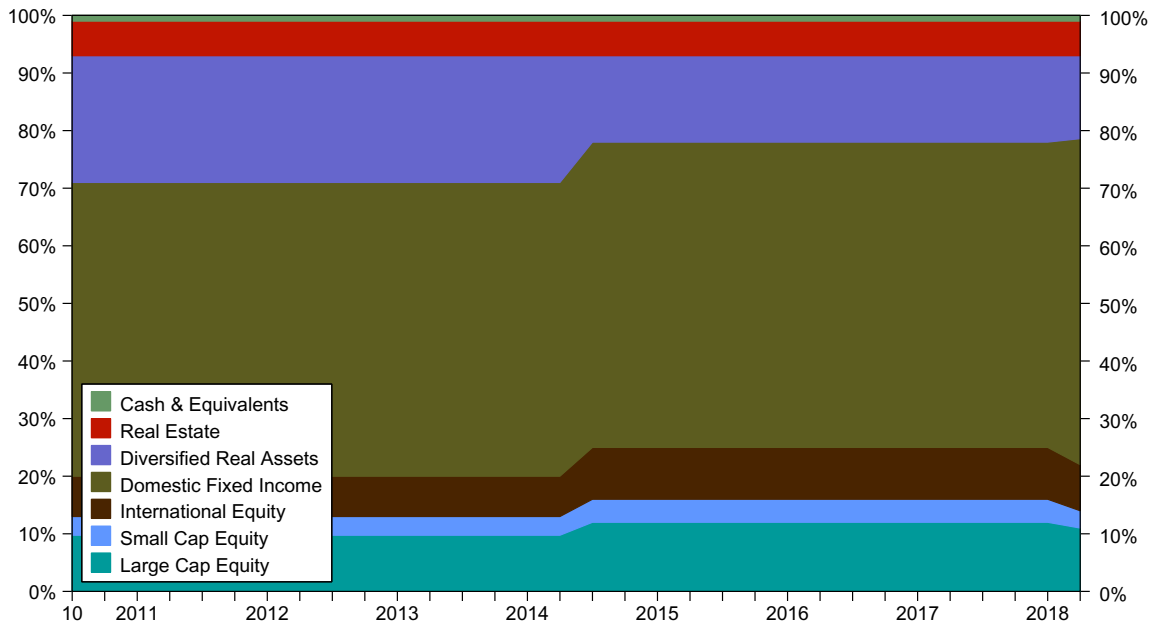
## Actual vs Target Historical Asset Allocation

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

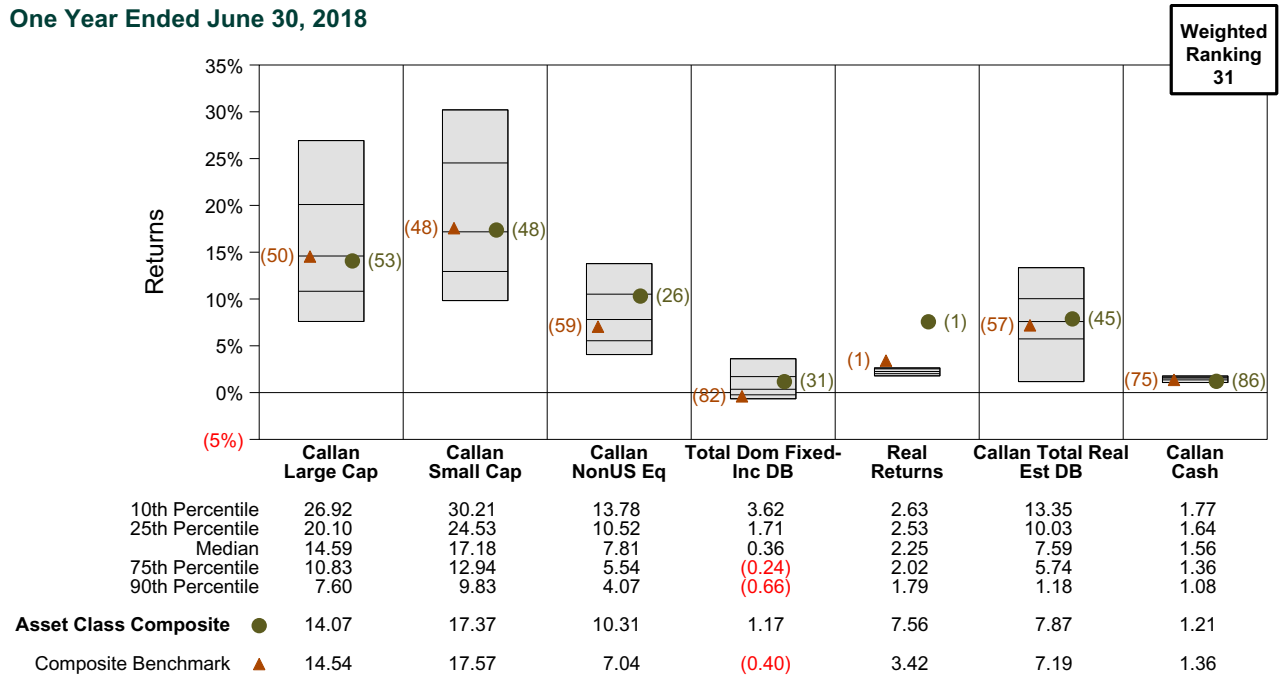


\* Current Quarter Target = 56.6% Blmbg Agg, 14.4% WSI DRA Weighted, 11% Russell 1000, 8% MSCI World ex US, 6% NCREIF Total, 3% Russell 2000, 1% 3-mo T-Bill. "Current quarter target represents a transitional target allocation during implementation of revised target allocation. Upon full implementation, the target will be 11% Russell 1000, 3% Russell 2000, 8% MSCI World ex-US, 60% Blmbg Agg, 12% NDSIB DRA Weighted, 5% NCREIF Total, 1% 3-mo T-Bill."

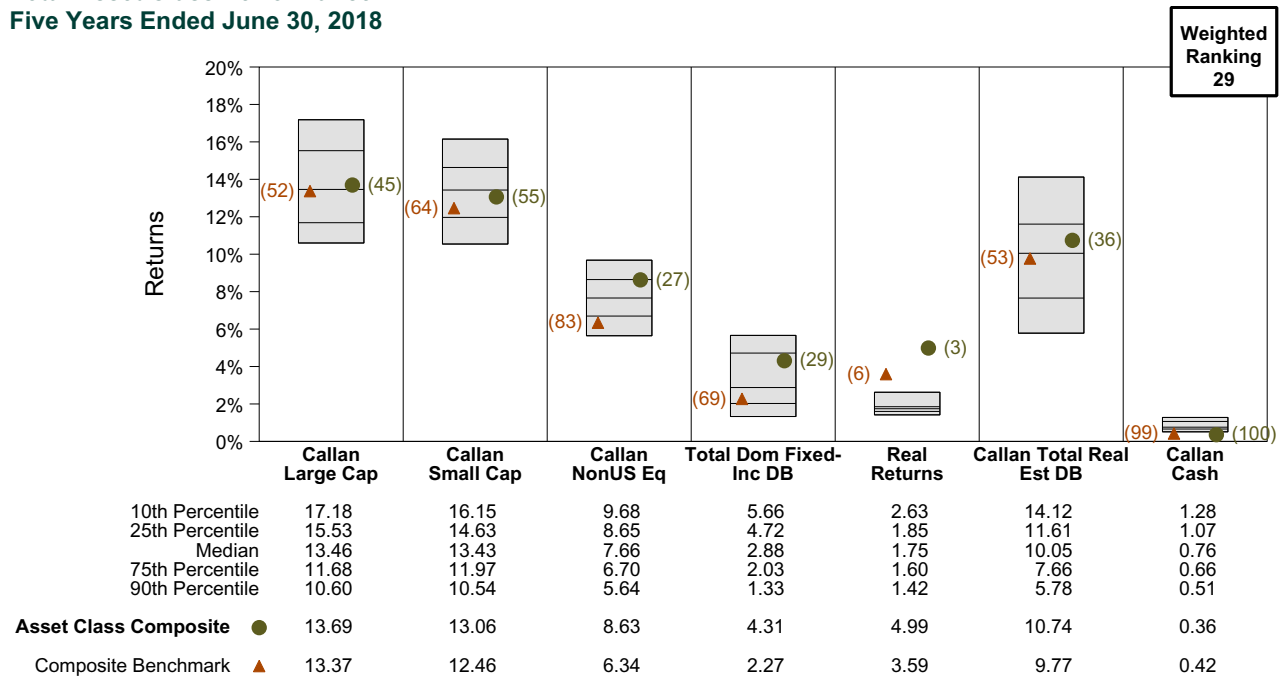
## Asset Class Rankings

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 June 30, 2018



### Total Asset Class Performance Five Years Ended June 30, 2018



\* Current Quarter Target = 56.6% Blmbg Aggregate, 14.4% NDSIB WSI DRA Weighted Benchmark, 11.0% Russell 1000 Index, 8.0% MSCI World ex US, 6.0% NCREIF Total Index, 3.0% 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 June 30, 2018, with the distribution as of March 31, 2018. 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

	June 30, 2018		Net New Inv.	Inv. Return	March 31, 2018	
	Market Value	Weight			Market Value	Weight
Large Cap Equity	\$213,157,408	11.08%	\$(16,076,687)	\$7,099,287	\$222,134,808	11.54%
Small Cap Equity	\$59,511,608	3.09%	\$(21,509,399)	\$6,625,901	\$74,395,106	3.86%
International Equity	\$151,223,924	7.86%	\$(13,793,621)	\$(1,865,451)	\$166,882,996	8.67%
Domestic Fixed Income	\$1,059,551,623	55.10%	\$47,361,794	\$(3,367,923)	\$1,015,557,752	52.75%
Diversified Real Assets	\$277,479,201	14.43%	\$(3,134,194)	\$2,011,675	\$278,601,720	14.47%
Real Estate	\$142,865,486	7.43%	\$(1,749,453)	\$5,679,793	\$138,935,145	7.22%
Cash & Equivalents	\$19,328,406	1.01%	\$(9,545,588)	\$84,166	\$28,789,828	1.50%
Securities Lending Income	\$0	0.00%	\$(45,860)	\$45,860	-	-
<b>Total Fund</b>	<b>\$1,923,117,656</b>	<b>100.0%</b>	<b>\$(18,493,008)</b>	<b>\$16,313,308</b>	<b>\$1,925,297,355</b>	<b>100.0%</b>

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 June 30, 2018. 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 June 30, 2018				
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 8 Years
<b>Large Cap Equity</b>					
Gross	2.93%	14.07%	11.45%	13.69%	15.78%
Net	2.89%	13.86%	11.23%	13.48%	15.52%
Benchmark(1)	3.57%	14.54%	11.64%	13.37%	15.31%
<b>Small Cap Equity</b>					
Gross	8.27%	17.37%	11.25%	13.06%	15.71%
Net	8.23%	17.10%	10.85%	12.68%	15.16%
Russell 2000	7.75%	17.57%	10.96%	12.46%	14.75%
<b>International Equity</b>					
Gross	(1.28%)	10.31%	7.18%	8.63%	8.97%
Net	(1.36%)	9.97%	6.85%	8.29%	8.59%
Benchmark(2)	(0.75%)	7.04%	4.74%	6.34%	7.00%
<b>Domestic Fixed Income</b>					
Gross	(0.26%)	1.17%	3.91%	4.31%	5.48%
Net	(0.29%)	1.05%	3.78%	4.17%	5.32%
Blmbg Aggregate	(0.16%)	(0.40%)	1.72%	2.27%	2.73%
<b>Diversified Real Assets</b>					
Gross	0.72%	7.56%	4.90%	4.99%	4.82%
Net	0.60%	7.28%	4.59%	4.67%	4.48%
Weighted Benchmark	(0.92%)	3.42%	2.44%	3.59%	4.45%
<b>Real Estate</b>					
Gross	4.11%	7.87%	9.03%	10.74%	15.31%
Net	3.83%	7.31%	8.37%	9.97%	14.35%
NCREIF Total Index	1.81%	7.19%	8.25%	9.77%	11.02%
<b>Cash &amp; Equivalents - Net</b>	<b>0.39%</b>	<b>1.21%</b>	<b>0.59%</b>	<b>0.36%</b>	<b>0.33%</b>
90 Day Treasury Bills	0.45%	1.36%	0.68%	0.42%	0.30%
<b>Total Fund</b>					
Gross	0.85%	5.55%	5.95%	6.63%	7.72%
Net	0.78%	5.34%	5.72%	6.39%	7.43%
Target*	0.55%	3.77%	4.13%	4.97%	5.72%

\* Current Quarter Target = 56.6% Blmbg Agg, 14.4% WSI DRA Weighted, 11% Russell 1000, 8% MSCI World ex US, 6% NCREIF Total, 3% Russell 2000, 1% 3-mo T-Bill. "Current quarter target represents a transitional target allocation during implementation of revised target allocation. Upon full implementation, the target will be 11% Russell 1000, 3% Russell 2000, 8% MSCI World ex-US, 60% Blmbg Agg, 12% NDSIB DRA Weighted, 5% NCREIF Total, 1% 3-mo T-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.

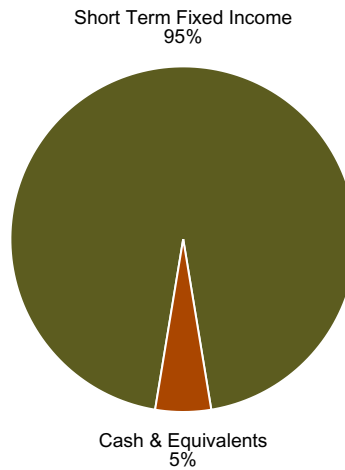
PLEASE REFER TO PAGE 31-33 FOR INVESTMENT MANAGER LEVEL RETURNS.



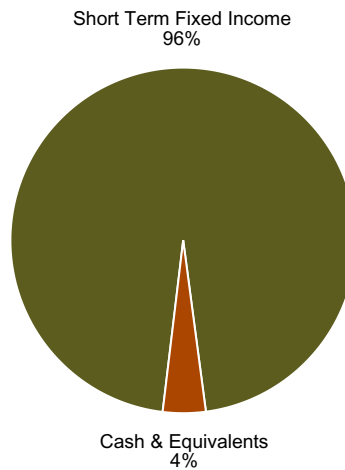
## Actual vs Target Asset Allocation As of June 30, 2018

The first chart below shows the Fund's asset allocation as of June 30, 2018. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.

### Actual Asset Allocation



### Target Asset Allocation



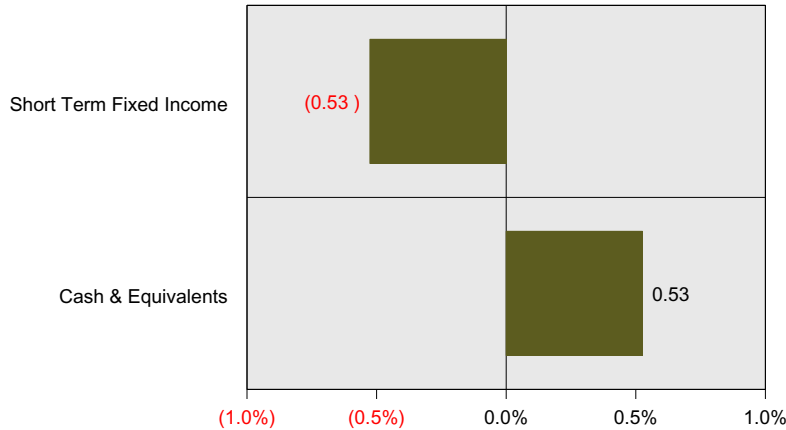
Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Short Term Fixed Income	107,645	94.8%	96.0%	(1.3%)	(1,460)
Cash & Equivalents	5,958	5.2%	4.0%	1.3%	1,460
Total	113,604	100.0%	100.0%		

\* Current Quarter Target = 96.0% Blmbg Gov/Cred 1-3 Yr and 4.0% 3-month Treasury Bill.

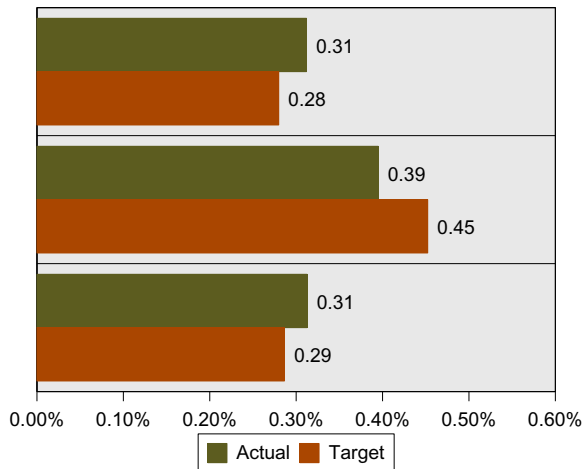
## Quarterly Total Fund Relative Attribution - June 30, 2018

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.

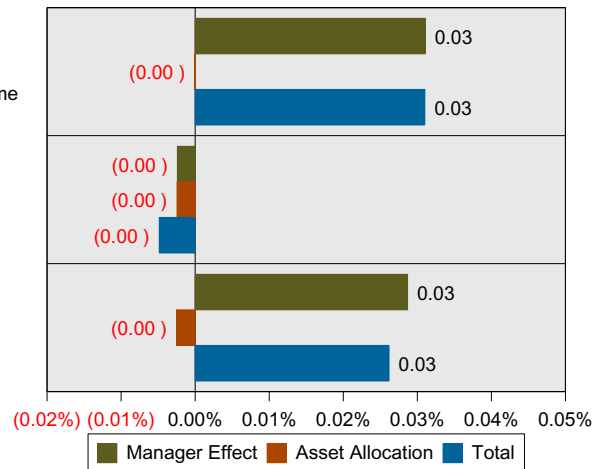
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended June 30, 2018

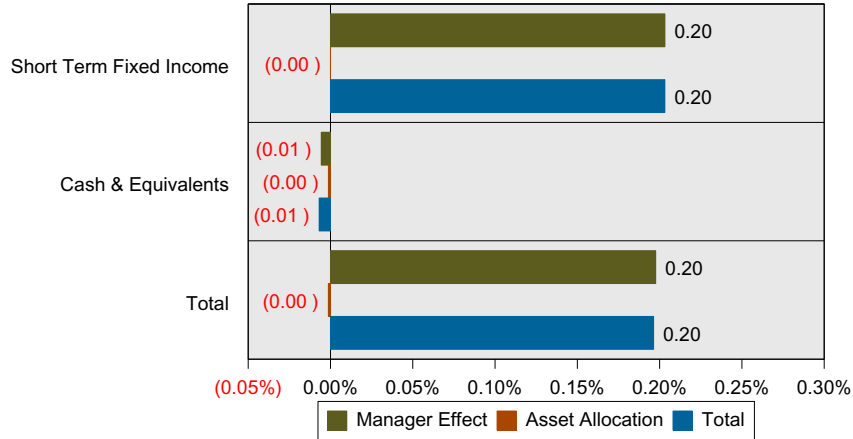
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Short Term Fixed Income	96%	97%	0.31%	0.28%	0.03%	(0.00%)	0.03%
Cash & Equivalents	4%	3%	0.39%	0.45%	(0.00%)	(0.00%)	(0.00%)
<b>Total</b>			<b>0.31%</b>	<b>0.29%</b>	<b>+ 0.03%</b>	<b>+ (0.00%)</b>	<b>0.03%</b>

\* Current Quarter Target = 96.0% Blmbg Gov/Cred 1-3 Yr and 4.0% 3-month Treasury Bill.

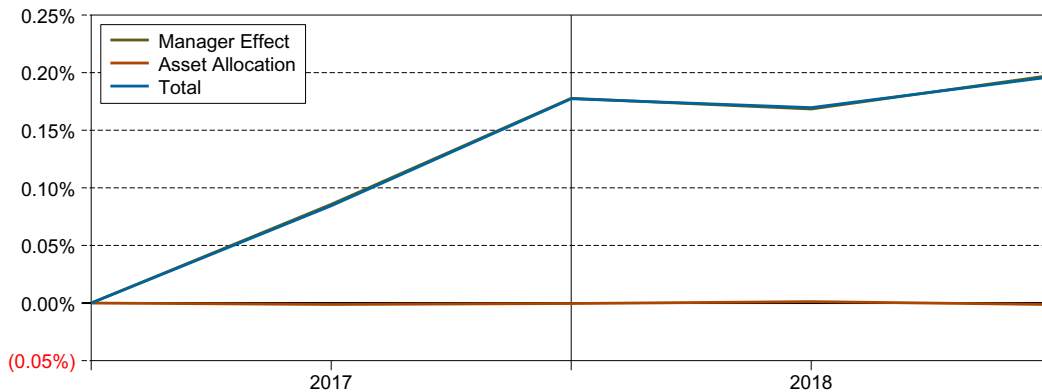
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

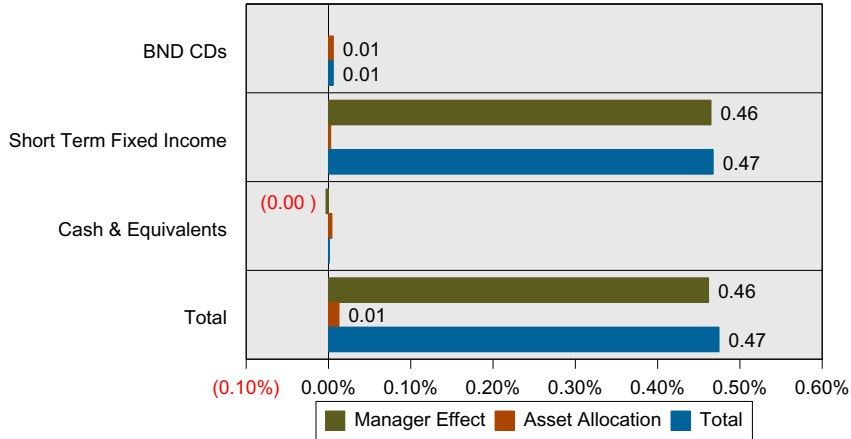
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Short Term Fixed Income	97%	97%	0.42%	0.21%	0.20%	(0.00%)	0.20%
Cash & Equivalents	3%	3%	1.20%	1.36%	(0.01%)	(0.00%)	(0.01%)
<b>Total</b>			<b>0.43%</b>	<b>0.24%</b>	<b>+ 0.20%</b>	<b>+ (0.00%)</b>	<b>0.20%</b>

\* Current Quarter Target = 96.0% Blmbg Gov/Cred 1-3 Yr and 4.0% 3-month Treasury Bill.

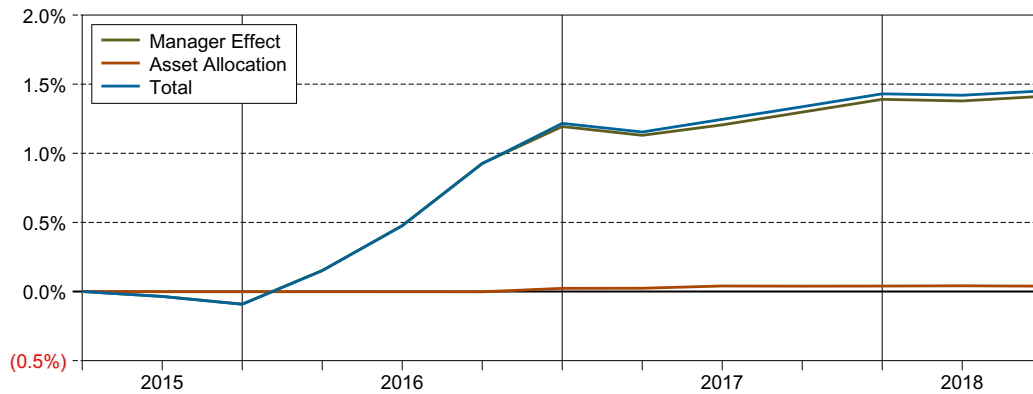
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

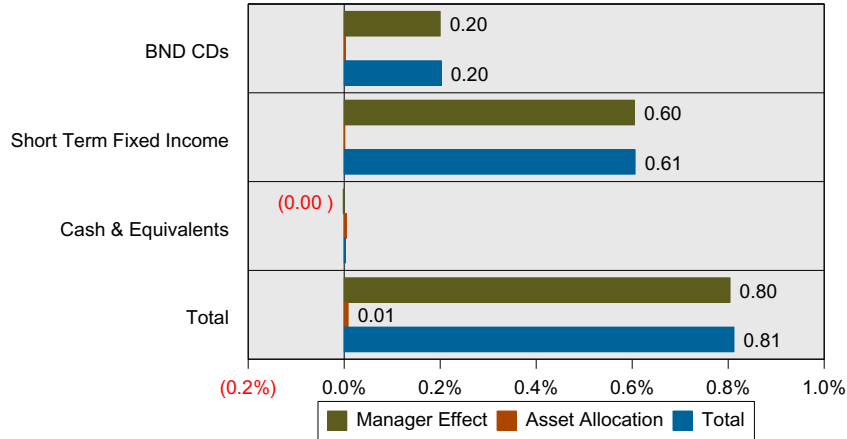
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
BND CDs	9%	9%	-	-	0.00%	0.01%	0.01%
Short Term Fixed Income	88%	88%	1.07%	0.52%	0.46%	0.00%	0.47%
Cash & Equivalents	3%	3%	0.59%	0.68%	(0.00%)	0.00%	0.00%
<b>Total</b>			<b>1.18%</b>	<b>0.70%</b>	<b>+ 0.46%</b>	<b>+ 0.01%</b>	<b>0.47%</b>

\* Current Quarter Target = 96.0% Blmbg Gov/Cred 1-3 Yr and 4.0% 3-month Treasury Bill.

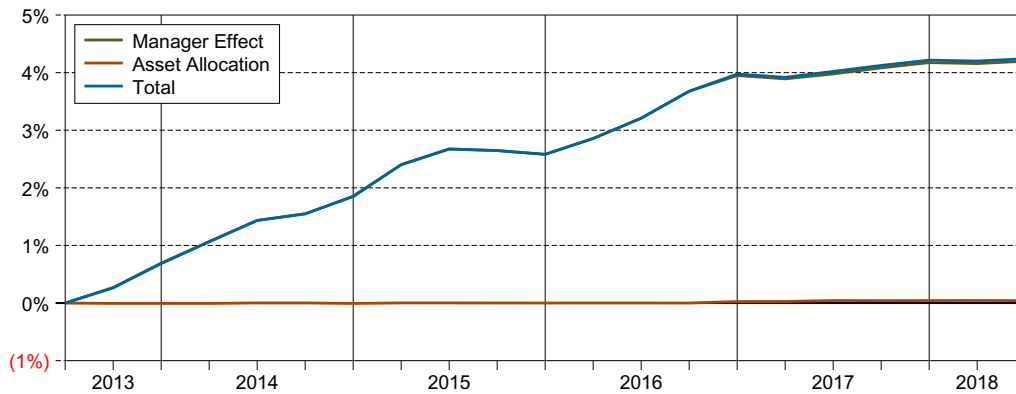
## Cumulative Total Fund Relative Attribution - June 30, 2018

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

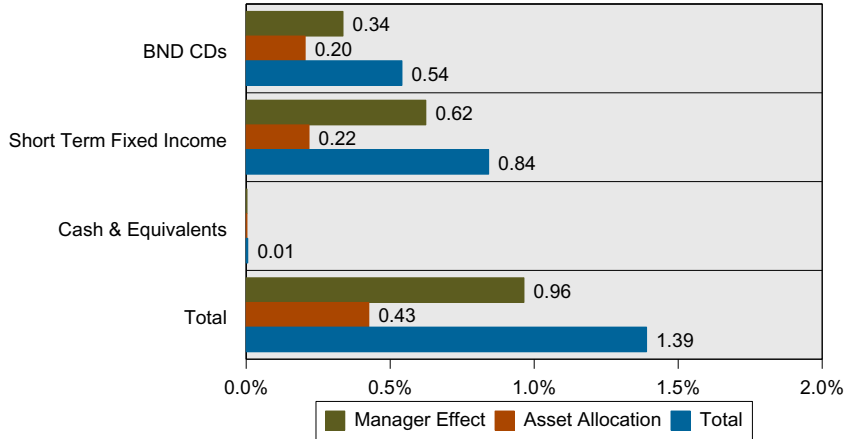
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
BND CDs	13%	13%	-	-	0.20%	0.00%	0.20%
Short Term Fixed Income	84%	84%	1.39%	0.65%	0.60%	0.00%	0.61%
Cash & Equivalents	3%	3%	0.35%	0.42%	(0.00%)	0.00%	0.00%
<b>Total</b>			<b>1.50%</b>	<b>0.69%</b>	<b>+ 0.80%</b>	<b>+ 0.01%</b>	<b>0.81%</b>

\* Current Quarter Target = 96.0% Blmbg Gov/Cred 1-3 Yr and 4.0% 3-month Treasury Bill.

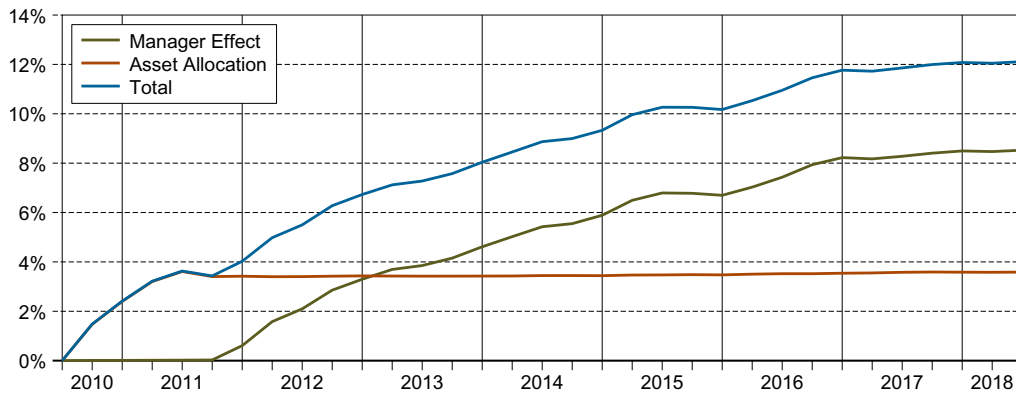
## Cumulative Total Fund Relative Attribution - June 30, 2018

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.

### Eight Year Annualized Relative Attribution Effects



### Cumulative Relative Attribution Effects

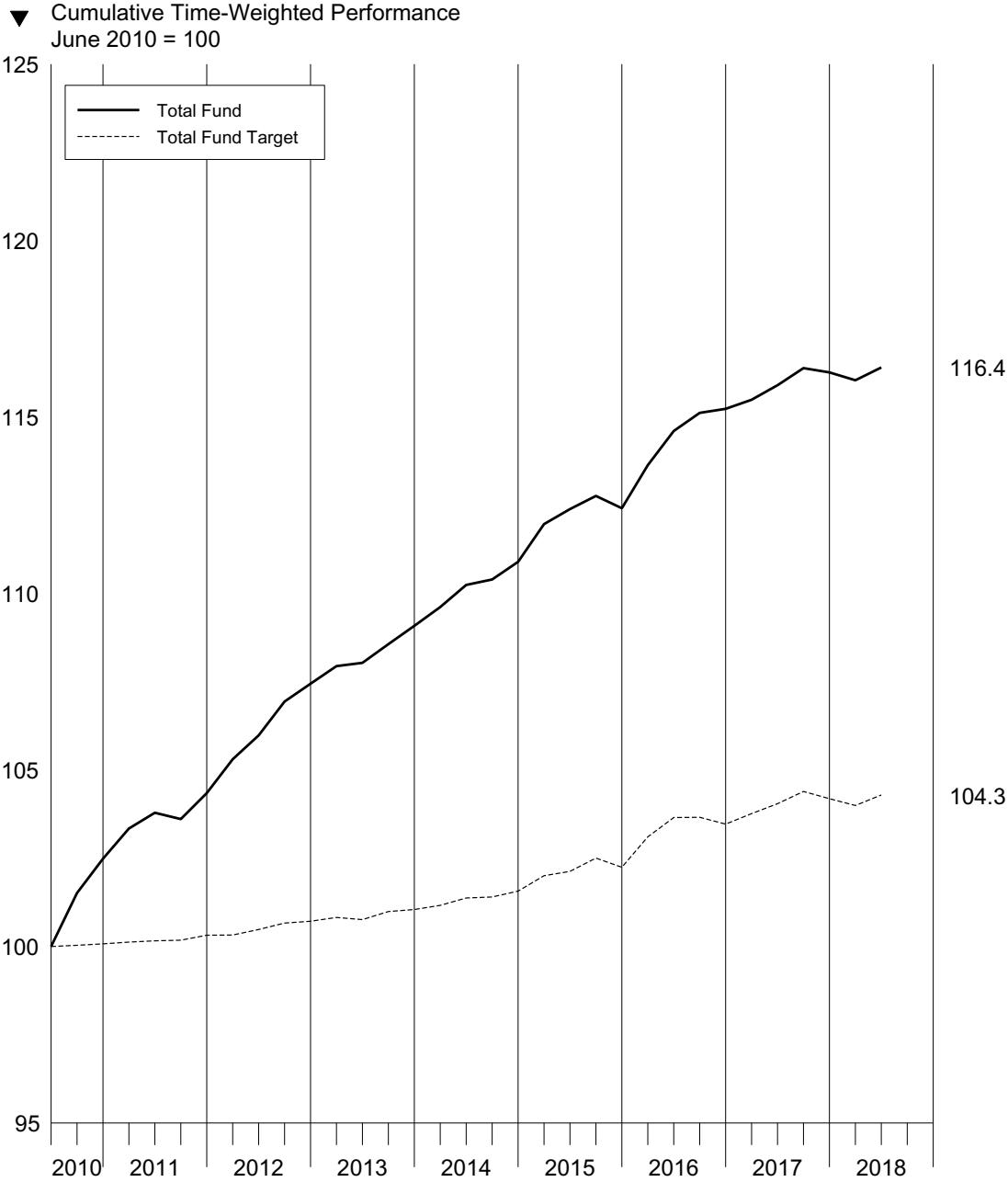


### Eight Year Annualized Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
BND CDs	18%	14%	-	-	0.34%	0.20%	0.54%
Short Term Fixed Income	78%	69%	1.68%	0.88%	0.62%	0.22%	0.84%
Cash & Equivalents	4%	18%	0.33%	0.30%	0.00%	0.00%	0.01%
<b>Total</b>			<b>1.92%</b>	<b>0.53%</b>	<b>+ 0.96%</b>	<b>+ 0.43%</b>	<b>1.39%</b>

\* Current Quarter Target = 96.0% Blmbg Gov/Cred 1-3 Yr and 4.0% 3-month Treasury Bill.

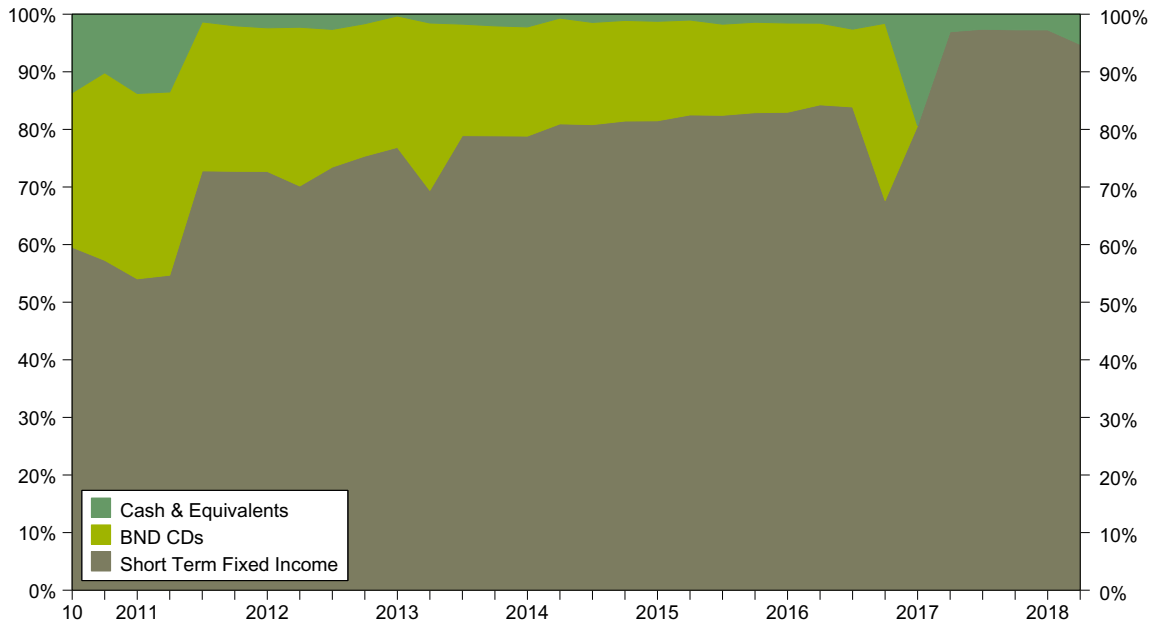
**NDSIB - Budget Stabilization Fund  
Cumulative Results**



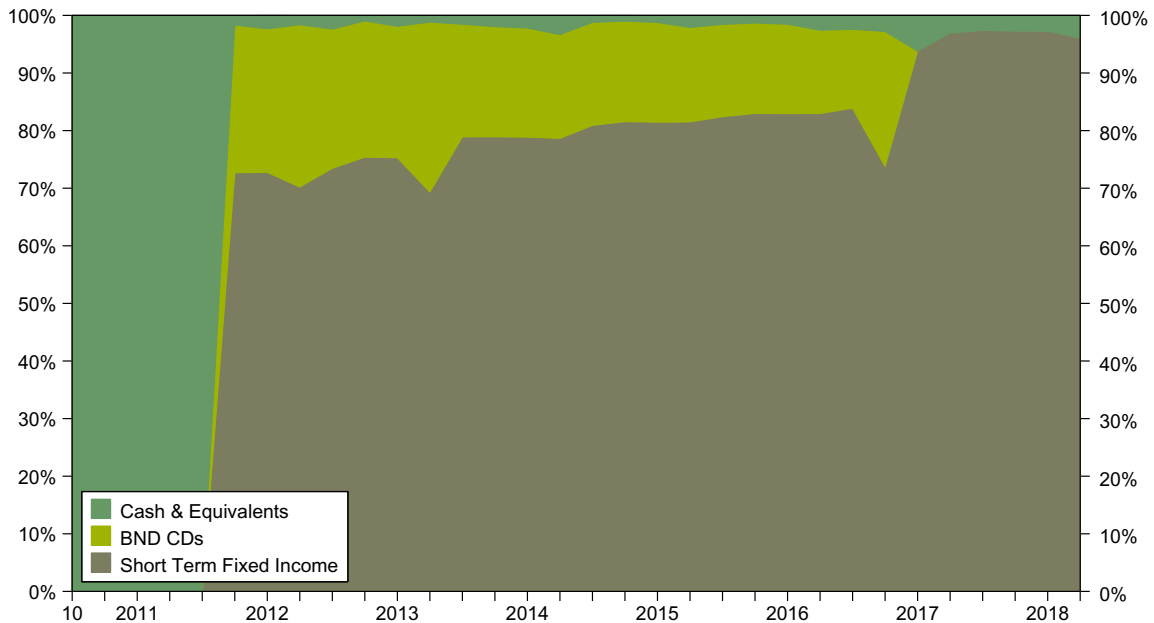
## Actual vs Target Historical Asset Allocation

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 = 96.0% Blmbg Gov/Cred 1-3 Yr and 4.0% 3-month Treasury Bill.



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## Asset Class Allocation

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The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2018, with the distribution as of March 31, 2018. 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

	June 30, 2018		Net New Inv.	Inv. Return	March 31, 2018	
	Market Value	Weight			Market Value	Weight
Short Term Fixed Income	\$107,645,485	94.76%	\$70,059,971	\$307,329	\$37,278,184	97.27%
Cash & Equivalents	\$5,958,293	5.24%	\$4,901,582	\$10,965	\$1,045,746	2.73%
Securities Lending Income	\$0	0.00%	\$(806)	\$806	-	-
Total Fund	\$113,603,777	100.0%	\$74,960,746	\$319,100	\$38,323,931	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 June 30, 2018. 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 June 30, 2018

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 8 Years
<b>Short Term Fixed Income</b>					
Gross	0.31%	0.42%	1.07%	1.39%	1.68%
Net	0.26%	0.30%	0.84%	1.20%	1.52%
Blended Benchmark(1)	0.28%	0.21%	0.52%	0.65%	-
<b>Cash &amp; Equivalents - Net</b>	<b>0.39%</b>	<b>1.20%</b>	<b>0.59%</b>	<b>0.35%</b>	<b>0.33%</b>
3-month Treasury Bill	0.45%	1.36%	0.68%	0.42%	0.30%
<b>Total Fund</b>					
Gross	0.31%	0.43%	1.18%	1.50%	1.92%
Net	0.26%	0.32%	0.98%	1.35%	1.79%
Target*	0.29%	0.24%	0.70%	0.69%	0.53%

\* Current Quarter Target = 96.0% Blmbg Gov/Cred 1-3 Yr and 4.0% 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 June 30, 2018

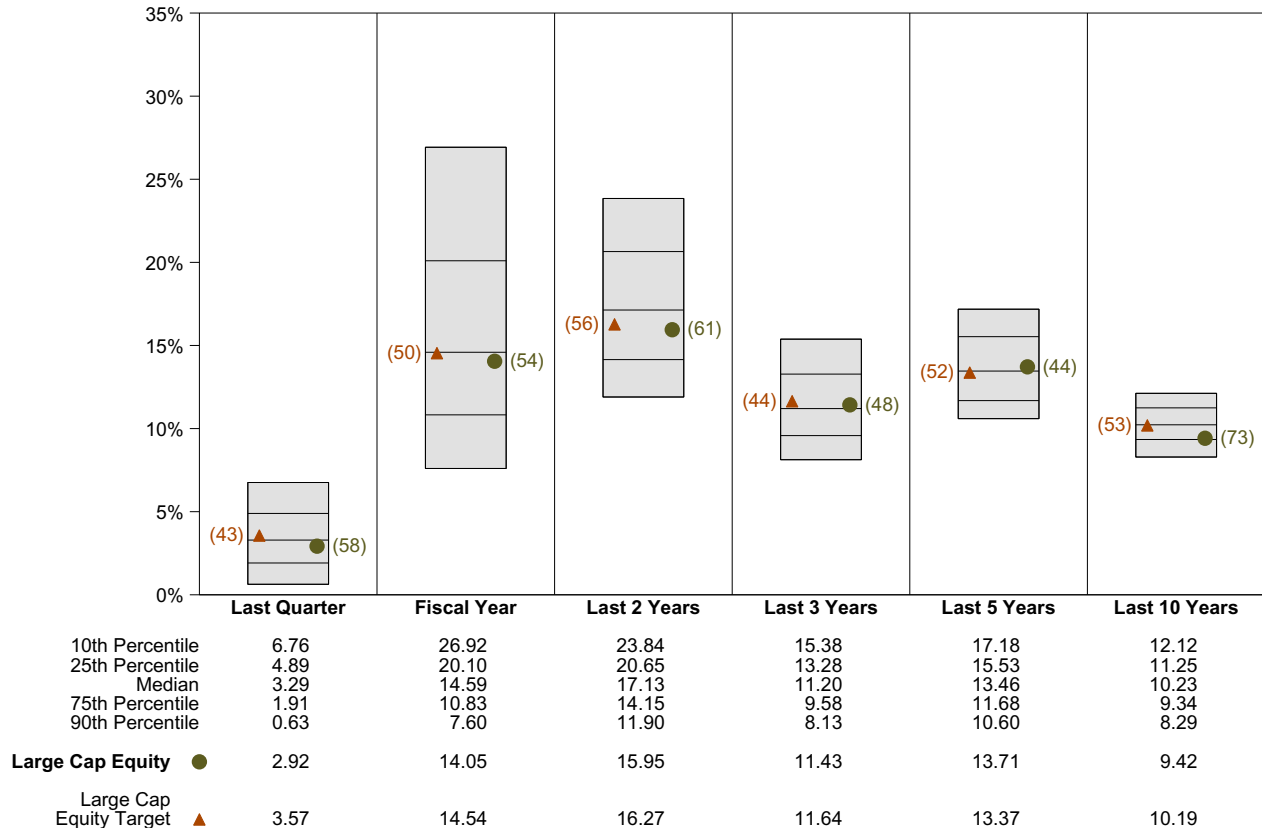
## Quarterly Summary and Highlights

- Large Cap Equity's portfolio posted a 2.92% return for the quarter placing it in the 58 percentile of the Callan Large Capitalization group for the quarter and in the 54 percentile for the last year.
- Large Cap Equity's portfolio underperformed the Large Cap Equity Target by 0.64% for the quarter and underperformed the Large Cap Equity Target for the year by 0.49%.

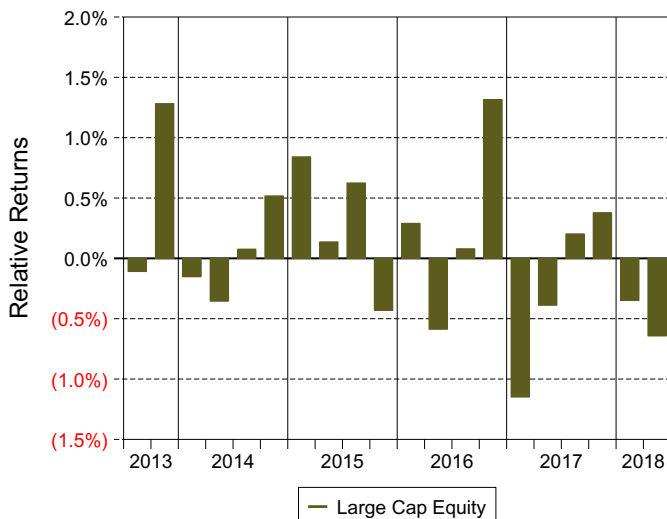
## Quarterly Asset Growth

Beginning Market Value	\$241,261,584
Net New Investment	\$-16,004,680
Investment Gains/(Losses)	\$7,705,273
Ending Market Value	\$232,962,177

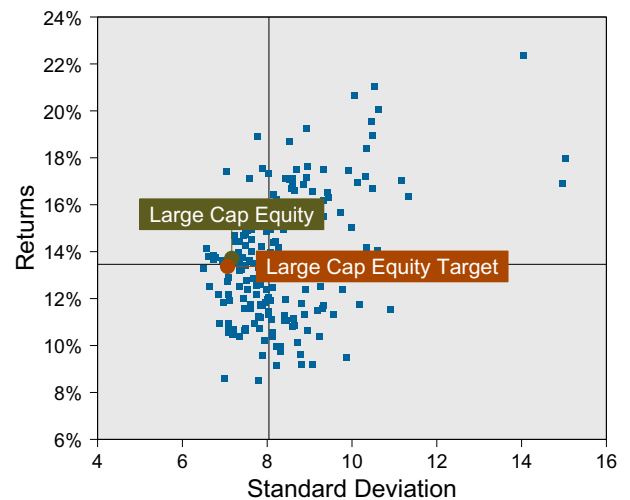
## Performance vs Callan Large Capitalization (Gross)



## Relative Return vs Large Cap Equity Target



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



# Parametric Clifton Large Cap Period Ended June 30, 2018

## 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.

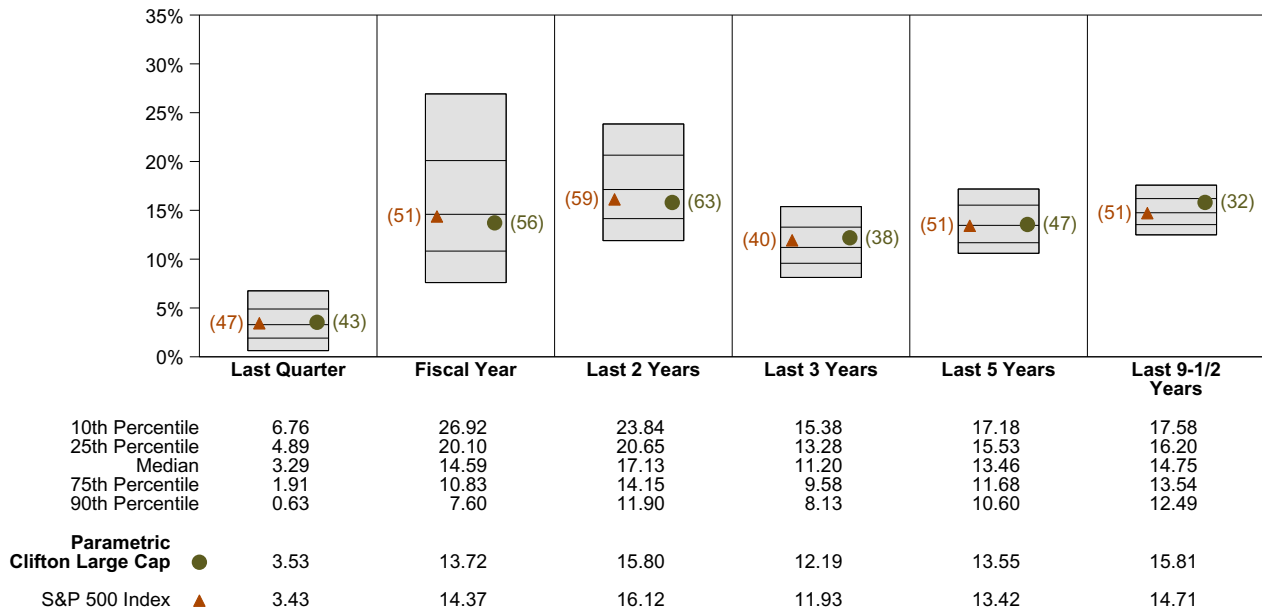
## Quarterly Summary and Highlights

- Parametric Clifton Large Cap's portfolio posted a 3.53% return for the quarter placing it in the 43 percentile of the Callan Large Capitalization group for the quarter and in the 56 percentile for the last year.
- Parametric Clifton Large Cap's portfolio outperformed the S&P 500 Index by 0.10% for the quarter and underperformed the S&P 500 Index for the year by 0.66%.

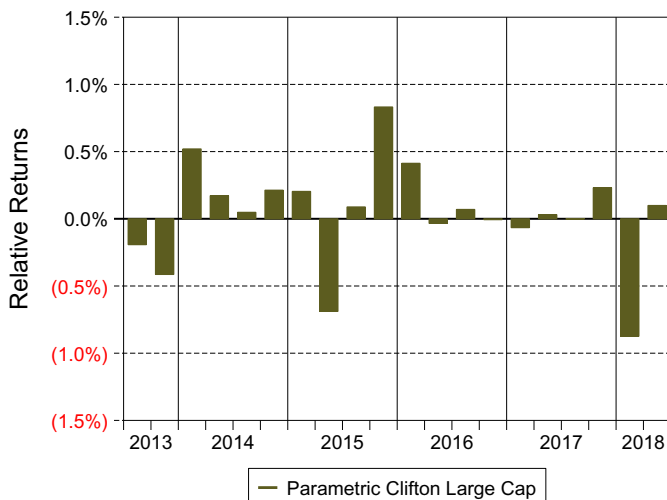
## Quarterly Asset Growth

Beginning Market Value	\$46,674,120
Net New Investment	\$-1,597,722
Investment Gains/(Losses)	\$1,737,813
Ending Market Value	\$46,814,212

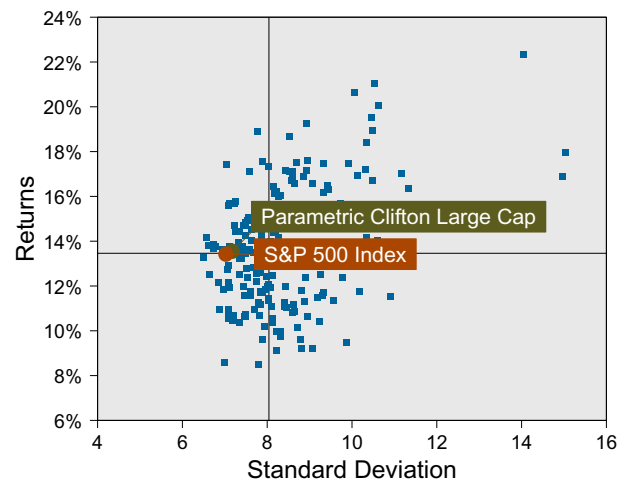
## Performance vs Callan Large Capitalization (Gross)



## Relative Return vs S&P 500 Index



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



# L.A. Capital Period Ended June 30, 2018

## 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.

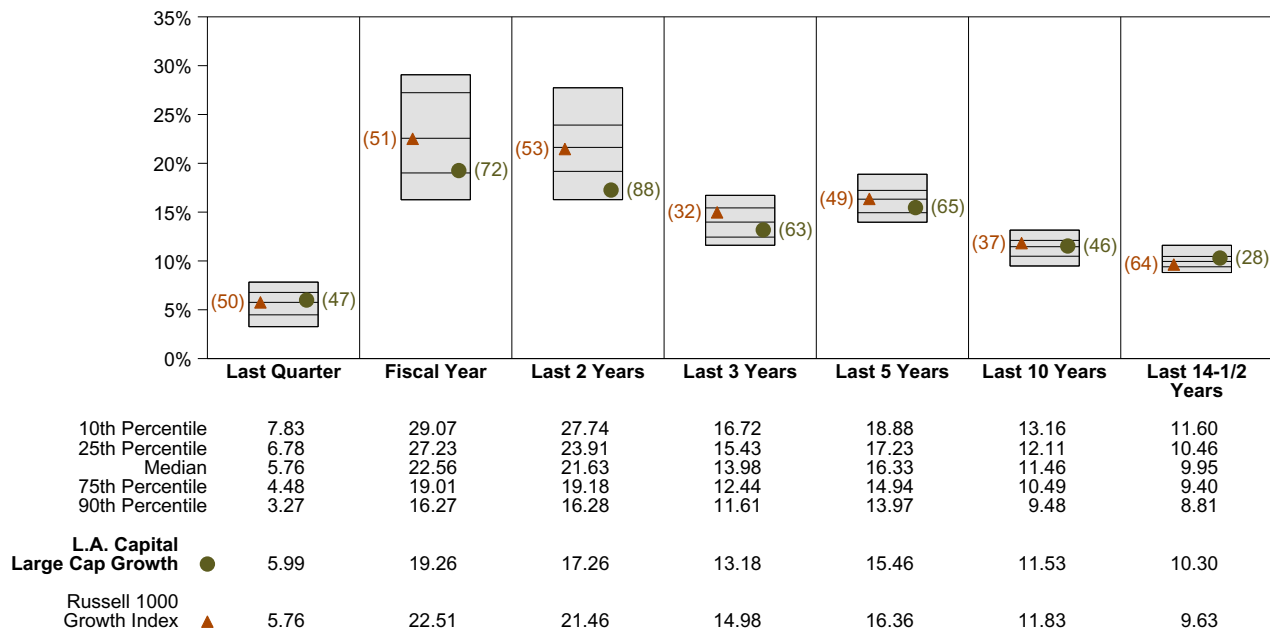
## Quarterly Summary and Highlights

- L.A. Capital Large Cap Growth's portfolio posted a 5.99% return for the quarter placing it in the 47 percentile of the Callan Large Cap Growth group for the quarter and in the 72 percentile for the last year.
- L.A. Capital Large Cap Growth's portfolio outperformed the Russell 1000 Growth Index by 0.24% for the quarter and underperformed the Russell 1000 Growth Index for the year by 3.25%.

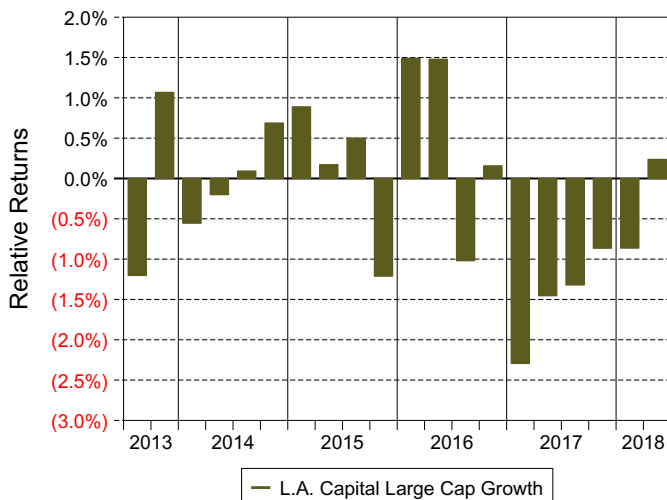
## Quarterly Asset Growth

Beginning Market Value	\$74,906,014
Net New Investment	\$-8,639,814
Investment Gains/(Losses)	\$4,728,136
Ending Market Value	\$70,994,336

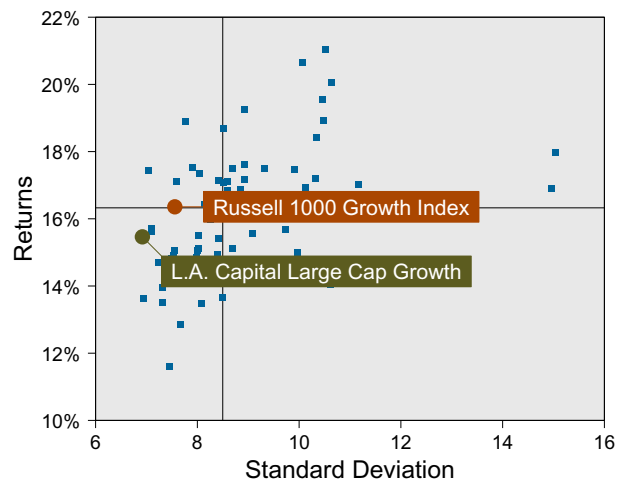
## Performance vs Callan Large Cap Growth (Gross)



## Relative Return vs Russell 1000 Growth Index



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



# L.A. Capital Enhanced Period Ended June 30, 2018

## 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.

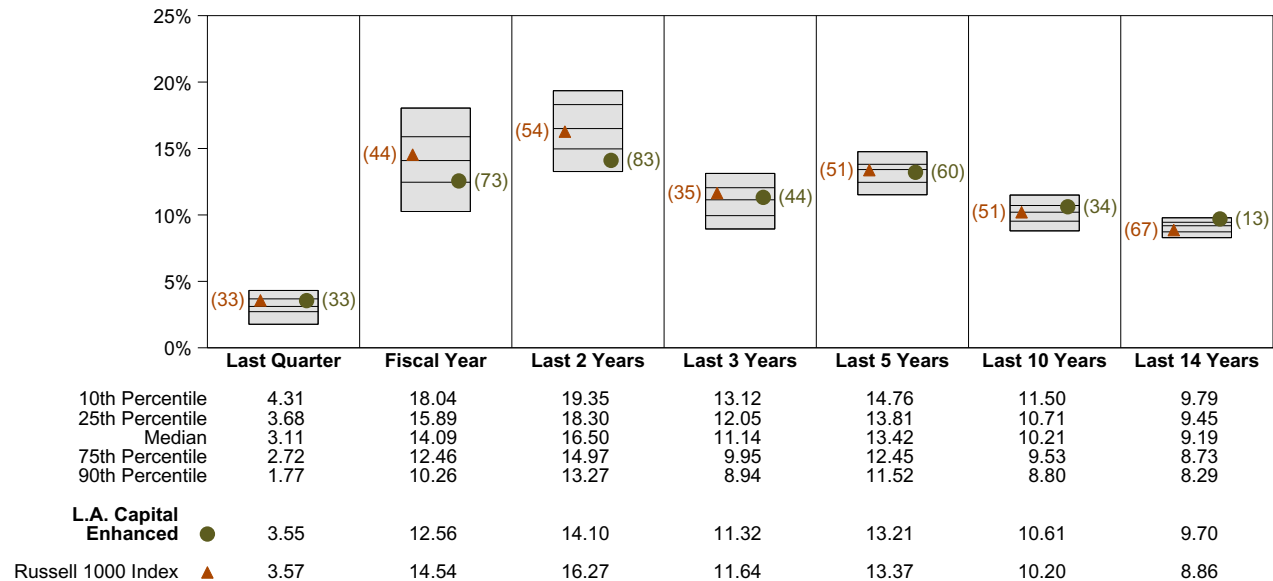
## Quarterly Summary and Highlights

- L.A. Capital Enhanced's portfolio posted a 3.55% return for the quarter placing it in the 33 percentile of the Callan Large Cap Core group for the quarter and in the 73 percentile for the last year.
- L.A. Capital Enhanced's portfolio underperformed the Russell 1000 Index by 0.02% for the quarter and underperformed the Russell 1000 Index for the year by 1.98%.

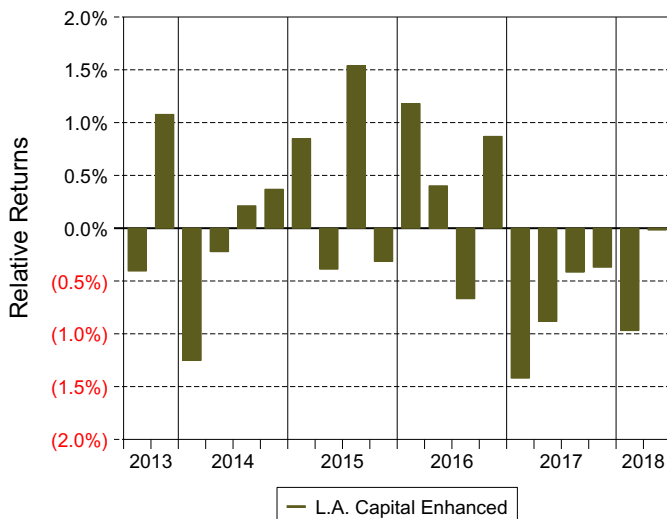
## Quarterly Asset Growth

Beginning Market Value	\$48,583,971
Net New Investment	\$-3,514,876
Investment Gains/(Losses)	\$1,796,303
Ending Market Value	\$46,865,398

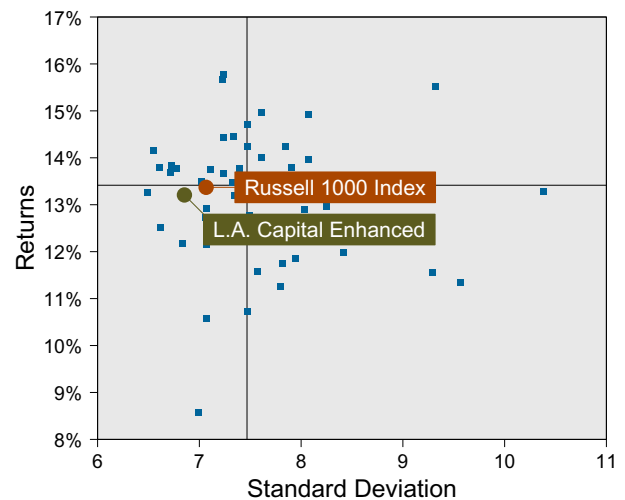
## Performance vs Callan Large Cap Core (Gross)



## Relative Return vs Russell 1000 Index



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



# LSV Asset Management

## Period Ended June 30, 2018

### 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.

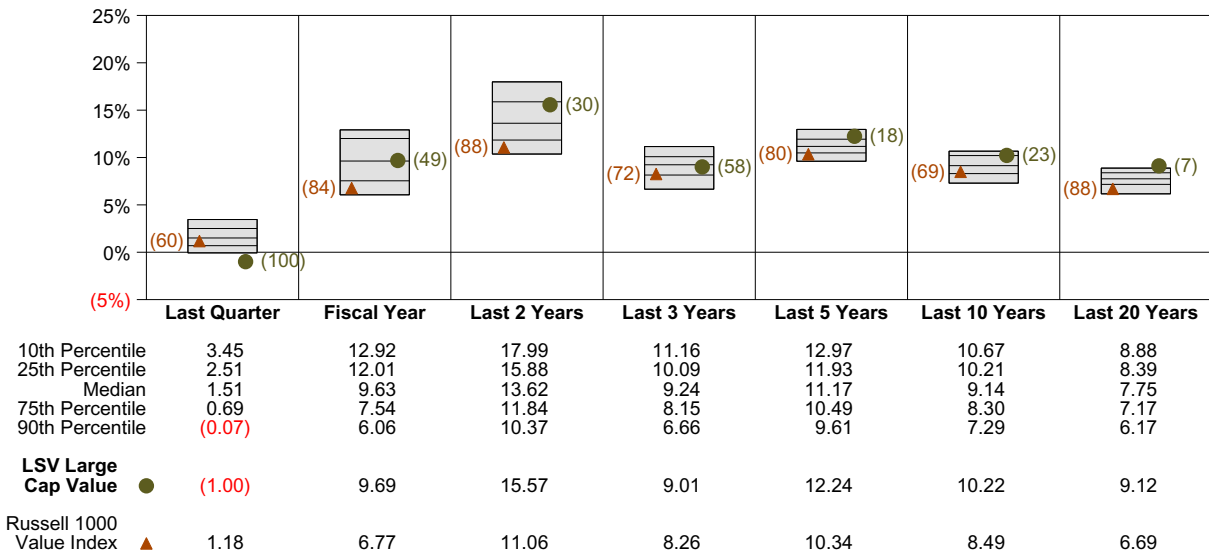
### Quarterly Summary and Highlights

- LSV Large Cap Value's portfolio posted a (1.00)% return for the quarter placing it in the 100 percentile of the Callan Large Cap Value group for the quarter and in the 49 percentile for the last year.
- LSV Large Cap Value's portfolio underperformed the Russell 1000 Value Index by 2.17% for the quarter and outperformed the Russell 1000 Value Index for the year by 2.92%.

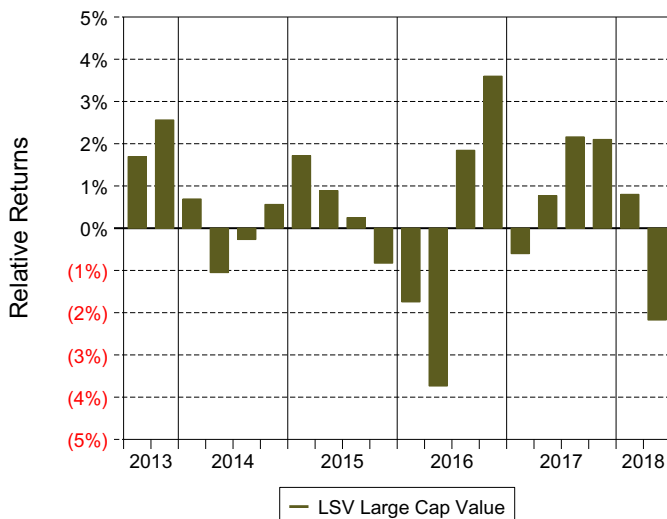
### Quarterly Asset Growth

Beginning Market Value	\$71,097,479
Net New Investment	\$-2,252,269
Investment Gains/(Losses)	\$-556,980
Ending Market Value	\$68,288,231

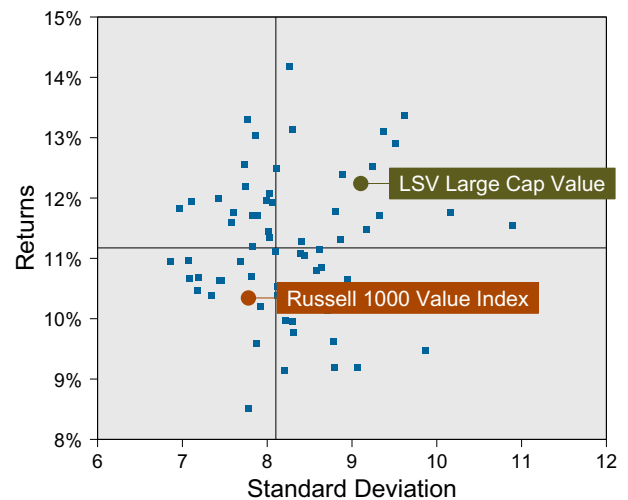
### Performance vs Callan Large Cap Value (Gross)



### Relative Return vs Russell 1000 Value Index



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



# Small Cap Equity Period Ended June 30, 2018

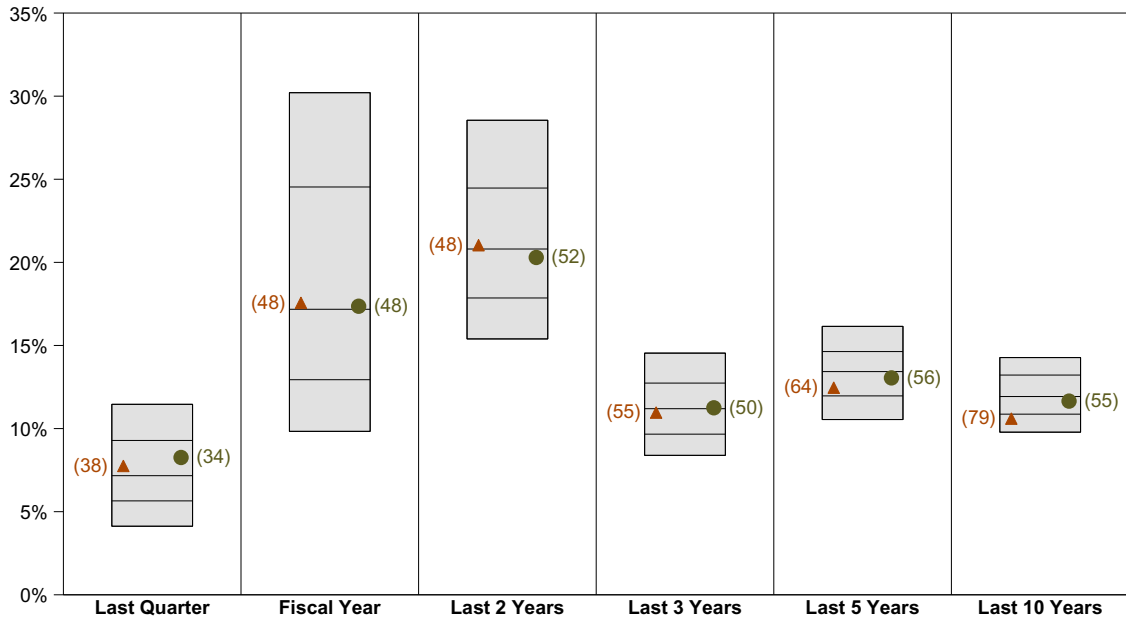
## Quarterly Summary and Highlights

- Small Cap Equity's portfolio posted a 8.26% return for the quarter placing it in the 34 percentile of the Callan Small Capitalization group for the quarter and in the 48 percentile for the last year.
- Small Cap Equity's portfolio outperformed the Small Cap Equity Target by 0.51% for the quarter and underperformed the Small Cap Equity Target for the year by 0.21%.

## Quarterly Asset Growth

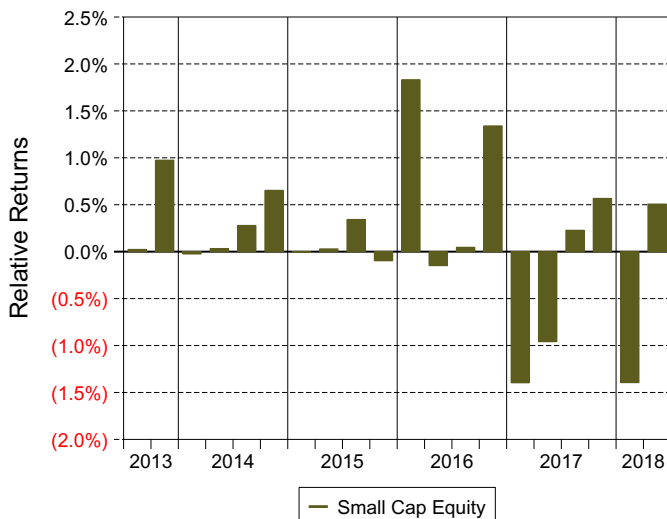
Beginning Market Value	\$82,618,634
Net New Investment	\$-22,025,875
Investment Gains/(Losses)	\$7,367,806
Ending Market Value	\$67,960,565

## Performance vs Callan Small Capitalization (Gross)

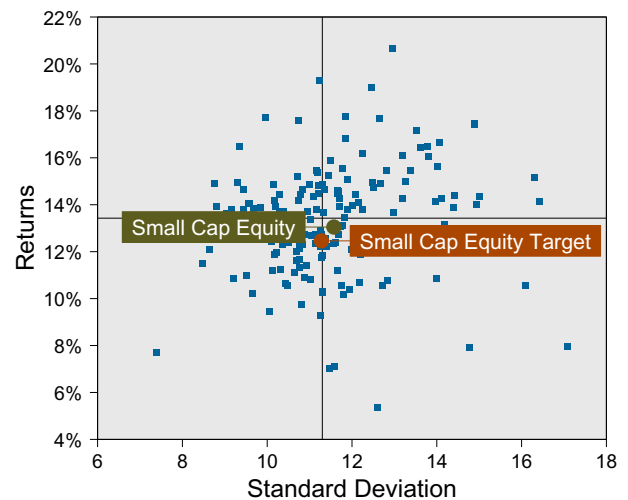


	Last Quarter	Fiscal Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	11.46	30.21	28.55	14.54	16.15	14.27
25th Percentile	9.29	24.53	24.47	12.74	14.63	13.22
Median	7.17	17.18	20.80	11.20	13.43	11.93
75th Percentile	5.65	12.94	17.86	9.66	11.97	10.87
90th Percentile	4.12	9.83	15.39	8.39	10.54	9.78
<b>Small Cap Equity</b> ●	8.26	17.36	20.29	11.25	13.05	11.65
Small Cap Equity Target ▲	7.75	17.57	21.03	10.96	12.46	10.60

## Relative Return vs Small Cap Equity Target



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





# Parametric Clifton SmallCap Period Ended June 30, 2018

## 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.

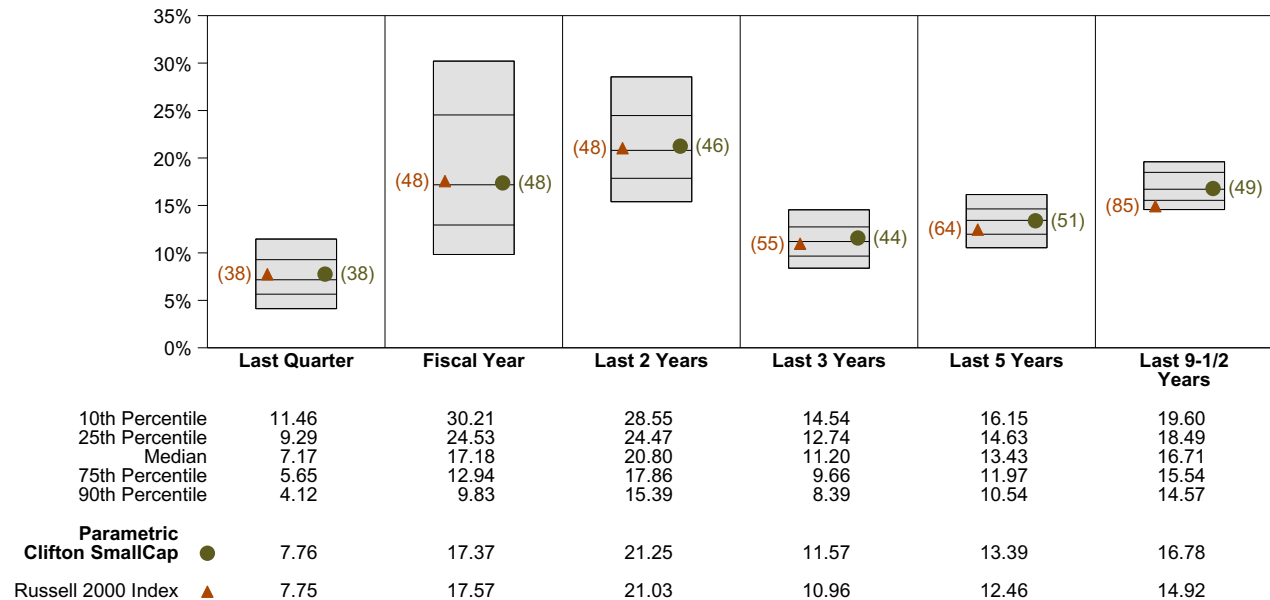
## Quarterly Summary and Highlights

- Parametric Clifton SmallCap's portfolio posted a 7.76% return for the quarter placing it in the 38 percentile of the Callan Small Capitalization group for the quarter and in the 48 percentile for the last year.
- Parametric Clifton SmallCap's portfolio outperformed the Russell 2000 Index by 0.01% for the quarter and underperformed the Russell 2000 Index for the year by 0.19%.

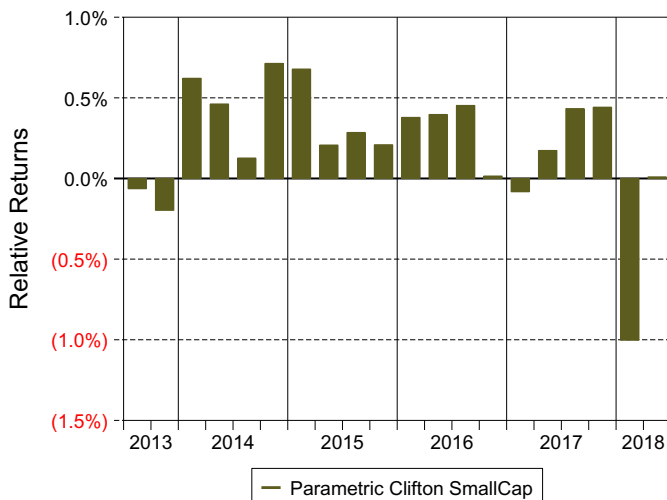
## Quarterly Asset Growth

Beginning Market Value	\$41,262,382
Net New Investment	\$-11,000,000
Investment Gains/(Losses)	\$3,521,788
Ending Market Value	\$33,784,170

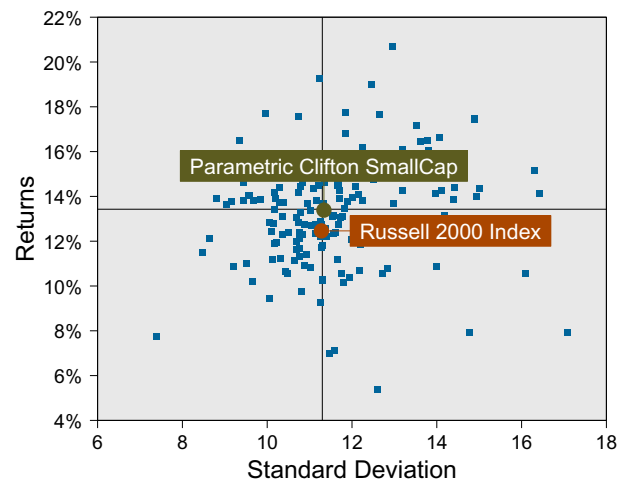
## Performance vs Callan Small Capitalization (Gross)



## Relative Return vs Russell 2000 Index



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



# PIMCO RAE

## Period Ended June 30, 2018

### 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.

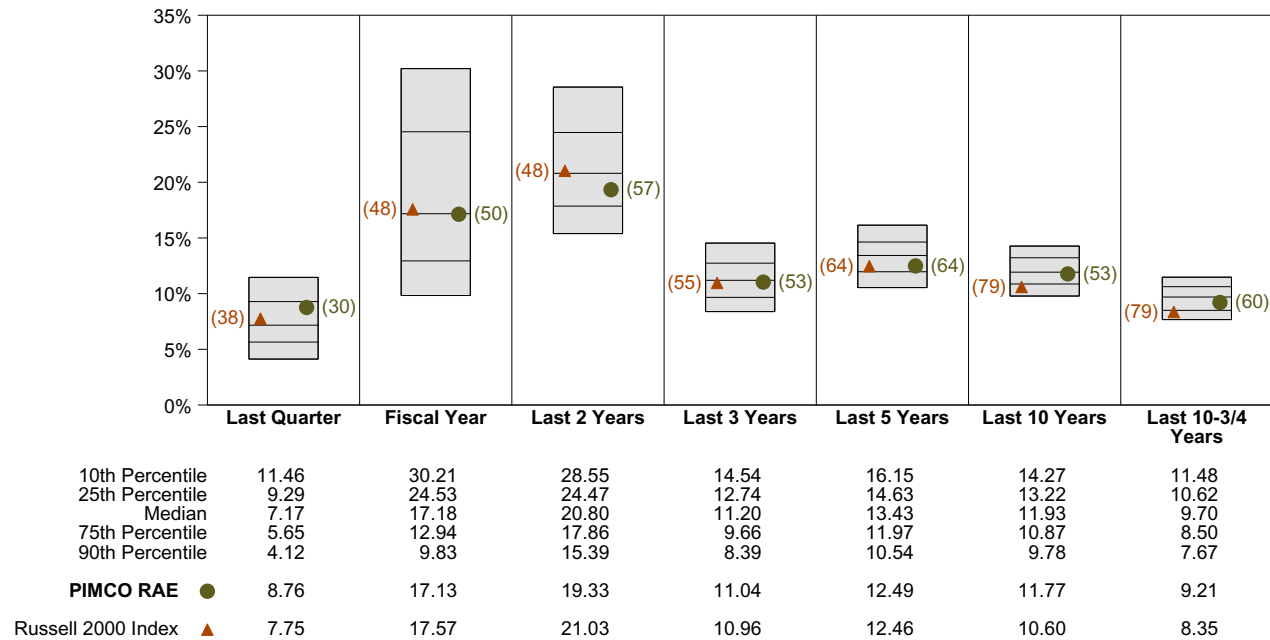
### Quarterly Summary and Highlights

- PIMCO RAE's portfolio posted a 8.76% return for the quarter placing it in the 30 percentile of the Callan Small Capitalization group for the quarter and in the 50 percentile for the last year.
- PIMCO RAE's portfolio outperformed the Russell 2000 Index by 1.00% for the quarter and underperformed the Russell 2000 Index for the year by 0.44%.

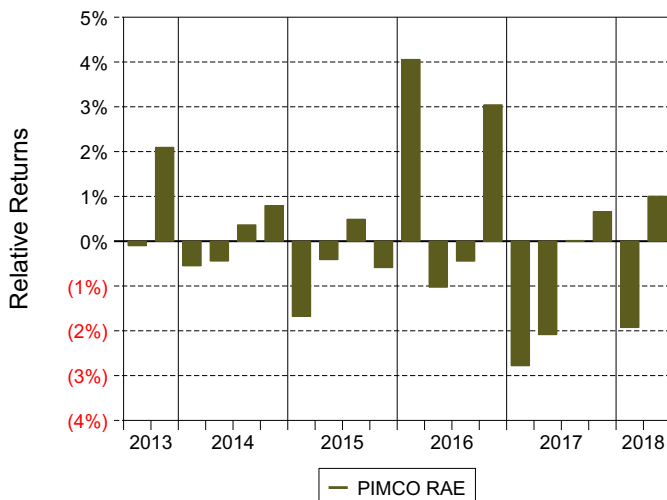
### Quarterly Asset Growth

Beginning Market Value	\$41,356,252
Net New Investment	\$-11,025,875
Investment Gains/(Losses)	\$3,846,018
Ending Market Value	\$34,176,395

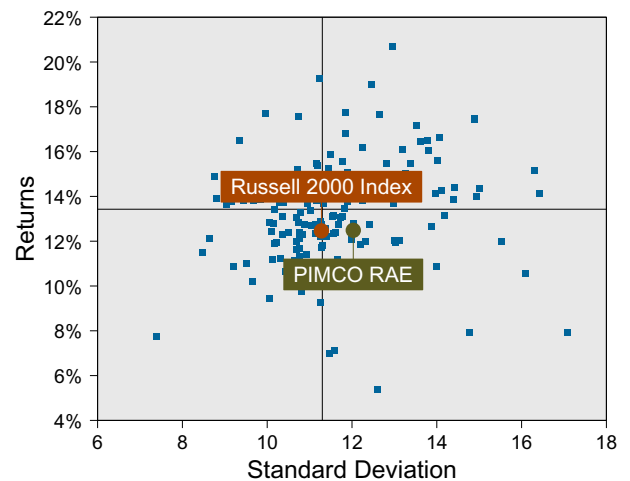
### Performance vs Callan Small Capitalization (Gross)



### Relative Return vs Russell 2000 Index



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



# International Equity Period Ended June 30, 2018

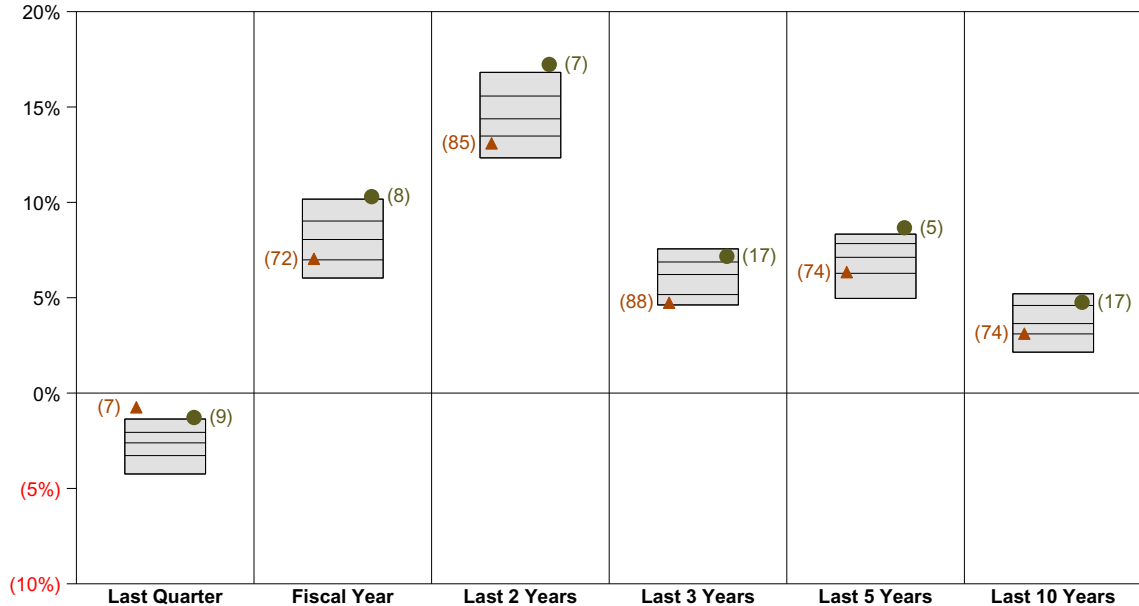
## Quarterly Summary and Highlights

- International Equity's portfolio posted a (1.28)% return for the quarter placing it in the 9 percentile of the Public Fund - International Equity group for the quarter and in the 8 percentile for the last year.
- International Equity's portfolio underperformed the International Equity Target by 0.54% for the quarter and outperformed the International Equity Target for the year by 3.26%.

## Quarterly Asset Growth

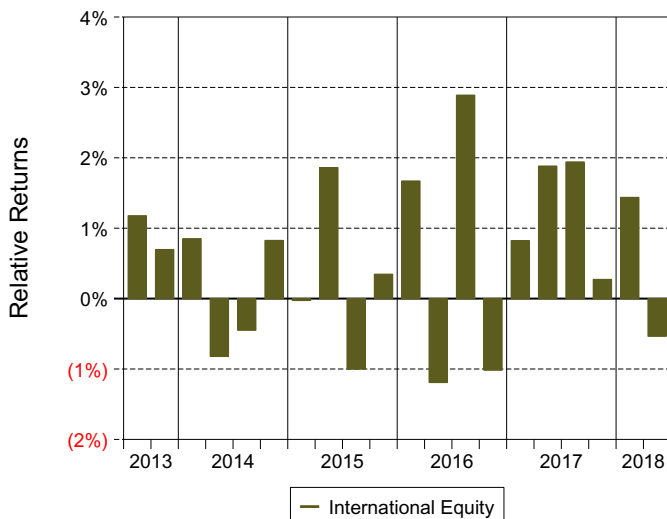
Beginning Market Value	\$176,959,280
Net New Investment	\$-13,239,463
Investment Gains/(Losses)	\$-1,993,471
Ending Market Value	\$161,726,346

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

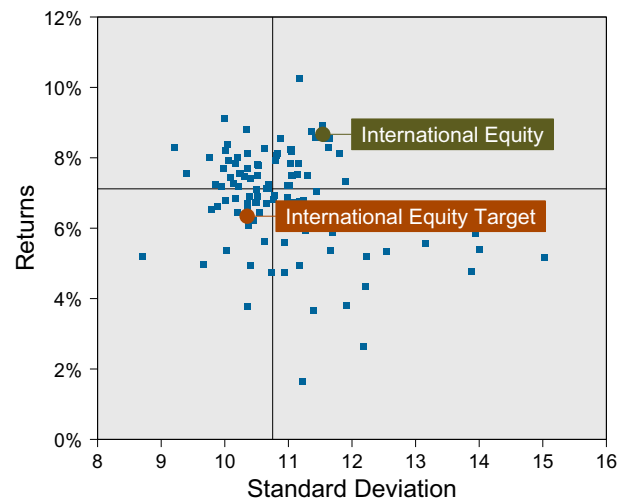


10th Percentile	(1.36)	10.17	16.82	7.56	8.34	5.21
25th Percentile	(2.06)	9.02	15.57	6.87	7.84	4.59
Median	(2.61)	8.05	14.38	6.22	7.12	3.64
75th Percentile	(3.28)	6.99	13.48	5.16	6.28	3.10
90th Percentile	(4.24)	6.03	12.33	4.62	4.96	2.15
<b>International Equity</b>	<b>(1.28)</b>	10.30	17.23	7.17	8.67	4.76
International Equity Target	(0.75)	7.04	13.09	4.74	6.34	3.12

## Relative Return vs International Equity Target



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



# DFA Intl Small Cap Value Period Ended June 30, 2018

## 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.

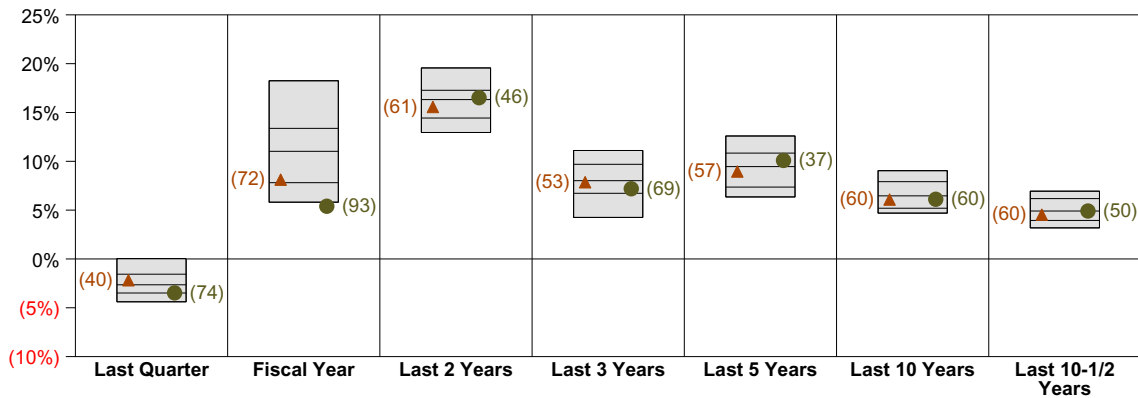
## Quarterly Summary and Highlights

- DFA Intl Small Cap Value's portfolio posted a (3.47)% return for the quarter placing it in the 74 percentile of the Callan International Small Cap Mut Funds group for the quarter and in the 93 percentile for the last year.
- DFA Intl Small Cap Value's portfolio underperformed the World ex US SC Value by 1.30% for the quarter and underperformed the World ex US SC Value for the year by 2.73%.

## Quarterly Asset Growth

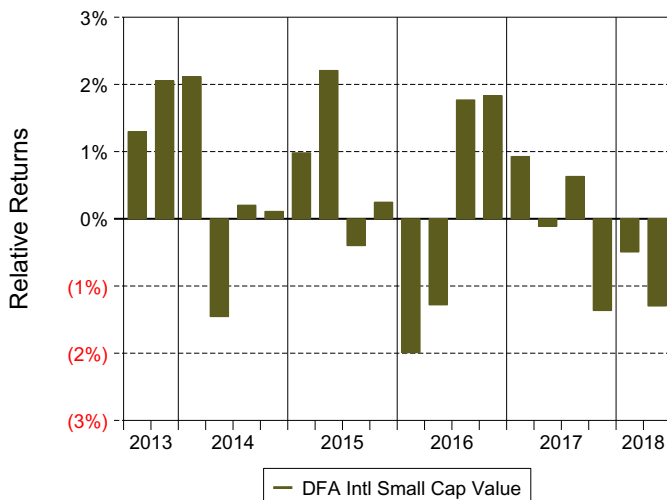
Beginning Market Value	\$17,044,155
Net New Investment	\$-1,000,000
Investment Gains/(Losses)	\$-569,186
Ending Market Value	\$15,474,969

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

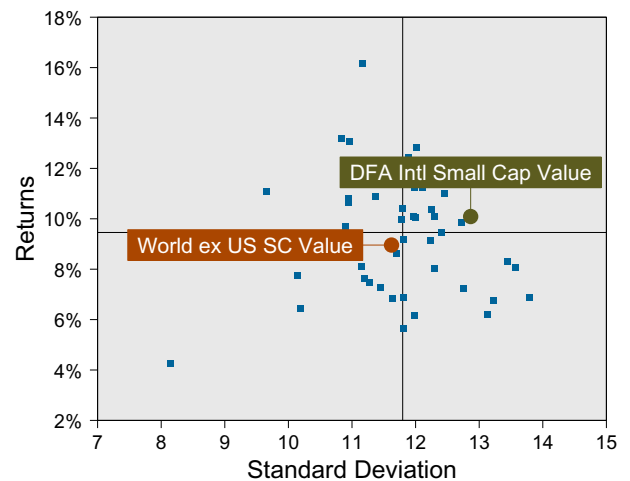


10th Percentile	0.03	18.25	19.56	11.11	12.59	9.04	6.94
25th Percentile	(1.56)	13.37	17.28	9.69	10.84	7.92	6.18
Median	(2.64)	11.02	16.32	8.02	9.46	6.46	4.91
75th Percentile	(3.49)	7.81	14.43	6.72	7.36	5.19	3.94
90th Percentile	(4.39)	5.81	12.95	4.25	6.35	4.69	3.18
<b>DFA Intl Small Cap Value</b>	● (3.47)	5.40	16.51	7.19	10.09	6.11	4.91
World ex US SC Value	▲ (2.18)	8.13	15.57	7.86	8.96	6.09	4.54

## 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 June 30, 2018

### 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.**

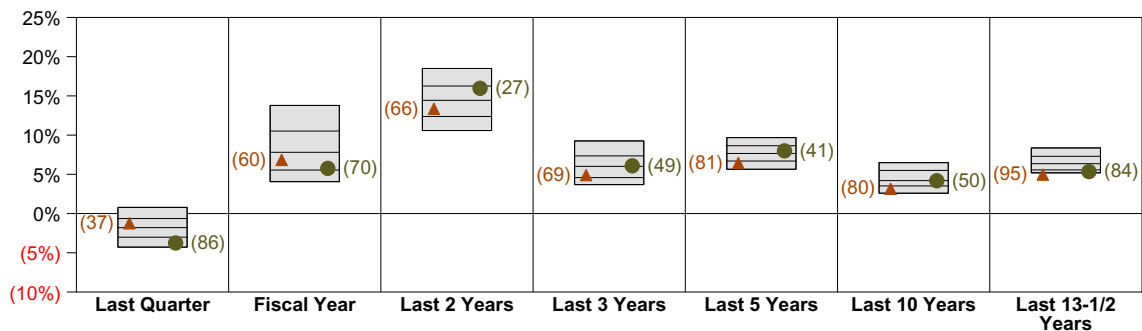
### Quarterly Summary and Highlights

- LSV Intl Value's portfolio posted a (3.75)% return for the quarter placing it in the 86 percentile of the Callan Non-US Equity group for the quarter and in the 70 percentile for the last year.
- LSV Intl Value's portfolio underperformed the Benchmark by 2.52% for the quarter and underperformed the Benchmark for the year by 1.09%.

### Quarterly Asset Growth

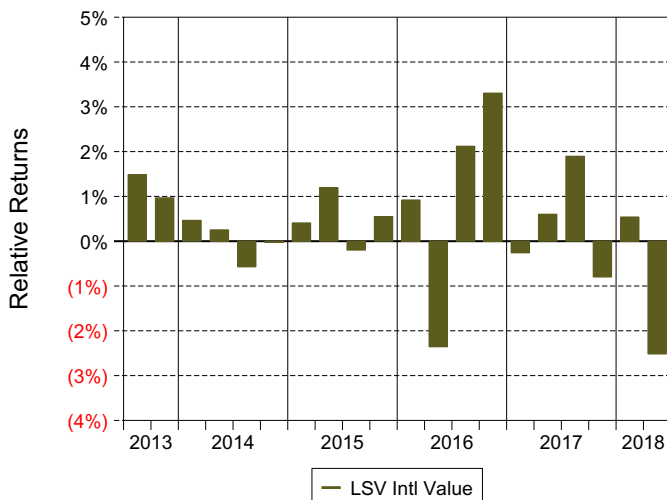
Beginning Market Value	\$69,377,715
Net New Investment	\$-3,968,007
Investment Gains/(Losses)	\$-2,555,610
Ending Market Value	\$62,854,098

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

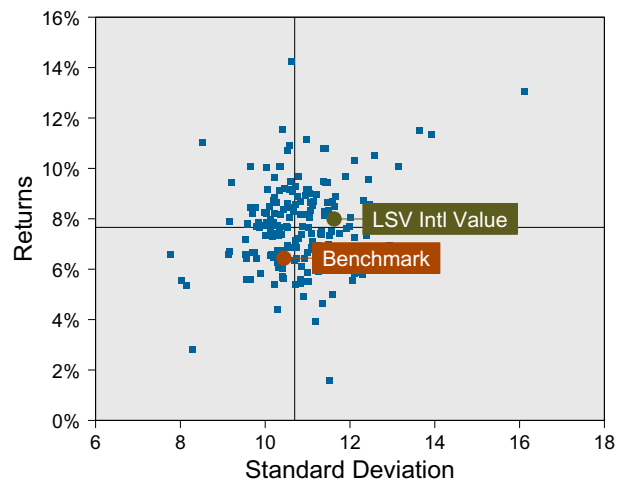


10th Percentile	0.79	13.78	18.49	9.26	9.68	6.49	8.37
25th Percentile	(0.64)	10.52	16.26	7.35	8.65	5.50	7.30
Median	(1.79)	7.81	14.43	6.02	7.66	4.20	6.35
75th Percentile	(3.01)	5.54	12.37	4.58	6.70	3.52	5.56
90th Percentile	(4.28)	4.07	10.58	3.69	5.64	2.59	5.19
<b>LSV Intl Value</b>	● (3.75)	5.76	15.96	6.09	7.99	4.18	5.35
<b>Benchmark</b>	▲ (1.24)	6.84	13.36	4.90	6.44	3.16	4.97

### Relative Return vs Benchmark



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



# Vanguard Intl Explorer Fund Period Ended June 30, 2018

## 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.

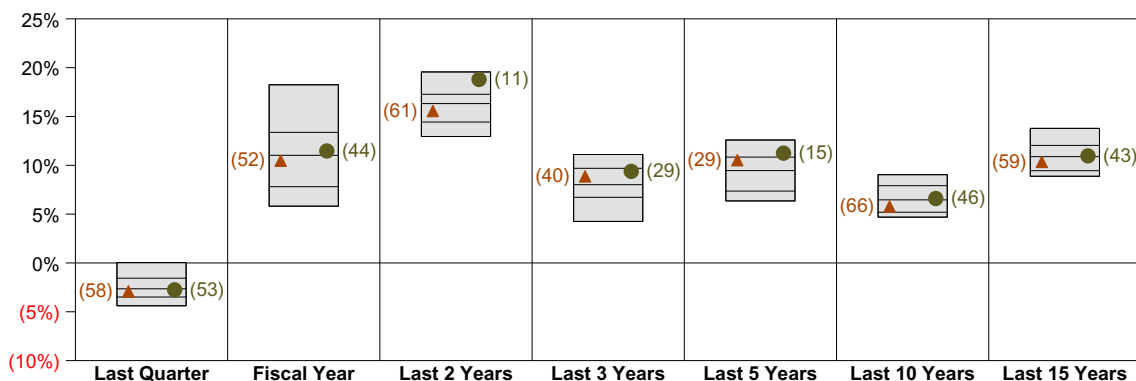
## Quarterly Summary and Highlights

- Vanguard Intl Explorer Fund's portfolio posted a (2.75)% return for the quarter placing it in the 53 percentile of the Callan International Small Cap Mut Funds group for the quarter and in the 44 percentile for the last year.
- Vanguard Intl Explorer Fund's portfolio outperformed the S&P BMI EPAC <\$2 B by 0.16% for the quarter and outperformed the S&P BMI EPAC <\$2 B for the year by 0.99%.

## Quarterly Asset Growth

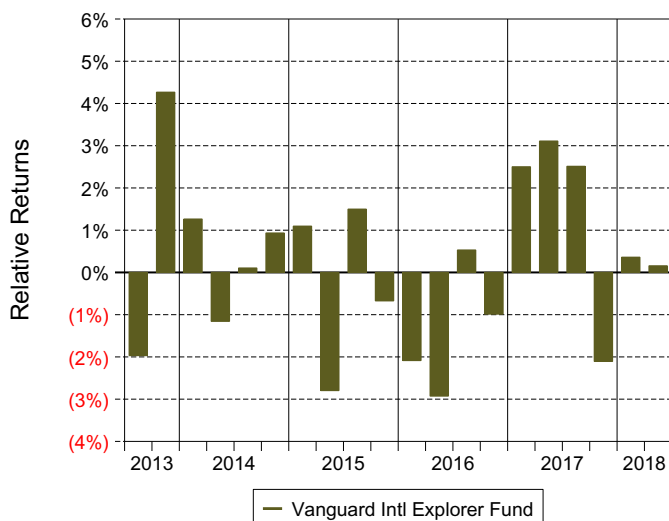
Beginning Market Value	\$17,466,468
Net New Investment	\$-1,000,000
Investment Gains/(Losses)	\$-452,651
Ending Market Value	\$16,013,817

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

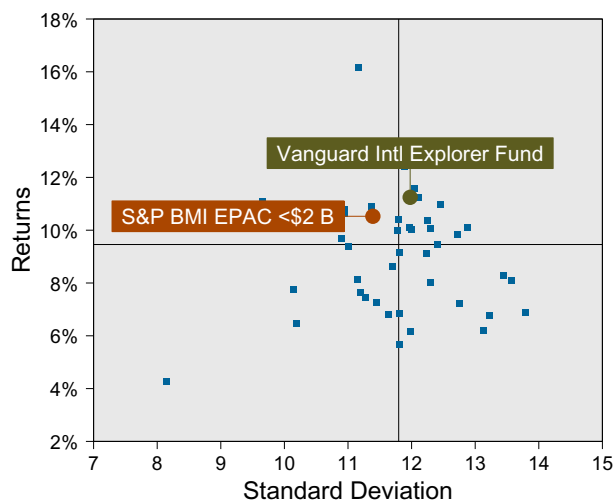


	Last Quarter	Fiscal Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
10th Percentile	0.03	18.25	19.56	11.11	12.59	9.04	13.78
25th Percentile	(1.56)	13.37	17.28	9.69	10.84	7.92	12.04
Median	(2.64)	11.02	16.32	8.02	9.46	6.46	10.89
75th Percentile	(3.49)	7.81	14.43	6.72	7.36	5.19	9.45
90th Percentile	(4.39)	5.81	12.95	4.25	6.35	4.69	8.88
<b>Vanguard Intl Explorer Fund</b>	<b>(2.75)</b>	11.47	18.79	9.38	11.25	6.60	10.97
<b>S&amp;P BMI EPAC &lt;\$2 B</b>	<b>(2.91)</b>	10.47	15.56	8.87	10.53	5.79	10.35

## 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 June 30, 2018

### 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.

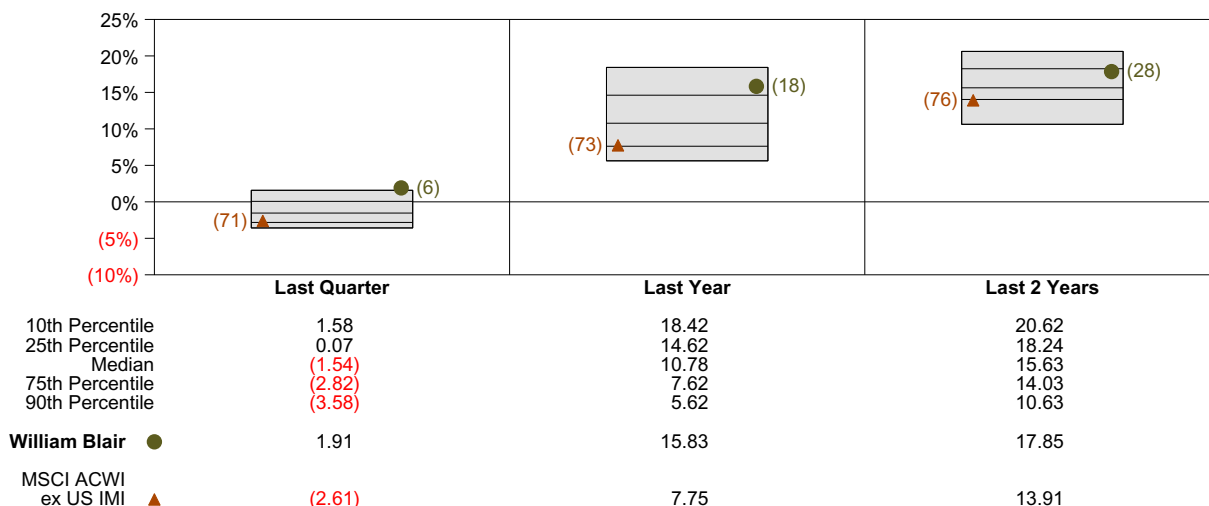
### Quarterly Summary and Highlights

- William Blair's portfolio posted a 1.91% return for the quarter placing it in the 6 percentile of the Callan Non-US All Country Growth Equity group for the quarter and in the 18 percentile for the last year.
- William Blair's portfolio outperformed the MSCI ACWI ex US IMI by 4.52% for the quarter and outperformed the MSCI ACWI ex US IMI for the year by 8.08%.

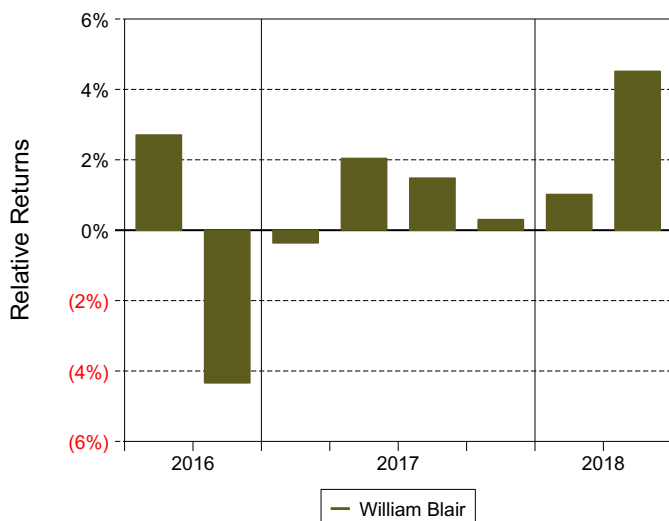
### Quarterly Asset Growth

Beginning Market Value	\$73,070,942
Net New Investment	\$-7,271,456
Investment Gains/(Losses)	\$1,583,976
Ending Market Value	\$67,383,462

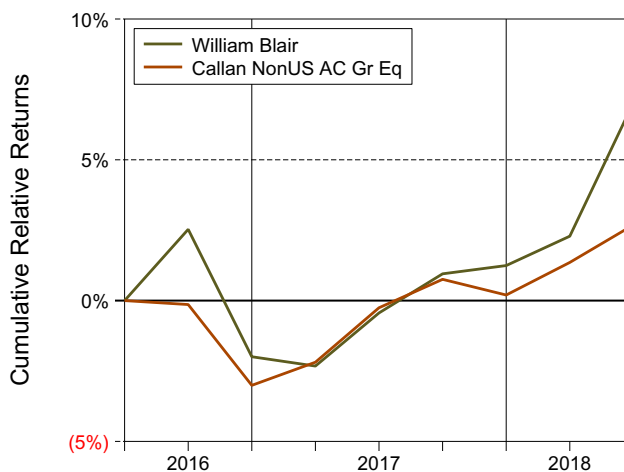
### Performance vs Callan Non-US All Country Growth Equity (Gross)



### Relative Return vs MSCI ACWI ex US IMI



### Cumulative Returns vs MSCI ACWI ex US IMI



# Domestic Fixed Income Period Ended June 30, 2018

## Quarterly Summary and Highlights

- Domestic Fixed Income's portfolio posted a (0.17)% return for the quarter placing it in the 81 percentile of the Public Fund - Domestic Fixed group for the quarter and in the 22 percentile for the last year.
- Domestic Fixed Income's portfolio underperformed the Domestic Fixed Inc. Target by 0.02% for the quarter and outperformed the Domestic Fixed Inc. Target for the year by 1.95%.

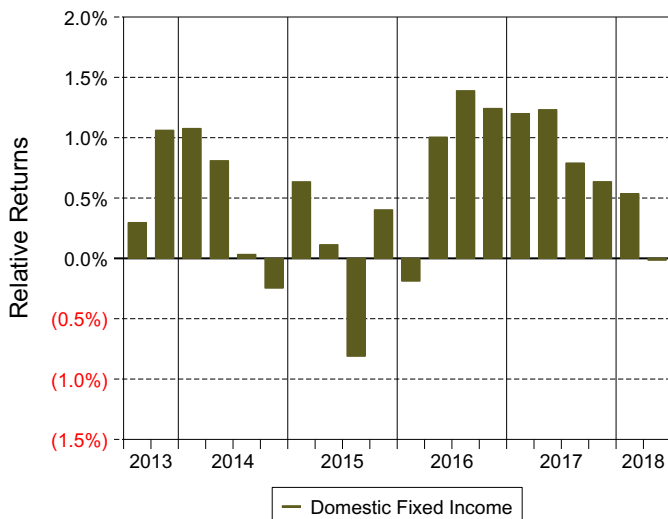
## Quarterly Asset Growth

Beginning Market Value	\$1,136,259,244
Net New Investment	\$46,787,008
Investment Gains/(Losses)	\$-1,826,898
Ending Market Value	\$1,181,219,354

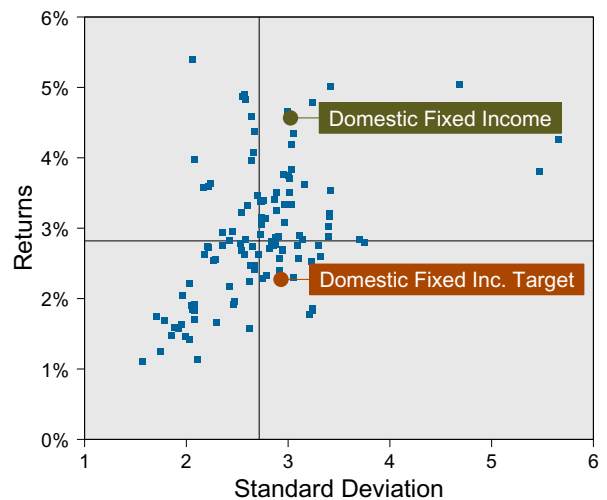
## Performance vs Public Fund - Domestic Fixed (Gross)



## Relative Return vs Domestic Fixed Inc. Target



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





# Declaration Total Return Period Ended June 30, 2018

## 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.

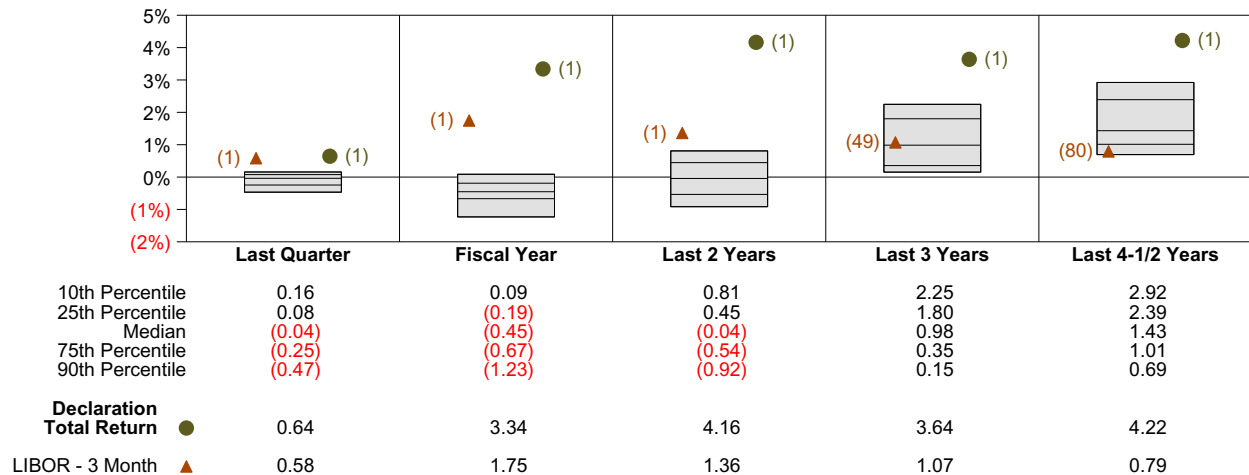
## Quarterly Summary and Highlights

- Declaration Total Return's portfolio posted a 0.64% 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 0.06% for the quarter and outperformed the LIBOR - 3 Month for the year by 1.59%.

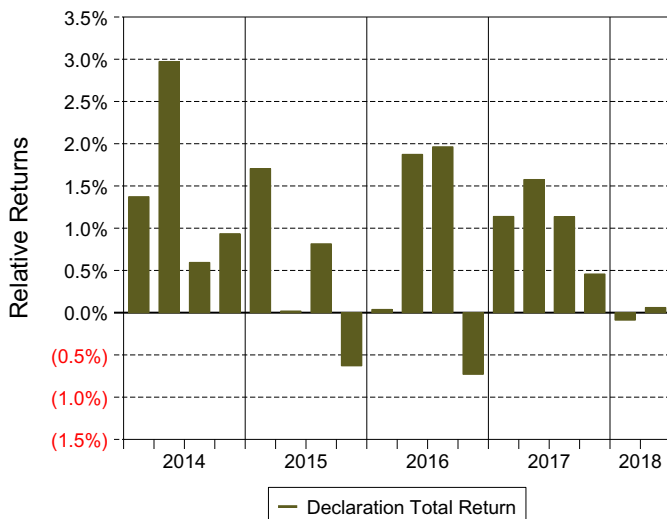
## Quarterly Asset Growth

Beginning Market Value	\$86,040,309
Net New Investment	-\$45,398
Investment Gains/(Losses)	\$553,766
Ending Market Value	\$86,548,678

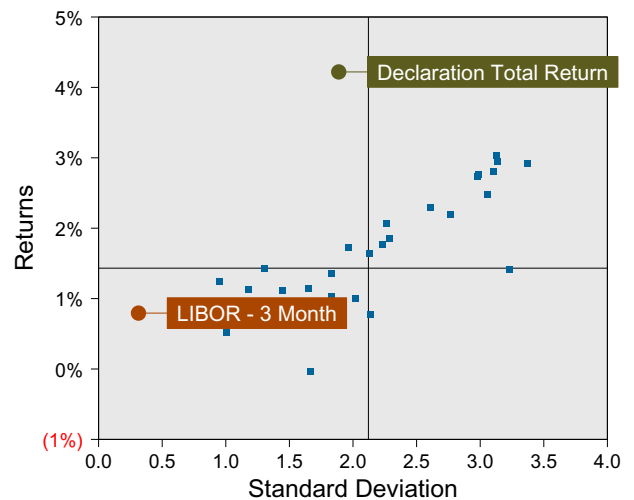
## Performance vs Callan Intermediate Fixed Inc Mut Funds (Net)



## Relative Return vs LIBOR - 3 Month



## Callan Intermediate Fixed Inc Mut Funds (Net) Annualized Four and One-Half Year Risk vs Return



# PIMCO DiSCO II

## Period Ended June 30, 2018

### 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.

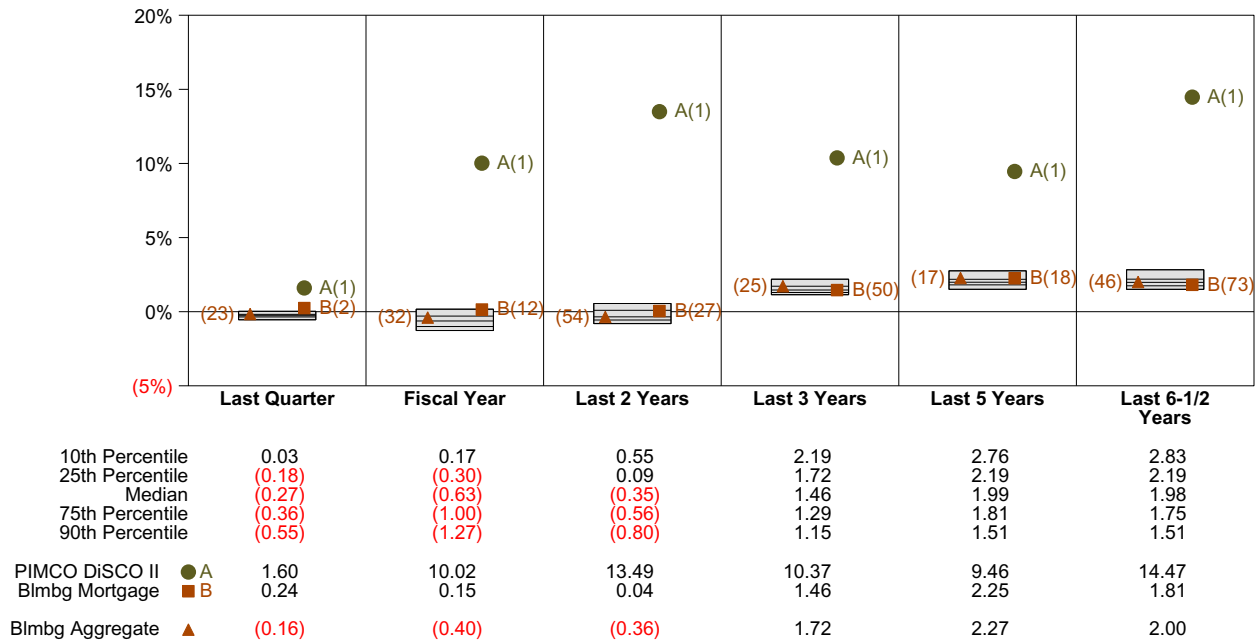
### Quarterly Summary and Highlights

- PIMCO DiSCO II's portfolio posted a 1.60% 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 1.76% for the quarter and outperformed the Blmbg Aggregate for the year by 10.42%.

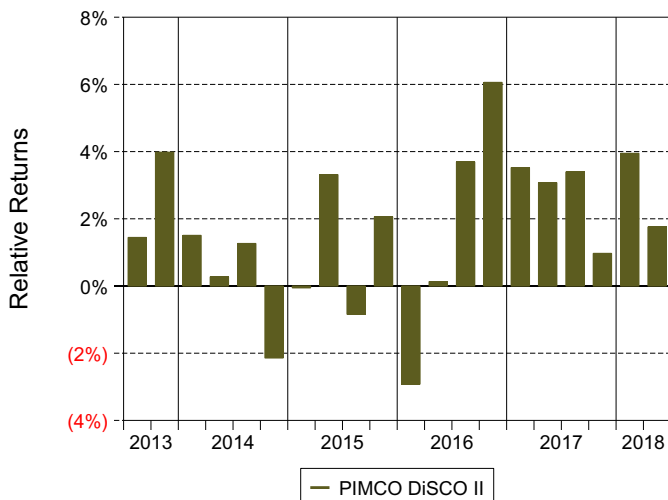
### Quarterly Asset Growth

Beginning Market Value	\$104,531,563
Net New Investment	\$0
Investment Gains/(Losses)	\$1,672,468
Ending Market Value	\$106,204,031

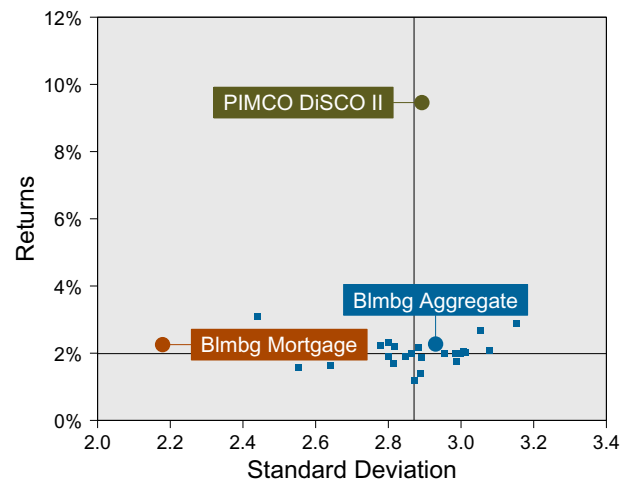
### Performance vs Callan Core Bond Mutual Funds (Net)



### Relative Return vs Blmbg Aggregate



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



# PIMCO Bravo II Fund Period Ended June 30, 2018

## 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.

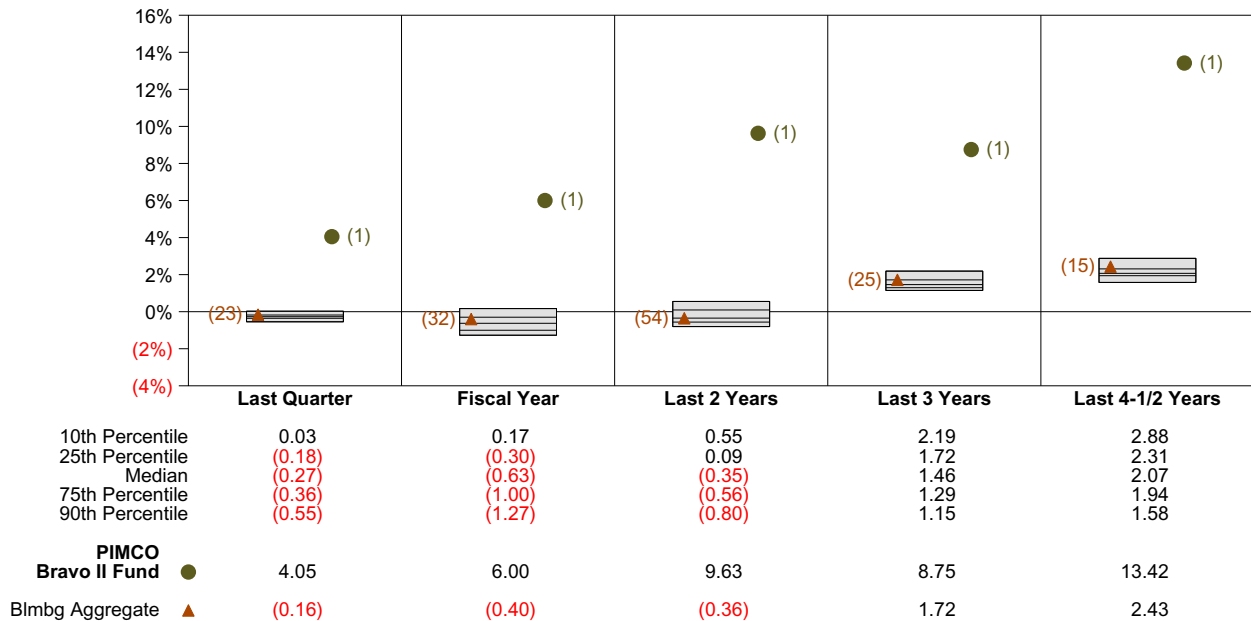
## Quarterly Summary and Highlights

- PIMCO Bravo II Fund's portfolio posted a 4.05% 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 4.21% for the quarter and outperformed the Blmbg Aggregate for the year by 6.40%.

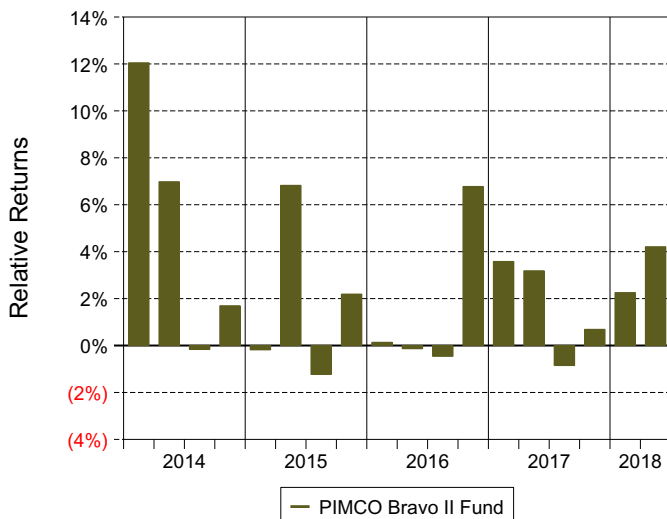
## Quarterly Asset Growth

Beginning Market Value	\$45,802,288
Net New Investment	\$-4,263,375
Investment Gains/(Losses)	\$1,787,576
Ending Market Value	\$43,326,489

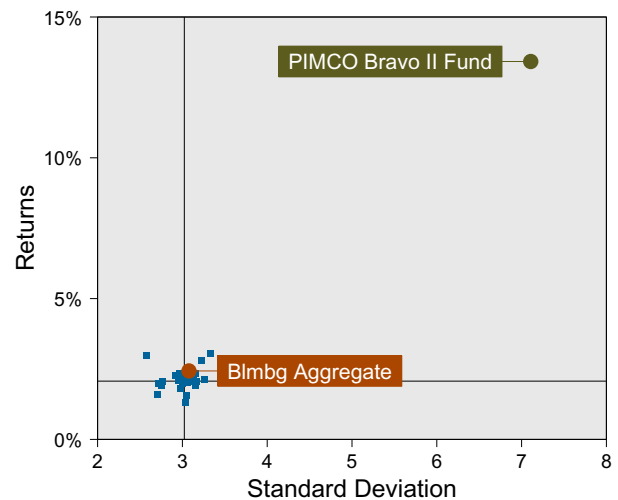
## Performance vs Callan Core Bond Mutual Funds (Net)



## Relative Return vs Blmbg Aggregate



## Callan Core Bond Mutual Funds (Net) Annualized Four and One-Half Year Risk vs Return



# Prudential Period Ended June 30, 2018

## 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.

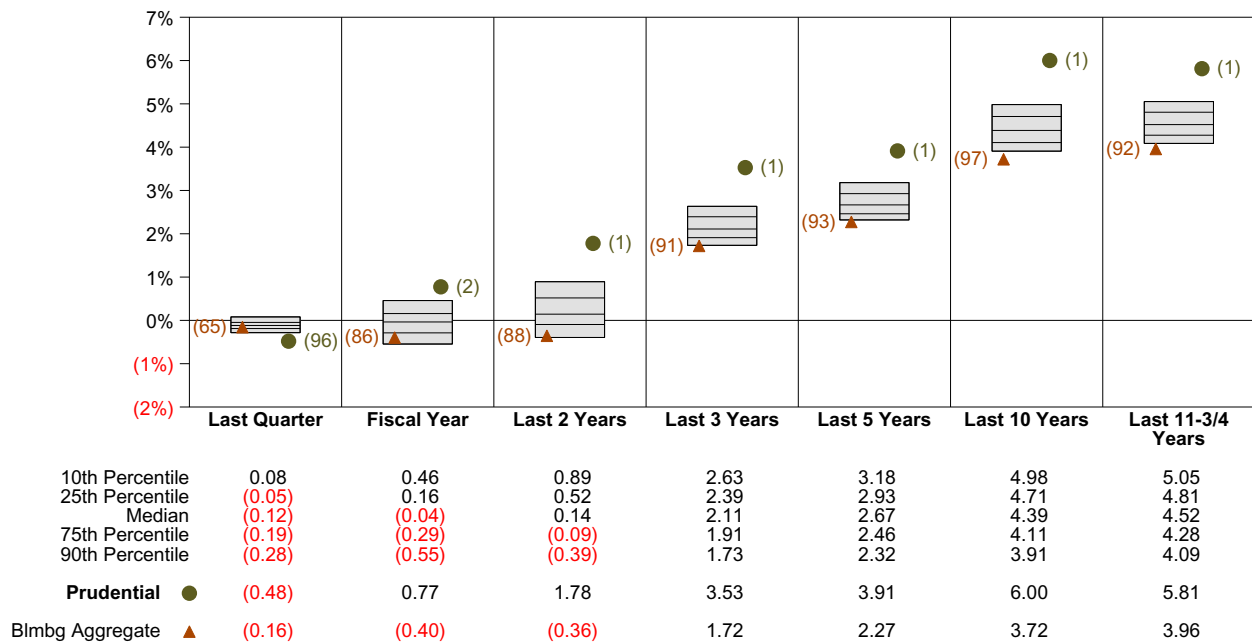
## Quarterly Summary and Highlights

- Prudential's portfolio posted a (0.48)% return for the quarter placing it in the 96 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 2 percentile for the last year.
- Prudential's portfolio underperformed the Blmbg Aggregate by 0.32% for the quarter and outperformed the Blmbg Aggregate for the year by 1.17%.

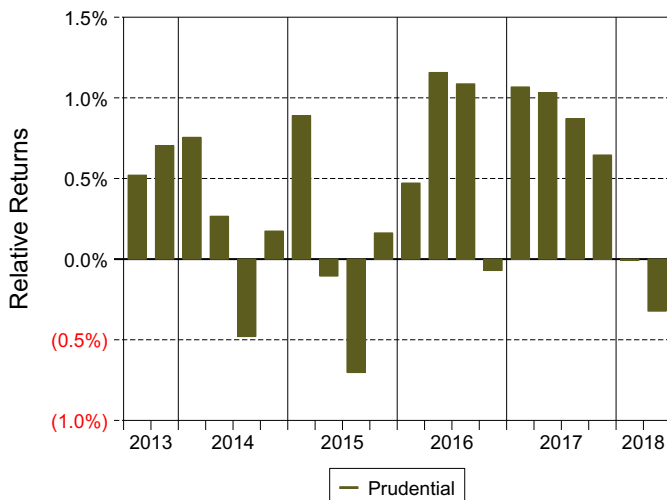
## Quarterly Asset Growth

Beginning Market Value	\$116,515,718
Net New Investment	\$64,924,911
Investment Gains/(Losses)	\$-323,096
Ending Market Value	\$181,117,533

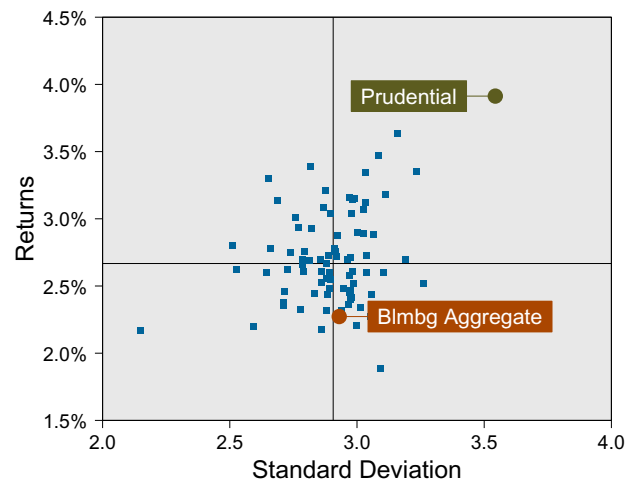
## Performance vs Callan Core Bond Fixed Income (Gross)



## 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 June 30, 2018

## 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.

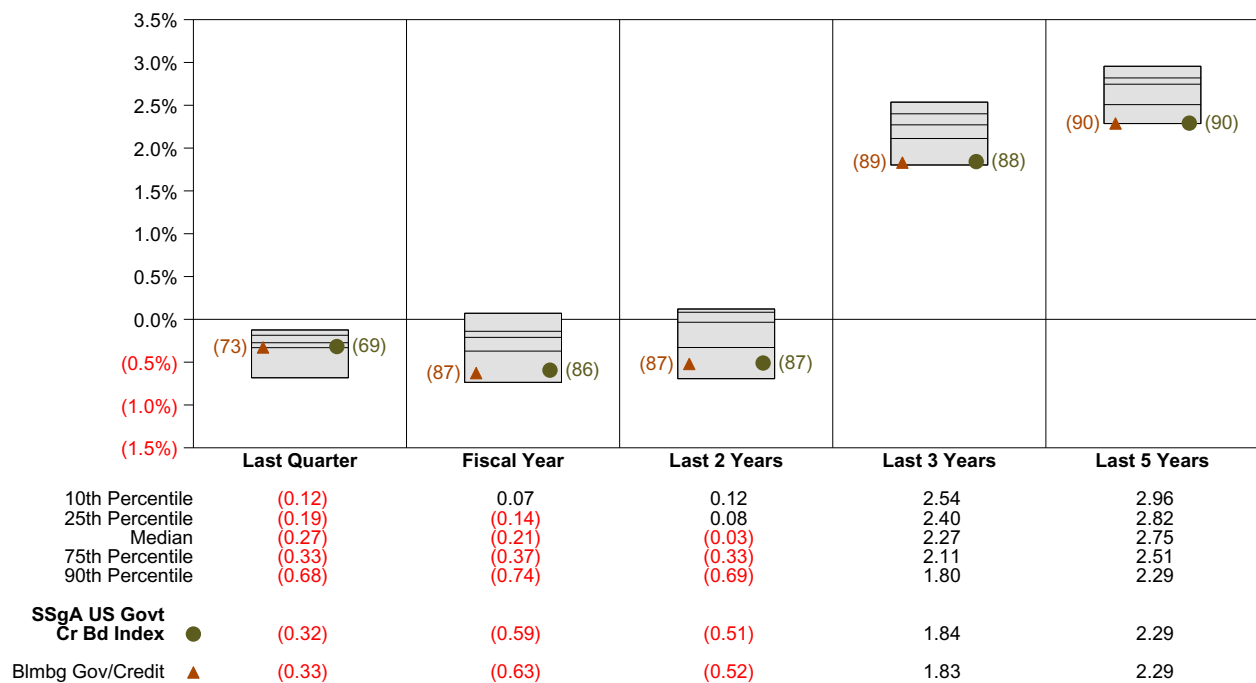
## Quarterly Summary and Highlights

- SSgA US Govt Cr Bd Index's portfolio posted a (0.32)% return for the quarter placing it in the 69 percentile of the Callan Government/Credit group for the quarter and in the 86 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 0.03%.

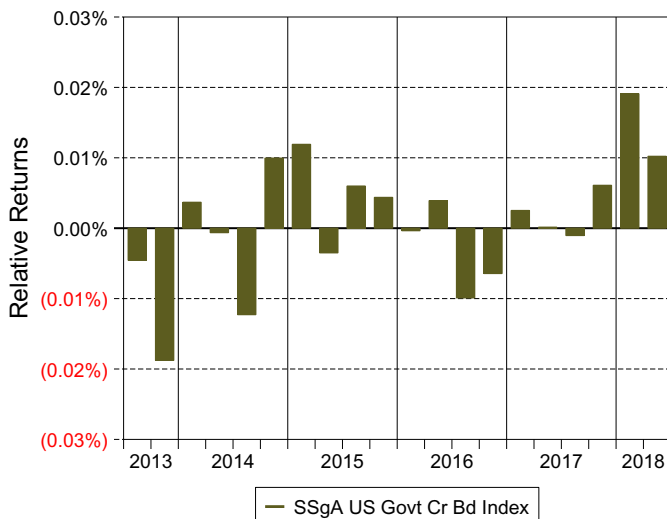
## Quarterly Asset Growth

Beginning Market Value	\$147,367,768
Net New Investment	\$8,391,264
Investment Gains/(Losses)	\$-450,194
Ending Market Value	\$155,308,837

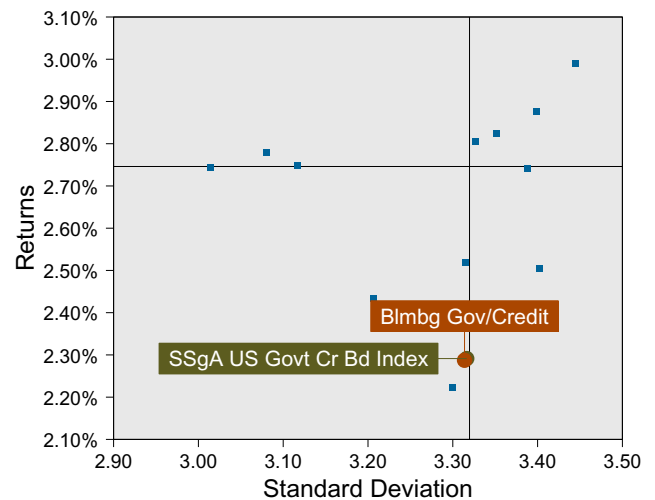
## Performance vs Callan Government/Credit (Gross)



## Relative Return vs Blmbg Gov/Credit



## Callan Government/Credit (Gross) Annualized Five Year Risk vs Return



# Wells Capital Period Ended June 30, 2018

## 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.

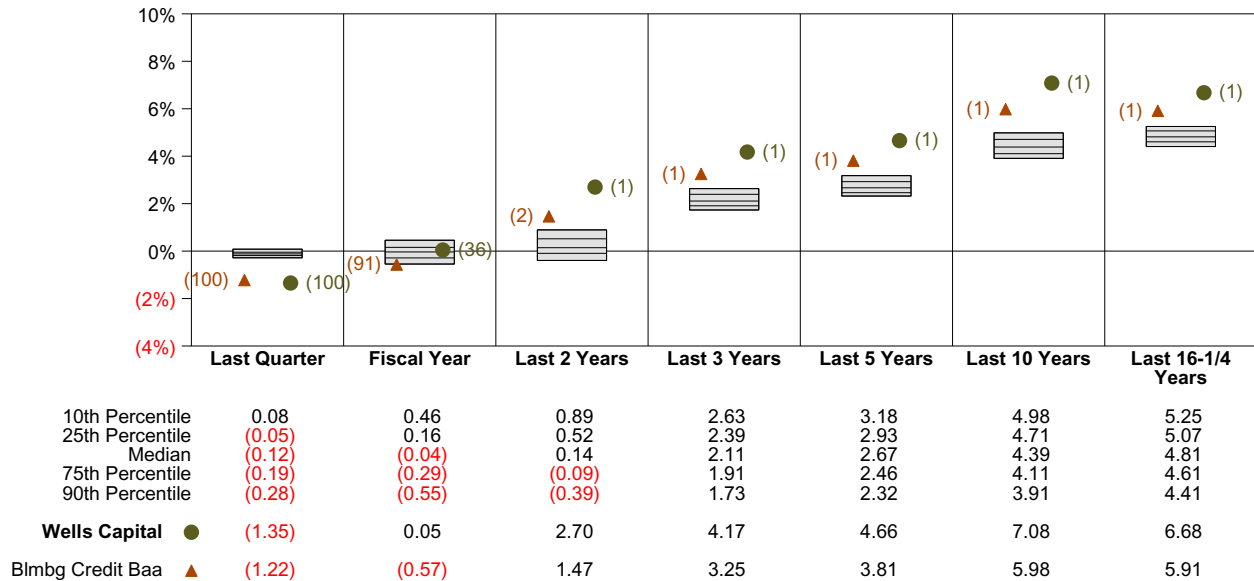
## Quarterly Summary and Highlights

- Wells Capital's portfolio posted a (1.35)% return for the quarter placing it in the 100 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 36 percentile for the last year.
- Wells Capital's portfolio underperformed the Blmbg Credit Baa by 0.13% for the quarter and outperformed the Blmbg Credit Baa for the year by 0.61%.

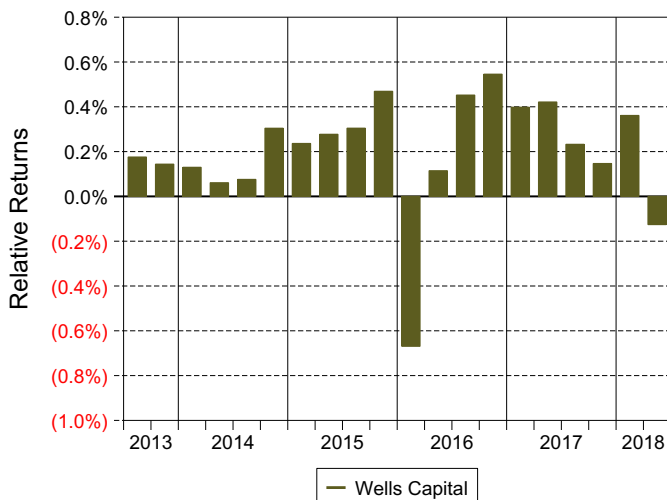
## Quarterly Asset Growth

Beginning Market Value	\$316,403,609
Net New Investment	\$-40,121,044
Investment Gains/(Losses)	\$-4,346,089
Ending Market Value	\$271,936,476

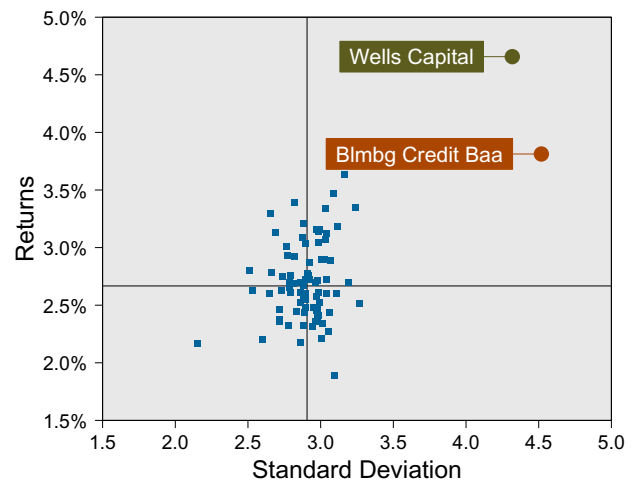
## Performance vs Callan Core Bond Fixed Income (Gross)



## Relative Return vs Blmbg Credit Baa



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



# Western Asset Management Company

## Period Ended June 30, 2018

### 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.

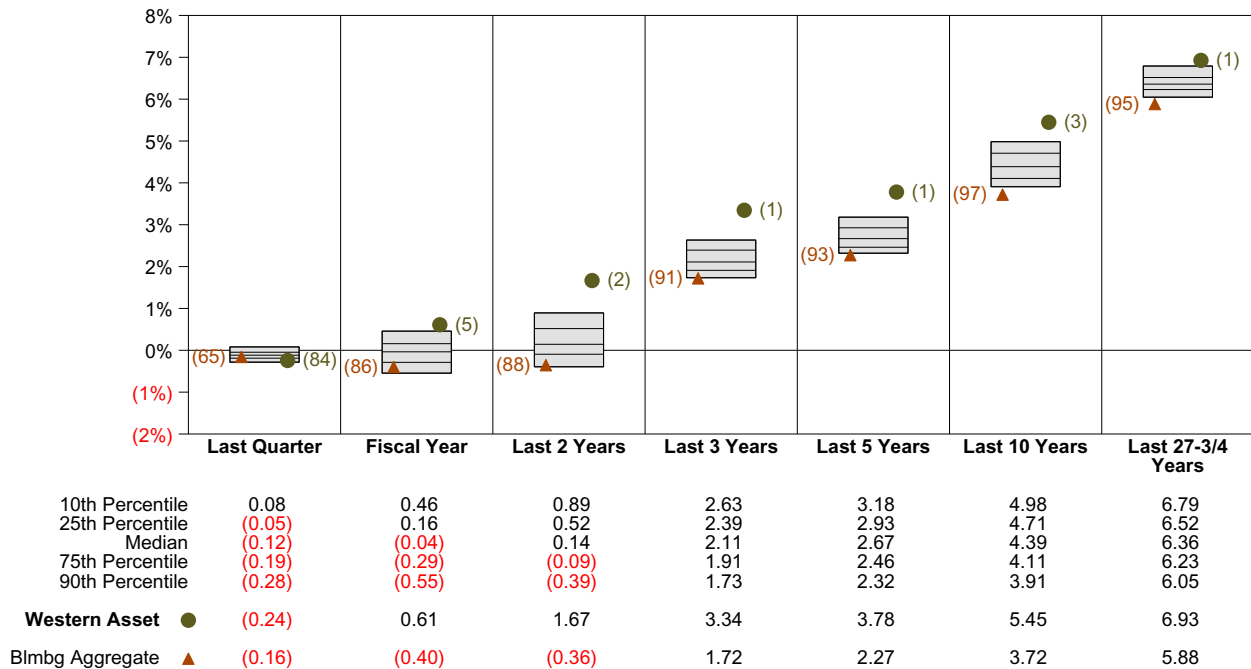
### Quarterly Summary and Highlights

- Western Asset's portfolio posted a (0.24)% return for the quarter placing it in the 84 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 5 percentile for the last year.
- Western Asset's portfolio underperformed the Blmbg Aggregate by 0.09% for the quarter and outperformed the Blmbg Aggregate for the year by 1.01%.

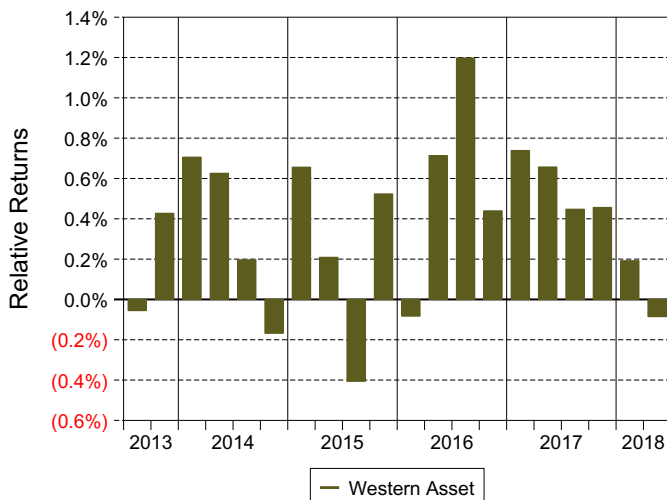
### Quarterly Asset Growth

Beginning Market Value	\$319,597,989
Net New Investment	\$17,900,651
Investment Gains/(Losses)	\$-721,329
Ending Market Value	\$336,777,310

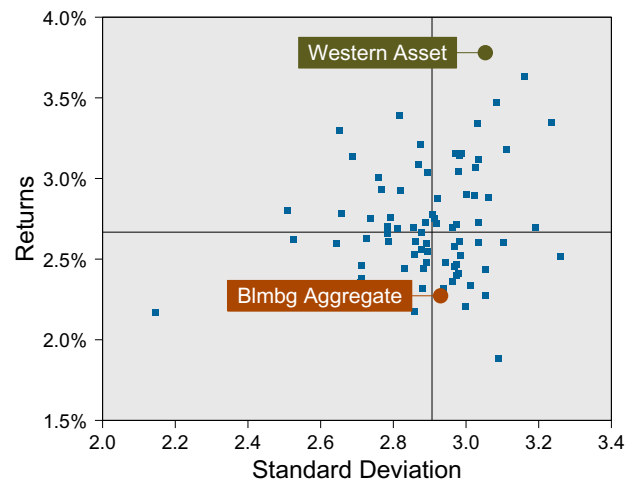
### Performance vs Callan Core Bond Fixed Income (Gross)



### Relative Return vs Blmbg Aggregate



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



# Western TIPS Period Ended June 30, 2018

## Investment Philosophy

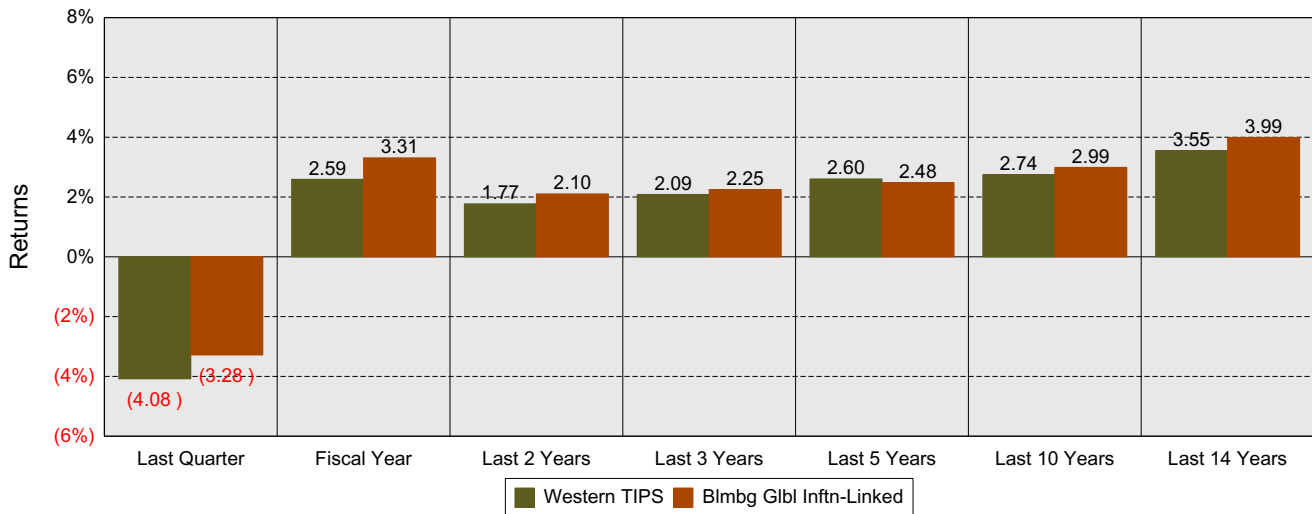
Western Asset's Global Inflation-Linked composite includes portfolios that employ an active, team-managed investment approach around a long-term, value-oriented investment philosophy. Constructed primarily of inflation-indexed securities, these portfolios use diversified strategies in seeking to add 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

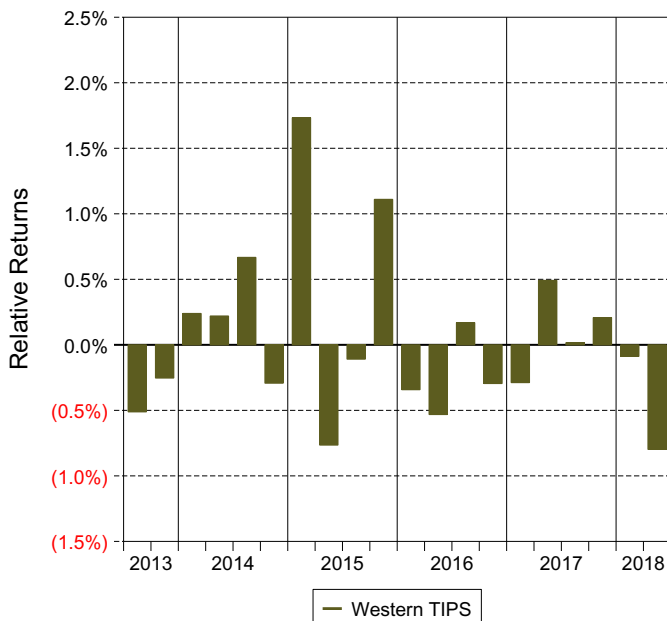
- Western TIPS's portfolio underperformed the Blmbg Gbl Inftn-Linked by 0.80% for the quarter and underperformed the Blmbg Gbl Inftn-Linked for the year by 0.72%.

## Quarterly Asset Growth

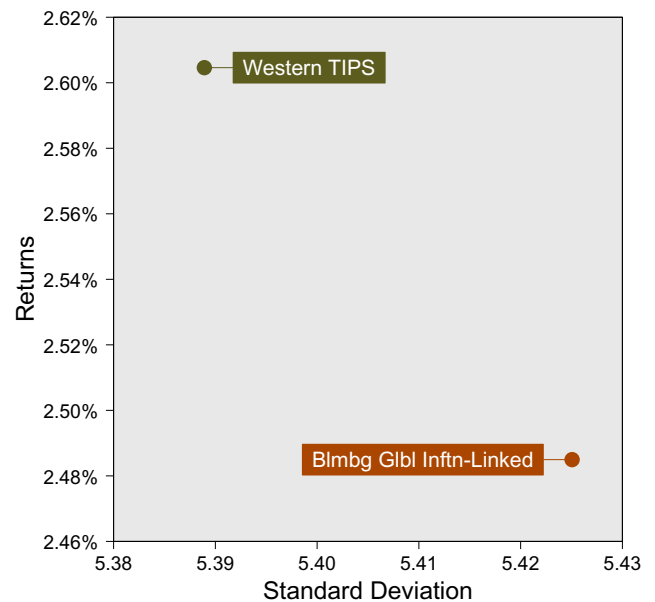
Beginning Market Value	\$121,844,089
Net New Investment	\$-43,899
Investment Gains/(Losses)	\$-4,970,866
Ending Market Value	\$116,829,324



Relative Return vs Blmbg Gbl Inftn-Linked



Annualized Five Year Risk vs Return





# Eastern Timber Opportunities Period Ended June 30, 2018

## Investment Philosophy

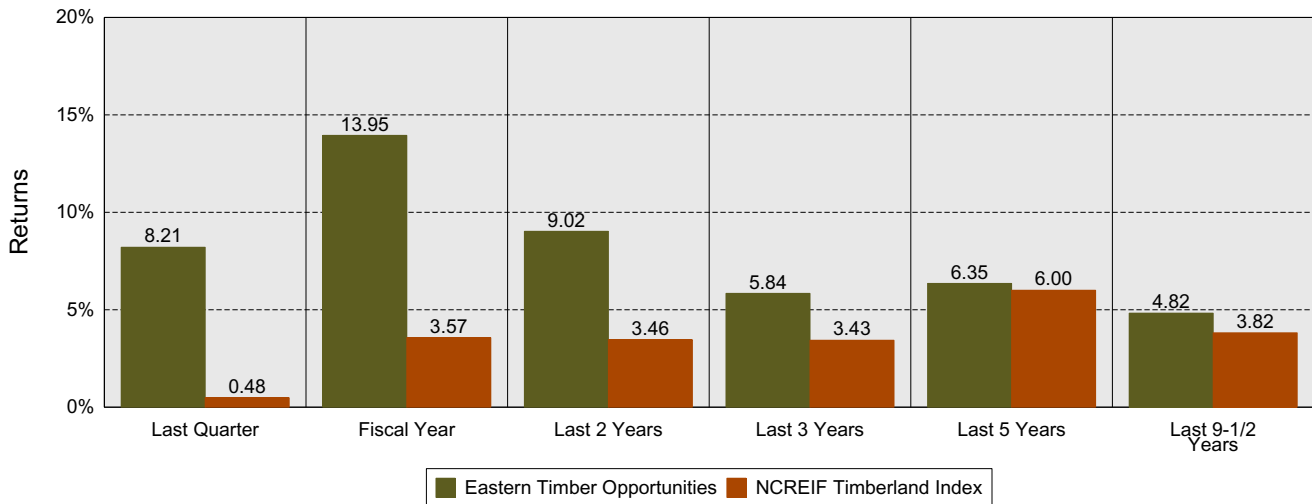
The investment objective of the Eastern Timberland Opportunities fund is to provide competitive timberland investment returns from Eastern US timberland investments by pursuing management strategies to increase timber production and land values through the investment term. TIR will maximize timber values 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

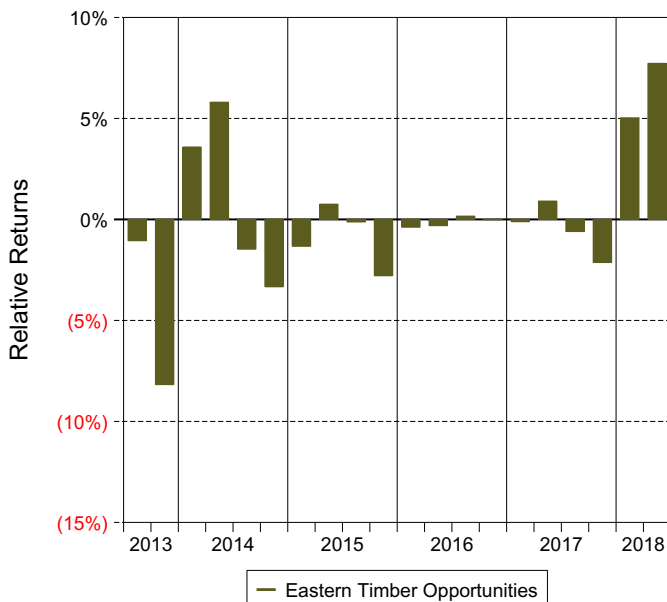
- Eastern Timber Opportunities's portfolio outperformed the NCREIF Timberland Index by 7.72% for the quarter and outperformed the NCREIF Timberland Index for the year by 10.38%.

## Quarterly Asset Growth

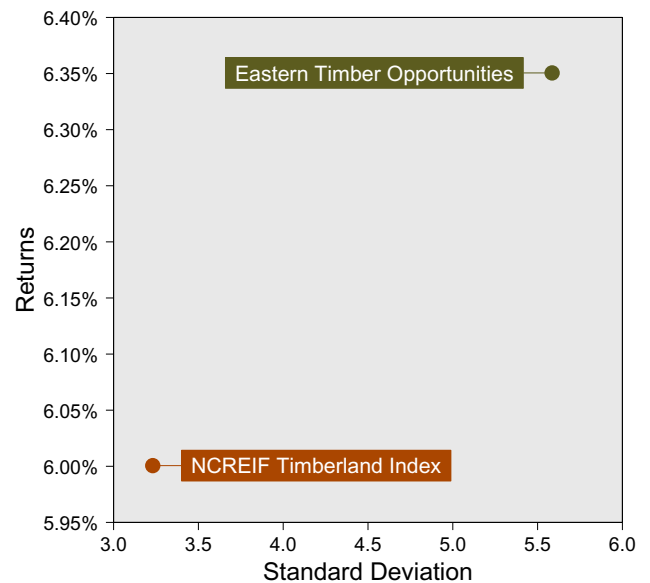
Beginning Market Value	\$52,371,123
Net New Investment	\$-1,143,848
Investment Gains/(Losses)	\$4,282,313
Ending Market Value	\$55,509,588



## Relative Return vs NCREIF Timberland Index



## Annualized Five Year Risk vs Return



# JP Morgan Infrastructure Period Ended June 30, 2018

## Investment Philosophy

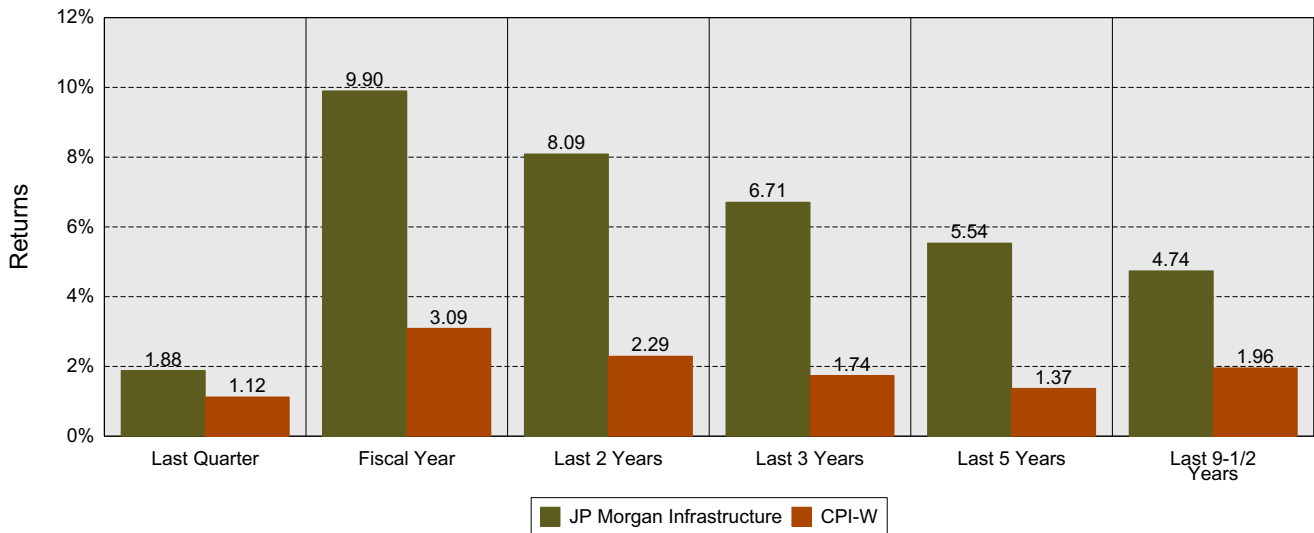
The only open-ended private commingled infrastructure fund in the U.S, the JPMorgan Infrastructure Investments Fund invests in stabilized assets in OECD countries with selected value-added opportunities, across infrastructure industry sub-sectors, including: toll roads, bridges and tunnels; oil and gas 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

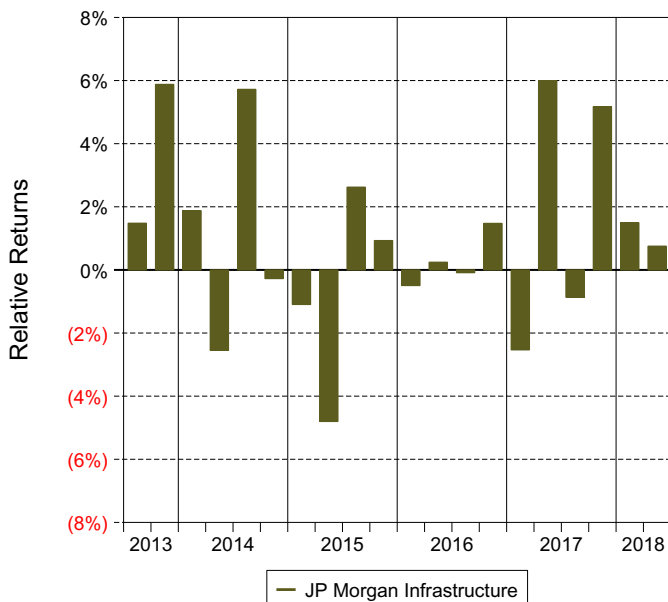
- JP Morgan Infrastructure's portfolio outperformed the CPI-W by 0.75% for the quarter and outperformed the CPI-W for the year by 6.81%.

## Quarterly Asset Growth

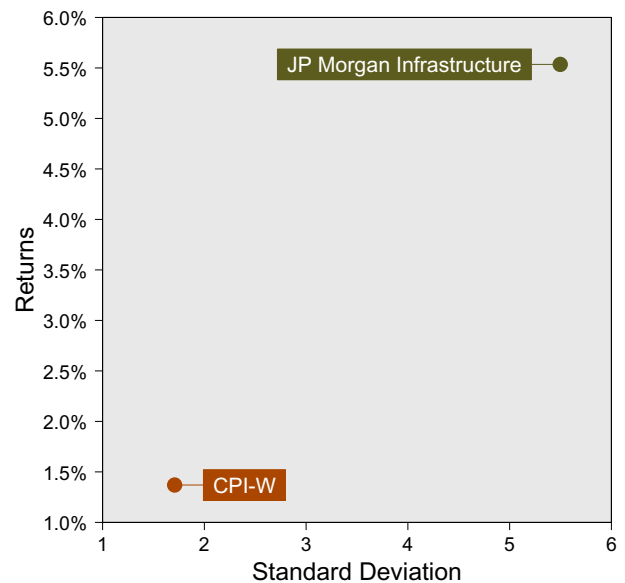
Beginning Market Value	\$91,931,394
Net New Investment	\$-1,546,393
Investment Gains/(Losses)	\$1,726,245
Ending Market Value	\$92,111,246



Relative Return vs CPI-W



Annualized Five Year Risk vs Return



# Grosvenor Cust. Infrastructure Period Ended June 30, 2018

## Investment Philosophy

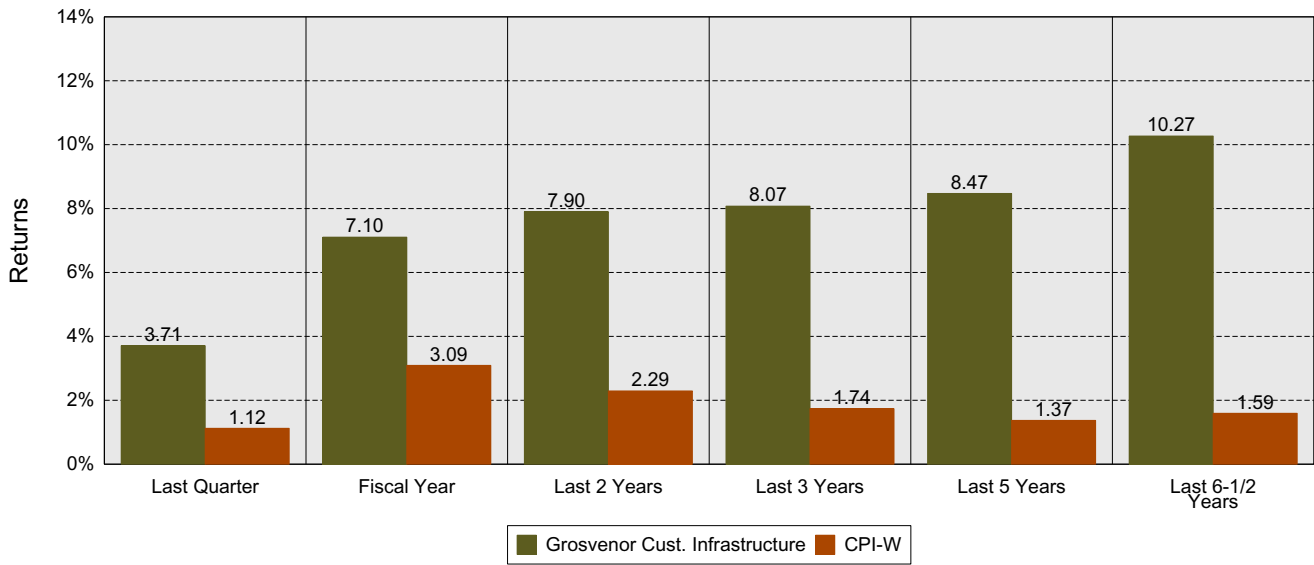
The Customized Infrastructure Strategies LP is a commingled fund focused on providing a comprehensive, diversified solution for investors looking to access the infrastructure asset class. The Fund seeks to generate stable, long-term yield and attractive risk-adjusted returns by investing in a diversified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

## Quarterly Summary and Highlights

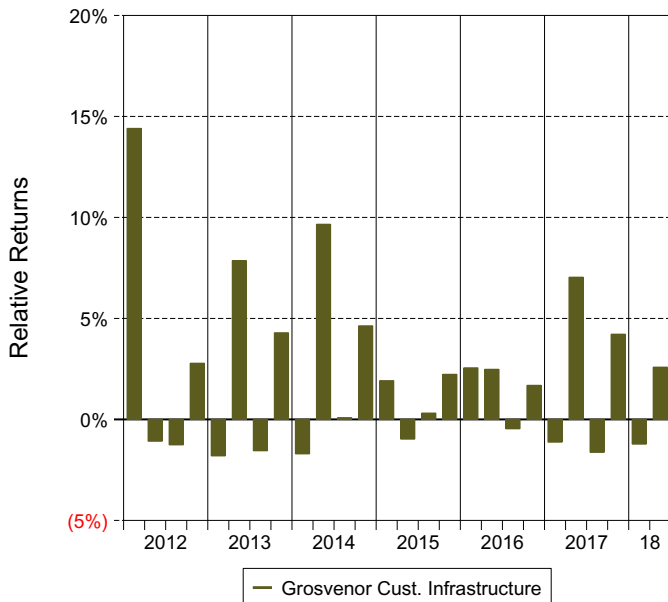
- Grosvenor Cust. Infrastructure's portfolio outperformed the CPI-W by 2.58% for the quarter and outperformed the CPI-W for the year by 4.01%.

## Quarterly Asset Growth

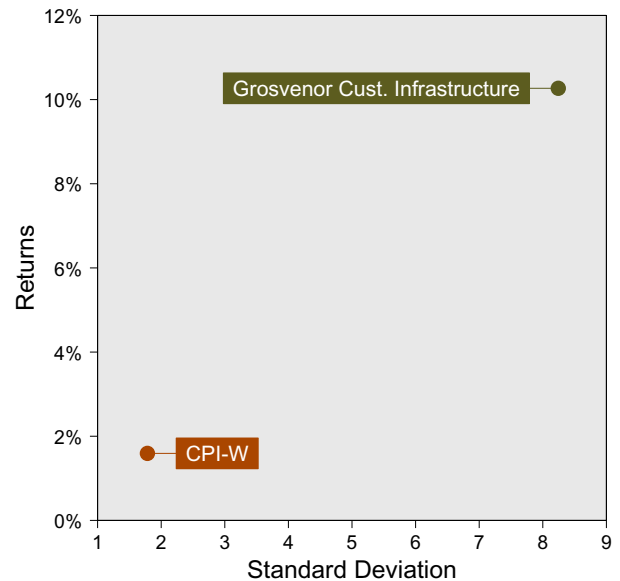
Beginning Market Value	\$16,876,855
Net New Investment	\$0
Investment Gains/(Losses)	\$625,611
Ending Market Value	\$17,502,466



Relative Return vs CPI-W



Annualized Six and One-Half Year Risk vs Return



# Real Estate Period Ended June 30, 2018

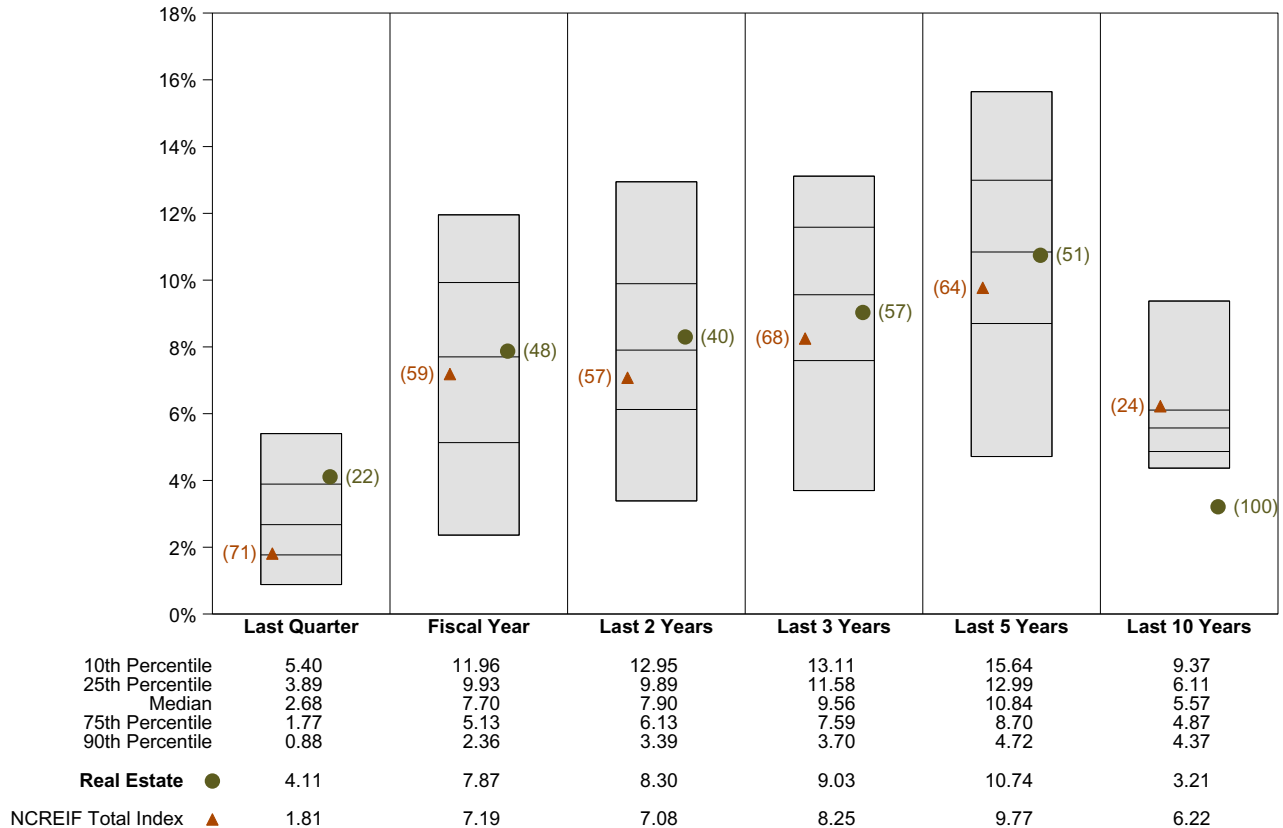
## Quarterly Summary and Highlights

- Real Estate's portfolio posted a 4.11% return for the quarter placing it in the 22 percentile of the Callan Total Domestic Real Estate DB group for the quarter and in the 48 percentile for the last year.
- Real Estate's portfolio outperformed the NCREIF Total Index by 2.30% for the quarter and outperformed the NCREIF Total Index for the year by 0.69%.

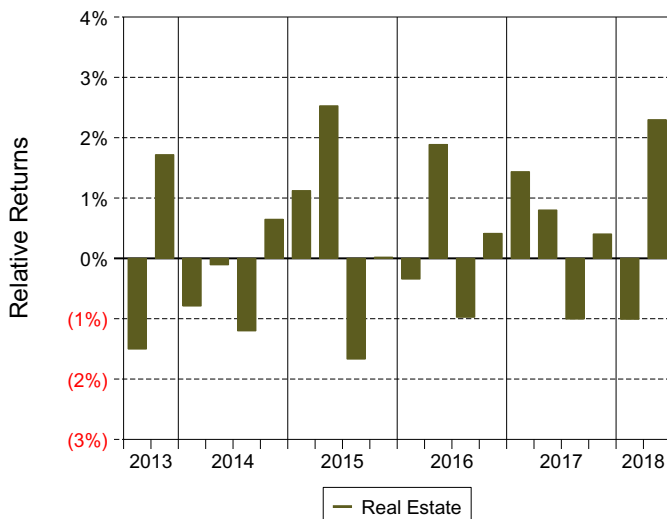
## Quarterly Asset Growth

Beginning Market Value	\$139,002,116
Net New Investment	\$-1,751,096
Investment Gains/(Losses)	\$5,682,530
Ending Market Value	\$142,933,551

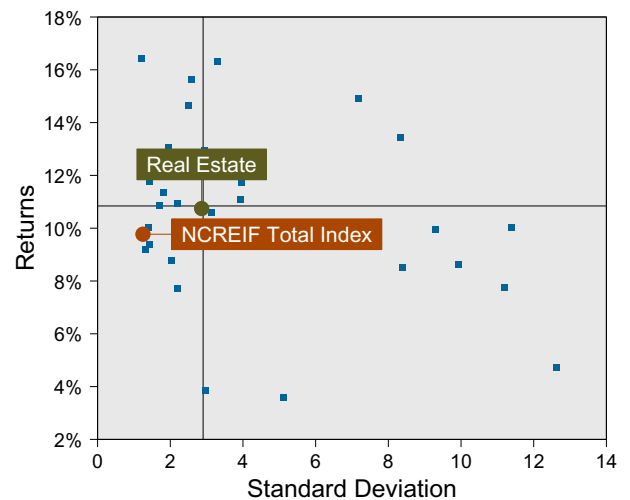
## Performance vs Callan Total Domestic Real Estate DB (Gross)



## 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 June 30, 2018

## 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.

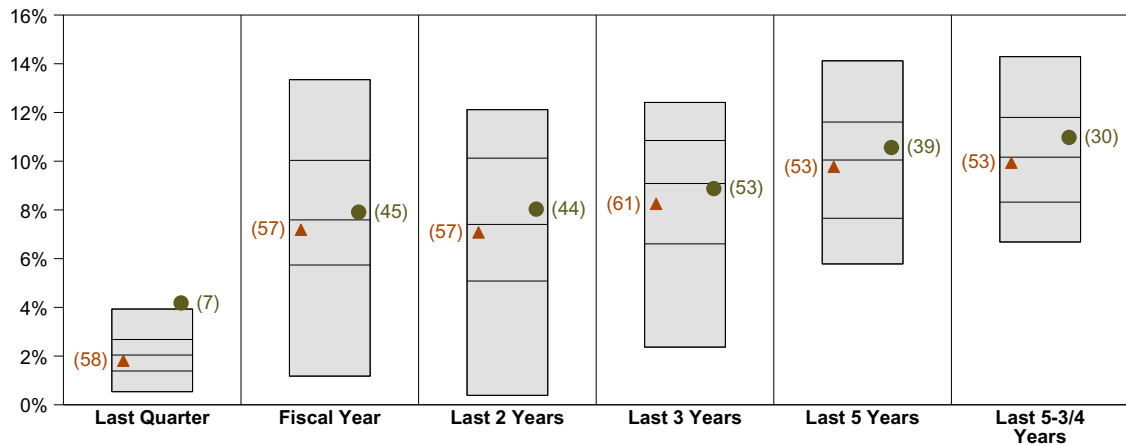
## Quarterly Summary and Highlights

- Invesco Core Real Estate's portfolio posted a 4.18% return for the quarter placing it in the 7 percentile of the Callan Total Domestic Real Estate DB group for the quarter and in the 45 percentile for the last year.
- Invesco Core Real Estate's portfolio outperformed the NCREIF Total Index by 2.37% for the quarter and outperformed the NCREIF Total Index for the year by 0.72%.

## Quarterly Asset Growth

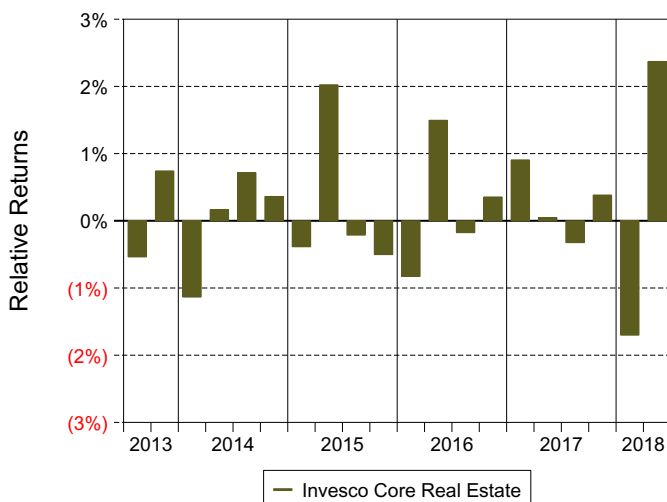
Beginning Market Value	\$66,382,104
Net New Investment	\$-499,250
Investment Gains/(Losses)	\$2,764,275
Ending Market Value	\$68,647,129

## Performance vs Callan Total Domestic Real Estate DB (Net)

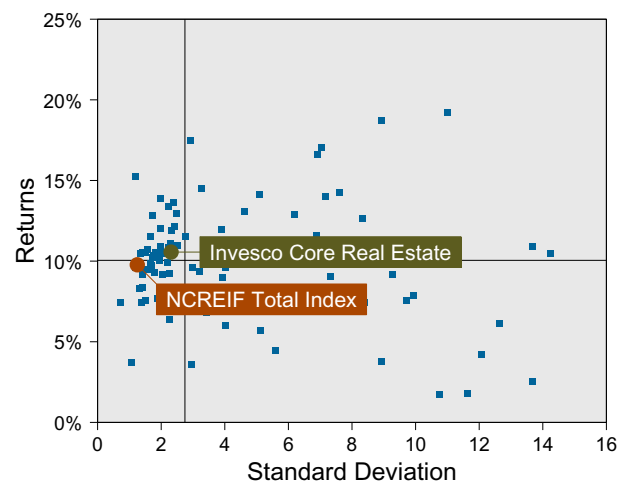


10th Percentile	3.93	13.35	12.12	12.41	14.12	14.29
25th Percentile	2.68	10.03	10.12	10.85	11.61	11.80
Median	2.04	7.59	7.40	9.08	10.05	10.17
75th Percentile	1.39	5.74	5.08	6.61	7.66	8.32
90th Percentile	0.54	1.18	0.39	2.37	5.78	6.68
<b>Invesco Core Real Estate</b>	<b>4.18</b>	<b>7.91</b>	<b>8.03</b>	<b>8.88</b>	<b>10.56</b>	<b>10.98</b>
<b>NCREIF Total Index</b>	<b>1.81</b>	<b>7.19</b>	<b>7.08</b>	<b>8.25</b>	<b>9.77</b>	<b>9.94</b>

## 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 June 30, 2018

## 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.

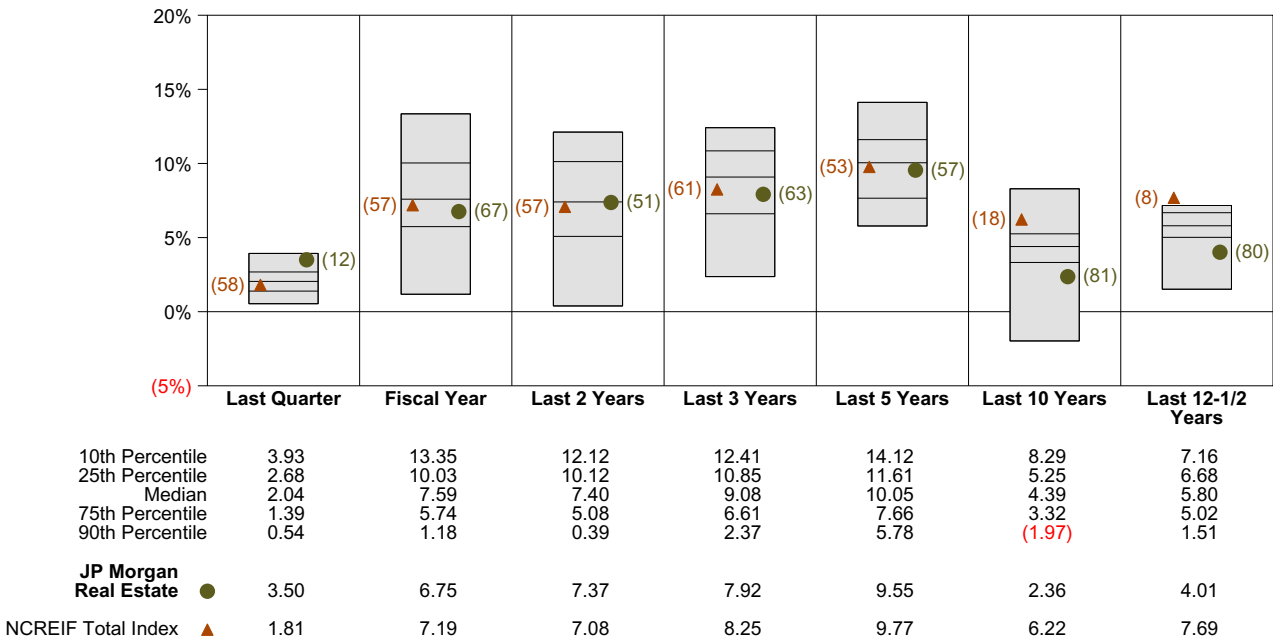
## Quarterly Summary and Highlights

- JP Morgan Real Estate's portfolio posted a 3.50% return for the quarter placing it in the 12 percentile of the Callan Total Domestic Real Estate DB group for the quarter and in the 67 percentile for the last year.
- JP Morgan Real Estate's portfolio outperformed the NCREIF Total Index by 1.69% for the quarter and underperformed the NCREIF Total Index for the year by 0.43%.

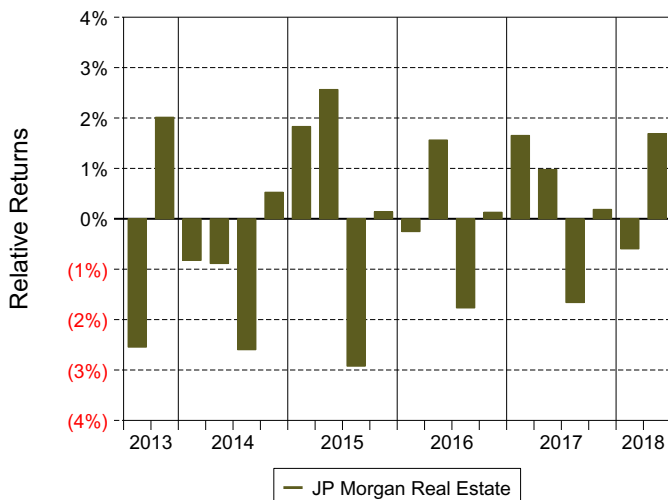
## Quarterly Asset Growth

Beginning Market Value	\$72,620,012
Net New Investment	\$-863,922
Investment Gains/(Losses)	\$2,530,331
Ending Market Value	\$74,286,421

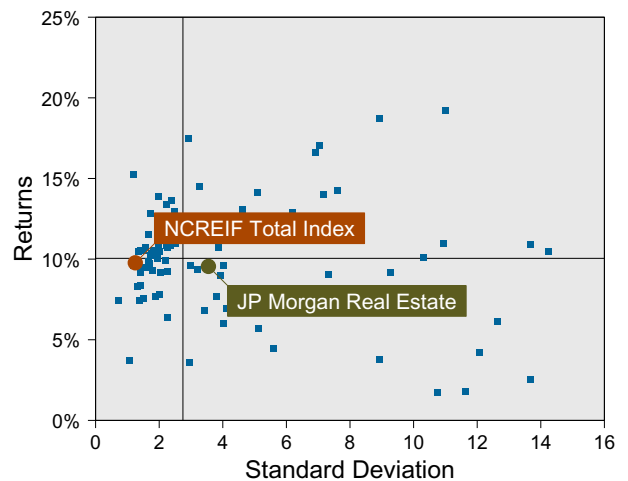
## Performance vs Callan Total Domestic Real Estate DB (Net)



## 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 June 30, 2018

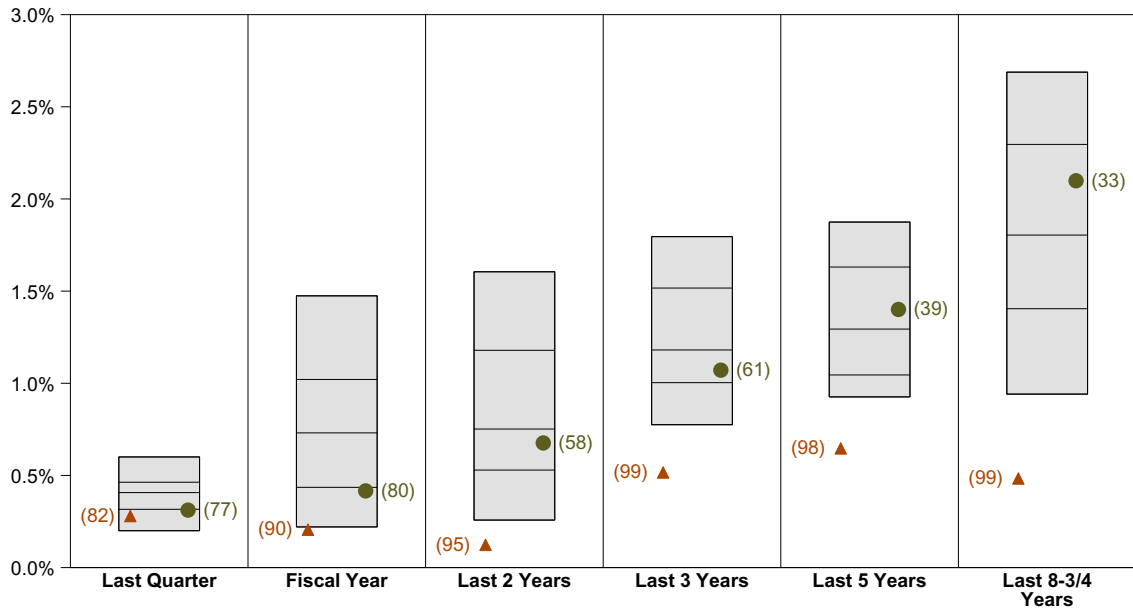
## Quarterly Summary and Highlights

- Short Term Fixed Income's portfolio posted a 0.31% return for the quarter placing it in the 77 percentile of the Callan Defensive Fixed Income group for the quarter and in the 80 percentile for the last year.
- Short Term Fixed Income's portfolio outperformed the Short Term Fixed Target by 0.03% for the quarter and outperformed the Short Term Fixed Target for the year by 0.21%.

## Quarterly Asset Growth

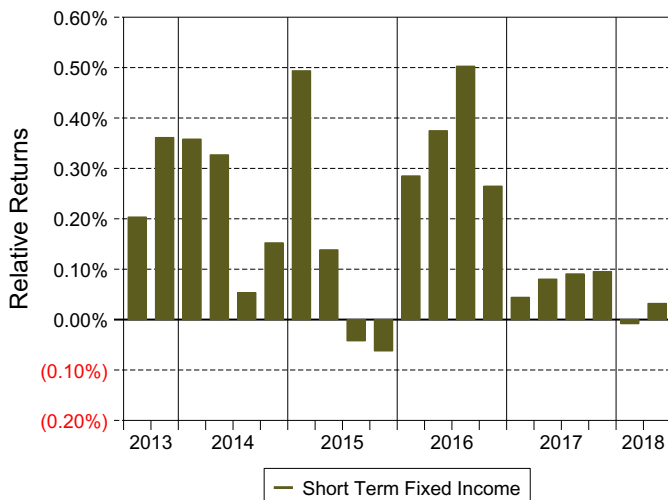
Beginning Market Value	\$70,467,645
Net New Investment	\$68,045,831
Investment Gains/(Losses)	\$464,755
Ending Market Value	\$138,978,231

## Performance vs Callan Defensive Fixed Income (Gross)

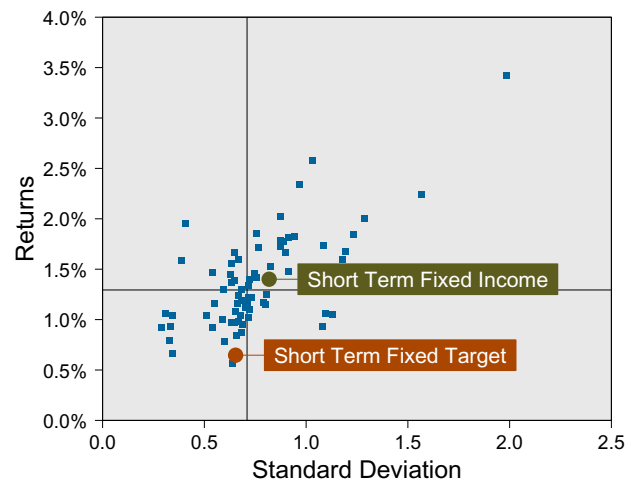


10th Percentile	0.60	1.47	1.60	1.80	1.87	2.69
25th Percentile	0.46	1.02	1.18	1.52	1.63	2.30
Median	0.41	0.73	0.75	1.18	1.29	1.80
75th Percentile	0.32	0.44	0.53	1.00	1.05	1.40
90th Percentile	0.20	0.22	0.26	0.78	0.93	0.94
<b>Short Term Fixed Income</b>	● 0.31	0.42	0.68	1.07	1.40	2.10
Short Term Fixed Target	▲ 0.28	0.21	0.12	0.52	0.65	0.48

## 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 June 30, 2018

## 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.

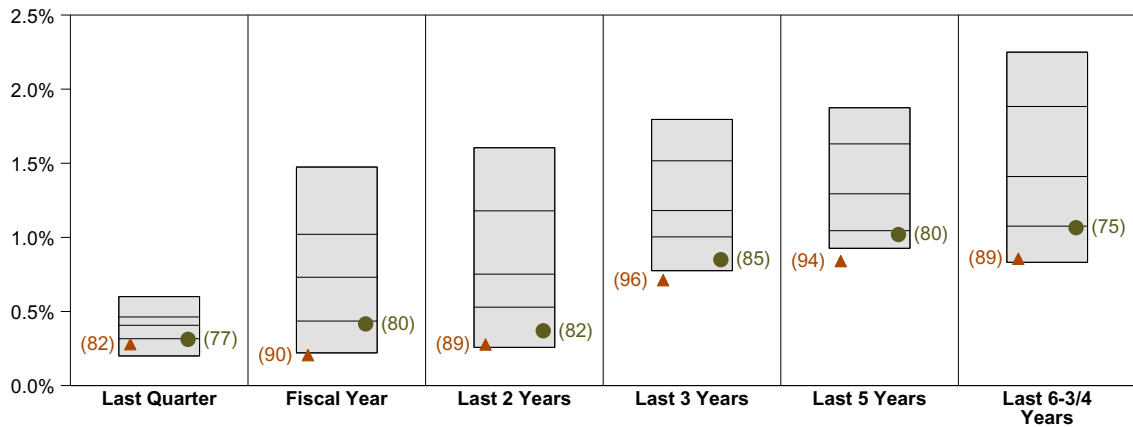
## Quarterly Summary and Highlights

- JP Morgan Short Term Bonds's portfolio posted a 0.31% return for the quarter placing it in the 77 percentile of the Callan Defensive Fixed Income group for the quarter and in the 80 percentile for the last year.
- JP Morgan Short Term Bonds's portfolio outperformed the Blmbg Gov/Cred 1-3 Yr by 0.03% for the quarter and outperformed the Blmbg Gov/Cred 1-3 Yr for the year by 0.21%.

## Quarterly Asset Growth

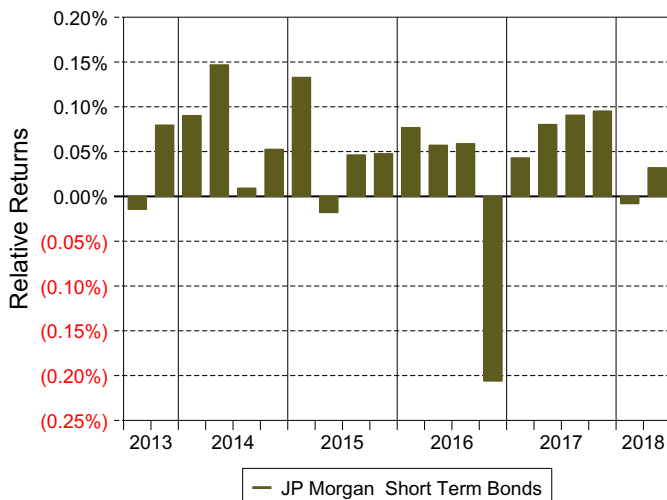
Beginning Market Value	\$70,467,645
Net New Investment	\$68,045,831
Investment Gains/(Losses)	\$464,755
Ending Market Value	\$138,978,231

## Performance vs Callan Defensive Fixed Income (Gross)

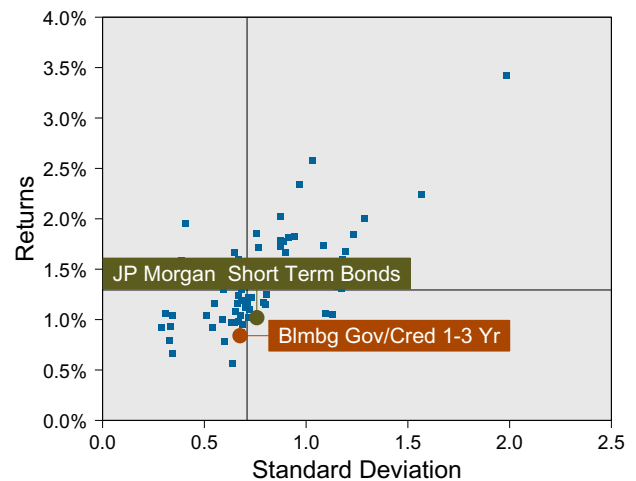


10th Percentile	0.60	1.47	1.60	1.80	1.87	2.25	
25th Percentile	0.46	1.02	1.18	1.52	1.63	1.88	
Median	0.41	0.73	0.75	1.18	1.29	1.41	
75th Percentile	0.32	0.44	0.53	1.00	1.05	1.08	
90th Percentile	0.20	0.22	0.26	0.78	0.93	0.83	
<b>JP Morgan Short Term Bonds</b>	●	0.31	0.42	0.37	0.85	1.02	1.07
<b>Blmbg Gov/Cred 1-3 Yr</b>	▲	0.28	0.21	0.28	0.71	0.84	0.86

## 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 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 Corry Walsh at 312.346.3536 / [institute@callan.com](mailto:institute@callan.com).

## New Research from Callan’s Experts



**Handle With Extreme Care: Callan’s Take on Cryptocurrencies** | In this paper, author Mark Wood provides a brief overview of cryptocurrencies and addresses primary considerations for potential investors.

He describes why Callan does not currently recommend our clients allocate to cryptocurrency investment strategies, and where we see the greatest future potential in this space.

**Risk Parity: Silver Bullet or a Bridge Too Far?** | In this chapter from the CFA Institute’s book “Multi-Asset Strategies: The Future of Investment Management,” Callan’s Greg Allen describes risk parity strategies, a category of investment strategies in which capital is allocated across asset classes so that each contributes an equal amount of volatility to the portfolio’s total volatility.

**China A-Shares: Key Issues for Investors to Consider** | China is opening up its securities markets to more non-Chinese institutional investors. In particular, expanded access to China A-shares creates new opportunities for investors. But investing in China presents a set of risks that range from the country’s slowing GDP growth to stock trading suspensions. Although China A-shares present an attractive opportunity, implementation is challenged by a shallow manager universe and high fees.

**June 2018 Regional Workshop Summary: Governance Alpha** | Investment committees face complex challenges overseeing institutional investment funds. They must navigate myriad laws and regulations, select the right managers and strategies, monitor their portfolios, and ensure their funds can deliver the returns needed for their beneficiaries. Governance describes the policies and practices established to guide these decisions. What if implementing the

astute governance required to meet these challenges also resulted in better portfolio performance? At this workshop, Callan experts described the most effective institutional fund governance practices and explored new research that connects strong plan governance with performance (i.e., governance alpha), and reviewed how investment managers fit into this framework.

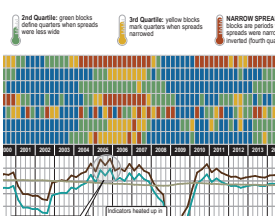
## Quarterly Periodicals

**Private Markets Trends** | This newsletter offers the latest data on activity in private equity fundraising, buyouts, venture capital, and returns for this asset class.

**Market Pulse Flipbook** | 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** | This quarterly publication provides analysis and a broad overview of the economy and public and private market activity each quarter across a wide range of asset classes.

**Active vs. Passive Report** | This series of charts maps active managers alongside relevant benchmarks over the last two decades.



**Real Estate Indicators: Too Hot to Touch or Cool Enough to Handle?** | Callan’s Real Assets Consulting group identifies seven indicators—based on spreads in real estate and fixed income markets—that, combined with

an understanding of prevailing market dynamics, have helped signal when the institutional real estate market is overheated or cooled.

## 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 **October Regional Workshops** will be held on October 16 in New York and October 18 in Atlanta. Please visit the Events page on our website ([www.callan.com/events/](http://www.callan.com/events/)) for additional information.

Callan's **2019 National Conference** will be held January 28-30, 2019. Mark your calendars for this upcoming event!

**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

*Chicago, October 2-3, 2018*

*Atlanta, October 23-24, 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



**"Research is the foundation of all we do at Callan, and sharing our best thinking with the investment community is our way of helping to foster dialog to raise the bar across the industry."**

Greg Allen, CEO and CRO

## 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 a complimentary basis (e.g. attending and 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
Acadian Asset Management LLC
AEGON USA Investment Management
Affiliated Managers Group, Inc.
Alcentra
AllianceBernstein
Allianz Global Investors
Allianz Life Insurance Company of North America
American Century Investments
Apollo Global Management
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Atlanta Capital Management Co., LLC
Aviva Investors Americas
AXA Investment Managers
Baillie Gifford International, LLC
Baird Advisors
Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
BlackRock
BMO Global Asset Management
BNP Paribas Asset Management
BNY Mellon Asset Management
Boston Partners
Brandes Investment Partners, L.P.
Brandywine Global Investment Management, LLC
BrightSphere Investment Group (FKA Old Mutual Asset)
Brown Brothers Harriman & Company
Cambiar Investors, LLC
Capital Group
Carillon Tower Advisers
CastleArk Management, LLC
Causeway Capital Management
Chartwell Investment Partners

Manager Name
ClearBridge Investments, LLC
Cohen & Steers Capital Management, Inc.
Columbia Threadneedle Investments
Columbus Circle Investors
Credit Suisse Asset Management
DePrince, Race & Zollo, Inc.
Deutsche Asset Management
Diamond Hill Capital Management, Inc.
Dimensional Fund Advisors LP
Doubleline
Duff & Phelps Investment Management Co.
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
Fred Alger Management, Inc.
GAM (USA) Inc.
Global Evolution USA
GlobeFlex Capital, L.P.
GMO
Goldman Sachs Asset Management
Green Square Capital LLC
Guggenheim Investments
GW&K Investment Management
Harbor Capital Group Trust
Hartford Funds
Hartford Investment Management Co.

Manager Name
Heitman LLC
Henderson Global Investors
Hotchkis & Wiley Capital Management, LLC
HSBC Global Asset Management
Income Research + Management, Inc.
Insight Investment Management Limited
Intech Investment Management, LLC
Invesco
Investec Asset Management
Ivy Investments
J.P. Morgan
Janus Henderson Investors
Jennison Associates LLC
Jensen Investment Management
Jobs Peak Advisors
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 (MIM)
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.
Natixis Investment Managers
Neuberger Berman
Newton Investment Management
Nikko Asset Management Co., Ltd.
Northern Trust Asset Management
Nuveen Investments, Inc.
OFI Global Asset Management
O'Shaughnessy Asset Management, LLC
P/E Investments
Pacific Investment Management Company
Pathway Capital Management
Peregrine Capital Management, Inc.
Perkins Investment Management

Manager Name
PGIM
PGIM Fixed Income
PineBridge Investments
Pioneer Investments
PNC Capital Advisors, LLC
Principal Global Investors
Private Advisors, LLC
Putnam Investments, LLC
QMA
RBC Global Asset Management
Regions Financial Corporation
Robeco Institutional Asset Management, US Inc.
Rockefeller & Co., Inc.
Rothschild Asset Management, Inc.
Russell Investments
Santander Global Facilities
Schroder Investment Management North America Inc.
Smith Graham & Co. Investment Advisors, L.P.
Smith Group Asset Management
South Texas Money Management, Ltd.
Standard Life Investments Limited
State Street Global Advisors
Stone Harbor Investment Partners, L.P.
Sun Life Investment Management
T. Rowe Price Associates, Inc.
The Boston Company Asset Management, LLC
The London Company
The TCW Group, Inc.
Thompson, Siegel & Walmsley LLC
Thornburg Investment Management, Inc.
Tri-Star Trust Bank
UBS Asset Management
VanEck
Velanne Asset Management Ltd.
Versus Capital Group
Victory Capital Management Inc.
Virtus Investment Partners, Inc.
Vontobel Asset Management, Inc.
Voya
WCM Investment Management
WEDGE Capital Management
Wellington Management Company, LLP
Wells Capital Management
Western Asset Management Company
Westfield Capital Management Company, LP
Westwood Holdings Group
William Blair & Company



August 24, 2018

**North Dakota  
State Investment Board**

Performance Evaluation

as of June 30, 2018

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**Paul Erlendson**

Senior Vice President

**Alex Browning**

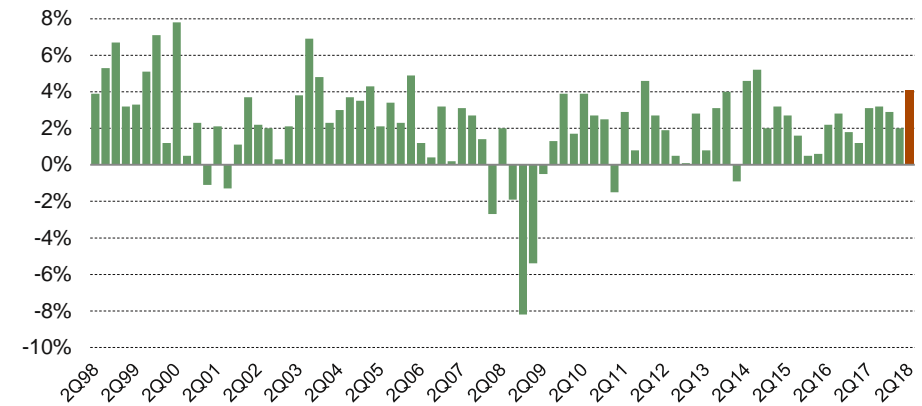
Senior Vice President

# U.S. Economy

## The Big Picture

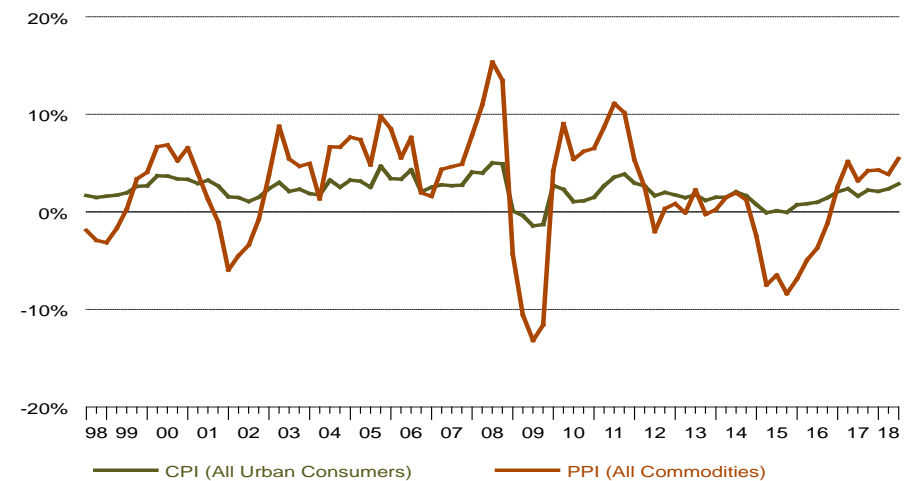
- The initial estimate of annualized second quarter GDP was 4.1%; below consensus, but dramatically exceeding first quarter GDP (2.0%).
- June headline CPI rose 2.9% over the trailing twelve months. Core CPI increased 2.3%.
- The unemployment rate dropped slightly (down 0.1%) from March levels to 4.0% in June.
- The Fed increased the target overnight rate by another 25 basis points in its June meeting, bringing the target range to 1.75% to 2.00%. The core PCE deflator finally reached the Fed's target of 2% in June.

Quarterly Real GDP Growth (20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year

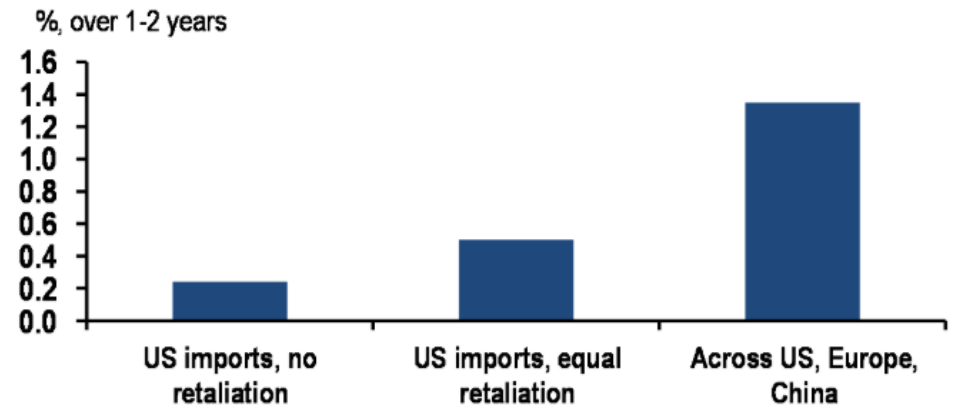


Source: Bureau of Labor Statistics

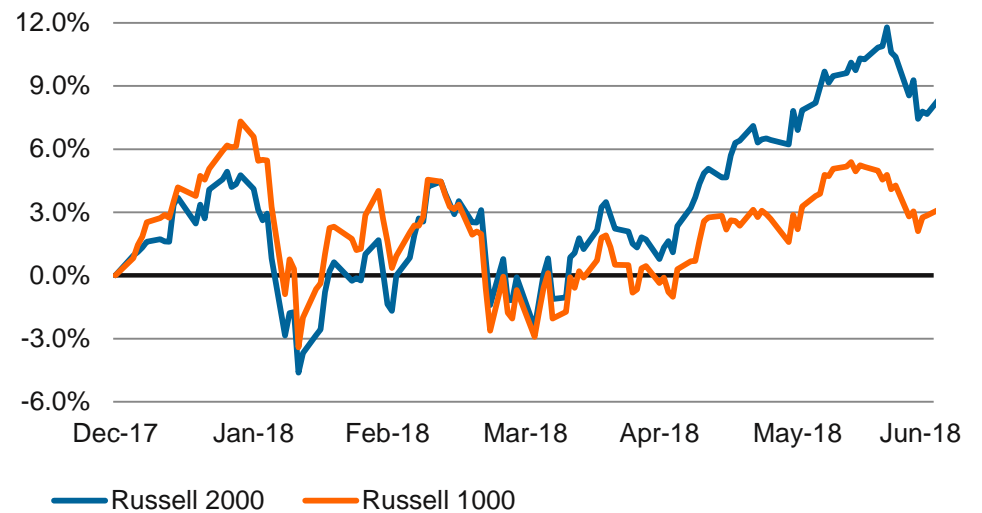
# Trade War Impact

- Announced tariffs aren't expected to have a meaningful impact on growth; however, the magnitude ultimately depends on the degree to which other countries retaliate.
- An OECD study that looks at the far larger shock of a 10% across-the-board increase in tariffs by the U.S., euro zone, and China finds that global GDP would fall by 1.4%.
- The more impactful result may be an increase in uncertainty, which tends to precede weaker economic activity.
- Small caps are relatively immune from recent trade talk volatility.
  - Outperformance of small cap stocks in the U.S. year-to-date driven by rising dollar concerns and the higher percent of revenues generated at home (80% vs. 62% for the SP500).

**Global GDP impact of additional 10% tariff**



Source: IMF, OECD, J.P. Morgan



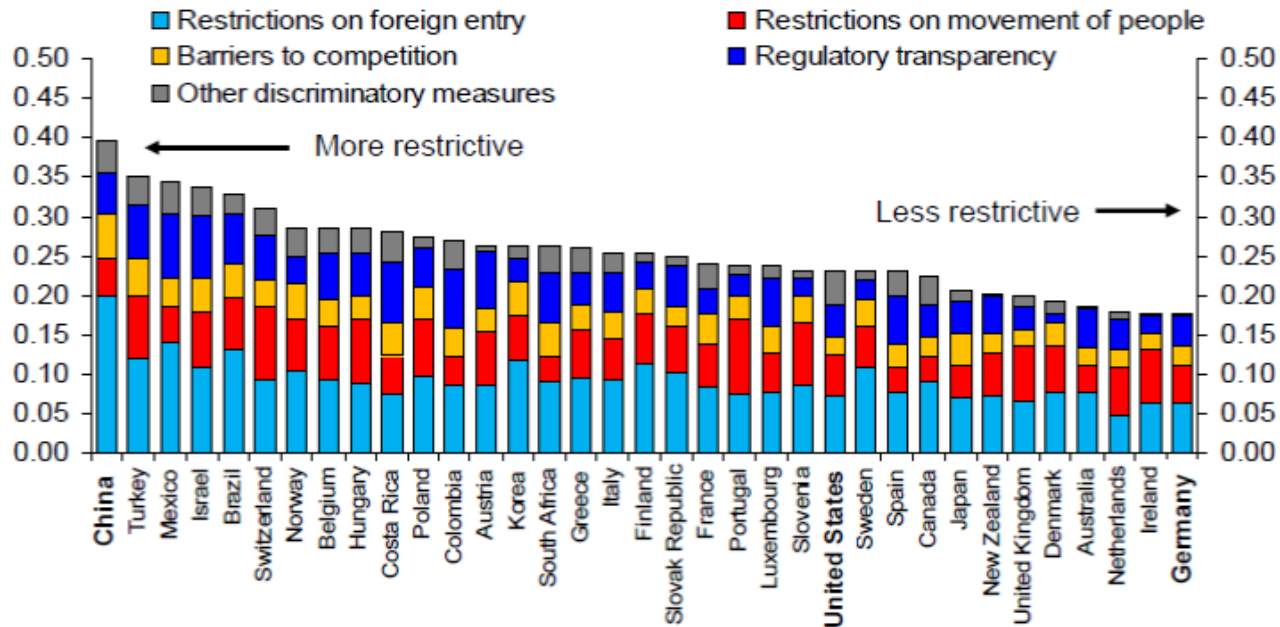
# Chinese Non-Tariff Barriers

Many Levers to Pull

China has many more non-tariff barriers to trade than the United States and Germany



Services Trade Restrictiveness Index, 2017

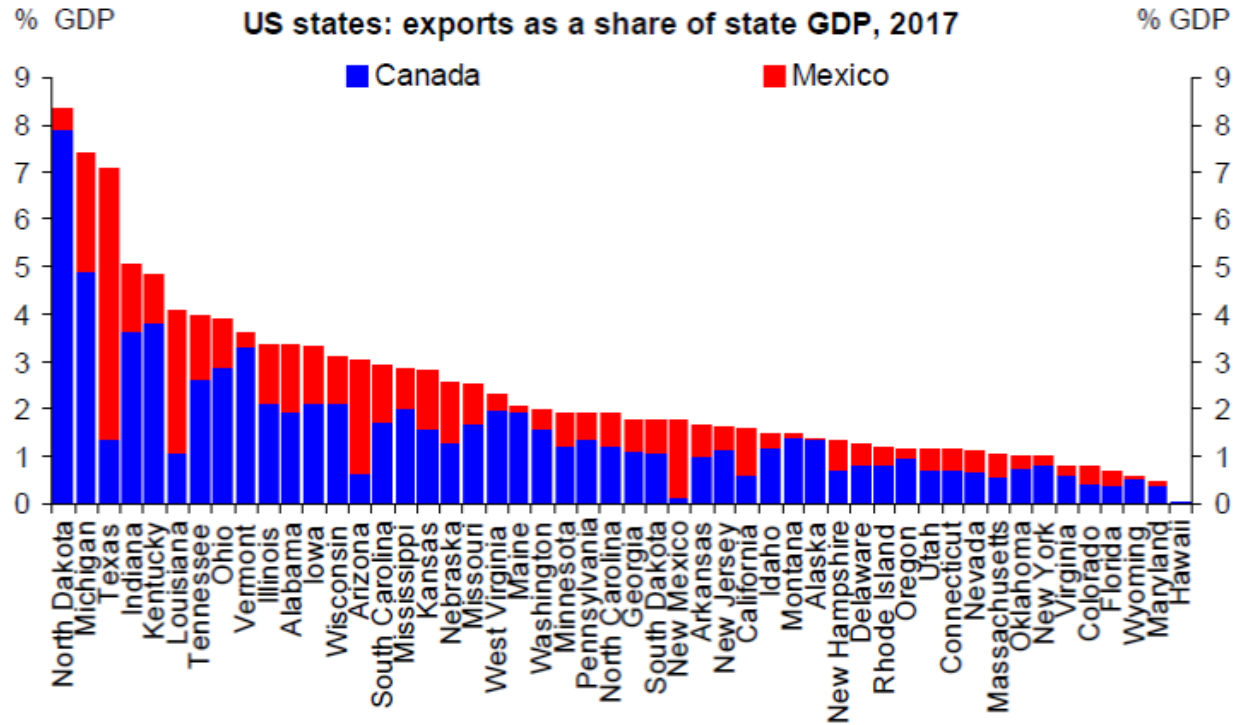




# NAFTA

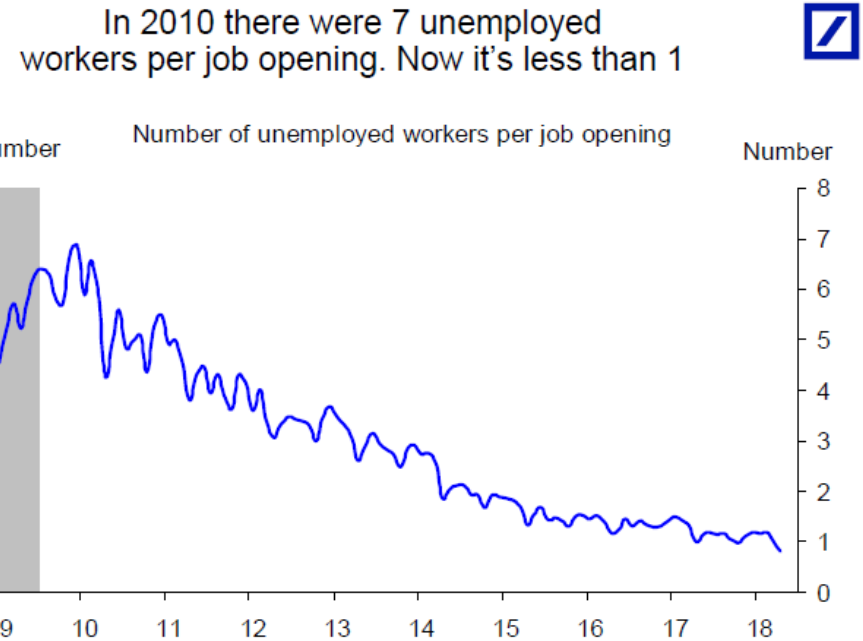
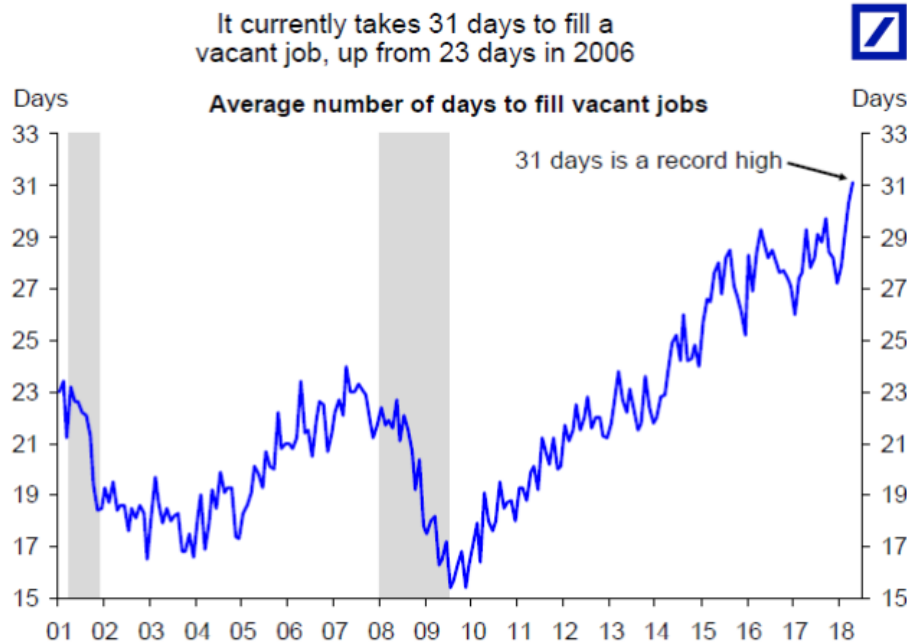
## Trading Importance by State

In many states exports to Canada and Mexico are a significant share of state GDP



# Labor Market Dynamics


## Upward Pressure on Wages?



# Asset Class Performance

## Periodic Table of Investment Returns for Periods Ended June 30, 2018

Best



Worst

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 20 Years
	Russell:2000 Index 7.8%	Russell:2000 Index 17.6%	S&P:500 11.9%	S&P:500 13.4%	Russell:2000 Index 10.6%	MSCI:EM Gross 8.9%
	S&P:500 3.4%	S&P:500 14.4%	Russell:2000 Index 11.0%	Russell:2000 Index 12.5%	S&P:500 10.2%	Russell:2000 Index 8.0%
	3 Month T-Bill 0.5%	MSCI:EM Gross 8.6%	MSCI:EM Gross 6.0%	MSCI:EAFE 6.4%	Blmbg:Aggregate 3.7%	S&P:500 6.5%
	Blmbg:Commodity Price Idx (0.1%)	MSCI:EAFE 6.8%	MSCI:EAFE 4.9%	MSCI:EM Gross 5.4%	MSCI:EAFE 2.8%	Blmbg:Aggregate 4.7%
	Blmbg:Aggregate (0.2%)	Blmbg:Commodity Price Idx 5.8%	Blmbg:Aggregate 1.7%	Blmbg:Aggregate 2.3%	MSCI:EM Gross 2.6%	MSCI:EAFE 4.3%
	MSCI:EAFE (1.2%)	3 Month T-Bill 1.4%	3 Month T-Bill 0.7%	3 Month T-Bill 0.4%	3 Month T-Bill 0.4%	3 Month T-Bill 2.0%
	MSCI:EM Gross (7.9%)	Blmbg:Aggregate (0.4%)	Blmbg:Commodity Price Idx (5.2%)	Blmbg:Commodity Price Idx (6.8%)	Blmbg:Commodity Price Idx (9.3%)	Blmbg:Commodity Price Idx (0.5%)

# Concentration of Index Returns

As of June 30, 2018

- Amazon is responsible for 36% of the S&P 500's return year-to-date through the second quarter.
- The top 10 contributors to the S&P 500 comprise 16% of the index, but are responsible for 123% of the return.

Top 10 contributors to S&P 500 YTD return

Ticker	Company	Index weight	% of SPX Return
AMZN	Amazon.com Inc.	2.1 %	36 %
MSFT	Microsoft Corp.	2.9	18
AAPL	Apple Inc.	3.8	15
NFLX	Netflix Inc.	0.4	15
FB	Facebook Inc.	1.9	8
GOOGL	Alphabet Inc.	2.8	7
MA	Mastercard Inc.	0.6	7
V	Visa Inc.	0.9	6
ADBE	Adobe Systems Inc.	0.4	5
NVDA	NVIDIA Corp.	0.5	5
<b>Top 10 contributors</b>		<b>16 %</b>	<b>123 %</b>
<b>S&amp;P 500</b>		<b>100</b>	<b>100</b>

Source: FactSet, Goldman Sachs Global Investment Research

# U.S. Equity Market

## Periods Ending June 30, 2018

- U.S. equities (S&P 500: +3.4%) rose on a strong earnings season and positive economic data.
  - Energy was the best-performing sector (+13.5%) as oil prices trended higher after U.S. withdrew from the Iran nuclear deal.
- Small cap (+7.8%) outperformed large cap (+3.6%) on trade war fears. Large cap companies derive big portion of revenues from foreign markets (S&P 500 aggregate is ~40%).
- With small cap being the exception, growth (+5.8%) continued to outperform Value (+1.2%) due to strong results in Tech (+7.1%) and Consumer Discretionary (+8.2%).
- Concentration of returns within broad indexes remains a concern. Excluding FAANG stock performance, S&P 500 performance was negative.

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
<b>Large Cap Equity</b>						
Russell 1000 Growth	5.76	22.51	14.98	16.36	11.83	10.30
Russell 1000 Value	1.18	6.77	8.26	10.34	8.49	8.63
<b>Mid Cap Equity</b>						
Russell Midcap Growth	3.16	18.52	10.73	13.37	10.45	11.07
Russell Midcap Value	2.41	7.60	8.80	11.27	10.06	11.04
<b>Small Cap Equity</b>						
Russell 2000 Growth	7.23	21.86	10.60	13.65	11.24	10.95
Russell 2000 Value	8.30	13.10	11.22	11.18	9.88	9.93

# Non-U.S. Equity Market

Periods Ending June 30, 2018

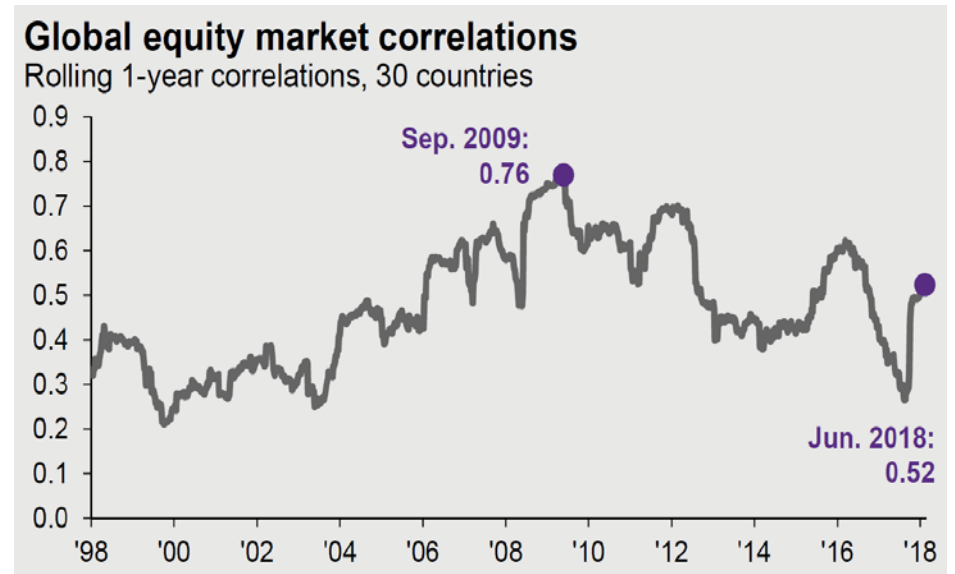
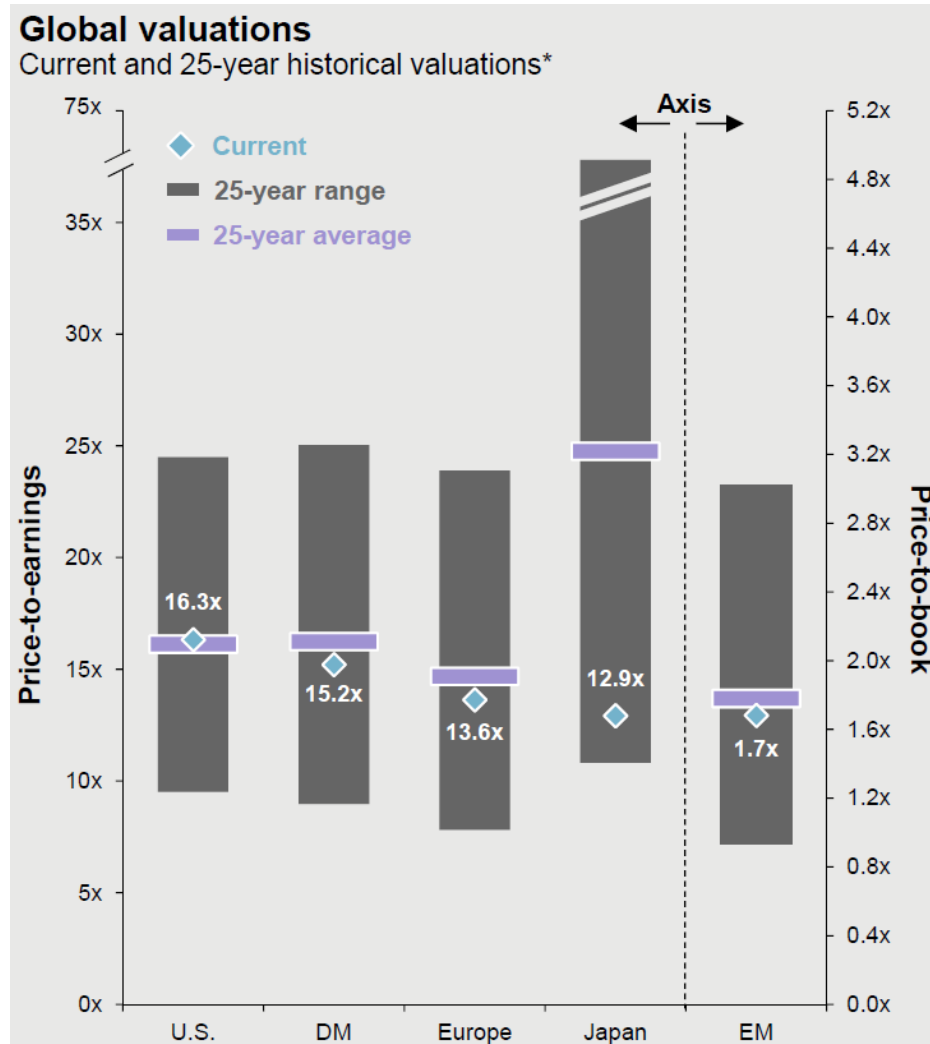
- Non-U.S. markets ended in the red as trade war talk moved into action. Although initial tariffs levied by the U.S. were targeted, retaliatory actions and supply chain disruptions broadened their effects.
  - Growth outpaced value – although no factor category showed significant strength.
  - Cyclical sectors were hurt later in the quarter as the prospect of slower growth led to reduced expectations.
  - The U.S. dollar was up, hurting non-U.S. returns. The euro and British pound were hit especially hard with the rise of populism and Brexit turmoil.
- Emerging markets sold off significantly led by China and Latin America.
  - Fears of increasing debt burdens and trade war effects impacted China.
  - Brazil affected by slower growth, and falling sentiment hit energy and financial hard.

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
<b>Non-U.S. Equity</b>						
MSCI ACWI ex USA	-2.61	7.28	5.07	5.99	2.54	7.74
MSCI ACWI ex USA Growth	-1.42	9.90	6.56	7.18	3.01	7.91
MSCI ACWI ex USA Value	-3.84	4.64	3.51	4.75	2.03	7.50
MSCI EAFE	-1.24	6.84	4.90	6.44	2.84	7.26
MSCI EAFE (local)	3.47	6.12	5.18	8.93	4.98	7.01
<b>Regional Equity</b>						
MSCI Europe	-1.27	5.28	4.22	6.21	2.36	7.07
MSCI Japan	-2.84	10.51	6.25	7.37	3.54	6.62
MSCI Pacific ex Japan	1.77	8.68	6.57	6.04	4.64	10.42
<b>Emerging/Frontier Markets</b>						
MSCI Emerging Markets	-7.96	8.20	5.60	5.01	2.26	10.70
MSCI Emerging Markets (loc)	-3.51	10.47	7.48	8.45	5.23	11.57
<b>Non-U.S. Small Cap Equity</b>						
MSCI EAFE Small Cap	-1.57	12.45	10.09	11.32	6.81	10.69
MSCI Em Mkts Small Cap	-8.60	5.64	2.55	4.32	4.44	11.30

Source: Callan, MSCI

# Global Equities

## Potential diversification benefit to a domestic equity portfolio

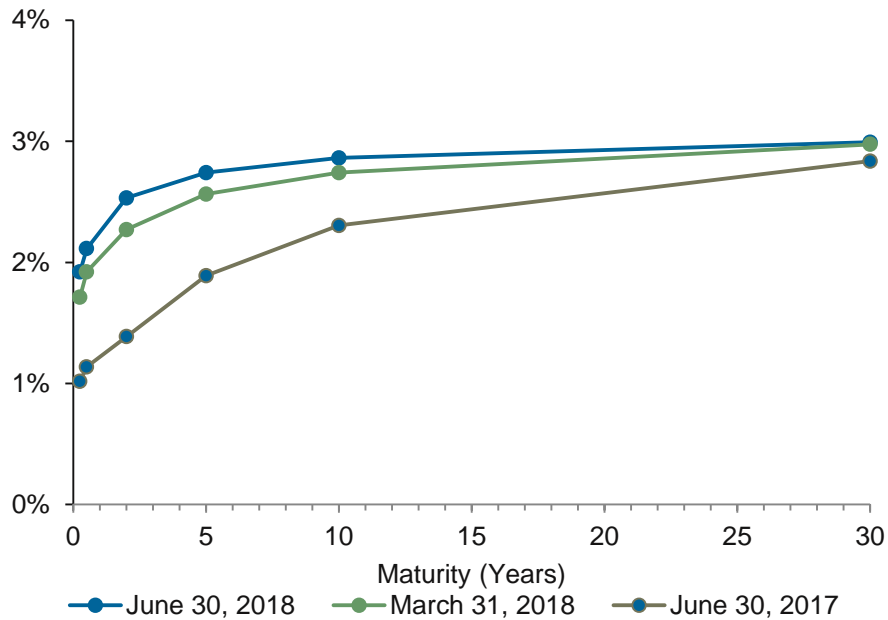


- International equities outperformed U.S. markets in 2017, but have lagged year to date.
- Correlations between global equity markets is currently 0.52 versus recent peak in 2009 of 0.76.

# Yield Curve Changes

Periods Ending June 30, 2018

## U.S. Treasury Yield Curves



Source: U.S. Department of the Treasury

Maturity	Yield (%)		
	June 30, 2018	March 31, 2018	June 30, 2017
3-Month	1.93	1.73	1.03
6-Month	2.11	1.93	1.14
2-Year	2.52	2.27	1.38
3-Year	2.63	2.39	1.55
5-Year	2.73	2.56	1.89
10-Year	2.85	2.74	2.31
30-Year	2.98	2.97	2.84

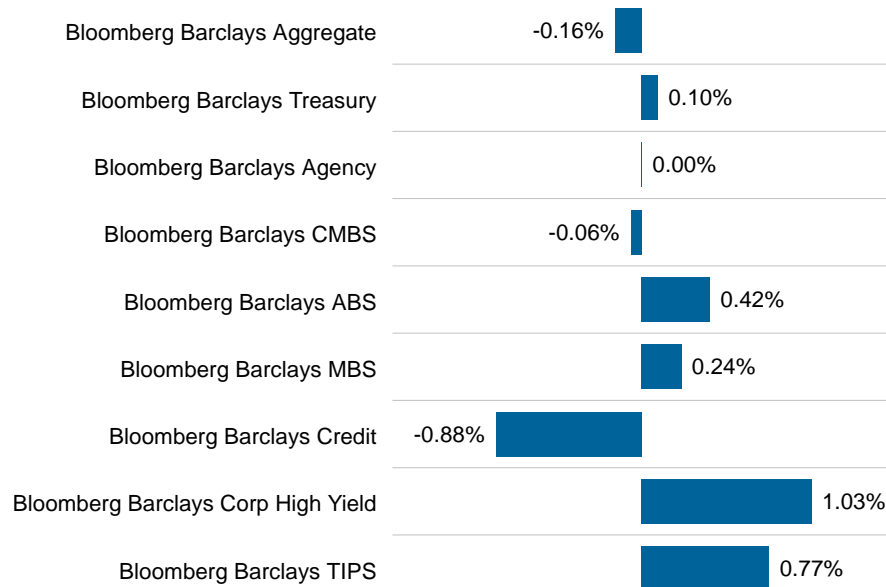
- The Treasury yield curve continued to flatten during the second quarter. The 2-year yield increased 25bps during the quarter while the 10-year only increased by 11bps and the 30-year by 1 bp.
- The spread between the 2- and 10-year yields is down from 47bps last quarter to 33bps at the end of June.



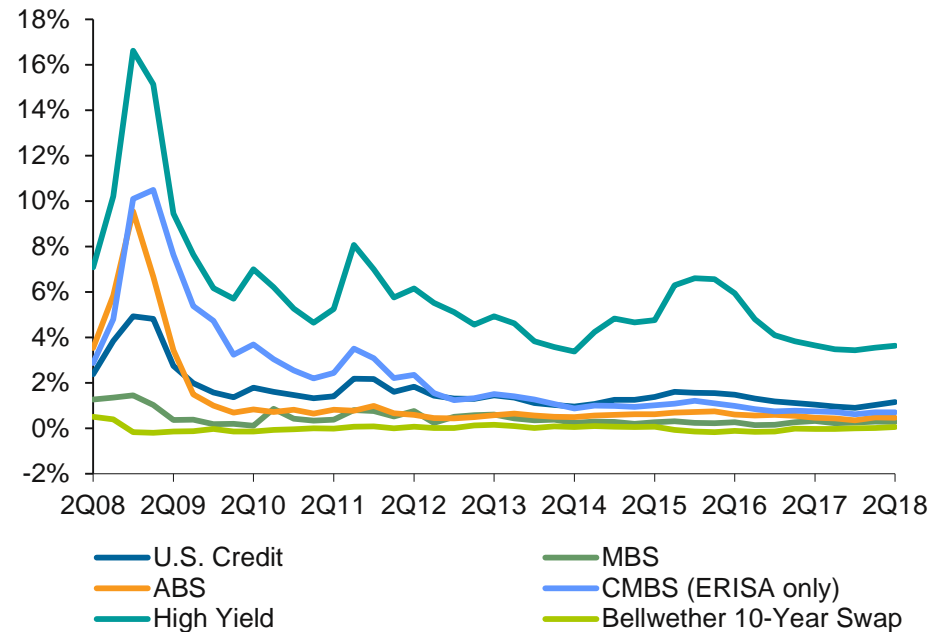
# Total Rates of Return by Bond Sector

Periods Ending June 30, 2018

## Total Returns



## Effective Yield Over Treasuries



- Investment grade credit was the worst performing sector during the quarter, with spreads widening to their highest levels since 2016.
- High yield credit performed relatively well, as interest payments were only modestly offset by spread widening. TIPS also generated positive returns; fueled by heightened inflation.



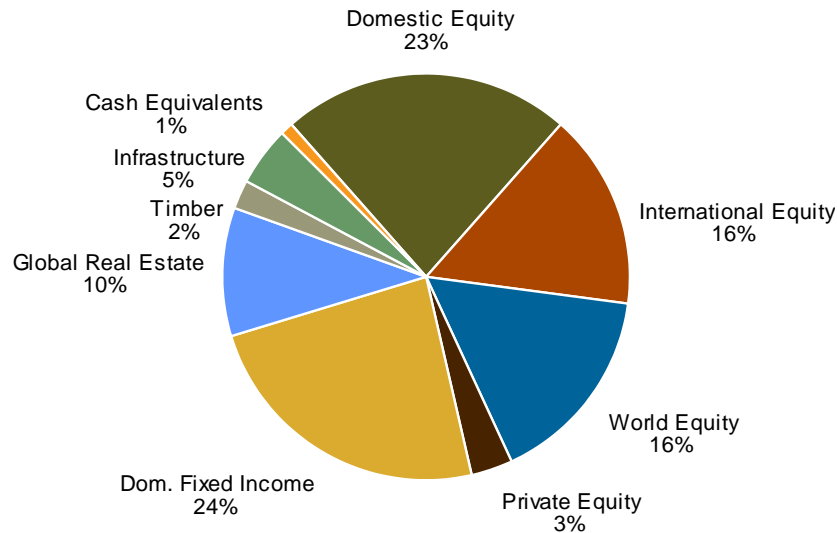
## **Consolidated Pension Trusts Quarterly Review**

- Public Employees Retirement System
- Teachers' Fund for Retirement

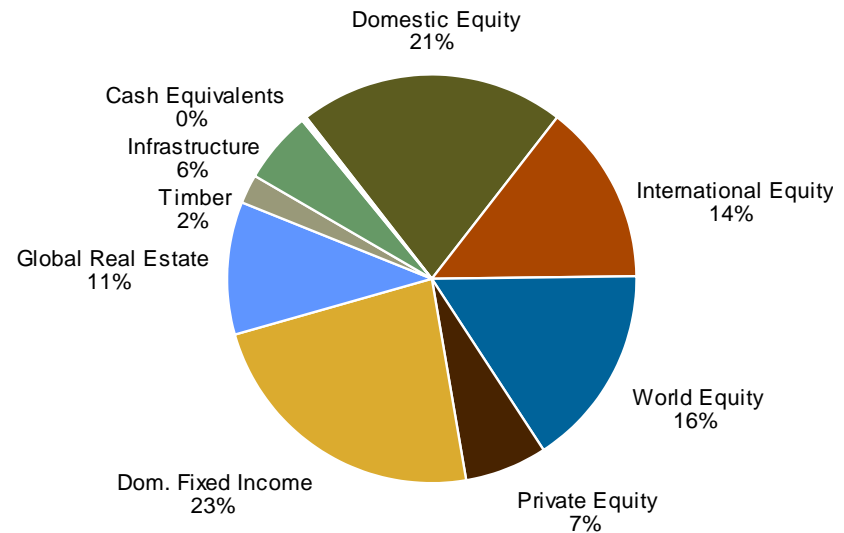
# Consolidated Pension Trust Allocation

As of June 30, 2018

Actual Asset Allocation



Target Asset Allocation

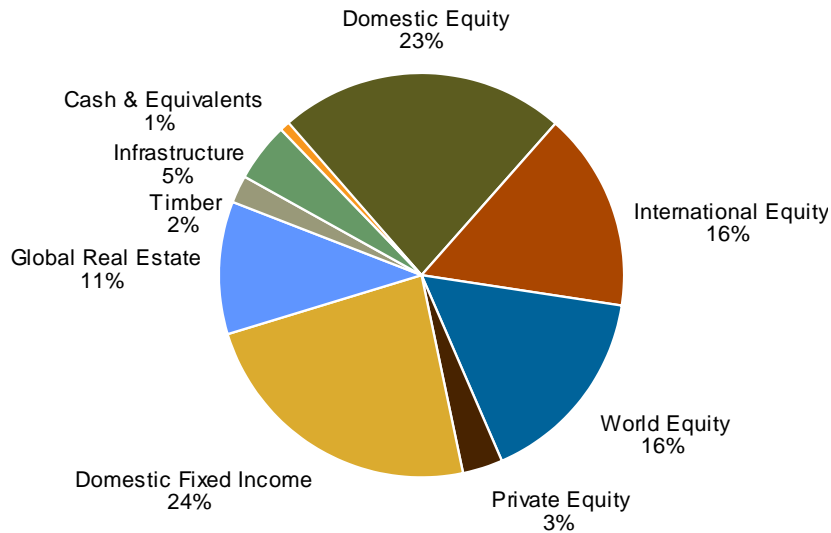


Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	1,313,463	23.0%	21.0%	2.0%	112,316
International Equity	890,174	15.6%	14.3%	1.3%	72,250
World Equity	917,222	16.0%	16.0%	0.0%	2,063
Private Equity	191,437	3.3%	6.5%	(3.2%)	(180,347)
Dom. Fixed Income	1,369,096	23.9%	23.3%	0.6%	36,394
Global Real Estate	585,428	10.2%	10.5%	(0.3%)	(15,145)
Timber	129,004	2.3%	2.3%	(0.0%)	(2,550)
Infrastructure	268,920	4.7%	5.7%	(1.0%)	(57,106)
Cash Equivalents	55,004	1.0%	0.4%	0.6%	32,125
<b>Total</b>	<b>5,719,748</b>	<b>100.0%</b>	<b>100.0%</b>		

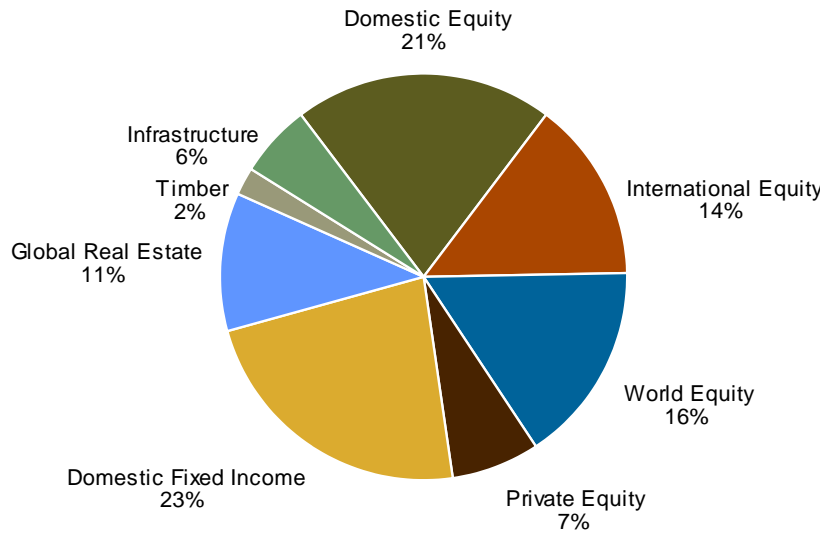
# PERS Allocation

As of June 30, 2018

**Actual Asset Allocation**



**Target Asset Allocation**

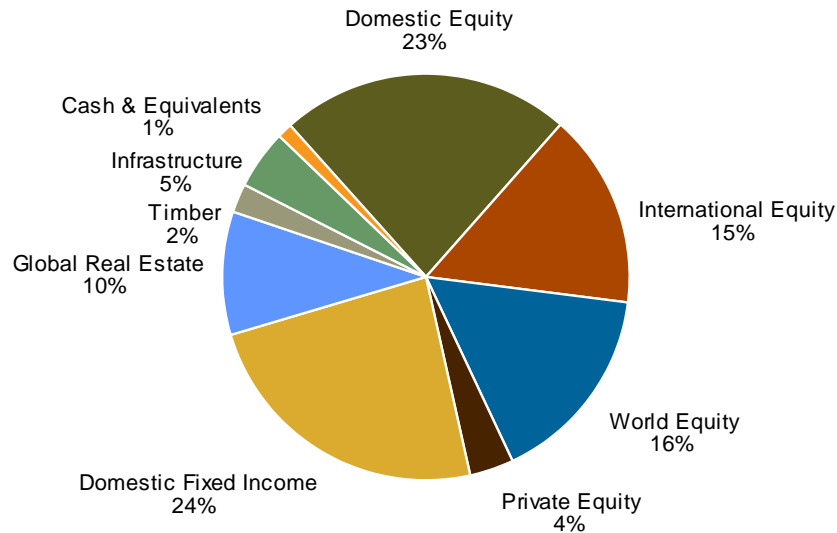


Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	695,451	23.0%	20.6%	2.4%	72,461
International Equity	482,185	15.9%	14.4%	1.5%	46,697
World Equity	486,630	16.1%	16.0%	0.1%	2,754
Private Equity	96,041	3.2%	7.0%	(3.8%)	(115,655)
Domestic Fixed Income	712,642	23.6%	23.0%	0.6%	17,071
Global Real Estate	320,064	10.6%	11.0%	(0.4%)	(12,601)
Timber	65,236	2.2%	2.2%	(0.0%)	(1,297)
Infrastructure	140,968	4.7%	5.8%	(1.1%)	(34,437)
Cash & Equivalents	25,005	0.8%	0.0%	0.8%	25,005
<b>Total</b>	<b>3,024,223</b>	<b>100.0%</b>	<b>100.0%</b>		

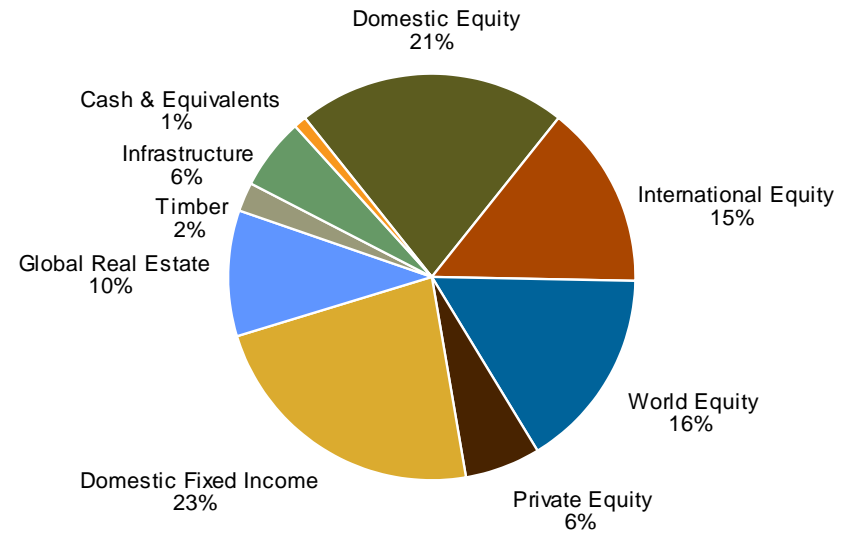
# TFFR Allocation

As of June 30, 2018

Actual Asset Allocation



Target Asset Allocation

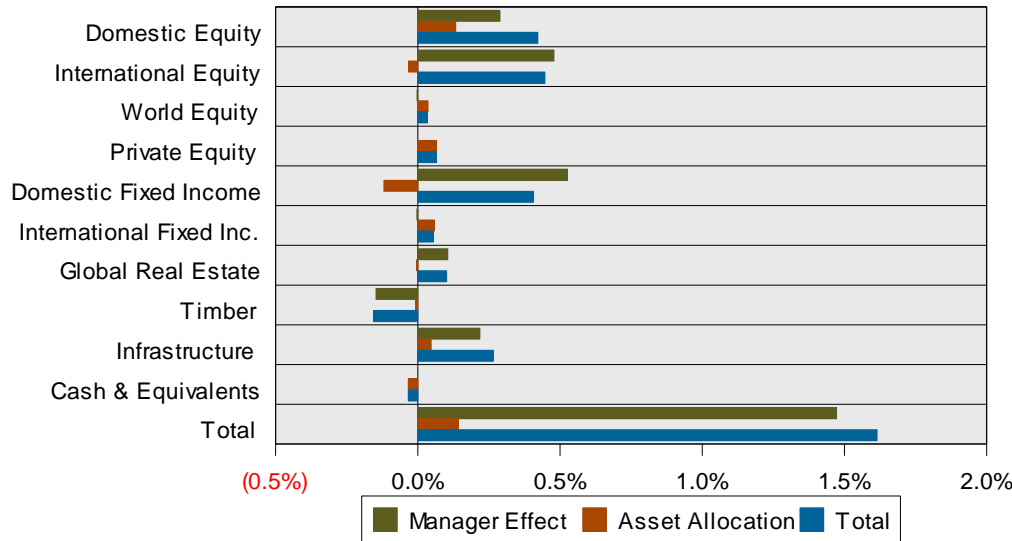


Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	573,580	23.1%	21.4%	1.7%	41,611
International Equity	384,397	15.5%	14.6%	0.9%	21,465
World Equity	397,489	16.0%	16.0%	(0.0%)	(245)
Private Equity	88,155	3.5%	6.0%	(2.5%)	(60,996)
Domestic Fixed Income	594,069	23.9%	23.0%	0.9%	22,327
Global Real Estate	244,345	9.8%	10.0%	(0.2%)	(4,239)
Timber	58,232	2.3%	2.3%	0.0%	1,058
Infrastructure	116,890	4.7%	5.7%	(1.0%)	(24,803)
Cash & Equivalents	28,679	1.2%	1.0%	0.2%	3,821
<b>Total</b>	<b>2,485,835</b>	<b>100.0%</b>	<b>100.0%</b>		

# PERS Performance and Attribution

As of June 30, 2018

## One Year Relative Attribution Effects



## Returns for 1 Year Ended 06/30/2018

Return Type	Return (%)
Gross	9.46%
Net of fees	9.19%
Target	7.85%
Net added	1.34%

## One Year Relative Attribution Effects

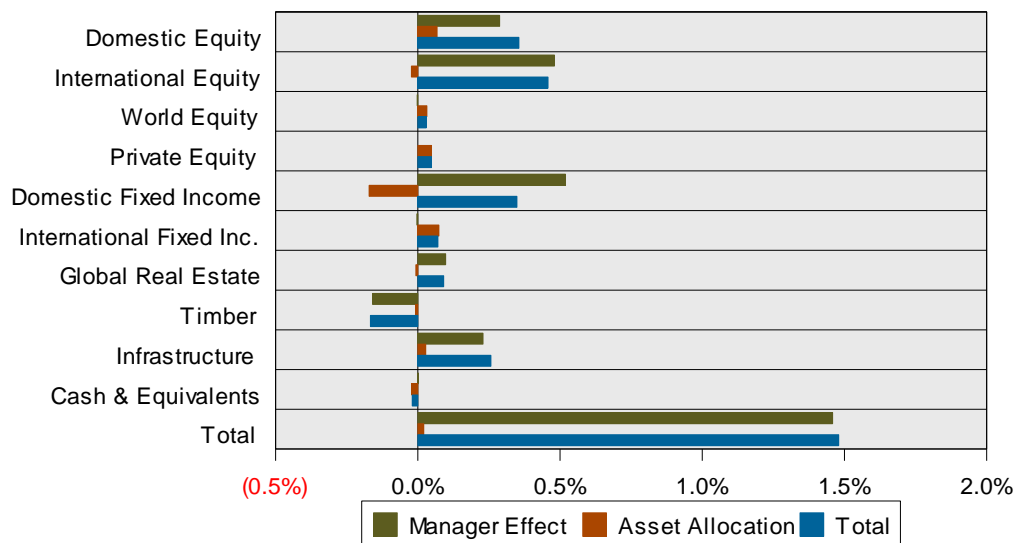
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	16.63%	15.29%	0.29%	0.13%	0.42%
International Equity	16%	14%	10.32%	7.38%	0.48%	(0.03%)	0.45%
World Equity	17%	16%	10.94%	11.09%	(0.00%)	0.04%	0.03%
Private Equity	3%	7%	5.27%	5.27%	0.00%	0.07%	0.07%
Domestic Fixed Income	20%	20%	2.91%	0.44%	0.53%	(0.12%)	0.41%
International Fixed Inc.	3%	3%	(16.88%)	(16.82%)	(0.00%)	0.06%	0.06%
Global Real Estate	11%	11%	8.22%	7.19%	0.11%	(0.00%)	0.10%
Timber	2%	2%	(2.52%)	3.57%	(0.15%)	(0.01%)	(0.15%)
Infrastructure	4%	6%	7.87%	3.09%	0.22%	0.05%	0.27%
Cash & Equivalents	1%	0%	1.47%	1.47%	0.00%	(0.03%)	(0.03%)

<b>Total</b>	<b>9.46% = 7.85% + 1.47% + 0.14%</b>	<b>1.62%</b>
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# TFFR Performance and Attribution

As of June 30, 2018

## One Year Relative Attribution Effects



## Returns for 1 Year Ended 06/30/2018

Return Type	Return (%)
Gross	9.37%
Net of fees	9.11%
Target	7.89%
Net added	1.22%

## One Year Relative Attribution Effects

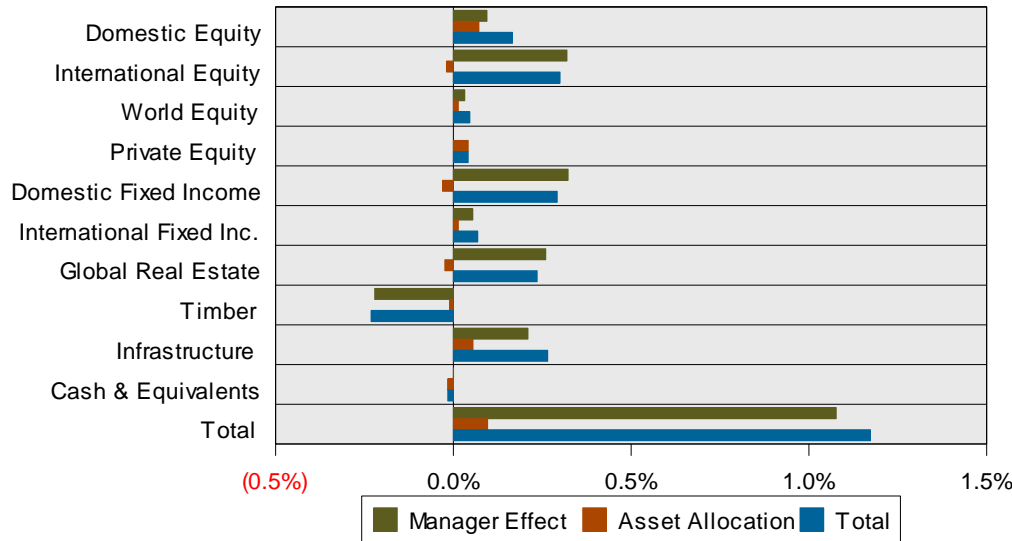
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	16.60%	15.27%	0.29%	0.07%	0.36%
International Equity	16%	15%	10.31%	7.32%	0.48%	(0.02%)	0.46%
World Equity	17%	16%	10.94%	11.09%	(0.00%)	0.03%	0.03%
Private Equity	3%	6%	5.27%	5.27%	0.00%	0.05%	0.05%
Domestic Fixed Income	20%	19%	2.80%	0.32%	0.52%	(0.17%)	0.35%
International Fixed Inc.	3%	3%	(16.88%)	(16.82%)	(0.00%)	0.07%	0.07%
Global Real Estate	10%	10%	8.22%	7.19%	0.10%	(0.01%)	0.09%
Timber	2%	2%	(2.52%)	3.57%	(0.16%)	(0.01%)	(0.17%)
Infrastructure	5%	6%	7.87%	3.09%	0.23%	0.03%	0.26%
Cash & Equivalents	1%	1%	1.47%	1.36%	0.00%	(0.02%)	(0.02%)

<b>Total</b>	<b>9.37% = 7.89% + 1.46% + 0.02%</b>	<b>1.48%</b>
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# PERS Performance and Attribution

As of June 30, 2018

## Five Year Annualized Relative Attribution Effects



## Returns for 5 Year Ended 06/30/2018

Return Type	Return (%)
Gross	8.64%
Net of fees	8.33%
Target	7.47%
Net added	0.86%

## 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%	13.68%	13.24%	0.09%	0.07%	0.17%
International Equity	15%	15%	8.18%	6.11%	0.32%	(0.02%)	0.30%
World Equity	16%	16%	10.11%	9.94%	0.03%	0.01%	0.05%
Private Equity	4%	6%	1.35%	1.35%	0.00%	0.04%	0.04%
Domestic Fixed Income	18%	18%	4.90%	3.21%	0.32%	(0.03%)	0.29%
International Fixed Inc.	5%	5%	(2.25%)	(3.30%)	0.05%	0.01%	0.07%
Global Real Estate	10%	10%	12.43%	9.77%	0.26%	(0.02%)	0.24%
Timber	3%	4%	(0.35%)	6.00%	(0.22%)	(0.01%)	(0.23%)
Infrastructure	4%	5%	6.34%	1.37%	0.21%	0.06%	0.27%
Cash & Equivalents	1%	1%	0.52%	0.49%	0.00%	(0.02%)	(0.02%)

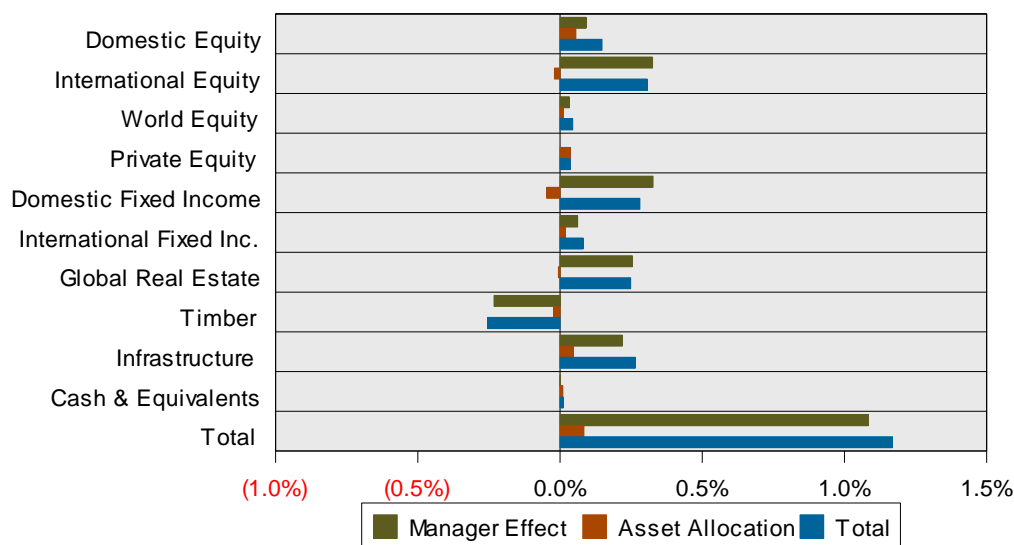
<b>Total</b>	<b>8.64% = 7.47% + 1.08% + 0.10%</b>	<b>1.17%</b>
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# TFFR Performance and Attribution

As of June 30, 2018

## Five Year Annualized Relative Attribution Effects



## Returns for 5 Year Ended 06/30/2018

Return Type	Return (%)
Gross	8.62%
Net of fees	8.31%
Target	7.45%
Net added	0.86%

## Five Year Annualized Relative Attribution Effects

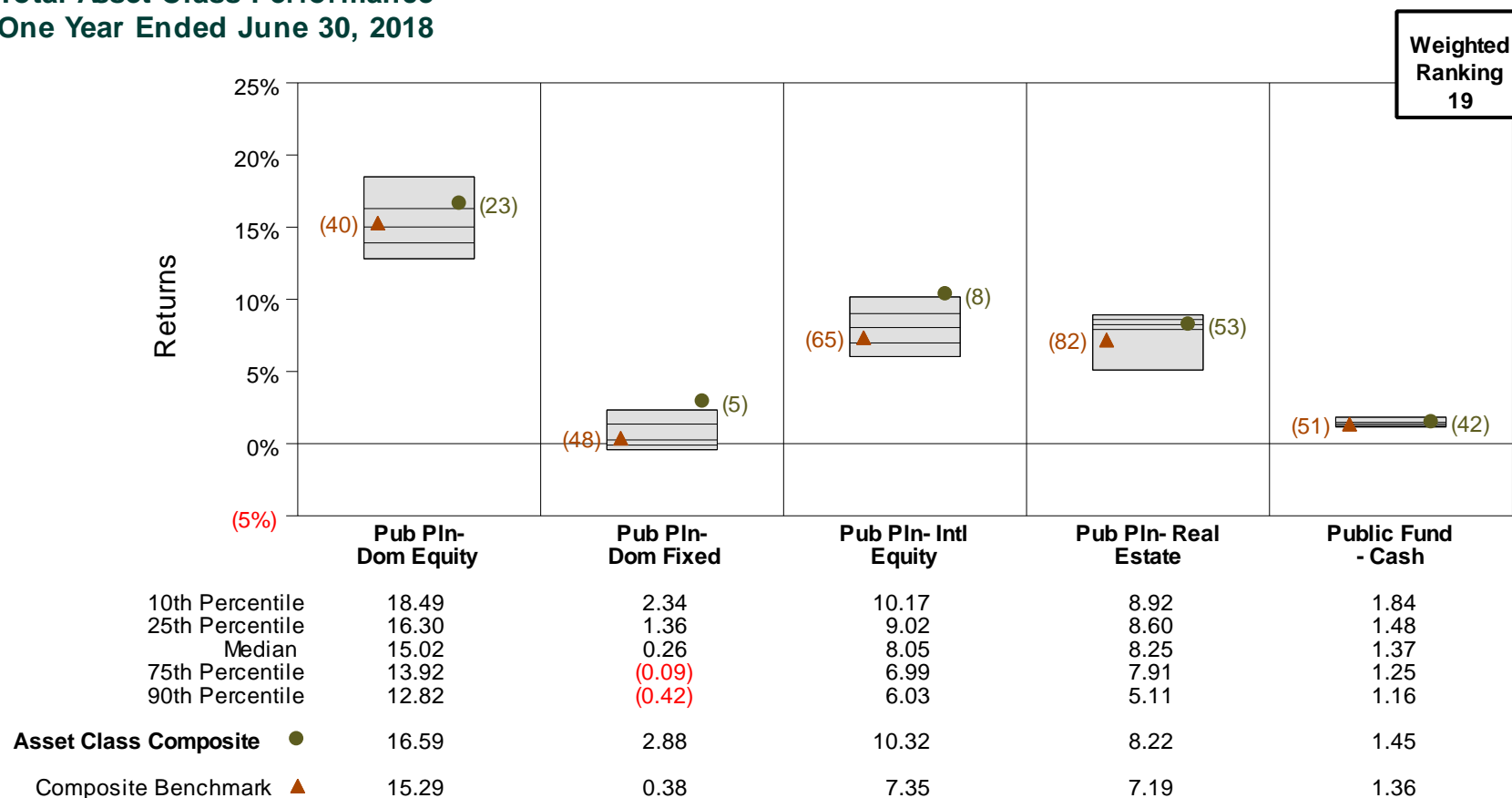
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	21%	13.68%	13.23%	0.09%	0.06%	0.15%
International Equity	15%	15%	8.26%	6.16%	0.33%	(0.02%)	0.31%
World Equity	16%	16%	10.11%	9.94%	0.03%	0.01%	0.04%
Private Equity	4%	5%	1.35%	1.35%	0.00%	0.04%	0.04%
Domestic Fixed Income	18%	18%	4.81%	3.07%	0.33%	(0.05%)	0.28%
International Fixed Inc.	5%	5%	(2.25%)	(3.30%)	0.06%	0.02%	0.08%
Global Real Estate	10%	10%	12.43%	9.77%	0.25%	(0.01%)	0.25%
Timber	4%	4%	(0.35%)	6.00%	(0.23%)	(0.02%)	(0.25%)
Infrastructure	4%	5%	6.34%	1.37%	0.22%	0.05%	0.26%
Cash & Equivalents	1%	1%	0.52%	0.42%	0.00%	0.01%	0.01%

<b>Total</b>	<b>8.62% = 7.45% + 1.08% + 0.08%</b>	<b>1.17%</b>
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# Asset Class Composite Results

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

Total Asset Class Performance  
One Year Ended June 30, 2018

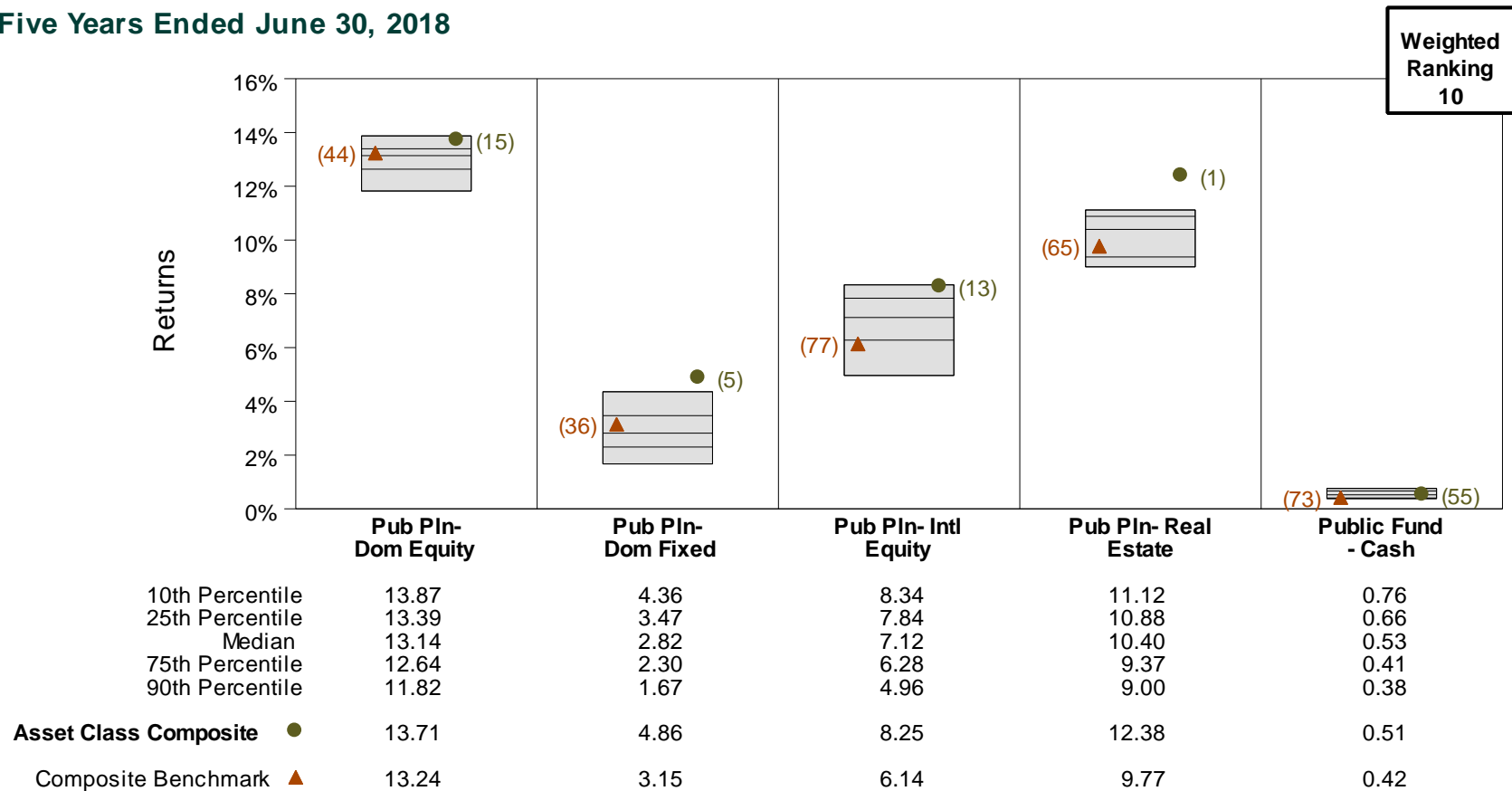


- All asset classes outperformed their respective benchmarks over the last year.
- Domestic equity, domestic fixed income, and international equity all placed in the top quartile over the last year.

# Asset Class Composite Results

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

**Total Asset Class Performance  
Five Years Ended June 30, 2018**



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



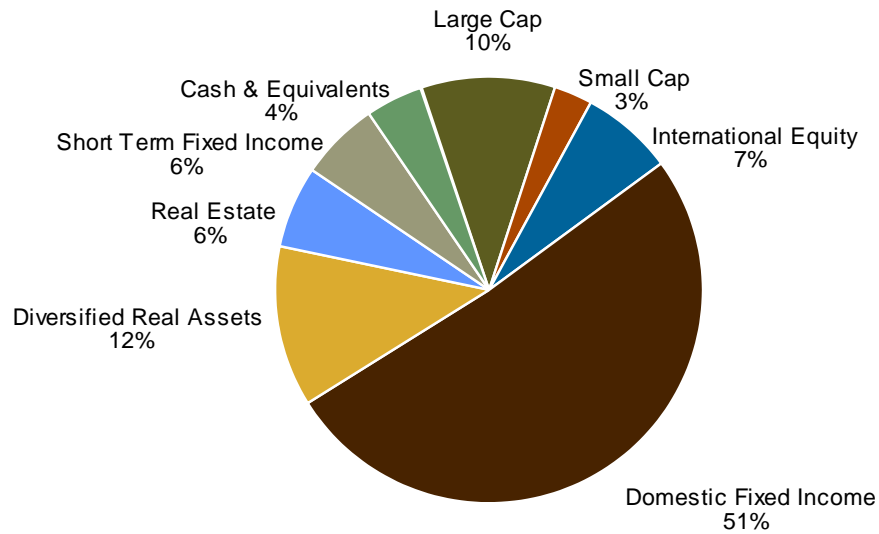
## **Consolidated Insurance Trust Quarterly Review**

- Workforce Safety & Insurance Legacy Fund
- Budget Stabilization Fund

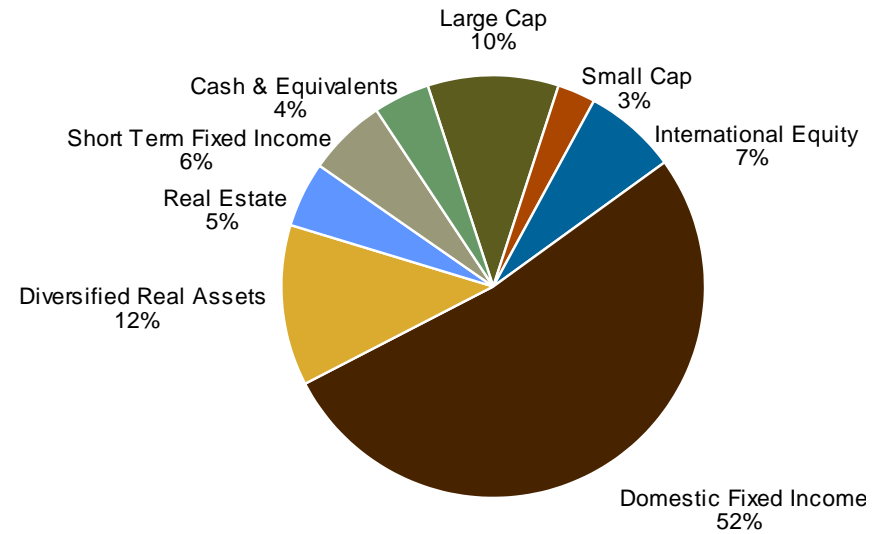
# Consolidated Insurance Trust Allocation

As of June 30, 2018

**Actual Asset Allocation**



**Target Asset Allocation**

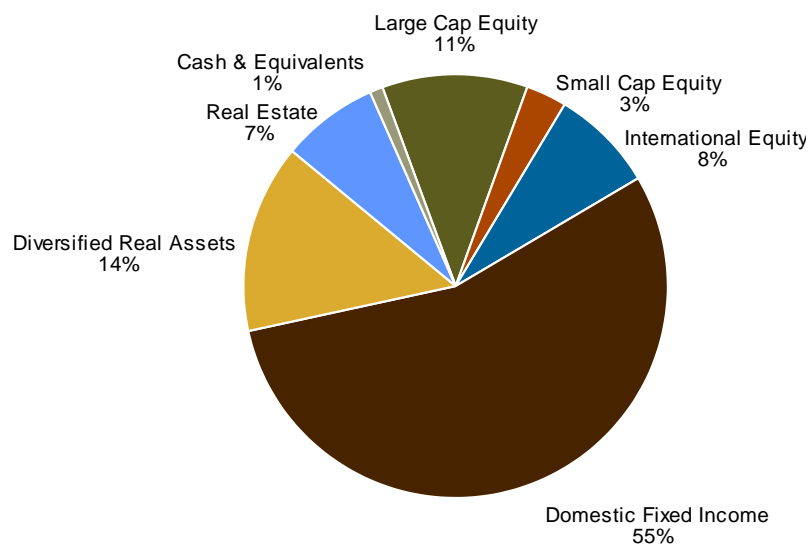


Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Large Cap	232,962	10.1%	10.0%	0.1%	2,153
Small Cap	67,961	2.9%	2.9%	0.0%	1,026
International Equity	161,726	7.0%	7.1%	(0.1%)	(2,148)
Domestic Fixed Income	1,181,219	51.2%	52.4%	(1.2%)	(28,222)
Diversified Real Assets	281,953	12.2%	12.3%	(0.1%)	(1,943)
Real Estate	142,934	6.2%	5.0%	1.2%	27,529
Short Term Fixed Income	138,978	6.0%	6.0%	0.0%	493
Cash & Equivalents	100,361	4.3%	4.3%	0.0%	1,113
<b>Total</b>	<b>2,308,094</b>	<b>100.0%</b>	<b>100.0%</b>		

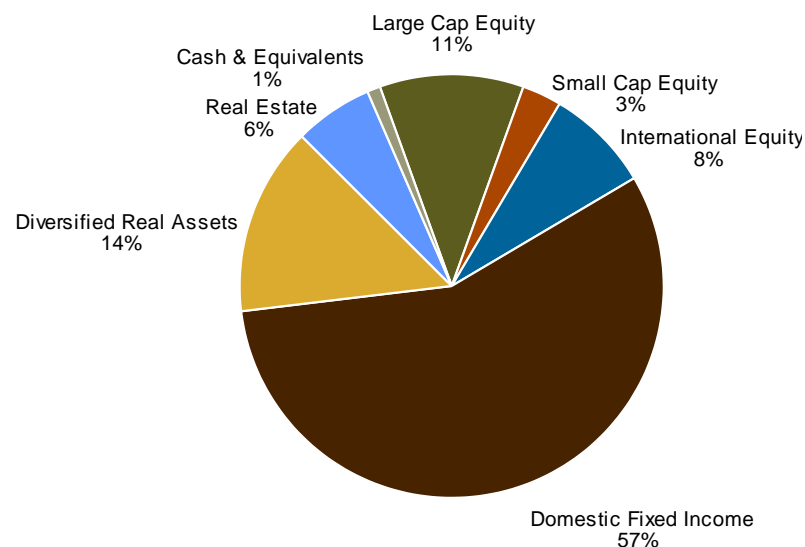
# WSI Allocation

As of June 30, 2018

Actual Asset Allocation



Target Asset Allocation

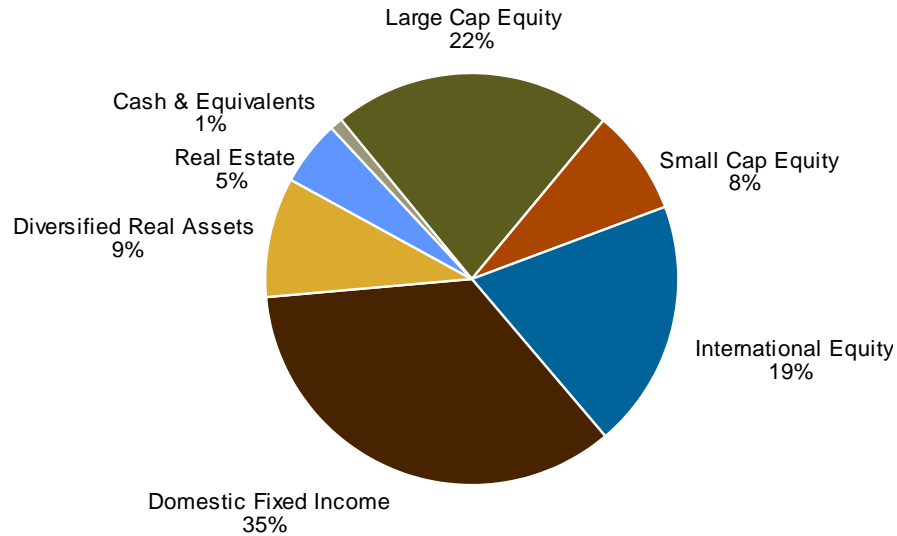


Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Large Cap Equity	222,135	11.5%	12.0%	(0.5%)	(8,901)
Small Cap Equity	74,395	3.9%	4.0%	(0.1%)	(2,617)
International Equity	166,883	8.7%	9.0%	(0.3%)	(6,394)
Domestic Fixed Income	1,015,558	52.7%	53.0%	(0.3%)	(4,850)
Diversified Real Assets	278,602	14.5%	15.0%	(0.5%)	(10,193)
Real Estate	138,935	7.2%	6.0%	1.2%	23,417
Cash & Equivalents	28,790	1.5%	1.0%	0.5%	9,537
Total	1,925,297	100.0%	100.0%		

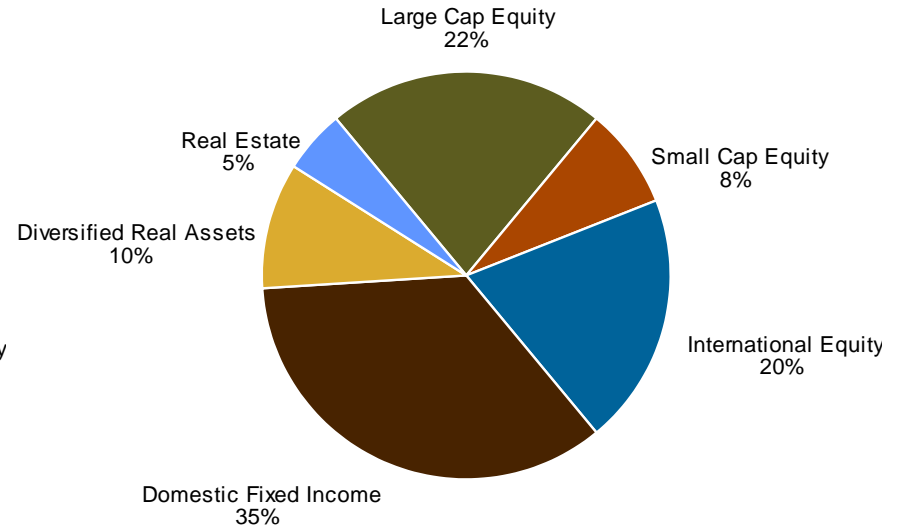
# Legacy Fund Allocation

As of June 30, 2018

**Actual Asset Allocation**



**Target Asset Allocation**

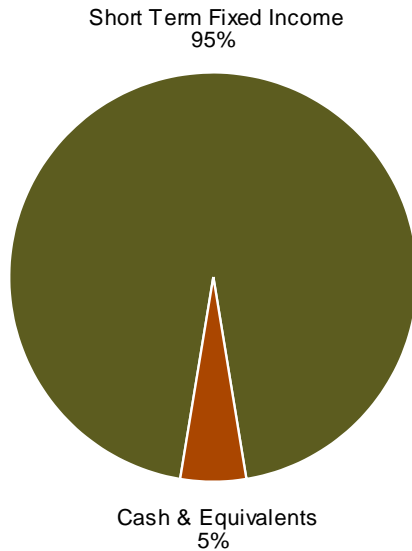


Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Large Cap Equity	1,224,497	22.0%	22.0%	(0.0%)	(2,514)
Small Cap Equity	460,559	8.3%	8.0%	0.3%	14,374
International Equity	1,086,275	19.5%	20.0%	(0.5%)	(29,189)
Domestic Fixed Income	1,941,289	34.8%	35.0%	(0.2%)	(10,773)
Diversified Real Assets	526,559	9.4%	10.0%	(0.6%)	(31,173)
Real Estate	283,299	5.1%	5.0%	0.1%	4,434
Cash & Equivalents	54,840	1.0%	0.0%	1.0%	54,840
<b>Total</b>	<b>5,577,319</b>	<b>100.0%</b>	<b>100.0%</b>		

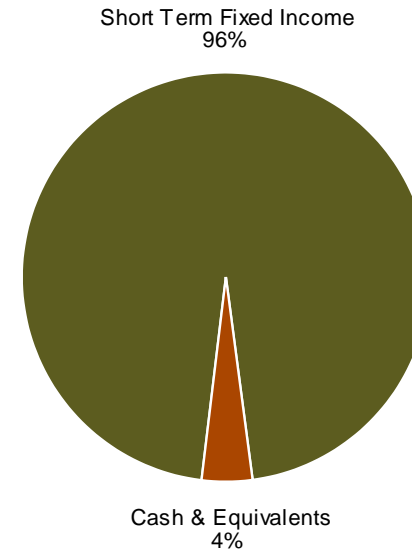
# Budget Stabilization Fund Allocation

As of June 30, 2018

**Actual Asset Allocation**



**Target Asset Allocation**



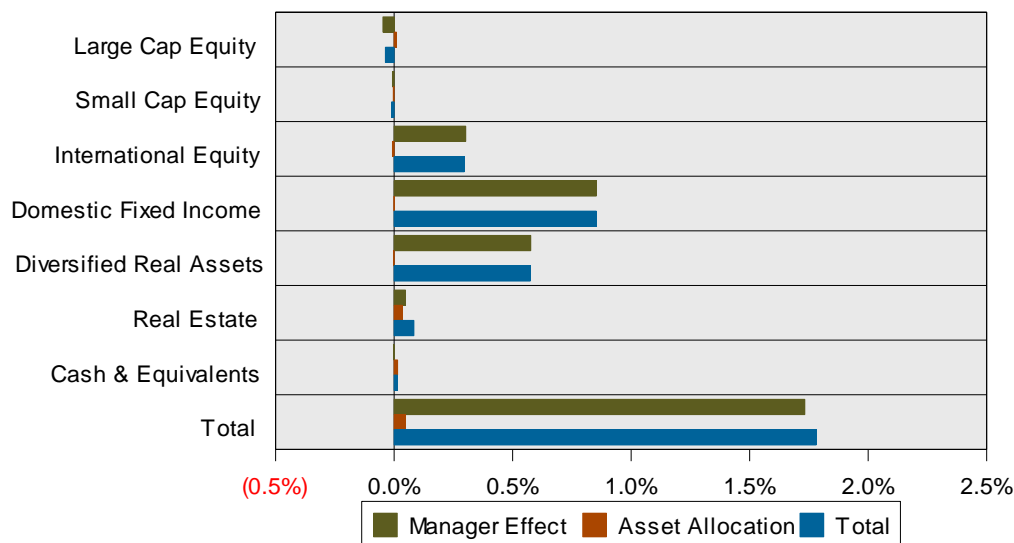
Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Short Term Fixed Income	107,645	94.8%	96.0%	(1.3%)	(1,460)
Cash & Equivalents	5,958	5.2%	4.0%	1.3%	1,460
Total	113,604	100.0%	100.0%		



# WSI Performance and Attribution

As of June 30, 2018

## One Year Relative Attribution Effects



## Returns for 1 Year Ended 06/30/2018

Return Type	Return (%)
Gross	5.55%
Net of fees	5.34%
Target	3.77%
Net added	1.57%

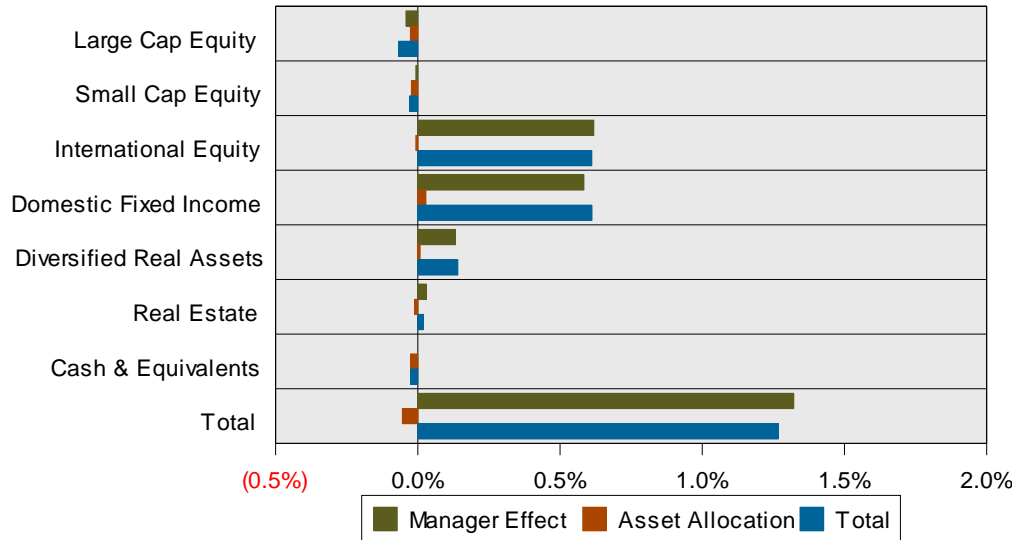
## One Year Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	12%	12%	14.07%	14.54%	(0.05%)	0.01%	(0.04%)
Small Cap Equity	4%	4%	17.37%	17.57%	(0.01%)	(0.00%)	(0.01%)
International Equity	9%	9%	10.31%	7.04%	0.30%	(0.01%)	0.30%
Domestic Fixed Income	53%	53%	1.17%	(0.40%)	0.85%	(0.00%)	0.85%
Diversified Real Assets	14%	15%	7.56%	3.42%	0.58%	(0.00%)	0.57%
Real Estate	7%	6%	7.87%	7.19%	0.05%	0.04%	0.08%
Cash & Equivalents	1%	1%	1.21%	1.36%	(0.00%)	0.01%	0.01%
<b>Total</b>			<b>5.55%</b>	<b>3.77%</b>	<b>+ 1.73%</b>	<b>+ 0.05%</b>	<b>1.78%</b>

# Legacy Fund Performance and Attribution

As of June 30, 2018

## One Year Relative Attribution Effects



## Returns for 1 Year Ended 06/30/2018

Return Type	Return (%)
Gross	7.78%
Net of fees	7.57%
Target	6.51%
Net added	1.06%

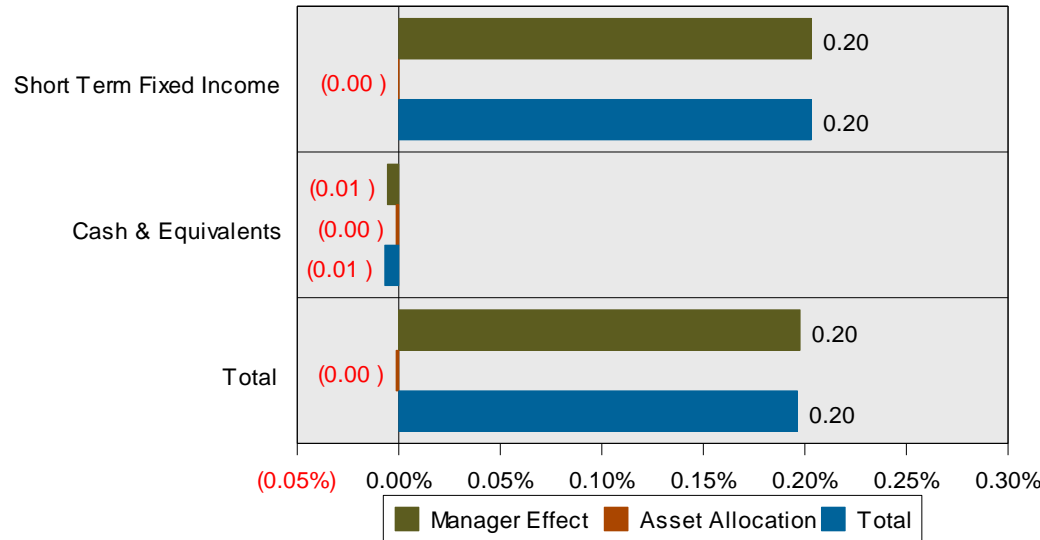
## One Year Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	22%	22%	14.33%	14.54%	(0.04%)	(0.03%)	(0.07%)
Small Cap Equity	8%	8%	17.42%	17.57%	(0.01%)	(0.02%)	(0.03%)
International Equity	20%	20%	10.11%	7.04%	0.62%	(0.01%)	0.61%
Domestic Fixed Income	34%	35%	1.23%	(0.40%)	0.58%	0.03%	0.61%
Diversified Real Assets	10%	10%	4.66%	3.31%	0.13%	0.01%	0.14%
Real Estate	5%	5%	7.87%	7.19%	0.03%	(0.01%)	0.02%
Cash & Equivalents	1%	0%	1.21%	1.21%	0.00%	(0.03%)	(0.03%)
<b>Total</b>			<b>7.78%</b>	<b>6.51%</b>	<b>+ 1.32%</b>	<b>+ (0.05%)</b>	<b>1.27%</b>

# Budget Stabilization Fund Performance and Attribution

As of June 30, 2018

## One Year Relative Attribution Effects



## Returns for 1 Year Ended 06/30/2018

Return Type	Return (%)
Gross	0.43%
Net of fees	0.32%
Target	0.24%
Net added	0.08%

## One Year Relative Attribution Effects

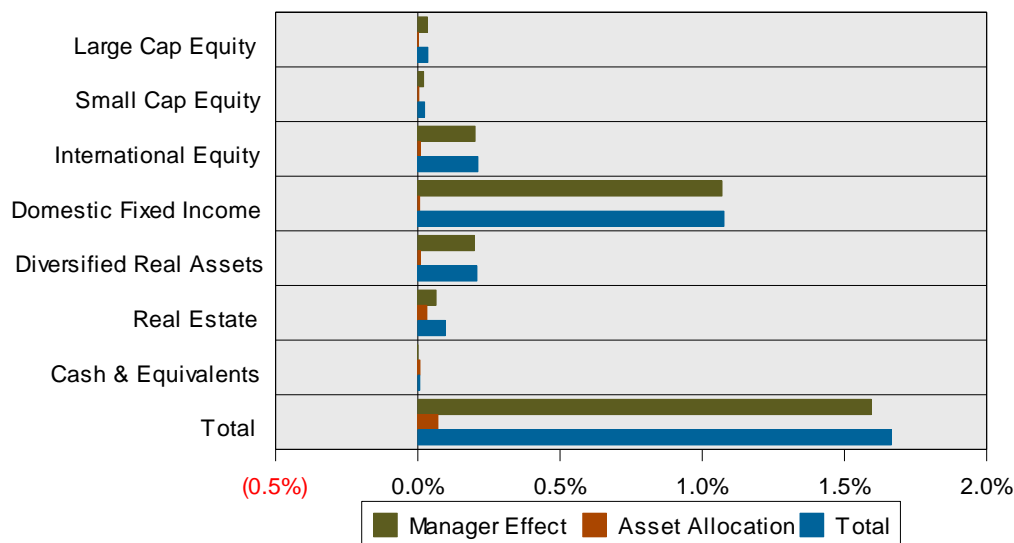
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Short Term Fixed Income	97%	97%	0.42%	0.21%	0.20%	(0.00%)	0.20%
Cash & Equivalents	3%	3%	1.20%	1.36%	(0.01%)	(0.00%)	(0.01%)

<b>Total</b>	<b>0.43% = 0.24% + 0.20% + (0.00%)</b>	<b>0.20%</b>
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# WSI Performance and Attribution

As of June 30, 2018

## Five Year Annualized Relative Attribution Effects



## Returns for 5 Year Ended 06/30/2018

Return Type	Return (%)
Gross	6.63%
Net of fees	6.39%
Target	4.97%
Net added	1.42%

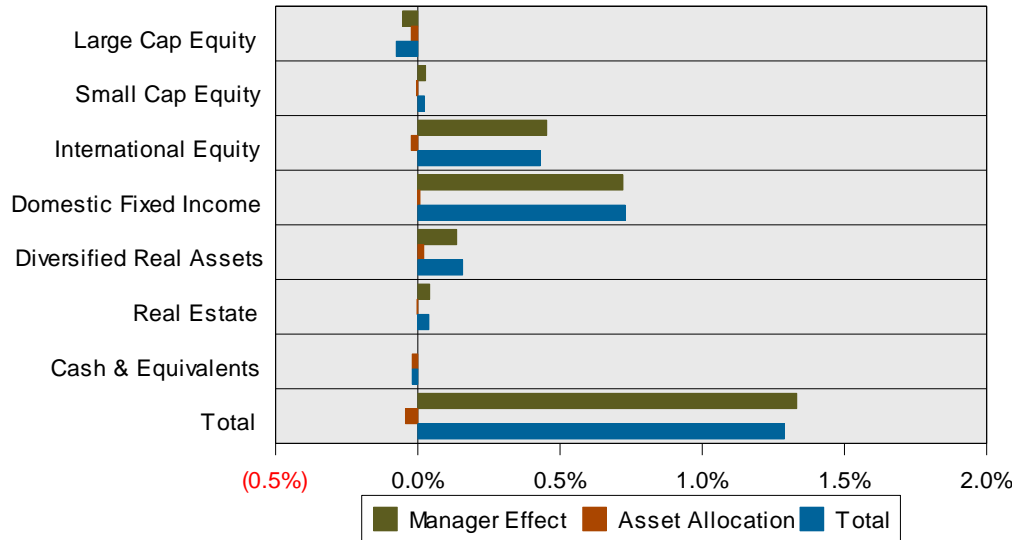
## Five Year Annualized Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	12%	12%	13.69%	13.37%	0.03%	0.00%	0.04%
Small Cap Equity	4%	4%	13.06%	12.46%	0.02%	0.00%	0.02%
International Equity	9%	9%	8.63%	6.34%	0.20%	0.01%	0.21%
Domestic Fixed Income	52%	53%	4.31%	2.27%	1.07%	0.01%	1.08%
Diversified Real Assets	16%	16%	4.99%	3.59%	0.20%	0.01%	0.21%
Real Estate	7%	6%	10.74%	9.77%	0.06%	0.03%	0.10%
Cash & Equivalents	1%	1%	0.36%	0.42%	(0.00%)	0.01%	0.01%
<b>Total</b>			<b>6.63%</b>	<b>4.97%</b>	<b>+ 1.59%</b>	<b>+ 0.07%</b>	<b>1.67%</b>

# Legacy Fund Performance and Attribution

As of June 30, 2018

## Three Year Annualized Relative Attribution Effects



## Returns for 3 Year Ended 06/30/2018

Return Type	Return (%)
Gross	7.04%
Net of fees	6.79%
Target	5.75%
Net added	1.04%

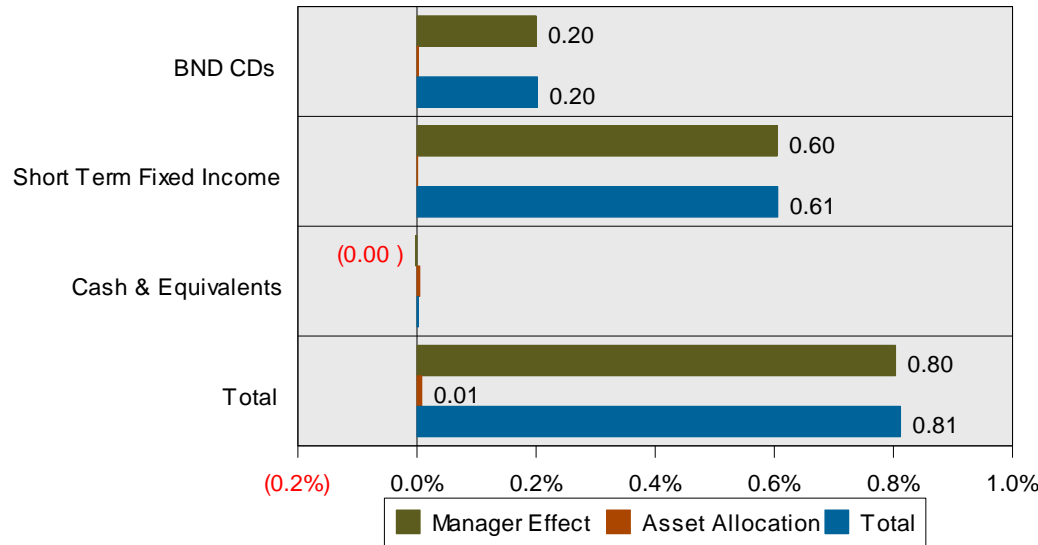
## Three Year Annualized Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Large Cap Equity	22%	22%	11.41%	11.64%	(0.05%)	(0.02%)	(0.08%)
Small Cap Equity	8%	8%	11.39%	10.96%	0.03%	(0.00%)	0.02%
International Equity	20%	20%	7.00%	4.74%	0.45%	(0.02%)	0.43%
Domestic Fixed Income	35%	35%	3.79%	1.72%	0.72%	0.01%	0.73%
Diversified Real Assets	10%	10%	3.50%	2.11%	0.14%	0.02%	0.16%
Real Estate	6%	5%	9.04%	8.25%	0.04%	(0.00%)	0.04%
Cash & Equivalents	0%	0%	0.59%	0.59%	0.00%	(0.02%)	(0.02%)
<b>Total</b>			<b>7.04%</b>	<b>5.75%</b>	<b>+ 1.33%</b>	<b>+ (0.04%)</b>	<b>1.29%</b>

# Budget Stabilization Fund Performance and Attribution

As of June 30, 2018

## Five Year Annualized Relative Attribution Effects



## Returns for 5 Year Ended 06/30/2018

Return Type	Return (%)
Gross	1.50%
Net of fees	1.35%
Target	0.69%
Net added	0.66%

## Five Year Annualized Relative Attribution Effects

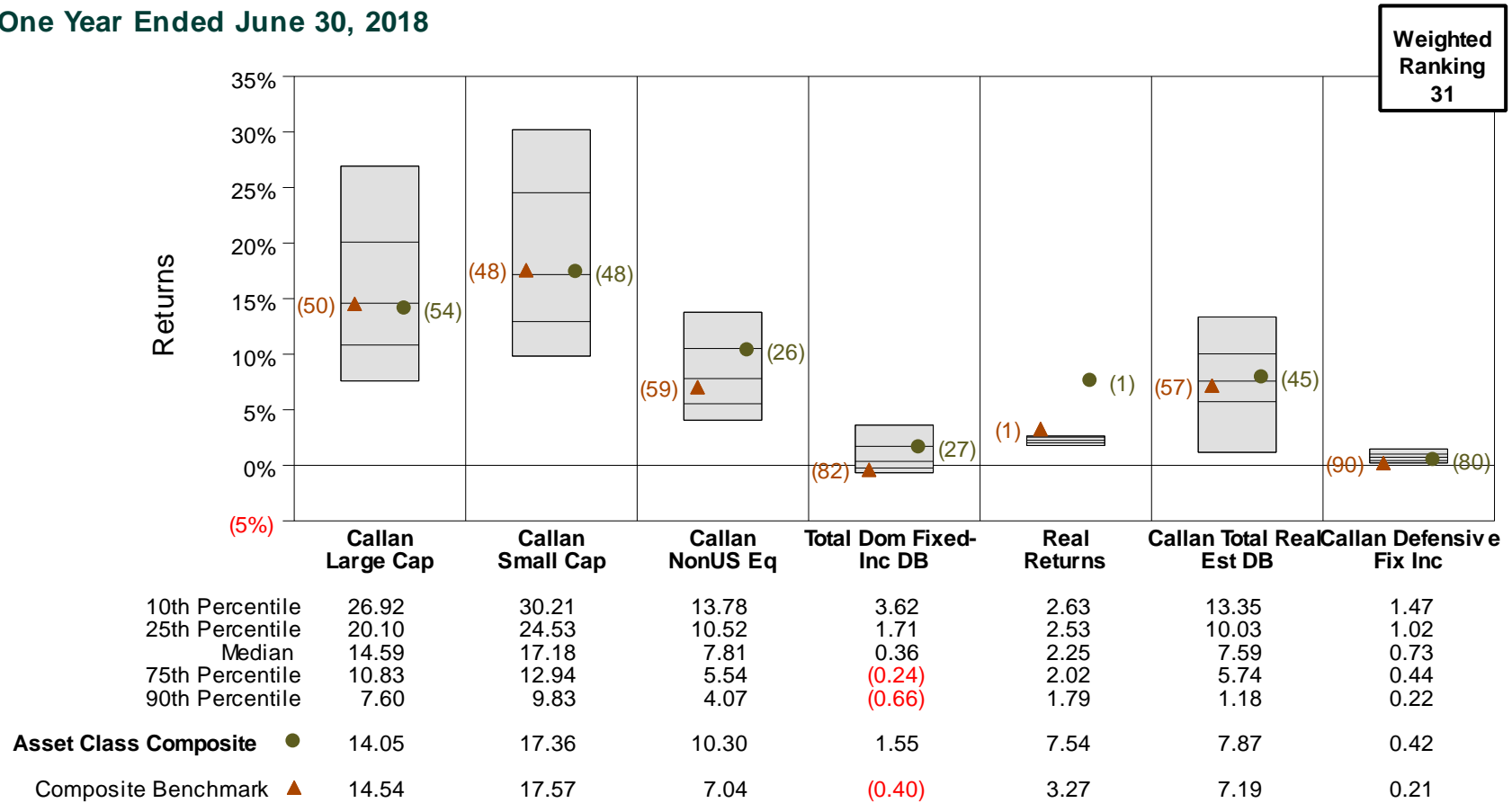
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
BND CDs	13%	13%	-	-	0.20%	0.00%	0.20%
Short Term Fixed Income	84%	84%	1.39%	0.65%	0.60%	0.00%	0.61%
Cash & Equivalents	3%	3%	0.35%	0.42%	(0.00%)	0.00%	0.00%

<b>Total</b>	<b>1.50% = 0.69% + 0.80% + 0.01%</b>	<b>0.81%</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 June 30, 2018

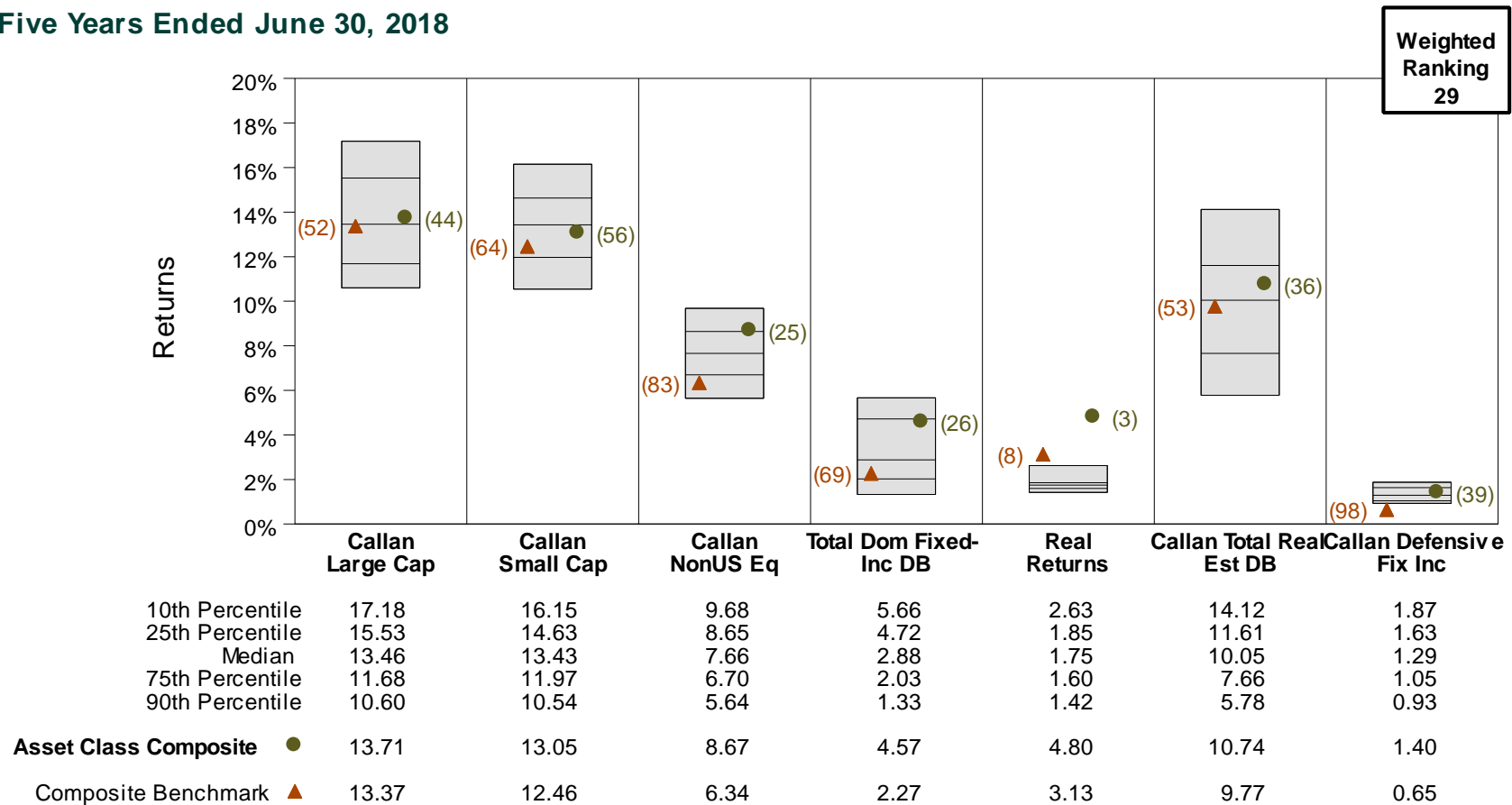


- Real return was the only asset class to place in the top quartile over the last year.
- Large cap equity and defensive fixed income placed below median over the last year, with defensive fixed income placing in the bottom quartile.

# Asset Class Composite Results

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

Total Asset Class Performance  
Five Years Ended June 30, 2018



- All public market asset classes outperformed their respective benchmarks over the last five years.
- Small cap equity placed below median versus peers over the last five years.





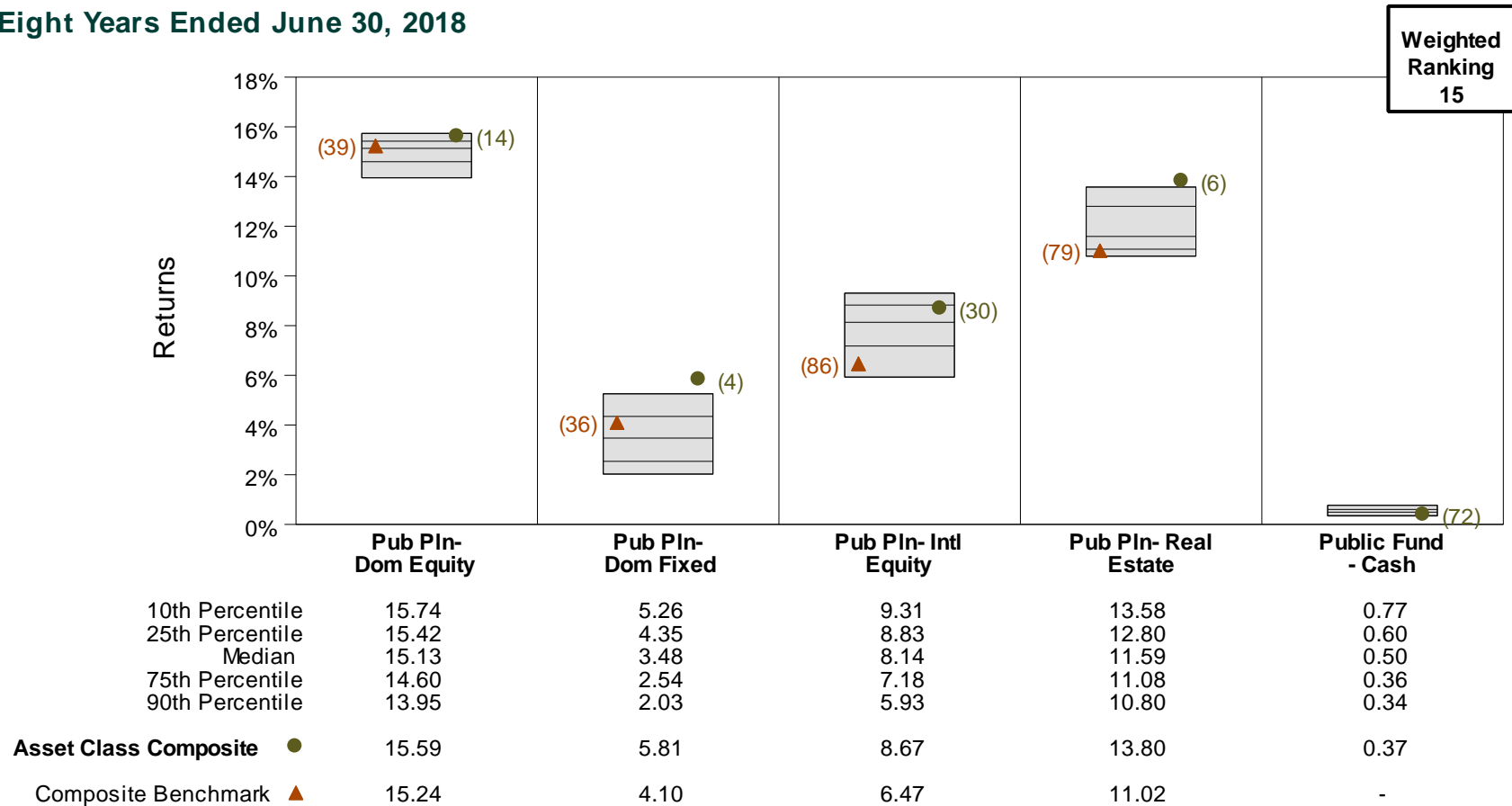
**Appendix**

Consolidated Asset Class Rankings

# Asset Class Composite Results

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

**Total Asset Class Performance  
Eight Years Ended June 30, 2018**

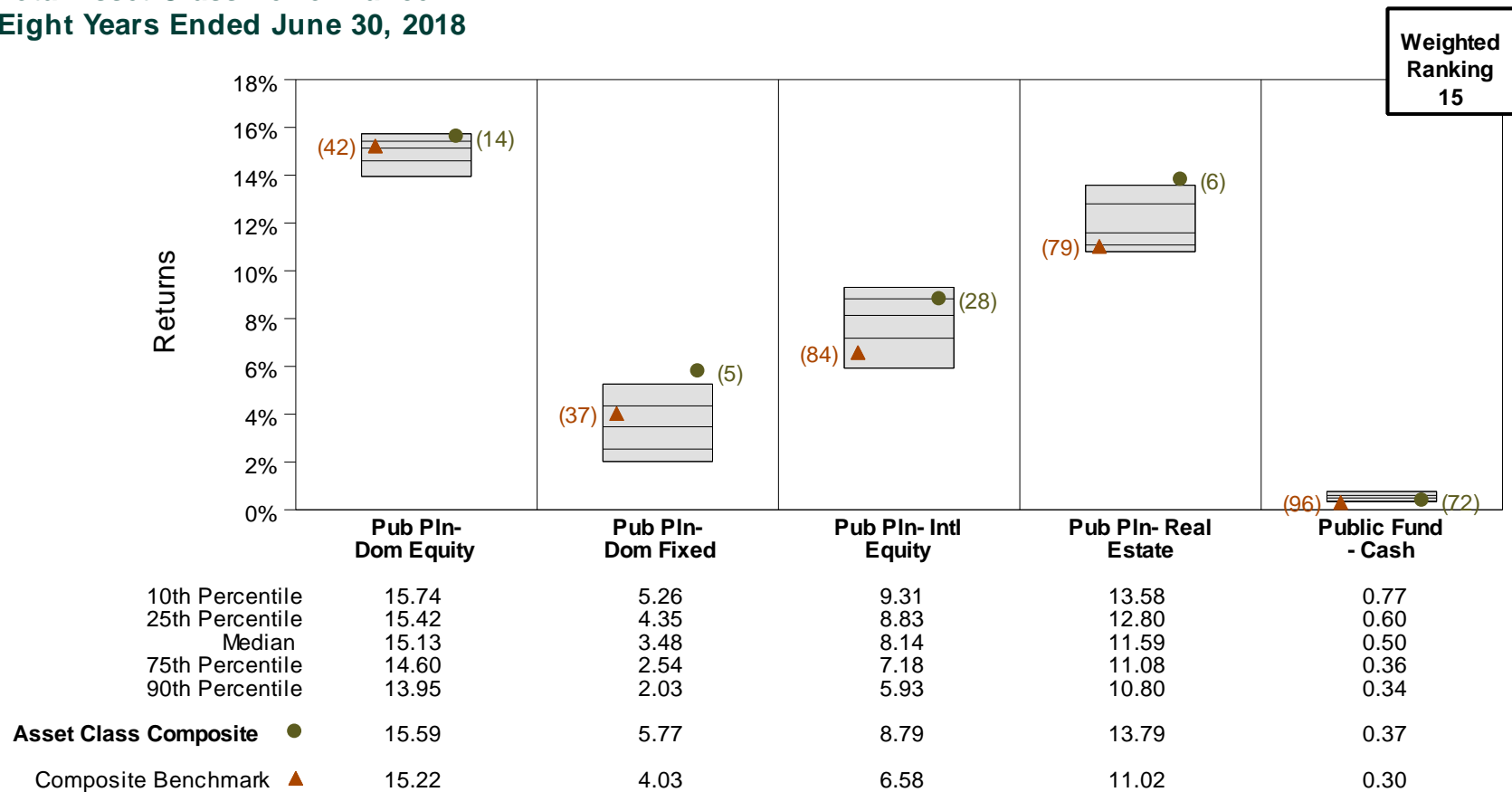


- Public market asset classes have outperformed their benchmarks over the last 8 years.
- Domestic fixed income and real estate are in the top decile.

# Asset Class Composite Results

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

Total Asset Class Performance  
Eight Years Ended June 30, 2018

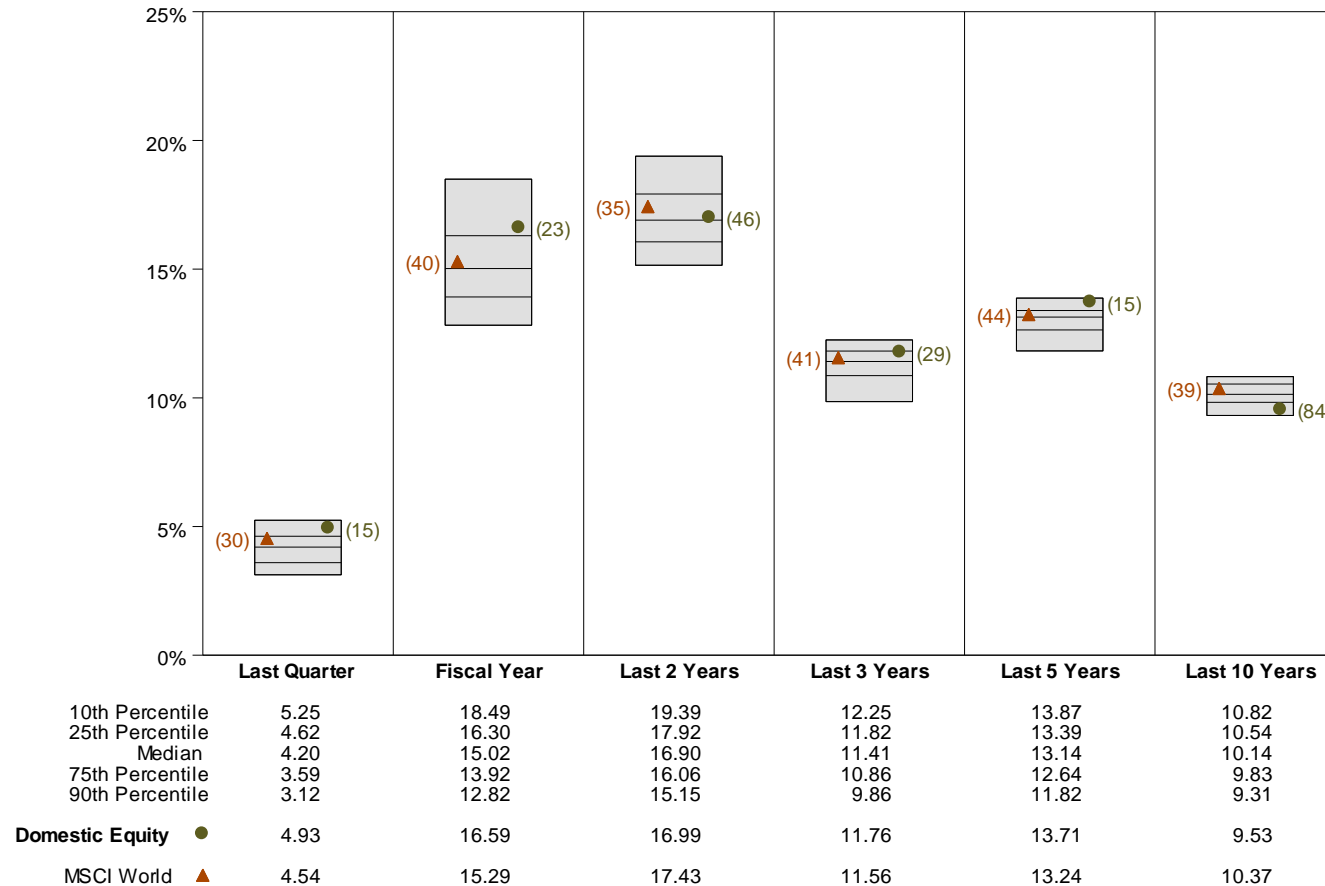


- Public market asset classes have outperformed their benchmarks over the last 8 years.
- Domestic fixed income and real estate are in the top decile.

# Consolidated Pension Trust: Domestic Equity

As of June 30, 2018

Performance vs Public Fund - Domestic Equity (Gross)

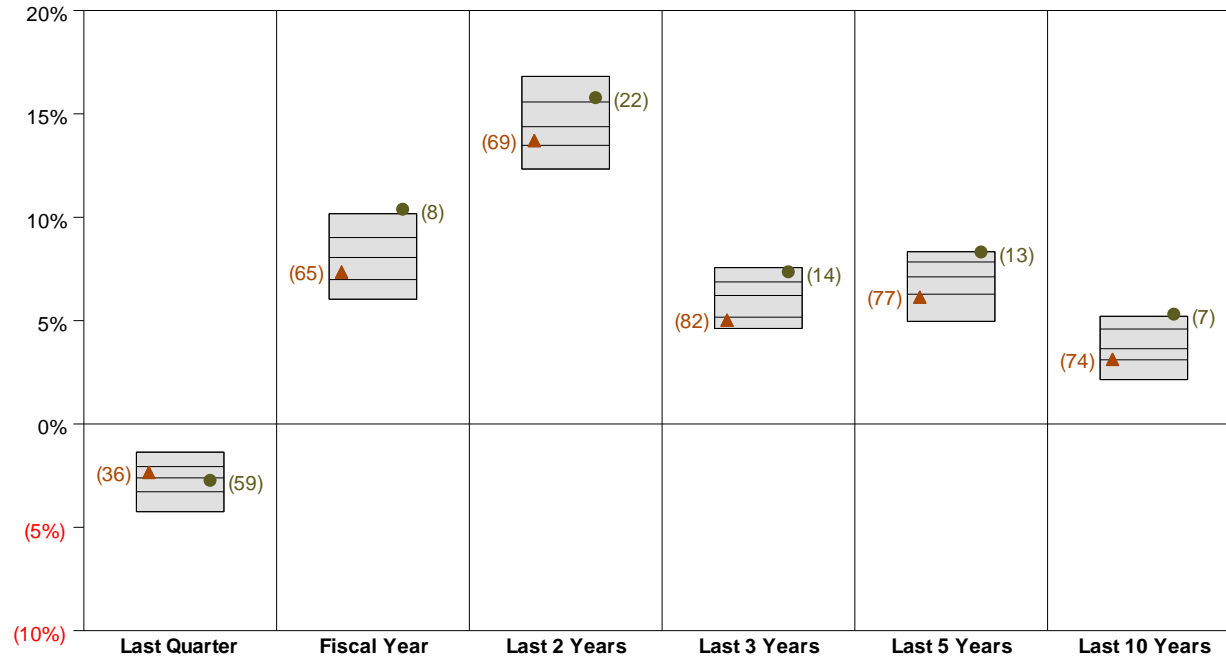


- Domestic equity produced a positive return during the quarter and outperformed its benchmark

# Consolidated Pension Trust: International Equity

As of June 30, 2018

Performance vs Public Fund - International Equity (Gross)

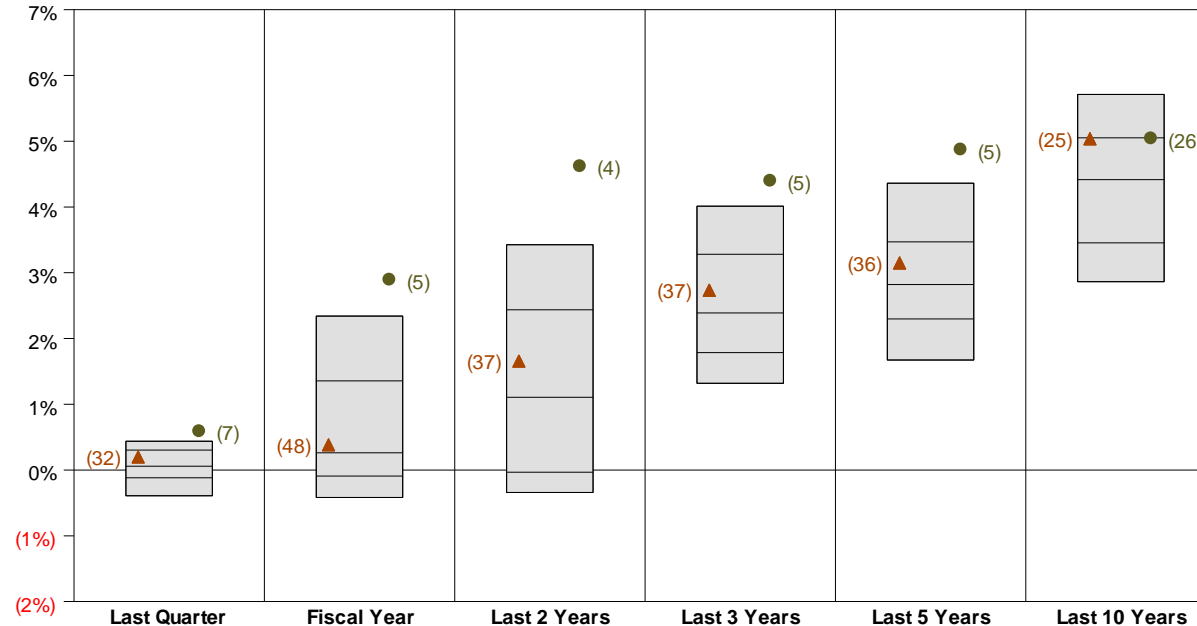


- International equity generated a negative return during the quarter and underperformed its benchmark.
- Over longer periods the asset class has performed well, placing in the top decile over 10 years.

# Consolidated Pension Trust: Domestic Fixed Income

As of June 30, 2018

Performance vs Public Fund - Domestic Fixed (Gross)



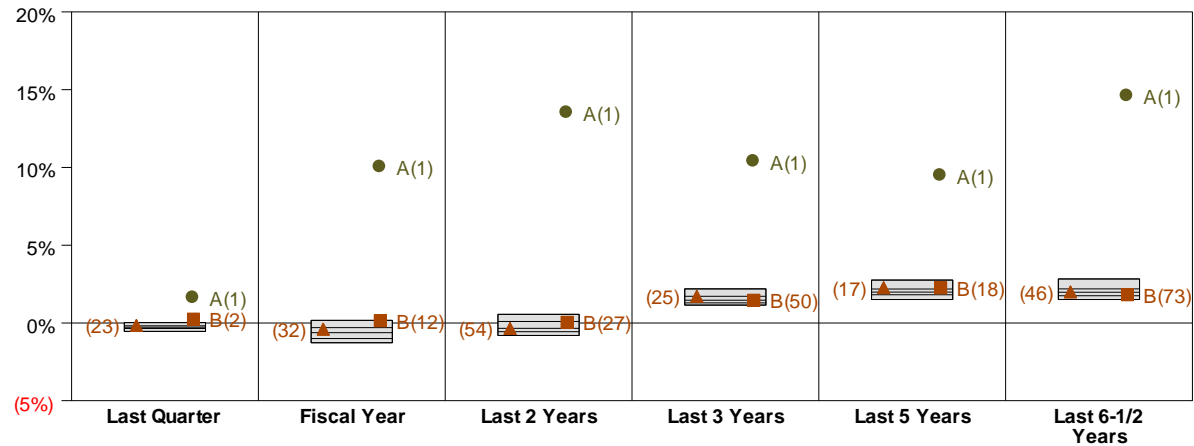
	Last Quarter	Fiscal Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	0.44	2.34	3.43	4.01	4.36	5.71
25th Percentile	0.30	1.36	2.44	3.28	3.47	5.05
Median	0.06	0.26	1.11	2.39	2.82	4.42
75th Percentile	(0.12)	(0.09)	(0.03)	1.78	2.30	3.45
90th Percentile	(0.39)	(0.42)	(0.34)	1.32	1.67	2.86
<b>Domestic Fixed Income</b> ●	0.58	2.88	4.61	4.39	4.86	5.03
Domestic Fixed Income Target ▲	0.20	0.38	1.66	2.74	3.15	5.04

- The domestic fixed income program was up for the quarter and outperformed its benchmark.
- Over the last 10-year period, domestic fixed income placed in the 26<sup>th</sup> percentile.

# Consolidated Pension Trust: PIMCO DiSCO II

As of June 30, 2018

Performance vs Callan Core Bond Mutual Funds (Net)

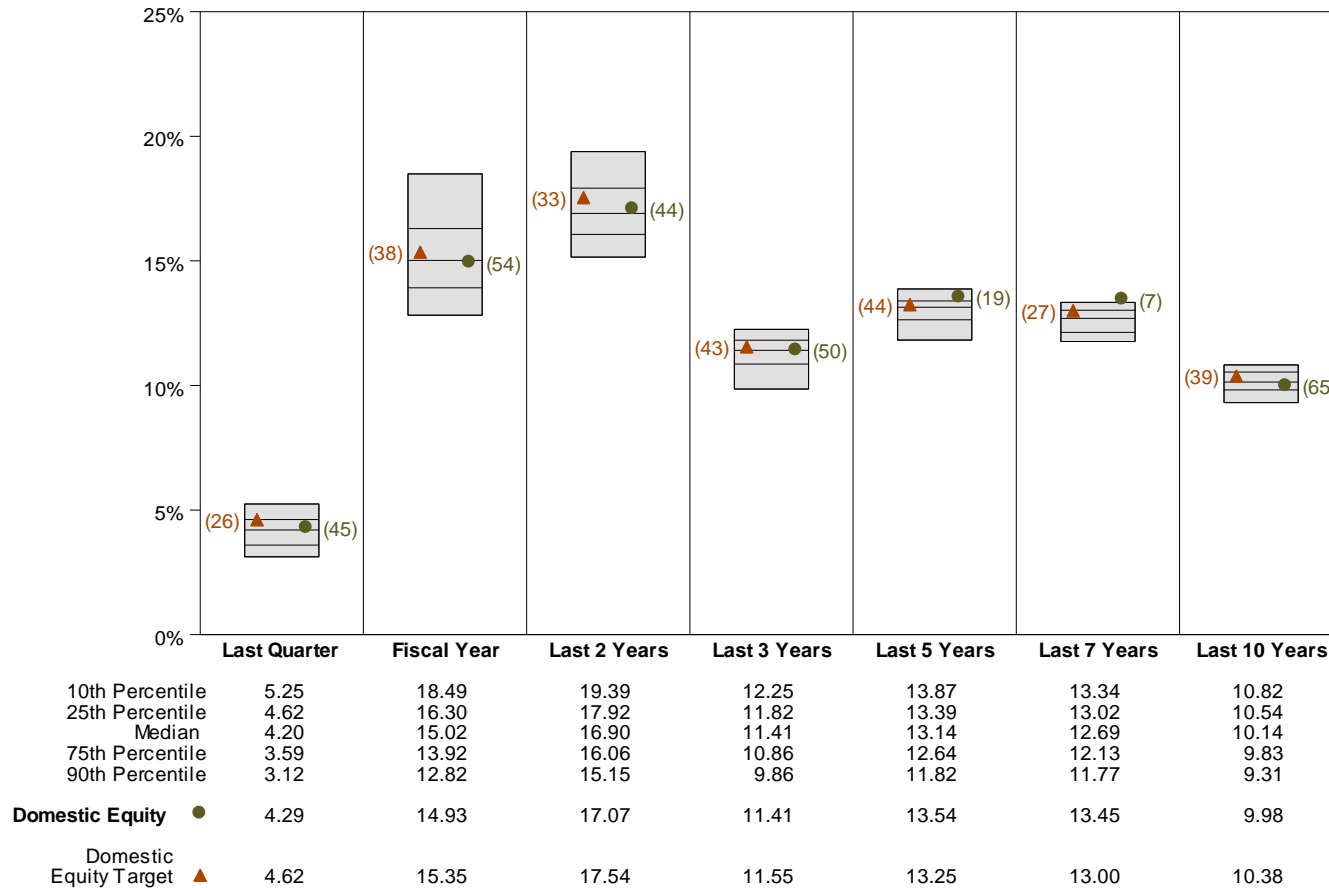


	Last Quarter	Fiscal Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6-1/2 Years
10th Percentile	0.03	0.17	0.55	2.19	2.76	2.83
25th Percentile	(0.18)	(0.30)	0.09	1.72	2.19	2.19
Median	(0.27)	(0.63)	(0.35)	1.46	1.99	1.98
75th Percentile	(0.36)	(1.00)	(0.56)	1.29	1.81	1.75
90th Percentile	(0.55)	(1.27)	(0.80)	1.15	1.51	1.51
PIMCO DiSCO II ● A	1.60	10.02	13.49	10.37	9.45	14.58
Blmbg Mortgage ■ B	0.24	0.15	0.04	1.46	2.25	1.81
Blmbg Aggregate ▲	(0.16)	(0.40)	(0.36)	1.72	2.27	2.00

# Consolidated Insurance Trust: Domestic Equity

As of June 30, 2018

Performance vs Public Fund - Domestic Equity (Gross)



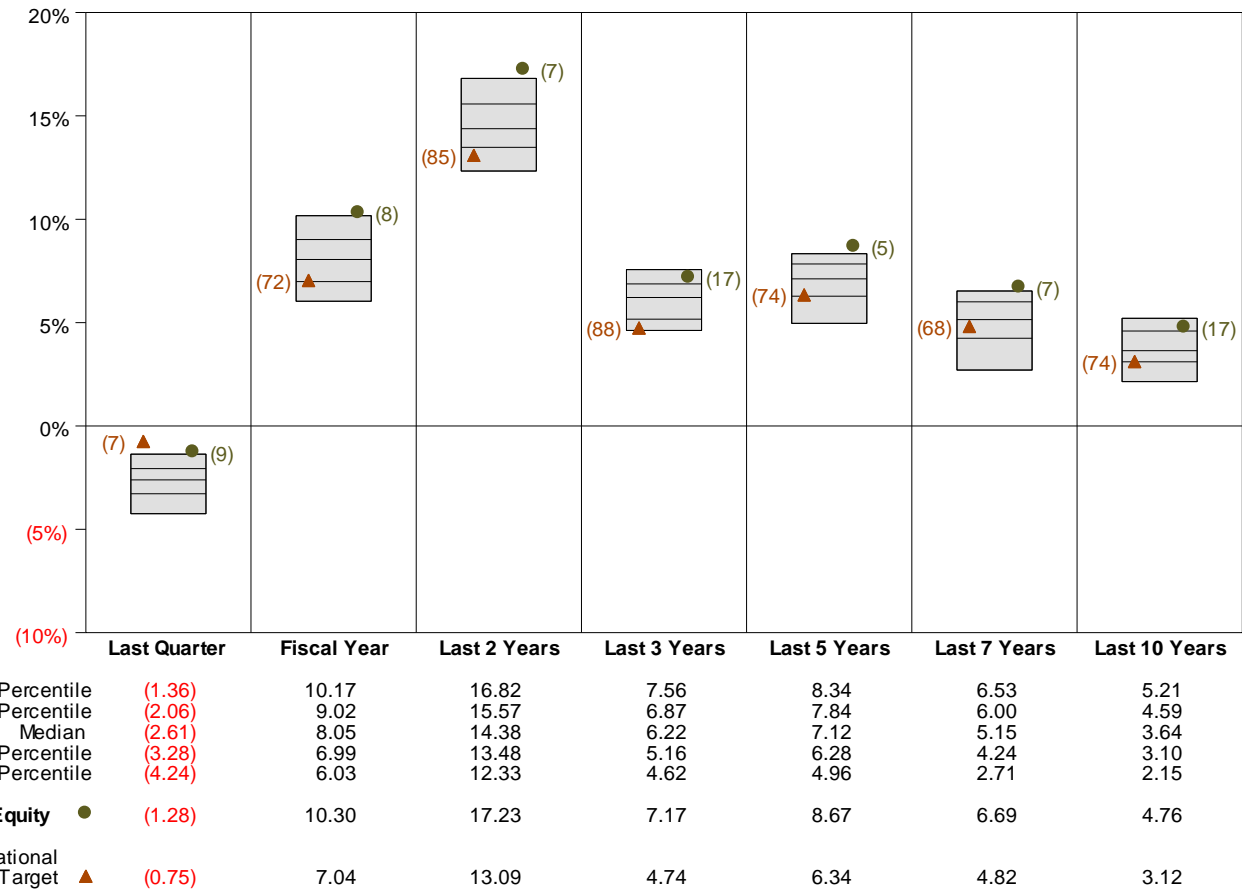
- Domestic equity in the consolidated insurance trust produced positive performance, but underperformed its benchmark.



# Consolidated Insurance Trust: International Equity

As of June 30, 2018

Performance vs Public Fund - International Equity (Gross)

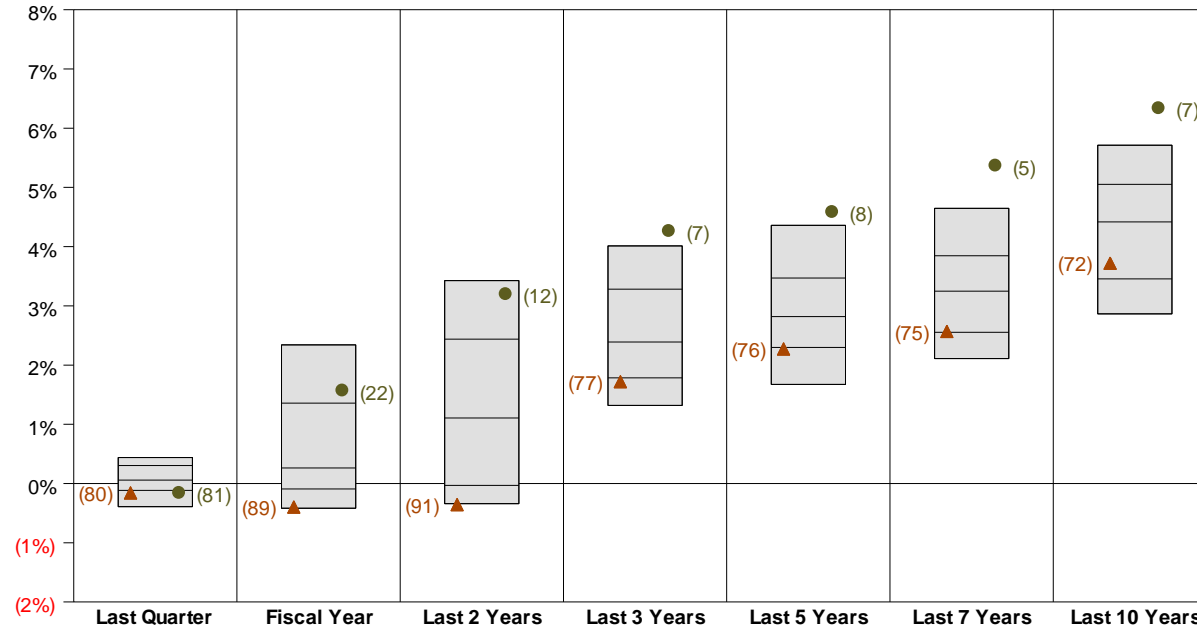


- International equity placed in the top decile over the last quarter, but underperformed its benchmark.
- Over the last 10 years, international equity ranked in the 17<sup>th</sup> percentile among peers.

# Consolidated Insurance Trust: Domestic Fixed Income

As of June 30, 2018

Performance vs Public Fund - Domestic Fixed (Gross)



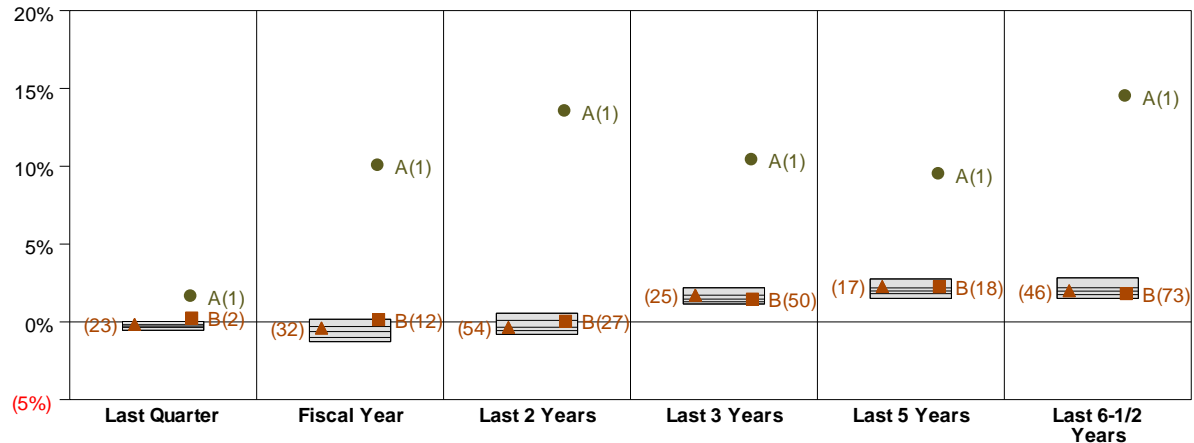
	Last Quarter	Fiscal Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
10th Percentile	0.44	2.34	3.43	4.01	4.36	4.65	5.71
25th Percentile	0.30	1.36	2.44	3.28	3.47	3.85	5.05
Median	0.06	0.26	1.11	2.39	2.82	3.25	4.42
75th Percentile	(0.12)	(0.09)	(0.03)	1.78	2.30	2.55	3.45
90th Percentile	(0.39)	(0.42)	(0.34)	1.32	1.67	2.11	2.86
<b>Domestic Fixed Income</b>	● (0.17)	1.55	3.18	4.25	4.57	5.35	6.32
Domestic Fixed Inc. Target	▲ (0.16)	(0.40)	(0.36)	1.72	2.27	2.57	3.72

- The domestic fixed income program ranked below median this quarter, but was among the top decile of peers during the 3, 5, 7, and 10-year periods.

# Consolidated Insurance Trust: PIMCO DiSCO II

As of June 30, 2018

Performance vs Callan Core Bond Mutual Funds (Net)



10th Percentile	0.03	0.17	0.55	2.19	2.76	2.83	
25th Percentile	(0.18)	(0.30)	0.09	1.72	2.19	2.19	
Median	(0.27)	(0.63)	(0.35)	1.46	1.99	1.98	
75th Percentile	(0.36)	(1.00)	(0.56)	1.29	1.81	1.75	
90th Percentile	(0.55)	(1.27)	(0.80)	1.15	1.51	1.51	
PIMCO DiSCO II	● A	1.60	10.02	13.49	10.37	9.46	14.47
Blmbg Mortgage	■ B	0.24	0.15	0.04	1.46	2.25	1.81
Blmbg Aggregate	▲	(0.16)	(0.40)	(0.36)	1.72	2.27	2.00

# Total Private Equity Summary

Periods ending June 30, 2018

	June 30, 2018	Quarter Change	March 31, 2018
<b>Summary</b>			
Vintage Years	21 in 1998-2018		21 in 1998-2018
<b>Changes in Value</b>			
Capital Commitments	\$897,918,157	-	\$897,918,157
Paid-In Capital	\$755,185,036	\$11,573,124	\$743,611,912
Uncalled Capital	\$300,209,206	\$(11,573,124)	\$311,782,330
% Paid-In	84.10%	1.29%	82.82%
Distributed Capital	\$683,499,027	\$1,356,957	\$682,142,070
Net Asset Value	\$191,432,172	\$9,210,563	\$182,221,609
<b>Total Realized and Unrealized Value</b>	<b>\$874,931,199</b>	<b>\$10,567,520</b>	<b>\$864,363,679</b>
<b>Ratios and Performance</b>			
Distributions to Paid-In Capital (DPI)	0.91x	(0.01)x	0.92x
Residual Value to Paid-In Capital (RVPI)	0.25x	0.01x	0.25x
Total Value to Paid-In Capital (TVPI)	1.16x	(0.00)x	1.16x
Quartile Ranking	3 <sup>rd</sup>		3 <sup>rd</sup>
Net IRR	4.29%	(0.08%)	4.37%
<b>Additional Performance Metrics</b>			
Distribution Rate, as % of Beginning NAV		0.74%	
Unrealized Gain/(Loss), Dollars		\$(1,005,604)	
Unrealized Gain/(Loss), %		(0.55%)	

# Total Private Equity Manager Summary

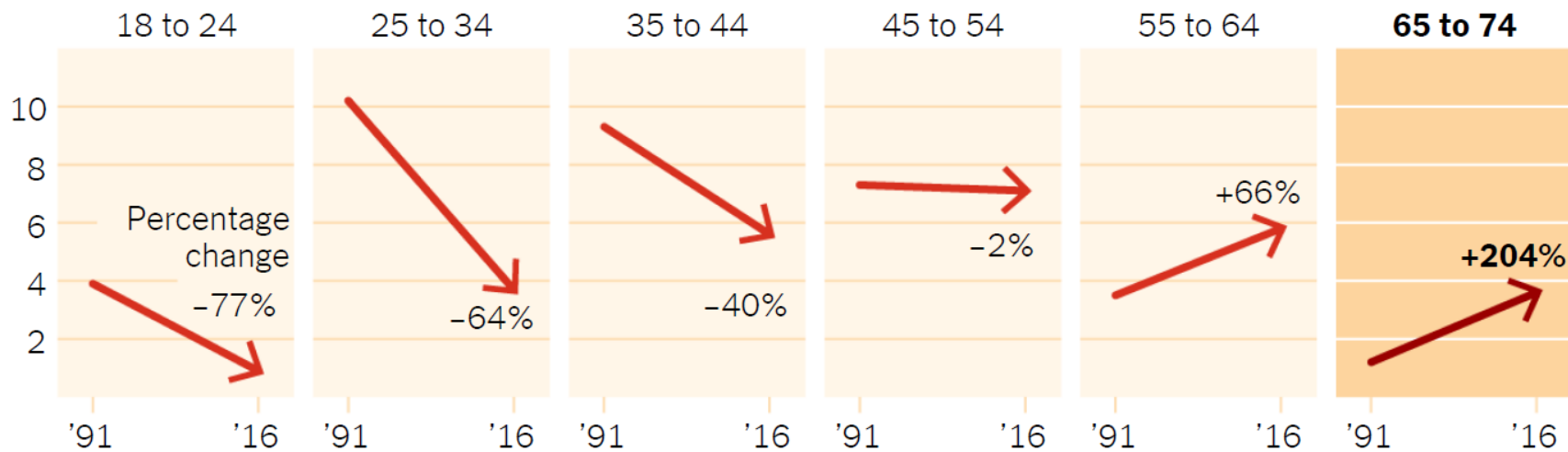
Periods ending June 30, 2018

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 17-1/2 Years
<b>Private Equity</b>	<b>(0.40%)</b>	<b>5.25%</b>	<b>2.76%</b>	<b>1.33%</b>	<b>2.53%</b>
Adams Street Direct Co-Invest Fd	(8.53%)	(12.18%)	(3.10%)	5.58%	-
Adams Street Direct Fd 2010	6.00%	18.57%	12.60%	15.26%	-
Adams Street 1998 Partnership	0.22%	0.45%	1.46%	1.12%	1.60%
Adams Street 1999 Partnership	2.20%	0.12%	3.81%	1.53%	2.59%
Adams Street 2000 Partnership	2.71%	7.82%	2.95%	1.05%	3.47%
Adams Street 2001 Partnership	1.70%	6.04%	0.85%	4.09%	3.83%
Adams Street 2002 Partnership	(4.79%)	(0.30%)	9.26%	4.60%	-
Adams Street 2003 Partnership	5.72%	14.74%	7.61%	13.20%	-
Adams Street 2010 Partnership	6.48%	17.71%	12.89%	14.78%	-
Adams Street 2008 Fund	3.15%	16.99%	14.81%	14.14%	-
Adams Street 1999 Non-US	0.02%	2.53%	5.72%	1.60%	6.00%
Adams Street 2000 Non-US	2.03%	10.80%	4.97%	2.95%	3.57%
Adams Street 2001 Non-US	1.40%	6.80%	8.00%	14.30%	-
Adams Street 2002 Non-US	3.45%	5.99%	9.13%	4.93%	-
Adams Street 2003 Non-US	1.14%	5.41%	16.34%	12.83%	-
Adams Street 2004 Non-US	(1.27%)	10.08%	3.38%	7.36%	-
Adams Street 2010 Non-US	1.93%	18.95%	16.62%	11.94%	-
Adams Street 2010 NonUS Emg	5.38%	21.66%	13.97%	13.38%	-
Adams Street 2015 Global Fd	4.95%	17.58%	-	-	-
Adams Street 2016 Global Fd	5.25%	13.58%	-	-	-
Adams Street 2017 Global Fd	10.71%	-	-	-	-
Adams Street BVCF IV Fund	1.52%	(1.84%)	1.37%	11.83%	16.69%
BlackRock	1.47%	1.53%	-	-	-
Capital International V	(0.11%)	(48.22%)	(42.03%)	(28.50%)	-
Capital International VI	(2.12%)	5.98%	5.47%	(2.84%)	-
CorsAir III	(41.43%)	(34.35%)	(1.99%)	(2.96%)	-
CorsAir IV	14.14%	26.61%	14.98%	17.93%	-
EIG Energy Fund XIV	30.20%	18.70%	(24.45%)	(20.74%)	-
Hearthstone Advisors MS III	4.92%	8.27%	(18.32%)	283.21%	-
Lewis & Clark	55.37%	51.46%	(3.37%)	(13.13%)	-
Lewis & Clark II	(9.22%)	0.90%	4.44%	(1.95%)	-
Matlin Patterson II	5.98%	5.59%	(6.94%)	(3.76%)	-
Matlin Patterson III	(9.60%)	8.51%	3.03%	2.20%	-
Quantum Energy Partners	(20.67%)	(50.52%)	(13.61%)	(7.37%)	-
Russell 1000 Index	3.57%	14.54%	11.64%	13.37%	6.52%
Russell 2000 Index	7.75%	17.57%	10.96%	12.46%	8.68%

# Why What the NDSIB Does Matters

## 'Too Little Too Late': Bankruptcy Booms Among Older Americans

### Bankruptcy filings per 1,000 people, by age



Source: The Federal Reserve's survey of consumer finances, via the Consumer Bankruptcy Project

- Reporter Tara Siegel Bernard published an article in the 8/5/2018 NY Times that reveals that bankruptcy filings by older Americans are increasing significantly due to higher health care costs and expenses that are greater than income.
- From February 2013 to November 2016, there were 3.6 bankruptcy filers per 1,000 people between the ages of 65 and 74. In 1991, the incidence rate was one-third the current level: 1.2.
- See: [Too Little, Too Late](#)

## Informational

**TO:** State Investment Board  
**FROM:** Dave Hunter  
**DATE:** August 20, 2018  
**SUBJECT:** [Private Equity Overview – Adams Street Preview](#)

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### **Background:**

As part of a multi-year plan to enhance the expected return of our private equity (“PE”) portfolio, RIO continues to review existing and prospective PE managers in the marketplace. At this time, RIO is considering making a new “follow-on” commitment to the Adams Street Partners (“Adams Street” or “ASP”) Global Fund for 2018. Adams Street is our largest PE manager (at \$50 million) and has consistently generated the strongest returns (within PE) for our clients over the last 25 years.

	<u>1-Yr.</u>	<u>3-Yrs.</u>	<u>5-Yrs.</u>	<u>10-Yrs.</u>	<u>15-Yrs.</u>	<u>Inception</u>
<i>Net IRR for Adams Street Investment</i>	17.6%	14.4%	14.1%	6.4%	13.8%	11.1% (1989)

It is important to note that SIB clients within the \$5.7 billion Pension Trust currently have a 6.5% (or \$370 million) target allocation to PE versus an actual allocation of \$192 million. [In order to reduce this \\$178 million underweight position, RIO is considering a new “follow-on” commitment to the ASP 2018 Global Fund of \\$65 million.](#) RIO notes the SIB previously approved two similar \$30 million commitments to ASP’s Global Fund in September of 2015 and February of 2016 and a \$60 million commitment in 2017.

In March of 2016, RIO and Callan also identified BlackRock as a new strategic partner to complement Adams Street and re-establish our clients’ long-term commitment to this asset class. [Given the significant growth in the Pension Trust during the past year, we regularly review our PE investment pacing schedule with the intent of eliminating the sizable underweight position over the next 5 years.](#) Investment pacing plays an important role in gradually re-building our PE portfolio so as to prevent the potential adverse effects of vintage year concentration risk. The establishment of two strategic partners in this long-term investment should also help to reduce management fees. Given expected capital distributions on existing PE assets over the next five years, ASP believes annual private equity commitments will likely need to approximate \$65 million (for each manager) over the next five years.

### **RIO Due Diligence:**

During the past four years, RIO met with over two dozen private equity investment and consulting firms including Adams Street, BlackRock, Capital Group, Carlyle Group, Cogent, CorsAir, Credit Suisse, Crestline, Evercore, Goldman Sachs, Hamilton Lane, HarbourVest, Invest America, JPMorgan, KKR, Matlin Patterson, Pantheon, Partners Group, Pathway, Portfolio Advisors, Public Pension Capital, Quantum Energy Partners, RCP Investors and UBS. During the course of our due diligence, nearly all investment managers expressed a willingness to offer preferential pricing to develop a long-term strategic relationship.

RIO notes that ASP has served as the SIB's longest term, strategic partner within PE and provided our Pension Trust clients with a reasonable return premium versus public equity (of over 4% versus MSCI World PME Index since inception). Over the long-term, ASP believes it will be able to generate a 3% to 4% return premium versus public equity (after all fees).

**Key Terms:**

Fund Name:	Adams Street 2018 Global Fund LP
General Partner:	Adams Street Partners
Fund Term:	15 years after final close
Borrowing:	Up to 25%
Commitment Period:	Target 2.5 to 3.0 years (50% in 2018 / 35% in 2019 and 15% in 2020)
Return Objective:	Net IRR in excess of 13%
Management Fee:	Reduced by 50% since 2015
Sub-Classes:	Buyout ~ 55% to 70%; Venture ~ 25% to 35%; and Other ~ 5% to 10%
Buyout Fund Size:	Mid ~ 50%; Large ~ 25%; and Small ~ 25%.
Carried Interest:	0% primary (~65%); 10% secondary/co-invest (~25%); 20% direct (~10%)
Preferred Return:	7% for secondary and co-investments
Example:	Fund of Funds (primary, secondary, co-invest) (~ 90%); Direct (~ 10%)

**Adams Street Performance Update:**

**RIO notes that the ASP Global Funds for 2015, 2016 and 2017 have performed well and ranked in the 1<sup>st</sup> quartile by Callan as of June 30, 2018, (as highlighted on the following pages).**

RIO notes that Callan has also ranked our other strategic private equity partner, BlackRock, in the 1<sup>st</sup> quartile, although it is challenging to assess manager performance after only three years within private equity.

**Next Steps:**

RIO has invited Mr. Brijesh Jeevarathnam and Miguel Gonzalo to provide a firm and market update in addition to a review of our Adams Street portfolio and private equity investment strategy.



## Adams St 2015 Global Fd Period Ended June 30, 2018

### Organization History

Adams Street Partners (ASP) is an independent, 100% employee-owned firm. The firm was started in 1972 as the private equity division of Brinson Partners, which was subsequently purchased by UBS. ASP became independent in 2008. ASP is a large global private equity manager with over 130 employees. The firm is headquartered in Chicago with additional offices located in Palo Alto, London and Singapore.

	June 30, 2018	Quarter Change	March 31, 2018
<b>Summary</b>			
Vintage Years	2015-2016		2015-2016
<b>Changes in Value</b>			
Capital Commitments	\$30,000,000	-	\$30,000,000
Paid-In Capital	\$12,359,121	\$2,145,000	\$10,214,121
Uncalled Capital	\$17,640,879	\$(2,145,000)	\$19,785,879
% Paid-In	41.20%	7.15%	34.05%
Distributed Capital	\$1,603,378	-	\$1,603,378
Net Asset Value	\$14,476,815	\$2,201,004	\$12,275,811
<b>Total Realized and Unrealized Value</b>	<b>\$16,080,193</b>	<b>\$2,201,004</b>	<b>\$13,879,189</b>
<b>Ratios and Performance</b>			
Distributions to Paid-In Capital (DPI)	0.13x	(0.03)x	0.16x
Residual Value to Paid-In Capital (RVPI)	1.17x	(0.03)x	1.20x
Total Value to Paid-In Capital (TVPI)	1.30x	(0.06)x	1.36x
Quartile Ranking	1st		1st
Net IRR	29.15%	(7.04%)	36.18%
<b>Additional Performance Metrics</b>			
Distribution Rate, as % of Beginning NAV		0.00%	
Unrealized Gain/(Loss), Dollars		\$56,004	
Unrealized Gain/(Loss), %		0.46%	

Quartile rankings against the All Private Equity, All Regions Thomson/Cambridge database as of the prior quarter.

**Adams St 2016 Global Fd**  
**Period Ended June 30, 2018**

**Organization History**

Adams Street Partners (ASP) is an independent, 100% employee-owned firm. The firm was started in 1972 as the private equity division of Brinson Partners, which was subsequently purchased by UBS. ASP became independent in 2008. ASP is a large global private equity manager with over 130 employees. The firm is headquartered in Chicago with additional offices located in Palo Alto, London and Singapore.

	June 30, 2018	Quarter Change	March 31, 2018
<b>Summary</b>			
Vintage Years	2016-2017		2016-2017
<b>Changes in Value</b>			
Capital Commitments	\$30,000,000	-	\$30,000,000
Paid-In Capital	\$7,433,805	\$2,048,805	\$5,385,000
Uncalled Capital	\$22,566,195	\$(2,048,805)	\$24,615,000
% Paid-In	24.78%	6.83%	17.95%
Distributed Capital	\$0	-	\$0
Net Asset Value	\$8,689,650	\$2,234,601	\$6,455,049
<b>Total Realized and Unrealized Value</b>	<b>\$8,689,650</b>	<b>\$2,234,601</b>	<b>\$6,455,049</b>
<b>Ratios and Performance</b>			
Distributions to Paid-In Capital (DPI)	0.00x	-	0.00x
Residual Value to Paid-In Capital (RVPI)	1.17x	(0.03)x	1.20x
Total Value to Paid-In Capital (TVPI)	1.17x	(0.03)x	1.20x
<b>Quartile Ranking</b>	<b>1st</b>		<b>1st</b>
Net IRR	16.99%	(3.04%)	20.03%
<b>Additional Performance Metrics</b>			
Distribution Rate, as % of Beginning NAV		0.00%	
Unrealized Gain/(Loss), Dollars		\$185,796	
Unrealized Gain/(Loss), %		2.88%	

Quartile rankings against the All Private Equity, All Regions Thomson/Cambridge database as of the prior quarter.

**Adams St 2017 Global Fd**  
**Period Ended June 30, 2018**

**Organization History**

Adams Street Partners (ASP) is an independent, 100% employee-owned firm. The firm was started in 1972 as the private equity division of Brinson Partners, which was subsequently purchased by UBS. ASP became independent in 2008. ASP is a large global private equity manager with over 130 employees. The firm is headquartered in Chicago with additional offices located in Palo Alto, London and Singapore.

	June 30, 2018	Quarter Change	March 31, 2018
<b>Summary</b>			
Vintage Years	2017-2018		2017-2018
<b>Changes in Value</b>			
Capital Commitments	\$60,000,000	-	\$60,000,000
Paid-In Capital	\$7,305,845	\$4,680,000	\$2,625,845
Uncalled Capital	\$52,694,155	\$(4,680,000)	\$57,374,155
% Paid-In	12.18%	7.80%	4.38%
Distributed Capital	\$0	-	\$0
Net Asset Value	\$7,664,244	\$4,707,127	\$2,957,117
<b>Total Realized and Unrealized Value</b>	<b>\$7,664,244</b>	<b>\$4,707,127</b>	<b>\$2,957,117</b>
<b>Ratios and Performance</b>			
Distributions to Paid-In Capital (DPI)	0.00x	-	0.00x
Residual Value to Paid-In Capital (RVPI)	1.05x	(0.08)x	1.13x
Total Value to Paid-In Capital (TVPI)	1.05x	(0.08)x	1.13x
<b>Quartile Ranking</b>	<b>1st</b>		<b>1st</b>
Net IRR	23.14%	(4.82%)	27.96%
<b>Additional Performance Metrics</b>			
Distribution Rate, as % of Beginning NAV		0.00%	
Unrealized Gain/(Loss), Dollars		\$27,127	
Unrealized Gain/(Loss), %		0.92%	

Quartile rankings against the All Private Equity, All Regions Thomson/Cambridge database as of the prior quarter.

## BlackRock Period Ended June 30, 2018

### Organization History

BlackRock was founded in 1988. In February 1995, BlackRock became a wholly-owned subsidiary of The PNC Financial Services Group, Inc. and a member of the PNC Asset Mgmt. Group. In 1998, PNC consolidated its asset management subsidiary names under BlackRock. BlackRock completed an IPO in 1999 for 16% of its equity. In 2005, BlackRock acquired SSRM Holdings Inc., the holding company of State Street Research and Management and State Street Realty. In 2006, BlackRock, Inc. and Merrill Lynch Investment Managers merged to create an independent company operating under the BlackRock name. In October 2007, BlackRock acquired Quellos Group. In December 2009, BlackRock completed the acquisition of Barclays Global Investors (BGI) including its iShares exchange-traded funds.

	June 30, 2018	Quarter Change	March 31, 2018
<b>Summary</b>			
Vintage Years	2017-2018		2017-2018
<b>Changes in Value</b>			
Capital Commitments	\$200,000,000	-	\$200,000,000
Paid-In Capital	\$29,779,656	\$1,242,752	\$28,536,904
Uncalled Capital	\$170,220,344	\$(1,242,752)	\$171,463,096
% Paid-In	14.89%	0.62%	14.27%
Distributed Capital	\$0	-	\$0
Net Asset Value	\$29,938,614	\$1,242,752	\$28,695,862
<b>Total Realized and Unrealized Value</b>	<b>\$29,938,614</b>	<b>\$1,242,752</b>	<b>\$28,695,862</b>
<b>Ratios and Performance</b>			
Distributions to Paid-In Capital (DPI)	0.00x	-	0.00x
Residual Value to Paid-In Capital (RVPI)	1.01x	(0.00)x	1.01x
Total Value to Paid-In Capital (TVPI)	1.01x	(0.00)x	1.01x
Quartile Ranking	1st		1st
Net IRR	0.69%	(0.31%)	1.00%
<b>Additional Performance Metrics</b>			
Distribution Rate, as % of Beginning NAV		0.00%	
Unrealized Gain/(Loss), Dollars		\$0	
Unrealized Gain/(Loss), %		0.00%	

Quartile rankings against the All Private Equity, All Regions Thomson/Cambridge database as of the prior quarter. Values provided by BlackRock as of 07/01/2017; prior values provided by Adams Street.

## North Dakota State Investment Board Manager Detail as of June 30, 2018

The following table summarizes changes in each manager's aggregated cash flows and valuation information as of June 30, 2018.

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	1998-2001	\$5,230	5,236	27	100.12%	7,726	126	1.48x	0.02x	1.50x <sup>2nd</sup>	7.24%
Adams St 1999 Partnership	1999-2002	\$9,041	8,664	377	95.83%	11,142	127	1.29x	0.01x	1.30x <sup>2nd</sup>	4.28%
Adams St 1999 Non-US	1999-2005	\$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	3,397	1.75x	0.14x	1.89x <sup>1st</sup>	7.60%
Adams St 2000 Partnership	2000-2003	\$17,195	17,511	844	101.84%	25,883	597	1.48x	0.03x	1.51x <sup>2nd</sup>	7.17%
Adams St 2000 Non-US	2000-2005	\$4,538	4,538	0	100.00%	8,382	444	1.85x	0.10x	1.94x <sup>2nd</sup>	13.20%
Adams St 2001 Partnership	2001-2004	\$9,530	9,121	410	95.70%	13,801	848	1.51x	0.09x	1.61x <sup>2nd</sup>	7.21%
Adams St 2001 Non-US	2001-2005	\$3,354	3,354	0	100.00%	6,115	174	1.82x	0.05x	1.87x <sup>2nd</sup>	13.45%
Adams St 2002 Partnership	2002-2005	\$5,318	5,150	167	96.85%	9,390	151	1.82x	0.03x	1.85x <sup>2nd</sup>	13.05%
Adams St 2002 Non-US	2002-2005	\$5,834	6,057	-19	103.81%	11,611	92	1.92x	0.02x	1.93x <sup>2nd</sup>	15.23%
Adams St 2003 Partnership	2003-2006	\$1,877	1,780	97	94.84%	2,942	191	1.65x	0.11x	1.76x <sup>2nd</sup>	11.42%
Adams St 2003 Non-US	2003-2006	\$4,741	4,507	234	95.07%	10,125	209	2.25x	0.05x	2.29x <sup>1st</sup>	23.22%
Adams St 2004 Non-US	2004-2007	\$2,244	2,139	105	95.33%	3,274	254	1.53x	0.12x	1.65x <sup>2nd</sup>	10.07%
Adams St Direct Co-Invest	2006	\$20,000	19,100	900	95.50%	27,155	1,104	1.42x	0.06x	1.48x <sup>3rd</sup>	5.40%
Adams St 2008 Non-US	2008-2012	\$10,000	9,133	867	91.33%	6,526	7,605	0.71x	0.83x	1.55x <sup>2nd</sup>	10.23%
Adams St 2010 Direct Fund	2010	\$1,500	1,420	80	94.66%	1,437	957	1.01x	0.67x	1.69x <sup>2nd</sup>	12.57%
Adams St 2010 Partnership	2010-2014	\$7,500	6,608	892	88.10%	3,987	6,631	0.60x	1.00x	1.61x <sup>2nd</sup>	13.95%
Adams St 2010 Non-US Dev	2010-2014	\$4,500	3,940	560	87.55%	2,304	3,224	0.58x	0.82x	1.40x <sup>3rd</sup>	10.56%
Adams St 2010 Non-US EM	2010-2014	\$1,500	1,302	198	86.80%	325	1,680	0.25x	1.29x	1.54x <sup>2nd</sup>	11.63%
Adams St 2015 Global Fd	2015-2016	\$30,000	12,359	17,641	41.20%	1,603	14,477	0.13x	1.17x	1.30x <sup>1st</sup>	29.15%
Adams St 2016 Global Fd	2016-2017	\$30,000	7,434	22,566	24.78%	0	8,690	0.00x	1.17x	1.17x <sup>1st</sup>	16.99%
Adams St 2017 Global Fd	2017-2018	\$60,000	7,306	52,694	12.18%	0	7,664	0.00x	1.05x	1.05x <sup>1st</sup>	23.14%
BlackRock	2017-2018	\$200,000	29,780	170,220	14.89%	0	29,939	0.00x	1.01x	1.01x <sup>1st</sup>	0.69%
Capital International V	2007	\$35,279	41,268	5,739	116.98%	37,629	1,107	0.91x	0.03x	0.94x <sup>4th</sup>	(2.09%)
Capital International VI	2011	\$38,092	38,328	2,313	100.62%	8,731	27,732	0.23x	0.72x	0.95x <sup>4th</sup>	(1.66%)
Corsair III	2007	\$25,148	33,212	1,741	132.07%	15,058	8,275	0.45x	0.25x	0.70x <sup>4th</sup>	(6.30%)
Corsair IV	2010	\$32,381	41,045	6,243	126.76%	27,705	28,315	0.67x	0.69x	1.36x <sup>3rd</sup>	11.01%
EIG Energy Fund XIV	2007	\$45,000	59,496	1,243	132.21%	50,313	6,633	0.85x	0.11x	0.96x <sup>4th</sup>	(1.76%)
Hearthstone Advisors MSII	2000	\$3,500	26,576	3,500	759.31%	36,855	-5	1.39x	-0.00x	1.39x <sup>2nd</sup>	(99.96%)
Hearthstone Advisors MSIII	2003	\$8,750	37,058	4,475	423.52%	45,026	2,482	1.22x	0.07x	1.28x <sup>3rd</sup>	24.64%
MatlinPatterson II	2004	\$40,000	59,254	1	148.13%	33,246	1,222	0.56x	0.02x	0.58x <sup>4th</sup>	(20.96%)
MatlinPatterson III	2007	\$40,000	49,730	1,178	124.33%	47,505	15,442	0.96x	0.31x	1.27x <sup>3rd</sup>	5.00%
Lewis & Clark, LP	2002	\$7,500	6,806	694	90.75%	5,488	2,545	0.81x	0.37x	1.18x <sup>3rd</sup>	1.76%
Lewis & Clark II	2009	\$15,000	13,578	1,422	90.52%	5,274	6,010	0.39x	0.44x	0.83x <sup>4th</sup>	(3.26%)
Quantum Energy Partners	2007	\$15,000	15,130	1,005	100.87%	14,707	3,021	0.97x	0.20x	1.17x <sup>4th</sup>	4.62%
<b>Total Private Equity</b>		<b>\$897,918</b>	<b>755,185</b>	<b>300,209</b>	<b>84.10%</b>	<b>683,499</b>	<b>191,432</b>	<b>0.91x</b>	<b>0.25x</b>	<b>1.16x<sup>3rd</sup></b>	<b>4.29%</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.



# North Dakota State Investment Board 2018 Global Fund

August 24, 2018

Presented by: Brijesh Jeevarathnam and Miguel Gonzalo, CFA

ADAMS STREET  
PARTNERS

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## ■ Adams Street Partners Overview



## Global Private Markets Platform

- Employee-owned
- 45+ years of experience
- Over \$34 billion in assets under management
- Highly integrated platform with shared insights

## Robust Investment Process

- Disciplined and coordinated investment process
- Top-down, bottom-up analysis
- Consistent outperformance through market cycles

## Exemplary Client Service

- Client based solutions have been a strategic focus for Adams Street since inception
- Deep understanding of institutional client needs
- Client access to industry-leading analytical tools and data



# We Have a Global Footprint



**180+** > **10** > **30+** = **1500+**

PEOPLE      OFFICES      NATIONS INVESTED      QUALITY OPPORTUNITIES REVIEWED ANNUALLY

# Experienced, Cohesive and Strategically Integrated Platform



**Jeff Diehl**  
Managing Partner &  
Head of Investments  
24 Years of Experience\*

**Bon French**  
Chairman

41 Years of Experience\*



## Primary Investments Since 1979



820+ funds  
270+ GP relationships  
400+ advisory boards  
26 Professionals

**Kelly Meldrum**  
Partner & Head of  
Primary Investments

33 Years of Experience\*

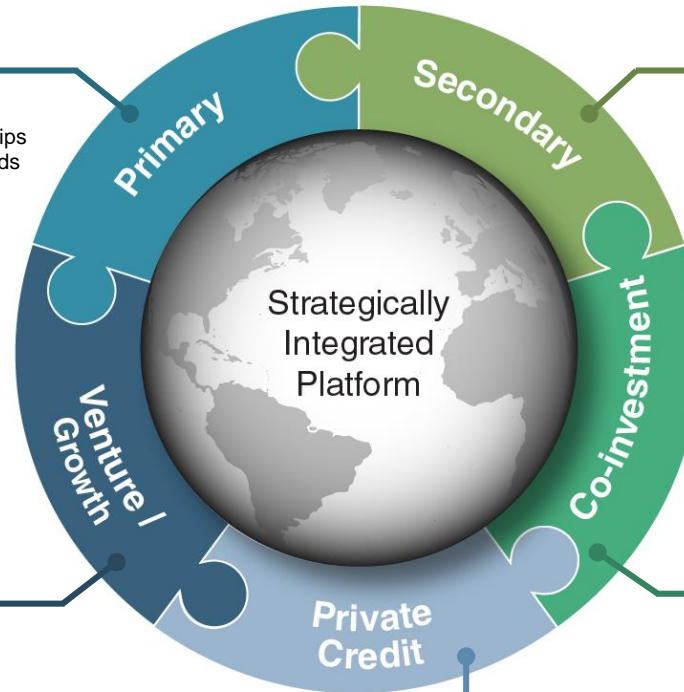
## Secondary Investments Since 1986



410+ funds  
170+ GP relationships  
15 Professionals

**Jeff Akers**  
Partner & Head of  
Secondary Investments

20 Years of Experience\*



## Growth Equity Since 1972



270+ companies  
11 Professionals

**Terry Gould**  
Partner & Head of  
Direct Investments

38 Years of Experience\*

## Co-Investments Since 1989



120+ companies  
80+ GP relationships  
7 Professionals

**David Brett**  
Partner & Head of  
Co-Investments

33 Years of Experience\*

## Private Credit Since 2016



**Bill Sacher**  
Partner & Head of  
Private Credit

33 Years of Experience\*

9 Professionals

\*Investment and Operational  
As of March 31, 2018.

# Deep Expertise Around the World

**Jeff Diehl**  
Managing Partner &  
Head of Investments  
Chicago



**Bon French**  
Chairman  
Chicago



## FUND INVESTMENTS

### PRIMARY

**Kelly Meldrum**  
Head of Primary  
Investments  
Menlo Park



**Yimin Huang**  
Beijing



**Jim Korczak**  
Chicago



**Calum Paterson**  
London



**Sergey Sheshuryak**  
London



### SECONDARY

**Jeff Akers**  
Head of  
Secondary  
Investments  
Chicago



**Troy Barnett**  
Chicago



**Eric Klen**  
Chicago



**William Bertha**  
Chicago



**Clinton Miller**  
Chicago



**Joshua Burandt**  
Chicago



**Pinal Nicum**  
London



**Jason Frank**  
Chicago



**Kristof Van Overloop**  
London



**Samuel Gage**  
Chicago



**Alexander Silver**  
London



**Joe Goldrick**  
Chicago



**Mark Terwilliger**  
Chicago



**Greg Holden**  
London



**Faylynn Wang**  
London



## DIRECT INVESTMENTS

### CO-INVESTMENTS

**Dave Brett**  
Head of  
Co-Investments  
Chicago



### GROWTH EQUITY

**Terry Gould**  
Head of  
Growth Equity  
Investments  
Chicago



### PRIVATE CREDIT

**Bill Sacher**  
Head of  
Private Credit  
New York



**Paul Cappelli**  
Chicago



**TJ Biegger**  
Chicago



**Luke Prioleau**  
Menlo Park



**Shahab Rashid**  
New York



**Alex Kessel**  
Chicago



**Tom Bremner**  
Chicago



**Sam Shanley**  
Chicago



**Michael Allen**  
New York



**Carol Rusin**  
London



**Jeff Diehl**  
Chicago



**Davis Thacker**  
Menlo Park



**Fred Chung**  
New York



**Sachin Tulyani**  
London



**Ali Lauer**  
Menlo Park



**Fred Wang**  
Menlo Park



**Justin Lawrence**  
New York



**Benjamin Wallwork**  
London



**Robin Murray**  
Menlo Park



**Mike Zappert**  
Menlo Park



**Thomas Petty**  
New York



**Craig Waslin**  
Chicago



**Emily Shiau**  
New York



**Ervis Vukaj**  
New York



**Matthew Wachtel**  
New York



## INVESTMENT STRATEGY AND RISK MANAGEMENT

**Miguel Gonzalo**  
Head of Investment  
Strategy and Risk  
Management  
Chicago



**Luke Frey**  
Chicago



**Alex Storer**  
Chicago



**Jana Tortora**  
Chicago



**Toby True**  
Chicago



**Jian Zhang**  
Chicago



■ Portfolio Update



# North Dakota State Investment Board

## Adams Street private equity portfolio summary

Total portfolio as of March 31, 2018

	Inception Date	Subscription	Investment Commitments	Amount Draw n	Amount UnDraw n	Market Value (NAV)	Distributions Received (D)	Total Value (NAV + D)	Net IRR Since Inception	MSCI ACWI PME <sup>^</sup>	Added Value	Total Value / Amount Draw n
Institutional Venture Capital Fund II	3/1989	\$5,000,000	\$5,000,000	\$5,000,000	\$0	\$0	\$13,434,867	\$13,434,867	21.34%	10.26%	11.08%	2.69x
Institutional Venture capital Fund III	1/1993	\$6,000,000	\$6,000,000	\$6,000,000	\$0	\$0	\$18,438,202	\$18,438,202	34.15%	15.64%	18.51%	3.07x
1998 Global Fund	1/1998	\$23,701,761	\$23,938,195	\$22,848,073	\$853,688	\$895,336	\$33,739,981	\$34,635,317	5.01%	4.07%	0.94%	1.52x
1999 Global Fund	1/1999	\$24,489,864	\$24,657,244	\$23,421,339	\$1,068,525	\$1,180,343	\$35,891,358	\$37,071,701	6.03%	5.85%	0.18%	1.58x
1999 Non-U.S. Fund	1/1999	\$24,523,732	\$24,512,934	\$23,944,608	\$579,124	\$1,255,781	\$46,209,197	\$47,464,978	11.92%	7.63%	4.29%	1.98x
Venture Capital Fund IV	5/1999	\$25,000,000	\$25,000,000	\$25,000,000	\$0	\$3,345,800	\$43,736,431	\$47,082,231	7.60%	4.62%	2.98%	1.88x
Direct Co-Investment	9/2006	\$20,000,000	\$20,000,000	\$19,100,000	\$900,000	\$1,234,782	\$27,030,747	\$28,265,529	5.41%	3.87%	1.54%	1.48x
ASP 2008 Non-US Fund	1/2008	\$10,000,000	\$9,980,161	\$9,133,000	\$867,000	\$7,865,533	\$6,306,903	\$14,172,436	10.58%	9.31%	1.27%	1.55x
2010 Global Fund	4/2010	\$15,000,000	\$15,054,949	\$13,269,150	\$1,730,850	\$12,577,290	\$7,868,505	\$20,445,795	13.02%	9.72%	3.30%	1.54x
2015 Global Fund	10/2015	\$30,000,000	\$32,839,424	\$11,715,000	\$18,285,000	\$12,275,811	\$3,104,257	\$15,380,068	36.18%	13.29%	22.89%	1.31x
2016 Global Fund	5/2016	\$30,000,000	\$28,660,291	\$5,385,000	\$24,615,000	\$6,542,458	\$0	\$6,542,458	34.95%	11.30%	23.65%	1.21x
2017 Global Fund	10/2017	\$60,000,000	\$42,324,691	\$2,610,000	\$57,390,000	\$3,036,946	\$0	\$3,036,946	16.36% *	1.44%	14.92%	1.16x
Grand Total		\$273,715,357	\$257,967,889	\$167,426,170	\$106,289,187	\$50,210,080	\$235,760,449	\$285,970,529	11.05%	6.42%	4.63%	1.71x

April 1, 2018 – August 10, 2018

Draws: \$9.9 million

Distributions: \$2.7 million

**Every Fund has outperformed the public equity markets**

\* Change in value over amount invested. Internal rates of return are not calculated for funds less than one year old.

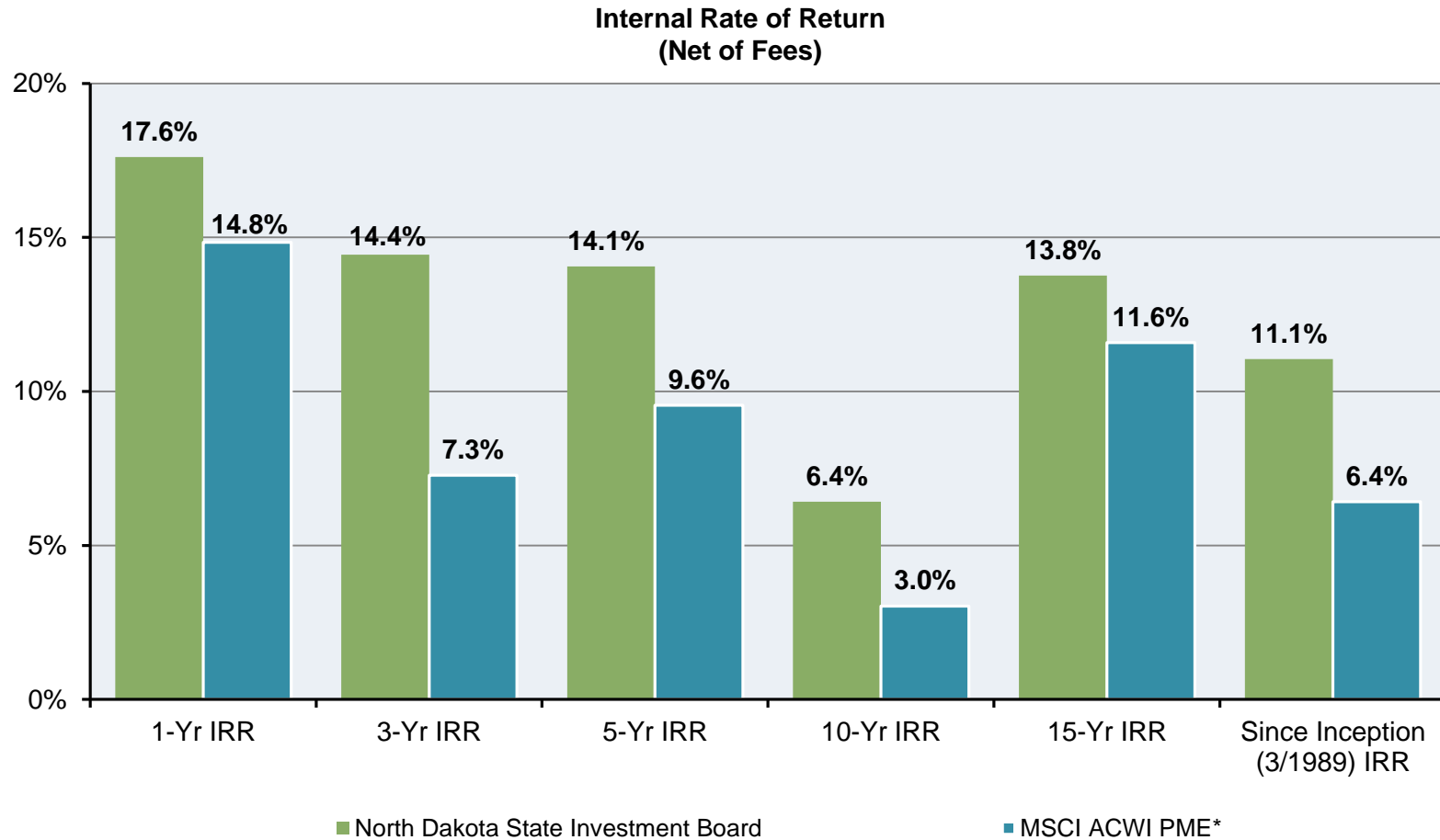
<sup>^</sup> Direct Alpha Methodology

Performance early in a fund's life is not generally meaningful due to fee drag and immature investments.

# North Dakota State Investment Board

Intraperiod returns as compared to benchmark data

Total portfolio as of March 31, 2018

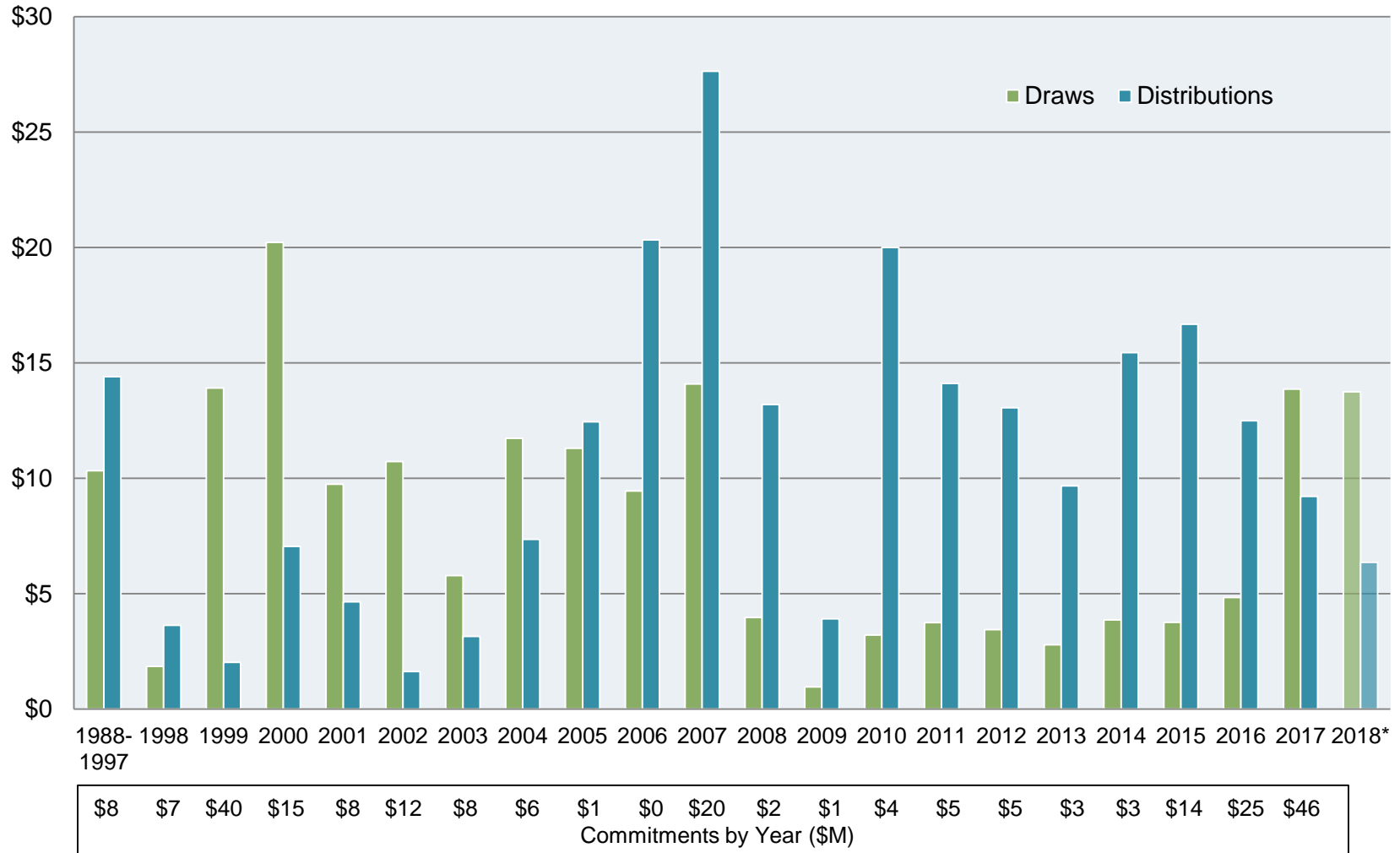


\* For some periods, it was not possible to calculate a traditional PME because the pace of distributions would have created a short position in the public index. In these cases, the PME is calculated using the "Direct Alpha" PME methodology (Gredil, Griffiths, Stucke, "Benchmarking Private Equity: The Direct Alpha Method," 2014).



# North Dakota State Investment Board

## Draws, distributions and commitment activity



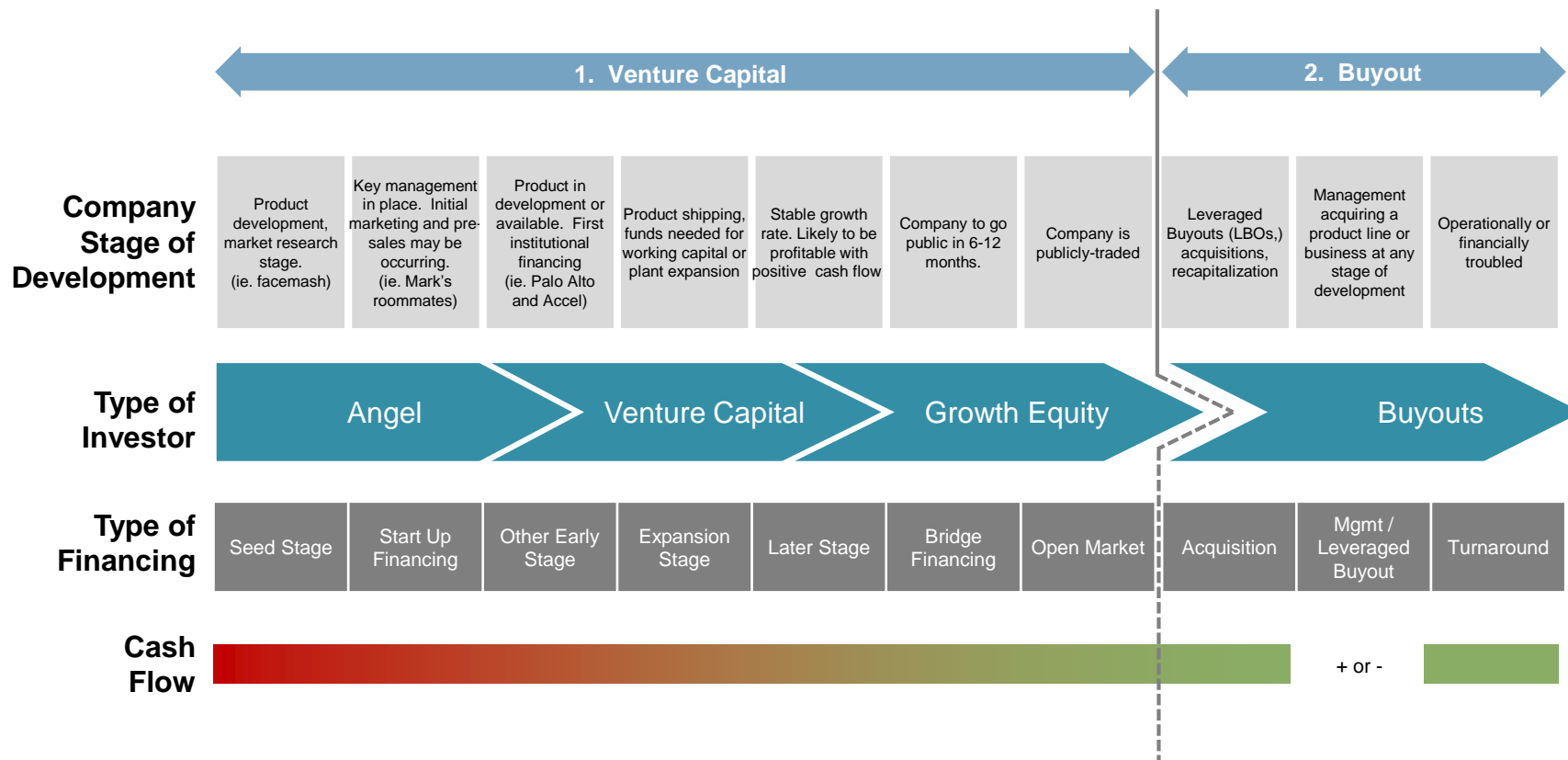
\* As of August 10, 2018

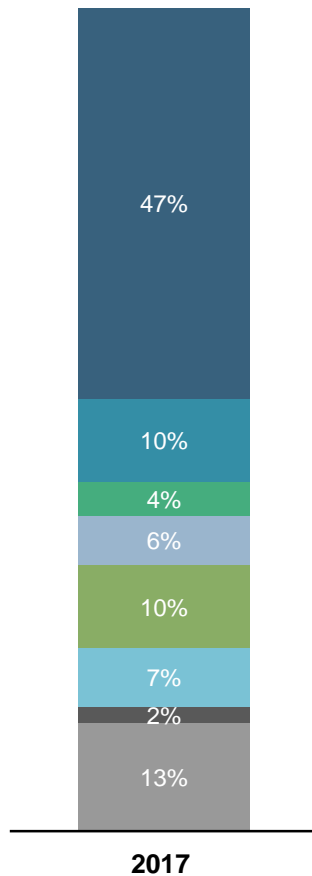
■ Venture Capital Market



# Private Equity Spectrum

- Private equity provides money to companies in various stages of development
- Spectrum runs from angel investing (seed stage) to buyouts
- Two main types of private equity:

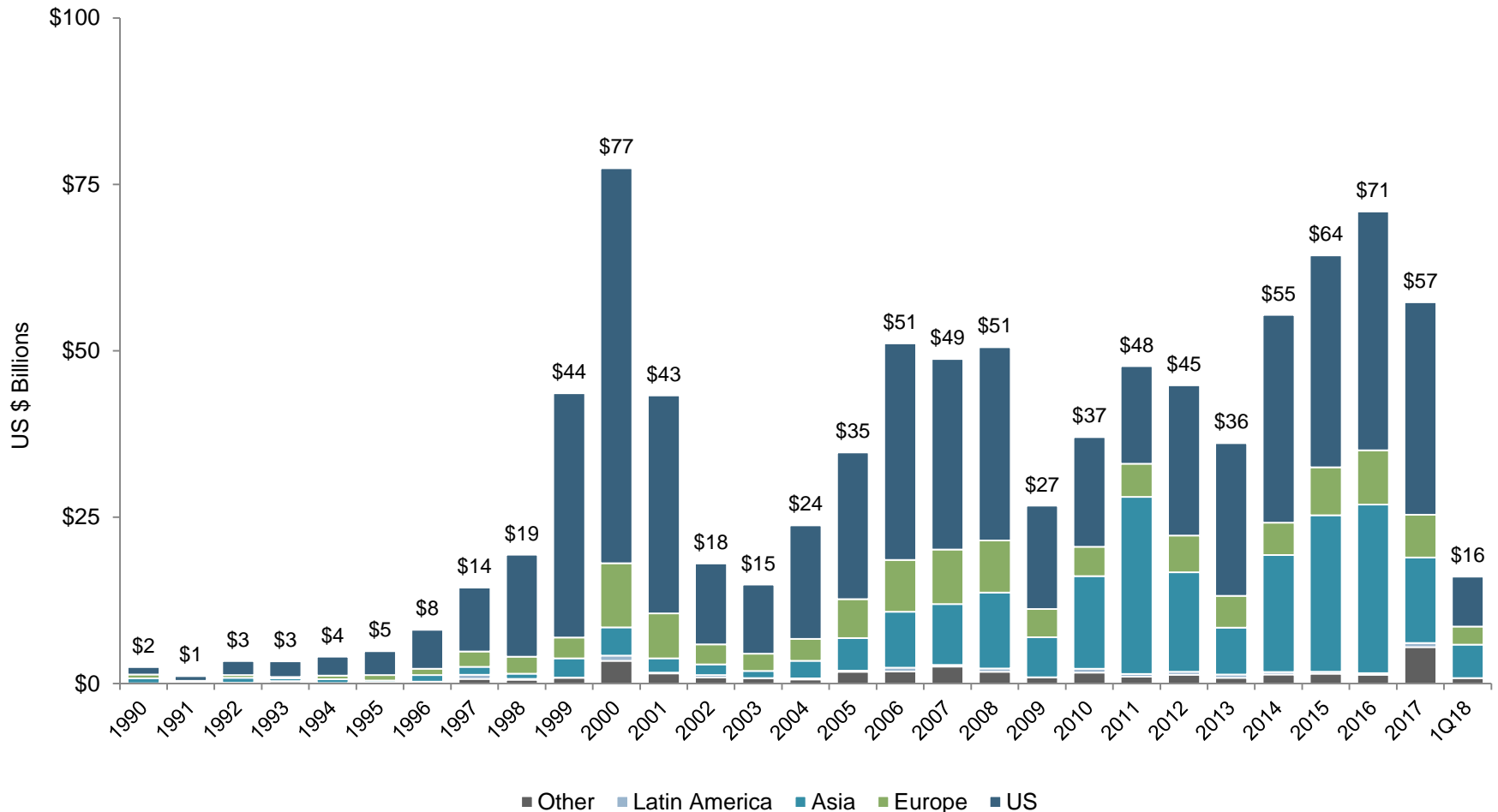




Strategy	Description
<b>Buyout</b>	Invests in established companies, often with the intention of improving operations and/or financials
<b>Venture</b>	Provides capital to new or growing businesses with perceived, long-term growth potential
<b>Secondaries</b>	Acquires stakes in private equity funds from existing limited partners
<b>Growth</b>	Targets profitable, but still maturing, investee companies with significant scope for growth
<b>Distressed PE</b>	Buys corporate bonds of companies that have either filed for bankruptcy or appear likely to do so in the near future
<b>Fund of Funds</b>	Invests in a diversified mix of private equity partnerships
<b>Mezzanine</b>	Debts used to finance acquisitions and buyouts
<b>Other</b>	Includes natural resources and other private asset classes

**Venture is a small portion of the overall market**

# Global Venture Capital Fundraising



**Fundraising has been steady overall**

Includes North America, Europe, Asia, Latin America and Other as of 1Q 2018.

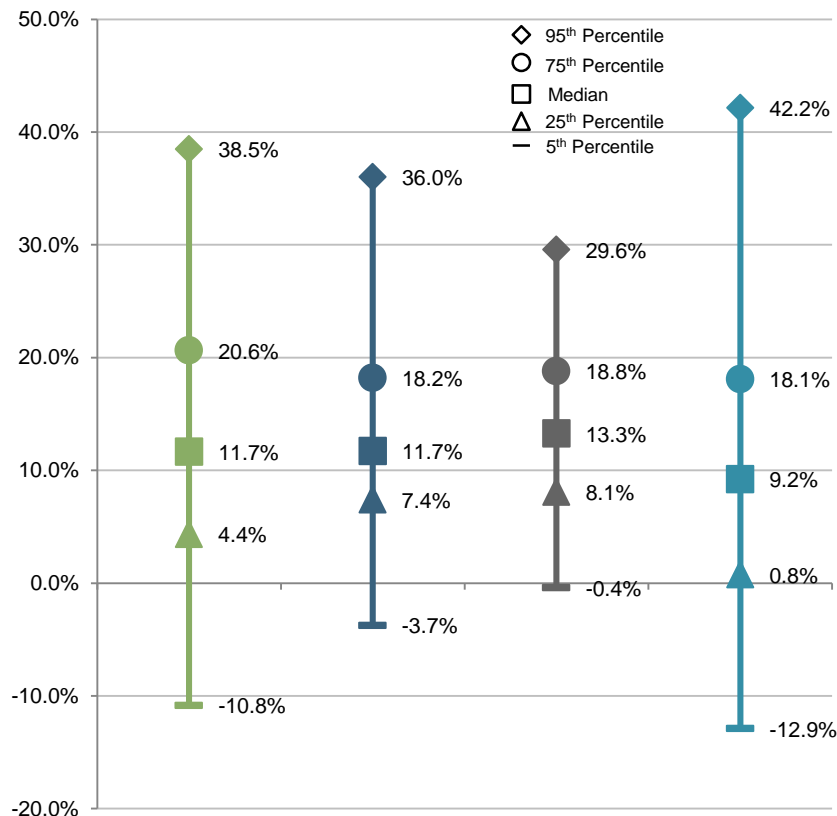
Source: Preqin Research.

1. Other includes Africa, Middle East/Israel, and Multi-Regional

# Venture Industry Has an Attractive Dispersion of Returns

As of March 31, 2018

## Dispersion of Burgiss Returns – Net IRR



■ Small LBO (<\$1.0bn)

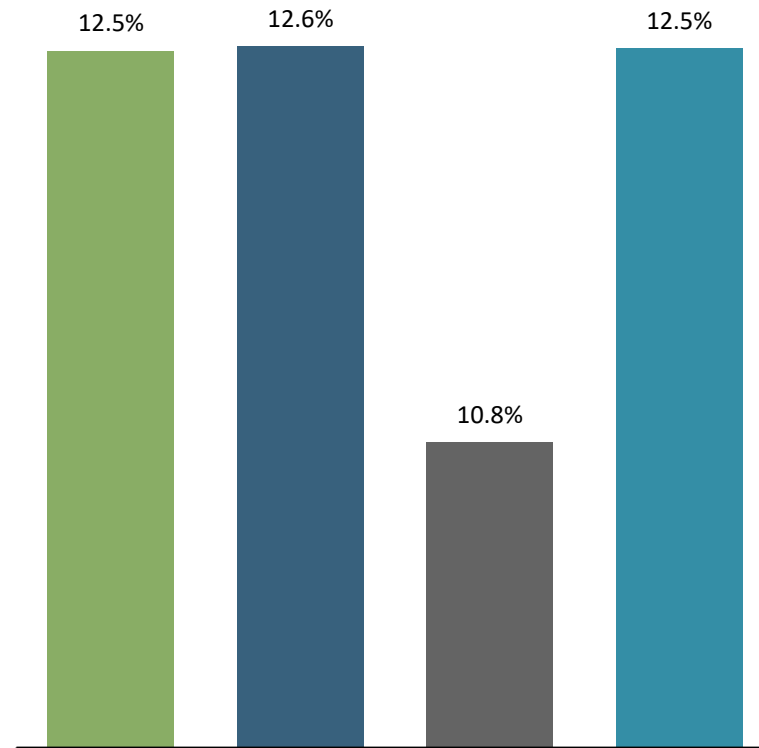
■ Medium LBO (\$1.0bn-\$3.0bn)

■ Large LBO (\$3.0bn+)

■ Venture

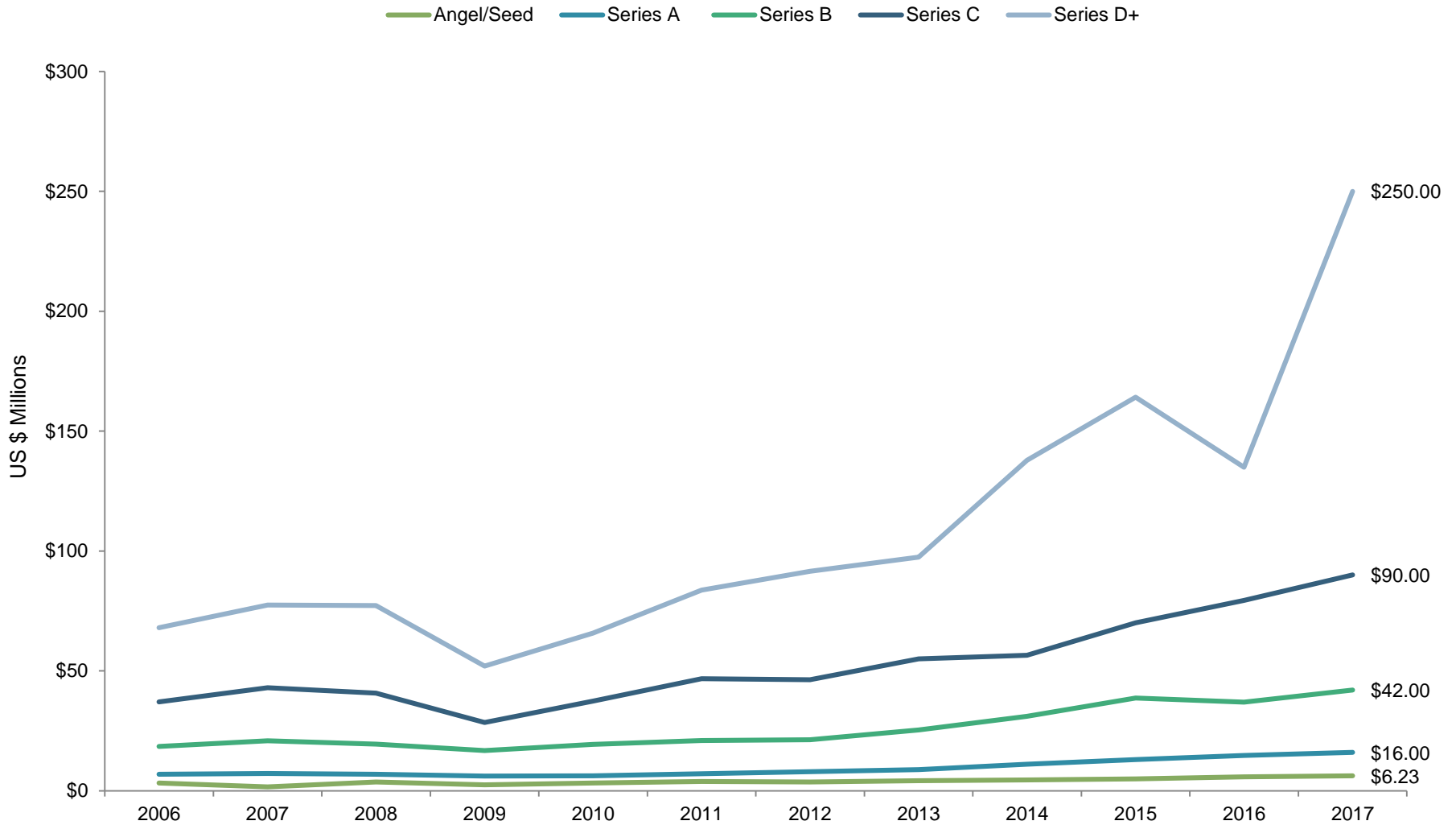
## Aggregate Burgiss Pooled Performance

Net IRR, as of March 31, 2018


















Source: The Burgiss data presented here includes a set of funds in Asia, Europe, and US regions with vintage years 2002-2016 which are invested on a primary basis in venture capital and buyout partnerships, and excludes secondary investments. Numbers are subject to updates by Burgiss. Burgiss is a recognized source of private equity data, and the Burgiss Manager Universe includes funds representing the full range of private capital strategies. All net IRRs are net of GP fees, carried interest, and expenses. Calculations by Burgiss. Data sourced on August 14, 2018. Performance as of March 31, 2018.

# Median Pre-Money Valuations by Series



# We Pick Managers Who Pick Well (US Companies)

## Top 15 US venture backed companies by completed private valuation

	Company Name	Private Round Valuation (Valuation in \$ Billions)	ASP Early Exposure* (Series A, B, C)
1	 UBER	70.0	✓
2	 airbnb	31.0	✓
3	 SPACEX	24.7	
4	 wework.	21.0	✓
5	 Palantir	21.0	
6	 **	20.0	✓
7	 lyft	15.1	✓
8	 Pinterest	12.3	✓
9	 Dropbox **	10.0	✓
10	 twitter **	10.0	✓
11	 stripe	9.2	✓
12	 Square **	6.5	✓
13	 magic leap™	6.4	✓
14	 robinhood	5.6	✓
15	 slack	5.1	✓

Source: Pitchbook and ASPIRE as of June 30, 2018

\* Non-healthcare portfolio companies of funds in which Adams Street Partners' portfolios have invested; check marks indicate Adams Street Partners' early exposure through such funds. A complete list of such portfolio companies is available upon request. Through the underlying funds in which Adams Street Partners' portfolios have invested, Adams Street Partners has captured exposure to approx. 70% of the global non-healthcare \$1 billion+ venture-backed companies since 2000.

\*\* Companies that have become publicly traded since private round of financing.



# Venture Capital – Market Summary

- **Unrealized performance remains strong, realizations (liquidity) beginning to pick up**
- **Global venture fundraising and investment activity remain strong** (e.g., 2017 global venture fundraising \$63bn<sup>1</sup>; \$42bn<sup>1</sup> YTD 2018)
- **Large later-stage venture financing rounds increasing in frequency**
  - Companies are staying private longer, often by choice, to achieve scale and consistent growth.
  - Increasing appetite and ability of early stage venture managers to exit via secondaries in later-stage rounds.
- **IPO & M&A markets tracking to a robust 2018**
  - Strong M&A market driven by: cash-rich tech incumbents seeking growth; and, non-tech companies transforming their core business.



- Receptive IPO market in 2018 continuing trend from 2017: 52 VC-backed IPOs in North America generated proceeds of \$7 billion through 1H 2018; 63 VC-backed IPOs accounting for \$8.6 billion of proceeds in 2017.
- Current inventory of high quality IPO prospects and strong underlying investor appetite provides a favorable backdrop for IPO environment over the next twelve months.

STITCH FIX <sup>\*</sup>



cloudera <sup>\*</sup>

DocuSign <sup>\*\*</sup>

zuora <sup>\*\*</sup>



Dropbox <sup>\*\*</sup>

adyen <sup>\*\*</sup>

- **The venture opportunity set remains large and global on the back of continued innovation**

As of June 30, 2018

\* Indicates 2017(\*) and 2018(\*\*) IPOs

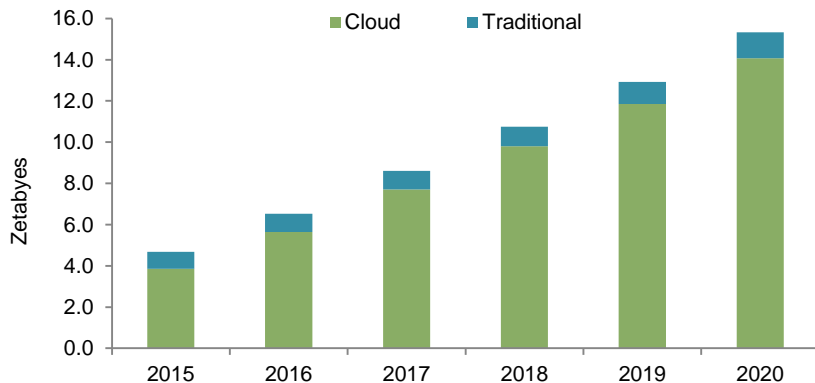
<sup>1</sup> Excluding \$98Bn Softbank Vision Fund, Source: Preqin

<sup>2</sup> Reflects expected deal size.

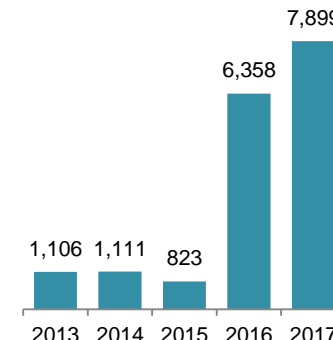
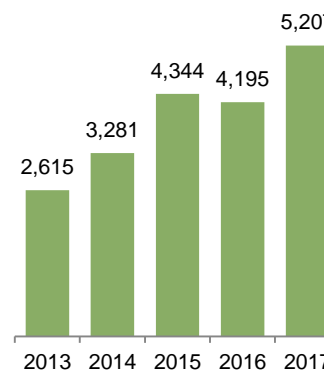
Less than 10% of the **\$4 Trillion** in IT spend today is spent on **cloud software**<sup>1</sup>



Strong Growth in Global Data Center Traffic<sup>2</sup>



Cyber Attacks Have Reached an Unprecedented Scale<sup>3</sup>

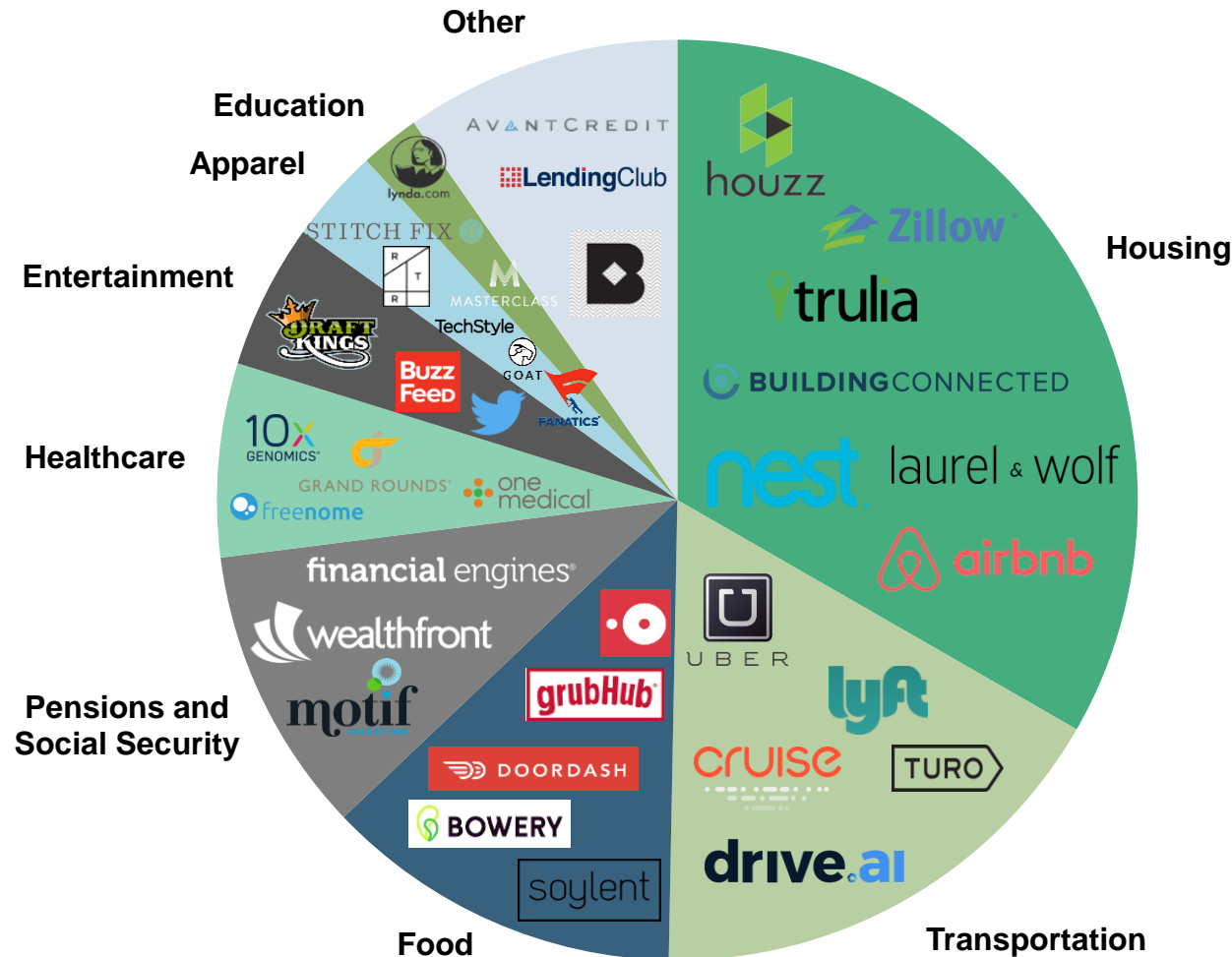


1. GP Presentations.  
 2. "Cisco Global Cloud Index: Forecast and Methodology, 2015–2020" White Paper.  
 3. Risk Based Security Data Breach Trends, as of June 30, 2018.

# Consumer: Information Technology Is Eating the World

Disrupting every aspect of the consumer universe

Distribution of Consumer Wallet by Category – Adams Street Portfolio<sup>1</sup>



Source: U.S. Bureau of Labor Statistics.

1. Portfolio companies of U.S. venture funds in which Adams Street Partners' portfolios invested. A complete list of investments is available upon request.

■ 2018 Global Fund

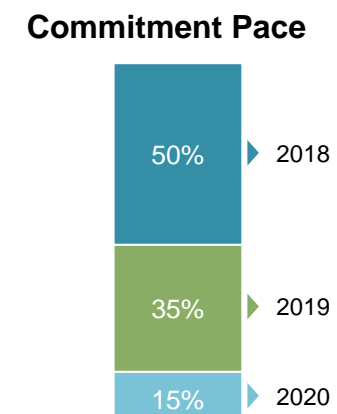
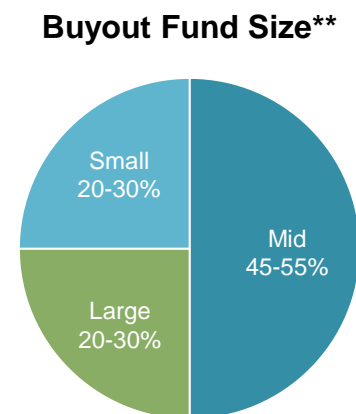
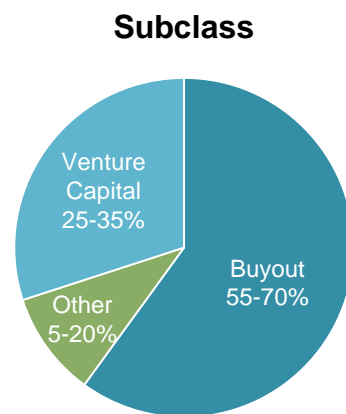
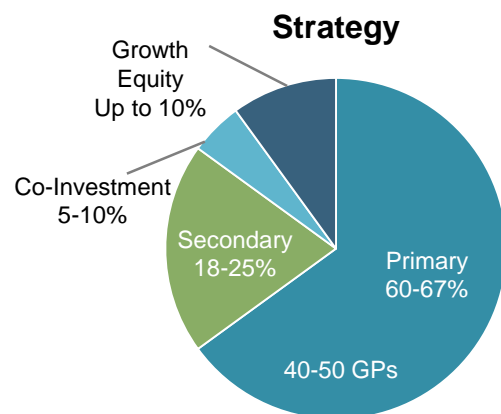
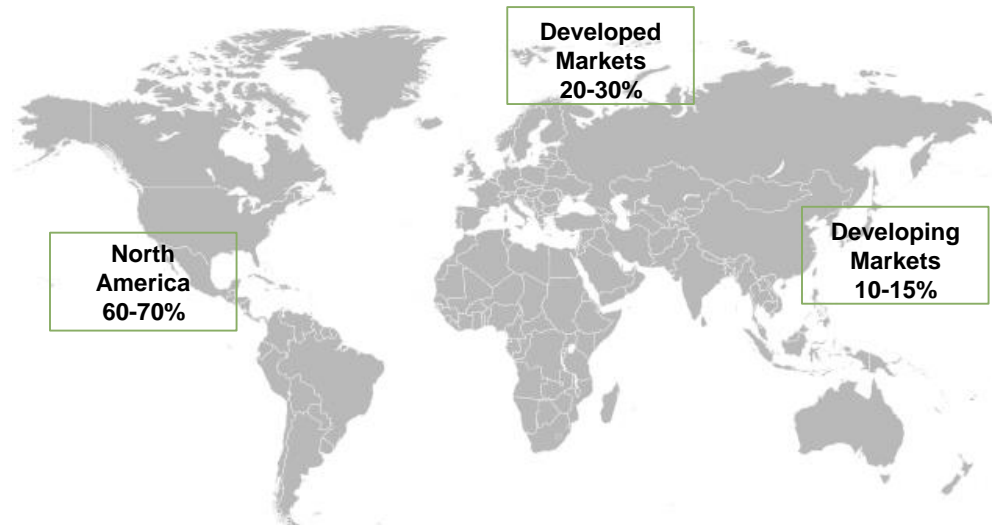


# 2018 Global Private Equity Program\*

Comprehensive private equity solution

## Highlights

- Access to best-in-class private equity opportunities
  - Focus on growth and smaller companies
- Primary partnerships
  - Mix of established and spin-out funds diversified by stage and fund size
- Co-invest and secondary exposure to capitalize on market inefficiencies and mitigate the j-curve

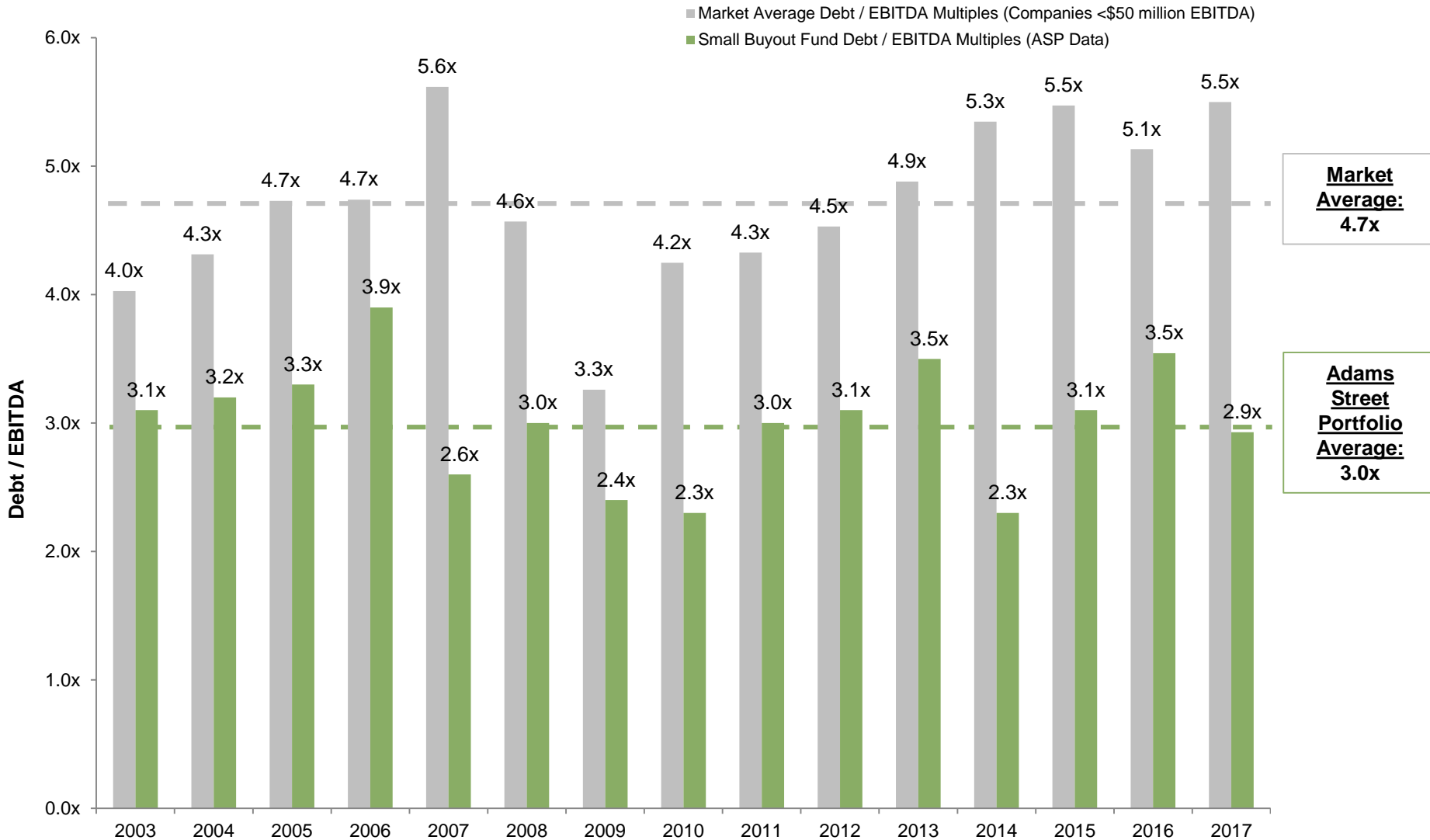


\* Actual allocations will differ once the Program is fully invested

\*\* Defined as small <\$500M, mid \$500M-\$2B, and large >\$2B

# Focus on Growth Companies Drives Returns

## Debt / EBITDA leverage multiples over time



Source: S&P Capital IQ Transaction Statistics as of March 2018.

1. Represents underlying portfolio company data from historical track records of general partners in whose US LBO funds under \$1.5 billion in fund size Adams Street Core Portfolios invested from 1999 to 2016. "Core Portfolios" are funds and separate accounts (excluding special mandate funds and non-discretionary separate accounts) of which Adams Street Partners is the general partner, manager or investment adviser (as applicable) and for which Adams Street Partners makes discretionary investments in private equity funds. Core Portfolios include separate accounts no longer with Adams Street Partners. Represents the average leverage ratios (debt / EBITDA) for Adams Street Core Portfolio companies over the past 10 years as available.



**30-year** track record with **>\$5 billion** invested across over 210 transactions<sup>1</sup>

**1.6x** multiple / **19% IRR** / **~ 1,000 bps** outperformance vs PME since inception<sup>2,3</sup>

**114%** of aggregate invested capital returned to LPs<sup>4</sup>

Consistent J-curve mitigation – 2015 / 2016 / 2017 vintage deals generating **25% IRR**<sup>5</sup>

Proactive, thematic approach targeting quality – **~80%** of current secondary value in ASP primary managers

Levering over **1,500** GP interactions per annum across the ASP platform

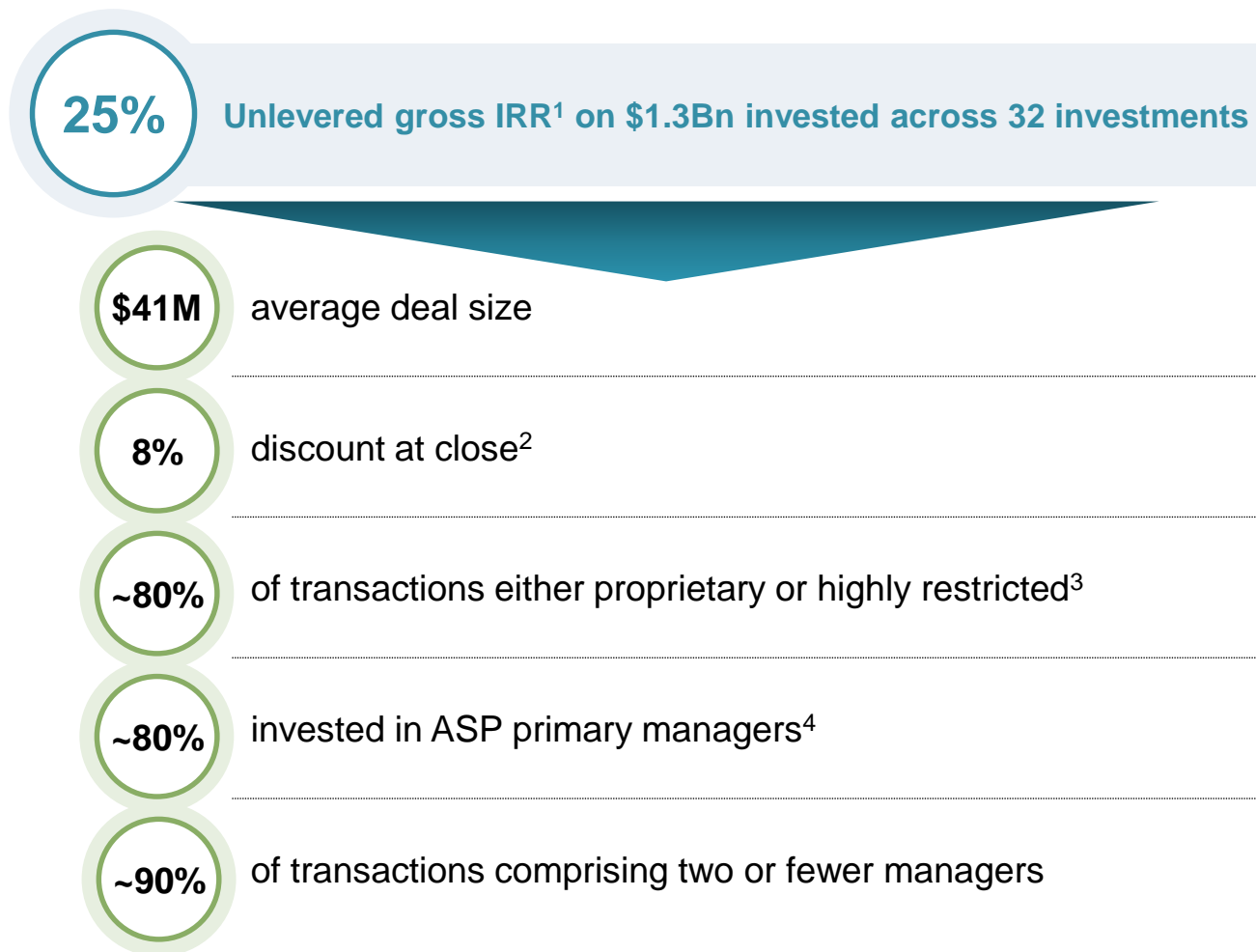
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**A time-tested formula well-aligned to today's secondary market**

---

# ASP Exploits Inefficiencies in Secondary Market

2015 - 2017 Transactions:



As per ASPIRE at March 31, 2018.

1. See note 5 on the page entitled "Notes to Performance: ASP Secondary Value Proposition" included in this presentation for important information regarding this performance data.
2. Discount at close is calculated by taking the inverse of the deal's TVPI from the first quarter it is reported on ASP's books. The TVPI used is net of underlying general partners' fees, carried interest and expenses, but gross of Adams Street Partners' fees, carried interest and expenses, which reduce returns to investors.
3. Proprietary processes are those in which Adams Street has engaged in a bi-lateral negotiation to close the transaction. Restricted processes are those in which Adams Street is one of a small potential buyers list that have been allowed to participate in the process.
4. ASP manager refers to a manager in one or more of whose funds Adams Street Partner's Primary team has made an investment.

See the pages entitled "Notes to Performance: ASP Secondary Value Proposition" and "Vintage-Year Performance All Secondary Investments" included in this presentation, for important information regarding this performance data.

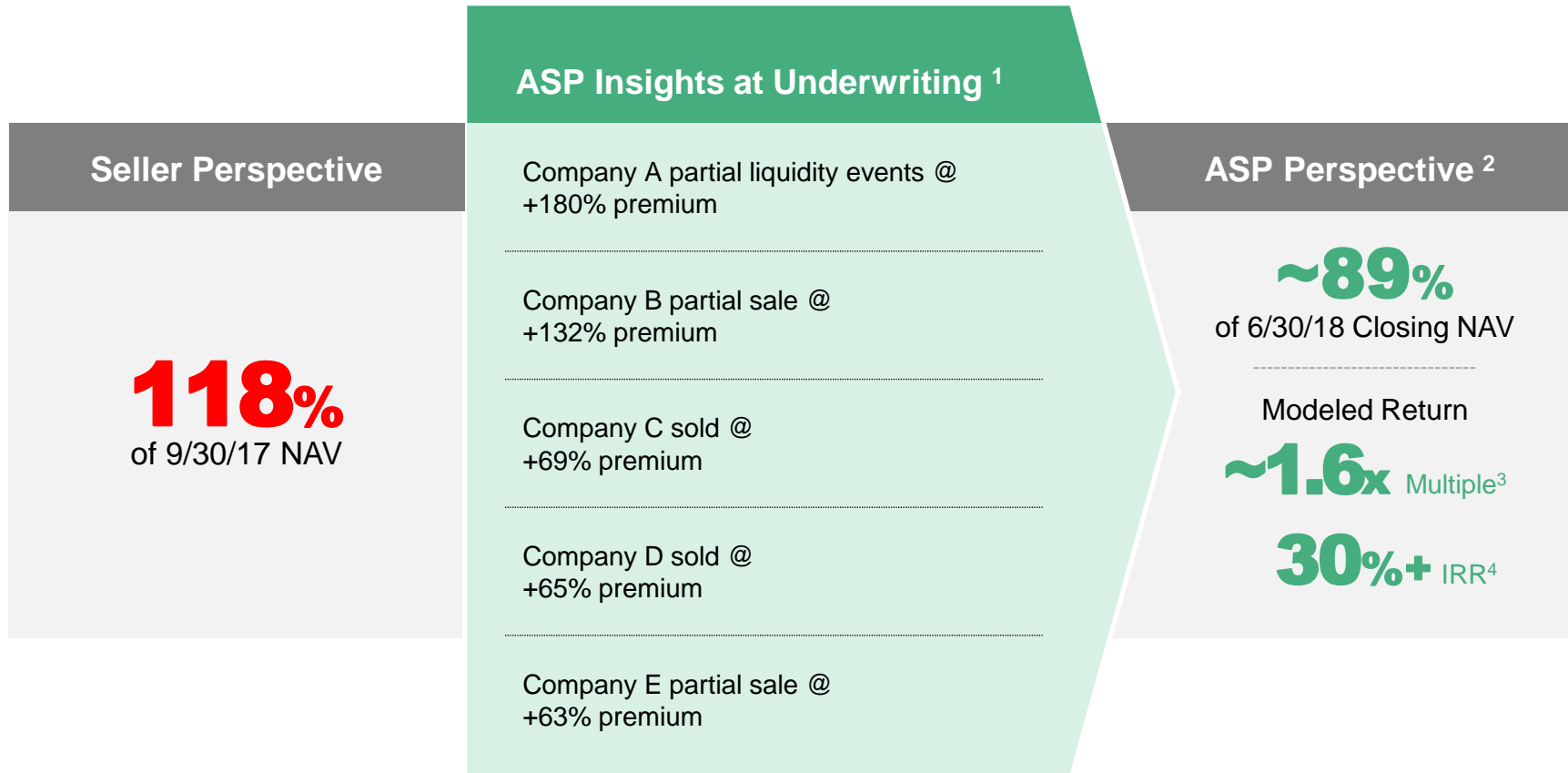


# Bottom Up Views – Opportunity Set is Attractive

The 2018 Global Fund commitments\*

	2018 US	2018 Non-US
Primaries	Symphony Technology Group V Silversmith Capital II Thoma Bravo XIII	Investindustrial Growth Fund Centurium Capital I DCM IX
Venture/Growth	Cofense Inc. (fka PhishMe) Partner Therapeutics Callisto Media Corvus	
Co-Investments	CH Guenther (PPC Partners) Rimini Street (Victory Park / Accel-KKR) ProMach (Green Equity) Rodan and Fields (TPG) GFL (BC Partners)	Easy Park (Verdane Capital / Vitruvian) Mankind (ChrysCapital) Capital Economics (Phoenix) ZPG (Silver Lake)
Secondaries	Project Cavendish Project Marwad Project Starter A Project Stenson ← Project Gorda	

**The Global Fund is 30% committed**



1. The liquidity events shown are a sample of several interim liquidity events. Additional details are available upon request.  
 2. These figures are estimates. There can be no guarantee of the accuracy of these assumptions or the estimates based on them.  
 3. Multiple is calculated as total proceeds distributed divided by dollars drawn. Multiple is net of fees, carried interest and expenses charged to the underlying private equity funds, but is gross of Adams Street Partners' fees, carried interest and expenses, which reduce returns to investors.  
 4. IRR is net of fees, carried interest and expenses charged to the underlying private equity funds, but is gross of Adams Street Partners' fees, carried interest and expenses, which reduce returns to investors.  
 Past performance is not a guarantee of future results.

■ Appendix



# Notes to Performance: ASP Secondary Value Proposition

As of March 31, 2018

1. Since inception in 1986 when Adams Street Partners made its first secondary investment. Data on this page includes all secondary private equity fund investments (including interests purchased pursuant to a right of first refusal) in all funds or other portfolios over which Adams Street Partners exercises investment discretion (including separate accounts no longer with Adams Street Partners), with the exception of transactions that would not fit the investment criteria for Global Secondary Fund 6.
2. TVPI, often referred to as "multiple," means the ratio of the total value of the investment (distributions to investors plus current net asset value) to the paid-in capital. TVPI and IRR (internal rate of return) reflect composite performance of all secondary investments as described in footnote 1; they do not represent performance of any particular Adams Street Partners fund or any investor in an Adams Street Partners fund. Net of fees, carried interest and expenses charged to the underlying private equity funds, but gross of Adams Street Partners' fees, carried interest and expenses, which reduce returns to investors. See "Long and Consistent Record of Success" in this presentation for net performance of Adams Street Partners' secondary funds and secondary portions of other portfolios.
3. Public Market Equivalent (PME) is calculated using MSCI All Country World Index. PME is calculated by replicating the actual cash flows from the private equity investment in a hypothetical tracking position in the public market index. Shares of the tracking position are purchased (sold) in transaction amounts corresponding to the amount of capital calls (distributions) of the private equity investment. PME is the IRR of the investment in the tracking position. During some periods in which Adams Street Partners investments outperformed the benchmark by a substantial margin, PME could not be calculated because the tracking position in the underlying benchmark index would have resulted in a short position. In these cases (indicated with the symbol ^), the PME is calculated using the "Direct Alpha" PME methodology (Gredil, Griffiths, Stucke, "Benchmarking Private Equity: The Direct Alpha Method," 2014). Mathematically, Direct Alpha PME is equal to the IRR of the future value of the cash flows underlying the IRR calculation, where future value is based on the return of the benchmark index, less the IRR of the actual value of the cash flows.
4. Refers to aggregate capital invested in, and aggregate capital distributed back to LPs from, all secondary investments as described in footnote 1.
5. Composite performance of all 2015 - 2017 vintage year secondary private equity fund investments (including interests purchased pursuant to a right of first refusal) in all funds or other portfolios over which Adams Street Partners exercises investment discretion (including separate accounts no longer with Adams Street Partners), with the exception of transactions that would not fit the investment criteria for Global Secondary Fund 6. The IRR does not represent returns achieved by any particular Adams Street Partners fund or any investor in an Adams Street Partners fund. The IRR is net of fees, carried interest and expenses charged to the underlying private equity funds, but is gross of Adams Street Partners' fees, carried interest and expenses, which reduce returns to investors. For net performance of Adams Street Partners' secondary funds and secondary portions of other portfolios, see the "Long and Consistent Record of Success" chart in this presentation. For additional vintage year performance of Adams Street Partners' secondary investments, see "Vintage-Year Performance All Secondary Investments" in this presentation. Performance early in the life of a secondary investment may not be indicative of future performance due to a pricing premium or discount.

Past performance is not a guarantee of future results. There can be no guarantee that unrealized investments will ultimately be liquidated at the values reflected in this return data.

# Notes to Performance: Vintage Year Performance

## All Secondary Investments

As of March 31, 2018

1. This chart, in USD, shows composite performance by year of legal closing and transfer of assets of secondary investments (including interests purchased pursuant to a right of first refusal); it includes all secondary investments from 1986 through current period in all funds or other portfolios over which Adams Street Partners exercises investment discretion (including separate accounts no longer with Adams Street Partners), with the exception of transactions that would not fit the investment criteria for Global Secondary Fund 6. This chart does not present performance achieved by any particular Adams Street Partners fund or any investor in an Adams Street Partners fund. For net returns (which show the effect of Adams Street Partners fees, carried interest and expenses on Adams Street Partners fund returns to investors) of Adams Street Partners funds that invest primarily in secondary private equity interest ("Secondary Funds") and net returns to investors from secondary investments made by Adams Street Partners in other funds and separate accounts (together with Secondary Funds, "Secondary Portfolios"), please see the "Long and Consistent Record of Success" chart in this presentation. Performance early in the life of a secondary investment may not be indicative of future performance due to a pricing premium or discount.
2. Capital-weighted annualized returns from inception through quarter end. IRRs (as well as TVPIs and DPIs) are net of fees, carried interest and expenses charged to the underlying private equity funds, but are gross of Adams Street Partners' fees, carried interest and expenses, which reduce returns to investors. Net returns are not calculated on a vintage year basis as no investor is allocated a single vintage year. For the effect of Adams Street Partners' fees, carried interest and expenses on Adams Street Partners' Secondary Portfolios' returns to investors, please see the page entitled "Long and Consistent Record of Success" included in this presentation. There can be no guarantee that unrealized investments will ultimately be liquidated at the values reflected in this return data. These returns may not be linked.
3. Public Market Equivalent (PME) is calculated using MSCI All Country World Index. PME is calculated by replicating the actual cash flows from the private equity investment in a hypothetical tracking position in the public market index. Shares of the tracking position are purchased (sold) in transaction amounts corresponding to the amount of capital calls (distributions) of the private equity investment. PME is the IRR of the investment in the tracking position. During some periods in which Adams Street Partners investments outperformed the benchmark by a substantial margin, PME could not be calculated because the tracking position in the underlying benchmark index would have resulted in a short position. In these cases (indicated with the symbol ^), the PME is calculated using the "Direct Alpha" PME methodology (Gredil, Griffiths, Stucke, "Benchmarking Private Equity: The Direct Alpha Method," 2014). Mathematically, Direct Alpha PME is equal to the IRR of the future value of the cash flows underlying the IRR calculation, where future value is based on the return of the benchmark index, less the IRR of the actual value of the cash flows.
4. TVPI, often referred to as "multiple," means the ratio of the total value of the investment (distributions to investors plus current net asset value) to the paid-in capital (the amount investors have contributed to the fund).
5. DPI means the ratio of distributions to paid-in capital, or the amount a partnership has distributed to its investors relative to the total capital contribution to the fund.

Past performance is not a guarantee of future results.

\* During some periods in which Adams Street Partners investments outperformed the benchmark by a substantial margin, PME could not be calculated because the tracking position in the underlying benchmark index would have resulted in a short position. In these cases, the PME is calculated using the "Direct Alpha" PME methodology (Gredil, Griffiths, Stucke, "Benchmarking Private Equity: The Direct Alpha Method," 2014). Mathematically, Direct Alpha PME is equal to the IRR of the future value of the cash flows underlying the IRR calculation, where future value is based on the return of the benchmark index, less the IRR of the actual value of the cash flows.

\*\* Change in value over amount invested. Internal rates of return are not calculated for funds less than one year old.

## Brijesh Jeevarathnam

Partner & Co-Head of Global Venture Fund Investments, Menlo Park



**EDUCATION:**

St. Lawrence University, BS,  
*summa cum laude*

Harvard University, MBA

**YEARS OF INVESTMENT/  
OPERATIONAL EXPERIENCE:**

21

**LANGUAGES:**

Hindi, Tamil, Telugu

- Brijesh focuses on the Adams Street global venture capital fund portfolio, and is responsible for building and maintaining relationships with key venture capital general partners around the world.
- Prior to joining Adams Street, Brijesh spent ten years at Commonfund Capital, most recently as the Managing Director and Co-Head of Global Venture Capital and Head of Emerging Markets. In this role, Brijesh led the fundraising, portfolio construction, and investment of global venture capital funds. Brijesh also played a key role in Commonfund's strategy development regarding new products, markets, and client development.
- Before Commonfund, Brijesh spent four years at McKinsey & Company, where he oversaw consultant teams performing due diligence, turnarounds of portfolio companies, and the development of investment and organizational strategy for private equity firms. Brijesh began his career as a member of GE Capital's Mergers & Acquisitions team where he managed acquisition-related due diligence and deal structuring.
- Brijesh is a member of the Portfolio Construction Committee.

## Miguel Gonzalo, CFA®

Partner & Head of Investment Strategy and Risk Management,  
Chicago



EDUCATION:  
University of Notre Dame,  
BA

Northwestern University  
Kellogg School of  
Management, MBA

YEARS OF INVESTMENT/  
OPERATIONAL EXPERIENCE:  
23

- Miguel sets investment strategy and oversees the firm's risk management function while collaborating with investors to formulate strategies that leverage Adams Street's global investment capabilities.
- Miguel works closely with investors in the management of their portfolios, including the development and ongoing monitoring of their private market programs. He is actively involved in the portfolio construction and monitoring of our various fund of funds programs and separate accounts. In addition, he maintains relationships with investment consultants to ensure continuity of client objectives.
- Previously, Miguel was Head of the Performance Analysis Group in the Asset Allocation/Currency Group of Brinson Partners where he oversaw the design and management of Brinson's performance attribution and analytics systems.
- Miguel is a member of the Adams Street Partners Portfolio Construction Committee and Investment Pricing Committee, and Co-Chair of the Diversity and Inclusion Committee.
- Miguel is a member of the CFA Society of Chicago and the CFA Institute.

## BOARD ACTION REQUESTED

**TO:** State Investment Board

**FROM:** Dave Hunter, Darren Schulz and Eric Chin

**DATE:** August 24, 2018

**SUBJECT:** **Private Equity Pacing Schedule Recommendation**

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### **Background:**

Since 2015, the SIB and RIO have continued to build out and diversify our PE portfolio within the Pension Trust by making \$200 million of new commitments to BlackRock and \$120 million of new commitments to Adams Street Global Funds (in 2015, 2016 and 2017). As of June 30, 2018, SIB clients within the \$5.7 billion Pension Trust currently have a 6.5% (or \$372 million) target allocation to PE versus an actual allocation of \$191 million.

In light of meaningful asset growth in the Pension Trust over the course of the last three years, RIO Staff engaged both Adams Street and BlackRock to each independently review our existing private equity pacing schedule. Investment pacing plays an important role in strategic planning, particularly in working towards strategic policy weights with follow-on program commitments to the asset class, as is the case with the Pension Trust.

Based on pacing models that incorporated overall plan asset growth, existing commitments, capital calls and distributions, each firm determined that **annual private equity commitments on the order of \$130 million in total are required over the next five years** to address the asset class underweight in a methodical, programmatic fashion. This revised pacing schedule suggests increasing program commitments to our existing strategic partners, Adam Street Partners and BlackRock Private Equity Partners, with whom Staff is recommending equally weighed private equity commitments of \$65 million each.

In the case of Adams Street, the revised pacing schedule is an upward adjustment as compared to annual Global Fund Series commitments of \$30 million in 2015 and 2016 and \$60 million in 2017. With respect to BlackRock, an incremental annual commitment of \$15 million is warranted given current annual program commitments of \$50 million over a four-year period (\$200 million in total).

### **Recommendation:**

**RIO recommends the SIB approve annual private equity commitments of \$130 million based on the revised pacing schedule. This recommendation includes the approval of a \$65 million commitment to Adams Street's 2018 Global Fund and an incremental \$15 million annual commitment to the existing BlackRock private equity portfolio.**



**Legacy Fund Earnings Update  
August 8, 2018**

**Overview:**

**RIO was requested to provide a revised Legacy Fund earnings estimate for the remaining 2017-19 and upcoming 2019-21 biennia.** RIO relied on oil and gas tax estimates provided by OMB and expected investment earnings over the next three years. Estimates are based on the anticipated average balance of the Legacy Fund during the forecast period acknowledging that commodity prices are volatile in addition to the impact of this price volatility on oil and gas production and related tax collections.

**Background:**


**The North Dakota State Investment Board (SIB) and Legacy Fund Advisory Board recently completed an asset liability study which affirmed the current target asset allocation of 50% equity, 35% fixed income and 15% diversified real assets.** Given that our current investment policy includes a 50% target allocation to public equities which are inherently subject to significant return volatility including the potential for negative investment returns over any defined time period, RIO notes it is reasonable to expect the Legacy Fund to lose money during certain periods when the equity markets are experiencing losses, credit markets are experiencing elevated defaults and/or when liquidity in the private markets is challenged. Despite these investment concerns (which are present in most any return seeking portfolio), RIO is confident the Legacy Fund will meet or exceed its targeted investment return of 6% over the long term. In order to be prudent and diligent and in light of our significant fiduciary responsibility, the SIB and RIO work with expert consultants and professional investment management firms to confirm the reasonableness of our future capital market assumptions which serve as the foundation for long-term return expectations.

**RIO notes the original earnings estimate of \$200 million for the 2017-19 biennium was based on a 2% average “earnings” rate and anticipated Legacy Fund average balance of approximately \$5 billion** (\$5 billion x 2% = \$100 million per year or \$200 million per biennium). *The 2% average “earnings” rate was originally based on the midpoint of the RV Kuhn consultant forecast including a 6% Base Case and -2% Worst Case, noting the Worst Case was raised by 1% (from -3%) based on the expected strength of the capital markets during the prescribed time period.* RIO notes that NDCC 21-10-02 defines “earnings” as “net income in accordance with generally accepted accounting principles, excluding any unrealized gains or losses.” This definition of “earnings” is materially different than net investment return which includes realized gains and losses. For comparison, the Legacy Fund generated over \$1.1 billion of net investment earnings since inception (as of May 31, 2018) whereas “earnings” as defined in accordance with NDCC 21-10-02 was less than \$660 million during this same time period.

## **Legacy Fund “Transferrable Earnings” Estimate:**

Based on the expected strength and resiliency of the capital markets over the next three years, RIO continues to recommend a 2% average “transferrable earnings” rate for the remaining 2017-19 and 2019-21 biennia. **Based on this 2% “transferable earnings” assumption and incorporating actual returns of the Legacy Fund through May 31, 2018, in addition to OMB’s expected oil and gas tax projections through June 30, 2021, RIO estimates Legacy Fund “transferrable earnings” will approach \$350 million in 2017-19 and \$300 million in 2019-21.** RIO acknowledges the \$350 million estimate for 2017-19 is \$50 million higher than our prior forecast due to a moderate and sustained rise in U.S. interest rates in addition to generally strong economic conditions in the U.S. and moderately strong oil and gas tax revenue projections through June 30, 2021 (resulting in average oil and gas tax deposits of nearly \$55 million/month). **The \$300 million “transferrable earnings” estimate for the 2019-21 biennia is largely driven by OMB’s forecasted oil and gas tax deposits causing average Legacy Fund investments to approximate \$7.5 billion in the 2019-21 biennia (e.g. \$7.5 billion x 2% “earnings” rate = \$150 million x 2 years = \$300 million).**

Note: Although there is a reasonable belief that the long-term “transferrable earnings” rate will trend upwards towards 3% to 4% in the next decade, it is important to acknowledge that “realized earnings” will likely be negative in some future 2-year time frame. Given the risk of a moderate market correction in the foreseeable future, RIO generally tends to offer earnings estimates which are on the conservative (low) end of our long-term return expectations.

		"Earnings" under current definition
FY2012		
Net Investment Income w/out Gains/Losses	2,350,618	
Net Realized Gains (Losses)	220,857	2,571,475
Net Unrealized Gains (Losses)	<u>(271,250)</u>	
Net Increase (Decrease) per financials	2,300,225	
FY2013		
Net Investment Income w/out Gains/Losses	16,547,631	
Net Realized Gains (Losses)	(598,542)	15,949,089
Net Unrealized Gains (Losses)	<u>(11,733,063)</u>	
Net Increase (Decrease) per financials	4,216,026	
FY2014		
Net Investment Income w/out Gains/Losses	39,126,389	
Net Realized Gains (Losses)	10,907,266	50,033,655
Net Unrealized Gains (Losses)	<u>63,120,007</u>	
Net Increase (Decrease) per financials	113,153,662	
FY2015		
Net Investment Income w/out Gains/Losses	54,076,842	includes PPA
Net Realized Gains (Losses)	41,067,063	95,143,905
Net Unrealized Gains (Losses)	<u>4,751,745</u>	
Net Increase (Decrease) per financials	99,895,650	
FY2016		
Net Investment Income w/out Gains/Losses	77,306,531	
Net Realized Gains (Losses)	(11,979,858)	65,326,673
Net Unrealized Gains (Losses)	<u>(19,474,993)</u>	
Net Increase (Decrease) per financials	45,851,680	
FY2017		
Net Investment Income w/out Gains/Losses	89,624,346	
Net Realized Gains (Losses)	118,190,529	207,814,875
Net Unrealized Gains (Losses)	<u>271,780,381</u>	
Net Increase (Decrease) per financials	479,595,256	
Net earnings (per NDCC) since inception (left in principal)		<u><u>436,839,672</u></u>
FY2018		
	May-18	
Net Investment Income w/out Gains/Losses	93,262,377	
Net Realized Gains (Losses)	129,398,881	222,661,258
Net Unrealized Gains (Losses)	<u>149,845,251</u>	
Net Increase (Decrease) per financials	372,506,509	
<b>Net earnings (per NDCC) since 7/1/2017</b>		<u><u>222,661,258</u></u> 
<b>Net earnings (per NDCC) from inception to 5/31/2018</b>		<u><u>659,500,930</u></u>

Per NDCC 21-10-12: For the purposes of section 26 of article X of the Constitution of North Dakota, the term "earnings" means net income in accordance with generally accepted accounting principles, excluding any unrealized gains or losses.

**Total Net Earnings**  1,117,519,008

Informational

**North Dakota State Investment Board**  
**Board Member Education Options**

August 22, 2018

Dave Hunter, Executive Director / CIO  
Darren Schulz, Deputy Chief Investment Officer  
ND Retirement & Investment Office (RIO)  
State Investment Board (SIB)

# Board Member Education Options - Background

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- ❑ Based on our Board Self-Assessment Survey and Executive Review process conducted earlier this year, SIB members expressed a willingness to engage in board education tailored to meet the varying needs and experience of individual board members.
- ❑ In order to address this need, RIO worked with Callan to create a brief survey distributed to each SIB member to develop a custom investment education options better suited to meet the individual needs of each board member.
- ❑ Survey results indicate that most SIB members prefer board education to be:
  1. Presented at specifically scheduled SIB retreats such as those held in July the last four years (from 2015 to 2018); and
  2. To travel to third party sponsored conferences and/or training session such as “Callan College – Introduction to Investments” (offered in April, July and October) or “Callan’s National Conference” (which is next scheduled on January 28-30, 2019).

# Board Education Options: Conferences

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1. Callan Institute: <https://www.callan.com/events/>
  - a. Callan College – Introduction to Investments (Chicago – October 2-3, 2018)
  - b. Callan College – Introduction to Investments (Atlanta – October 23-24, 2018)
  - c. National Conference (January 28-30, 2019 - San Francisco)
  - d. Callan College – Introduction to Investments (Locations: TBD Dates: April, July & October of 2019)
2. Institutional Investor: <https://www.iimemberships.com/Institutional-Investor-Institute>
  - a. Public Funds Conference (October 4-5, 2018 - Chicago) (Institutional investor conference with marketing risk)
3. The Council of Institutional Investors: [https://www.cii.org/cii\\_events](https://www.cii.org/cii_events)
  - a. Spring and Fall Conferences (Institutional investor focus with marketing risk)
4. Markets Group: <https://www.marketsgroup.org/institutional-forum>
  - a. Great Plains Investor Forum (Sep.12, 2018 - Minneapolis) (Institutional investor focus with marketing risk)
  - b. Central States Investor Forum (Feb.26, 2018 - St. Louis) (Institutional investor focus with marketing risk)
5. Opal Group (marketing risk): <https://opalgroup.net/conferences/#finance-group>
  - a. Public Funds Summit (January 9-11, 2019 – Scottsdale, AZ) (Institutional investor focus with marketing risk)
6. International Foundation of Employee Benefit Plans: <http://www.ifebp.org/Pages/default.aspx> (Benefit plan focus)
  - a. New Trustee Institute – Level 1: Core Concepts (October 13-15, 2018 – New Orleans)
  - b. New Trustee Institute – Level 2: Concepts in Practice (October 13-14, 2018 – New Orleans)
7. The Pension Bridge: <http://www.pensionbridge.com/> (TBD)
  - a. Annual Conference (Institutional investor focus with marketing risk)
8. Morningstar: <https://www.morningstar.com/company/mic> (TBD)

# Recommended Board Education for 2018-19

## Conferences and Courses

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- **New Member Orientation (up to 2 years)**
  - 1) One on one investment meetings at RIO; and
  - 2) Callan College – Introduction to Investments
  
- **Existing Board Member (2 to 4 years)**
  - 1) Callan Annual Conference; and
  - 2) Callan College – Specialized Courses; or
  - 3) Third-Party Industry Conferences
  
- **Existing Board Member (4+ years)**
  - 1) Callan Annual Conference; or
  - 2) Callan College – Specialized Courses; and
  - 3) Third-Party Industry Conferences

**Note 1:** Third-party conferences may focus on other important educational topics such as board governance or fiduciary risk in addition to investments.

**Note 2:** The SIB engaged Callan to conduct a condensed “Introduction to Investments” at our SIB meeting on July 28, 2017. Although this could be scheduled again, RIO believes that new board members would benefit from participating in the “full course” of “Introduction to Investments” at a regularly scheduled Callan College session.

**Note 3:** The Office of the Attorney General has consistently emphasized the importance of RIO and SIB investment due diligence and professional continuing education for our staff and board members in order to adhere to our fiduciary standards and responsibilities in the oversight of SIB client investments which exceeded \$14 billion as of August 21, 2018.

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# Board Education – July 1, 2016 to June 30, 2018

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SIB members have actively participated in numerous educational opportunities over the last year including the following sessions which occurred during our regularly scheduled board meetings:

- Capital Market Updates & Performance Review Education by Callan (6 hours)
- Investment Updates by JPMorgan, PIMCO, Western Asset Management, Invesco, Wells Fargo, Prudential, Adams Street & Financial Recovery Technologies (8 hours)
- Investment Performance Reviews by RIO Staff (6 hours)
- Governance Education by Aon Hewitt (5 hours)
- Investment, Litigation and Open Records Education by Attorney General Office (3 hours)
- Callan College and Governance Education by Callan (6 hours)
- New Manager Presentations by Ares, BlackRock, Cerberus and I-Squared (4 hours)
- Time spent by board members preparing for 10+ SIB meetings per year (10+ hours)

Several board members and RIO staff have obtained additional investment education by attending conferences sponsored by a wide variety of industry experts such as:

- Callan’s Annual Conference and/or Callan College (two to three days)
- Public Pension Plan Roundtables, Forums & Conferences (two to three days)
- Great Plains (and/or Mountain States) Investor Forum (one to two days)
- National Association of State Retirement Officers (two to three days)
- National Association of State Investment Officers (two to three days)
- National Association of State Investment Professionals (two to three days)
- Various conferences sponsored by “Pensions and Investments” (one to three days)

**Callan and Epoch provided investment education to the SIB at our July 27, 2018 meeting.**

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# Annual SIB Meeting Schedule for 2018-19

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**July 27, 2018**

**January 25, 2019**

**August 24, 2018**

**February 22, 2019**

**September 28, 2018**

**March 22, 2019**

**October 26, 2018**

**April 26, 2019**

**November 16, 2018**

**May 24, 2019**

**Dec. 21, 2018 (Reserved)**

**June – No Meeting**

The SIB approved the above meeting schedule on January 26, 2018.

**Note: Most SIB meetings contain some type of board education on investments, governance, capital market trends, economic conditions or securities litigation.**

# **NORTH DAKOTA RETIREMENT AND INVESTMENT OFFICE**

## **QUARTERLY MONITORING REPORT**

**Quarter Ended June 30, 2018**

### **EXECUTIVE LIMITATIONS / STAFF RELATIONS**

The Executive Limitation “Staff Relations” deals with the treatment of staff at RIO. The executive director “shall not cause or allow any condition or any communication which is unfair, undignified, or disrespectful.” This Executive Limitation lists six specific limitations that range from personnel policies to exit interviews. All the limitations are intended to protect staff from unfair, undignified, or disrespectful treatment by management.

**During the past quarter, there were no exceptions to this Executive Limitation.**

The Executive Director/CIO held three full office meetings and four manager meetings during the second calendar quarter of 2018 in order to promote an open and collaborative work environment while enhancing team member communication, awareness and engagement.

On July 30, 2018, RIO offered a Voluntary Separation Incentive Program to eligible employees noting the application period ends on September 10, 2018, unless the agency decides to stop accepting applications sooner.

RIO was fully staffed as of June 30, 2018.

**BUDGETING / FINANCIAL CONDITION**

AS OF JUNE 30, 2018

	2017-2019 BUDGET	ADJUSTED APPROPRIATION	BIENNIUM TO DATE ACTUAL	EXPENDITURES		
				BUDGET AVAILABLE	% BUDGET AVAILABLE	% OF BIENNIUM REMAINING
SALARIES AND BENEFITS	\$ 4,425,570.00	\$ 4,425,570.00	\$ 2,148,355.14	\$ 2,277,214.86	51.46%	50.00%
OPERATING EXPENDITURES	862,484.00	862,484.00	309,364.87	553,119.13	64.13%	50.00%
CONTINGENCY	52,000.00	52,000.00	0.00	52,000.00	100.00%	50.00%
TOTAL	<u>\$ 5,340,054.00</u>	<u>\$ 5,340,054.00</u>	<u>\$ 2,457,720.01</u>	<u>2,882,333.99</u>	<u>53.98%</u>	<u>50.00%</u>

**EXPENDITURE REPORT**

**QUARTER ENDED JUNE 30, 2018**

	<u>INVESTMENT</u>	<u>RETIREMENT</u>	<u>QUARTERLY TOTALS</u>	<u>FISCAL YEAR TO - DATE</u>	<u>BIENNIUM TO - DATE</u>
<b><u>CONTINUING APPROPRIATIONS</u></b>					
INVESTMENT EXPENDITURES (SEE ATTACHED DETAIL)	\$ 9,727,796.43	\$ 0.00	\$ 9,727,796.43	\$ 31,248,303.88	\$ 31,248,303.88
MEMBER CLAIMS					
1. ANNUITY PAYMENTS	0.00	50,501,319.98	50,501,319.98	201,724,291.63	201,724,291.63
2. REFUND PAYMENTS	0.00	1,382,132.55	1,382,132.55	6,330,494.67	6,330,494.67
TOTAL MEMBER CLAIMS	0.00	51,883,452.53	51,883,452.53	208,054,786.30	208,054,786.30
OTHER CONTINUING APPROPRIATIONS	492,311.00	20,478.69	512,789.69	1,111,164.54	1,111,164.54
TOTAL CONTINUING APPROPRIATIONS	10,220,107.43	51,903,931.22	62,124,038.65	240,414,254.72	240,414,254.72
<b><u>BUDGETED EXPENDITURES</u></b>					
1. SALARIES & BENEFITS					
SALARIES	199,417.45	203,154.55	402,572.00	1,584,587.39	1,584,587.39
OVERTIME/TEMPORARY	0.00	0.00	0.00	0.00	0.00
TERMINATION SALARY & BENEFITS	0.00	0.00	0.00	0.00	0.00
FRINGE BENEFITS	64,409.02	78,350.80	142,759.82	563,767.75	563,767.75
TOTAL SALARY & BENEFITS	263,826.47	281,505.35	545,331.82	2,148,355.14	2,148,355.14
2. OPERATING EXPENDITURES					
DATA PROCESSING	4,646.17	21,070.11	25,716.28	79,667.58	79,667.58
TELECOMMUNICATIONS - ISD	1,137.22	1,964.70	3,101.92	9,195.66	9,195.66
TRAVEL	1,467.01	2,914.19	4,381.20	23,514.85	23,514.85
IT - SOFTWARE/SUPPLIES	58.09	89.08	147.17	394.15	394.15
POSTAGE SERVICES	1,056.06	3,255.02	4,311.08	34,795.24	34,795.24
IT - CONTRACTUAL SERVICES	564.86	837.47	1,402.33	3,827.52	3,827.52
BUILDING/LAND RENT & LEASES	8,028.81	13,738.98	21,767.79	87,766.16	87,766.16
DUES & PROF. DEVELOPMENT	2,528.25	1,054.25	3,582.50	11,062.50	11,062.50
OPERATING FEES & SERVICES	5,390.88	8,665.58	14,056.46	20,518.94	20,518.94
REPAIR SERVICE	0.00	0.00	0.00	229.39	229.39
PROFESSIONAL SERVICES	1,453.48	4,148.38	5,601.86	15,433.86	15,433.86
INSURANCE	0.00	0.00	0.00	609.80	609.80
OFFICE SUPPLIES	88.72	230.77	319.49	1,297.13	1,297.13
PRINTING	160.42	3,304.04	3,464.46	15,298.55	15,298.55
PROFESSIONAL SUPPLIES & MATERIALS	0.00	(126.57)	(126.57)	724.80	724.80
MISCELLANEOUS SUPPLIES	99.04	304.16	403.20	781.29	781.29
IT EQUIPMENT UNDER \$5000	368.44	282.03	650.47	731.47	731.47
OTHER EQUIP. UNDER \$5000	0.00	0.00	0.00	2,321.80	2,321.80
OFFICE EQUIP. & FURNITURE UNDER \$5000	30.19	70.44	100.63	1,194.18	1,194.18
TOTAL OPERATING EXPENDITURES	27,077.64	61,802.63	88,880.27	309,364.87	309,364.87
3. CONTINGENCY	0.00	0.00	0.00	0.00	0.00
TOTAL BUDGETED EXPENDITURES	290,904.11	343,307.98	634,212.09	2,457,720.01	2,457,720.01
TOTAL EXPENDITURES	\$ 10,018,700.54	\$ 52,226,760.51	\$ 62,758,250.74	\$ 242,871,974.73	\$ 242,871,974.73

**INVESTMENT EXPENDITURE DETAIL**

**FEES PAID DURING THE QUARTER ENDED JUNE 30, 2018**

**FOR QUARTER ENDED 12/31/17**

**PENSION INVESTMENT GRADE FIXED INCOME POOL**

JP Morgan	68,430.87	
PIMCO	73,693.52	
TOTAL PENSION INVESTMENT GRADE FIXED INCOME	<hr/>	142,124.39

**PENSION REAL ESTATE**

JP Morgan (Special & Strategic)		444,150.30
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**INSURANCE SHORT TERM FIXED**

JP Morgan		<hr/> 27,115.63
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<b>TOTAL FOR QUARTER ENDED 12/31/17</b>		<b>613,390.32</b>
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**FOR QUARTER ENDED 3/31/18**

**PENSION DEVELOPED INTERNATIONAL EQUITY POOL**

Northern Trust	27,301.16	
Wellington	191,559.58	
William Blair	157,036.94	
TOTAL PENSION INTERNATIONAL EQUITY	<hr/>	375,897.68

**PENSION GLOBAL EQUITY POOL**

Epoch	637,319.76	
LSV	129,416.00	
TOTAL PENSION GLOBAL EQUITY	<hr/>	766,735.76

**PENSION BELOW INVESTMENT GRADE FIXED**

Loomis Sayles		256,019.40
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**PENSION INVESTMENT GRADE FIXED INCOME POOL**

JP Morgan	33,494.88	
PIMCO	87,878.85	
Prudential	47,512.89	
State Street	7,137.43	
TOTAL PENSION INVESTMENT GRADE FIXED INCOME	<hr/>	176,024.05

**PENSION INFRASTRUCTURE POOL**

JP Morgan		325,597.04
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**PENSION LARGE CAP EQUITY POOL**

LA Capital		257,588.61
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**PENSION SMALL CAP EQUITY POOL**

Atlanta Capital		265,533.00
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**PENSION REAL ESTATE**

JP Morgan (Special & Strategic)	452,132.14	
Invesco	249,053.81	
TOTAL PENSION REAL ESTATE	<hr/>	701,185.95

**INVESTMENT EXPENDITURE DETAIL**  
**FEES PAID DURING THE QUARTER ENDED JUNE 30, 2018**

**PENSION INTERNATIONAL FIXED INCOME**

Brandywine	75,170.03	
UBS	43,733.52	
TOTAL PENSION INTERNATIONAL FIXED INCOME		118,903.55

**INSURANCE FIXED INCOME POOL**

Prudential	75,089.10	
State Street	8,736.39	
Wells	121,044.46	
Western Asset	99,349.46	
TOTAL INSURANCE FIXED INCOME		304,219.41

**INSURANCE LARGE CAP EQUITY POOL**

LA Capital	54,689.44	
LSV	52,269.00	
TOTAL INSURANCE LARGE CAP		106,958.44

**INSURANCE SMALL CAP EQUITY POOL**

PIMCO RAE		25,874.77
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**INSURANCE INT'L EQUITY**

LSV	68,007.00	
William Blair	71,455.93	
TOTAL INSURANCE INT'L EQUITY		139,462.93

**INSURANCE DIVERSIFIED REAL ASSETS**

JP Morgan	155,162.45	
Western Asset	38,039.10	
TOTAL INSURANCE DIVERSIFIED REAL ASSETS		193,201.55

**INSURANCE REAL ESTATE**

Invesco	56,801.64	
JP Morgan	135,208.89	
TOTAL INSURANCE REAL ESTATE		192,010.53

**INSURANCE SHORT TERM FIXED**

JP Morgan		27,053.43
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**LEGACY FIXED INCOME**

Prudential	125,669.09	
State Street	15,312.08	
Wells	196,403.37	
Western Asset	159,964.06	
TOTAL INSURANCE FIXED INCOME		497,348.60

**LEGACY LARGE CAP EQUITY**

LA Capital	262,083.57	
LSV	249,875.00	
TOTAL INSURANCE LARGE CAP		511,958.57

**LEGACY SMALL CAP EQUITY**

PIMCO RAE		117,143.95
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**INVESTMENT EXPENDITURE DETAIL**  
**FEES PAID DURING THE QUARTER ENDED JUNE 30, 2018**

**LEGACY INT'L EQUITY**

LSV	394,283.00	
William Blair	418,594.13	
TOTAL INSURANCE INT'L EQUITY		812,877.13

**LEGACY DIVERSIFIED REAL ASSETS**

JP Morgan	205,861.65	
Western Asset	116,648.57	
TOTAL INSURANCE DIVERSIFIED REAL ASSETS		322,510.22

**LEGACY REAL ESTATE**

Invesco	112,590.96	
JP Morgan	263,228.13	
TOTAL INSURANCE REAL ESTATE		375,819.09

**PERS RETIREE HEALTH INSURANCE CREDIT FUND**

SEI		90,914.50
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**JOB SERVICE FUND**

SEI		69,397.03
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**TOBACCO PREVENTION & CONTROL TRUST FUND**

STATE STREET		2,831.32
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**CUSTODIAN**

Northern Trust		291,328.55
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**CONSULTANT**

Adams Street	15,035.00	
Callan	101,748.50	
Mercer	55,000.00	
Novarca	45,563.30	
TOTAL CONSULTANT		217,346.80

**TOTAL FOR QUARTER ENDED 3/31/18** **7,541,741.86**

**FOR QUARTER ENDED 6/30/18**

**PENSION INFRASTRUCTURE POOL**

JP Morgan		314,169.81
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**PENSION REAL ESTATE**

Invesco		267,361.51
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**PENSION PRIVATE EQUITY**

Adams Street Partners		5,291.00
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**INSURANCE DIVERSIFIED REAL ASSETS**

JP Morgan		149,716.84
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**INSURANCE REAL ESTATE**

Invesco	60,529.17	
JP Morgan	135,296.33	
TOTAL INSURANCE REAL ESTATE		195,825.50

**INVESTMENT EXPENDITURE DETAIL**  
**FEES PAID DURING THE QUARTER ENDED JUNE 30, 2018**

**LEGACY DIVERSIFIED REAL ASSETS**

JP Morgan 198,636.68

**LEGACY REAL ESTATE**

Invesco 120,867.41  
JP Morgan 266,301.44  
TOTAL INSURANCE REAL ESTATE 387,168.85

**PENSION CASH**

Northern Trust 19,494.06

**CONSULTANT**

FRT 35,000.00

**TOTAL FOR QUARTER ENDED 6/30/18 1,572,664.25**

**TOTAL FEES PAID DURING QUARTER ENDED 6/30/2018 9,727,796.43**



## Quarterly Report on Ends Q4:FY18

### Investment Program

Ongoing due diligence conducted on the following organizations:

Ares (direct lending)	LA Capital (large cap US equity)
Axiom (emerging market equity)	Northern Trust (global custody, asset management)
Cerberus (direct lending)	PIMCO (domestic fixed income)
Declaration (fixed income)	Prudential (domestic fixed income)
Epoch (global equity)	Western (domestic fixed income)
JP Morgan (infrastructure, real estate)	

Preliminary due diligence conducted on the following organizations:

Angelo Gordan (opportunistic credit)	Highbridge (stressed/distressed credit)
Ares (structured credit)	I-Squared (infrastructure)
Brookfield (real estate)	Macquarie (infrastructure)
GoldenTree (structured credit)	Marathon (structured credit)
GSO (stressed/distressed credit)	Rohatyn Group (infrastructure)

At the May SIB meeting, Callan presented the results of its asset-liability study for the Legacy Fund, which recommended that the SIB maintain the existing strategic asset allocation. The Board approved Callan's recommendation.

Following an asset-liability study conducted by Callan, the SIB approved a new policy allocation for Workforce Safety & Insurance.

Staff continued to work with Mercer to identify suitable private infrastructure manager candidates to complement existing infrastructure platform investments. Staff conducted on-site due diligence meetings during the quarter with a number of private infrastructure managers.

Following the Board's approval of awarding I-Squared Capital to manage up to \$140 million in private infrastructure commitments on behalf of the pension trust and Legacy Fund, Staff commenced a legal contract review during the quarter. Contracts were executed in May.

Staff continues to diligence private infrastructure managers to further diversify existing exposures.

As part of the ongoing restructuring of the pension trust fixed income manager structure, Staff is conducting a search for opportunistic credit managers within the non-investment grade fixed income space.

Staff is continuing the live phase of the implementation of the BlackRock Solutions Aladdin system and is currently developing reporting packages.

Staff attended meetings with the following entities: TFFR Board, NDPERS Investment Subcommittee, Workforce Safety & Insurance, and the Legacy and Budget Stabilization Fund Advisory Board.

Staff continues to conduct preliminary due diligence on possible managers/products for future consideration.

Staff continues to monitor each client's asset allocation monthly and makes rebalancing decisions based on rebalancing policy and cash flow requirements.

## Quarterly Monitoring Report on TFFR Ends Quarter Ended June 30, 2018

### Retirement Program

This report highlights exceptions to normal operating conditions.

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- Governor Burgum re-appointed Mel Olson of Fargo to represent retired members on the TFFR Board for another 5-year term from 7.1.18 – 6.30.23.
- Governor Burgum appointed Cody Mickelson of Jamestown to represent active members on the TFFR Board to complete the unexpired term of Mike Gessner from 7.1.18 – 6.30.21.
- TFFR Member Online registrations continue to increase with 1,028 active, inactive, and retired members who have signed up so far. Members are encouraged to take advantage of this service through email blasts, correspondence, publications, outreach programs and presentations, and personal and phone interactions.
- Studied potential risks, benefits, and costs to upgrade or replace TFFR's current pension administration software which has been in use for 13 years. A more technologically advanced and secure web based system would provide significant improvements in functionality for TFFR members, employers, and RIO staff by transforming TFFR pension administration processes, reporting capabilities, communications and services. Project was included in annual IT plan submitted to ITD and 2019-21 optional budget request submitted to OMB.
- TFFR continues to identify and implement cost saving initiatives in the member and employer outreach program areas by utilizing more electronic education materials instead of printed versions.
- 2017-18 customer satisfaction remains high at 3.8 (4.0 scale).

# North Dakota State Investment Board Managers

Investment Manager	Trust	Asset Class	Opened	Description
Adams Street Partners  Miguel Gonzalo	Pension	Private Equity	various commitments since 1991	The Adams Street Partnership Fund Program ("ASP Fund Program") invests in private equity partnerships and portfolio companies, creating a portfolio diversified by time, manager and subclass. Investment commitments will typically be made over a three- to four-year period in venture capital, buyout and other partnerships, which include mezzanine/subordinated debt, restructuring/distressed debt and special situations. A portion of a participant's subscription to the ASP Fund Program may be used to opportunistically invest in secondary interests in private equity partnerships and/or their portfolio companies. All of the Adams Street Partner funds which North Dakota State Investment Board has invested in are based in U.S. dollars.
Ares - ND Credit Strategies  Molly Shulmann	Pension  Legacy	Below Inv Grade FI  Fixed Income	Sep-17  Sep-17	The investment objective of the Ares ND Credit Strategies Fund LLC (the "Fund") is to invest in directly originated, primarily senior secured loans in high quality middle market companies in North America. The Fund seeks to generate current income with some long-term capital appreciation.
Atlanta Capital  Emma Hutchinson	Pension	Small Cap Equity	April-16	The High Quality Small Cap strategy is a fundamental core approach that invests in small cap companies in strong financial condition and whose equities are priced below the team's estimate of fair value. The investment team seeks to own innovative businesses that dominate a niche, maintain high barriers to entry, and have consistent demand over an economic cycle. They conduct bottom-up proprietary research, and meet with the management teams as well as visit the facilities of each of their companies. Stock purchases are analyzed as if they were a potential acquirer of the entire business.  Atlanta Capital's Core Equity team is comprised of three portfolio managers and one investment specialist. Each portfolio manager serves as a generalist and conducts his own analytical research while investment decisions are made on a consensus basis. Chip Reed, CFA, Bill Bell, CFA and Matt Hereford, CFA are responsible for all purchase and sell decisions.
Axiom International  Lindsay Chamberlain	Pension	Emerging Markets Equity	August-14	The Emerging Markets 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 emerging markets securities to include securities of 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 of any country in the world.

# North Dakota State Investment Board Managers

Investment Manager	Trust	Asset Class	Opened	Description
Blackrock Private Equity Partners (PEP) Private Opportunities Fund  Leo Chenette	Pension	Private Equity	January-17	PEP seeks to build a diversified private equity program diversified across investment type, strategy, stage, industry sector, geography and vintage year. PEP offers comprehensive access to premier investments across Primaries, Secondaries, and Co-investments, as well as the technical expertise and investment know-how necessary to build and manage a successful customized fund of funds program. The PEP customized program allows the NDSIB to tailor exposures around its existing private equity investments.  PEP sits within BlackRock, Inc. ("BlackRock"), a global Investment firm with \$4.6 trillion assets under management. BlackRock is a publicly traded corporation that employs 135+ investment teams, and operates in 30 countries and 70 cities across the Americas, Europe, Asia-Pacific, the Middle East, and Africa.
Capital Int'l V & VI  Jim McGuigan	Pension	Private Equity	Aug-07	Capital International Private Equity Fund (CIPEF) has a geographic focus in global emerging markets. CIPEF's investment focus, by stage, primarily includes buy-outs, expansion capital, and replacement capital.
Cerberus - ND Private Credit  Andrew Solomon	Pension  Legacy	Below Inv Grade FI  Fixed Income	Aug-17  Aug-17	The Partnership's objective is to achieve superior risk-adjusted returns mainly through origination of, and investment in, secured debt assets. The Partnership expects to generate both current income and capital appreciation. The Partnership intends to fund the origination of secured debt of U.S. middle-market companies directly or through the use of one or more SPVs. Such debt may be senior or junior and may be collateralized by a variety of assets. The Partnership may also originate or invest in revolving credit facilities and may make investments in other debt assets, including secured or unsecured debt assets originated by other parties and/or trading on the secondary market. In addition, the Partnership may make other investments on an opportunistic basis.
Clifton Group (Parametric Portfolio Associates)  Ben Lazarus	Pension  Insurance  Legacy Fund	Dom Small Cap Equity Dom Lg Cap Equity  Dom Small Cap Equity Dom Lg Cap Equity  Dom Small Cap Equity Dom Lg Cap Equity	Nov-09 Apr-11  Nov-09 Nov-09  March-15 May-15	The Clifton Group believes that the U.S. equity universe is highly efficient. As such, we utilize a method of constructing the portfolio that we believe provides us with the greatest likelihood of outperforming the index. Specifically equity futures are used to gain the benchmark exposure. The underlying cash portfolio is then 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.  Each Enhanced Equity portfolio is carefully constructed and managed within strict quality and diversification guidelines. The Portfolio Management Team oversees all aspects of the construction and management process. Individual Portfolio Managers oversee different parts of the portfolio, but all are required to stay within pre-determined guidelines as provided by NDSIB. The account is monitored daily to verify that performance is maintained within expectation bands. Furthermore, accounts are reconciled monthly and audited semi-annually to confirm compliance with all existing guidelines.

# North Dakota State Investment Board Managers

Investment Manager	Trust	Asset Class	Opened	Description
<p>Corsair (Fund III and IV)</p> <p>Michael Poe Cliff Brokaw</p>	Pension	Private Equity	Feb-07	<p>Corsair seeks to earn strong risk-adjusted returns by leveraging the investment team's knowledge and contacts to identify and execute attractive investments in companies in the financial services industry around the world. Corsair takes control and minority positions, either individually or as a lead member of an investor consortium. Target investments include both privately-held and public companies, generally via private transactions when the target company loses access to, or has difficulty accessing, the public capital markets. In certain circumstances, the Fund may acquire pools of financial assets or securities, or provide financing to a secured pool of assets.</p> <p>Corsair endeavors to develop a strong relationship and high degree of influence with investee company senior executives and key shareholders. In many instances, Corsair obtains Board representation, observer seats, or other types of management rights. Given the complexities of investing in a regulated industry, Corsair's ability to receive more traditional generalist buyout governance rights is often limited, and its ability to influence managerial decisions requires a degree of experience which Corsair believes can only be achieved through a long and consistent history of investing in the financial services sector. Corsair expects the Fund to make 10 to 15 investments over its investment period, although there can be no assurances with respect to the number of investments that will be made. Corsair anticipates holding its investments for between three and six years. In those instances where Corsair is part of an investor consortium, Corsair generally endeavors to act as a lead or co-lead investor, as was the case in all Corsair III investments. On select occasions Corsair expects to co-invest with strategic partners that are capable of bringing added value to an investment and where the Fund's exit considerations can be addressed. Above all, Corsair's value-driven investment style focuses on those investment opportunities in which the Investment Advisor believes that a positive discrepancy exists between an asset's price and its intrinsic value.</p>
<p>DFA - Dimensional Fund Advisors</p> <p>Joe Young</p>	<p>Pension</p> <p>Insurance</p> <p>Legacy</p>	<p>Developed Int'l Equity</p> <p>Int'l Equity</p> <p>Int'l Equity</p>	<p>Nov-07</p> <p>Nov-07</p> <p>Feb-02</p>	<p>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. Size is defined as the smallest 8-10% of each country's market capitalization. Securities are considered value stocks primarily because a company's shares have a high book value in relation to their market value (BtM). This BtM sort excludes firms with negative or zero book values. In assessing value, additional factors such as price-to-earnings ratios may be considered, as well as economic conditions and developments in the issuer's industry. The criteria for assessing value are subject to change from time to time. The Portfolio currently invests in companies in Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and the United Kingdom. It does not invest in emerging markets.</p>
<p>DFA - Dimensional Fund Advisors</p> <p>Joe Young</p>	Pension	Emerging Markets Equity	Oct-05	<p>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 will consider, among other things, information disseminated by the International Finance Corporation in determining and approving emerging market countries. The Portfolio currently invests in companies in Brazil, Chile, China, Hungary, India, Indonesia, Israel, Malaysia, Mexico, the Philippines, Poland, South Africa, South Korea, Taiwan, Thailand, and Turkey. Due to repatriation restrictions, the Portfolio currently holds but does not purchase securities in Argentina.</p>

# North Dakota State Investment Board Managers

Investment Manager	Trust	Asset Class	Opened	Description
DMR (Declaration Total Return Bond Fund)  Amy McPike	Pension	Dom Inv Grade FI	Apr-12	<p>The Fund's investment objective is to achieve net returns in the range of 6% to 10% annualized over rolling 3-year periods. The Investment Advisor attempts to achieve this objective using fundamental analysis to evaluate the pricing and volatility of a wide range of MBS and other structured finance securities while also making a relatively small allocation to corporate bonds. The Fund invests primarily in residential ("RMBS") and commercial ("CMBS") mortgage-backed securities. The Investment Advisor expects the Fund's returns to be achieved — if the Fund is successful — through both cash flow yield and trading gains.</p> <p>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 tenor senior classes to stressed issues or subordinated securities with substantial risk of non-payment and correspondingly higher yields. The tactical weighting of the Fund's portfolio across the different sub-sectors of the securitization market varies according to the Investment Advisor's perception of sub-sector as well as overall market volatility and liquidity. Smaller portfolio allocations may include consumer asset-backed securities ("ABS"), 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. Other Fund investments may include U.S. government securities ("U.S. Treasuries"), unsecured debt securities issued by U.S. government agencies and entities ("Agency Debt") and derivatives related to any of the above.</p>
	Insurance	Dom Inv Grade FI	Dec-13	
	Legacy	Dom Inv Grade FI	Apr-15	
EIG Energy (formerly TCW)  Renee Davidovits	Pension	Private Equity	Jul-07	<p>TCW Energy Fund XIV-A, L.P. (the "Fund") is a Delaware limited partnership, formed on October 27, 2006 for the purpose of establishing a diversified portfolio of investments in energy and energy-related infrastructure projects and companies on a global basis. The investments will include loans, production payments, net profits interests, royalty interests and other forms of debt and equity securities issued by companies globally with emphasis on operations in the United States, Canada, Western Europe and Australia. The Fund, TCW Energy Fund XIV, L.P., TCW Energy Fund XIV-B, L.P., and TCW Energy Fund XIV (Cayman) L.P., (collectively, "Fund XIV") shall not invest more than 15% of total commitments ("Commitments") in any one issuer and shall not invest more than 25% of Commitments in issuers operated principally outside Organization for Economic Cooperation and Development ("OECD") countries. The Fund shall not invest more than 35% of Commitments in equity securities other than equity securities received in connection with the purchase of mezzanine debt.</p>
Epoch Investment Partners  Jeff Ulness	Pension	Global Equity	July-07 Moved from Lg Cap Jan-12	<p>The Epoch Global Choice strategy seeks to produce superior risk adjusted returns by building portfolios of businesses with outstanding risk/reward profiles.</p> <p>The concentrated active, global equity portfolio typically consists of approximately 20-35 securities (generally equities) representing the firm's highest conviction names. The expected annual turnover is generally between 90-130%. The equity portion of the portfolio will invest no more than 10% of the portfolio, at the time of purchase, in any one equity security.</p>

# North Dakota State Investment Board Managers

Investment Manager	Trust	Asset Class	Opened	Description
Goldman Sachs (2006 Fund, Fund V)  Joe Hernandez Patrick Byrne	Pension	Below Inv Grade FI	Apr-06	<p>The GS Mezzanine Partners family of funds is the largest mezzanine fund family in the world, with over \$20 billion invested in 100+ companies since 1996. In 2007, Goldman Sachs established its fifth mezzanine fund, GS Mezzanine Partners V, with \$13 billion of leveraged capital.</p> <p>GS Mezzanine Partners seeks large-sized mezzanine investments comprised generally of fixed income securities and an associated equity component. Our focus is 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.</p> <p>We target high-quality companies with \$500 million to \$10+ billion of enterprise value; leading market positions; high barriers to entry; well-regarded management teams; and stable, cash generative businesses.</p>
Grosvenor Customized Infrastructure Strategies, LP (formerly Credit Suisse)  Andrew Johnson Paul Burraston	Pension  Insurance	Infrastructure  Real Assets	Dec-11  Dec-11	<p>Established on October 21, 2009, 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%).</p>
Grosvenor Customized Infrastructure Strategies II  Andrew Johnson Paul Burraston	Pension  Legacy	Infrastructure  Real Assets	Mar-15  Mar-15	<p>Following the same strategy as our initial commingled multi-manager infrastructure fund, Customized Infrastructure Strategies, L.P. (“CIS I”), the Fund will seek to generate stable, long-term yield and attractive risk-adjusted returns by investing in a diversified, global portfolio of primarily core and core-plus infrastructure investments. CIS II will target primary fund investments, secondary purchases of investments in funds (“secondaries”), and equity and debt co-investments. Consistent with CIS I’s target returns, CIS II will target a net return to its limited partners in excess of 10%1, with a low single-digit cash yield upon full investment of the Fund.</p>
Hearthstone (MSII, MSIII)  Mark Porath	Pension	Private Equity	Oct-99	<p>In the Hearthstone-MSII Homebuilding Investors (MS2) and Hearthstone Multi-State Value-Added Fund III (“MS3”) funds, Hearthstone, on behalf of the Fund, is authorized to invest exclusively in residential development projects. Residential development projects include residential land development and single-family homebuilding, including the acquisition and conversion of rental properties into condominiums and other forms of single-family housing. MS3 was authorized to invest in the construction and sale of apartment buildings, but no such investments were made. Land development projects typically involve the acquisition, entitlement and development of anywhere from 100 to 1,000 finished residential lots for sale to merchant builders, but may involve the acquisition, permitting and development of other residential land. Single-family homebuilding projects generally involve the construction and sale of approximately 25 to 500 single-family attached or detached homes.</p>



# North Dakota State Investment Board Managers

Investment Manager	Trust	Asset Class	Opened	Description
I Squared Capital  Andreas Moon	Pension	Infrastructure	June-18	<p>The Master Funds, the Feeder Funds (through their investment in the Master Funds), and UST Fund II will seek to achieve returns by making equity and equity-related investments in infrastructure and infrastructure-related assets globally, with a focus on North America, Europe, and selected growth economies in Asia and Latin America. The Master Funds and UST Fund II may also invest in debt securities that have equity-like returns or an equity component, or are related to its equity investments, including, without limitation, convertible debt, mezzanine debt, bank loans and participations and other similar instruments.</p> <p>The ISQ Global Infrastructure Funds II expect to use leverage through both investment level financing and by borrowing money with recourse to its assets.</p> <p>The Master Funds and UST Fund II generally intend to invest no more than 20% of aggregate capital commitments (measured at the time of investment) in any single asset. The Master Funds and UST Fund II may exceed the 20% limit up to 25% in the case of a bridged investment if, at the time of such investment, the bridged investment is intended to be repaid, refinanced or sold, within 18 months so as to return sufficient capital to the Master Funds and UST Fund II to bring the investment back within the 20% limit.</p>
	Legacy	Real Assets	June-18	
Invesco Asia Fund I  Asia Fund III  Paul Michaels	Pension	Real Estate	Nov-08	<p>This investment strategy will focus on value added investments with an initial focus on China and Japan, with a secondary focus on Singapore and Hong Kong, in residential, industrial, retail and office properties. Where IRE identifies best value, it will execute the following value added strategies for the Fund:</p> <ul style="list-style-type: none"> <li>-Provide equity for the development of new real estate product that generates high cash returns and demonstrates mid-term growth opportunities.</li> <li>-Reposition assets or change the use of an asset to maximize its value by identifying highest/best use, curing deferred maintenance, improving overall asset quality and developing additional revenue-generating amenities.</li> <li>-Participating in high growth markets</li> <li>-Adopting higher leverage strategies and exploiting market inefficiencies.</li> </ul>
	Pension		Nov-15	
Invesco Core USA LLC  Paul Michaels	Pension	Real Estate	Aug-97	<p>The Fund invests in properties located in the United States, typically requiring an investment of \$10 million or greater. The Fund focuses on quality core real estate opportunities and, in addition, the Fund may invest up to 15% of its assets in "value-added" type real estate investment opportunities. The Fund seeks to provide Investors with returns equal to or greater than the NPI on a 3- and 5-year rolling basis.</p>
	Insurance		Oct-12	
	Legacy		April-15	

# North Dakota State Investment Board Managers

Investment Manager	Trust	Asset Class	Opened	Description
Invesco IREF II Invesco IREF III Value-Add IV Paul Michaels	Pension Pension Pension	Real Estate	Nov-07 May-12 April-15	<p>The Fund will invest in value-added real estate opportunities. Investments will be made solely in the United States in four specific product types- multifamily, industrial, retail and office properties. Where IRE identifies best values, it will execute the following strategies for the Fund:</p> <ul style="list-style-type: none"> <li>• Re-capitalization: Invest in properties or portfolios at a favorable basis by acquiring an equity interest and/or debt.</li> <li>• Lease-up: Acquire properties with vacant space or near-term lease rollover exposure, with the opportunity to reposition rent roll and tenancy.</li> <li>• High Yield Debt: Acquire unrated pieces of CMBS debt</li> <li>• Renovation/Retenancing/Repositioning: Reposition assets (an example would be to upgrade an asset from Class B to Class A) or change the use of an asset to maximize its value by curing deferred maintenance, improving overall asset quality and developing additional revenue-generating amenities.</li> <li>• Development: Provide equity commitments/investments for the development of new real estate products that allows for access to new, state-of-the-art products at wholesale pricing.</li> </ul>
InvestAmerica Lewis & Clark L&C II John Cosgriff David Schroder	Pension	Private Equity	Feb-02 Jun-09	<p>The investment strategy for Lewis and Clark Private Equities, LP and L&amp;C Private Equities II, LP (the Funds) is to assemble a portfolio of investments in private growth and later-stage companies that have a strong probability of providing high returns without undue volatility and risk to investors. The Funds target for investment middle market growth and later stage companies throughout the United States with existing sales from \$5,000,000 to \$100,000,000. Typically, these small to medium sized companies are seeking to raise \$1,000,000 to \$10,000,000. The Principals of the Funds have demonstrated through the successful investment of previous venture funds, that this market niche has historically delivered high returns with more limited competition for financing. The Funds seek to achieve a minimum of a 25% and in many cases in excess of a 30% internal rate of return on each of its company investments.</p> <p>The Funds diversify their investments by investing in portfolio companies across many industries and geographic locations. Investments will be made across a range of manufacturing, service, distribution and technology companies. Most investments are expected to be in later stage companies with established sales and profitability. Some investments may be opportunistically made in growth stage companies. The investment team has historically invested throughout the United States with offices strategically located in the Midwest and Northwest.</p>
JP Morgan Short Term Bond Fund Jim Sakelaris	Insurance	Short Term FI	Sep-11	<p>The investment objective of the Short Term Bond Fund is to outperform (based on the portfolio's total return, gross of fees) the Barclays Capital 1-3 Year Government/Credit Index (the benchmark) while maintaining total return risk similar to that of the Benchmark as measured over a market cycle.</p>

# North Dakota State Investment Board Managers

Investment Manager	Trust	Asset Class	Opened	Description
<p>JP Morgan Alternative Property Fund</p> <p>Jim Sakelaris</p>	Pension	Real Estate	Jan-06	<p>The JPMorgan Alternative Property Fund seeks current income and capital appreciation from a portfolio of investments consisting of alternative real estate (senior housing, medical office, hotels, single-family subdivision development, condos, storage, parking and other "non-core" cash-flow-generating property investments) and real estate-related assets in the U.S., as well as traditional and alternative real estate and real estate-related assets in Canada, Mexico and the Caribbean. The Fund pursues a broadly diversified absolute-return strategy targeting a 12-15% total annualized IRR (including a current income return of 5-7% and the balance from capital appreciation) gross of all Fund-level fees and expenses, assuming at least a 5-year holding period.</p> <p>The Fund is designed to benefit from less competitive flow of capital relative to core property. As an infinite-life structure, the Fund offers potential investors the opportunity for periodic liquidity at net asset values established on a quarterly basis. The Fund will also periodically rebalance sector, product and geographic diversification to dampen volatility and create a stable alternative real estate investment portfolio with a conservative level of leverage (60% on a portfolio basis).</p>
<p>JP Morgan Asian Infrastructure &amp; Related Resources Opportunity Fund</p> <p>Jim Sakelaris</p>	Pension	Infrastructure	Aug-08	<p>The JPMorgan Asian Infrastructure &amp; 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 (but not exhaustive): core infrastructure such as transportation, power both from conventional and renewable sources, communications, water and waste-water, public works, urban development and other "social" infrastructure assets (i.e. hospitals, schools, government centers) and related resources such as energy, raw materials, natural resources, construction and construction-related materials and real estate (that are part of or associated with any of the installation and operation of infrastructure).</p> <p>The Fund will seek an internal rate of return in excess of 19% (net of Incentive Allocation and Fund Expenses and any Taxation that is payable by the Fund, but exclusive of any Taxation payable by Investors with respect to distributions), assuming a constant exchange rate during the term of the Fund between the USD and the currencies in the countries where the Fund's Investments are located. The Investment Adviser will have the right, but not the obligation, to hedge currency risk at its discretion, however there currently is no intent to engage in active hedging except as follows: (i) in exceptional cases where we believe the underlying risk is excessive and (ii) where there are known future equity commitments subject to currency risk, including with respect to the acquisition of new assets. The Fund team's view of infrastructure, in the Asian context, takes a holistic approach, encompassing not only core infrastructure but also the raw material and construction-related stages of infrastructure and those companies needed "to make infrastructure happen". By focusing on both infrastructure and related resources, the Investment Adviser has developed a strategy which seeks to capitalize on the entire opportunity presented by the large forecasted growth and required investment in Asian infrastructure.</p> <p>The Fund monitors its currency exposure on a regular basis taking account of the outlook for any currencies in which AIRRO is invested. At this time, AIRRO does not anticipate hedging its currency exposure in the near-term. Based on consensus forecasts prepared by Bloomberg, analysts expect Asian currencies to strengthen versus the USD over the medium-term. AIRRO's entry cost (based on average weighted rates) for its investments are 47.68 INR/USD for SevenHills and 7.76 HKD/USD for Scitus (6.93 RMB/USD for Scitus' corresponding investments onshore). We anticipate these positions to strengthen in the favor of AIRRO by exit (estimated to be 2013 for each investment). AIRRO will continue to monitor movements in Asian currencies and review its hedging strategy accordingly.</p>

# North Dakota State Investment Board Managers

Investment Manager	Trust	Asset Class	Opened	Description
JP Morgan Greater China Property Fund  Jim Sakelaris	Pension	Real Estate	Jan-08	<p>The JPMorgan Greater China Property Fund is a closed-end investment fund which seeks to invest in real estate development projects in Greater China (defined to include China, Hong Kong, Macau and Taiwan). Drawing on over 30 years of real estate investing experience and its position as one of the largest real estate investment managers globally, J.P. Morgan Investment Management Inc. seeks to develop and manage a portfolio of capital-appreciation oriented real estate assets in Greater China. The Fund will generally make its investments across the office, residential, industrial, retail and hospitality sectors by creating project-level joint venture arrangements with multiple operating partners in Greater China. In addition to direct real estate investments, the fund may invest in shorter-term, "structured capital" opportunities in the real estate sector (typically 6-18 months in nature). Such investments may involve publicly listed companies and private companies seeking funding for their operations. The fund will limit the structured capital investments to 20% of the fund's total allocation.</p> <p>The Fund seeks to capitalize on the rapid and sustained economic growth, rising income levels, as well as the recent developments in China that will present opportunities for experienced real estate investment firms like J.P. Morgan to partner with local developers for new investments. The investment objective of the Fund is to seek capital appreciation. Since most of the Fund's investments will be development stage properties, the Fund expects to generate little to no current income. The Fund expects that aggregate secured permanent indebtedness will not exceed, on average over a fiscal year, 75% of the greater of the fair market value or total cost of all of the Fund investments.</p> <p>Investment returns may be hedged on a case by case basis as some investments may be hedged while others may not. Whether to hedge will depend on a number of factors including the currency outlook, the cost/benefit of the hedge, the requirements of lenders, etc. In addition, in cases where debt borrowings are in local currency, there is effectively a built in hedge as well.</p>

# North Dakota State Investment Board Managers

Investment Manager	Trust	Asset Class	Opened	Description
JP Morgan Greater Europe Opportunistic Property Fund  Jim Sakelaris	Pension	Real Estate	Sep-09	<p>The JPMorgan Greater Europe Opportunistic Property Fund is a closed-end opportunity fund that offers investors an opportunity to participate in an actively managed portfolio of property investments throughout Europe both in direct assets and select investments in existing property companies. The Fund has the flexibility to invest in a variety of different types of real estate, including, without limitation, office, retail, industrial/warehouse, multi-family, hotel/leisure, parking and self-storage. The Fund aims to provide Investors with a targeted annualized IRR of at least 15% over the life of the fund net of all fees and expenses. The Fund intends to achieve its Target Return by using JPMorgan Asset Management's expertise and market contacts to successfully make use of the following risks: leasing risk; development risk; restructuring risk; liquidity/transparency risk and leverage.</p> <p>J.P. Morgan Asset Management - Global Real Assets believes that opportunities exist in the Target Markets for investors to create value through the development, rehabilitation, repositioning and recapitalization of undervalued real estate and real estate-related assets through the purchase of high quality assets or portfolios of assets from distressed sellers. After a period of rapid capital appreciation and falling risk premium for European real estate assets, partially a result of excess liquidity, the dislocation in capital markets experienced since the end of July 2007 has resulted in a substantial re-pricing of risk, particularly at the higher risk end of the spectrum. More uncertain prospects for occupier markets in some, though not all, countries are likely to continue to impact risk and therefore pricing. In Europe, JPMAM-GRA believes this creates two very distinct but compelling opportunities for the foreseeable future. The first is to capitalize on the opportunity to purchase high quality assets in core Western European markets which will be sold at favorable prices due to the lack of liquidity in the market or where the underlying risk is mispriced. Property owners overleveraged with short duration leverage, developers overexposed to construction and leasing risk, and corporate owners whose balance sheets have come under pressure are all expected to be excellent sources of these buying opportunities.</p> <p>We consider hedging on a deal-by-deal basis when we think it makes sense and is cost-effective. We consult with our foreign exchange desk at J.P. Morgan on a regular basis. At the present time, we believe the British Pound is underpriced relative to the Euro on a long-term historical basis and, therefore, we are currently not hedging the Pound position (at least with respect with the net equity, leverage acts as a natural hedge against 65% of the GAV since the debt on UK transactions is also denominated in Pounds). The Greater Europe Opportunistic Property Fund is Euro-denominated and thus reflects periodic currency movements in addition to property valuation changes.</p>

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Investment Manager	Trust	Asset Class	Opened	Description
JP Morgan Income & Growth Fund  Jim Sakelaris	Insurance	Real Estate	Nov-05	<p>J.P. Morgan U.S. Real Estate Income and Growth Fund - 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 targeting an 8-10% total annualized IRR (including a current income return of 5-7% per annum and the balance from capital appreciation) net of management fees and expenses, the payment of any Infrastructure Development Fee, if applicable, and the effect of taxes payable by certain of the Fund's Entities.</p> <p>The Fund pursues all property investments on an opportunistic basis. The majority (&gt;50%) of the Fund's investments will be in direct core properties in the office, industrial, retail and residential sectors. In addition to direct real estate, the Fund has the ability to invest in other access points - mezzanine debt, CMBS and REITs - when they provide core real estate cash flows at a better price than owning the property. This helps diversify the portfolio and offer a superior risk reward equation. This dynamic investment approach focuses on relative value and is not constrained by fixed allocation targets or benchmark composition allowing the Investment Advisor the ability to change the Fund's portfolio composition in response to changing market conditions and opportunities.</p>
	Legacy	Real Estate	April-15	

# North Dakota State Investment Board Managers

Investment Manager	Trust	Asset Class	Opened	Description
JP Morgan Infrastructure Investments Fund  Jim Sakelaris	Pension	Infrastructure	May-07	Infrastructure Investments Fund - Launched October 31, 2006, JPMorgan Infrastructure Investments Fund is the only open-ended private commingled infrastructure fund in the U.S. It 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.  Our open-ended strategy supports a long-term investment horizon as we seek to achieve steady returns over time that are largely cash yield with modest capital appreciation. Our open-end format also aids in our acquisition and disposition process as a long-term outlook is attractive to governments, regulators and operating partners.  The Fund seeks to achieve a leveraged portfolio target IRR of 10–12%, net of Fund Expenses. Leverage is targeted at 75% at the fund level. Its diverse client base, includes U.S., European, Asian and Canadian government, union and corporate pension plans, insurance companies, and high net worth individuals.  The interaction of multiple currencies is viewed by many investors as another form of diversification. With respect to the JPMorgan Infrastructure Investments Fund ('IIF' or the 'Fund'), the Investment Adviser has the right, but not the obligation, to hedge currency risk at its discretion. Due to clients' differing perspectives on currency, and the complexities/costs of hedging an illiquid portfolio, there currently is no intent to engage in active hedging except as follows: (i) in exceptional cases where we believe the underlying risk is excessive and (ii) where there are known future equity commitments subject to currency risk, including with respect to the acquisition of new assets; this is a strategy that we have utilized for several investments in the existing portfolio. Generally speaking, we believe clients are more concerned with active management of infrastructure assets and strategies than with currency hedging. We understand that many clients prefer to hedge their currency exposures on an individual total portfolio basis. Further, many clients are interested in actively managing their currency exposure to generate alpha. J.P. Morgan has the capability to provide currency hedging (as a separate service outside of the Fund) for those clients that are interested in hedging currency risk and for clients wishing to generate additional alpha (whether the risk is associated with the Fund's portfolio or with other client investments).
	Insurance	Real Assets	Nov-08	
	Legacy	Real Assets	Feb-15	

# North Dakota State Investment Board Managers

Investment Manager	Trust	Asset Class	Opened	Description
<p>JP Morgan Strategic and Special Situations Property Funds</p> <p>Jim Sakelaris</p>	Pension	Real Estate	Oct-90	<p><b>Strategic Property Fund</b> is an actively managed diversified, core, open-end commingled pension trust fund. It seeks an income-driven rate of return of 100 basis points over the NCREIF Property Index over a full market cycle (three-to-five-year horizon) through asset, geographic and sector selection and active asset management. The Fund invests in high-quality stabilized assets with dominant competitive characteristics in markets with attractive demographics throughout the United States.</p> <p>Following a core strategy, Strategic Property Fund focuses primarily on existing high-quality, well-leased assets in the four major property types: office, industrial, multi-family and retail. Strategic Property Fund focuses on the larger primary economic markets.</p> <p>Each sector is well leased with modest lease expiration exposure of approximately 10% per annum over the next five years. Due to the broad diversification in the Fund's investments, no individual properties or tenancies have the capacity to materially affect the Fund's performance.</p> <p><b>Special Situation Property Fund</b> is an actively managed, value-added, open-ended commingled trust fund. It seeks an increased total return with a moderate-to-high risk level, as reflected in the potential volatility of both income and property values. Our investment philosophy for Special Situation Property Fund is based on our belief that consistently excellent investment results can be achieved by focusing on value-added investment opportunities while maintaining an optimum leverage ratio. The investment process is designed to continuously add value throughout the acquisition, ownership and disposition of an asset.</p> <p>Following a value-added strategy, Special Situation Property Fund focuses primarily on value-added real estate opportunities in the following major property types: office, industrial, hotel, retail and multi-family. The Fund does not attempt to match the geographic and property type diversification of the benchmark, but does maintain guidelines in order to limit over-or underweighting in regards to the NCREIF's property type and geographic guidelines. Our assets are generally located in major markets across the country (i.e., Washington D.C. and surrounding areas, Los Angeles, San Francisco, Atlanta, Chicago, Denver and Northern New Jersey).</p> <p>The Fund invests in a wide variety of value-added real estate opportunities, including but not limited to, improved properties that have significant appreciation potential through lease up, new development, redevelopment, repositioning and re-merchandising situations. The Fund may also acquire vacant land to be held for future development or appreciation. Development, renovation and property repositioning are important aspects of our value-added strategy.</p>



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Investment Manager	Trust	Asset Class	Opened	Description
Tom Stevens	Pension	Dom Lg Cap Equity	Aug-00	<p>A large core portfolio benchmarked to the Russell 1000 Index. This we would characterize as more of an enhanced index assignment where the objective is to track the benchmark with lower variability. This mandate is targeting a 1% annual alpha with a risk budget of 3%. The pension portfolio began in July of 2000 and the insurance portfolio was initiated in April of 2004. In October of 2006 we received approval from you to allocate a portion of each of these core accounts into the Large Cap Alpha Fund which we were launching at that time. A small portion of the portfolio has as a result been allocated to that product. The benchmark for this fund is the S&amp;P500 which is very similar to the Russell 1000 Index. The objective here has been to outperform the benchmark by 5% while allowing for a risk budget as high as 7%. The intent here was to add incremental alpha to the assignment given that the information ratio was expected to be higher. The overall objectives have been met since this was initiated.</p> <p><b>Investment Philosophy</b> All of our applications are driven by our Dynamic Alpha Model which is a quantitative process based upon understanding how specific factors are behaving in the market. We believe that investment results are driven by Investor Preferences which simply put, highlight which factors investors like or dislike at any point in time. We have developed sophisticated attribution tools which allow us to measure how the different factors are performing. While there is a significant amount of persistence, i.e. factors will move in one direction for sometimes an extended period of time, they will change at some point. Investors are not static in the views and one needs to recognize that when preferences shift a different posture related to that factor is warranted.</p> <p>Consequently we are not static and we are dynamic. In turbulent markets it is important to be able to understand how investor preferences change. In the last year there have been dramatic shifts in investor attitudes about risk factors and we feel our ability to perform during this period has been directly related to our ability to adapt.</p>
	Insurance	Dom Lg Cap Equity	Apr-04	
	Legacy	Dom Lg Cap Equity	May-15	
Tom Stevens	Pension	Dom Lg Cap Equity	Jun-98	<p>A large growth portfolio benchmarked to the Russell 1000 Growth Index. It is an active assignment meaning that we are targeting a 2% alpha and constraining our risk budget (tracking error) to 4% relative to the benchmark.</p> <p><b>Investment Philosophy</b> All of our applications are driven by our Dynamic Alpha Model which is a quantitative process based upon understanding how specific factors are behaving in the market. We believe that investment results are driven by Investor Preferences which simply put, highlight which factors investors like or dislike at any point in time. We have developed sophisticated attribution tools which allow us to measure how the different factors are performing. While there is a significant amount of persistence, i.e. factors will move in one direction for sometimes an extended period of time, they will change at some point. Investors are not static in the views and one needs to recognize that when preferences shift a different posture related to that factor is warranted.</p> <p>Consequently we are not static and we are dynamic. In turbulent markets it is important to be able to understand how investor preferences change. In the last year there have been dramatic shifts in investor attitudes about risk factors and we feel our ability to perform during this period has been directly related to our ability to adapt.</p>
	Insurance	Dom Lg Cap Equity	Aug-03	
	Legacy	Dom Lg Cap Equity	May-15	

# North Dakota State Investment Board Managers

Investment Manager	Trust	Asset Class	Opened	Description
Loomis Sayles  Stephanie Lord	Pension	Below Inv Grade FI	Apr-04	The High Yield Full Discretion Strategy seeks to exploit the collaborative efforts of our economics group and Sector Teams in conjunction with the fundamental credit analysis from our Fixed Income Research Department. Our economics group and yield curve teams provide a global economic and interest rate framework for identifying sectors that we think are attractive. Our research department, along with the Sector Teams, seeks to identify specific investment opportunities primarily within the global fixed income market. Asset class and sector allocations reflect the macroeconomic view, while security selection based on fundamental and relative value analysis within sectors provides our primary source of excess return. Portfolio guidelines are broad and offer the portfolio management team significant investment flexibility. Experienced portfolio managers collaborate with our in-house credit analysts to identify attractive total rate of return investment opportunities in the global fixed income market. Portfolio managers incorporate the 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. The product's portfolio managers are responsible for strategy implementation, portfolio construction, and adherence to guidelines. This rigorous investment process results in portfolios that, we believe, are well diversified and expected to generate superior long-term investment performance when compared to the Barclays Capital High Yield Index.
LSV Int'l Equity  James Owens, Jr.	Insurance  Legacy	Int'l Equity  Int'l Equity	Nov-04  Feb-15	The objective of our International Large Cap Value strategy is to outperform the MSCI EAFE Index (50% Hedged) 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%. 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 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). LSV weights countries at a neutral weight relative to the benchmark country weights. Initial positions must be in stocks with a market capitalization above \$500 million. 50% of the portfolio is US dollar hedged.
LSV Large Cap  James Owens, Jr.	Insurance  Legacy	Dom Lg Cap Equity  Dom Lg Cap Equity	Jun-98  May-15	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 3-5 year period 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 100 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.

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Investment Manager	Trust	Asset Class	Opened	Description
LSV Global Equity  James Owens, Jr.	Pension	Global Equity	Feb-13	The objective of the Global ACWI strategy is to outperform the unhedged total rate of return, net of dividend withholding taxes of the benchmark by at least 200 basis points (gross of fees) per annum. 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 125 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 countries and industry groups. Initial positions must be in stocks with a market capitalization above \$400 million.
Matlin Patterson (Fund II & III)	Pension	Private Equity	Sep-04	Invest globally in the severely discounted securities and obligations of financially distressed companies with the objective of obtaining corporate control. Through the Investment Adviser's active management of the Fund's investments, the Fund is seeking superior risk adjusted returns and is operating globally in a segment of the distressed sector in which it has few significant competitors.  Invest globally in the severely discounted securities and obligations of financially distressed companies with the objective of obtaining corporate control. Through the Investment Adviser's active management of the Fund's investments, the Fund is seeking superior risk adjusted returns and is operating globally in a segment of the distressed sector in which it has few significant competitors.
NTAM (Northern Trust Asset Management) Enhanced S&P 500  Tamara Doi Beck	Pension	Dom Lg Cap Equity	Aug-00	The Investment Manager will use an investment approach primarily based on quantitative investment techniques. The principal source of value added is the stock selection process. Relative attractiveness is assessed using a proprietary multiple factor model. Attractive securities are over weighted relative to the Index while unattractive securities are under weighted, or excluded entirely. The account will invest primarily in a broadly diversified portfolio of equity securities. Equity securities include securities convertible into equity securities (including common stock), warrants, rights and units or shares in trusts, exchange traded funds and investment companies. The account may invest and reinvest in long or short positions in any of the instruments.  The Investment Manager may purchase or sell futures and exchange traded and over-the-counter options on the Index or on a similarly broad index. The Investment Manager intends to use futures and options to manage market risk associated with the account's investments by selling futures on a stock index which correlates in price movement with a portion of the account to hedge against a potential decline in the prices of the securities comprising that portion of the account and, conversely, by purchasing futures on a stock index which correlates in price movement to a group of stocks which the account anticipates purchasing, to hedge against an increase in the value of such stocks. A portion of the cash in the account may be deposited with a broker as margin on futures or options transactions, to be invested on behalf of the account in obligations issued or guaranteed by the US Government or other appropriate short-term investments.  To meet liquidity needs, the Investment Manager may also invest in short term cash investments, including shares of money market portfolios, which may be registered investment companies for which the Investment Manager or an affiliate serves as custodian or investment advisor.

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Investment Manager	Trust	Asset Class	Opened	Description
NTAM (Northern Trust Asset Management) World Ex-US  Tamara Doi Beck	Pension	International Equity	Dec-13	<p>The Fund will be maintained by the Trustee with the objective of providing investment results that replicate the overall performance of the MSCI® Emerging Markets Equity Index (the "Index"). The Trustee will attempt to meet the Fund's investment objective by including the common stocks of one or more companies included in the Index, on the sole basis of computer-generated statistical data, deems representative of the industry diversification of the entire Index.</p> <p>The Fund will be invested primarily in equity securities of business enterprises organized and domiciled outside of the United States ("U.S.") or for which the principal trading market is outside the U.S. In the Fund, and where applicable with respect to the Fund, the Trustee will employ statistical methods to select securities which comprise or will comprise the Index without necessarily buying all the relevant Index equities. Such securities will be selected, acquired, held and liquidated solely on the basis of such methods and not on the basis of any economic, financial, market timing, or other analysis. Securities purchased for the Fund will generally, but not necessarily, be traded on a foreign securities exchange. The Trustee may, in its discretion, purchase or sell depository receipts. The Fund will be rebalanced from time to time in order to minimize the expected or predicted deviation between the performance of the Fund and the performance of the relevant Index or to reflect changes in the composition of the Index.</p>
PIMCO Bravo II  Matt Clark	Pension  Insurance	Residential & Commercial Debt	Oct-13  Oct-13	<p>To seek to capitalize on the perceived market opportunity and achieve its Target Return, the Fund will have broad discretion to invest principally in (or otherwise gain exposure to) U.S. and non-U.S.: (i) performing, underperforming or non-performing loans and other assets that have historically been securitized and/or otherwise traditionally held by financial institutions (as well as participations and other interests therein), including commercial and residential mortgage loans (each of which may convert to real estate holdings), consumer loans (such as credit card receivables, automobile loans and student loans) and/or servicing or similar rights relating to such loans and other assets; (ii) structured products, securitizations and other asset backed securities ("ABS") backed by assets of any type (whether U.S. or non-U.S. based collateral), including non-agency residential mortgage-backed securities ("RMBS") and commercial mortgage-backed securities ("CMBS" and, together with RMBS, "MBS"), collateralized debt obligations ("CDOs"), collateralized loan obligations ("CLOs") and repackaged securities (collectively, "Structured Investments"), including Structured Investments managed by PIMCO or an affiliate thereof; (iii) residential and commercial real estate; and/or (iv) investments in equity securities, equity-linked securities and/or debt instruments (including loans) of operating companies and other entities (whether stressed, distressed or otherwise on an opportunistic basis), including banks and other financial institutions, specialty finance entities, and other opportunities.</p>
PIMCO Distressed Senior Credit Opportunities (DiSCO) Fund II  Matt Clark	Pension  Insurance	Dom Inv Grade FI  Fixed Income	Oct-11  Oct-11	<p>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.</p>

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Investment Manager	Trust	Asset Class	Opened	Description
PIMCO (formerly Research Affiliates)  Matt Clark	Insurance  Legacy	Dom Small Cap Equity  Dom Small Cap Equity	July-07  March-15	Small company value equity portfolio utilizing the index strategy and philosophy described as the Enhanced RAFI® US Small strategy which in turn is based on our patent pending Fundamental Index® concept. The Enhanced RAFI® US Small strategy relies on portfolio weights derived from firm fundamentals (free cash flow, book equity value, total sales and gross dividend), instead of market capitalization. In addition, the enhanced portfolio strategy uses a quality of earnings screening and a financial distress screening to augment portfolio returns and reduce portfolio volatility.
PIMCO Core Plus Constrained  Matt Clark	Pension	Dom Inv Grade FI	Feb-18	The Core Plus Constrained investment is a diversified portfolio of high quality bonds that is actively managed to maximize returns in a risk-controlled framework.  The portfolio emphasizes higher-quality, intermediate-term bonds and aims to avoid concentration risk by being more globally diversified than many core bond funds. It also has considerable flexibility to respond to changing economic conditions, helping to manage risk and increase total return potential. :  The portfolio aims to provide investors with a combination of income and capital appreciation potential. It is guided by a forward-looking, risk focused philosophy that aims to identify risk early while also being positioned to capture attractive returns.
Prudential Core Plus  Peter Taggart Steve Ahrens	Insurance  Legacy	Fixed Income  Fixed Income	Aug-06  April-15	The core plus fixed income account is a multi-sector strategy with alpha objective of +150 basis points versus the Barclays Aggregate Index over a full market cycle. The strategy is diversified across a broad range of fixed income sectors, including Treasuries, agencies, mortgage-backed securities, structured product (asset-backed securities, commercial mortgage-backed securities), investment grade corporate bonds, high yield bonds, bank loans and international debt. The primary sources of excess return are sector allocation and security selection, with duration and yield curve less of a focus.
Prudential Core  Peter Taggart Steve Ahrens	Pension	Fixed Income	Feb-18	PGIM Fixed Income's Core Fixed Income Strategy is an actively managed, multi-sector, investment grade fixed income strategy that typically seeks +60 bps annualized gross excess return over the Bloomberg Barclays U.S. Aggregate Bond Index or similar broad market benchmark over a full market cycle (three to five years). The Strategy emphasizes relative-value based sector allocation, research-based security selection, and modest duration and yield curve positioning.
Quantum Energy Partners  Michael Dalton	Pension	Private Equity	Oct-06	Founded in 1998, Quantum Energy Partners is a leading provider of private equity to the global energy industry. With more than \$5.7 billion in assets under management, Quantum targets investment opportunities between \$100 and \$400 million with proven management teams that possess a clear vision and whose companies have sustainable competitive advantages within well-defined segments of or strategies in the energy industry. Quantum primarily focuses on the oil and gas upstream, midstream and power sectors, but will consider opportunities across the entire energy industry.

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Investment Manager	Trust	Asset Class	Opened	Description
SEI Investments  Bob Thomas	PERS Retiree Health	Multiple	Jul-09	<p><b>Fixed Income Strategy</b> - A diversified set of lowly correlated alpha sources increase confidence in consistent excess return -Combination of managers with a broad opportunity sets inclusive of government, credit and structured securities</p> <p>-Derivatives provide an efficient means of strategy implementation</p> <p>-Managers have the ability to utilize derivatives to manage duration, yield curve, sector and security strategies to enhance return or reduce risk</p> <p><b>Emerging Markets Debt Strategy</b> - Specialist Emerging Market Debt Managers and seasoned investment teams with complementary investment philosophies that invest broad opportunity sets inclusive of tactical allocations to external debt, local debt, local currency, and corporate debt.</p> <p><b>High Yield Strategy</b> - Diversified group of managers with deep and experienced credit resources whose outperformance will be generated from both Sector/Industry and Selection decisions. The differentiation between managers is not on the alpha source they are seeking to exploit, but rather on the credit philosophy and process. Broad opportunity sets primarily in fixed income securities rated below investment grade, including corporate bonds. May also invest in bank loans, convertible and preferred securities, zero coupon obligations and credit derivatives. Given the illiquidity of the high yield market, managers also have the ability to utilize the credit default swap market for enhancing return or reducing risk.</p> <p><b>Small Cap Strategy</b> - Utilizing multiple SEI Portfolio sub-advisors, the SEI Portfolio invests in common stocks and other equity securities with the goal of providing capital appreciation.</p> <p><b>World Equity ex-US Strategy</b> - Utilizing multiple SEI portfolio sub-advisors, the SEI portfolio invests in equity securities of foreign companies, including those in emerging market countries with the goal of capital appreciation. These securities may include common stocks, preferred stocks, warrants, exchange-traded funds based on an international equity index and derivative instruments whose value is based on an underlying equity security or basket of equity securities. The SEI portfolio is diversified as to issuers, market capitalization, industry and country. Certain SEI portfolio sub-advisors use strategies that are designed to correlate with a portfolio of international equity securities, but which are composed of derivative instruments backed by other types of securities.</p> <p><b>Large Cap Equity Strategy</b> - A Russell 1000 index fund.</p>
SEI Investments  Bob Thomas	Job Service	Multiple	Dec-16	The Fund uses a multi-manager approach to portfolio construction that seeks to generate excess returns (i.e., returns in excess of benchmark) and at the same time provide diversification by avoiding over- concentration in a single investment style, sector or market trend. SEI analysis seeks to identify each manager's competitive advantage and characteristics of that advantage that can be monitored on an ongoing basis. Asset allocation to a given manager is based on the manager's skill set, the current macro economic environment, and the risks inherent in each manager's strategy.
State Street Global Advisors  Joe Cadigan	Pension	Dom Inv Grade FI	Jun-13	This is a commingled index fund that seeks to replicate the risk and return characteristics of the Barclays Long Treasury Bond Index.
State Street Global Advisors  Joe Cadigan	Insurance  Legacy	Fixed Income  Fixed Income	June-13  April-15	This is a commingled index fund that seeks to replicate the risk and return characteristics of the Barclays Government/Credit Bond Index.

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Investment Manager	Trust	Asset Class	Opened	Description
State Street Global Advisors  Joe Cadigan	Tobacco	Short Term Fixed Income	Oct-15	<p>The Strategy is managed using a "passive" or "indexing" investment approach, by which SSgA attempts to replicate, before expenses, the performance of the Index. The Strategy will not necessarily own all of the securities included in the Index.</p> <p>The Strategy may attempt to invest in the securities comprising the Index, in the same proportions as they are represented in the Index. However, due to the diverse composition of securities in the Index and the fact that many of the securities comprising the Index may be unavailable for purchase, it may not be possible for the Strategy to purchase some of the securities comprising the Index. In such a case, SSgA will select securities for the Strategy comprising a portfolio that SSgA expects will provide a return comparable to that of the Index.</p> <p>SSgA expects that it will typically seek to replicate index returns for the Portfolio through investments in the "cash" markets - actual holdings of debt securities and other instruments - rather than through "notional" or "synthetic" positions achieved through the use of derivatives, such as futures contracts or swap transactions (except in the unusual case where SSgA believes that use of derivatives is necessary to achieve an exposure that is not readily available through the cash markets).</p> <p><b>Benchmark</b> Barclays U.S. 1-3 Year Treasury Bond Index</p>
State Street Global Advisors  Joe Cadigan	Tobacco	Large Cap Equity Ex-Tobacco	Oct-15	<p>The Strategy is managed using a "passive" or "indexing" investment approach, by which SSgA attempts to match, before expenses, the performance of the Index. SSgA will typically attempt to invest in the equity securities comprising the Index, in approximately the same proportions as they are represented in the Index. Equity securities may include common stocks, preferred stocks, depository receipts, or other securities convertible into common stock. The Strategy may purchase securities in their initial public offerings ("IPOs"). In some cases, it may not be possible or practicable to purchase all of the securities comprising the Index, or to hold them in the same weightings as they represent in the Index. In those circumstances, SSgA may employ a sampling or optimization technique to construct the portfolio in question.</p> <p>From time to time securities are added to or removed from the Index. SSgA may sell securities that are represented in the Index, or purchase securities that are not yet represented in the Index, prior to or after their removal or addition to the Index.</p> <p>The Strategy may at times purchase or sell index futures contracts, or options on those futures, or engage in other transactions involving the use of derivatives, in lieu of investment directly in the securities making up the Index or to enhance the Strategy's replication of the Index return. The Strategy's return may not match the return of the Index.</p> <p><b>Benchmark</b> S&amp;P 500® ex Tobacco is comprised of the S&amp;P 500® minus tobacco companies. The S&amp;P 500® is comprised of approximately 500 leading companies in leading industries of the U.S. market with approximately 75% coverage of the U.S. stock market capitalization.</p>

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Investment Manager	Trust	Asset Class	Opened	Description
TIR-Timberland Investment Resources  Tom Johnson	Pension	Timber	Jun-01    Sept-04	<p><b>Teredo Timber LLC</b> - 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 (from pulpwood to saw timber). Periodic cash flows are produced from thinning and final harvests of the individual timber stands.</p> <p><b>Springbank LLC</b> - The investment objective of Springbank is to maximize long-term investment potential. TIR will implement four key strategies to attain the objective:</p> <ul style="list-style-type: none"> <li>• Formation of a dedicated land management group;</li> <li>• Intensive timber management to increase timber production;</li> <li>• Coordination of timber harvesting with land management activities;</li> <li>• Direct marketing and selective real estate partnerships.</li> </ul>
TIR-Timberland Investment Resources  Tom Johnson	Insurance	Real Assets	Oct-08	<p><b>Eastern Timberland Opportunities Fund</b> - 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.</p>
Vanguard Group  Mark Miller	Insurance  Legacy	Int'l Equity  Int'l Equity	June-03  Feb-15	<p>Vanguard International Explorer Fund seeks to provide long-term capital appreciation. The fund invests primarily in the equity securities of small-capitalization companies located outside the United States that the advisor believes offer the potential for capital appreciation. In doing so, 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.</p>
Wellington Trust Company  Elizabeth O'Hara	Pension	Developed Int'l Equity	Mar-02	<p>Securities lending is the temporary loan of a security from an institutional investor's portfolio to a broker/dealer or dealer bank to support that firm's trading activities. These trading activities include short selling, selling on margin or the satisfaction of some other type of transaction. Loaned securities are generally collateralized, reducing the lender's credit exposure to the borrower. Except for the right to vote proxies, the lender retains entitlement to all the benefits of owning the original securities, including the receipt of dividends and interest. Additionally, the lender receives a fee for the use of the securities and can reinvest the collateral. The lender, however, bears the market risk of the loaned securities. This is due to the borrower being obligated to ultimately return the securities, not the original market value of the securities, at the time the loan was made. Lendable securities include U.S. government and agency bonds, U.S. and foreign equities, U.S. corporate and Eurobonds, foreign government bonds, asset backed and mortgage backed securities.</p> <p>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.</p>



# North Dakota State Investment Board Managers

Investment Manager	Trust	Asset Class	Opened	Description
Wells Capital Management  Stephen Scharre	Insurance  Legacy	Fixed Income  Fixed Income	Apr-02  April-15	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. Credit research is a primary driver of our results; however, our process starts with a "top-down" strategy to guide decision-making. Security selection is determined by in-depth credit research. We believe in-depth knowledge of industries, companies, and their management teams enable us to identify credit trends that can lead to investment opportunities. In conjunction with performing rigorous fundamental research, we also apply a disciplined relative value framework which helps us determine the optimal position to invest within an industry and within an individual issuer's capital structure.
Western Asset  Susan Signori	Insurance  Legacy	Fixed Income  Fixed Income	Dec-93  April-15	A 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.
Western Asset  Susan Signori	Insurance  Legacy	Real Assets  Real Assets	Oct-09  March-15	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. These portfolios use diversified strategies in seeking to add value while minimizing risk.  The approach is to construct a portfolio primarily of inflation-indexed securities. Value can be added through country selection, term structure, issue selection, duration management and currency management.
William Blair  Bob Duwa	Pension  Insurance  Legacy	Developed Int'l Equity  International Equity  International Equity		William Blair invests in a growth-oriented, diversified portfolio that will typically hold between 40-70 securities. The firm's investment philosophy is to focus on companies with above-average growth prospects where growth can be sustained through leading or franchise positions in terms of proprietary products, marketing dominance, or cost/asset base advantage. Portfolio candidates typically have above-average prospective growth, evidence of sustainability of future growth, above-average profitability and reinvestment of internal capital, and conservative capital structure relative to sector norms.  The portfolio will be diversified by region and country and may invest up to 2X the MSCI ACWI ex-US IMI Index weighting in Emerging Markets securities. In addition, the portfolio will be diversified by sector with no individual sector representing over 35.0% based upon market value. The maximum allocation to any one security is 5.0% of the portfolio (at market value) and notwithstanding this limitation, no immediate liquidation of investments shall be required solely due to changed in market value.

## North Dakota State Investment Board Managers - Closed

Investment Manager	Trust	Asset Class	Open to Close Date	Description
AllianceBernstein/ Clifton  Liz Smith	Pension	Lg Cap Dom Equity	Jun-09 to Oct-10 Capital Returned	<p>The AllianceBernstein Term Asset-Backed Securities Loan Facility ("TALF") Opportunities Fund is a bottom-up research driven investment strategy structured to take advantage of the opportunity extended to investors through the TALF. The strategy will primarily draw its research from the AllianceBernstein Special Situations Group, which, among other asset classes, covers secured credit sensitive securities (e.g., ABS), as well as non-credit sensitive prime residential mortgage securities. For credit sensitive securities, credit research is overlaid on structural analyses to develop a complete picture of expected loss content, resiliency of cash flows, risk and return. All holdings are closely followed within our proprietary database which contains a time series of investment credit metrics, repayment rates, cohort, and originator statistics.</p> <p>The TALF Opportunities Fund will invest in a concentrated leveraged portfolio of structured asset securities that are eligible for non-recourse lending from the NY Fed TALF. The Fund's goal is to generate high risk-adjusted returns created by the dislocations in asset-backed and other securitization markets. The Fund will invest in AAA/Aaa-rated asset-backed securities as well as other TALF-eligible securities defined by the NY Fed. The TALF program limits the investment universe to US dollar-denominated securities whose underlying collateral is primarily based in the United States. Owing to the high credit quality of the underlying investments, we expect the majority of the Fund's return to be generated by the income in excess of the TALF loans' fees and interest.</p> <p>The Clifton Group is charged with applying the S&amp;P 500 "beta" exposure for the AllianceBernstein "alpha" exposure. The overall goal of the account is to get the return of the S&amp;P 500 index plus an additional alpha amount provided by the TALF fund.</p>
Babson Capital Management  Chad Streaan	Legacy	Short Term Fixed Inc	Sep-11 to Feb-15 Change of asset allocation	Babson was hired to manage the Bank Loans in the former Prudential account. Their direction is to manage and supervise the deliberate liquidation, over time of these holdings. As securities mature or are sold off the proceeds will be transferred to the Active Short Duration Strategy.
Babson Capital Management  Chad Streaan	Insurance	Short Term Fixed Inc	Sep-11 to Apr-17 Terminated	<p>The investment objective of the Babson Capital's Active Short Duration Strategy is to outperform the total return of the Barclays Capital 1-3 year US Government Index while minimizing fluctuations in capital value and providing sufficient liquidity to fund withdrawals driven by client activity. The portfolio seeks to achieve a high total rate of return primarily from current income while minimizing fluctuations in capital values by investing in a well-diversified portfolio of US Government, mortgage-backed, asset backed securities and corporate bonds.</p> <p>The investment team uses proprietary research to conduct value-driven sector rotation and intensive credit and structure analysis, while utilizing a dynamic yield curve management process, to construct effective portfolios. In addition to income, primary goals for the Active Short Duration strategy are stability and liquidity. In meeting these goals, risk is measured by perceived or actual changes in credit worthiness, adequate diversification and exposure to potential changes in interest rates. Babson Capital explicitly manages the portfolio to minimize these risks and endeavors to add value through security selection and portfolio duration structure designed to maximize the risk-return characteristics of the yield curve.</p>
Bank of North Dakota  Tim Porter	Pension  Insurance	Dom Inv Grade FI  Fixed Income	Apr-91 to Apr-12 Changed mandate to long treasury  Dec-93 to Apr-13 Terminated	The Bank of North Dakota (BND) manages this fixed income portfolio for the State Investment Board with a passive management style designed to replicate the Barclay's Government/Corporate Bond Index. In order to accomplish this objective, BND utilizes optimization software that allows us to monitor several portfolio and individual security constraints (duration, yield, convexity, credit quality and issue size). The portfolio is rebalanced monthly in order to achieve an annualized time-weighted rate of return that matches the Barclay's Gov/Corp Bond Index with a tracking error not more than (+ or -) 30 basis points.

## North Dakota State Investment Board Managers - Closed

Investment Manager	Trust	Asset Class	Open to Close Date	Description
Bank of North Dakota  Tim Porter	Pension	Dom Inv Grade FI	Apr-12 to Apr-13 Terminated	The Bank of North Dakota (BND) manages this fixed income portfolio for the State Investment Board with a passive management style designed to replicate the Barclay's Long Treasury Index. In order to accomplish this objective, BND utilizes optimization software that allows us to monitor several portfolio and individual security constraints (duration, yield, convexity, credit quality and issue size). The portfolio is rebalanced monthly in order to achieve an annualized time-weighted rate of return that matches the Barclay's Gov/Corp Bond Index with a tracking error not more than (+ or -) 30 basis points.
Blackfriars Asset Management (WestAM)  Hugh Hunter	Pension	Emerging Markets Equity	Mar-06 to Jun-12 Terminated	<p>Blackfriars Asset Management Limited has been appointed by North Dakota State Investment Board to manage a Global Emerging Market Equity portfolio. The fund is invested in the WestAM Group Trust.</p> <p>Blackfriars strategy is that of a core, active manager with the objective of outperforming the MSCI Emerging Markets index by 2% over rolling three year periods. Our investment approach is team-based and focuses on capturing alpha from our top-down and bottom-up decisions. Our country allocation process is primarily driven by a factor model encompassing fundamental market and economic factors, whilst stock selection is driven by fundamental research by our internal team of analysts.</p> <p>Blackfriars Asset Management, at the time of appointment, was called WestLB Asset Management which was owned by WestLB AG, a German bank. Following the creation of a 50:50 joint venture with BNY Mellon in 2006, the company became fully owned by BNY Mellon on 31 December 2008 and changed its name to Blackfriars Asset Management Limited. The investment process and investment personnel involved in the management of the portfolio have not changed as a result of the change in ownership.</p>
Brandywine Asset Management  Lisa Welch	Pension	Int'l Fixed Income	May-03 to Feb-18 Terminated	<p>Brandywine's Global Fixed Income investment style is 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 rotate among countries and attempt to control risk by purchasing undervalued securities.</p> <p>They believe their approach is ideally suited to the asset class, as each country, and sector exhibit unique valuation parameters. They believe that a client's portfolio should be invested in markets with, what they believe, demonstrate above-average value. Value is defined as a combination of above-average real interest rates and an under-valued currency. They typically concentrate investments where existing economic and market conditions may enable that value to be realized in an intermediate time frame. Their research has identified global fixed income as an opportunity class wherein active strategies have the most potential for reward and passive, index-replicating strategies are fundamentally insufficient and add an unnecessary level of risk to the portfolio management process. Country-by-country return dispersion (and, therefore, opportunity) across developed country bond markets is remarkable, and if capitalized upon as part of an actively managed process, can potentially provide significant excess return (alpha) above the benchmark. They seek to capture those excess returns through strategic investment in countries, currencies, sectors and securities, rather than by maintaining minimum, core commitments, reflective of the benchmark.</p>

## North Dakota State Investment Board Managers - Closed

Investment Manager	Trust	Asset Class	Open to Close Date	Description
Brookfield Investment Management (Hyperion)  Richard Torykian	Insurance	Fixed Income	Jan-07 to Mar-10 Terminated Acct taken over by Declaration	<p>The Enhanced MBS investment process begins with a macro-economic assessment of the market. Included in the macro-economic assessment is the analysis of: the interest rate environment, the phase of the real estate cycle, consumer credit trends, recently released or pending economic data, supply and demand relationships, housing prices, and the Mortgage Refinancing Index. The analysis and review that occurs at this stage provides the groundwork for establishing the asset allocation for our Enhanced MBS Investment Strategy. We then conduct a detailed review of the MBS sub-sectors. We evaluate developments in each sector; current offerings; recent transactions and market clearing levels; security types and yield spread levels to formulate a relative value outlook. Our research analysts provide fundamental analysis on prepayment speeds, borrower credit exposure, geographic diversification, refinancing trends, and the correlation of returns. We then further analyze the risks of the various MBS sectors—specifically, the outlook for delinquencies, housing affordability, consumer debt, collateral value appreciation, and loss severities. These factors build a larger picture for the appropriate asset allocation for this strategy. The asset mix for our Enhanced MBS Investment Strategy is a ratio that may change over time, as opportunities in the sectors and sub-sectors are identified. Once the initial allocation mix has been determined, the investment process moves to the security selection phase.</p> <p>The most important component of our Enhanced MBS Investment Strategy is security selection. In short, while the market for non-Agency MBS may seem generic, the credit performance from one issue to another varies. Our security selection process results from both quantitative and qualitative inputs, as well as the substantial experience of the portfolio managers. Members of the investment team, utilizing Hyperion Brookfield's proprietary analytics, determine the relative strengths of various securities based on applicable criteria such as issuer, issue, vintage, credit rating, structure, and geographic exposure.</p>
Calamos Investments  Meredith French	Pension	Dom Inv Grade FI	Oct-06 to Mar-12 Terminated Mandate changed to Global Opportunities	<p>Calamos Advisors LLC manages a convertible mandate for the North Dakota State Investment Board through the Calamos Convertible Plus strategy. The primary objective of the strategy is to achieve high long-term total return through growth and income. The strategy is focused on primarily investing in convertible securities but in addition utilizes both equities and fixed income. This enhanced flexibility allows Calamos to better manage the overall risk/reward profile of a convertible mandate. To take advantage of international opportunities, the portfolio will utilize the Calamos International Convertible Group Trust, a commingled fund in which we purchase units on behalf of the North Dakota State Investment Board. This commingled fund is generally hedged between 70-100% from a currency perspective.</p>
Calamos Investments  Meredith French	Pension	Global Equity	Mar-12 to Dec-13 Terminated	<p>The Global Opportunities objective is high long-term total return through capital appreciation and current income. The Trust invests primarily in a global portfolio of equity, convertible and fixed-income securities. In pursuing the Trust's investment objective, the Investment Manager attempts to utilize these different types of securities to strike, in its opinion, the appropriate balance between risk and reward in terms of growth and income.</p> <p>The Investment Manager attempts to keep a consistent balance between risk and reward over the course of different market cycles, through various combinations of stock, bonds and/or convertible securities, to achieve what the Investment Manager believes to be an appropriate blend for the then-current market. As the market environment changes, portfolio securities may change in an attempt to achieve a relatively consistent risk level over time. At some points in a market cycle, one type of security may make up a substantial portion of the portfolio, while at other times certain securities may have minimal or no representation, depending on market conditions.</p>

## North Dakota State Investment Board Managers - Closed

Investment Manager	Trust	Asset Class	Open to Close Date	Description
Callan Associates  Greg Allen	Pension	Small Cap Dom Equity	May-06 to March-16 Terminated	<p>The investment strategy for the Diversified Alpha Small Cap Equity Fund ("Fund") is based on two empirical studies. The first observed that the average portfolio for a comprehensive universe of active institutional small cap products out-performed the Russell 2000 Index in every three-year period since 1984, resulting cumulative out-performance in excess of five percent per year over the 20-year period with a tracking error of five percent annualized. The consistency and magnitude of this out-performance led to Callan's use of the average institutional small cap portfolio as the target in the Fund's portfolio construction methodology rather than one of the standard small cap indices. The second study observed that the illiquidity of the small cap market presents significant structural challenges to managers as they grow in assets under management ("AUM"). These challenges resulted in smaller products (in terms of AUM) out-performing their larger counterparts by in excess of three percent per year over the observed 20-year period. The consistency and magnitude of this out-performance provided the basis for favoring smaller, less capacity-constrained products in the Fund's manager selection methodology.</p> <p>The Fund's strategy is implemented through the use of a stratified sampling technique, and it begins with the decomposition of Callan's Total Institutional Small Cap ("TISC") universe (consisting of over 700 products) into 10 distinct sub-styles, with approximately 70-75 products in each sub-style. After extensive screening, four products from each sub-style are selected which, when held in combination, are expected to closely track the performance of each sub-style as a whole. This process results in a total portfolio made up of 40 equity sub-advisors, equally weighted in the Fund's portfolio, which very closely tracks the performance of the average actively managed institutional small cap product (historical tracking error since inception of approximately one percent annualized).</p>
Capital Guardian  Michael Bowman	Pension  Insurance  Legacy	Developed Int'l Equity  Int'l Equity  Int'l Equity	Mar-92 to May-16 Terminated Apr-97 to May-16 Terminated Feb-15 to May-16 Terminated	<p>The Portfolio will invest primarily in equity or equity type securities of companies in developed countries excluding the U.S. These equity securities will be listed on a stock exchange or traded in another recognized market and include, but are not limited to, common and preferred stocks, securities convertible or exchangeable into common or preferred stock, warrants, rights and depository arrangements. The Portfolio may invest in fixed-income securities (including cash or cash equivalents) when market conditions warrant. The Portfolio's investments may be denominated in U.S. dollars or in non-U.S. currencies. The Portfolio may include securities eligible for resale pursuant to Rule 144A and securities in offerings that are not registered for sale in the U.S. but are listed or quoted in the securities' local markets. Instruments acquired as a result of corporate actions are permitted.</p>
Clifton Group  Ben Lazarus	Pension	Asset Alloc Overlay Lg Cap, Small Cap, Int'l Equity and Dom FI	Nov-08 to Jul-10 Overlay program discontinued	<p>By utilizing exchange traded futures contracts, Clifton synthetically maintains North Dakota State Investment Board's (NDSIB) desired exposure to a variety of asset classes. This synthetic exposure is most often utilized between monthly cash rebalancing moves. Clifton works with NDSIB Staff intermonth and at month end to make sure the economic exposure is between prescribed bands. Futures are purchased or sold to change the portfolio's effective asset class exposure without liquidating or purchasing securities in the cash market. Subsequent asset class exposure is adjusted by modifying the futures positions while the underlying portfolio remains unaffected.</p> <p>Using exchange traded futures contracts as opposed to physical securities provides NDSIB with:</p> <ul style="list-style-type: none"> <li>• More flexibility and efficiency in moving between asset classes</li> <li>• Lower cost for establishing and removing positions</li> <li>• Detailed accounting on the performance of the rebalance move</li> </ul>
Clifton Group  Ben Lazarus	Pension	Developed Int'l Equity	Mar-10 to Dec 13 Terminated	<p>This portfolio replicates the MSCI EAFE index utilizing futures contracts.</p>

## North Dakota State Investment Board Managers - Closed

Investment Manager	Trust	Asset Class	Open to Close Date	Description
Coral Partners Fund V  Yuval Almog	Pension	Private Equity	Mar-98 to Dec-12 Capital Returned	Coral Partners V focuses its investments in the healthcare and technology sectors with companies in all stages of growth from seed to expansion. The General Partners believe that achieving strong venture capital returns depends on the ability to create enterprises capable of attaining a defensible market leadership position, often by developing new technologies which result in either a new market or the restructuring of an existing market; and that the most effective way of accomplishing this objective is to exploit industry trends and focus on businesses which are execution intensive and operate on a worldwide scale. Important components of this strategy are: active involvement, industry focus, and portfolio management.
Coral Partners Momentum Fund  Yuval Almog	Pension	Private Equity	7/1/2002 to June-15 Capital Returned	<p>Coral's Momentum Fund focuses on opportunities in high growth markets undergoing imminent transitions driven by emerging technologies, new business modalities and customer preferences. Examples include: a) the transition to rich digital media as a mass market opportunity; b) the ascendance of ubiquitous telecommunications networks, allowing universal access to voice, data and rich content; and c) the transition to the delivery of software-driven applications as a service, creating new software based franchises with recurring revenue models.</p> <p>Coral's Momentum Fund invests in late stage, technology driven companies the General Partner believes has substantial intrinsic momentum. Companies with intrinsic momentum have early demand related indicators such as accelerating revenues, channel build-up, growing product utilization, and expanding customer bases. The General Partner believes that investing in companies at this stage of development mitigates product and technology risk as well as market acceptance risk.</p>
Coral Partners Supplemental Fund V	Pension	Private Equity	Aug-01 to Dec-12 Capital Returned	Coral Technology Supplemental Fund V invests in technology portfolio companies of Coral Partners V.
Corsair (ND Investors)  Michael Poe Cliff Brokaw	Pension	Private Equity	Mar-08 to Dec-16 (IPO)	<p>Corsair seeks to earn strong risk-adjusted returns by leveraging the investment team's knowledge and contacts to identify and execute attractive investments in companies in the financial services industry around the world. Corsair takes control and minority positions, either individually or as a lead member of an investor consortium. Target investments include both privately-held and public companies, generally via private transactions when the target company loses access to, or has difficulty accessing, the public capital markets. In certain circumstances, the Fund may acquire pools of financial assets or securities, or provide financing to a secured pool of assets.</p> <p>Corsair endeavors to develop a strong relationship and high degree of influence with investee company senior executives and key shareholders. In many instances, Corsair obtains Board representation, observer seats, or other types of management rights. Given the complexities of investing in a regulated industry, Corsair's ability to receive more traditional generalist buyout governance rights is often limited, and its ability to influence managerial decisions requires a degree of experience which Corsair believes can only be achieved through a long and consistent history of investing in the financial services sector. Corsair expects the Fund to make 10 to 15 investments over its investment period, although there can be no assurances with respect to the number of investments that will be made. Corsair anticipates holding its investments for between three and six years. In those instances where Corsair is part of an investor consortium, Corsair generally endeavors to act as a lead or co-lead investor, as was the case in all Corsair III investments. On select occasions Corsair expects to co-invest with strategic partners that are capable of bringing added value to an investment and where the Fund's exit considerations can be addressed. Above all, Corsair's value-driven investment style focuses on those investment opportunities in which the Investment Advisor believes that a positive discrepancy exists between an asset's price and its intrinsic value.</p>

## North Dakota State Investment Board Managers - Closed

Investment Manager	Trust	Asset Class	Open to Close Date	Description
DMR (Declaration Mgmt & Research) Mortgage Opportunity Fund  John Pluta	Pension	Below Inv Grade FI	May-08 to Dec-09 Fund matured/ capital returned	The Fund's investment strategy is to acquire stressed and distressed mortgage backed securities, primarily non-Agency Residential Mortgage Backed Securities ("RMBS"). The return objective of the Fund is to achieve a net IRR in the 12%-20% range within a target five year horizon from the acquisition of such securities. The goal is to extract a significant liquidity premium (apart from the compensation available for assuming credit risk) using bottom-up security analysis during a period when legacy holders of mortgage backed securities are in need of liquidity. Once fully invested, the Fund will be a long-biased investment in distressed securities within various sub-sectors of mortgage credit. The focus of the Fund is senior class RMBS backed by prime, Alt-A and subprime collateral. Higher allocations are expected to be in prime and Alt-A transactions. Security-specific risk will be analyzed at the loan level. The risk analysis links borrower attributes (loan-to-value, credit score, documentation status, age of loan, size of loan, etc.) to the borrower's default and prepayment propensities. Similar borrower attributes are examined to estimate recovery rates post default. Risk management at the security level also involves an examination of issue structure, waterfall priorities and other structural features which trap or divert cash flow, particularly as it relates to our target asset. It is anticipated that the Fund's returns will be earned primarily through cash yield on bonds it acquires at discounted prices and through repayment of principal, or partial principal from recoveries on defaulted mortgages, over the holding period of each asset in the Fund.
DMR (Declaration Mgmt & Research) TALF and ABS Fund/Clifton  John Pluta	Pension	Lg Cap Dom Equity	Aug-09 to Dec-11 Fund matured/capital returned	<p>The investment objective of the DMR TALF and ABS Fund is to achieve attractive risk-adjusted returns in the low to mid-teens by investing opportunistically in senior classes of Consumer ABS and CMBS. The returns are expected to be achieved primarily through cash flow yield from assets acquired and financed using non recourse TALF leverage. The Fund term is expected to be relatively short with distributions beginning in July 2010 and most bonds naturally amortizing and maturing within 2-4 years from our purchase date.</p> <p>From a tactical standpoint, we believe the risk/return characteristics of short tenor ABS and CMBS compare favorably to other debt sectors. For TALF eligible assets, the low cost, non-recourse borrowing facility is an attractive feature which corporate credit, levered loans and high yield cannot access.</p> <p>The Fund's primary focus by sub-sector is on TALF-eligible legacy AAA senior CMBS. These assets are trading near par and tend to have a solid credit profile. The strategy does not involve stressed or "credit intensive" securities. Rather, we seek to execute risk efficient trades by employing non- recourse TALF leverage on lower volatility "par based" assets with high confidence in the receipt of coupon cash flow and full repayment of principal. TALF leverage is likely to range at 5x-15x capital depending upon the asset. In general, we expect to hold investments to their respective maturity dates, although we have the flexibility to sell holdings if spreads tighten. In acquiring assets, we employ a bottom-up analysis and model the structural characteristics of each transaction. DMR has a value orientation in security selection, seeking a margin of safety or cushion between base case performance expectations and extreme loss outcomes.</p> <p>The Clifton Group is charged with applying the S&amp;P 500 "beta" exposure for the Declaration "alpha" exposure. The overall goal of the account is to get the return of the S&amp;P 500 index plus an additional alpha amount provided by the TALF fund.</p>
DMR (Declaration Mgmt & Research) - formerly Hyperion Brookfield mortgage portfolio  John Pluta	Insurance	Fixed Income	Feb-10 to May-14 Liquidated and moved to TRBF	<p>In this mandate, DMR will assume management of mortgage assets originally acquired by Brookfield (Hyperion) over the period 2006-2009. DMR will provide a fresh perspective on the holdings, some of which are credit impaired. The portfolio management services will include loan-level analysis on individual securities and portfolio level risk management of liquidity and volatility.</p> <p>DMR will seek to optimize the risk-return profile of the portfolio. The performance target of the portfolio is a gross total return of 1.25% above the return of the Benchmark over a full market cycle. The Benchmark is the Securitized Portion of Barclays U.S. Aggregate Index (ID #5582).</p> <p>In analyzing portfolio holdings, DMR may produce loss-adjusted cash flow projections on various bonds and/or stress test individual assets to identify break points (principal loss). DMR will evaluate the effect, if any, of government policy such as loan modification on portfolio holdings.</p>

## North Dakota State Investment Board Managers - Closed

Investment Manager	Trust	Asset Class	Open to Close Date	Description
ECM - European Credit Mgmt  John (Rusty) Reese	Pension	Lg Cap Dom Equity	Nov-07 to May-11 Terminated	The investment consists of variable rate notes issued by European Credit (Luxembourg), S.A., and managed by European Credit Management Ltd. The notes represent undivided interests in the issuer, a predominately investment grade European credit commingled fund currently rated BBB by Fitch Ratings, and are akin to fund subscriptions. The return on the investment is a combination of the beta of the S&P 500, achieved by means of a total return swap, and the excess return over EURIBOR, net of swap costs (if any), generated by the performance of EC(L). Returns of the investment are substantially hedged back to U.S. dollars.
Epoch Investment Partners  Thomas Pernice	Pension	Lg Cap Dom Equity	Jul-07 to Dec-11 Mandate changed to Global Choice	Epoch's Global Absolute Return strategy seeks to produce superior risk-adjusted returns by building portfolios of businesses with outstanding risk/reward profiles without assuming a high degree of capital risk. We adopt a globally-minded approach, seeking to capture the benefits of borderless investing and globalization. The businesses in which we invest effectively reflects the high conviction ideas of the entire range of U.S. and Non-U.S. strategies offered by the firm to be included in this concentrated portfolio. We manage portfolio risk exposure through quantitative and qualitative asset allocation inputs to reduce the likelihood of loss of capital. Our goal is to produce a portfolio of 20 – 30 positions that exhibits low volatility, strong risk-adjusted returns and real absolute returns. Global Absolute Return will use cash to mitigate downside capture.
JP Morgan Emerging Markets Fund  Jim Sakelarlis	Pension	Emerging Markets Equity	11/1/2005 to 7/31/14 Terminated	The emphasis of investments in the Emerging Markets Equity Focused Fund is in capital and common stocks, securities convertible into capital and common stocks, and other equity investments, all of which involve foreign companies and enterprises' located primarily in emerging markets. In this context, 'Emerging' refers generally to countries outside of the MSCI EAFE Universe.
JP Morgan Mortgage Backed Securities  Jim Sakelarlis	Pension	Domestic Fixed Income	Sep-14 to Feb-18 Terminated	JPM seeks to create portfolios that offer superior stability of cash-flows (over a wide range of interest rate scenarios) versus those of the Barclays Capital Mortgage Securities benchmark. Due to a focus on identifying undervalued securities our selection is not limited to securities within the index, we may also utilize agency and non-agency commercial mortgage obligations. Because the mortgage-backed sector, in particular, has been less efficient relative to other sectors in recent years, security selection skills can add particular value. The JPM investment approach seeks to add value through the following: <ul style="list-style-type: none"> <li>• We take a longer-term view of investing versus adopting a trading mentality.</li> <li>• Sub-sector allocation decisions are based on broad sector outlook, using expected return and valuation analysis.</li> <li>• Undervalued securities are identified through diligent research.</li> <li>• Relative risk/reward relationships are evaluated along the yield curve.</li> <li>• Strategy emphasizes research and individual security analysis rather than large macro bets.</li> <li>• Duration is managed primarily as a risk control measure.</li> <li>• Portfolios are well diversified and of high credit quality.</li> <li>• Risk management is embedded throughout process and seeks to limit downside risk relative to the benchmark.</li> </ul>
JP Morgan Short Term Bond Fund  Jim Sakelarlis	Legacy Fund	Short Term Fixed Inc	Sep-11 to Feb-15 Change of asset allocation	The investment objective of the Short Term Bond Fund is to outperform (based on the portfolio's total return, gross of fees) the Barclays Capital 1-3 Year Government/Credit Index (the benchmark) while maintaining total return risk similar to that of the Benchmark as measured over a market cycle.
LSV Int'l Equity  James Owens, Jr.	Pension	Developed Int'l Equity	Nov-04 to Jan-13 Changed mandate to Global Equity	The objective of our International Large Cap Value strategy is to outperform the MSCI EAFE Index (50% Hedged) 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%. 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 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). LSV weights countries at a neutral weight relative to the benchmark country weights. Initial positions must be in stocks with a market capitalization above \$500 million. 50% of the portfolio is US dollar hedged.



## North Dakota State Investment Board Managers - Closed

Investment Manager	Trust	Asset Class	Open to Close Date	Description
LSV Large Cap  James Owens, Jr.	Pension	Dom Lg Cap Equity	Jun-98 to Jan-13 Changed mandate to Global Equity	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 3-5 year period 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 100 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.
Matlin Patterson (Fund I)	Pension	Private Equity	Jul-02 to Jun-16	Invest globally in the severely discounted securities and obligations of financially distressed companies with the objective of obtaining corporate control. Through the Investment Adviser's active management of the Fund's investments, the Fund is seeking superior risk adjusted returns and is operating globally in a segment of the distressed sector in which it has few significant competitors.  Invest globally in the severely discounted securities and obligations of financially distressed companies with the objective of obtaining corporate control. Through the Investment Adviser's active management of the Fund's investments, the Fund is seeking superior risk adjusted returns and is operating globally in a segment of the distressed sector in which it has few significant competitors.
Mellon (Franklin Portfolio Assoc.)	Pension	Lg Cap Dom Equity	Sep-06 to Aug-09 Terminated	To achieve superior long term equity market returns through an investment process consisting of two parts: a) a market neutral equity strategy with approximately equal dollars invested long and short having the objective of neutralizing the overall movements of the market. Furthermore, other systematic sources of risk, including industry/sector and capitalization effects, will be controlled so that the large portion of portfolio returns comes from individual stock selection. b) an equitization strategy using S&P 500 index futures contracts to overlay the performance of the S&P 500 index on the market neutral strategy.
NTGI (Northern Trust Global Investments) Common TIPS Fund  Richard Clark Jim Aitcheson	Insurance	Inflation Protected	May-07 to July-10 Terminated	The Corporate Trustee may invest and reinvest in units of common funds maintained by the Corporate Trustee or any affiliate of the Corporate Trustee, including, but not limited to the NTGI-QM Common Daily Treasury Inflation Protected Securities (TIPS) Index Fund-Lending. To meet liquidity needs, the Corporate Trustee may also invest in short term cash investments, including shares of money market portfolios, other common funds, or registered investment companies for which the Corporate Trustee or an affiliate serves as trustee, custodian or investment advisor.
NTGI (Northern Trust Collective Emerging Markets Index Fund)  Jason Pasquinelli	Pension	Emerging Markets Equity	July-12 to July-14 Terminated	The Northern Trust Collective Emerging Markets Index Fund will be invested primarily in equity securities of business enterprises organized and domiciled outside the US or for which the principal trading market is outside the US.  In the Fund, and where applicable with respect to the Fund, the Trustee will employ statistical methods to select securities which comprise or will comprise the Index without necessarily buying all the relevant Index equities. Such securities will be selected, acquired, held and liquidated solely on the basis of such methods and not on the basis of any economic, financial, market timing, or other analysis.  Securities purchased for the Fund will generally, but not necessarily be traded on a foreign securities exchange. The Trustee may, in its discretion, purchase or sell depository receipts.  The Fund will be rebalanced from time to time in order to minimize the expected or predicted deviation between the performance of the Fund and the performance of the relevant Index or to reflect changes in the composition of the Index.

## North Dakota State Investment Board Managers - Closed

Investment Manager	Trust	Asset Class	Open to Close Date	Description
PanAgora Asset Mgmt  Lisa Mahoney	Pension	Emerging Markets Equity	Feb-06 to Dec-13 Terminated	The Emerging Markets Fund seeks to exceed, in the aggregate, the return of the Morgan Stanley Capital International Emerging Markets Index before fees and expenses. The Emerging Markets fund may be invested in: <ul style="list-style-type: none"> <li>• International equity securities including common, preferred and instruments convertible into common or preferred stock for those companies which comprise the Benchmark and the Morgan Stanley Capital International Frontier Markets Equity Index.</li> <li>• American Depository Receipts, Global Depository Receipts, European Depository Receipts</li> <li>• Exchange traded funds based on the underlying securities in the Benchmark</li> <li>• Spot and forward currency exchange contracts</li> <li>• US Treasury bills</li> <li>• Daily Liquidity Fund</li> <li>• The maximum investment in companies which comprise the Morgan Stanley Capital International Frontier Markets Equity Index will not exceed 10% measured at time of purchase.</li> </ul>
PIMCO Distressed Senior Credit Opportunities (DiSCO) Fund I  Julie Meggers Todd Staley Michael Chandra	Pension	Dom Inv Grade FI	Jul-08 to Oct-11 Moved to Fund II	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.
PIMCO Distressed Mortgage Fund  Julie Meggers Todd Staley Michael Chandra	Pension	Below Inv Grade FI	Oct-07 to May-13 Capital Returned	The PIMCO Distressed Mortgage Fund is an opportunistic private-equity-style Fund which seeks to capitalize on the historic dislocation in the US and global mortgage markets. The Fund invests in mortgage-related securities and loans where PIMCO believes the long-term value of the investment is highly attractive relative to current market pricing. Within the universe of mortgage-related assets, the Fund will be otherwise unconstrained. The Fund will essentially look to capitalize on forced liquidations of mortgage risk from mark-to-market and ratings sensitive investors at historic high yields.
PIMCO MBS  Stephanie King Michael Chandra	Pension	Dom Inv Grade FI	Mar-12 to Nov-17 Allocation Change to Core Plus	The PIMCO Mortgage-Backed Securities Strategy is an actively managed bond portfolio that invests in high quality, short to intermediate duration mortgage-backed securities. The fund invests primarily in securities that are highly rated, such as US Government guaranteed Ginnie Mae securities and Agency-guaranteed Fannie Mae and Freddie Mac mortgage-backed securities.
PIMCO Unconstrained Bond Fund  Julie Meggers Todd Staley	Pension	Dom Inv Grade FI	Mar-12 to Mar-14 Converted to SMA Mar-14 to Nov-17 Allocation change to Core Plus	The PIMCO Unconstrained Bond Strategy is an absolute return-oriented, investment grade quality fixed income strategy that embodies PIMCO's secular thinking, global themes, and integrated investment process without the constraints of a benchmark or significant sector/instrument limitations. The strategy is designed to offer the traditional benefits of a core bond approach - capital preservation, liquidity, and diversification - but with higher alpha potential and the opportunity to mitigate downside risk to a greater degree than what is reasonably possible from traditional active fixed income management approaches.
Prudential Privest Peter Taggart	Pension	Dom Inv Grade FI	Jun-05 to Mar-12 Terminated	The Prudential Privest fixed income account is invested primarily in unsecured privately placed debt securities.

## North Dakota State Investment Board Managers - Closed

Investment Manager	Trust	Asset Class	Open to Close Date	Description
Prudential PruAlpha  Peter Taggert	Pension	Dom Lg Cap Equity	Mar-08 to May-12 Redeemed out/Terminated	At launch, Pru Alpha was an absolute return strategy investing across multiple sectors of the global fixed income markets. There were significant redemptions from Pru Alpha in the wake of the high market volatility in late 2008. Pru Alpha is currently focused on investing in distressed securities in the fixed income markets.
	Insurance (currently Budget Stabilization only)	Enhanced Cash	Jul-07 to May-12 Redeemed out/Terminated	<p>The Pension Trust invested in a feeder fund that allocated a substantial portion of its assets to the Pru Alpha Master Fund and invested substantially all of its remaining assets in a replication strategy based on the S&amp;P 500 Total Return Index. On November 26, 2008, the S&amp;P 500 beta overlay was discontinued. Effective June 1, 2009, the S&amp;P 500 beta overlay was reapplied via a separate account that invests in S&amp;P 500 futures in amounts intended to match the market value of the Pension Trust's Pru Alpha investment.</p> <p>The budget stabilization account is an "enhanced cash" portfolio to augment the other components of North Dakota's budget stabilization assets. This account was originally invested across three components: Dryden Core Short-Term Bond Fund (80%), bank loans (10%), and Pru Alpha (absolute return fund, 10%). Core Short-Term Bond Fund is an "enhanced cash" portfolio that seeks to capture incremental yield from various sectors in the short term portion of the market, with virtually no interest rate risk. Holding assets in the structured product and corporate sectors led to significant underperformance through the credit market downturn from 3Q07-1Q09, but the fund has recovered significantly year-to-date 2009. The bank loan component of the portfolio consists of approximately 20-25 individual bank loans managed by PFIM's high yield/bank loan team. The names held in the account are biased towards the higher quality and more liquid names in the bank loan arena. Pru Alpha is an absolute return strategy and is described with the Pension Trust investment above.</p> <p>On July 28, 2009, \$95mm was added to this account. As a result of discussions with our senior investment team at PFIM and Steve Cochrane, it was decided to invest the new assets in short-term corporate bonds (1-3 years). As of 8/31/09, the account is allocated as follows: Short-term corporates (47%), Dryden Core Short-Term Bond Fund (39%), bank loans (5%), and Pru Alpha (4%) and cash (5).</p>
Quantum (Resources)  Brian Borque	Pension	Private Equity	Oct-06 to Jun-17	Quantum Resources' investment strategy is to acquire, develop, enhance and exploit mature oil and gas properties in order to provide investors with both a current income vehicle with capital appreciation potential and a hedge to other investments through long-term exposure to changes in commodity prices. The company will acquire cash flow producing oil and gas properties primarily located in North America through asset or corporate purchases. By acquiring properties in a diverse set of mature fields with long operating histories, long-lived production characteristics and additional development potential, the company is emphasizing a focus on capital preservation and the reinvestment of cash flow into property development or add-on acquisitions. Management expects to acquire income streams generated by the production of oil and gas reserves at attractive discount rates of future net cash flows.
SEI Investments	Pension  Insurance	Dom Small Cap Equity  Dom Small Cap Equity	Jul-01 to Nov-09 Terminated Jul-01 to Nov-09 Terminated	Utilizing multiple SEI Portfolio sub-advisors, the SEI Portfolio invests in common stocks and other equity securities with the goal of providing capital appreciation.

## North Dakota State Investment Board Managers - Closed

Investment Manager	Trust	Asset Class	Open to Close Date	Description
SEI Investments  Bob Thomas	Pension (Job Service only)	Core Plus Fixed Income	Jul-09 to Mar-12 Terminated	A diversified set of lowly correlated alpha sources increase confidence in consistent excess return -Combination of managers with a broad opportunity sets inclusive of government, credit and structured securities -Derivatives provide an efficient means of strategy implementation -Managers have the ability to utilize derivatives to manage duration, yield curve, sector and security strategies to enhance return or reduce risk
State Street Global Advisors  Kevin Sullivan	Pension	Developed Int'l Equity	July-92 to Dec-13 Terminated	SSgA attempts to identify stocks that it believes are undervalued, using detailed investment analysis. The strategy is normally broadly invested among countries and industries. The investable universe is equity securities of companies outside the United States within the market capitalization range of the index.
State Street Global Advisors	Pension  Insurance	Dom Lg Cap Equity  Dom Lg Cap Equity	Jul-92 to Jul-09 Terminated  Oct-96 to July-09 Terminated	Originally hired as S&P 500 Index funds and later re-mandated to 130/30 strategies.
State Street Global Advisors	PERS Retiree Health		Mar-94 to Jul-09 Terminated	Balanced account consisting of index funds in fixed income, large and small cap and int'l equity.
UBS Global Asset Management  Betsy Sanders	Pension	Emerging Markets Equity	July 05 to Dec 13 Terminated	Emerging markets equity investments will be confined to the UBS Emerging Markets Equity collective Fund of the UBS Group Trust, which is maintained by UBS Global Asset Management Trust Company. The account's emerging markets equity 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.
UBS Global Asset Management  Betsy Sanders	Pension	Dev. Int'l Fixed Income	July-89 to Feb-18 Terminated	The non-US fixed income portfolio's assets may be 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.
Wachovia Global Securities Lending  John Menard	Pension Insurance	All asset classes	Oct-07 to Jun-11 Terminated when acquired by Citi	Securities lending is the temporary loan of a security from an institutional investor's portfolio to a broker/dealer or dealer bank to support that firm's trading activities. These trading activities include short selling, selling on margin or the satisfaction of some other type of transaction. Loaned securities are generally collateralized, reducing the lender's credit exposure to the borrower. Except for the right to vote proxies, the lender retains entitlement to all the benefits of owning the original securities, including the receipt of dividends and interest. Additionally, the lender receives a fee for the use of the securities and can reinvest the collateral. The lender, however, bears the market risk of the loaned securities. This is due to the borrower being obligated to ultimately return the securities, not the original market value of the securities, at the time the loan was made. Lendable securities include U.S. government and agency bonds, U.S. and foreign equities, U.S. corporate and Eurobonds, foreign government bonds, asset backed and mortgage backed securities
Wells Capital Management  Jeff Mellas Doug Beath	Pension	Dom Lg Cap Equity	Apr-06 to Mar-10 Terminated	The State of North Dakota's Alpha Capture Portfolio (ACP) is a quantitatively driven global long/short strategy designed to exploit mispricing of risk between and within asset classes and market sectors. Core models are utilized in conjunction with the management team to identify opportunities between global stock and bond markets. Markets that are designed to focus more directly on specialized markets such as commodities and individual market sectors supplement the core models. ACP is constructed using instruments such as futures contracts and exchange traded funds (ETFs). The ACP strategy does not currently hedge its non-U.S. dollar positions.

## North Dakota State Investment Board Managers - Closed

Investment Manager	Trust	Asset Class	Open to Close Date	Description
Wells/Sutter  Niklas Nordenfelt	Pension	Below Inv Grade FI	Apr-04 to Mar-10 Terminated	The Sutter High Yield strategy applies a bottom-up fundamental based investment strategy focused on identifying the best risk adjusted opportunities in the high yield market. The investment objective is to deliver outperformance with less volatility over a market cycle. Documented rationale supports each initial investment in a credit. The team's philosophy and process is grounded on the principal of "underwriting the credit as though we are making a direct loan to that company" with a focus on U.S. based companies.
Wells Capital Management  Stephen Scharre	Pension	Dom Inv Grade FI	Nov-98 to Mar-12 Terminated	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. Credit research is a primary driver of our results; however, our process starts with a "top-down" strategy to guide decision-making. Security selection is determined by in-depth credit research. We believe in-depth knowledge of industries, companies, and their management teams enable us to identify credit trends that can lead to investment opportunities. In conjunction with performing rigorous fundamental research, we also apply a disciplined relative value framework which helps us determine the optimal position to invest within an industry and within an individual issuer's capital structure.
Western Asset  Derek Fan	Pension	Dom Inv Grade FI	Oct-09 to Mar-12 Mandate changed to MBS	A 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.
Western Asset  Derek Fan	Pension	Dom Inv Grade FI	Mar-12 to Sep-14 Terminated	The investment objective for the Western Asset Mortgage-Backed Securities portfolio is to outperform the Barclays Capital US Mortgage Backed Securities Index over a three to five year market cycle. The portfolio is designed to hold high quality assets, with at least 90% of the portfolio rated AAA, or the rating of US Treasury or Agency securities, by at least one of the nationally recognized statistical rating organizations.
Western Asset	Insurance	Inflation Protected	May-04 to Oct-09 Mandate changed to Global TIPS	Western Asset's US TIPS Full Discretion Composite includes portfolios that employ an active, team-managed investment approach around a long-term, value-oriented investment philosophy. These portfolios use diversified strategies in seeking to add value while minimizing risk.  The approach is to construct a well diversified, higher yielding inflation-protected portfolio with a bias towards Treasury Inflation Protected Securities. Exposure to the diversifying sectors (which include credit, global inflation-linked securities and mortgage-backed securities) may be derived through derivative and forward transactions. This strategy allows for opportunistic investments in high yield, emerging markets, non-dollar securities, commodities and bank loans.
Westridge/WG Trading/Clifton	Pension Pension Insurance	Dom Lg Cap Equity Dom Inv Grade FI Dom Lg Cap Equity	Aug-00 to Apr-11 Jan-08 to Apr-11 Apr-04 to Apr-11 (Settlement proceeds rec'd Apr-11)	S&P 500 Index Arbitrage Portfolio. Pension Domestic Fixed Income beta portfolio was changed to S&P 500 in November 2008. WG Trading was shut down by Federal Regulators in February 2009 and assets are in receivership. An S&P beta exposure was put on the accounts in July, 2009 by Clifton Group to maintain proper exposure to markets while in litigation.