



Board of Trustees  
15 Estabrooke Drive  
Orono, ME 04469

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Fax: 207-581-9212  
www.maine.edu

February 28, 2019

TO: Members of the Investment Committee

FR: Ellen N. Doughty, Clerk of the Board



RE: **March 11, 2019 - Investment Committee Meeting**

The University of Maine

University of Maine  
at Augusta

University of Maine  
at Farmington

University of Maine  
at Fort Kent

University of Maine  
at Machias

University of Maine  
at Presque Isle

University of  
Southern Maine

The Investment Committee will meet from **9:30 am to 12:30 pm on March 11, 2019**. The meeting will be located at the University of Maine System Executive Offices, Rudman Conference Room, 253 Estabrooke Hall, 15 Estabrooke Drive in Orono. In addition to the Estabrooke Hall location, the following Polycom locations and a conference call connection will also be available:

UMA – RM 125, Robinson Hall  
UMFK – Alumni Conference RM, Nadeau Hall  
USM – RM 211/212, Wishcamper

**PHONE: 1-800-605-5167 code – 743544#**

Refreshments will be provided at the USM and UMS locations. The meeting materials have been posted to the Diligent Board Portal under the Investment Committee section. Also these materials will be posted on the Board of Trustees website: <http://www.maine.edu/about-the-system/board-of-trustees/meeting-agendas/investment-committee/> If you have questions about the meeting arrangements or accessing the meeting materials please call me at 581-5840.

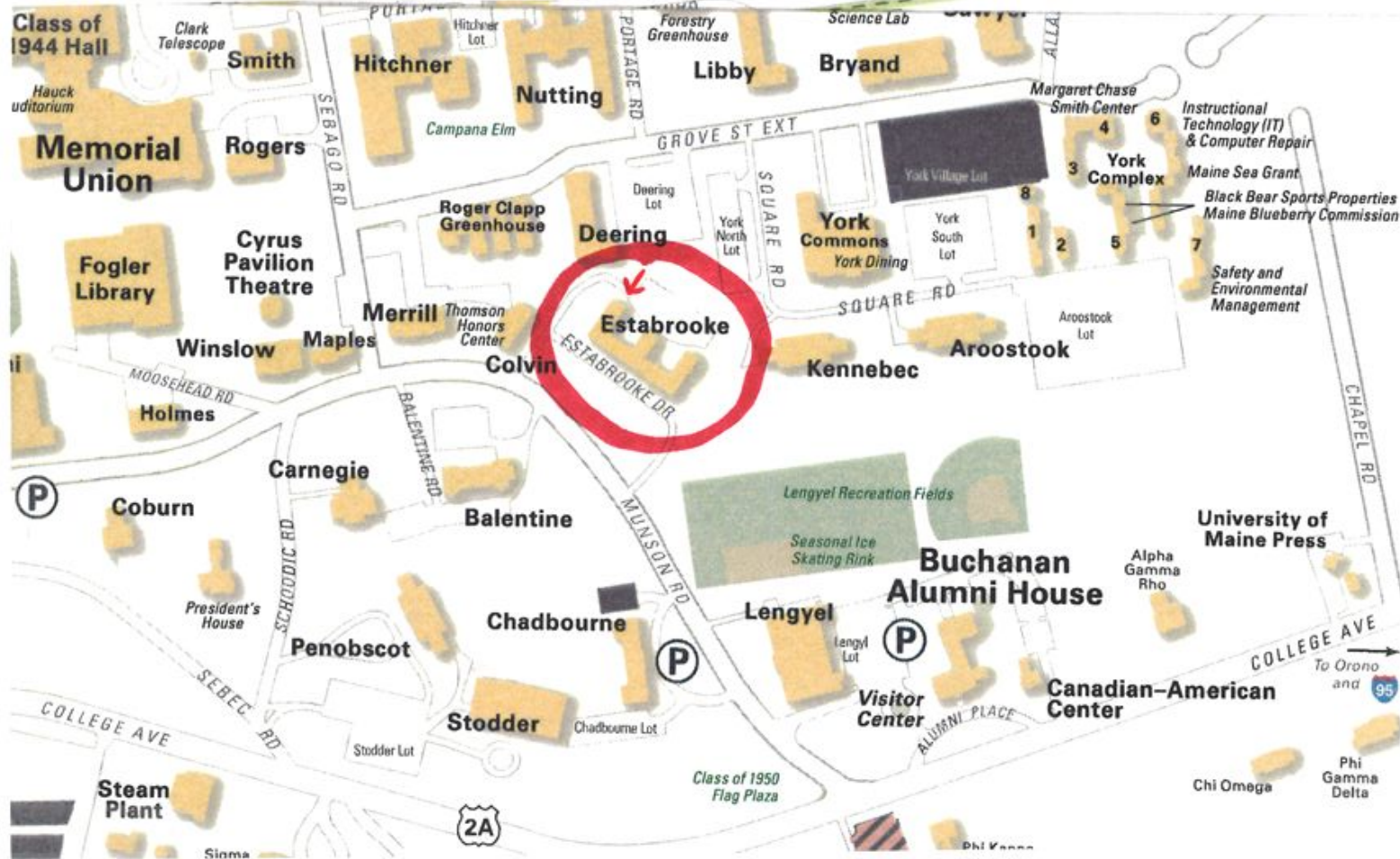
If you have any questions or desire additional information about the agenda items, please call Tracy Elliott at 581-5492.

cc: Chancellor James Page  
Trustees who are not members of the Committee  
Presidents  
Ryan Low  
Robert Neely  
Kay Kimball  
Tracy Elliott

# University of Maine System

15 Estabrooke Drive, Orono

**Rudman Conference Room**  
253 Estabrooke Hall, 2<sup>nd</sup> Floor  
15 Estabrooke Drive, Orono



## Directions to the UMS located on the UMaine Campus

**From the South on I-95:** take exit 191 to Kelly Road and turn right. Continue on Kelly Road for 1 mile until you reach the traffic light, then turn left onto Route 2 and go through downtown Orono. Cross the river. Turn left at the lights onto College Avenue. Buchanan Alumni House will be the first campus-related building on your right. Right after the Buchanan Alumni House, take a right onto Muson Road. Estabrooke Hall is the building on the right after Lengyel.

**From the North on I-95:** take exit 191 to Kelly Road and turn left. Continue on Kelly Road for 1 mile until you reach the traffic light, then turn left onto Route 2 and go through downtown Orono. Cross the river. Turn left at the lights onto College Avenue. Buchanan Alumni House will be the first campus-related building on your right. Right after the Buchanan Alumni House, take a right onto Muson Road. Estabrooke Hall is the building on the right after Lengyel.

The UMS is located on the 2<sup>nd</sup> floor of Estabrooke Hall. Enter Estabrooke Hall from the back of the building, the entrance closes to Deering Hall.

Board of Trustees

**Investment Committee**

March 11, 2019, 9:30 am to 12:30 pm  
Rudman Conference Room, 253 Estabrooke Hall, Orono

**AGENDA**

- TAB 1      FY2020 Endowment Spending Rate
- TAB 2      *Asset Allocation Review*
- TAB 3      Portfolio Performance Review - Executive Summary
- TAB 4      Defined Contribution Plan Quarterly Review
- TAB 5      *Contributory Retirement Plans – Investment Advisory Services Contract Extension*

*Action items within the Committee purview are noted in green.*

*Items for Committee decisions and recommendations are noted in red.*

*Note: Times are estimated based upon the anticipated length for presentation or discussion of a particular topic. An item may be brought up earlier or the order of items changed for effective deliberation of matters before the Committee.*




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## AGENDA ITEM SUMMARY

1. **NAME OF ITEM:** FY2020 Endowment Spending Rate
2. **INITIATED BY:** Kelly Martin, Chair
3. **BOARD INFORMATION:** X                      **BOARD ACTION:**
4. **OUTCOME:**                                      **BOARD POLICY:**  
     Primary Outcome:                                  Section 709 - Investments  
         Enhance fiscal positioning
5. **BACKGROUND:**

At its December 20, 2018 meeting, the Investment Committee reviewed and supported the recommended fiscal year 2020 (FY2020) endowment spending rate of 4.5%. This rate is estimated to generate \$4.2 million for endowed spending and \$1.1 million for a management fee. An estimated \$250 thousand will be reinvested to rebuild those endowments that are underwater. The enclosed materials include additional summary information related to the estimated annual distributions.

**UNIVERSITY OF MAINE SYSTEM  
ENDOWMENT DISTRIBUTION RATE - FY 20**

<b>Market Value - Per GL for Endowments Subject to UMSystem Spending Rule:</b>	
<u>Year</u>	<u>MV*</u>
Oct-16 (for FY2018)	\$ 115,488,377
Oct-17 (for FY2019)	\$ 128,504,394
Oct-18 (for FY2020)	\$ 126,592,794
Three year average	\$ 123,528,521
Spending Rate	4.50%
Spending Amount	<u>\$ 5,558,783</u>

<b>Annual Distribution Rate Per Share for FY20:*</b>	<b>UM</b>	<b>USM</b>	<b>GUS</b>	<b>All Others</b>
Dist. Rate Per Share for FY20 = Net Estimated Endow Amount to be Distrib/Total Shares:				
FY20 Share Rate - Gift Accounts	\$ 10.58467	\$ 10.58467	\$ 13.84149	\$ 14.65570
FY20 Share Rate - Management Fee Accounts	\$ 4.07103	\$ 4.07103	\$ 0.81421	\$ -
FY20 Share Rate - Gross	<u>\$ 14.65570</u>	<u>\$ 14.65570</u>	<u>\$ 14.65570</u>	<u>\$ 14.65570</u>

<b>Total Estimated Shares for FY20:</b>	<b>Total</b>	<b>UM</b>	<b>USM</b>	<b>GUS</b>	<b>All Others</b>
Shares subject to UMS spending rule and not underwater	362,258	219,525	46,367	22,043	74,323
Shares subject to UMS spending rule and underwater	17,033	15,668	0	0	1,365
<b>Total Shares as of October 2018</b>	<b>379,292</b>	<b>235,193</b>	<b>46,367</b>	<b>22,043</b>	<b>75,688</b>

<b>Calculation of Annual Distribution for FY20:</b>	<b>Total</b>	<b>UM **</b>	<b>USM</b>	<b>GUS</b>	<b>All Others</b>
Amount Distributed for Endowed Spending	\$ 4,208,832	\$ 2,323,686	\$ 490,783	\$ 305,114	\$ 1,089,249
Amount Distributed for the Management Fee	1,100,320	893,609	188,763	17,948	-
Amount Distributed Including Management Fee (rate per share X number of shares)	\$ 5,309,152	\$ 3,217,295	\$ 679,546	\$ 323,062	\$ 1,089,249
Amount Reinvested Back into Underwater Investments	249,631	229,625	-	-	20,006
Total Allocation (Distributed Plus Amount Returned to Principal for Underwater Investments)	<u>\$ 5,558,783</u>	<u>\$ 3,446,920</u>	<u>\$ 679,546</u>	<u>\$ 323,062</u>	<u>\$ 1,109,255</u>

\* In FY17 the UM and USM share rate for management fee accounts increased from .25% to 1.25% and remained the same for FY18, FY19 and FY20. Governance and University Services (GUS) stayed at .25% . No other campus applies a management fee.

\*\* UM's shares subject to the spending rate and above water include one endowment (20.71 shares) that does not allow a management fee. Therefore, the amount distributed for the UM management fee differs from the amount that would be obtained simply by multiplying the management fee per share by the number of shares.



## AGENDA ITEM SUMMARY

1. **NAME OF ITEM:** Asset Allocation Review
2. **INITIATED BY:** Kelly Martin, Chair
3. **BOARD INFORMATION:** **BOARD ACTION:** X
4. **OUTCOME:** **BOARD POLICY:**  
 Primary Outcome: Section 709 - Investments  
 Enhance fiscal positioning

5. **BACKGROUND:**

Kelly Regan and Jay Roney, with NEPC, will review asset allocation recommendations for all three portfolios (Managed Investment Pool, Pension Fund and Operating Fund).

6. **TEXT OF PROPOSED RESOLUTION:**

That the Board of Trustees, acting through the Investment Committee, approves the following asset allocation recommendations.

**Operating Fund**

1. Reduce global asset allocation from 12.5% to 8% and re-allocate funds to traditional equity (2%) and fixed income (2.5%)
2. Eliminate TIPS allocation and re-allocation to liquidity pool (cash)

**Managed Investment Pool**

1. Reduce global asset allocation from 23% to 15% and re-allocate to traditional equity (5%) and fixed income (3%)
2. Eliminate private markets targets (5%) and allocate to equity: Investment Committee voted to not allocate additional funds to private markets
3. Diversify Treasury Inflation Protected Securities (TIPS) allocation: Add Vanguard Short-Term Inflation Protected Securities Index Fund, VTSPX (3.5% allocation)

**Pension Fund**

1. Collapse large cap equity, small cap equity and international equity into a global equity index product (TBD)
2. Reduce global asset allocation from 27.5% to 8% and re-allocate to traditional equity (11.5%) and fixed income (8%)
3. Diversify Treasury Inflation Protected Securities (TIPS) allocation: Add Vanguard Short-Term Inflation Protected Securities Index Fund, VTAPX (3.5% allocation)

2/28/2019

# ASSET ALLOCATION DISCUSSION



## UNIVERSITY OF MAINE SYSTEM

March 11, 2019

Jay E. Roney, Partner

Kelly A. Regan, Senior Consultant



BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

## 2019 SUMMARY OUTLOOK

### **Market dynamics shifted significantly in 2018, with Fed policy and US-China trade tensions disrupting many of our key market themes**

As a result we have removed Federal Reserve Gradualism, Extended US Economic Cycle, and Global Synchronized Growth as key themes

### **We believe we have entered a late-cycle market environment and the dynamics of such an environment will be a focal point for investors**

However, late-cycle does not mean end of cycle and equities can still offer lucrative returns, though are likely to be accompanied by additional volatility

### **We encourage investors to rebalance developed market equity exposure**

We have downgraded our outlook for non-US developed equities and removed the overweight recommendation from our current opportunities list

The main driver of the change is negative sentiment surrounding economic and political conditions of Europe, concerns related to the earnings growth outlook, and central banks paring back their support of easy financial conditions

### **The transition to a late-cycle is accompanied with a more risk-averse investment outlook as economic risks become more pronounced**

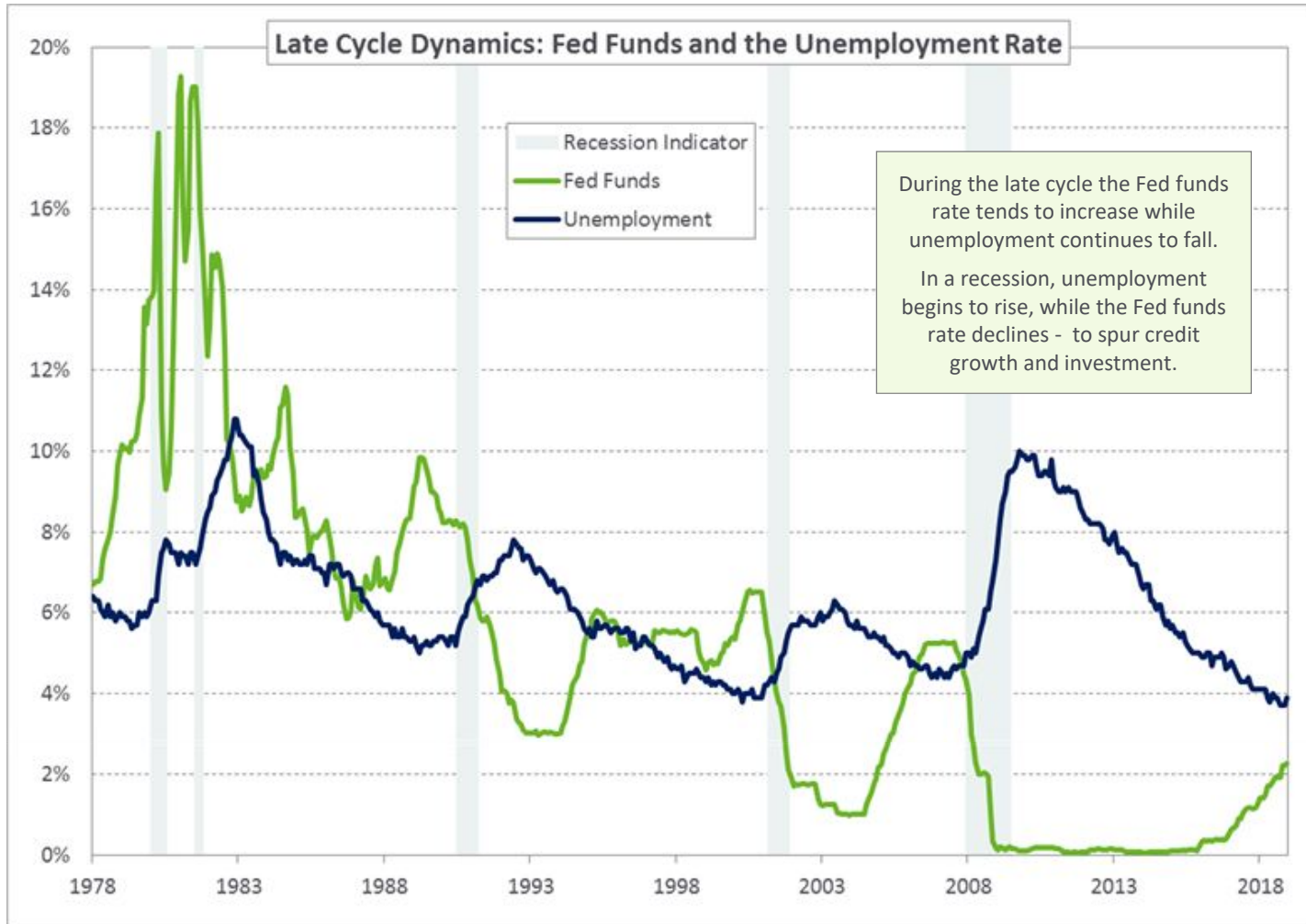
After years of low volatility and outsized equity returns, the market is likely to transition to a higher volatility regime, which offers more risk but also tactical opportunities

We recommend reducing lower quality credit exposure as higher default rates are a common aspect of late-cycle market dynamics





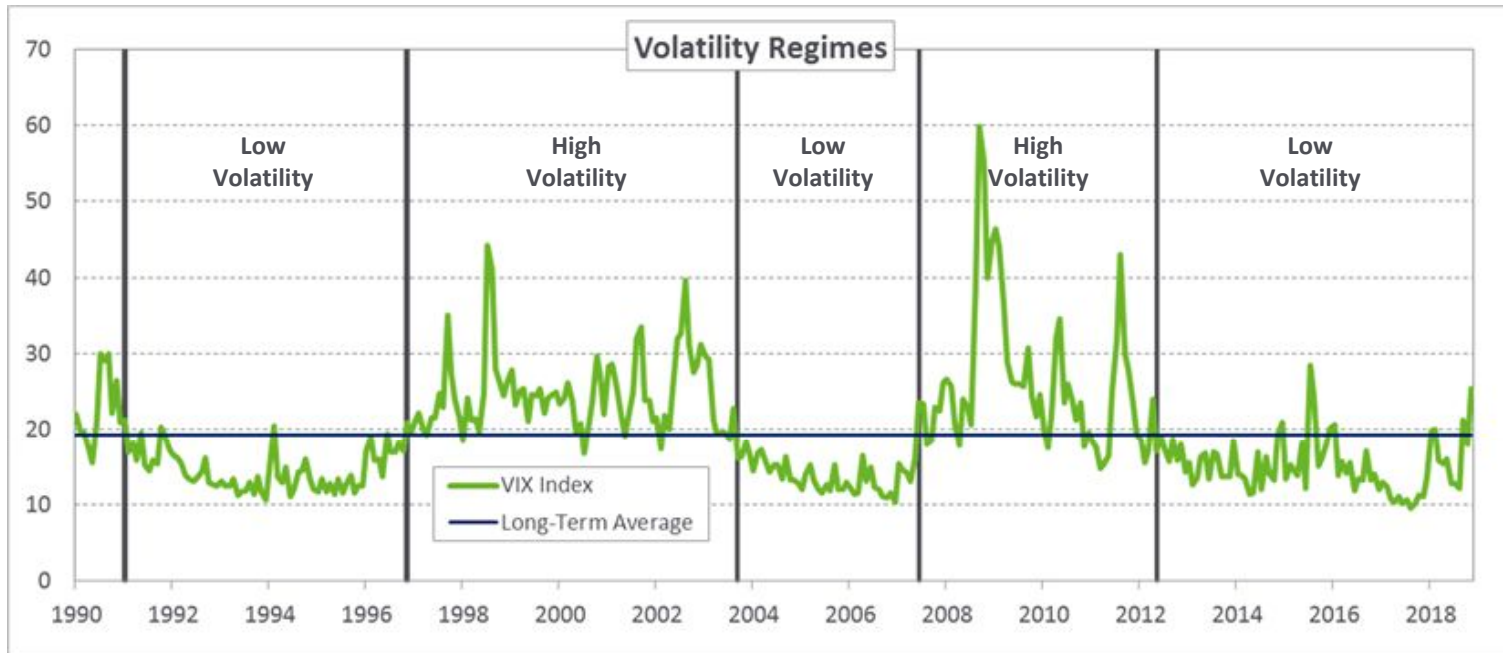
# THE ECONOMIC CYCLE IS IN TRANSITION



Source: St. Louis Federal Reserve, NBER



## BRACE FOR HIGHER VOLATILITY IN 2019



Source: S&P, CBOE, Bloomberg, NEPC

### **Equity volatility regimes tend to persist over prolonged periods and 2018 was witness to a material shift higher in equity volatility**

We encourage investors to raise "safe haven" fixed income exposure as trends associated with each of our key market themes suggest higher volatility is on the horizon

### **2019 may prove to be a difficult year for markets but higher volatility can also offer a greater number of opportunities for dynamic investors**

Investors should be prepared to act in a higher volatility regime, as dynamic opportunities may arise to deploy safe-haven assets back into US equity and other risk assets



# 2019 THEMES AND OPPORTUNITIES

## Key Market Themes

- Late Cycle Dynamics
- Tightening Global Liquidity
- China Transitions
- Globalization Backlash

## Current Opportunities

- Rebalance Developed Market Equities - **Applicable**
- Raise Safe-Haven Fixed Income Exposure - **Applicable**
- Reduce Lower Quality Credit Exposure - **Considered, Not Applicable**
- Maintain Overweight to Emerging Market Equities - **Applicable**
- Add Long Volatility Exposure - **Considered, Not Applicable**
- Fund Public Midstream Energy Exposure - **Considered, Not Applicable**
- Fund Emerging Local Debt - **Considered, Not Applicable**

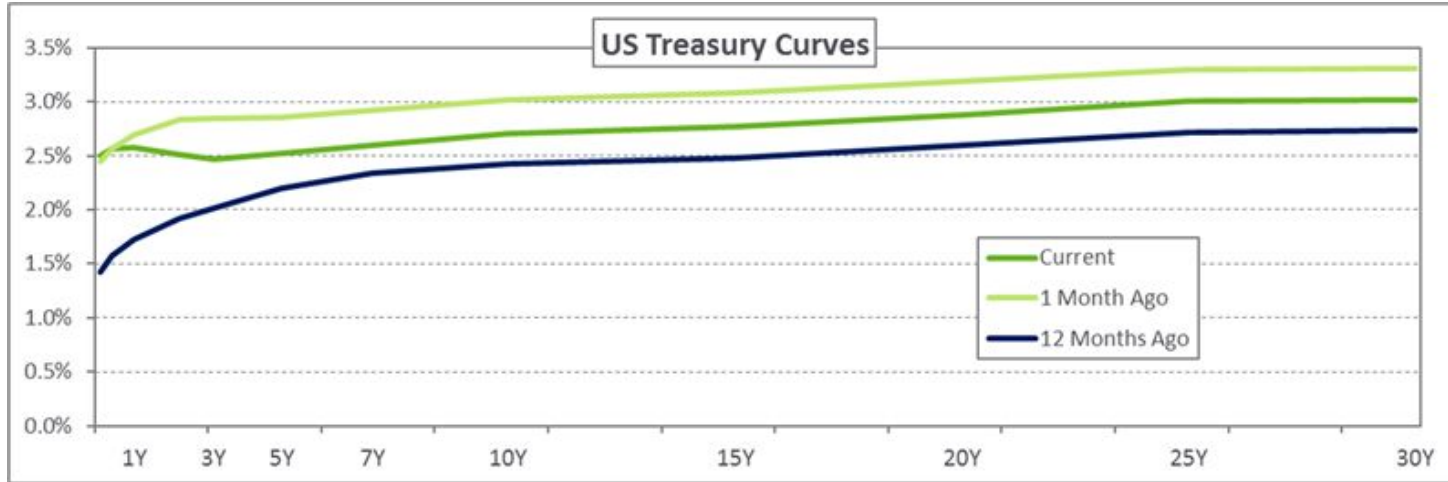


# OPERATING FUND

NEPC, LLC

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# TREASURIES



Source: Bloomberg

	Yield (%)			Total Return (%)	
	Current	1 Month Ago	12 Months Ago	1 Month	12 Months
3M Treasury	2.51%	2.45%	1.42%	0.19%	1.83%
6M Treasury	2.57%	2.56%	1.57%	0.22%	1.92%
2Y Treasury	2.51%	2.83%	1.92%	0.81%	1.40%
5Y Treasury	2.52%	2.86%	2.20%	1.86%	1.42%
10Y Treasury	2.70%	3.02%	2.42%	3.01%	0.00%
30Y Treasury	3.02%	3.31%	2.74%	5.94%	-2.72%

Source: Barclays, Bloomberg



## RECOMMENDATION – OPERATING FUND

- **NEPC reviewed the asset allocation and recommends the following adjustments**

1. Reduce global asset allocation weight: Re-allocate to traditional equity and fixed income
  - Reduces tracking error (Composite versus Allocation Index)
    - Maintain current managers
2. Eliminate TIPS allocation: Cash yields are currently higher than TIPS

	Policy Targets	Mix A
Cash	25.0%	30.0%
<b>Total Liquidity Pool</b>	<b>25.0%</b>	<b>30.0%</b>
TIPS	5.0%	0.0%
Core Bonds	5.0%	7.5%
Bank Loans	6.7%	7.0%
Absolute Return Fixed Income	6.7%	7.0%
Short Term Bonds	26.7%	26.0%
<b>Total Income Pool</b>	<b>50.0%</b>	<b>47.5%</b>
Global Equity	7.5%	9.5%
Hedge Funds - Long/Short	5.0%	5.0%
Global Asset Allocation	12.5%	8.0%
<b>Total Return Pool</b>	<b>25.0%</b>	<b>22.5%</b>

<b>Expected Return 5-7 yrs</b>	<b>4.0%</b>	<b>3.9%</b>
<b>Expected Return 30 yrs</b>	<b>4.8%</b>	<b>4.8%</b>
<b>Standard Dev</b>	<b>3.7%</b>	<b>3.7%</b>
<b>Sharpe Ratio (5-7 years)</b>	<b>0.39</b>	<b>0.39</b>

Result – maintain same expected return and risk (beta only, improves yield)



## OPERATING FUND ESTIMATED YIELD

	Policy	Mix A	Current Yield
State Pool*	10.0%	10.0%	1.61%
BOA General Fund**	5.0%	5.0%	1.87%
Federated Gov't Obligations***	5.0%	10.0%	2.30%
JP Morgan US Gov't Money Market Fund	5.0%	5.0%	1.87%
Income Research + Management	26.6%	26.0%	3.03%
Blackrock Strategic Income Opps	6.7%	7.0%	3.44%
Loomis Sayles Bank Loans	6.7%	7.0%	5.07%
Vanguard Total Bond Market	5.0%	7.5%	3.16%
Vanguard Inflation Protected Securities	5.0%	0.0%	0.85%
Lighthouse Global Long/Short	5.0%	5.0%	n/a
Newton Global Real Return****	6.3%	4.0%	3.09%
PIMCO All Asset	6.3%	4.0%	4.34%
Vanguard Total World Stock Index	7.5%	9.5%	2.53%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	
<b>Estimated Yield</b>	<b>2.69%</b>	<b>2.74%</b>	

\*As of 6/30/18

\*\* Estimated with JP Morgan yield

\*\*\* 7 Day SEC Yield

\*\*\*\* Yield to Maturity

Source: Morningstar, Manager Factsheets, 30 Day SEC Yields for Fixed Income, Dividend Yield for Equity



December 31, 2018

# MANAGED INVESTMENT POOL (MIP)

NEPC, LLC

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## SUMMARY - MIP

- **The MIP's long-term performance has underperformed peers and custom benchmarks**
- **Asset allocation policy decisions have been favorable as illustrated in the performance below**
  - MIP's policy index has ranked around median over most trailing time frames

Peer Rank	Quarter	1 Year	3 Years	5 Years	10 Years
Policy Index	49	61	38	53	79

- **Small deviations from asset allocation and managers decisions have detracted value as illustrated in the performance below**
  - Asset allocation: underweight private markets versus targets
  - Managers: bias towards quality, value and downside protection

Asset Allocation Decisions	Quarter	1 Year	3 Years	5 Years	10 Years
Allocation Index	-8.2%	-6.1%	4.9%	3.3%	7.0%
Policy Index	-8.1%	-5.7%	5.6%	3.7%	7.3%
Difference	-0.1%	-0.4%	-0.7%	-0.4%	-0.3%

Manager Decisions	Quarter	1 Year	3 Years	5 Years	10 Years
Composite	-8.0%	-6.8%	4.2%	2.6%	7.5%
Allocation Index	-8.2%	-6.1%	4.9%	3.3%	7.0%
Difference	0.2%	-0.7%	-0.7%	-0.7%	0.5%



## RECOMMENDATION - MIP

- **NEPC reviewed the MIP asset allocation and recommends changes to:**
  1. Maintain similar risk/return characteristics
  2. Reduce fees
  3. Improve liquidity
  
- **Recommended changes:**
  1. Reduce global asset allocation weight: Re-allocate to traditional equity and fixed income
    - Overall equity exposure remains similar
    - Reduces tracking error (Composite versus Allocation Index)
      - Maintain 2 out of 3 managers
  
  2. Eliminate private markets targets: Investment Committee voted to not allocate additional funds to private markets
    - Reduces expected return
  
  3. Diversify Treasury Inflation Protected Securities (TIPS) allocation: Add a Vanguard Short Term TIPS mutual fund (3.5% allocation)



## MIP ASSET ALLOCATION

	Policy Targets	Mix A
<b>Total Cash</b>	<b>0.0%</b>	<b>0.0%</b>
Large Cap Equities	16.0%	22.0%
Small/Mid Cap Equities	6.0%	8.0%
Int'l Equities (Unhedged)	12.5%	13.0%
Int'l Sm Cap Equities (Unhedged)	3.5%	5.0%
Emerging Int'l Equities	3.5%	3.5%
Emerging Int'l Sm Cap Equities	3.5%	3.5%
Private Equity	2.0%	0.0%
<b>Total Equity</b>	<b>47.0%</b>	<b>55.0%</b>
TIPS	8.0%	7.0%
Core Bonds	5.0%	7.0%
Bank Loans	5.0%	5.0%
Absolute Return Fixed Income	3.0%	5.0%
<b>Total Fixed Income</b>	<b>21.0%</b>	<b>24.0%</b>
Private Real Assets - Infrastructure/Land	3.0%	0.0%
<b>Total Real Assets</b>	<b>3.0%</b>	<b>0.0%</b>
Global Asset Allocation	23.0%	15.0%
Hedge Funds - Long/Short	6.0%	6.0%
<b>Total Multi Asset</b>	<b>29.0%</b>	<b>21.0%</b>
<b>Expected Return 5-7 yrs</b>	<b>6.3%</b>	<b>6.2%</b>
<b>Expected Return 30 yrs</b>	<b>7.3%</b>	<b>7.2%</b>
<b>Standard Dev</b>	<b>11.9%</b>	<b>11.9%</b>
<b>Sharpe Ratio (5-7 years)</b>	<b>0.32</b>	<b>0.30</b>

Reduce Global Asset Allocation by 8% - re-allocate funds to equity and fixed income - reduces tracking error

Split TIPS mandate into 50% short term/50% long term (current mandate) - shortens duration

Allow the private markets program to wind down to 0% - underweight equity until program winds down

Result - Maintains similar expected return and standard deviation (beta only), reduces fees



## MIP ESTIMATED FEES & LIQUIDITY

	Policy	Mix A	Annual Fee	Liquidity
SSgA S&P 500	16.0%	22.0%	0.05%	Daily
Westfield	3.0%	4.0%	0.75%	Daily
DFA	3.0%	4.0%	0.41%	Daily
Morgan Stanley	6.3%	6.5%	0.95%	Daily
Globeflex	6.3%	6.5%	0.75%	Monthly
Kabouter	3.5%	5.0%	1.00%	Monthly
Aberdeen	3.5%	3.5%	1.10%	Daily
Mondrian	3.5%	3.5%	0.95%	Monthly
Commonfund	5.0%	7.0%	0.16%	Daily
Vanguard TIPS	8.0%	3.5%	0.07%	Daily
Vanguard Short Term TIPS		3.5%	0.04%	Daily
Blackrock Strategic Income Opps	3.0%	5.0%	0.53%	Daily
Bain Capital	5.0%	5.0%	0.50%	Monthly
GMO	7.6%	7.5%	1.00%	Monthly
Wellington	7.7%		1.10%	Monthly
Newton	7.7%	7.5%	0.80%	Daily
Lighthouse	6.0%	6.0%	1.15%	Quarterly
John Hancock	3.0%		2.00%	Lock Up
Landmark	2.0%		2.00%	Lock Up
Cash	0.0%	0.0%	0%	Daily
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>		
<b>Total Estimated Fee</b>	<b>0.70%</b>	<b>0.56%</b>		
<b>Total Estimated Daily Liquidity</b>	<b>55.5%</b>	<b>63.0%</b>		

Estimated \$430,000  
annual fee savings over  
time



# VANGUARD SHORT-TERM INFLATION PROTECTED SECURITIES INDEX FUND

- **Fund Name:** Vanguard Short-Term Inflation Protected Securities Fund
- **Benchmark:** BloomBarc US 0-5 Year TIPS Index
- **Ticker/Expense Ratio:** VTSPX / 0.04% (MIP), VTAPX / 0.06% (Pension)
- **AUM:** \$27 billion
- **Inception:** October 2012
- **Characteristics:** 100% Treasuries

Trailing Returns	Quarter	1 Year	3 Years	5 Years	
Fund	-0.3	0.6	1.4	0.6	
Benchmark	-0.2	0.6	1.4	0.6	
Calendar Year Returns	2017	2016	2015	2014	2013
Fund	0.8	2.8	-0.2	-1.1	-1.5
Benchmark	0.9	2.8	-0.0	-1.1	-1.6



## MANAGER REVIEW - MIP

- **At the next Investment Committee meeting, we will focus on changing or re-affirming investment managers who have contributed to underperformance over the intermediate-term (1 to 5 years)**

Manager Excess Returns	Quarter	1 Year	3 Years	5 Years	10 Years
Westfield	0.4	-0.3	-0.3	-0.7	0.0
DFA	-1.3	-2.9	-2.0	-1.0	-
Morgan Stanley	-0.1	0.0	-1.0	-0.6	-0.8
Globeflex	-4.1	-4.0	-0.9	0.2	0.5
Aberdeen	4.1	0.0	-1.6	-0.7	1.4
Mondrian	4.1	3.0	-4.5	-	-
GMO*	3.8	0.2	-2.0	-1.8	-1.0
Newton*	6.6	7.6	-	-	-



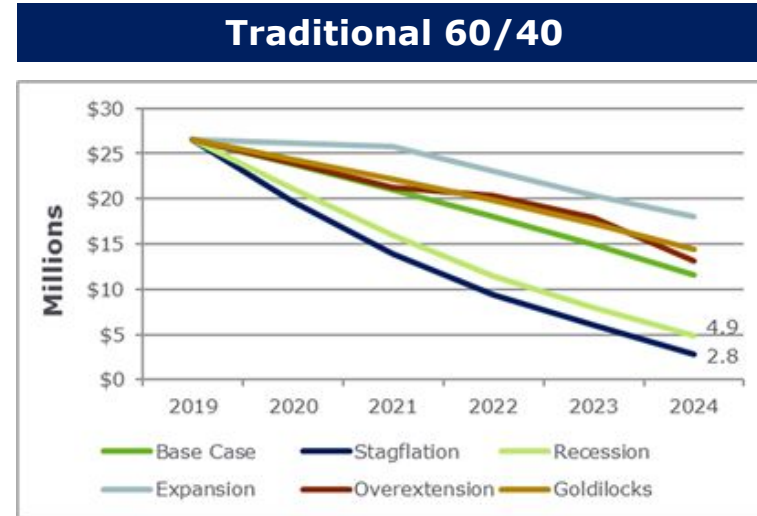
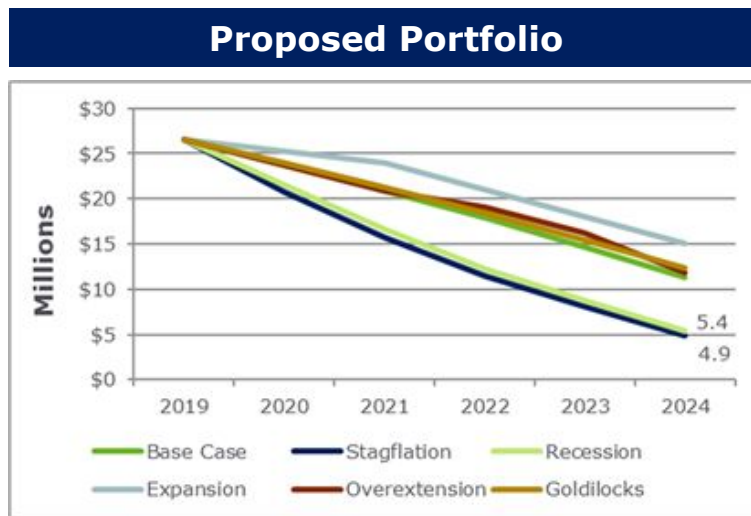
# PENSION FUND

NEPC, LLC

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## SUMMARY – PENSION FUND

- **The Pension Fund has a conservative asset allocation and looks different than peers due to the negative cash flows**
  - Market value: \$26.5m (12/31/18)
  - \$4.8m in annual benefit payments (18% of portfolio)
  - \$0.8m in annual contributions
- **Liquidity, downside protection and low cost are important as the Pension Fund is winding down**
  - Proposed portfolio limits returns in upside scenarios and focuses on protecting assets in downside scenarios versus a traditional 60/40 portfolio (Stagflation and Recession)



Note: Scenario analysis utilizes \$4.8m in annual benefit payments and \$0.75m in annual contributions





## RECOMMENDATION - PENSION

- **NEPC reviewed the Pension Fund asset allocation and recommends changes to:**
  1. Improve liquidity
  2. Reduce fees
  3. Simplify the portfolio
  
- **Recommended changes:**
  1. Collapse large cap equity, small cap equity and international equity into a global equity index product
    - Reduces fees and manager tracking error while simplifying the equity portfolio
  
  2. Reduce global asset allocation weight: Re-allocate to traditional equity and fixed income
    - Reduces some tracking error (Composite versus Allocation Index)
      - Maintain 1 manager
    - Reduces fees
    - Improves Liquidity
  
  3. Diversify Treasury Inflation Protected Securities (TIPS) allocation: Add a Vanguard Short Term TIPS mutual fund (3.5% allocation)



## PENSION ASSET ALLOCATION

	Policy Targets	Mix A
Cash	3.0%	3.0%
<b>Total Cash</b>	<b>3.0%</b>	<b>3.0%</b>
Large Cap Equities	8.0%	0.0%
Small/Mid Cap Equities	4.0%	0.0%
Int'l Equities (Unhedged)	7.0%	0.0%
Emerging Int'l Sm Cap Equities	3.0%	3.0%
Global Equity	0.0%	30.0%
Hedge Funds - Long/Short	4.5%	5.0%
<b>Total Equity</b>	<b>26.5%</b>	<b>38.0%</b>
TIPS	7.0%	7.0%
Core Bonds	20.0%	26.0%
Bank Loans	5.0%	5.0%
Absolute Return Fixed Income	3.0%	5.0%
<b>Total Fixed Income</b>	<b>35.0%</b>	<b>43.0%</b>
Core Real Estate	8.0%	8.0%
<b>Total Real Assets</b>	<b>8.0%</b>	<b>8.0%</b>
Global Asset Allocation	27.5%	8.0%
<b>Total Multi Asset</b>	<b>27.5%</b>	<b>8.0%</b>
<b>Expected Return 5-7 yrs</b>	<b>5.4%</b>	<b>5.4%</b>
<b>Expected Return 30 yrs</b>	<b>6.4%</b>	<b>6.4%</b>
<b>Standard Dev</b>	<b>8.1%</b>	<b>8.1%</b>
<b>Sharpe Ratio (5-7 years)</b>	<b>0.36</b>	<b>0.36</b>

Reduce Global Asset Allocation by 19.5% - re-allocate funds to equity and fixed income – improves liquidity and reduces tracking error

Combine traditional equity mandates into a passive global equity mandate – reduces tracking error

Split TIPS mandate into 50% short term/50% long term (current mandate) – shortens duration

Result – maintain same expected return and risk (beta only), reduces fees

## PENSION ESTIMATED FEES & LIQUIDITY

	Policy	Mix A	Annual Fee	Liquidity
Vanguard S&P 500 Index	8.0%		0.04%	Daily
SSgA Small Cap Index	4.0%		0.08%	Daily
Morgan Stanley Int'l Equity	7.0%		0.95%	Daily
Mondrian Emerging Small Cap Equity	3.0%	3.0%	0.95%	Monthly
New Global Equity Manager		30.0%	0.09%	Daily
Lighthouse Global Long/Short Equity	5.0%	5.0%	1.15%	Quarterly
Vanguard Total Bond Index	20.0%	26.0%	0.07%	Daily
Vanguard Inflation Protected Securities	7.0%	3.5%	0.07%	Daily
Vanguard Short Term Inflation Protected Securities		3.5%	0.04%	Daily
Bain Bank Loans	5.0%	5.0%	0.50%	Monthly
Blackrock Strategic Income Opps	3.0%	5.0%	0.53%	Daily
Principal Real Estate	8.0%	8.0%	1.10%	Daily
Newton Global Real Return	13.5%	8.0%	0.80%	Daily
Wellington Opportunistic Investment	13.5%		1.10%	Monthly
Cash	3.0%	3.0%	0%	Daily

<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>
<b>Total Estimated Fee</b>	<b>0.56%</b>	<b>0.34%</b>
<b>Total Estimated Daily Liquidity</b>	<b>73.5%</b>	<b>87.0%</b>

Estimated \$60,000  
annual fee savings in  
2019 alone



# APPENDIX

NEPC, LLC

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## 2019 5-7 YEAR RETURN FORECASTS

<b>Geometric Expected Return</b>			
<b>Asset Class</b>	<b>2019</b>	<b>2018</b>	<b>2019-2018</b>
Cash	2.50%	2.00%	+0.50%
Large Cap Equities	6.00%	5.25%	+0.75%
Small/Mid Cap Equities	6.25%	5.75%	+0.50%
Int'l Equities (Unhedged)	6.75%	7.50%	-0.75%
Int'l Sm Cap Equities (Unhedged)	7.25%	7.75%	-0.50%
Emerging Int'l Equities	9.25%	9.00%	+0.25%
Emerging Int'l Sm Cap Equities	9.50%	9.25%	+0.25%
Hedge Funds - Long/Short	5.50%	6.25%	-0.75%
TIPS	3.00%	3.25%	-0.25%
Treasuries	2.50%	2.25%	+0.25%
IG Corp Credit	4.00%	3.50%	+0.50%
MBS	2.75%	2.50%	+0.25%
High-Yield Bonds	5.25%	3.75%	+1.50%
Bank Loans	5.50%	4.50%	+1.00%
EMD (External)	4.75%	4.25%	+0.50%
EMD (Local Currency)	6.50%	6.00%	+0.50%
Municipal Bonds	3.00%	2.50%	+0.50%
High-Yield Municipal Bonds	3.00%	3.75%	-0.75%
Hedge Funds - Credit	5.50%	5.00%	+0.50%



## 2019 5-7 YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	2019	2018	2019-2018
Long Treasuries	1.75%	2.00%	-0.25%
Long Credit	3.50%	4.00%	-0.50%
IG CLO	4.00%	N/A	N/A
HY CLO	6.00%	N/A	N/A
Commodities	4.25%	4.75%	-0.50%
Midstream Energy	8.25%	7.25%	+1.00%
REITs	6.75%	6.50%	+0.25%
Core Real Estate	6.00%	5.75%	+0.25%
Non-Core Real Estate	7.00%	7.00%	-
Private RE Debt	5.75%	N/A	N/A
Private Real Assets - Energy/Metals	9.50%	8.00%	+1.50%
Private Real Assets - Infra/Land	6.25%	6.00%	+0.25%
Hedge Funds - Macro	6.00%	6.25%	-0.25%
<i>Global Equity*</i>	<i>6.99%</i>	<i>6.88%</i>	<i>+0.11%</i>
<i>Private Equity*</i>	<i>10.01%</i>	<i>8.00%</i>	<i>+2.01%</i>
<i>Core Bonds*</i>	<i>3.04%</i>	<i>2.75%</i>	<i>+0.29%</i>
<i>Private Debt*</i>	<i>7.60%</i>	<i>6.50%</i>	<i>+1.10%</i>
<i>Long Govt/Credit*</i>	<i>2.84%</i>	<i>3.26%</i>	<i>-0.42%</i>
<i>Hedge Funds*</i>	<i>5.74%</i>	<i>5.83%</i>	<i>-0.09%</i>

\*Multi-asset assumptions derived from the sum of underlying equity, credit, and real asset building blocks - see page 38 for additional detail.



# KEY MARKET THEMES

## Late Cycle Dynamics

### The US economy has transitioned from a mid- to late-cycle environment

Late cycle does not mean end of cycle; equity markets can offer strong returns and abandoning risk assets early may detract from long-term results

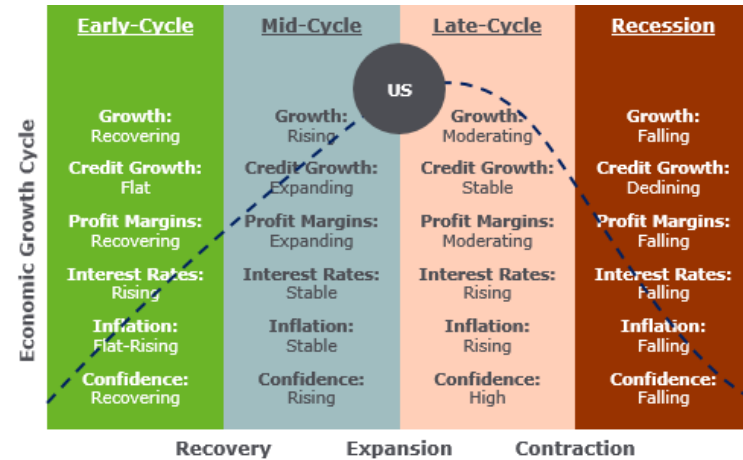
Positive economic data can support continued US economic expansion and further equity gains

However, moving into a late cycle negatively skews the range of outcomes and our investment outlook reflects a more risk-averse posture with a bias toward selling low quality credit and increasing safe-haven fixed income exposure

### Trends among key indicators suggest a transition to late-cycle has occurred

These indicators provide a useful guide to recognize changes in the economic cycle

Despite the recent trend, there is minimal evidence in economic/financial indicators to suggest that a US recession is imminent



US Indicators	Late-Cycle Trend	Current Trend
Equities	Peaking	Uncertain
Interest Rates	Rising	Yes
Yield Curve	Flattening	Yes
Inflation	Rising	Yes
GDP Growth	Moderating	Uncertain
Credit Spreads	Stable/Rising	Yes
Output Gap	Near/Above Potential	Yes
Unemployment	Falling/Bottoming	Uncertain

Source: (Top) NEPC  
Source: (Bottom) NEPC



# KEY MARKET THEMES

## Late Cycle Dynamics

**Key indicators are helpful guides, but all business cycles are different**

Late-Cycle Dynamics	↑	<u>Growth</u> : This expansion has been the longest ever, but cumulative GDP growth remains well below average. Sustainability of current growth from fiscal stimulus remains unclear.
	↑	<u>Interest Rates</u> : The Fed has methodically increased rates off post-crisis lows. They appear to be on a tightening path to push rates above the long-term neutral rate through 2019 and beyond.
	↑	<u>Inflation</u> : Despite record low unemployment rates, inflation pressures have been slow to materialize relative to history. Yet US inflation is up nearly 2% over the last three years, but remains below historic levels.

**We are evaluating market indicators such as the yield curve that would lead us to adopt a defensive outlook**

Should the yield curve invert and economic metrics weaken, our recommendation will be to materially increase safe-haven fixed income and reduce equity exposure

There is a greater need to seek portfolio balance in a late cycle, while the increased volatility may offer tactical opportunities



Source: (Top) Bloomberg, NEPC  
 Source: (Bottom) Federal Reserve Bank of St. Louis, NEPC;  
 Light blue shading indicates recession





# KEY MARKET THEMES

## Tightening Global Liquidity

**The Fed has shifted from a “lower for longer” policy to a more balanced posture of raising rates in line with higher inflation**

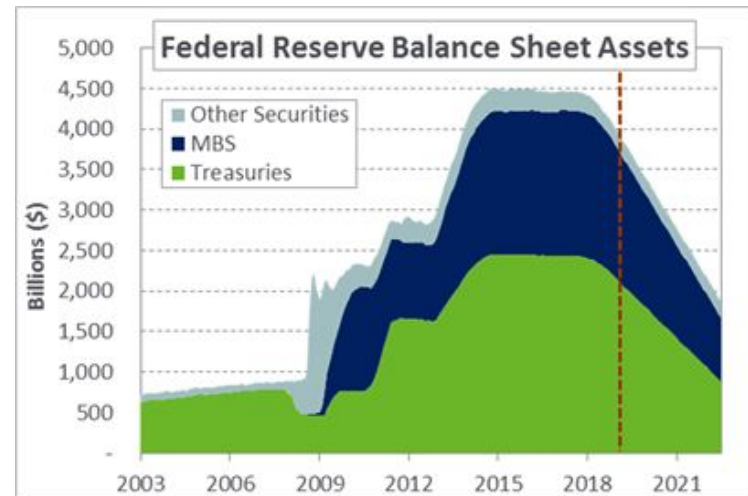
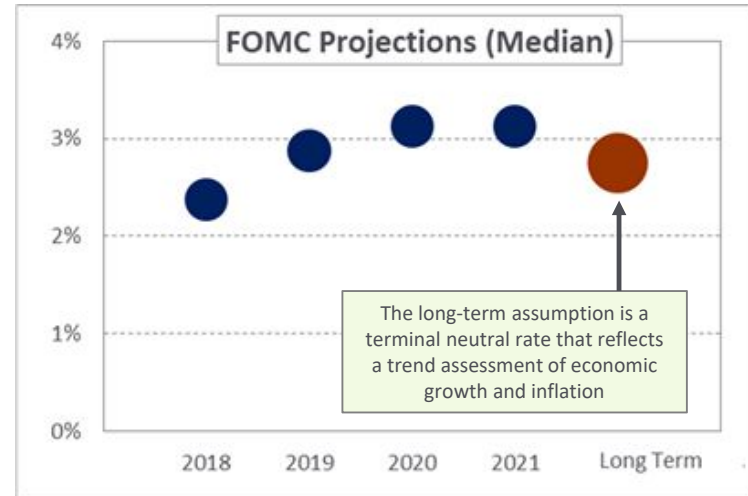
Based on the FOMC projections, the Fed is communicating a tightening path as their forecast for interest rate hikes moves beyond the long-term neutral rate

Markets are discounting a muted pace of hikes relative to Fed projections, creating potential for capital market disruption. However, the Fed’s bias appears to be to raise rates in the absence of market turmoil

**The Fed’s balance sheet has shrunk by \$400B and will continue to decline by a monthly maximum target of \$50B**

Normalization of the balance sheet is a form of monetary policy tightening as liquidity is methodically extracted from the system

The impact of the balance sheet reduction is untested – potentially mirroring how the Fed’s balance sheet expansion (QE) had easing effects



Source: (Top) Bloomberg, NEPC  
Source: (Bottom) Bloomberg, NEPC



# KEY MARKET THEMES

## Tightening Global Liquidity

### Transmission of tighter liquidity is already underway and is felt globally

Slowing money supply growth rates tighten financial conditions and are a headwind for credit and equity markets across the world

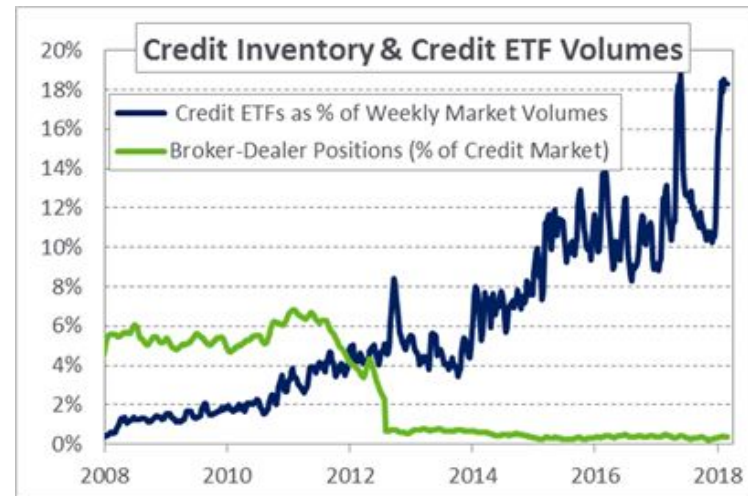
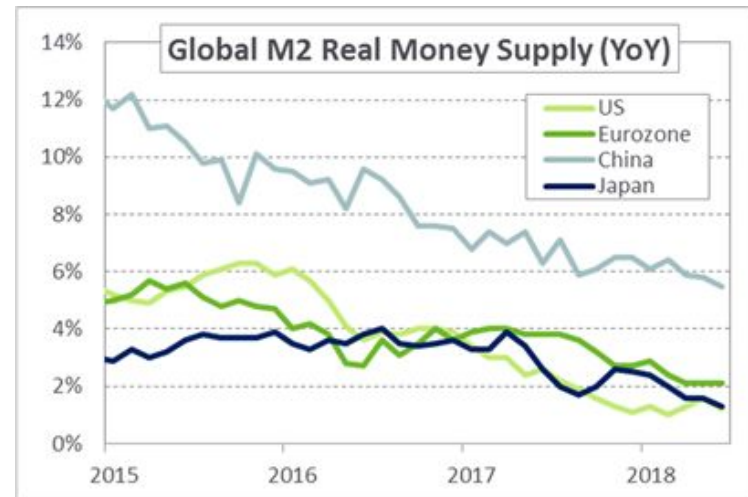
Ability to ease financial conditions is limited outside the US as central banks do not have dry powder with interest rates near historic lows and the ECB restricted in their ability to expand QE purchasing capacity

A pause in Fed tightening or a large stimulus program from China are the limited global levers available to ease tighter conditions

### The diminishing support from central banks warrants caution regarding liquidity in credit markets

Underlying trading conditions for ETF and credit markets remain fragile and are likely to be severely tested to absorb an exodus from crowded credit positions

The "Fed put" or a reversal of balance sheet normalization may be necessary to avoid a liquidity crisis in a severe market disruption



Source: (Top) Bloomberg, NEPC  
Source: (Bottom) Bloomberg, NEPC



December 31, 2018

# KEY MARKET THEMES

## China Transitions

### China is the global growth engine but faces fundamental transitions

China's economy is transitioning from a focus on production and investment to a service and consumption based economy

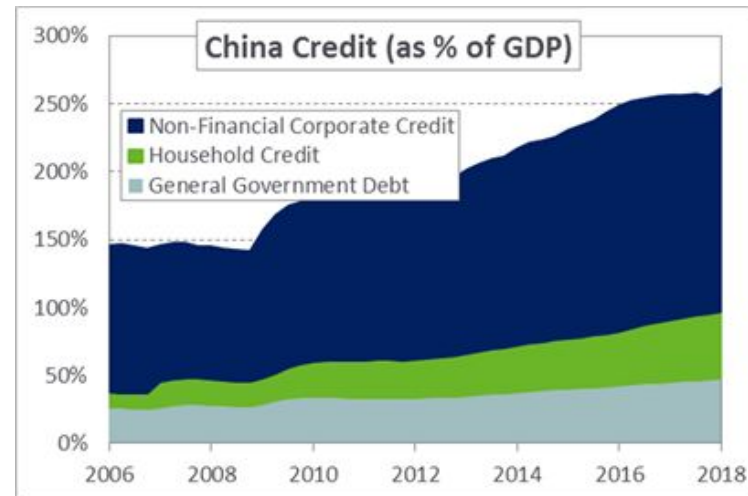
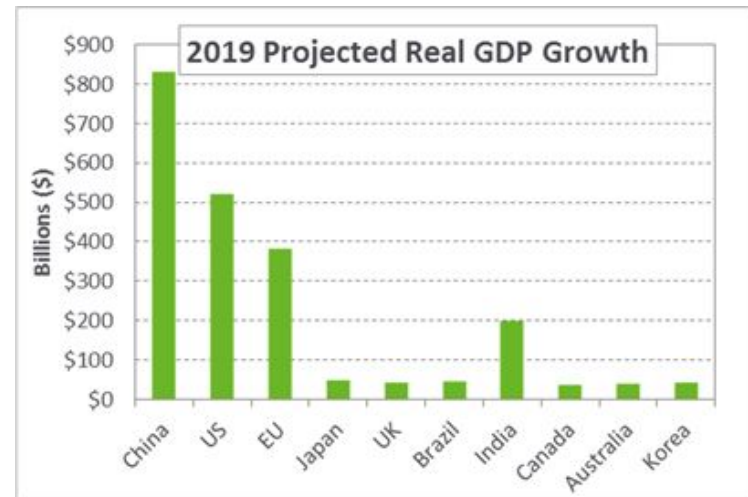
Fixed investment and credit expansion is needed to sustain the "old" production-based economy and support employment as the population shifts to urban centers

Any disruption to these transitions will be transmitted globally due to China's outsized role in the world economy

### Policy makers must continue to balance goals of moderating credit expansion against sustaining healthy economic growth rates

Recent shifts in policy suggest a tilt away from credit moderation to offset the harmful effects of the US-China trade dispute

However, an uncontrolled expansion of credit growth and real estate development pose a future systemic risk to the economy



Source: (Top) Bloomberg, NEPC

Source: (Bottom) BIS, NEPC



# KEY MARKET THEMES

## China Transitions

### China's economy is expected to equal the size of the US within 25 years

China's increased economic and geopolitical prominence on the world stage can be viewed as a threat to US leadership

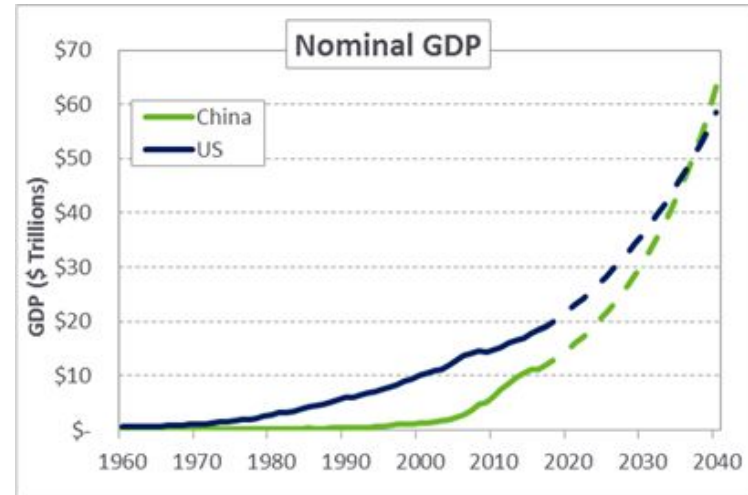
Tariffs and trade conflict are a form of "Thucydides Trap", where a rising power causes fear in an established power

China is in a race against time: *Can they get rich before they get old?* This race may conflict with some US geopolitical interests and risks a zero-sum dynamic of economic competition between the US and China

### Access to local financial markets is accelerating and expected to expand

Expansion of Hong Kong-mainland stock connect program broadens access to A-shares and strengthens the case for increasing size of Chinese equities in indices

With limited access for foreign investors, China is looking to slowly open access to the world's third largest fixed income market



Source: (Top) St. Louis Fed, NEPC; China is projected to grow at 7.5% and the US is projected to grow at 5.0%

Source: (Bottom) MSCI, Bloomberg, NEPC



# KEY MARKET THEMES

## Globalization Backlash

### Uneven economic growth and wage gains have fueled political discontent in the developed and emerging world

Fatigue over globalization has led to a turn inward and greater political interest in nationalism, while multilateral relationships are viewed with suspicion

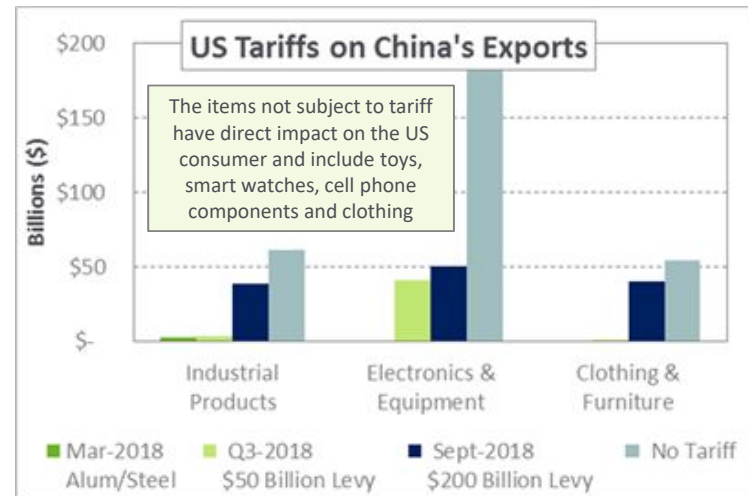
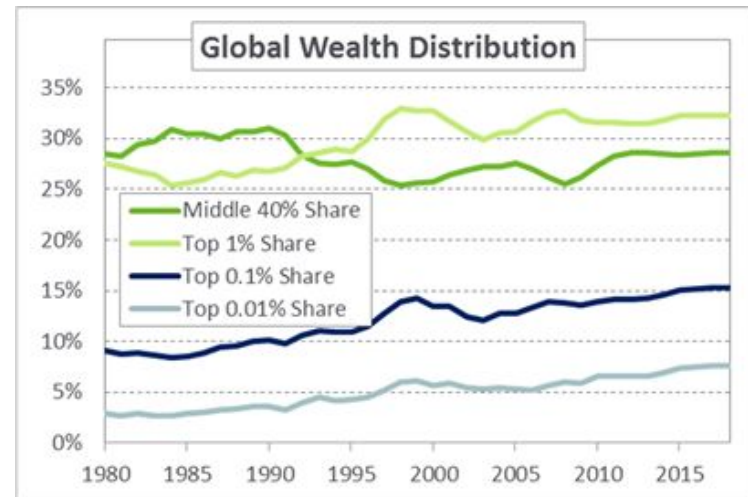
Globalization Backlash is a long-term trend as populist movements lead to shifts away from political/economic orthodoxy, which heightens tail risks

### US-China trade tensions are a full expression of our backlash theme

Levying tariffs is a dangerous game as both the US and China look to negotiate an end to the tensions but must demonstrate strength for their domestic audience

In the past, markets have taken the US administration's rhetoric with a grain of salt but the tit-for-tat tariff escalation with China is a concern for market sentiment

We have likely settled into a prolonged "cold war" in the ongoing US-China trade battle



Source: (Top) WID.World, World Inequality Lab  
Source: (Bottom) USTR, Bloomberg, NEPC



# KEY MARKET THEMES

## Globalization Backlash

### Expanding protectionism from US trade policy is a material risk to global markets and the economy

US adopted a more restrictive trade policy in 2018 and investor sentiment outside the US deteriorated along with US-China relations

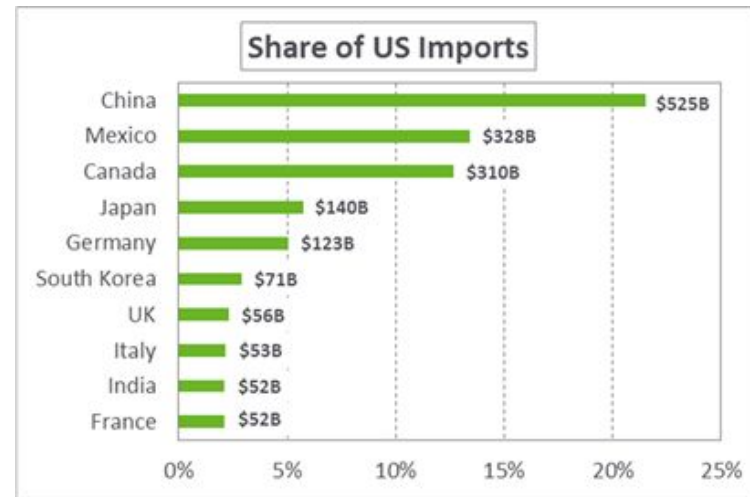
US-China tariffs are the “new normal” and we expect this dynamic to continue for the foreseeable future. We do not anticipate the trade dispute to escalate beyond tariff levies and prohibit the flow of goods and services

### The UK serves as a live case study for the effects of globalization backlash

Economic metrics across the country have turned lower in the time since the UK voted to leave the European Union

Deterioration in business and consumer confidence along with potential disruption to the financial sector are a cautionary tale

The economic unease of voters remain and the political instability likely leads to higher levels of currency volatility over time



	Brexit Vote	Current
Real GDP (YoY%)	1.7%	1.5%
Household Consumption	3.3%	1.8%
Exports (YoY%)	1.1%	-1.3%
Imports (YoY%)	3.2%	0.2%
CPI (YoY%)	0.4%	2.5%
Unemployment (%)	4.9%	4.0%
Central Bank Rate	0.50%	0.75%
GBP/USD Exchange Rate	1.49*	1.28
Economic Sentiment	106.9	105.6

Source: (Top) Bloomberg, NEPC

Source: (Bottom) Bloomberg, NEPC, \*Data as of 6/23/16



# CURRENT OPPORTUNITIES

## Rebalance Developed Market Equities

### Adjust US and EAFE regional exposure to developed market index weights

Continue to recommend an overweight to emerging equity and adopt an index weight for US/EAFE relative to MSCI World

We encourage a global equity target weight of 52% to the US, 33% EAFE, and 15% to the EM. Larger overweight to EM can be funded pro rate from developed equity

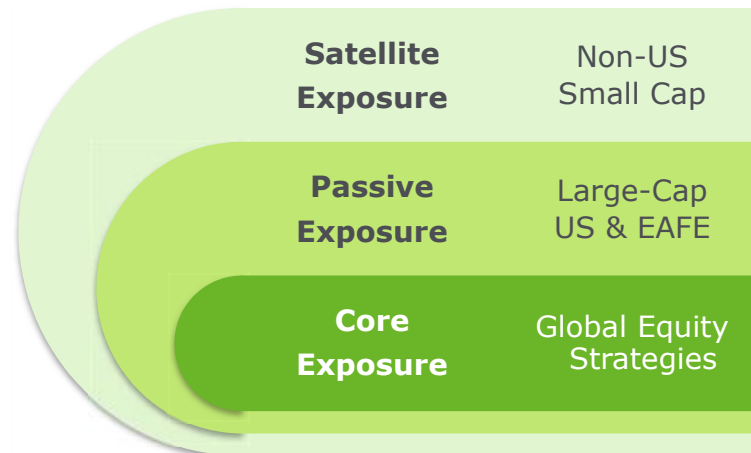
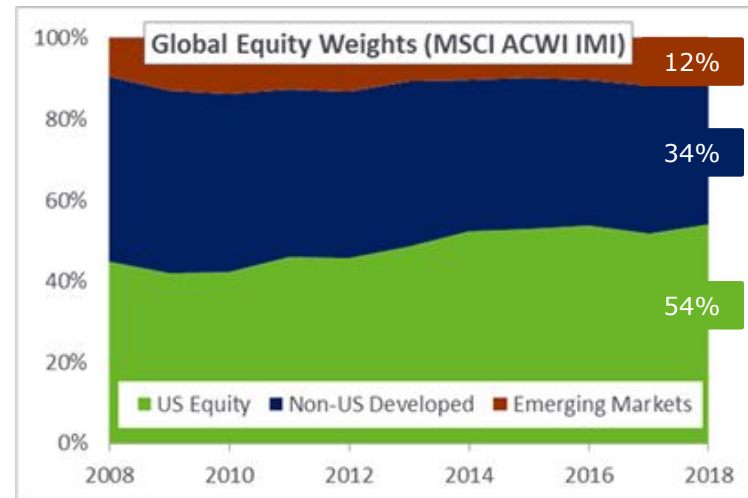
Should US equity declines continue, look to exploit the market volatility and overweight US exposure relative to EAFE index weights

### Global equity strategies can serve as the core implementation approach for developed market equity exposure

We remain supportive of pairing active global equity strategies with passive large-cap US and EAFE equity exposure

Within non-US developed markets, we have a strong bias to active small-cap equities

EAFE and US small-cap are a viable funding source for private market commitments



Source: (Top) MSCI, Bloomberg, NEPC; represents free float market cap weights as of 12/31 each year

Source: (Bottom) NEPC



December 31, 2018

# CURRENT OPPORTUNITIES

## Raise Safe-Haven Fixed Income Exposure

### The potential for an adverse economic outcome appears to have expanded

Safe-haven exposure is an essential asset class exposure to mitigate portfolio risks

We are evaluating market metrics such as the yield curve that would cause us to shift to a more defensive recommendation

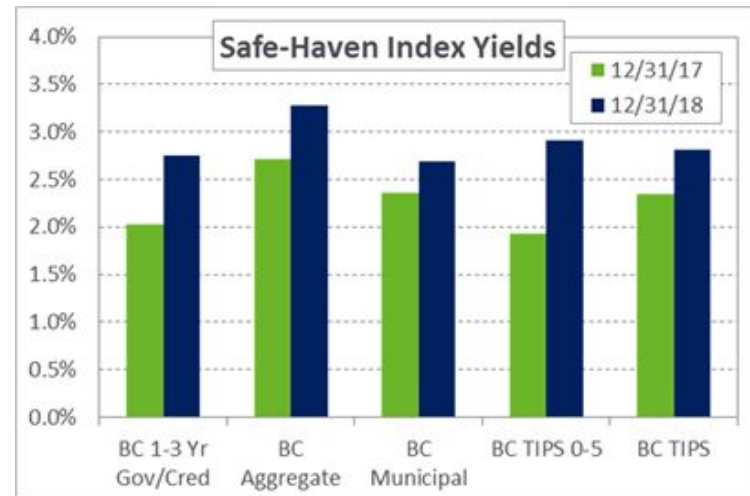
Should the yield curve invert and economic metrics show weakness, we are likely to recommend a material increase to safe-haven fixed income exposure

### Short duration safe-haven exposure is attractive on a relative value basis

We encourage investors to increase safe-haven fixed income and use lower quality credit exposure as a funding source

Market volatility has depressed long rates and inflation expectations making short duration segments an important part of a safe haven allocation

TIPS continue to have a place in safe-haven fixed income as a strategic allocation



Source: (Top) Federal Reserve Bank of St. Louis, NEPC;  
Light blue shading indicates recession

Source: (Bottom) Bloomberg, TIPS yield includes CPI accrual



December 31, 2018



# CURRENT OPPORTUNITIES

## Reduce Lower Quality Credit Exposure

### Lower-rated credit exposure does not adequately compensate investors for the risk relative to safer alternatives

Late-cycle markets generally exhibit higher than average credit default rates, acutely impacting debt rated BBB and below

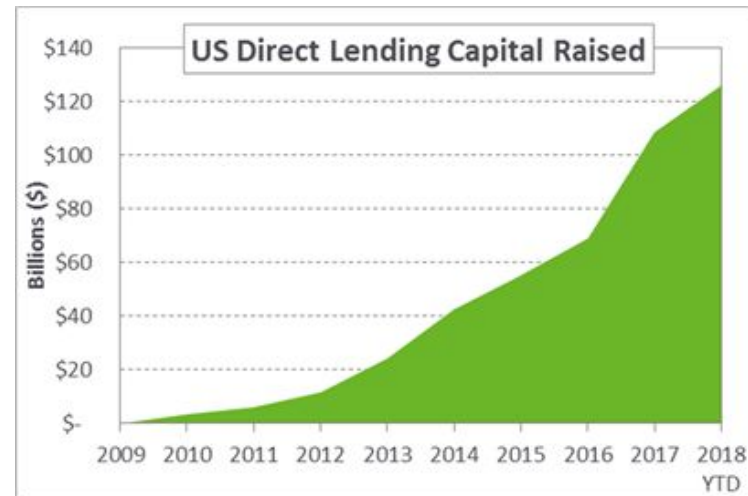
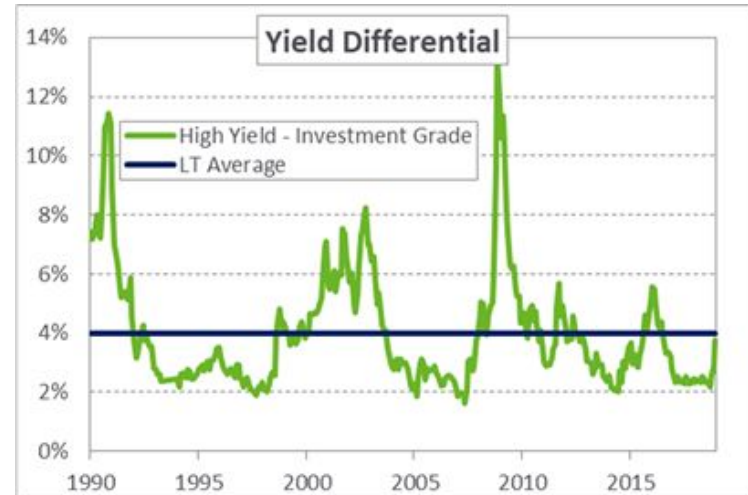
Despite credit spreads trading near median levels, we encourage moving away from lower quality credit and look to alternatives such as safe-haven fixed income, IG CLO's, and higher quality IG corporate bonds

### A misaligned risk-return tradeoff also applies to private credit markets

US direct lending is one example as the space has absorbed a large influx of capital over a multi-year horizon

Distressed and niche segments of private markets offer opportunities but require a hyper-focus on underwriting standards

We encourage reducing exposure to credit segments that have performed well over a prolonged period such as high yield, bank loans, and many private debt approaches



Source: (Top) MSCI, Bloomberg  
Source: (Bottom) Preqin; represents cumulative capital raised



December 31, 2018

# CURRENT OPPORTUNITIES

## Maintain Overweight to Emerging Market Equities

### Emerging equities offer the highest total return potential for investors

Valuation levels and fundamentals suggest an overweight relative to global equity market cap weights (e.g. 15% to 20%)

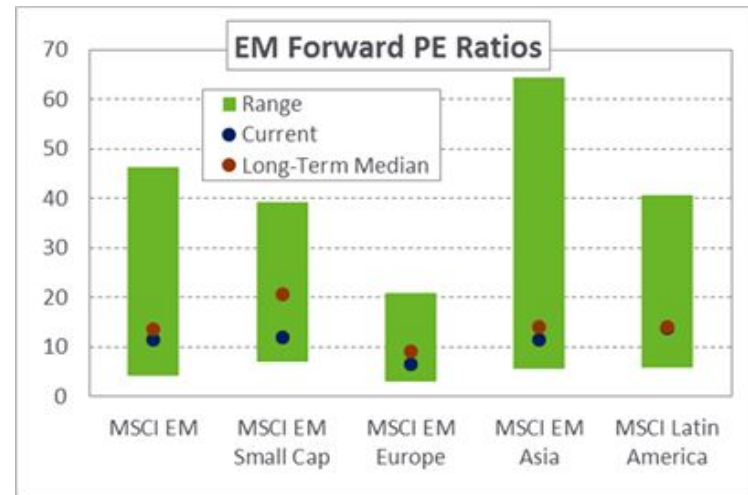
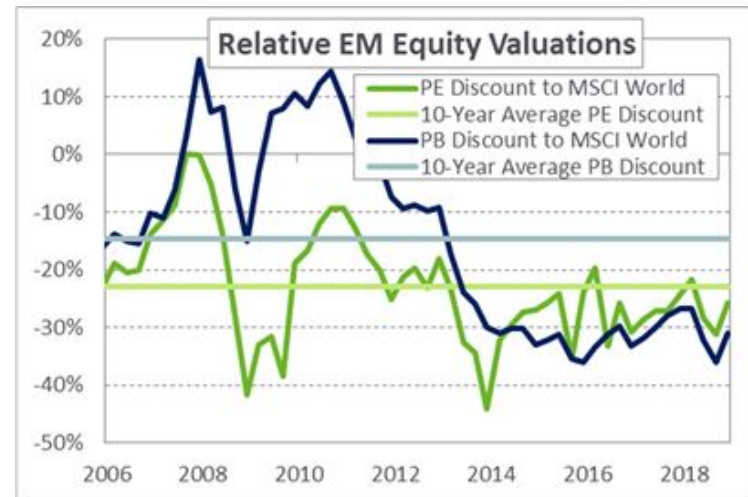
Growth premium relative to the developed world persists as economic conditions in EM remain supportive despite the negative sentiment associated with US trade policies

### High tracking error strategies offer greater flexibility to invest across emerging countries and are preferred to benchmark focused mandates

Opportunity set for active management and excess return appear more abundant in EM versus developed markets

Strategies that invest down the market cap spectrum offer investors more focused exposure to local country growth rates

We encourage the use of multiple emerging market strategies to mitigate the risk of an unintended value-growth style or size bias



Source: (Top) MSCI, Bloomberg  
Source: (Bottom) MSCI, Bloomberg



# CURRENT OPPORTUNITIES

## Add Long Volatility Exposure

### Volatility levels for markets outside equities remain near historic lows

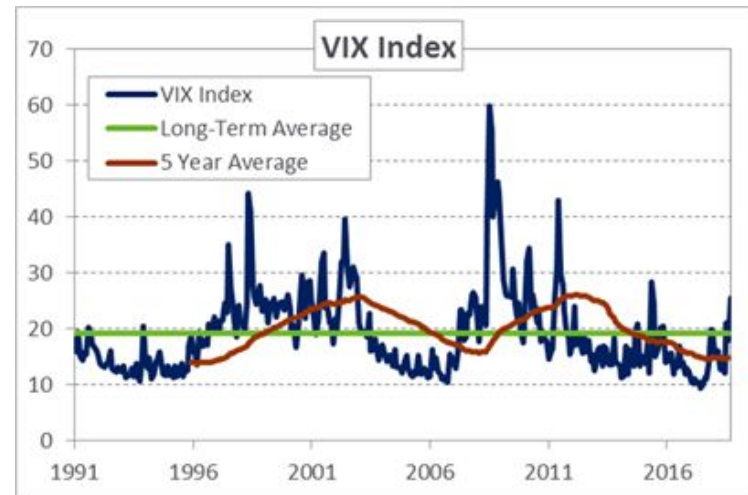
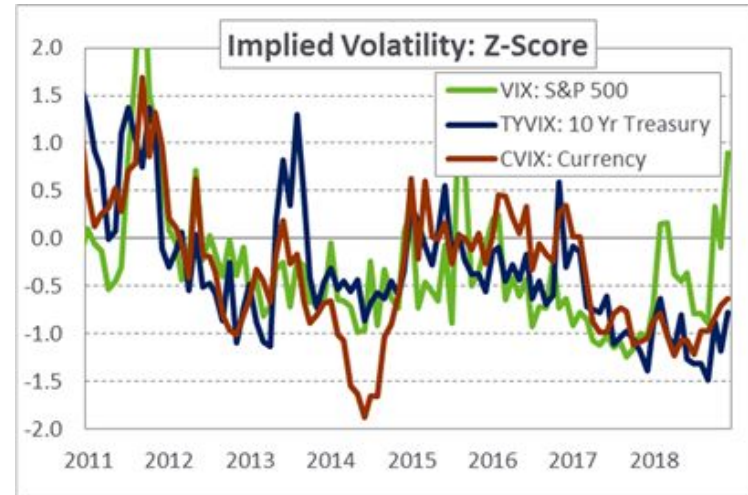
Long volatility exposure positively benefits from rising asset class volatility and an allocation of 1% to 2% can provide a significant return contribution should volatility normalize across global markets

Exposure is not without risk. Losses would be expected if market volatility declines. Discipline of a multi-year time horizon is required should volatility levels move slowly back to normal levels

### Long volatility strategies with positive carry are the only implementation option we recommend

Purchasing S&P VIX is a costly method to implement long volatility exposure due to the negative roll yield of the VIX curve

More suited for opportunistic investors willing to fund from multi-asset or other unconstrained strategies



Source: (Top) Bloomberg  
Source: (Bottom) Bloomberg



December 31, 2018

# CURRENT OPPORTUNITIES

## Fund Public Midstream Energy Exposure

### Midstream energy offers an attractive long-term growth potential

Balance sheet reform and a sustainable financing profile has been underappreciated by the market

Reform of the MLP operating structure (IDR elimination) offers a more stable business model and improved corporate governance

Negative sentiment weighs on the energy infrastructure market as performance has been poor over the last five years and operational concerns remain for some MLPs

### Recovery of the energy infrastructure sector offers a compelling total return

Risk assets, such as high yield bonds and equities are an appropriate funding source for new midstream energy allocations

Nearly half of the midstream energy market is made up of MLPs. While down materially from recent years, careful thought must be given for tax-exempt investors as MLPs generate UBTI



Source: (Top) Alerian, NAREIT, Barclays, S&P, Bloomberg; As of 11/30/2018

Source: (Bottom) Alerian, Bloomberg.\*01/31/2018 to present a 50%/50% blend of the Alerian MLP and Midstream Energy Index



December 31, 2018

# CURRENT OPPORTUNITIES

## Fund Emerging Local Debt

### EM local debt offers an attractive total return opportunity

The combination of high real rates, lower inflation levels, and low currency valuations represents an attractive investment profile

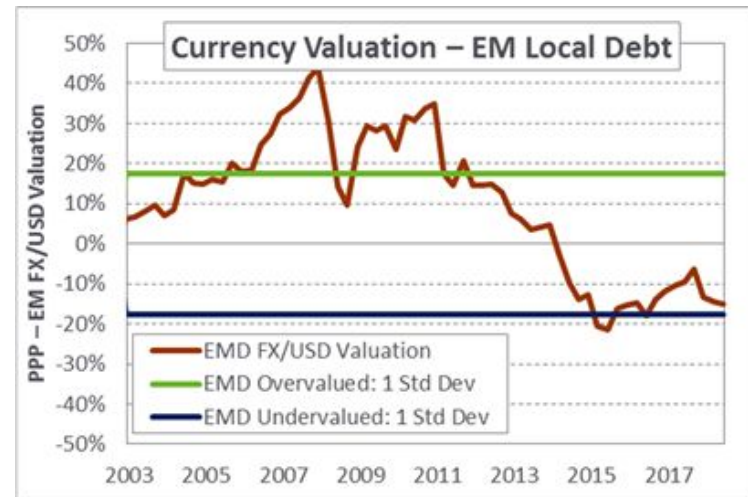
Above average index yields relative to the developed world provide a cushion to offset currency volatility and declines

Additional Fed rate hikes not fully priced into market expectations are a risk and was a key source of the negative sentiment that hit the asset class in 2018

### For tactical oriented investors, look to fund emerging local debt from high yield and equity exposure

A balanced EMD approach of local currency and dollar denominated debt remains our long-term bias as a strategic allocation

Currently, our preferred implementation is with a stand alone local debt strategy but unique macro or credit hedge funds may offer a unique return opportunity



Source: (Top) JPM, Bloomberg, NEPC  
Source: (Bottom) JP Morgan, Bloomberg, NEPC



December 31, 2018

## INFORMATION DISCLAIMER

**Past performance is no guarantee of future results.**

**The goal of this report is to provide a basis for substantiating asset allocation recommendations. The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.**

**Information on market indices was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**

**All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses.**

**This report is provided as a management aid for the client's internal use only. This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.**






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## AGENDA ITEM SUMMARY

1. **NAME OF ITEM:** Performance Review– Managed Investment Pool, Pension Fund and Operating Fund
2. **INITIATED BY:** Kelly A. Martin, Chair
3. **BOARD INFORMATION:** X **BOARD ACTION:**
4. **OUTCOME:** **BOARD POLICY:**  
 Primary Outcomes: Section 709 - Investments  
 Enhance fiscal positioning
5. **BACKGROUND:**

Kelly Regan and Jay Roney of NEPC will provide a brief overview of performance for all three portfolios for the quarter ended December 31, 2018.

NEPC will refer to the enclosed executive summary performance report during the March 11, 2019 Investment Committee meeting. The supplemental performance materials for the quarter ended December 31, 2018 are for reference purposes only and will not be reviewed during the meeting.

# **FOURTH QUARTER 2018 INVESTMENT REVIEW**

## **UNIVERSITY OF MAINE SYSTEM**

**March 11, 2019**

**Jay E. Roney, Partner**

**Kelly Regan, Senior Consultant**



BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO



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<b>Operating Fund Performance Review</b>	<b>4</b>
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# FOURTH QUARTER 2018 MARKET ENVIRONMENT

NEPC, LLC

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# PERFORMANCE OVERVIEW

## Q4 Market Summary

Macro			Equity			Credit			Real Assets		
US Dollar	VIX	US 10-Yr	S&P 500	MSCI EAFE	MSCI EM	US Agg.	High Yield	Dollar EMD	Oil	Gold	REITS
											
1.1%	13.3	-38 bps	-13.5%	-12.5%	-7.5%	1.6%	-4.5%	-1.2%	-38.0%	7.7%	-6.0%

- **Global equities sold-off during the quarter due to concerns related to fed funds rate increases , fears of a global slowdown, and trade uncertainties**
- **The sharp decline in crude oil prices weighed on commodities overall and US high-yield bonds, which have meaningful portion to the energy sector**
- **The Federal Reserve hiked rates for the fourth time in 2018 with one to two additional rate increases expected for 2019**

Market segment (index representation) as follows: US Dollar (DXY Index), VIX (CBOE Volatility Index), US 10-Year (US 10-Year Treasury Yield), S&P 500 (US Equity), MSCI EAFE Index (International Developed Equity), MSCI Emerging Markets (Emerging Markets Equity), US Agg (Barclays US Aggregate Bond Index), High Yield (Barclays US High Yield Index), Dollar EMD (JPM Emerging Market Bond Index), Crude Oil (WTI Crude Oil Spot), Gold (Gold Price Spot), and REITs (NAREIT Composite Index).



# PERFORMANCE SUMMARY AS OF DECEMBER 31, 2018

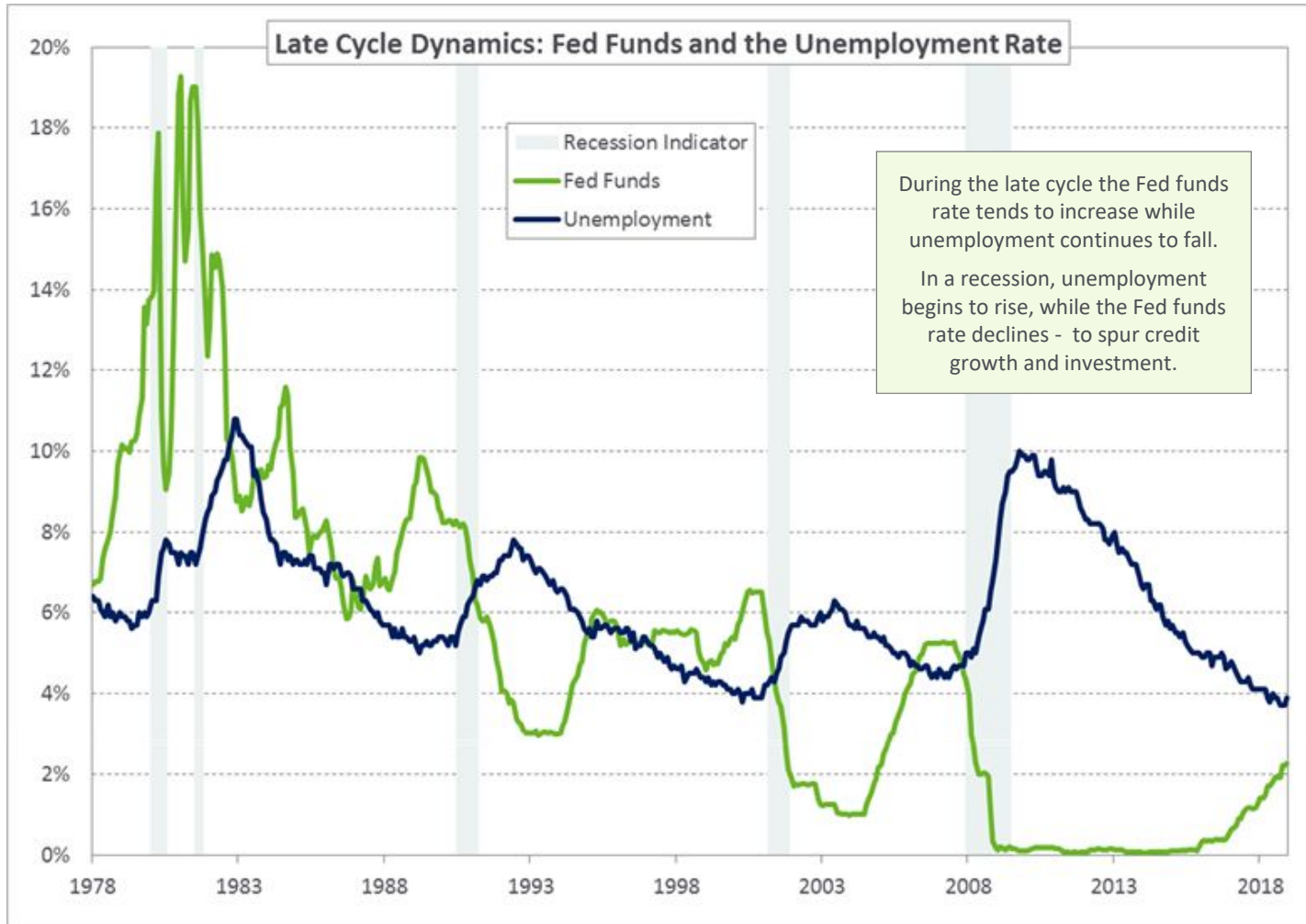
<b>Domestic Equity Benchmarks</b>		<b>Qtr.</b>	<b>1 Yr.</b>	<b>3 Yr.</b>	<b>5 Yr.</b>	<b>10 Yr.</b>
Large Core	S&P 500	-13.5%	-4.4%	9.3%	8.5%	13.1%
Small Core	Russell 2000	-20.2%	-11.0%	7.4%	4.4%	12.0%
Small Growth	Russell 2000 Growth	-21.7%	-9.3%	7.2%	5.1%	13.5%
Small Value	Russell 2000 Value	-18.7%	-12.9%	7.4%	3.6%	10.4%
Large Core	Russell 1000	-13.8%	-4.8%	9.1%	8.2%	13.3%
Large Growth	Russell 1000 Growth	-15.9%	-1.5%	11.1%	10.4%	15.3%
Large Value	Russell 1000 Value	-11.7%	-8.3%	7.0%	5.9%	11.2%
Mid Core	S&P Mid Cap 400	-17.3%	-11.1%	7.7%	6.0%	13.7%
REIT	NAREIT Composite	-6.0%	-3.9%	4.7%	8.3%	12.3%
<b>Int'l Equity Benchmarks</b>		<b>Qtr.</b>	<b>1 Yr.</b>	<b>3 Yr.</b>	<b>5 Yr.</b>	<b>10 Yr.</b>
International Developed	MSCI EAFE	-12.5%	-13.8%	2.9%	0.5%	6.3%
Emerging Equity	MSCI EM	-7.5%	-14.6%	9.2%	1.6%	8.0%
Small Cap Int'l	S&P EPAC SmallCap	-16.4%	-18.3%	3.7%	3.3%	10.2%
World ex-US	MSCI ACWI ex-US	-11.5%	-14.2%	4.5%	0.7%	6.6%
<b>Domestic FI Benchmarks</b>		<b>Qtr.</b>	<b>1 Yr.</b>	<b>3 Yr.</b>	<b>5 Yr.</b>	<b>10 Yr.</b>
Core Bonds	Barclays Aggregate	1.6%	0.0%	2.1%	2.5%	3.5%
Municipal Bond	Barclays Municipal	1.7%	1.3%	2.3%	3.8%	4.9%
High Yield	Barclays US High Yield	-4.5%	-2.1%	7.2%	3.8%	11.1%
Intermediate Gov/Cred	Barclays Intern. Gov/Credit	1.7%	0.9%	1.7%	1.9%	2.9%
Long Gov/Credit	Barclays Long Gov/Credit	0.8%	-4.7%	4.0%	5.4%	5.9%
Long Credit	Barclays Long Credit	-1.6%	-6.8%	4.9%	5.1%	7.4%
Long Treasuries	Barclays US 20+ Yr Treas	4.2%	-2.0%	2.7%	6.3%	3.4%
Cash	BofA ML US 3-Month T-Bill	0.6%	1.9%	1.0%	0.6%	0.4%
Inflation	Barclays US TIPS 1-10 Yr	-0.1%	-0.3%	1.9%	1.2%	3.1%
STRIPS	Barclays 20+ Yr STRIPS	4.6%	-4.1%	3.4%	9.3%	3.6%
<b>Global FI Benchmarks</b>		<b>Qtr.</b>	<b>1 Yr.</b>	<b>3 Yr.</b>	<b>5 Yr.</b>	<b>10 Yr.</b>
World Gov. Bonds	FTSE WGBI	1.8%	-0.8%	2.7%	0.8%	1.5%
Em. Mkt. Bonds (Local)	JPM GBI-EM Glob. Div.	2.1%	-6.2%	5.9%	-1.0%	3.5%
Global Inflation	Barclays Global ILB	-0.8%	-4.1%	2.7%	1.2%	3.7%
<b>Diversified Benchmark</b>		<b>Qtr.</b>	<b>1 Yr.</b>	<b>3 Yr.</b>	<b>5 Yr.</b>	<b>10 Yr.</b>
Diversified	Diversified*	-8.6%	-5.1%	5.7%	4.8%	8.9%
<b>Alternative Benchmarks</b>		<b>Qtr.</b>	<b>1 Yr.</b>	<b>3 Yr.</b>	<b>5 Yr.</b>	<b>10 Yr.</b>
Commodities	Bloomberg Commodity Index	-9.4%	-11.2%	0.3%	-8.8%	-3.8%
Real Estate	NCREIF Property Index**	1.7%	7.2%	7.8%	9.6%	6.4%

\* 35% LC, 10% SC, 12% Int'l, 3% Emerging, 25% FI, 5% HY, 5% Global FI, 5% REITS

\*\*As of 9/30/2018



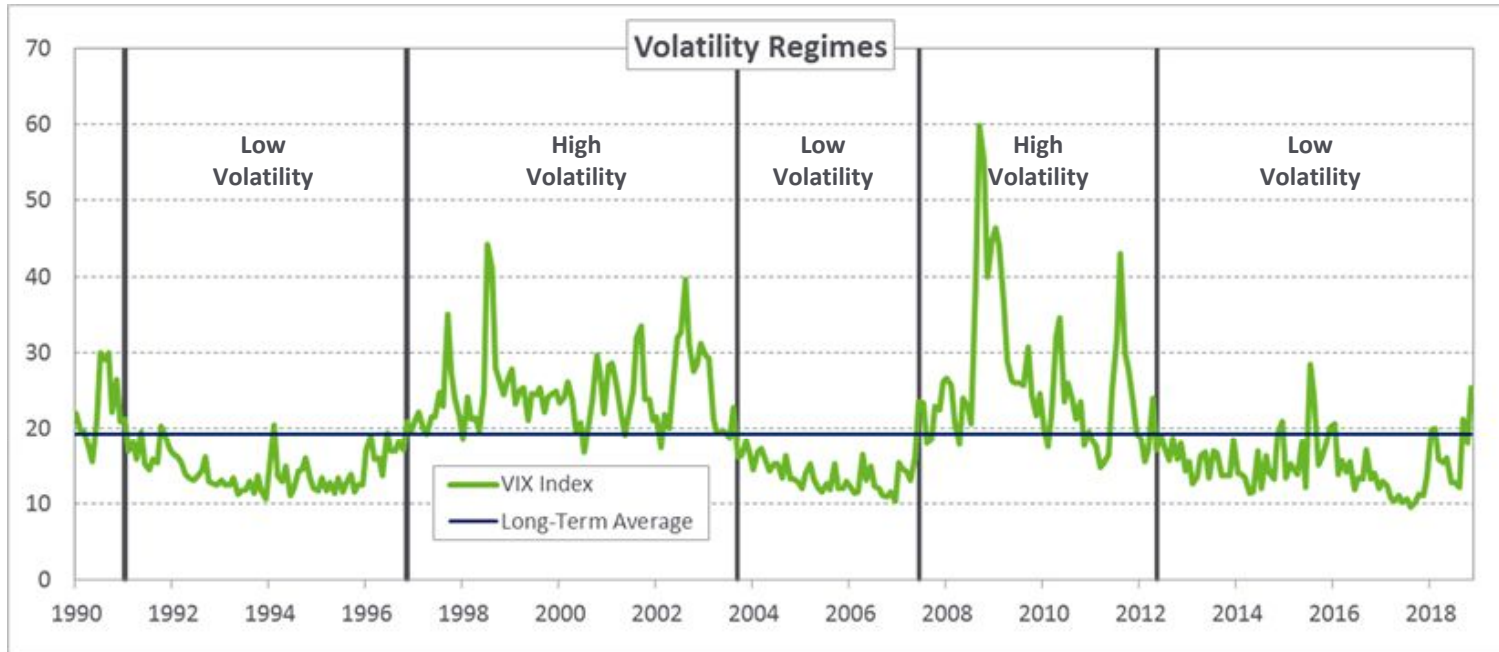
# THE ECONOMIC CYCLE IS IN TRANSITION



Source: St. Louis Federal Reserve, NBER



# BRACE FOR HIGHER VOLATILITY IN 2019



Source: S&P, CBOE, Bloomberg, NEPC

## Equity volatility regimes tend to persist over prolonged periods and 2018 was witness to a material shift higher in equity volatility

We encourage investors to raise “safe haven” fixed income exposure as trends associated with each of our key market themes suggest higher volatility is on the horizon

## 2019 may prove to be a difficult year for markets but higher volatility can also offer a greater number of opportunities for dynamic investors

Investors should be prepared to act in a higher volatility regime, as dynamic opportunities may arise to deploy safe-haven assets back into US equity and other risk assets



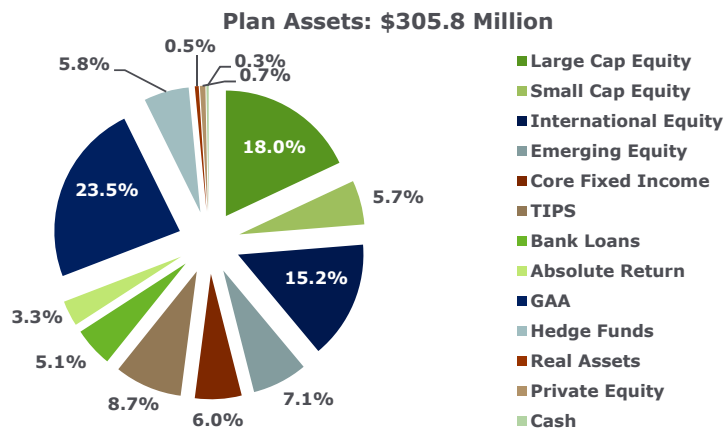
# MANAGED INVESTMENT POOL PERFORMANCE REVIEW

NEPC, LLC

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# EXECUTIVE SUMMARY

## ASSET ALLOCATION



## PLAN COMMENTS

### Asset Allocation

MIP assets were \$305.8 million as of December 31, 2018, a \$19.4 million decrease over the quarter. During the 4th quarter there was a \$6.7 million cash inflow and investment losses of \$26.1 million. All asset classes are within policy ranges.

### Performance (Net of Fees)

The Plan returned -8.0% in the 4<sup>th</sup> quarter and -6.9% fiscal year-to-date, ranking in the 48<sup>th</sup> and 79<sup>th</sup> percentiles, respectively.

Global equity performance was the main driver for the portfolio's returns while the fixed income and global asset allocation managers protected some losses.

Emerging market equity and global asset allocation managers performed well on a relative basis during the difficult market environment.

## MIP PERFORMANCE: NET OF FEES

	QTR (%)	FYTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
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COMPOSITE	-8.0	-6.9	-6.8	4.2	2.6	7.5
ALLOC. INDEX	-8.2	-6.1	-6.1	4.9	3.3	7.0
POLICY INDEX	-8.1	-5.9	-5.7	5.6	3.7	7.3
RANK (E&F \$100-500M)	47	79	88	89	93	71

## RECENT ACTIONS/RECOMMENDATIONS

### Recent Actions

Rebalancing was provided over the quarter to invest contributions.

### Recommendations

NEPC has provided asset allocation recommendations under separate cover.

### Investment Manager Updates

Manager updates are detailed in the due diligence section of the report.





# PRIVATE MARKETS UPDATE

- **The System invests in a number of private markets assets, committing capital for longer time periods to obtain illiquidity premiums and exposure to alternative markets**
- **Landmark Equity Partners XV**
  - Secondary Private Equity fund, purchasing interests in venture capital, growth equity and buyout funds, and to a lesser extent, special situation and energy funds
  - Strategy is diversified, investing in ~200 partnerships
  - Fund has a 4 year investment period and 10 year term
  - The System committed \$5 million in 2014 and has a remaining commitment of \$2.2 million
  - Since inception, the strategy has an IRR of 17.2%, net of fees (9/30/18)
- **Hancock Timberland VII**
  - Private Real Asset Timber Fund structured for the purpose of making direct and indirect investments in commercial timberland
  - The System has been invested in the strategy since 2005
  - Fund has a 3 year acquisition period, 8 year investment period, 2 year wind up period and 2 year extension period (estimated)
  - The System committed \$5 million in 2005 and there are no remaining commitments, the Fund is winding up
  - Since inception, the strategy has an IRR of 1.2%, net of fees (12/31/18)



# MIP PERFORMANCE OVERVIEW

As of December 31, 2018

	Market Value(\$)	% of Portfolio	Policy %	Universe	Qtr (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>MIP Composite</b>	<b>305,768,503</b>	<b>100.0%</b>	<b>100.0%</b>		<b>-8.0</b>	<b>47</b>	<b>-6.9</b>	<b>79</b>	<b>-6.8</b>	<b>85</b>	<b>4.2</b>	<b>89</b>	<b>2.6</b>	<b>93</b>	<b>7.5</b>	<b>71</b>
<i>Allocation Index</i>					-8.2	52	-6.1	58	-6.1	71	4.9	70	3.3	73	7.0	85
<i>Policy Index</i>					-8.1	49	-5.9	53	-5.7	61	5.6	38	3.7	53	7.3	79
<i>IF All E&amp;F \$100mm - \$500mm Net Median</i>					-8.1		-5.9		-5.1		5.4		3.7		8.1	
<b>Total Domestic Large Cap</b>	<b>55,152,258</b>	<b>18.0%</b>	<b>16.0%</b>	<b>eV US Large Cap Core Equity</b>	<b>-13.5</b>	<b>47</b>	<b>-6.9</b>	<b>42</b>	<b>-4.4</b>	<b>32</b>	<b>9.2</b>	<b>19</b>	<b>8.4</b>	<b>16</b>	<b>13.5</b>	<b>14</b>
<i>S&amp;P 500</i>					-13.5		-6.9		-4.4		9.3		8.5		13.1	
<i>SSgA S&amp;P 500</i>	55,152,258	18.0%	16.0%	eV US Large Cap Core Equity	-13.5	47	-6.9	42	-4.4	32	9.2	19	8.4	16	13.1	24
<i>S&amp;P 500</i>					-13.5		-6.9		-4.4		9.3		8.5		13.1	
<b>Total Domestic Small/Mid Cap</b>	<b>17,536,157</b>	<b>5.7%</b>	<b>6.0%</b>	<b>eV US Small-Mid Cap Equity</b>	<b>-19.9</b>	<b>71</b>	<b>-17.5</b>	<b>79</b>	<b>-11.6</b>	<b>56</b>	<b>7.1</b>	<b>45</b>	<b>4.3</b>	<b>52</b>	<b>12.9</b>	<b>46</b>
<i>Russell 2500</i>					-18.5		-14.7		-10.0		7.3		5.1		13.2	
<i>Westfield Capital</i>	8,372,931	2.7%	3.0%	eV US Small-Mid Cap Growth Equity	-19.7	50	-16.1	80	-7.8	76	7.8	60	5.5	47	14.8	25
<i>Russell 2500 Growth</i>					-20.1		-14.4		-7.5		8.1		6.2		14.8	
<i>DFA</i>	9,163,226	3.0%	3.0%	eV US Small Cap Value Equity	-20.0	69	-18.8	58	-15.8	59	5.4	51	2.6	64	-	
<i>Russell 2000 Value</i>					-18.7		-17.4		-12.9		7.4		3.6		10.4	
<b>Total Int'l &amp; EM</b>	<b>68,536,341</b>	<b>22.4%</b>	<b>23.0%</b>	<b>eV All ACWI ex-US Equity</b>	<b>-11.2</b>	<b>17</b>	<b>-13.0</b>	<b>45</b>	<b>-15.8</b>	<b>51</b>	<b>2.4</b>	<b>71</b>	<b>0.1</b>	<b>71</b>	<b>6.8</b>	<b>68</b>
<i>MSCI EAFE</i>					-12.5		-11.4		-13.8		2.9		0.5		6.3	
<i>Morgan Stanley</i>	18,787,807	6.1%	6.3%	eV All EAFE Equity	-12.6	27	-12.3	36	-13.8	38	1.9	65	-0.1	82	5.5	89
<i>Globeflex</i>	17,814,210	5.8%	6.3%	eV All EAFE Equity	-16.6	81	-17.1	83	-17.8	63	2.0	62	0.7	61	6.8	63
<i>MSCI EAFE</i>					-12.5		-11.4		-13.8		2.9		0.5		6.3	
<i>Kabouter International</i>	10,136,408	3.3%	3.5%	eV EAFE Small Cap Equity	-13.9	11	-18.0	49	-18.4	29	-	-	-	-	-	-
<i>MSCI EAFE Small Cap</i>					-16.0		-16.8		-17.9		3.7		3.1		10.5	
<b>Emerging Markets Equity</b>	<b>21,797,916</b>	<b>7.1%</b>	<b>7.0%</b>	<b>eV Emg Mkts Equity</b>	<b>-3.2</b>	<b>6</b>	<b>-7.1</b>	<b>27</b>	<b>-15.0</b>	<b>36</b>	<b>3.4</b>	<b>93</b>	<b>-0.5</b>	<b>91</b>	<b>-</b>	<b>-</b>
<i>MSCI Emerging Markets</i>					-7.5		-8.5		-14.6		9.2		1.6		8.0	
<i>Aberdeen Emerging Mrkts</i>	11,007,187	3.6%	3.5%	eV Emg Mkts Equity	-3.4	7	-4.0	9	-14.6	32	7.6	53	0.9	65	9.4	33
<i>MSCI Emerging Markets</i>					-7.5		-8.5		-14.6		9.2		1.6		8.0	
<i>Mondrian EM Small Cap</i>	10,790,729	3.5%	3.5%	eV Emg Mkts Equity	-3.1	6	-1.0	46	-15.6	43	-0.8	99	-	-	-	-
<i>MSCI Emerging Markets Small Cap</i>					-7.2		-11.1		-18.6		3.7		1.0		9.9	



# MIP PERFORMANCE OVERVIEW

As of December 31, 2018

	Market Value(\$)	% of Portfolio	Policy %	Universe	Qtr (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total GAA</b>	71,841,351	23.5%	23.0%	eV Global TAA	-4.1	26	-4.5	32	-5.8	34	3.2	49	1.2	65	5.9	54
<i>65% MSCI ACWI / 35% Global Agg</i>					-8.0		-5.7		-6.4		5.4		3.3		7.5	
GMO Global Absolute Return	24,230,066	7.9%	7.7%	eV Global TAA	-4.2	27	-4.2	30	-6.2	38	3.4	47	1.5	60	4.9	70
<i>Blended Index</i>					-1.3		-0.2		-1.1		3.5		3.1		5.5	
Wellington	23,020,604	7.5%	7.6%	eV Global TAA	-7.0	49	-9.8	84	-12.0	89	3.0	54	1.9	44	6.4	46
<i>65% MSCI ACWI / 35% Global Agg</i>					-8.0		-5.7		-6.4		5.4		3.3		7.2	
Newton Global Real Return	24,590,681	8.0%	7.7%	eV Global TAA	-1.4	6	0.6	3	1.2	1	-		-		-	
<i>60% MSCI ACWI / 40% Global Agg</i>					-7.3		-5.3		-6.0		8.8		5.5		6.3	
<b>Total Hedge Funds</b>	17,582,499	5.8%	6.0%		-8.4	52	-8.3	52	-5.6	48	0.8	75	0.2	78	2.8	93
Lighthouse	17,582,499	5.8%	6.0%	eV Alt - Long/Short Equity	-8.4	52	-8.3	52	-3.6	41	1.2	72	-		-	
<i>Credit Suisse Long Shrt Eqd USD</i>					-6.7		-5.2		-4.6		1.5		2.7		5.8	
<b>Total Real Assets</b>	1,538,178	0.5%	3.0%		-5.1		-5.8		-6.3		-3.4		-0.2		-	
John Hancock Timber Fund	1,538,178	0.5%	3.0%		-5.1		-5.8		-6.3		-3.4		-0.2		-	
<i>NCREIF Timberland Index</i>					1.0		2.0		3.4		3.3		5.0		3.8	
<b>Private Equity</b>	2,092,968	0.7%	2.0%		0.5		5.8		9.6		15.1		-		-	
Landmark Equity Partners XV	2,092,968	0.7%	2.0%		0.5		5.8		9.6		15.1		-		-	
<i>CA US All PE (1 Qtr Lag)</i>					3.8		9.4		18.0		14.5		13.4		12.1	
<b>Total Cash</b>	1,050,425	0.3%	0.0%													
Distribution Account	1,050,425	0.3%	0.0%		0.4		0.9		1.6		0.7		0.4		0.3	
<i>91 Day T-Bills</i>					0.6		1.1		1.9		1.1		0.6		0.4	



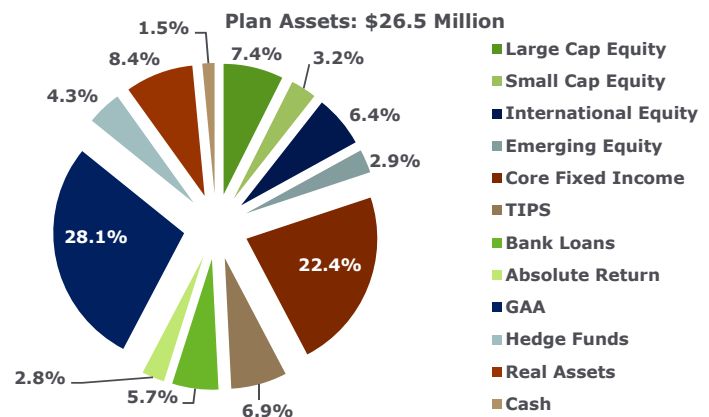
# PENSION FUND PERFORMANCE REVIEW

NEPC, LLC

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# EXECUTIVE SUMMARY

## ASSET ALLOCATION



## PLAN COMMENTS

### Asset Allocation

The Plan's assets were \$26.5 million as of December 31, 2018 a \$1.6 million decrease during the fourth quarter. During the 4th quarter there was a net cash flow of \$420 thousand and investment losses of \$1.1 million. All asset classes are within policy ranges.

### Performance (Net of Fees)

The Fund returned -4.2% in the 4<sup>th</sup> quarter and -3.5% fiscal year-to-date.

Global equity performance was the main driver for the portfolio's returns while the fixed income and global asset allocation managers protected some losses.

Emerging market equity and global asset allocation managers performed well on a relative basis during the difficult market environment adding 100 basis points of value during the fourth quarter (Composite vs. Allocation Index)

## PLAN PERFORMANCE: NET OF FEES

	QTR (%)	FYTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
COMPOSITE	-4.2	-3.5	-3.3	3.8	2.7	6.5
ALLOC. INDEX	-5.2	-3.6	-3.5	4.6	3.6	6.8
POLICY INDEX	-5.0	-3.5	-3.5	4.8	3.7	7.2

## RECENT ACTIONS/RECOMMENDATIONS

### Recent Actions

Rebalancing was provided over the quarter to cover benefit payments and expenses.

### Recommendations

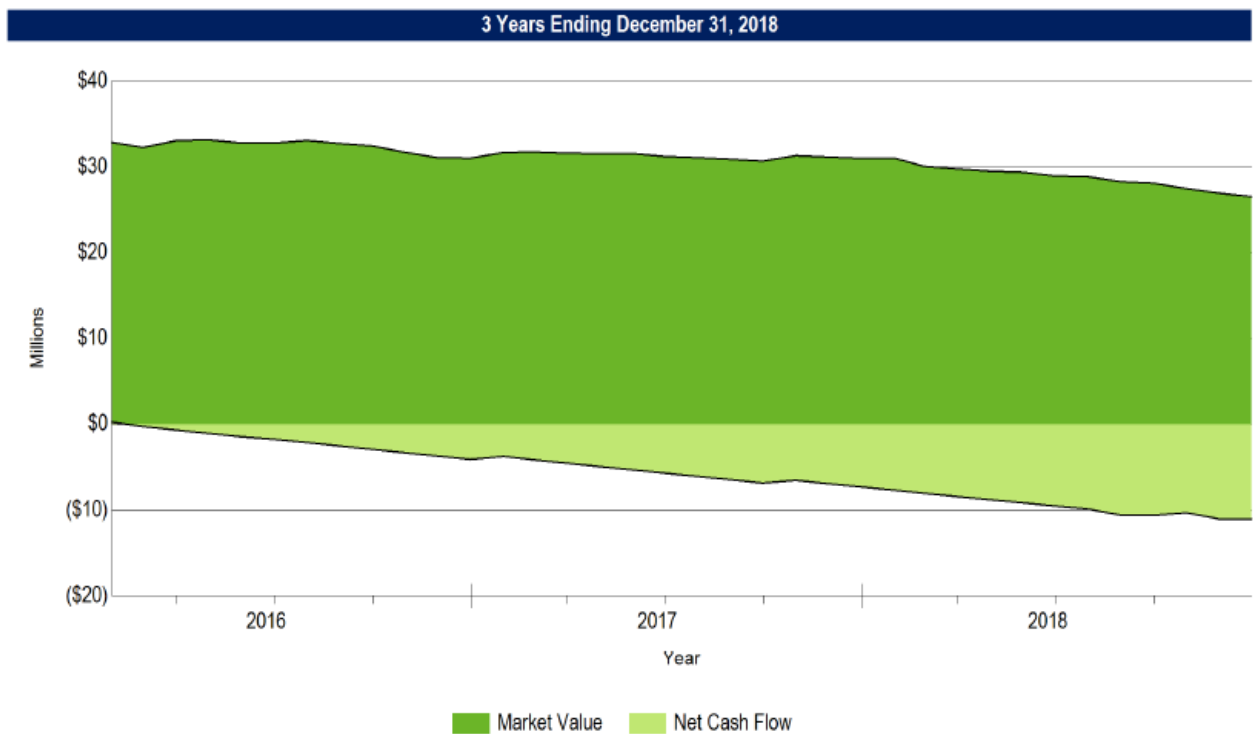
NEPC has provided asset allocation recommendations under separate cover.

### Investment Manager Updates

Manager updates are detailed in the due diligence section of the report.



# ASSET GROWTH SUMMARY



	Quarter-To-Date	Fiscal Year-To-Date	One Year	Three Years
Beginning Market Value	\$28,081,876	\$28,930,221	\$30,986,608	\$33,263,078
Net Cash Flow	-\$419,656	-\$1,513,791	-\$3,742,785	-\$11,056,695
Net Investment Change	-\$1,141,593	-\$895,803	-\$723,196	\$4,314,244
Ending Market Value	\$26,520,627	\$26,520,627	\$26,520,627	\$26,520,627



# PENSION PERFORMANCE OVERVIEW

Ending December 31, 2018

	Market Value(\$)	% of Portfolio	Policy %	Universe	Qtr (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Pension Composite</b>	<b>26,520,627</b>	<b>100.0</b>	<b>100.0</b>		<b>-4.2</b>		<b>-3.5</b>		<b>-3.3</b>		<b>3.8</b>		<b>2.7</b>		<b>6.5</b>	
<i>Allocation Index</i>					-5.2		-3.6		-3.5		4.6		3.6		6.8	
<i>Policy Index</i>					-5.0		-3.5		-3.5		4.8		3.7		7.2	
<b>Total Domestic Large Cap</b>	<b>1,973,417</b>	<b>7.4</b>	<b>8.0</b>	<b>eV US Large Cap Equity</b>	<b>-13.5</b>	<b>41</b>	<b>-6.9</b>	<b>34</b>	<b>-4.4</b>	<b>38</b>	<b>9.2</b>	<b>26</b>	<b>8.5</b>	<b>25</b>	<b>12.0</b>	<b>58</b>
<i>S&amp;P 500</i>					-13.5		-6.9		-4.4		9.3		8.5		13.1	
Vanguard S&P 500 Index	1,973,417	7.4	8.0	eV US Large Cap Core Equity	-13.5	49	-6.9	44	-4.4	40	9.2	38	8.5	34	--	
<i>S&amp;P 500</i>					-13.5		-6.9		-4.4		9.3		8.5		13.1	
<b>Total Small Cap Composite</b>	<b>854,845</b>	<b>3.2</b>	<b>4.0</b>	<b>eV US Small Cap Equity Net Median</b>	<b>-20.2</b>	<b>57</b>	<b>-17.4</b>	<b>58</b>	<b>-11.0</b>	<b>48</b>	<b>7.4</b>	<b>46</b>	<b>4.2</b>	<b>50</b>	<b>--</b>	<b>--</b>
<i>Russell 2000</i>					-20.2		-17.3		-11.0		7.4		4.4		12.0	
SSgA R2000 Index Fund Non Lending	854,845	3.2	4.0	eV US Small Cap Equity	-20.2	57	-17.4	58	-11.0	48	7.4	46	4.3	50	--	
<i>Russell 2000</i>					-20.2		-17.3		-11.0		7.4		4.4		12.0	
<b>Total Int'l &amp; EM Equity</b>	<b>2,455,261</b>	<b>9.3</b>	<b>10.0</b>	<b>eV All ACWI ex-US Equity Net Median</b>	<b>-9.9</b>	<b>6</b>	<b>-11.6</b>	<b>30</b>	<b>-14.2</b>	<b>36</b>	<b>1.2</b>	<b>87</b>	<b>-0.5</b>	<b>83</b>	<b>4.5</b>	<b>97</b>
<i>MSCI EAFE</i>					-12.5		-11.4		-13.8		2.9		0.5		6.3	
Morgan Stanley Int'l	1,689,953	6.4	7.0	eV All EAFE Equity	-12.6	27	-12.3	36	-13.8	38	2.0	61	0.0	78	5.6	88
<i>MSCI EAFE</i>					-12.5		-11.4		-13.8		2.9		0.5		6.3	
<b>Emerging Markets Equity</b>	<b>765,308</b>	<b>2.9</b>	<b>3.0</b>	<b>eV Emg Mkts Equity Net Median</b>	<b>-3.1</b>	<b>6</b>	<b>-10.0</b>	<b>46</b>	<b>-15.6</b>	<b>43</b>	<b>-0.8</b>	<b>99</b>	<b>-2.0</b>	<b>98</b>	<b>--</b>	<b>--</b>
<i>MSCI Emerging Markets</i>					-7.5		-8.5		-14.6		9.2		1.6		8.0	
Mondrian EM Small Cap	765,308	2.9	3.0	eV Emg Mkts Equity	-3.1	6	-10.0	46	-15.6	43	-0.8	99	--	--	--	
<i>MSCI Emerging Markets Small Cap</i>					-7.2		-11.1		-18.6		3.7		1.0		9.9	
<b>Total Fixed Income</b>	<b>10,031,525</b>	<b>37.8</b>	<b>35.0</b>	<b>eV All US Fixed Inc Net Median</b>	<b>0.4</b>	<b>60</b>	<b>0.5</b>	<b>66</b>	<b>-0.2</b>	<b>59</b>	<b>2.5</b>	<b>47</b>	<b>2.3</b>	<b>59</b>	<b>4.6</b>	<b>44</b>
<i>BBgBarc US Aggregate TR</i>					1.6		1.7		0.0		2.1		2.5		3.5	
Vanguard Total Bond Market Index	5,927,484	22.4	20.0	eV US Core Fixed Inc	1.6	16	1.7	21	0.0	40	2.0	61	--	--	--	
<i>BBgBarc US Aggregate TR</i>					1.6		1.7		0.0		2.1		2.5		3.5	
Vanguard Inflation-Protected Securities	1,842,853	6.9	7.0	eV US TIPS / Inflation Fixed Inc	-0.5	33	-1.3	49	-1.4	47	--	--	--	--	--	
<i>BBgBarc US TIPS TR</i>					-0.4		-1.2		-1.3		2.1		1.7		3.6	
Guggenheim US Bank Loans	155,315	0.6														
Bain Capital Senior Loan Fund	1,356,947	5.1	5.0	eV US Bank Loan Fixed Inc	-2.9	25	--	--	--	--	--	--	--	--	--	
<i>Credit Suisse Leveraged Loans</i>					-3.1		-1.2		1.1		5.0		3.3		8.3	
BlackRock Strategic Income Opportunities	748,926	2.8	3.0	eV US Enh Fixed Inc	-0.5	99	0.0	95	--	--	--	--	--	--	--	
<i>3-Month Libor Total Return USD</i>					0.7		1.3		2.4		1.5		1.0		0.7	



# PENSION PERFORMANCE OVERVIEW

Ending December 31, 2018

	Market Value(\$)	% of Portfolio	Policy %	Universe	Qtr (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total GAA</b>	<b>7,457,295</b>	<b>28.1</b>	<b>27.5</b>	<b>eV Global TAA Net Median</b>	<b>-4.0</b>	<b>26</b>	<b>-4.5</b>	<b>32</b>	<b>-5.3</b>	<b>30</b>	<b>3.2</b>	<b>49</b>	<b>1.2</b>	<b>65</b>	<b>5.9</b>	<b>55</b>
<i>65% MSCI ACWI (Net) / 35% BBgBarc Global</i>					<i>-8.0</i>		<i>-5.7</i>		<i>-6.4</i>		<i>5.4</i>		<i>3.3</i>		<i>7.2</i>	
Wellington	3,481,241	13.1	13.8	eV Global TAA	-6.9	48	-9.7	84	-11.8	88	3.1	51	2.0	41	6.4	45
<i>65% MSCI ACWI (Net) / 35% BBgBarc Global</i>					<i>-8.0</i>		<i>-5.7</i>		<i>-6.4</i>		<i>5.4</i>		<i>3.3</i>		<i>7.2</i>	
Newton Global Real Return	3,976,054	15.0	13.8	eV Global TAA	-1.4	6	0.6	3	1.2	1	--	--	--	--	--	--
<i>60% MSCI ACWI (Net) / 40% FTSE WGBI</i>					<i>-7.1</i>		<i>-5.3</i>		<i>-5.8</i>		<i>5.2</i>		<i>3.0</i>		<i>6.5</i>	
<b>Total Hedge Funds</b>	<b>1,136,458</b>	<b>4.3</b>	<b>4.5</b>		<b>-8.4</b>	<b>52</b>	<b>-8.3</b>	<b>53</b>	<b>-5.6</b>	<b>48</b>	<b>0.7</b>	<b>76</b>	<b>0.8</b>	<b>73</b>	<b>3.1</b>	<b>93</b>
<i>HFRI Fund of Funds Composite Index</i>					<i>-5.0</i>		<i>-4.8</i>		<i>-4.1</i>		<i>1.3</i>		<i>1.4</i>		<i>3.1</i>	
Lighthouse	1,136,458	4.3	4.5	eV Alt - Long/Short Equity	-8.4	52	-8.3	53	-3.6	41	1.2	72	--	--	--	--
<i>Credit Suisse Long Shrt Eq USD</i>					<i>-6.7</i>		<i>-5.2</i>		<i>-4.6</i>		<i>1.5</i>		<i>2.7</i>		<i>5.8</i>	
<b>Total Real Assets</b>	<b>2,220,271</b>	<b>8.4</b>	<b>8.0</b>													
Principal	2,220,271	8.4	8.0		1.2		3.7		8.0		8.3		10.2		6.5	
<i>NCREIF ODCE</i>					<i>1.8</i>		<i>3.9</i>		<i>8.3</i>		<i>8.2</i>		<i>10.4</i>		<i>7.0</i>	
<b>Total Cash</b>	<b>391,555</b>	<b>1.5</b>	<b>3.0</b>													
Distribution Account	391,555	1.5	3.0		0.4		0.9		1.6		0.7		0.4		0.3	
<i>91 Day T-Bills</i>					<i>0.6</i>		<i>1.1</i>		<i>1.9</i>		<i>1.1</i>		<i>0.6</i>		<i>0.4</i>	





# OPERATING FUND PERFORMANCE REVIEW

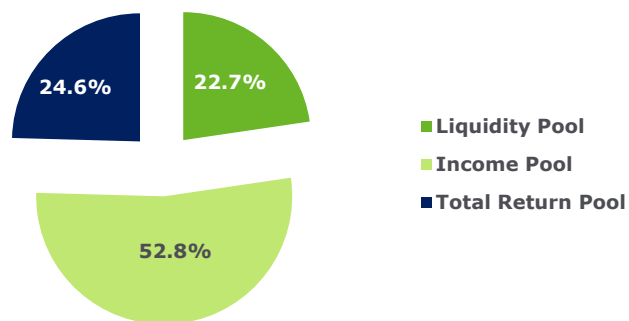
NEPC, LLC

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# EXECUTIVE SUMMARY

## ASSET ALLOCATION

Plan Assets: \$258.9 Million



## FUND PERFORMANCE: NET OF FEES

	QTR (%)	FYTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
COMPOSITE	-1.2	-0.5	-0.2	2.6	1.6	3.1
ALLOCATION INDEX	-1.3	-0.4	0.0	2.5	1.9	--

## PLAN COMMENTS

### Asset Allocation

The Fund's assets as of December 31, 2018 were \$258.9 million. This represents a \$51.4 million decrease from the previous quarter.

The Liquidity Pool (22.7% v 25.0%), Income Pool (52.8% v 50.0%) and Total Return Pool (24.6% v 25.0%) are all within allowable ranges. Throughout the year, asset allocation will change based on cash inflows and outflows. NEPC reviews this on a monthly basis.

### Performance (Net of Fees)

The Fund returned -1.2% during the 4<sup>th</sup> quarter and -0.5% fiscal year-to-date.

## RECENT ACTIONS/RECOMMENDATIONS

### Recent Actions

None.

### Recommendations

There are no recommendations at this time.

### Investment Manager Updates

Manager updates are detailed in the due diligence section of the report.



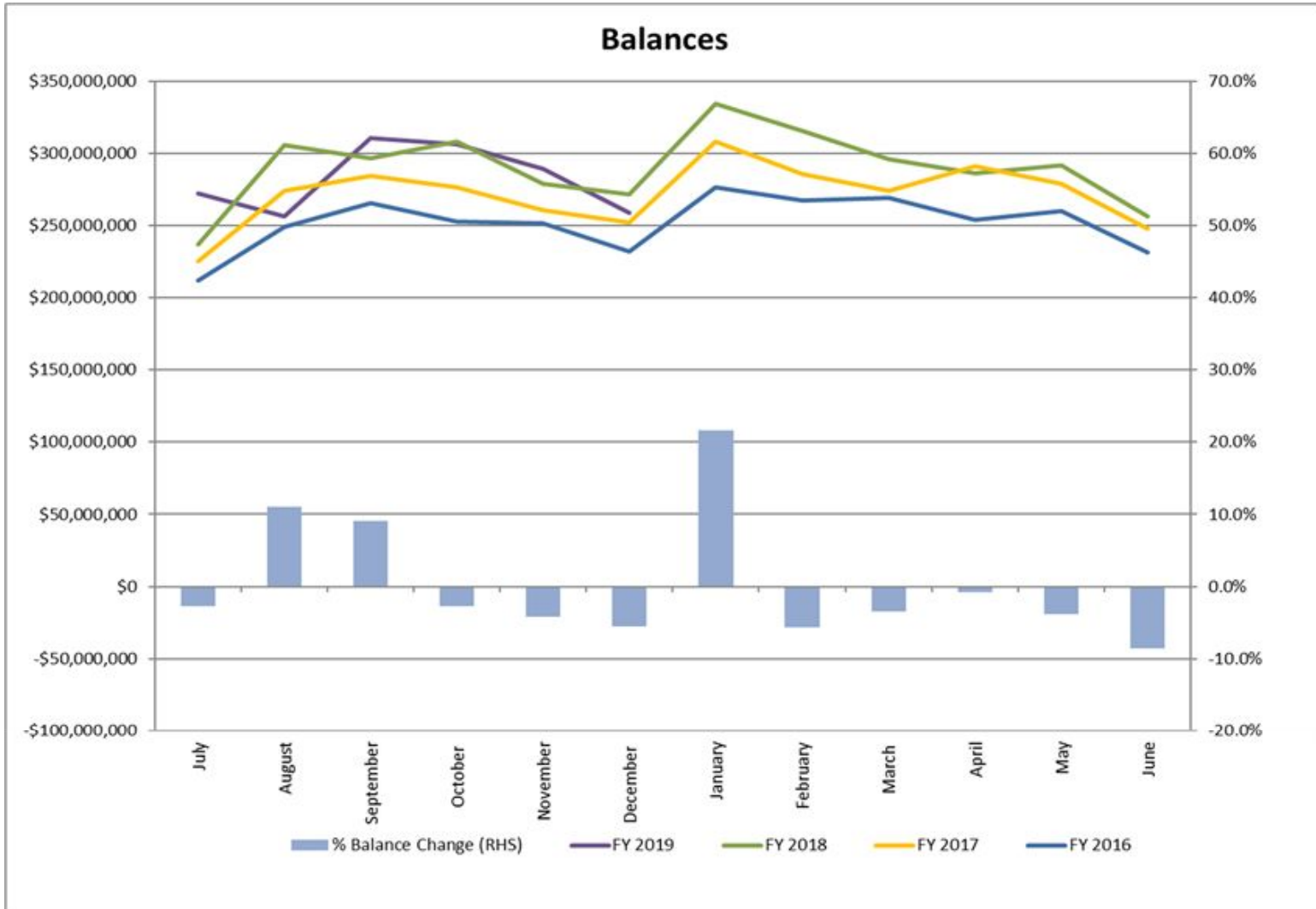
# OPERATING FUND PERFORMANCE REVIEW

Ending December 31, 2018

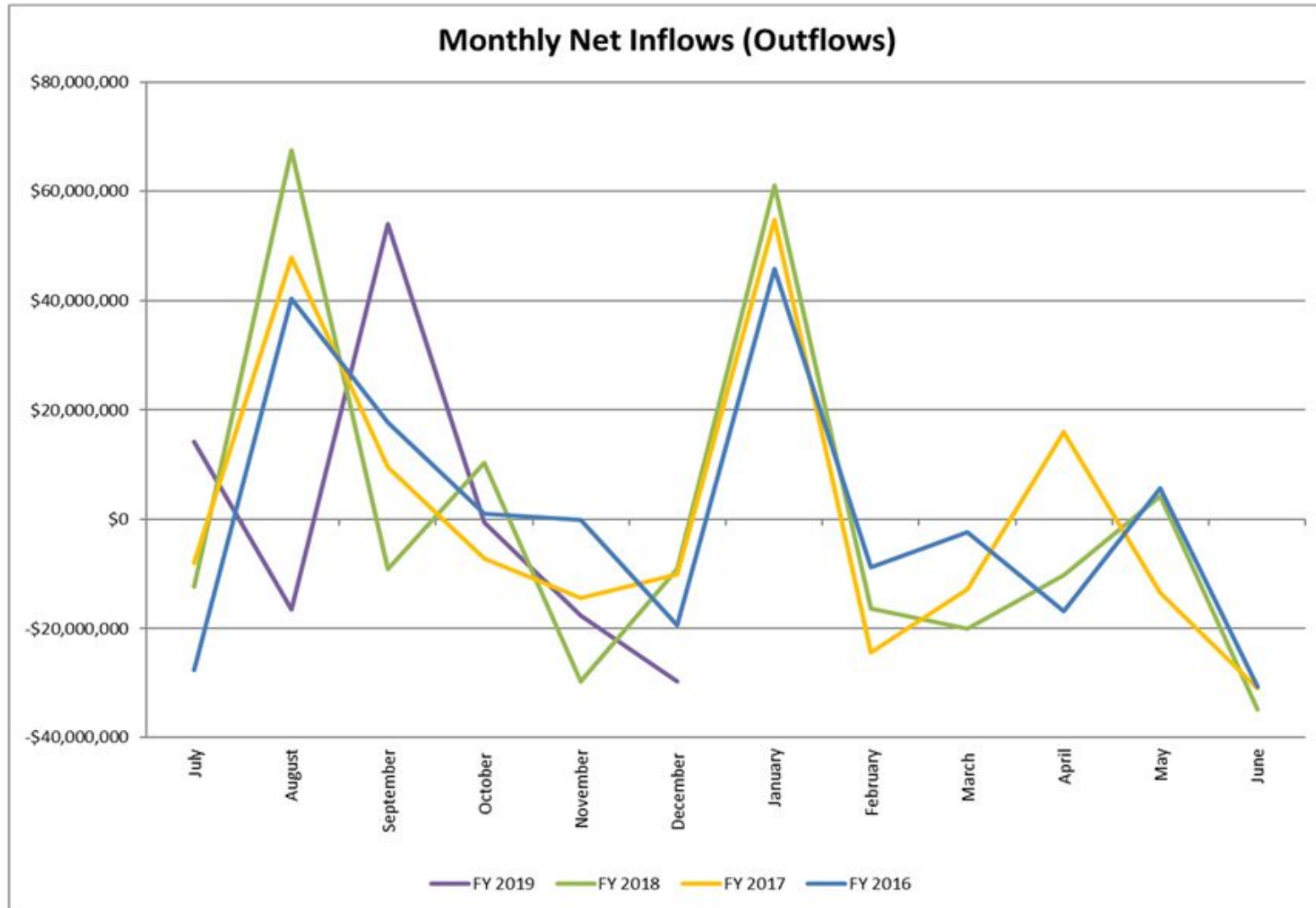
	Market Value (\$)	% of Portfolio	Policy %	Universe	Qtr (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Operating Funds Composite</b>	258,862,633	100.0	100.0		-1.2		-0.5		-0.2		2.6		1.6		3.1	
<i>Allocation Index</i>					-1.3		-0.4		0.0		2.5		1.9		--	
<b>Liquidity Pool Composite</b>	58,643,273	22.7	25.0		0.5		0.9		1.6		1.0		0.6		0.5	
State Pool	25,893,587	10.0			0.5		0.9		1.6		1.0		0.7		0.6	
BOA General Fund	4,864,962	1.9			0.4		0.5		0.7		0.3		0.2		--	
Federated Gov't Obligations	6,880,901	2.7			0.5		1.0		1.7		--		--		--	
JP Morgan US Gov't Money Market Fund	21,003,823	8.1			0.5		1.0		1.7		--		--		--	
<i>FTSE T-Bill 3 Months TR</i>					0.6		1.1		1.9		1.0		0.6		0.4	
<b>Income Pool Composite</b>	136,597,107	52.8	50.0		0.2		0.6		0.5		2.1		1.6		4.3	
Income Research + Management	75,434,786	29.1	26.7	eV US Short Duration Fixed Inc	1.0	34	1.4	27	1.5	47	1.3	66	1.1	68	--	
<i>BBgBarc US Govt/Credit 1-3 Yr. TR</i>					1.2		1.5		1.6		1.2		1.0		1.5	
BlackRock Strategic Income Opportunities	17,310,788	6.7	6.7	eV US Enh Fixed Inc	-0.5	99	0.0	95	-0.5	61	2.6	12	--		--	
<i>3-Month Libor Total Return USD</i>					0.7		1.3		2.4		1.5		1.0		0.7	
Loomis Sayles Bank Loans	18,382,260	7.1	6.7	eV US Bank Loan Fixed Inc	-3.2	38	-1.7	54	-0.3	82	3.4	96	2.4	87	6.8	79
<i>Loomis Bank Loans Custom Index</i>					-3.5		-2.0		-0.4		3.4		3.0		8.5	
Vanguard Total Bond Market Instl' Fund	12,933,502	5.0	5.0	eV All US Fixed Inc	1.6	12	1.7	14	0.0	55	2.1	59	2.5	52	--	
<i>BBgBarc US Aggregate TR</i>					1.6		1.7		0.0		2.1		2.5		3.5	
Vanguard Inflation-Protected Securities	12,535,771	4.8	5.0	eV US TIPS / Inflation Fixed Inc	-0.5	34	-1.3	49	-1.4	45	--		--		--	
<i>BBgBarc US TIPS TR</i>					-0.4		-1.2		-1.3		2.1		1.7		3.6	
<b>Total Return Pool Composite</b>	63,622,252	24.6	25.0		-6.6		-4.9		-4.5		5.0		2.6		5.9	
Lighthouse	13,591,636	5.3	5.0	eV Alt - Long/Short Equity	-8.4	52	-8.3	52	-3.6	41	1.2	72	--		--	
<i>Credit Suisse Long Shrt Eqt USD</i>					-6.7		-5.2		-4.6		1.5		2.7		5.8	
Newton Global Real Return	17,304,645	6.7	6.3	eV Global TAA	-1.4	6	0.6	3	1.2	1	--		--		--	
<i>60% MSCI ACWI / 40% Global Agg</i>					-7.3		-5.3		-6.0		5.2		3.1		6.8	
PIMCO All Asset	16,591,633	6.4	6.3	eV Global TAA	-3.3	19	-2.9	18	-5.0	26	7.1	4	2.5	33	6.5	40
<i>Blended Index</i>					-1.3		-0.2		-1.1		3.5		3.1		5.5	
Vanguard Total World Stock Index	16,134,338	6.2	7.5	eV Global All Cap Equity	-13.1	38	-9.6	33	-9.7	51	6.9	29	4.5	32	--	
<i>FTSE Global All Cap Index</i>					-13.1		-9.6		-9.6		5.9		3.0		8.0	



# BALANCES AND MONTHLY CHANGES



# MONTHLY NET INFLOWS (OUTFLOWS)



# INVESTMENT MANAGER DUE DILIGENCE

NEPC, LLC

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# DUE DILIGENCE MONITOR

The items below summarize the recent quarter's performance and any changes or announcements from your Plan managers/funds. A "-" indicates there were no material announcements. A "Yes" indicates there was an announcement and a summary is provided separately. NEPC's Due Diligence Committee meets every two weeks to review events as they relate to investment managers and determines if any action should be taken by NEPC and/or by our clients. They rate events: No Action, Watch, Hold, Client Review or Terminate. With respect to Performance, a "-" indicates the manager/fund performed in line with the majority of managers/funds in the category; only outliers (placement in the Top or Bottom Quartile) are highlighted. Your Consultant's Recommendation is refreshed quarterly in view of the recent quarter's developments (performance, manager events, and any of the longer-term trending data). NEPC considers ourselves to be a fiduciary, as ERISA defines the term in Section 3(21).

Fund	Portfolio	Manager Changes/ Announcements (Recent Quarter)	NEPC Due Diligence Committee Recommendations
Aberdeen	MIP & Pension	No	Maintain Hold
Lighthouse	MIP, Pension & Operating	No	Maintain Watch
Morgan Stanley	MIP & Pension	Yes	No Action
DFA	MIP	Yes	No Action
Mondrian	MIP & Pension	Yes	No Action
PIMCO	Operaing	Yes	Upgraded to No Action

NEPC Due Diligence Committee Recommendation Key	
<b>No Action</b>	Informational items have surfaced; no action is recommended.
<b>Watch</b>	Issues have surfaced to be concerned over; manager can participate in future searches, but current and prospective clients must be made aware of the issues.
<b>Hold</b>	Serious issues have surfaced to be concerned over; manager cannot be in future searches unless a client specifically requests, but current and prospective clients must be made aware of the issues.
<b>Client Review</b>	Very serious issues have surfaced with a manager; manager cannot be in future searches unless a client specifically requests. Current clients must be advised to review the manager.
<b>Terminate</b>	We have lost all confidence in the product; manager would not be recommended for searches and clients would be discouraged from using. The manager cannot be in future searches unless a client specifically requests. Current clients must be advised to replace the manager.



# APPENDIX & DISCLAIMERS

NEPC, LLC

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# HIGHLIGHTS OF FOURTH QUARTER HAPPENINGS AT NEPC

## NEPC INSIGHTS



- Defined Contribution Financial Wellness Results: Is All Well(ness) and Good?
- Low-Basis Assets: Developing a Plan to Avoid Investor Inertia
- Defined Contribution: Active Management and Marriage, Part 1
- Defined Contribution: In-Laws & Income Solutions, Part 2
- Taking Stock: NEPC Drops Fed Gradualism Theme
- It's November: Year-End Tax-Planning Starts Now
- 2018 Third Quarter Market Thoughts
- Partial Annuitizations: The Go-To Strategy for Pension Risk Transfers
- NEPC 2018 Corporate DB Outlook Results: Plans to De-Risk Portfolio and Invest in Alternative Assets
- Taking Stock: Hedge Funds: A New World Post-Crisis
- Don't Let the Tail Wag the Dog: For Insurers, It's Investment Discipline First, Capital Efficiency Second
- Taking Stock: Decision Time for Pension Plans and Q3 Liability Performance
- NEPC's 2018 Hedge Fund Operational Due Diligence Survey Results
- Make an Impact in the Season of Giving
- NEPC's Year-End 2018 Endowments & Foundations Survey Results: Storms Ahead, But Staying the Course
- Taking Stock: Making Sense of Recent Market Movements

## WEBINAR REPLAYS

- NEPC's Third Quarter 2018 Quarterly Markets Call
- Total Enterprise Management for Endowments and Foundations

To download NEPC's recent insights and webinar replays, visit: [www.NEPC.com/insights](http://www.NEPC.com/insights)



## SAVE THE DATE



MAY 7-8, 2019 | BOSTON PARK PLAZA | #NEPC\_CONFERENCE



### NEPC's 24<sup>th</sup> Annual Investment Conference

- Gradual or dramatic, the economic and political worlds around us are going through major transition. Whether it be global resources, climate, political power, technology, demographics or personal habits, adapting and advancing through these shifts has become a regularity. Most importantly, as we transition our daily processes, so do we transition our investment approaches. Please join us for **NEPC's 24th Annual Investment Conference on May 7-8, 2019** at the Boston Park Plaza Hotel, as we address the 'Transitions' we are experiencing and what lies ahead.
- Please reach out to Sarah Winrow at [swinrow@nepc.com](mailto:swinrow@nepc.com) if you have any questions.



# GLOSSARY OF TERMS

**Alpha** - Measures the relationship between the fund performance and the performance of another fund or benchmark index and equals the excess return while the other fund or benchmark index is zero.

**Alpha Jensen** - The average return on a portfolio over and above that predicted by the capital asset pricing model (CAPM), given the portfolio's beta and the average market return. Also known as the abnormal return or the risk adjusted excess return.

**Annualized Excess Return over Benchmark** - Annualized fund return minus the annualized benchmark return for the calculated return.

**Annualized Return** - A statistical technique whereby returns covering periods greater than one year are converted to cover a 12 month time span.

**Beta** - Measures the volatility or systematic risk and is equal to the change in the fund's performance in relation to the change in the assigned index's performance.

**Information Ratio** - A measure of the risk adjusted return of a financial security, asset, or portfolio.

*Formula:*

*(Annualized Return of Portfolio - Annualized Return of Benchmark)/Annualized Standard Deviation(Period Portfolio Return - Period Benchmark Return). To annualize standard deviation, multiply the deviation by the square root of the number of periods per year where monthly returns per year equals 12 and quarterly returns is four periods per year.*

**R-Squared** - Represents the percentage of a fund's movements that can be explained by movements in an index. R-Squared values range from 0 to 100. An R-Squared of 100 denotes that all movements of a fund are completely explained by movements in the index.

**Sharpe Ratio** - A measure of the excess return or risk premium per unit of risk in an investment asset or trading strategy.

**Sortino Ratio** - A method to differentiate between good and bad volatility in the Sharpe Ratio. The differentiation of up and down volatility allows the calculation to provide a risk adjusted measure of a security or fund's performance without upward price change penalties.

*Formula:*

*Calculation Average (X-Y)/Downside Deviation (X-Y) \* 2  
Where X=Return Series X Y = Return Series Y which is the risk free return (91 day T-bills)*

**Standard Deviation** - The standard deviation is a statistical term that describes the distribution of results. It is a commonly used measure of volatility of returns of a portfolio, asset class, or security. The higher the standard deviation the more volatile the returns are.

*Formula:*

*(Annualized Return of Portfolio - Annualized Return of Risk Free) / Annualized Standard Deviation (Portfolio Returns)*

**Tracking Error** - Tracking error, also known as residual risk, is a measure of the degree to which a portfolio tracks its benchmark. It is also a measure of consistency of excess returns. Tracking error is computed as the annualized standard deviation of the difference between a portfolio's return and that of its benchmark.

*Formula:*

*Tracking Error = Standard Deviation (X-Y) \*  $\sqrt{(\# \text{ of periods per year})}$*

*Where X = periods portfolio return and Y = the period's benchmark return*

*For monthly returns, the periods per year = 12*

*For quarterly returns, the periods per year = 4*

**Treynor Ratio** - A risk-adjusted measure of return based on systematic risk. Similar to the Sharpe ratio with the difference being the Treynor ratio uses beta as the measurement of volatility.

*Formula:*

*(Portfolio Average Return - Average Return of Risk-Free Rate)/Portfolio Beta*

**Up/Down Capture Ratio** - A measure of what percentage of a market's returns is "captured" by a portfolio. For example, if the market declines 10% over some period, and the manager declines only 9%, then his or her capture ratio is 90%. In down markets, it is advantageous for a manager to have as low a capture ratio as possible. For up markets, the higher the capture ratio the better. Looking at capture ratios can provide insight into how a manager achieves excess returns. A value manager might typically have a lower capture ratio in both up and down markets, achieving excess returns by protecting on the downside, whereas a growth manager might fall more than the overall market in down markets, but achieve above-market returns in a rising market.

*UpsideCapture = TotalReturn(FundReturns)/TotalReturns(BMReturn) when Period Benchmark Return is > = 0*

*DownsideCapture = TotalReturn(FundReturns)/TotalReturns(BMReturn) when Benchmark < 0*

*Data Source: InvestorForce*



# INFORMATION DISCLAIMER AND REPORTING METHODOLOGY

## Information Disclaimer

- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
- Some index returns displayed in this report or used in calculation of a policy, allocation or custom benchmark may not be available from the source or may be preliminary and subject to change.
- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodial bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
- This report is provided as a management aid for the client's internal use only. Performance contained in this report does not constitute a recommendation by NEPC.
- This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

## Reporting Methodology

- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of Return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.



# **FOURTH QUARTER 2018 SUPPLEMENTAL PERFORMANCE**



## **UNIVERSITY OF MAINE SYSTEM MANAGED INVESTMENT POOL**

**March 11, 2019**

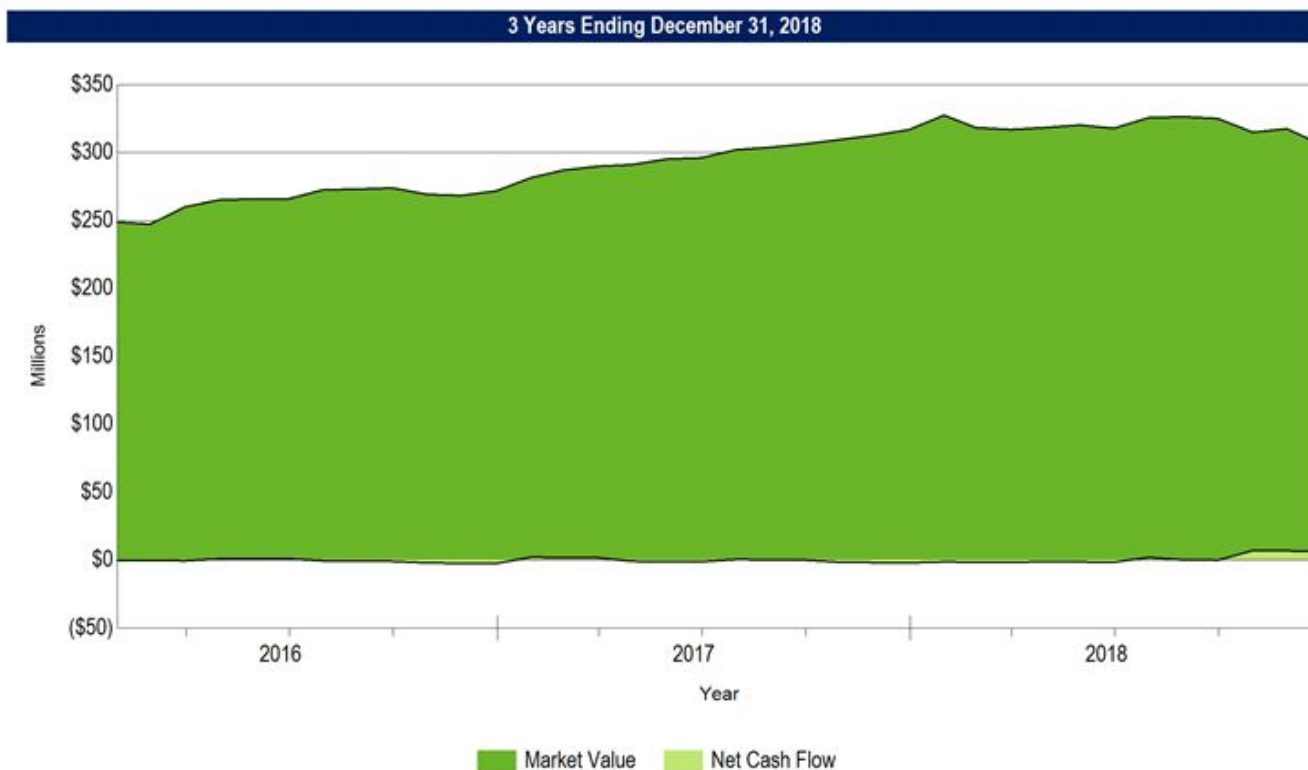
**Jay E. Roney, Partner**

**Kelly Regan, Senior Consultant**



BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

# ASSET GROWTH SUMMARY



	Last Three Months	Fiscal Year-To-Date	One Year	Three Years
Beginning Market Value	\$325,124,530	\$317,888,826	\$316,868,984	\$258,591,192
Net Cash Flow	\$6,695,521	\$8,125,971	\$8,610,679	\$6,558,841
Net Investment Change	-\$26,051,548	-\$20,246,294	-\$19,711,160	\$40,618,470
Ending Market Value	\$305,768,503	\$305,768,503	\$305,768,503	\$305,768,503

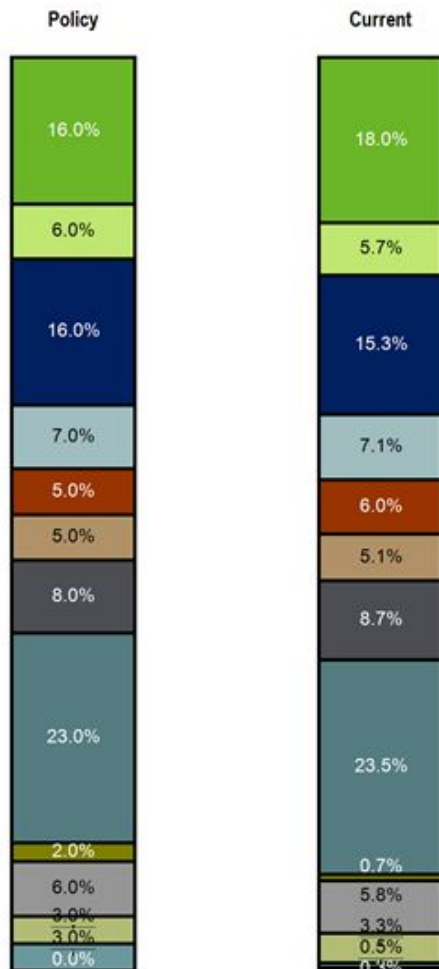


# CASH FLOW SUMMARY

	3 Months Ending December 31, 2018					Ending Market Value
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	
Aberdeen Emerging Mkts	\$10,889,146	\$500,000	-\$29,998	\$470,002	-\$351,961	\$11,007,187
Bain Capital Senior Loan Fund	\$14,474,660	\$0	-\$18,202	-\$18,202	-\$408,639	\$14,047,819
Blackrock Strategic Income Opportunities	\$10,139,606	\$0	-\$13,369	-\$13,369	-\$39,890	\$10,086,346
Commonfund	\$16,486,777	\$1,650,000	-\$7,241	\$1,642,759	\$126,082	\$18,255,618
DFA	\$11,454,176	\$0	-\$10,243	-\$10,243	-\$2,280,706	\$9,163,226
Distribution Account	\$576,075	\$13,462,555	-\$12,999,699	\$462,856	\$11,494	\$1,050,425
Globeflex	\$20,810,240	\$500,000	-\$34,961	\$465,039	-\$3,461,068	\$17,814,210
GMO Global Absolute Return	\$24,180,933	\$1,000,000	-\$60,896	\$939,104	-\$889,971	\$24,230,066
Guggenheim US Bank Loans	\$1,599,052	\$0	-\$1,999	-\$1,999	\$1,999	\$1,599,052
John Hancock Timber Fund	\$2,355,663	\$0	-\$703,368	-\$703,368	-\$114,118	\$1,538,178
Kabouter International Opportunities Offshore Fund II	\$11,778,759	\$0	-\$26,366	-\$26,366	-\$1,615,985	\$10,136,408
Landmark Equity Partners XV	\$2,266,261	\$0	-\$183,855	-\$183,855	\$10,562	\$2,092,968
Lighthouse	\$19,186,078	\$0	\$0	\$0	-\$1,603,579	\$17,582,499
Mondrian EM Small Cap	\$10,322,373	\$750,000	-\$70,534	\$679,466	-\$211,110	\$10,790,729
Morgan Stanley	\$20,494,838	\$1,000,000	-\$46,204	\$953,796	-\$2,660,827	\$18,787,807
Newton Global Real Return	\$24,943,300	\$0	-\$48,919	-\$48,919	-\$303,700	\$24,590,681
SSgA S&P 500	\$63,489,661	\$5,500,000	-\$5,264,543	\$235,457	-\$8,572,860	\$55,152,258
Vanguard Inflation-Protected Securities	\$25,571,043	\$1,000,000	-\$4,606	\$995,394	-\$116,945	\$26,449,492
Wellington	\$23,667,359	\$1,000,000	-\$101,622	\$898,378	-\$1,545,132	\$23,020,604
Westfield Capital	\$10,438,532	\$0	-\$40,407	-\$40,407	-\$2,025,194	\$8,372,931
<b>Total</b>	<b>\$325,124,530</b>	<b>\$26,362,555</b>	<b>-\$19,667,034</b>	<b>\$6,695,521</b>	<b>-\$26,051,548</b>	<b>\$305,768,503</b>



# ASSET CLASS ALLOCATIONS

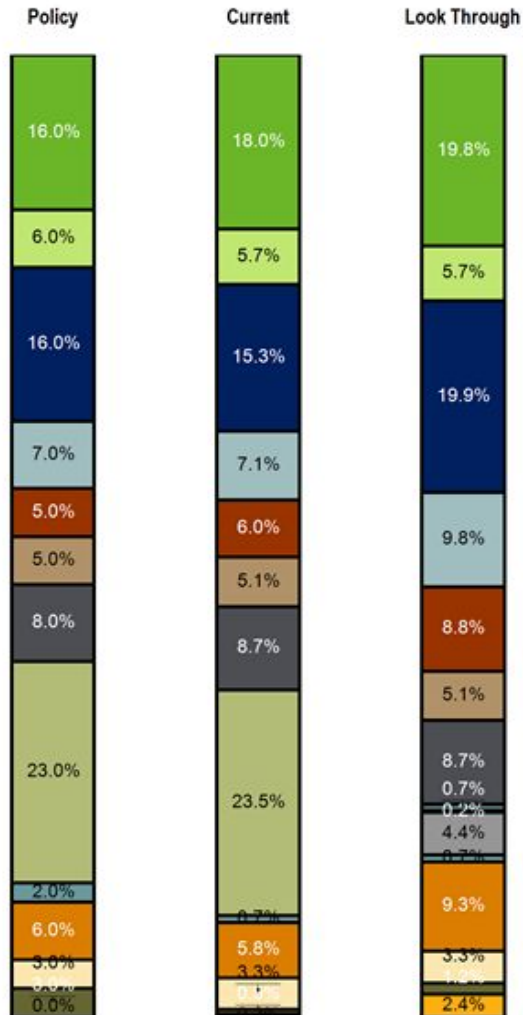


Asset Allocation vs. Target							
	Current	Policy	Current	Difference	Policy Range	Within Range	
Large Cap Equity	\$55,152,258	16.0%	18.0%	2.0%	11.0% - 21.0%	Yes	
Small/Mid Cap Equity	\$17,536,157	6.0%	5.7%	-0.3%	0.0% - 9.0%	Yes	
International Equity	\$46,738,425	16.0%	15.3%	-0.7%	11.0% - 21.0%	Yes	
Emerging Markets Equity	\$21,797,916	7.0%	7.1%	0.1%	0.0% - 10.0%	Yes	
Core Bonds	\$18,255,618	5.0%	6.0%	1.0%	0.0% - 10.0%	Yes	
Bank Loans	\$15,646,871	5.0%	5.1%	0.1%	0.0% - 8.0%	Yes	
TIPS	\$26,449,492	8.0%	8.7%	0.7%	4.0% - 12.0%	Yes	
Global Asset Allocation	\$71,841,351	23.0%	23.5%	0.5%	18.0% - 28.0%	Yes	
Private Equity	\$2,092,968	2.0%	0.7%	-1.3%	0.0% - 5.0%	Yes	
Hedge Funds	\$17,582,499	6.0%	5.8%	-0.2%	0.0% - 15.0%	Yes	
Absolute Return	\$10,086,346	3.0%	3.3%	0.3%	0.0% - 100.0%	Yes	
Real Assets	\$1,538,178	3.0%	0.5%	-2.5%	0.0% - 6.0%	Yes	
Cash	\$1,050,425	0.0%	0.3%	0.3%	0.0% - 10.0%	Yes	
<b>Total</b>	<b>\$305,768,503</b>	<b>100.0%</b>	<b>100.0%</b>				





# ASSET CLASS ALLOCATIONS



Asset Allocation			
	Policy	Current	Look Through
Large Cap Equity	16.0%	18.0%	19.8%
Small/Mid Cap Equity	6.0%	5.7%	5.7%
International Equity	16.0%	15.3%	19.9%
Emerging Markets Equity	7.0%	7.1%	9.8%
Core Bonds	5.0%	6.0%	8.8%
Bank Loans	5.0%	5.1%	5.1%
TIPS	8.0%	8.7%	8.7%
Multi-Sector Fixed Income	--	--	0.7%
Fixed Income - Emerging	--	--	0.2%
Global Bonds	--	--	4.4%
Global Asset Allocation	23.0%	23.5%	--
Private Equity	2.0%	0.7%	0.7%
Hedge Funds	6.0%	5.8%	9.3%
Absolute Return	3.0%	3.3%	3.3%
Real Assets	3.0%	0.5%	1.2%
Cash	0.0%	0.3%	2.4%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Net Asset Allocation breaks out the exposure of GAA managers.

Asset class weights may not add up to 100%..

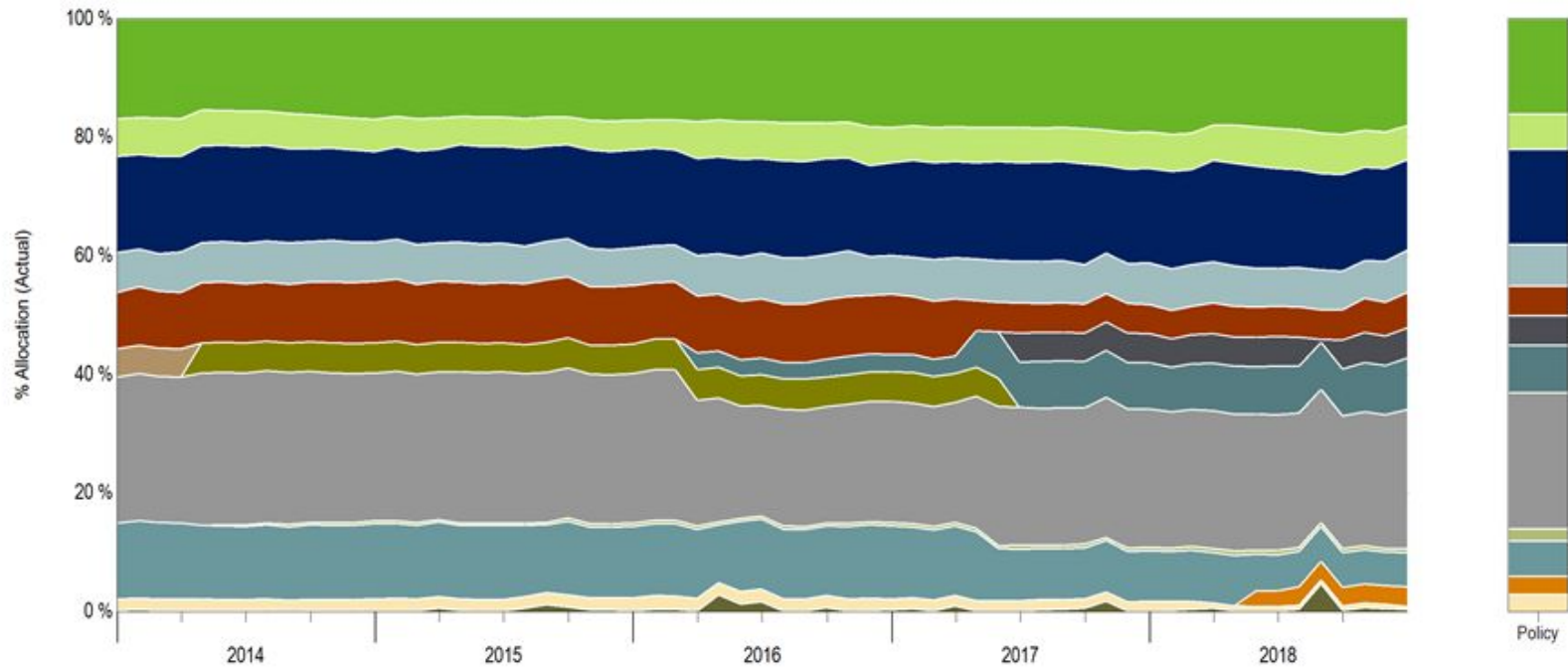
The 60% MSCI ACWI/40% CITI WGBI Index is broken down into the following categories: 32.6% Domestic Equities, 20.2% Int'l Equities, 7.1% Emerging Equities, 14.8% US Treasury Bonds, 12.6% European Government Bonds, 7.8% Japanese Debt, 2.2% United Kingdom Bonds and 2.6% Developing Market Bonds.

Diversified Fixed Income bucket includes: multi-sector fixed income., non-U.S. fixed income, and emerging fixed income .



# ASSET ALLOCATION HISTORY

Asset Allocation History

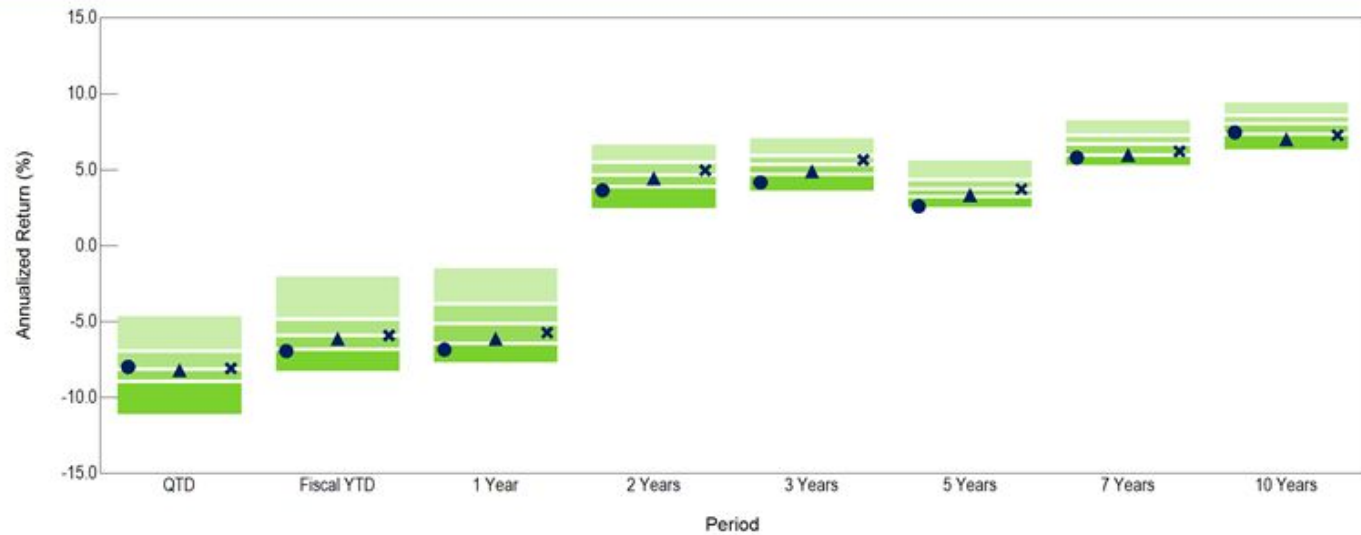


- Large Cap Equity
- Emerging Markets Equity
- Bank Loans
- Global Asset Allocation
- Absolute Return
- Small/Mid Cap Equity
- Core Bonds
- TIPS
- Private Equity
- Real Assets
- International Equity
- High Yield
- Multi-Sector Fixed Income
- Hedge Funds
- Cash



# RETURNS VS. PEER UNIVERSE

MIP Composite vs. InvestorForce All E&F \$100mm - \$500mm Net

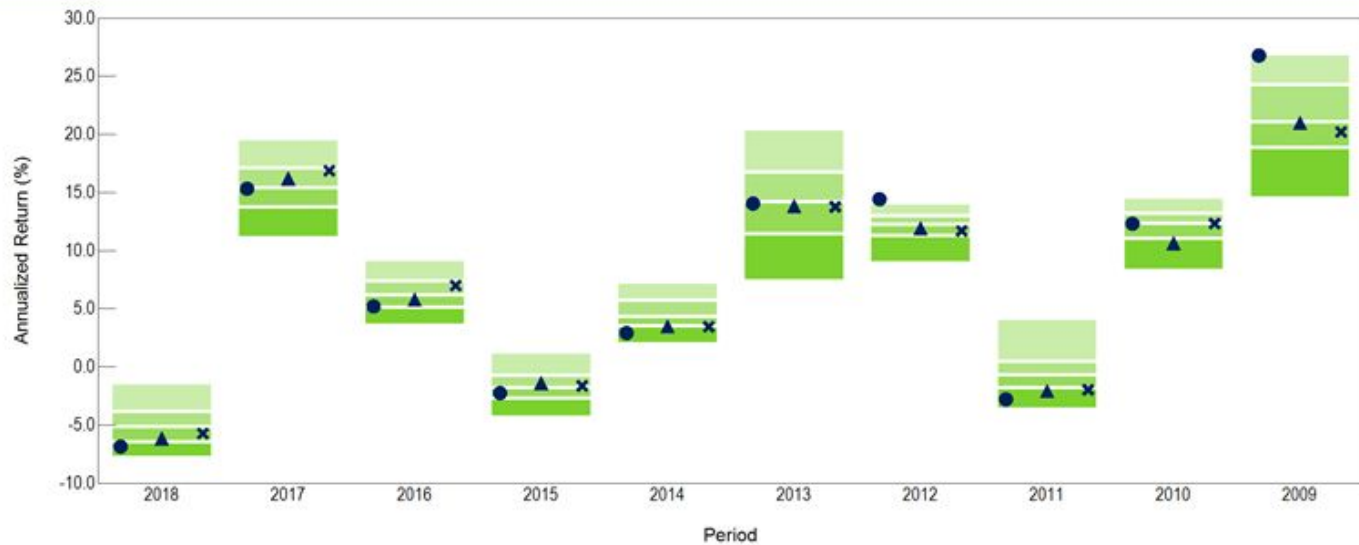


	Return (Rank)															
	QTD		Fiscal YTD		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
5th Percentile	-4.6	(47)	-1.9	(79)	-1.4	(85)	6.8	(82)	7.2	(89)	5.7	(93)	8.4	(82)	9.5	(71)
25th Percentile	-6.9	(52)	-4.8	(58)	-3.8	(71)	5.5	(57)	6.0	(70)	4.4	(73)	7.3	(76)	8.6	(85)
Median	-8.1	(49)	-5.9	(53)	-5.1	(61)	4.7	(41)	5.4	(38)	3.7	(53)	6.7	(67)	8.1	(79)
75th Percentile	-8.9		-6.8		-6.4		3.9		4.7		3.3		6.0		7.4	
95th Percentile	-11.2		-8.3		-7.8		2.4		3.5		2.4		5.2		6.3	
# of Portfolios	235		235		231		228		222		205		190		175	
● MIP Composite	-8.0	(47)	-6.9	(79)	-6.8	(85)	3.6	(82)	4.2	(89)	2.6	(93)	5.8	(82)	7.5	(71)
▲ Allocation Index	-8.2	(52)	-6.1	(58)	-6.1	(71)	4.4	(57)	4.9	(70)	3.3	(73)	6.0	(76)	7.0	(85)
× Policy Index	-8.1	(49)	-5.9	(53)	-5.7	(61)	5.0	(41)	5.6	(38)	3.7	(53)	6.2	(67)	7.3	(79)



# RETURNS VS. PEER UNIVERSE

MIP Composite vs. InvestorForce All E&F \$100mm - \$500mm Net

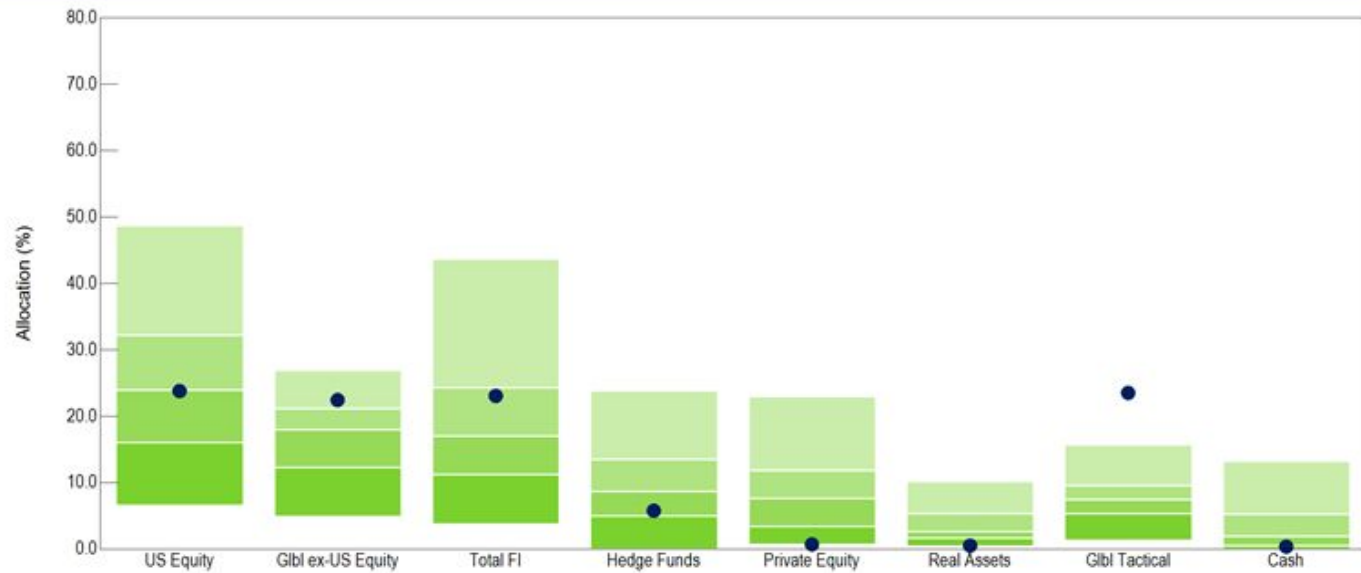


	Return (Rank)										
5th Percentile	-1.4	19.6	9.2	1.3	7.3	20.5	14.1	4.2	14.6	26.9	
25th Percentile	-3.8	17.2	7.4	-0.7	5.7	16.8	13.0	0.5	13.3	24.3	
Median	-5.1	15.4	6.2	-1.7	4.4	14.2	12.3	-0.6	12.4	21.1	
75th Percentile	-6.4	13.8	5.2	-2.7	3.6	11.5	11.3	-1.8	11.1	18.9	
95th Percentile	-7.8	11.1	3.6	-4.3	2.0	7.4	9.0	-3.6	8.3	14.6	
# of Portfolios	231	177	186	142	98	75	78	75	70	69	
● MIP Composite	-6.8 (85)	15.3 (53)	5.2 (75)	-2.2 (64)	2.9 (86)	14.1 (54)	14.4 (3)	-2.8 (90)	12.3 (53)	26.8 (9)	
▲ Allocation Index	-6.1 (71)	16.2 (37)	5.8 (58)	-1.4 (44)	3.5 (77)	13.9 (57)	11.9 (58)	-2.1 (79)	10.7 (83)	21.0 (52)	
× Policy Index	-5.7 (61)	16.9 (29)	7.0 (36)	-1.6 (48)	3.5 (78)	13.8 (57)	11.7 (64)	-2.0 (78)	12.3 (51)	20.2 (66)	



# ALLOCATIONS VS. PEER UNIVERSE

Total Plan Allocation vs. InvestorForce All E&F \$100mm - \$500mm Net



	US Equity		Gbl ex-US Equity		Total FI		Hedge Funds		Private Equity		Real Assets		Gbl Tactical		Cash	
5th Percentile	48.6	26.9	43.7	23.8	22.9	10.1	15.7	13.2								
25th Percentile	32.2	21.2	24.3	13.5	11.9	5.4	9.6	5.3								
Median	24.0	18.1	17.1	8.7	7.7	2.7	7.5	2.0								
75th Percentile	16.2	12.3	11.3	5.0	3.5	1.7	5.4	0.6								
95th Percentile	6.6	5.0	3.8	0.1	0.8	0.5	1.4	0.0								
# of Portfolios	126	153	159	92	128	65	25	145								
● MIP Composite	23.8	(52)	22.4	(22)	23.0	(30)	5.8	(72)	0.7	(97)	0.5	(94)	23.5	(1)	0.3	(88)



# TOTAL PLAN PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)
<b>MIP Composite</b>	<b>305,768,503</b>	<b>100.0</b>	<b>100.0</b>	<b>-8.0</b>	<b>-6.9</b>	<b>-6.8</b>	<b>3.6</b>	<b>4.2</b>	<b>2.6</b>	<b>5.8</b>	<b>7.5</b>
Allocation Index				-8.2	-6.1	-6.1	4.4	4.9	3.3	6.0	7.0
Policy Index				-8.1	-5.9	-5.7	5.0	5.6	3.7	6.2	7.3
<b>Total Domestic Large Cap</b>	<b>55,152,258</b>	<b>18.0</b>	<b>16.0</b>	<b>-13.5</b>	<b>-6.9</b>	<b>-4.4</b>	<b>7.8</b>	<b>9.2</b>	<b>8.4</b>	<b>12.5</b>	<b>13.5</b>
S&P 500				-13.5	-6.9	-4.4	7.9	9.3	8.5	12.7	13.1
SSgA S&P 500	55,152,258	18.0	16.0	-13.5	-6.9	-4.4	7.8	9.2	8.4	12.6	13.1
S&P 500				-13.5	-6.9	-4.4	7.9	9.3	8.5	12.7	13.1
<b>Total Domestic Small/Mid Cap</b>	<b>17,536,157</b>	<b>5.7</b>	<b>6.0</b>	<b>-19.9</b>	<b>-17.5</b>	<b>-11.6</b>	<b>3.1</b>	<b>7.1</b>	<b>4.3</b>	<b>11.0</b>	<b>12.9</b>
Russell 2500				-18.5	-14.7	-10.0	2.5	7.3	5.1	11.0	13.2
Westfield Capital	8,372,931	2.7	3.0	-19.7	-16.1	-7.8	9.8	7.8	5.5	11.6	14.8
Russell 2500 Growth				-20.1	-14.4	-7.5	7.3	8.1	6.2	12.0	14.8
DFA	9,163,226	3.0	3.0	-20.0	-18.8	-15.8	-3.9	5.4	2.6	9.9	--
Russell 2000 Value				-18.7	-17.4	-12.9	-3.1	7.4	3.6	9.6	10.4
<b>Total International Equity (including emerging markets)</b>	<b>68,536,341</b>	<b>22.4</b>	<b>23.0</b>	<b>-11.2</b>	<b>-13.0</b>	<b>-15.8</b>	<b>3.4</b>	<b>2.4</b>	<b>0.1</b>	<b>4.5</b>	<b>6.8</b>
MSCI EAFE				-12.5	-11.4	-13.8	3.8	2.9	0.5	5.8	6.3
Morgan Stanley	18,787,807	6.1	6.3	-12.6	-12.3	-13.8	3.8	1.9	-0.1	5.3	5.5
Globeflex	17,814,210	5.8	6.3	-16.6	-17.1	-17.8	3.4	2.0	0.7	6.2	6.8
MSCI EAFE				-12.5	-11.4	-13.8	3.8	2.9	0.5	5.8	6.3
Kabouter International Opportunities Offshore Fund II	10,136,408	3.3	3.5	-13.9	-18.0	-18.4	--	--	--	--	--
MSCI EAFE Small Cap				-16.0	-16.8	-17.9	4.5	3.7	3.1	8.8	10.5
<b>Emerging Markets Equity</b>	<b>21,797,916</b>	<b>7.1</b>	<b>7.0</b>	<b>-3.2</b>	<b>-7.1</b>	<b>-15.0</b>	<b>3.2</b>	<b>3.4</b>	<b>-0.5</b>	<b>1.8</b>	<b>--</b>
MSCI Emerging Markets				-7.5	-8.5	-14.6	8.3	9.2	1.6	3.2	8.0
Aberdeen Emerging Mkts	11,007,187	3.6	3.5	-3.4	-4.0	-14.6	5.5	7.6	0.9	2.9	9.4
MSCI Emerging Markets				-7.5	-8.5	-14.6	8.3	9.2	1.6	3.2	8.0
Mondrian EM Small Cap	10,790,729	3.5	3.5	-3.1	-10.0	-15.6	0.6	-0.8	--	--	--
MSCI Emerging Markets Small Cap				-7.2	-11.1	-18.6	4.4	3.7	1.0	3.8	9.9
<b>Total Fixed Income</b>	<b>70,438,327</b>	<b>23.0</b>	<b>21.0</b>	<b>-0.7</b>	<b>-0.4</b>	<b>-0.3</b>	<b>2.4</b>	<b>3.4</b>	<b>2.7</b>	<b>3.7</b>	<b>5.6</b>
BBgBarc US Aggregate TR				1.6	1.7	0.0	1.8	2.1	2.5	2.1	3.5
Commonfund	18,255,618	6.0	5.0	0.7	1.2	0.2	2.6	2.9	2.8	3.2	5.3
BBgBarc US Aggregate TR				1.6	1.7	0.0	1.8	2.1	2.5	2.1	3.5
Vanguard Inflation-Protected Securities	26,449,492	8.7	8.0	-0.5	-1.3	-1.4	0.8	--	--	--	--
BBgBarc US TIPS TR				-0.4	-1.2	-1.3	0.8	2.1	1.7	0.9	3.6
Blackrock Strategic Income Opportunities	10,086,346	3.3	3.0	-0.5	0.0	--	--	--	--	--	--
3-Month Libor Total Return USD				0.7	1.3	2.4	1.8	1.5	1.0	0.8	0.7
Bain Capital Senior Loan Fund	14,047,819	4.6	5.0	-2.9	--	--	--	--	--	--	--
Credit Suisse Leveraged Loans				-3.1	-1.2	1.1	2.7	5.0	3.3	4.6	8.3
Guggenheim US Bank Loans	1,599,052	0.5									



# TOTAL PLAN PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)
<b>Total GAA</b>	<b>71,841,351</b>	<b>23.5</b>	<b>23.0</b>	<b>-4.1</b>	<b>-4.5</b>	<b>-5.8</b>	<b>2.6</b>	<b>3.2</b>	<b>1.2</b>	<b>3.5</b>	<b>5.9</b>
65% MSCI ACWI (Net) / 35% BBgBarc Global Agg				-8.0	-5.7	-6.4	5.1	5.4	3.3	5.9	7.2
GMO Global Absolute Return	24,230,066	7.9	7.7	-4.2	-4.2	-6.2	3.2	3.4	1.5	3.8	4.9
Blended Index				-1.3	-0.2	-1.1	2.2	3.5	3.1	3.4	5.5
Wellington	23,020,604	7.5	7.7	-7.0	-9.8	-12.0	1.6	3.0	1.9	4.7	6.4
65% MSCI ACWI (Net) / 35% BBgBarc Global Agg				-8.0	-5.7	-6.4	5.1	5.4	3.3	5.9	7.2
Newton Global Real Return	24,590,681	8.0	7.7	-1.4	0.6	1.2	2.7	--	--	--	--
60% MSCI ACWI (Net)/ 40% BBgBarc Global Agg				-7.3	-5.3	-6.0	4.9	5.2	3.1	5.5	6.8
<b>Total Hedge Funds</b>	<b>17,582,499</b>	<b>5.8</b>	<b>6.0</b>	<b>-8.4</b>	<b>-8.3</b>	<b>-5.6</b>	<b>-0.1</b>	<b>0.8</b>	<b>0.2</b>	<b>1.9</b>	<b>2.8</b>
HFRI Fund of Funds Composite Index				-5.0	-4.8	-4.1	1.7	1.3	1.4	2.9	3.1
Lighthouse	17,582,499	5.8	6.0	-8.4	-8.3	-3.6	1.7	1.2	--	--	--
Credit Suisse Long Shrt Eqd USD				-6.7	-5.2	-4.6	4.0	1.5	2.7	5.5	5.8
<b>Total Real Assets</b>	<b>1,538,178</b>	<b>0.5</b>	<b>3.0</b>	<b>-5.1</b>	<b>-5.8</b>	<b>-6.3</b>	<b>-2.3</b>	<b>-3.4</b>	<b>-0.2</b>	<b>3.7</b>	<b>--</b>
NCREIF Timberland Index				1.0	2.0	3.4	3.5	3.3	5.0	6.1	3.8
John Hancock Timber Fund	1,538,178	0.5	3.0	-5.1	-5.8	-6.3	-2.3	-3.4	-0.2	3.7	0.0
NCREIF Timberland Index				1.0	2.0	3.4	3.5	3.3	5.0	6.1	3.8
<b>Private Equity</b>	<b>2,092,968</b>	<b>0.7</b>	<b>2.0</b>	<b>0.5</b>	<b>5.8</b>	<b>9.6</b>	<b>15.5</b>	<b>15.1</b>	<b>--</b>	<b>--</b>	<b>--</b>
Landmark Equity Partners XV	2,092,968	0.7	2.0	0.5	5.8	9.6	15.5	15.1	--	--	--
Cambridge Associates US All PE (1 Qtr Lag)				3.8	9.4	18.0	17.5	14.5	13.4	14.3	12.1
<b>Total Cash</b>	<b>1,050,425</b>	<b>0.3</b>	<b>0.0</b>								
Distribution Account	1,050,425	0.3	0.0	0.4	0.9	1.6	1.1	0.7	0.4	0.3	0.3
91 Day T-Bills				0.6	1.1	1.9	1.4	1.1	0.6	0.5	0.4

## Notes:

Fiscal YTD begins 7/1

Blended Index: 40% BC Aggregate, 30% BC U.S. TIPS 1-10YR, 10% S&amp;P 500, 10% BC High Yield, 10% JPM EMBI+

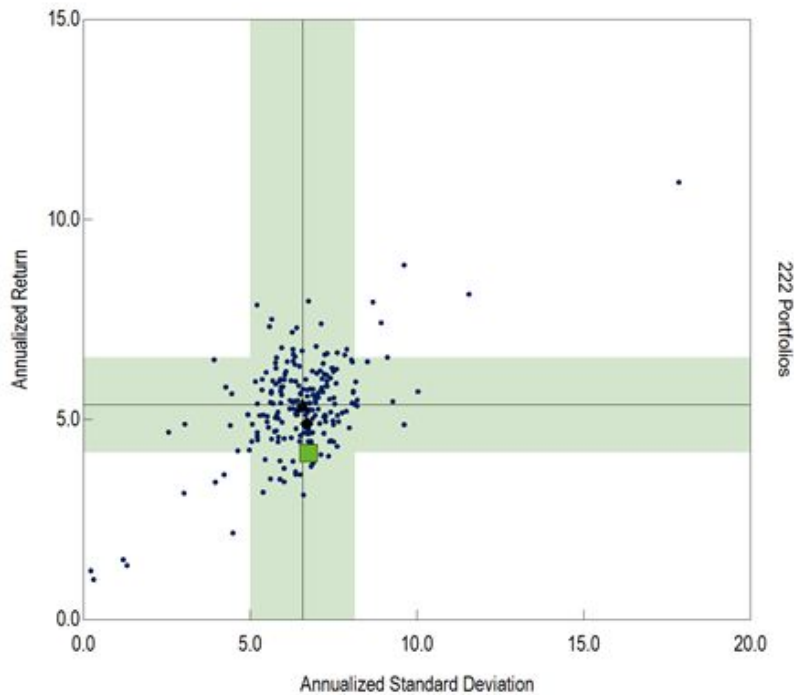
Returns are net of manager fees

John Hancock Timber market value as of 12/31/18

Landmark market value as of 12/31/18

# TOTAL PLAN RISK/RETURN - 3 YEAR

3 Years Ending December 31, 2018



- MIP Composite
- ◆ Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce All E&F \$100mm - \$500mm Net

3 Years Ending December 31, 2018				
	Anlzd Ret	Rank	Anlzd Std Dev	Rank
MIP Composite	4.2%	89	6.8%	60
Allocation Index	4.9%	70	6.7%	55
Policy Index	5.6%	38	6.8%	61
InvestorForce All E&F \$100mm - \$500mm Net Median	5.4%	--	6.6%	--

3 Years Ending December 31, 2018				
	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
MIP Composite	0.5	91	0.5	88
Allocation Index	0.6	71	0.6	68
Policy Index	0.7	44	0.7	37
InvestorForce All E&F \$100mm - \$500mm Net Median	0.7	--	0.7	--

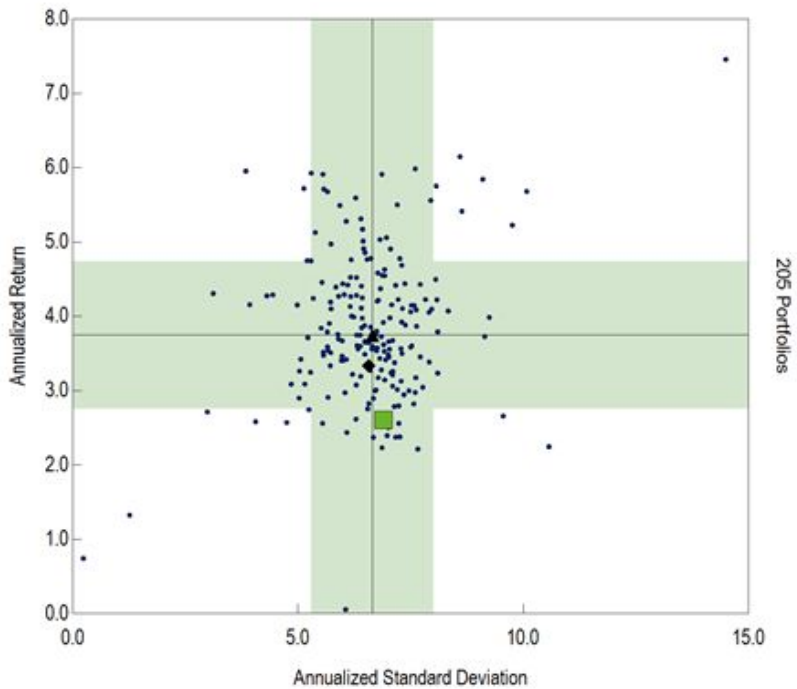
\*Returns are net of fees.





# TOTAL PLAN RISK/RETURN - 5 YEAR

5 Years Ending December 31, 2018



5 Years Ending December 31, 2018				
	Anlzd Ret	Rank	Anlzd Std Dev	Rank
MIP Composite	2.6%	93	6.9%	62
Allocation Index	3.3%	73	6.6%	47
Policy Index	3.7%	53	6.6%	48
InvestorForce All E&F \$100mm - \$500mm Net Median	3.7%	--	6.7%	--

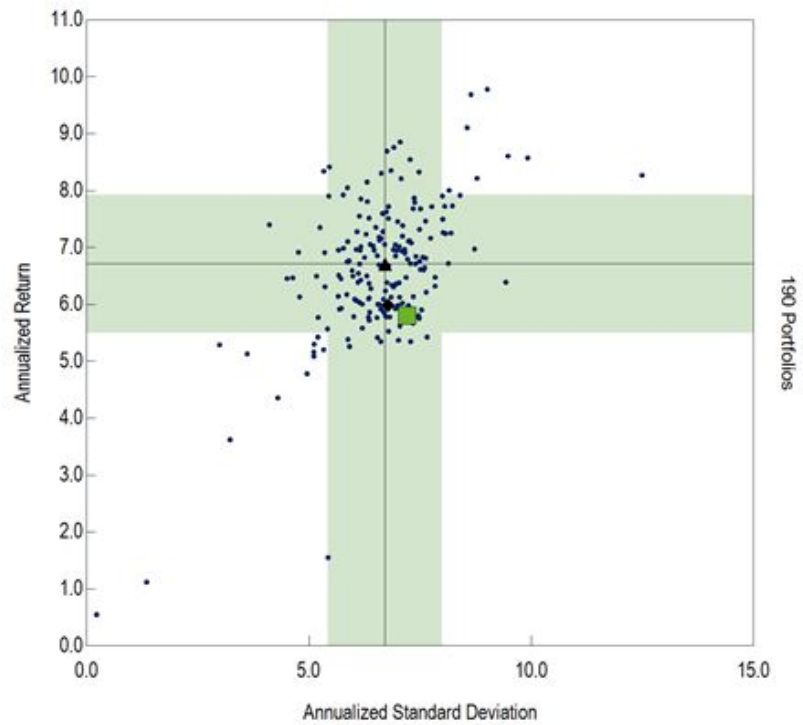
5 Years Ending December 31, 2018				
	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
MIP Composite	0.3	95	0.4	92
Allocation Index	0.4	71	0.5	72
Policy Index	0.5	53	0.6	51
InvestorForce All E&F \$100mm - \$500mm Net Median	0.5	--	0.6	--

\*Returns are net of fees.



# TOTAL PLAN RISK/RETURN - 7 YEAR

7 Years Ending December 31, 2018



7 Years Ending December 31, 2018				
	Anlzd Ret	Rank	Anlzd Std Dev	Rank
MIP Composite	5.8%	82	7.2%	72
Allocation Index	6.0%	76	6.8%	54
Policy Index	6.2%	67	6.7%	51
InvestorForce All E&F \$100mm - \$500mm Net Median	6.7%	--	6.7%	--

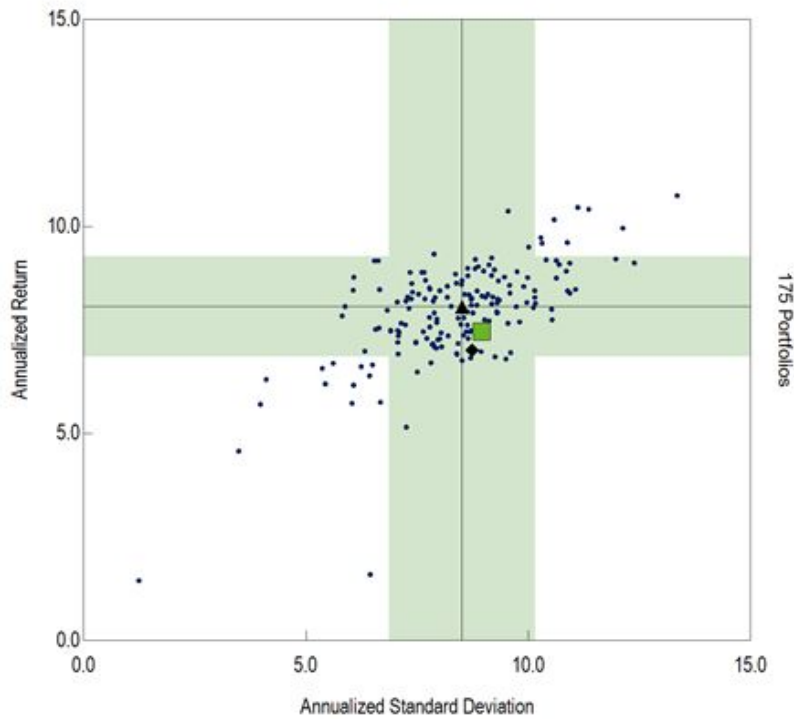
7 Years Ending December 31, 2018				
	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
MIP Composite	0.7	93	1.0	89
Allocation Index	0.8	81	1.0	78
Policy Index	0.9	68	1.1	63
InvestorForce All E&F \$100mm - \$500mm Net Median	0.9	--	1.2	--

\*Returns are net of fees.



# TOTAL PLAN RISK/RETURN - 10 YEAR

10 Years Ending December 31, 2018



10 Years Ending December 31, 2018				
	Anlzd Ret	Rank	Anlzd Std Dev	Rank
MIP Composite	7.5%	71	9.0%	66
Allocation Index	7.0%	85	8.7%	60
Policy Index	7.3%	79	8.5%	51
InvestorForce All E&F \$100mm - \$500mm Net Median	8.1%	--	8.5%	--

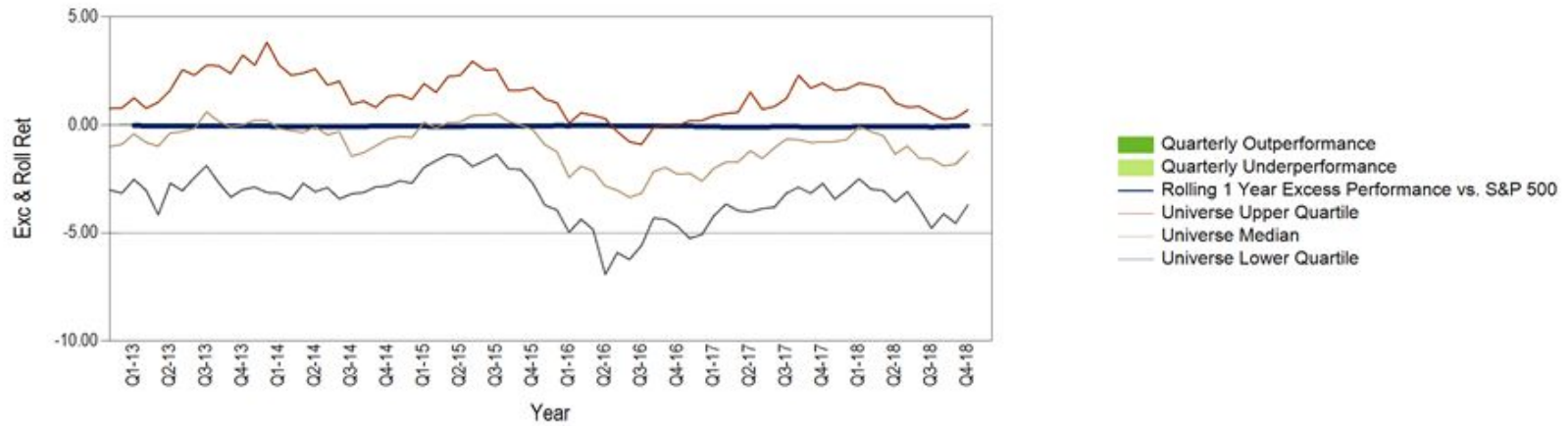
10 Years Ending December 31, 2018				
	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
MIP Composite	0.8	83	1.2	78
Allocation Index	0.8	91	1.1	91
Policy Index	0.8	77	1.2	68
InvestorForce All E&F \$100mm - \$500mm Net Median	0.9	--	1.3	--

\*Returns are net of fees.

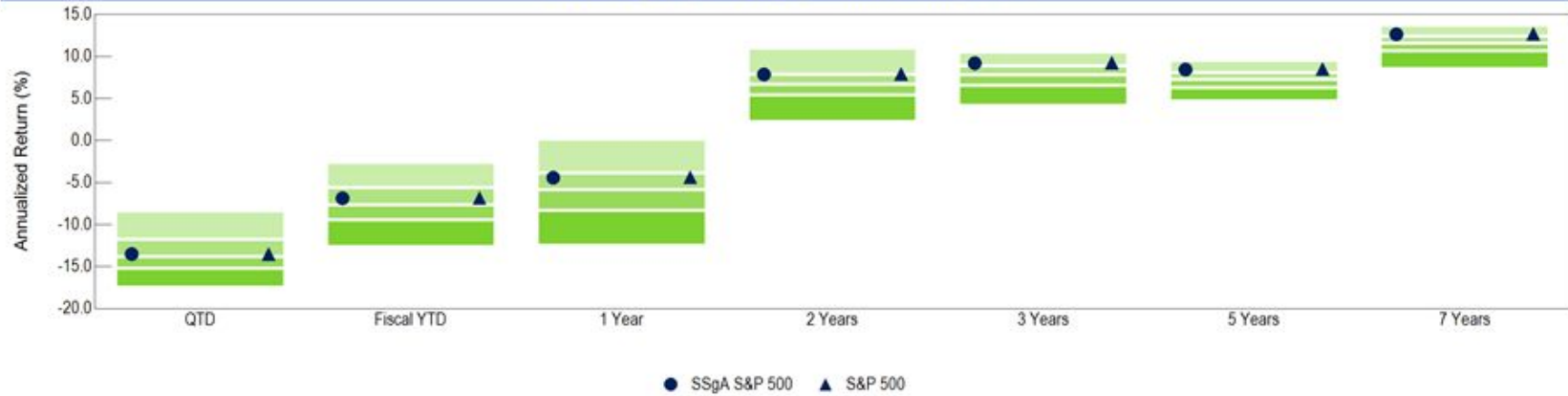


# SSgA S&P 500

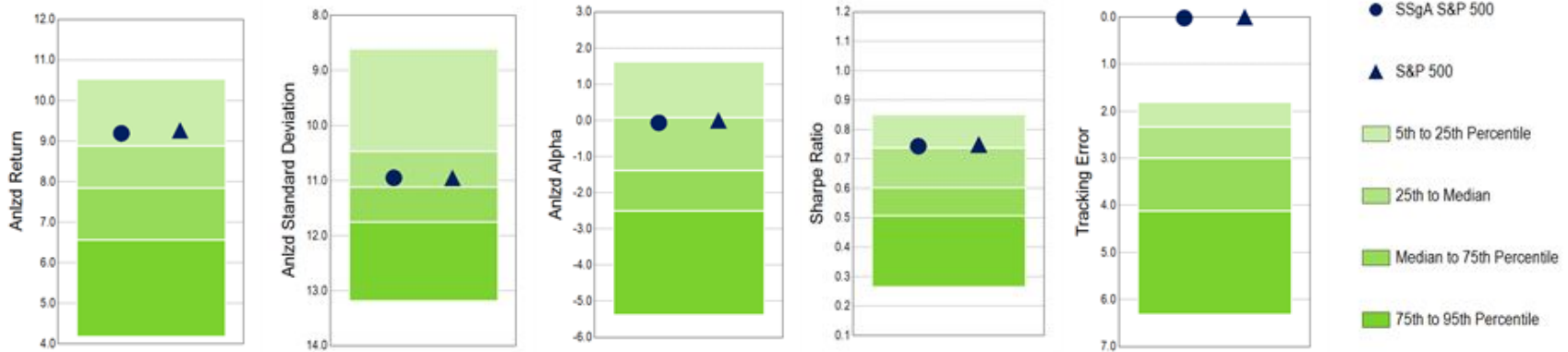
Annualized Excess Performance



eV US Large Cap Core Equity Net Return Comparison



# SSgA S&P 500



\*Returns are net of fees.



## SSgA S&amp;P 500

Characteristics		
	Portfolio	S&P 500
Number of Holdings	507	505
Weighted Avg. Market Cap. (\$B)	183.6	183.2
Median Market Cap. (\$B)	18.4	18.5
Price To Earnings	23.4	20.7
Price To Book	5.9	4.6
Price To Sales	4.3	4.1
Return on Equity (%)	26.2	23.8
Yield (%)	2.2	2.2
Beta		1.0
R-Squared		1.0

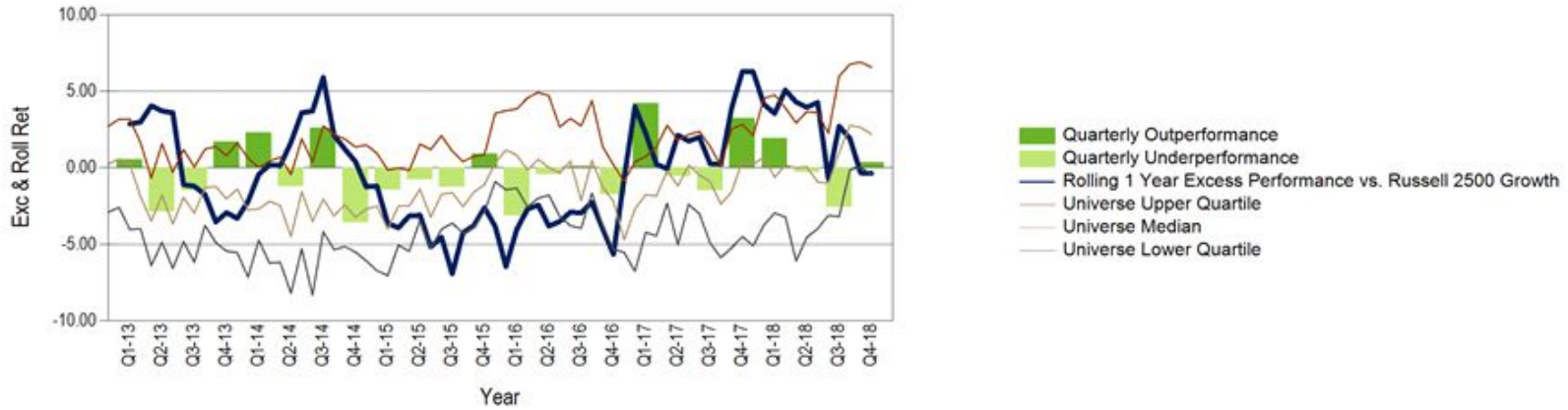
Equity Sector Attribution											
	Total Effects	Selection Effect	Attribution Effects			Returns		Ending Sector Weights			
			Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.0%	0.0%	0.0%	0.0%	0.0%	-23.6%	-23.6%	5.3%	5.3%		
Materials	0.0%	0.0%	0.0%	0.0%	0.0%	-12.9%	-13.0%	2.7%	2.7%		
Industrials	0.0%	0.0%	0.0%	0.0%	0.0%	-17.4%	-17.4%	9.2%	9.2%		
Consumer Discretionary	0.0%	0.0%	0.0%	0.0%	0.0%	-16.4%	-16.4%	9.9%	9.9%		
Consumer Staples	0.0%	0.0%	0.0%	0.0%	0.0%	-5.2%	-5.2%	7.4%	7.4%		
Health Care	0.0%	0.0%	0.0%	0.0%	0.0%	-8.9%	-8.9%	15.5%	15.5%		
Financials	0.0%	0.0%	0.0%	0.0%	0.0%	-13.1%	-13.1%	13.4%	13.3%		
Information Technology	0.0%	0.0%	0.0%	0.0%	0.0%	-17.4%	-17.4%	20.1%	20.1%		
Communication Services	0.0%	0.0%	0.0%	0.0%	0.0%	-13.2%	-13.2%	10.1%	10.1%		
Utilities	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	1.4%	3.3%	3.3%		
Real Estate	0.0%	0.0%	0.0%	0.0%	0.0%	-3.8%	-3.8%	2.9%	3.0%		
Cash	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	--	0.1%	0.0%		
Unclassified	0.0%	--	--	--	--	--	--	0.0%	0.0%		
<b>Portfolio</b>	<b>0.0%</b>	<b>=</b>	<b>0.0%</b>	<b>+</b>	<b>0.0%</b>	<b>+</b>	<b>0.0%</b>	<b>-13.6%</b>	<b>-13.6%</b>	<b>100.0%</b>	<b>100.0%</b>

\*Attribution on manager pages is holdings based, using buy-and-hold assumptions from the beginning of period portfolio. Results may differ from actual performance. Returns are net of fees.



# WESTFIELD CAPITAL

**Annualized Excess Performance**



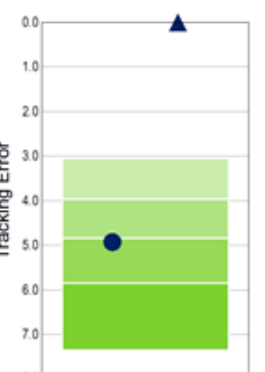
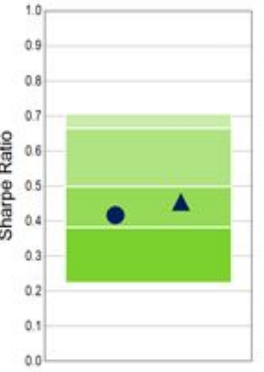
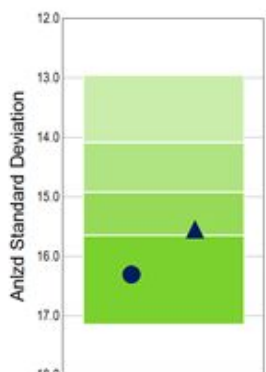
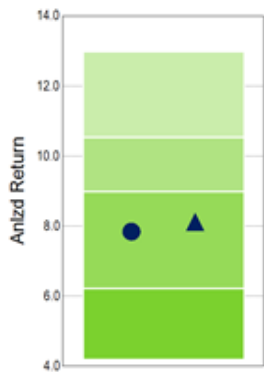
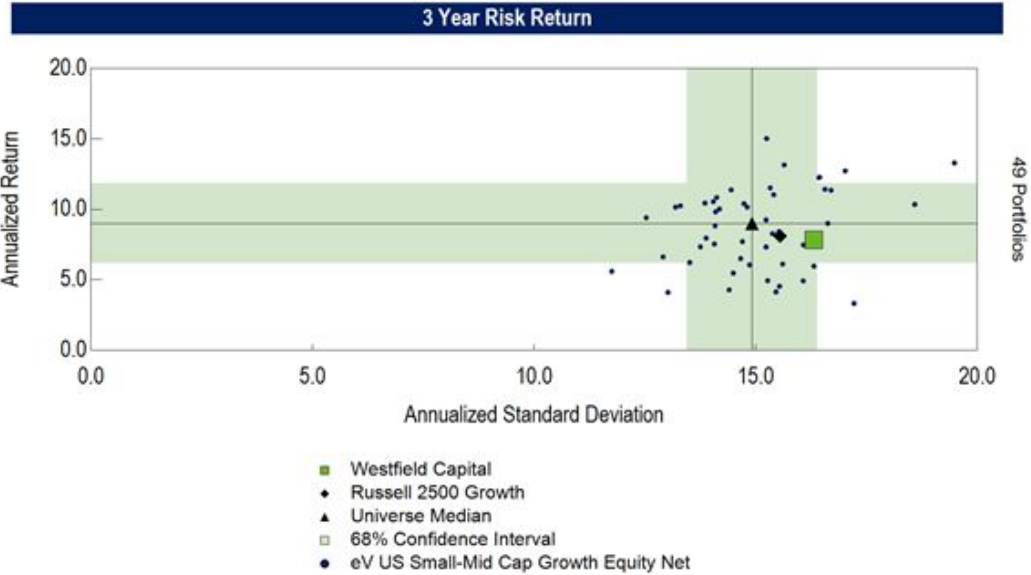
**eV US Small-Mid Cap Growth Equity Net Return Comparison**



\*Returns are net of fees.



# WESTFIELD CAPITAL



\*Returns are net of fees.





# WESTFIELD CAPITAL

Characteristics	Russell 2500 Growth	
	Portfolio	
Number of Holdings	65	1,508
Weighted Avg. Market Cap. (\$B)	7.8	4.6
Median Market Cap. (\$B)	6.4	1.0
Price To Earnings	23.4	18.6
Price To Book	5.8	5.7
Price To Sales	4.1	4.0
Return on Equity (%)	13.4	15.1
Yield (%)	0.9	0.7
Beta		1.0
R-Squared		1.0

Top Positive Contributors	Relative	
	Contribution %	Return %
NEUROCRINE BIOSCIENCES	0.2%	-41.9%
ZAYO GROUP HOLDINGS	0.1%	-34.2%
FIVE BELOW	0.1%	-21.3%
LUMENTUM HOLDINGS	0.0%	-29.9%
SIX FLAGS ENTM.	0.0%	-19.3%
CHAS.RVR.LABS.INTL.	0.0%	-15.9%
MARVELL TECH.GROUP	0.0%	-15.5%
SUN COMMUNITIES	0.0%	0.9%
LENNOX INTL.	0.0%	0.5%
NUTANIX CL.A	0.0%	-2.6%

Top Negative Contributors	Relative	
	Contribution %	Return %
WPX ENERGY	-0.6%	-43.6%
DIAMONDBACK ENERGY	-0.6%	-31.4%
FLIR SYSTEMS	-0.6%	-28.9%
REALPAGE	-0.5%	-26.9%
FLOWSERVE	-0.5%	-30.5%
PENN NAT.GAMING	-0.5%	-42.8%
HUNT JB TRANSPORT SVS.	-0.5%	-21.6%
CRANE	-0.5%	-26.3%
TOTAL SYSTEM SERVICES	-0.5%	-17.5%
COMMSCOPE HLDG.CO. (BER)	-0.5%	-45.1%

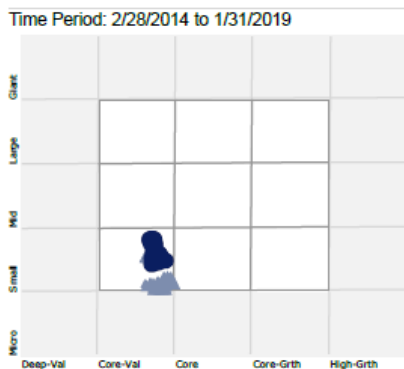
	Equity Sector Attribution										
	Total	Attribution Effects				Returns		Ending Sector Weights			
		Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark		
Energy	-0.3%	0.1%	-0.6%	0.2%	-35.9%	-42.7%	4.1%	1.1%			
Materials	0.1%	0.1%	0.0%	0.0%	-18.2%	-20.7%	5.6%	4.4%			
Industrials	0.4%	0.4%	0.0%	0.0%	-17.7%	-20.1%	14.6%	16.8%			
Consumer Discretionary	0.1%	0.2%	0.0%	-0.1%	-18.7%	-19.9%	9.1%	15.1%			
Consumer Staples	-0.1%	--	-0.1%	--	--	-13.4%	0.0%	2.1%			
Health Care	0.3%	0.1%	0.2%	0.0%	-22.9%	-23.4%	18.9%	22.2%			
Financials	0.2%	0.0%	0.1%	0.0%	-16.1%	-16.6%	9.4%	7.1%			
Information Technology	-0.7%	-0.7%	0.1%	-0.1%	-21.3%	-18.5%	29.8%	24.7%			
Communication Services	0.0%	0.0%	0.0%	0.0%	-17.2%	-17.9%	3.9%	3.4%			
Utilities	0.0%	--	0.0%	--	--	1.7%	0.0%	0.3%			
Real Estate	0.2%	0.2%	0.0%	0.0%	-4.7%	-10.8%	4.4%	2.8%			
Cash	0.4%	0.0%	0.4%	0.0%	0.6%	--	0.2%	0.0%			
<b>Portfolio</b>	<b>0.5%</b>	<b>=</b>	<b>0.5%</b>	<b>+</b>	<b>0.0%</b>	<b>+</b>	<b>0.0%</b>	<b>-19.6%</b>	<b>-20.1%</b>	<b>100.0%</b>	<b>100.0%</b>

\*Attribution on manager pages is holdings based, using buy-and-hold assumptions from the beginning of period portfolio. Results may differ from actual performance. Returns are net of fees.



# DFA US TARGETED VALUE I

## Holdings Based Style Trail (5 Years)



• DFA US Targeted Value I    • Russell 2000 Value TR USD

## Portfolio Statistics

	Fund	Index
# of Holdings	1,520	1,378
% Asset in Top 10 Holdings	6.1	4.7
Turnover Ratio %	23.0	
P/E Ratio	10.9	12.6
P/B Ratio	1.1	1.3
LT Eam Growth	12.1	11.7
Hist Eam Growth	6.9	2.2
12 Mo Yield	1.1	

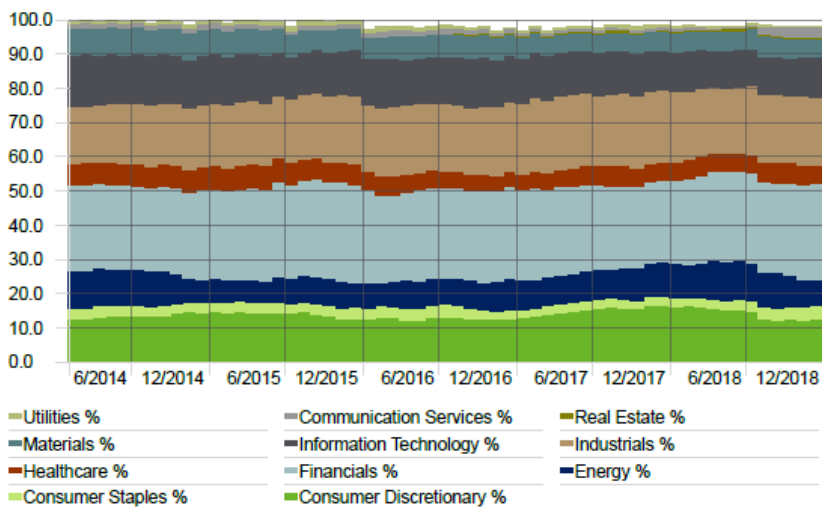
## Market Capitalization Breakdown

	Fund	Index
Market Cap Giant %	0.0	0.0
Market Cap Large %	0.1	0.0
Market Cap Mid %	34.7	15.4
Market Cap Small %	54.8	69.9
Market Cap Micro %	10.4	14.7
Average Market Cap (mil)	1,962.3	1,444.3

## Top 10 Holdings

	Portf Weight %	3 Month Ret %
Arrow Electronics Inc	0.74	-6.47
S+p500 Emini Fut Mar19 Xome 20190315	0.74	
Toll Brothers Inc	0.62	0.03
People's United Financial Inc	0.61	-14.69
Reliance Steel & Aluminum Co	0.58	-15.97
Post Holdings Inc	0.58	-9.09
Assured Guaranty Ltd	0.58	-8.97
Avnet Inc	0.57	-18.92
Assurant Inc	0.57	-16.59
Quanta Services Inc	0.53	-9.71

## Historical Sector Allocations (5 Years)



## Attribution (Quarter)

	Portfolio Weights	Benchmark Weights	Portfolio Return	Benchmark Return	Allocation Effect	Selection Effect	Active Return
Communication Services	2.91	3.13	-11.86	-18.76	-0.01	0.20	0.19
Consumer Discretionary	12.31	9.49	-17.27	-19.09	-0.01	0.23	0.21
Consumer Staples	3.56	2.57	-10.47	-14.22	0.04	0.14	0.18
Energy	9.27	6.88	-41.49	-41.21	-0.62	0.00	-0.63
Financials	27.04	28.59	-16.67	-15.78	-0.03	-0.24	-0.27
Health Care	5.73	4.81	-22.63	-29.75	-0.12	0.44	0.32
Industrials	19.76	11.73	-19.53	-19.78	-0.08	0.05	-0.03
Information Technology	11.03	10.26	-14.47	-14.84	0.05	0.04	0.09
Materials	5.64	4.24	-25.75	-27.30	-0.13	0.10	-0.03
Real Estate	0.41	11.52	-21.74	-14.70	-0.43	-0.03	-0.46
Utilities	0.10	6.39	-2.69	-2.30	-0.97	0.00	-0.97
Attribution Total	97.76	99.61	-20.13	-18.72	-2.33	0.92	-1.41
Cash	1.05	0.00					
Other	0.82	0.00					
Total	100.00	100.00					
Expense Ratio			0.07	0.00			
Residual(Reported - Attribution + Expense)			0.21	0.05			



Source: Morningstar

# DFA US TARGETED VALUE I

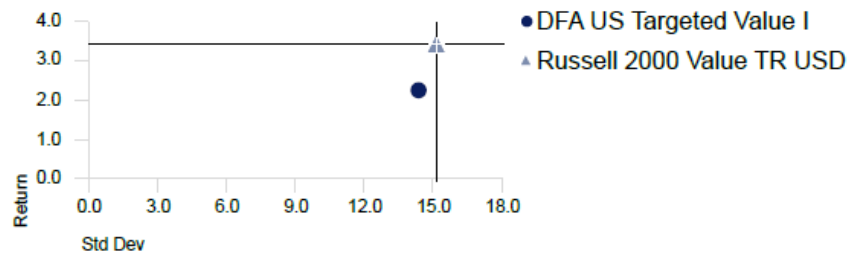
## Risk & Return Characteristics (5 Years)

Time Period: 4/1/2014 to 12/31/2018

	Fund	Index
R2	93.4	100.0
Alpha	-0.9	0.0
Beta	0.9	1.0
Std Dev	14.4	15.1
Up Capture Ratio	86.6	100.0
Down Capture Ratio	94.2	100.0
Sharpe Ratio (geo)	0.1	0.2
Information Ratio (geo)	-0.3	
Tracking Error	3.9	0.0
Correlation	1.0	1.0

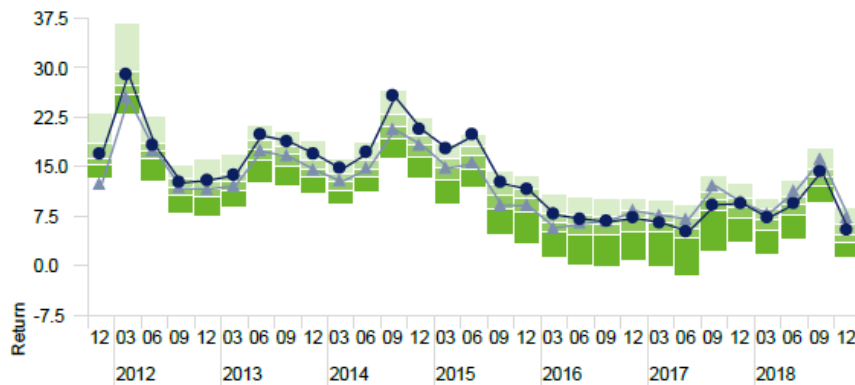
## Risk & Return Illustration (5 Years)

Time Period: 4/1/2014 to 12/31/2018



## Rolling Return (3 Years)

Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile

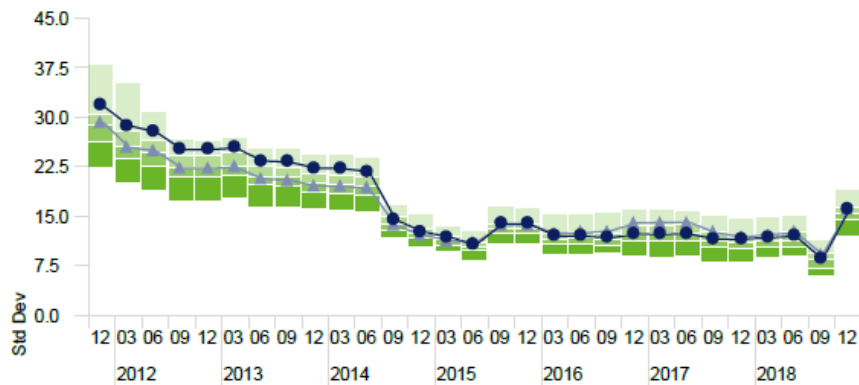


—DFA US Targeted Value I

—Russell 2000 Value TR USD

## Rolling Risk (3 Years)

Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



—DFA US Targeted Value I

—Russell 2000 Value TR USD

## Calendar Year Returns

	2009	Rank	2010	Rank	2011	Rank	2012	Rank	2013	Rank	2014	Rank	2015	Rank	2016	Rank	2017	Rank	2018	Rank
DFA US Targeted Value I	31.9	37	29.0	24	-6.3	72	19.2	23	43.0	10	2.9	65	-5.7	46	26.9	40	9.6	40	-15.8	55
Russell 2000 Value TR USD	20.6		24.5		-5.5		18.1		34.5		4.2		-7.5		31.7		7.8		-12.9	

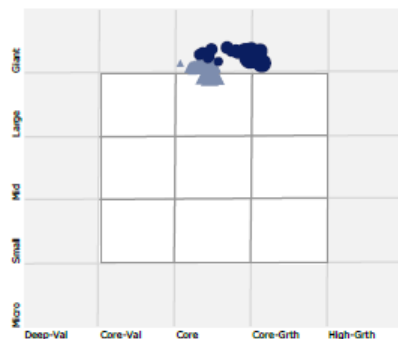


Source: Morningstar

# MORGAN STANLEY INTERNATIONAL EQUITY I

## Holdings Based Style Trail (5 Years)

Time Period: 2/28/2014 to 1/31/2019



Morgan Stanley Inst International Eq I
  MSCI EAFE NR USD

## Portfolio Statistics

	Fund	Index
# of Holdings	62	921
% Asset in Top 10 Holdings	35.2	11.9
Turnover Ratio %	18.0	
P/E Ratio	12.2	13.0
P/B Ratio	2.0	1.5
LT Eam Growth	9.2	8.9
Hist Eam Growth	28.1	2.2
12 Mo Yield	2.4	

## Market Capitalization Breakdown

	Fund	Index
Market Cap Giant %	59.8	50.0
Market Cap Large %	34.8	36.7
Market Cap Mid %	4.7	13.2
Market Cap Small %	0.7	0.0
Market Cap Micro %	0.0	0.0
Average Market Cap	45,375.5	32,128.7
Equity Region Developed %	96.2	99.5
Equity Region Emerging %	3.8	0.5

## Top Ten Holdings

	Port Weight %	3 Month Return
Reckitt Benckiser Group PLC	4.42	-16.30
Unilever NV DR	4.30	-1.90
Kirin Holdings Co Ltd	3.53	-17.40
Novartis AG	3.53	-1.34
GlaxoSmithKline PLC	3.37	-4.03
RELX PLC	3.34	-2.31
Sanofi SA	3.32	-2.74
SAP SE	3.21	-19.29
Pemod Ricard SA	3.11	0.75
Henkel AG & Co KGaA Participating Preferred	3.07	-7.08

## Sector Attribution (Quarter)

	Portfolio Weights	Benchmark Weights	Portfolio Return	Benchmark Return	Allocation Effect	Selection Effect	Active Return
Communication Services	4.23	5.46	2.03	-9.83	-0.04	0.50	0.46
Consumer Discretionary	2.66	11.15	-13.07	-14.66	0.18	0.04	0.22
Consumer Staples	31.45	11.18	-11.77	-8.12	0.96	-1.18	-0.22
Energy	4.87	6.05	-17.21	-17.37	0.06	0.00	0.06
Financials	14.00	19.46	-16.91	-13.51	0.05	-0.51	-0.47
Health Care	16.94	11.00	-9.64	-10.28	0.15	0.11	0.26
Industrials	10.65	14.38	-14.45	-14.73	0.07	0.03	0.10
Information Technology	5.86	6.06	-16.45	-16.52	0.00	0.00	0.00
Materials	4.70	7.40	-11.08	-16.13	0.09	0.25	0.34
Real Estate	0.00	3.48		-5.30	-0.25	0.00	-0.25
Utilities	0.00	3.38		-0.01	-0.41	0.00	-0.41
Unclassified	0.53	0.24	-24.32	-23.53	-0.04	0.00	-0.05
Attribution Total	95.89	99.25	-12.55	-12.60	0.81	-0.76	0.05
Cash	2.40	0.00					
Other	0.00	0.03					
Missing Performance	1.71	0.72					
Total	100.00	100.00					

## Region Attribution (Quarter)

	Portfolio Weights	Benchmark Weights	Portfolio Return	Benchmark Return	Allocation Effect	Selection Effect	Active Return
Asia - Developed	4.69	5.17	-6.43	-6.38	-0.02	0.01	-0.02
Asia - Emerging	3.67	0.48	-16.22	-15.80	-0.12	-0.01	-0.13
Australasia	0.00	6.90		-9.55	-0.21	0.00	-0.21
Canada	3.52	0.00	4.09		0.57	0.00	0.57
Europe - ex Euro	7.08	13.83	-5.34	-10.53	-0.14	0.37	0.23
Eurozone	38.35	30.00	-12.46	-13.98	-0.13	0.61	0.48
Japan	13.85	24.64	-16.66	-14.23	0.17	-0.37	-0.19
Latin America	0.00	0.02		2.25	0.00	0.00	0.00
Middle East	0.00	0.46		-15.81	0.01	0.00	0.01
United Kingdom	21.18	16.39	-15.14	-11.79	0.04	-0.74	-0.70
United States	3.01	1.13	-13.06	-18.98	-0.13	0.19	0.06
Unclassified	0.53	0.24	-24.32	-23.53	-0.04	0.00	-0.05
Attribution Total	95.89	99.25	-12.55	-12.60	0.00	0.06	0.05
Cash	2.40	0.00					
Other	0.00	0.03					
Missing Performance	1.71	0.72					
Total	100.00	100.00					



Source: Morningstar

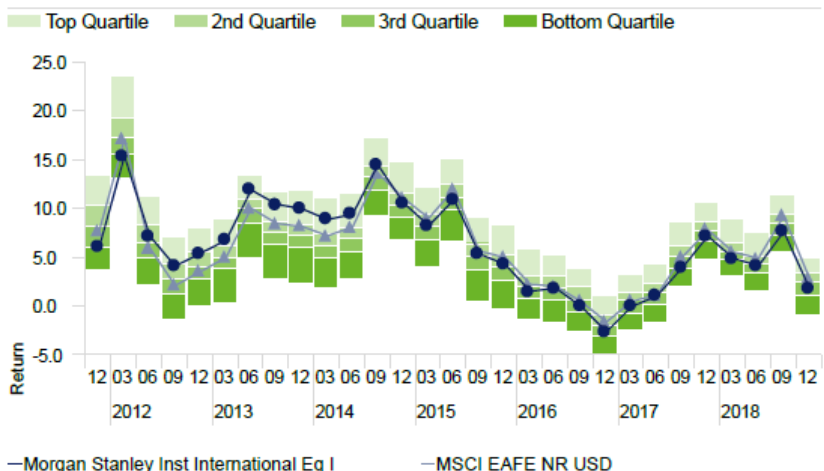
# MORGAN STANLEY INTERNATIONAL EQUITY I

## Risk & Return Characteristics (5 Years)

Time Period: 4/1/2014 to 12/31/2018

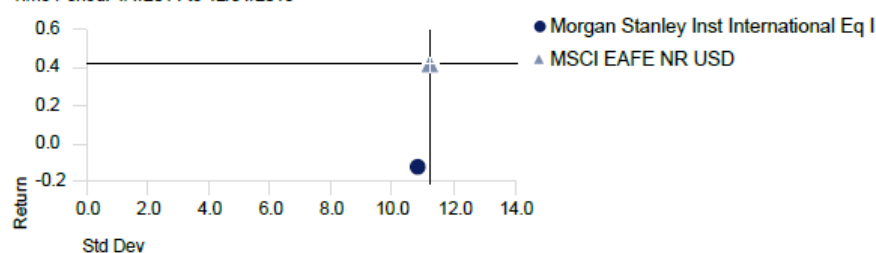
	Fund	Index
R2	92.7	100.0
Alpha	-0.6	0.0
Beta	0.9	1.0
Std Dev	10.8	11.2
Up Capture Ratio	89.3	100.0
Down Capture Ratio	95.2	100.0
Sharpe Ratio (geo)	-0.1	0.0
Information Ratio (geo)	-0.2	0.0
Tracking Error	3.1	0.0
Correlation	1.0	1.0

## Rolling Returns (3 Years)

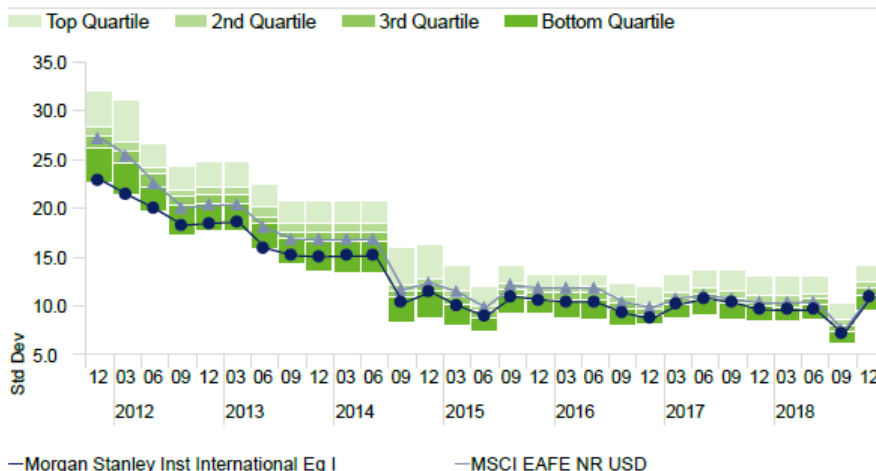


## Risk & Return Illustration (5 Years)

Time Period: 4/1/2014 to 12/31/2018



## Rolling Risk (3 Years)



## Calendar Year Returns

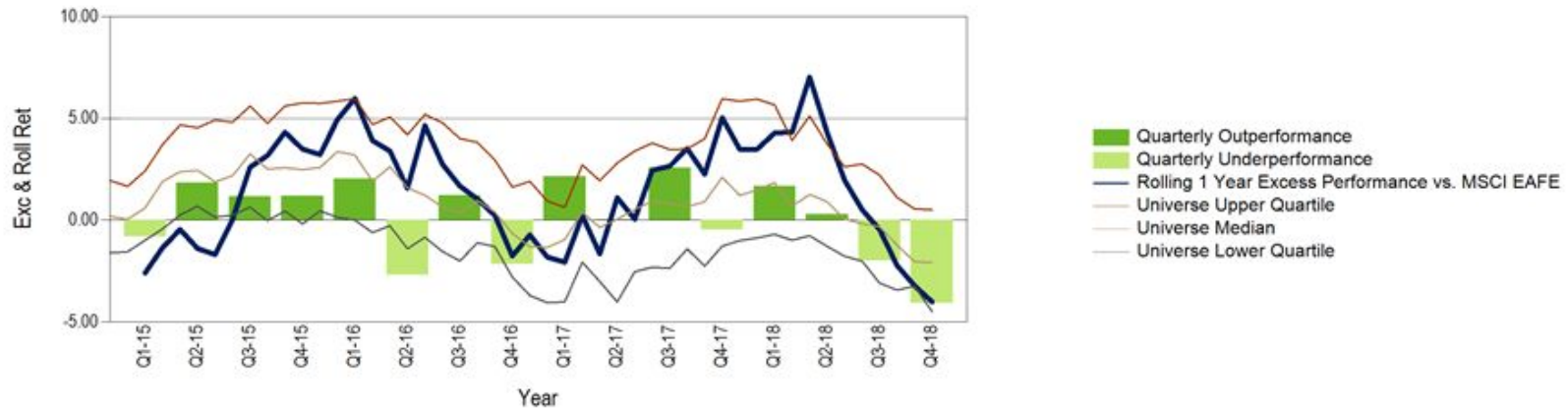
	2009	Rank	2010	Rank	2011	Rank	2012	Rank	2013	Rank	2014	Rank	2015	Rank	2016	Rank	2017	Rank	2018	Rank
Morgan Stanley Inst International Eq I	21.6	85	6.1	87	-7.6	5	19.6	26	20.4	43	-6.1	64	0.4	30	-2.0	82	25.2	53	-13.8	37
MSCI EAFE NR USD	31.8		7.8		-12.1		17.3		22.8		-4.9		-0.8		1.0		25.0		-13.8	



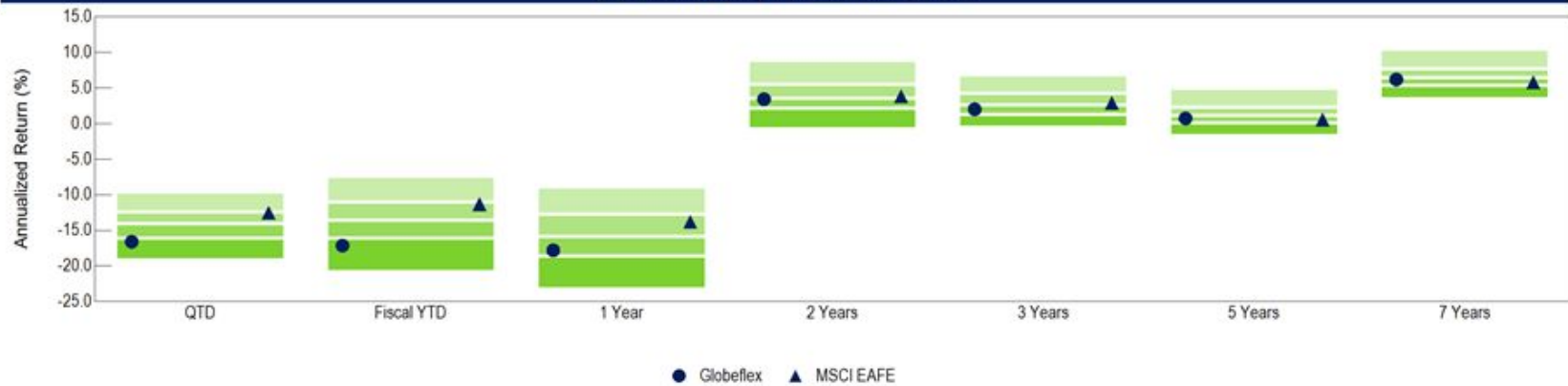
Source: Morningstar

# GLOBEFLEX

Annualized Excess Performance



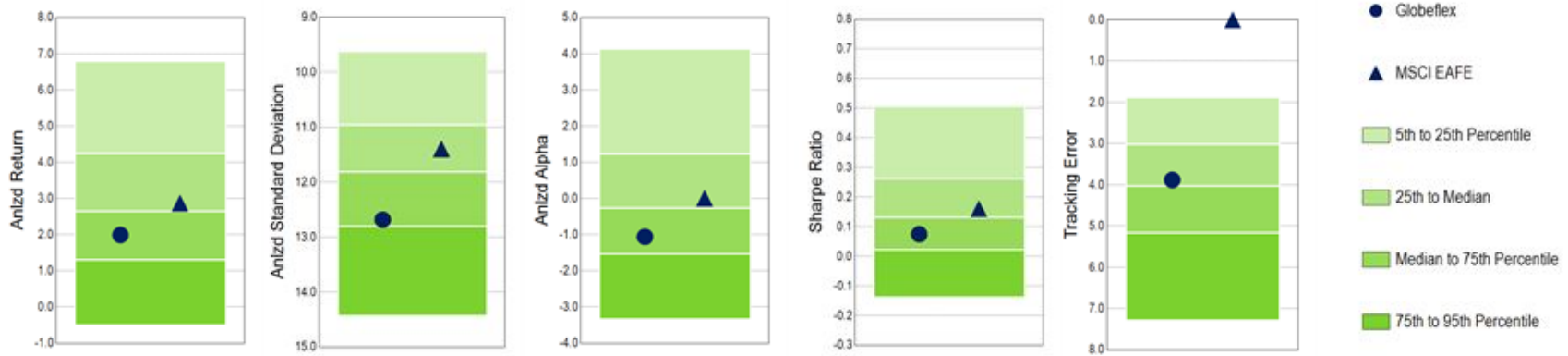
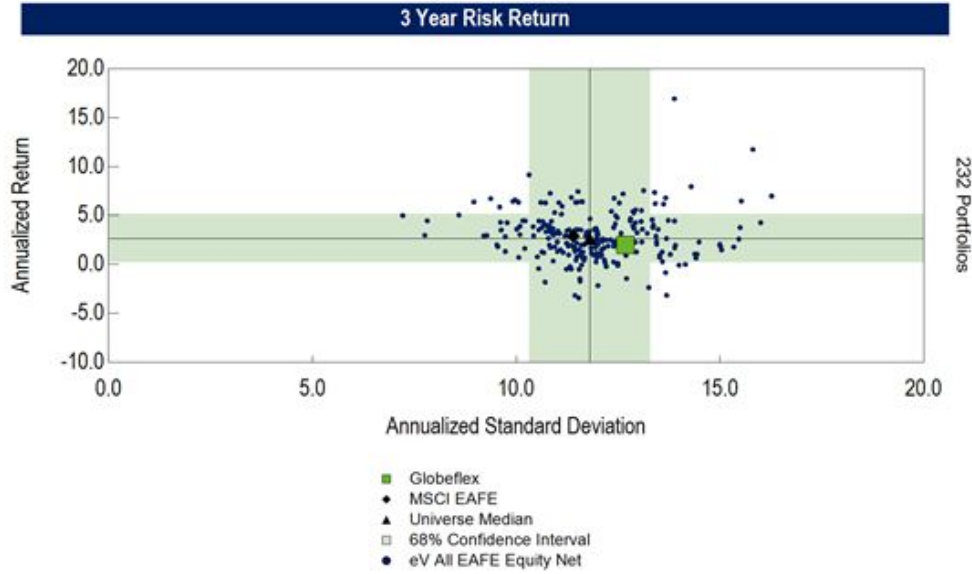
eV All EAFE Equity Net Return Comparison



\*Returns are net of fees.



# GLOBEFLEX



\*Returns are net of fees.



# GLOBEFLEX

Characteristics	Portfolio MSCI EAFE	
	Portfolio	MSCI EAFE
Number of Holdings	125	920
Weighted Avg. Market Cap. (\$B)	24.7	52.6
Median Market Cap. (\$B)	8.8	9.1
Price To Earnings	14.1	16.7
Price To Book	2.3	2.3
Price To Sales	1.8	2.4
Return on Equity (%)	21.6	14.7
Yield (%)	3.8	3.6
Beta		1.0
R-Squared		1.0

Top Positive Contributors	Relative	
	Contribution %	Return %
TOKYO STEEL MNFG.	0.1%	10.7%
KONINKLIJKE AHOLD DELHAIZE	0.1%	10.0%
BP	0.0%	-16.6%
TOTAL	0.0%	-17.5%
WH GROUP	0.0%	9.4%
DEUTSCHE TELEKOM	0.0%	4.7%
KYORIN HOLDINGS	0.0%	6.0%
HKT TRUST & HKT	0.0%	4.8%
A2A	0.0%	3.5%
IMPERIAL BRANDS	0.0%	-10.8%

Top Negative Contributors	Relative	
	Contribution %	Return %
ROYAL MAIL	-0.9%	-42.8%
BLUESCOPE STEEL	-0.7%	-37.2%
COVESTRO	-0.5%	-39.5%
AKER BP	-0.5%	-40.1%
ASTELLAS PHARMA	-0.5%	-26.8%
OMV	-0.4%	-22.2%
EXOR ORD	-0.4%	-19.6%
SOMPO HOLDINGS	-0.4%	-20.2%
TSUGAMI	-0.4%	-41.0%
IPSEN	-0.3%	-23.3%

	Equity Sector Attribution										
	Total Effects	Selection Effect	Attribution Effects			Returns		Ending Sector Weights			
			Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-1.0%	-0.3%	-0.3%	-0.4%	-21.6%	-17.3%	11.7%	5.9%			
Materials	-0.9%	-0.3%	-0.2%	-0.4%	-20.7%	-16.0%	11.1%	7.4%			
Industrials	-1.0%	-0.5%	-0.1%	-0.4%	-19.8%	-14.6%	17.7%	14.3%			
Consumer Discretionary	-0.1%	-0.4%	0.2%	0.1%	-20.0%	-14.6%	4.0%	11.2%			
Consumer Staples	-0.1%	0.8%	-0.4%	-0.6%	-1.8%	-8.2%	3.9%	11.6%			
Health Care	-0.7%	-0.7%	0.1%	-0.1%	-15.2%	-10.1%	16.9%	11.2%			
Financials	0.0%	-0.1%	0.0%	0.0%	-14.4%	-13.7%	13.3%	19.5%			
Information Technology	-0.2%	-0.2%	0.0%	0.0%	-20.1%	-16.6%	4.5%	6.0%			
Communication Services	0.4%	0.4%	0.0%	0.0%	-1.8%	-9.7%	7.6%	5.6%			
Utilities	-0.1%	0.0%	0.0%	0.0%	-1.4%	0.0%	3.6%	3.8%			
Real Estate	-0.2%	-0.1%	-0.1%	0.0%	-8.6%	-4.2%	4.7%	3.7%			
Cash	0.0%	--	--	--	--	--	0.0%	0.0%			
<b>Portfolio</b>	<b>-3.9%</b>	<b>=</b>	<b>-1.4%</b>	<b>+</b>	<b>-0.7%</b>	<b>+</b>	<b>-1.8%</b>	<b>-16.5%</b>	<b>-12.5%</b>	<b>98.9%</b>	<b>100.0%</b>

\*Attribution on manager pages is holdings based, using buy-and-hold assumptions from the beginning of period portfolio. Results may differ from actual performance. Returns are net of fees.





# GLOBEFLEX

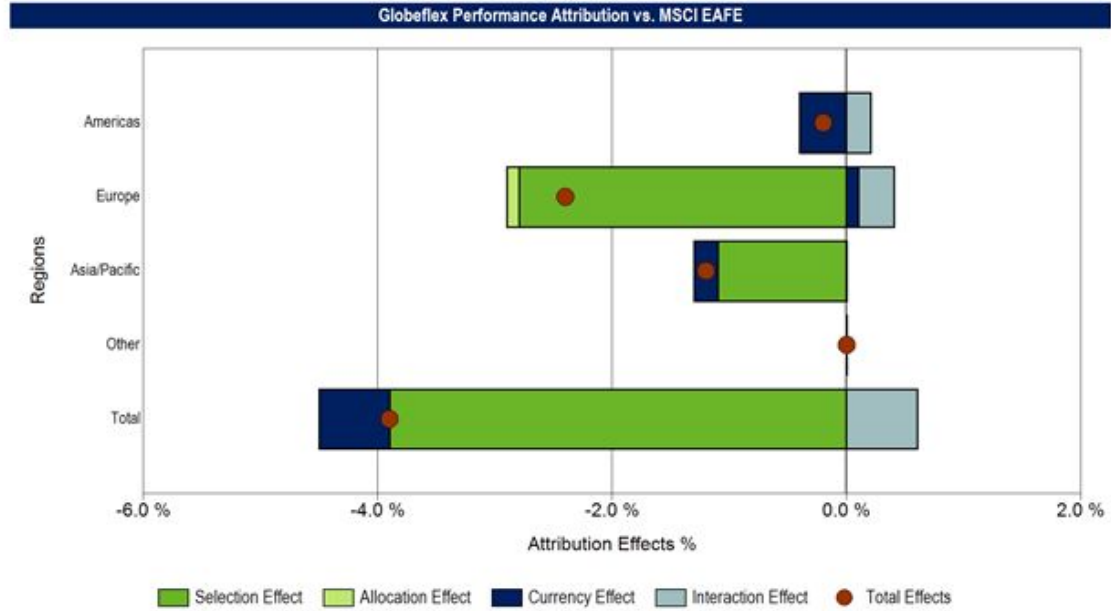
Country Allocation				
	Manager Ending Allocation (USD)	Index Ending Allocation (USD)	Manager Return (USD)	Index Return (USD)
<b>Americas</b>				
Canada	7.9%	0.0%	-15.2%	-15.3%
United States	0.5%	0.0%	-5.5%	-13.8%
<b>Total-Americas</b>	<b>8.5%</b>	<b>0.0%</b>	<b>-14.7%</b>	<b>--</b>
<b>Europe</b>				
Austria	2.5%	0.2%	-21.2%	-21.9%
France	6.8%	11.0%	-18.8%	-14.9%
Germany	7.5%	8.8%	-16.5%	-16.0%
Ireland	0.3%	0.5%	--	-18.1%
Italy	5.7%	2.3%	-12.2%	-11.6%
Netherlands	3.8%	3.4%	-10.7%	-11.0%
Norway	2.2%	0.7%	-34.0%	-17.8%
Portugal	0.6%	0.2%	-20.6%	-14.2%
Spain	4.4%	3.1%	-8.6%	-8.7%
Sweden	2.0%	2.7%	-23.8%	-14.1%
Switzerland	3.9%	8.7%	-19.6%	-9.0%
United Kingdom	14.9%	17.0%	-18.3%	-11.8%
<b>Total-Europe</b>	<b>55.2%</b>	<b>62.4%</b>	<b>-17.2%</b>	<b>-12.8%</b>

Country Allocation				
	Manager Ending Allocation (USD)	Index Ending Allocation (USD)	Manager Return (USD)	Index Return (USD)
<b>AsiaPacific</b>				
Australia	9.0%	7.0%	-18.0%	-9.8%
Hong Kong	2.1%	3.9%	2.7%	-4.5%
Japan	19.5%	24.6%	-17.1%	-14.2%
Korea*	4.6%	0.0%	-14.5%	-13.1%
<b>Total-AsiaPacific</b>	<b>35.6%</b>	<b>37.0%</b>	<b>-15.7%</b>	<b>-12.1%</b>
<b>Other</b>				
Israel	0.7%	0.5%	--	-14.8%
<b>Total-Other</b>	<b>0.7%</b>	<b>0.5%</b>	<b>--</b>	<b>-14.8%</b>
<b>Totals</b>				
Developed	95.3%	100.0%	-16.6%	-12.5%
Emerging*	4.7%	0.0%	-14.5%	--

\*Returns are net of fees.



# GLOBEFLEX



	Returns and Ending Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
<b>Totals</b>									
Americas	-14.7%	--	8.5%	0.0%	0.0%	0.0%	-0.4%	0.2%	-0.2%
Europe	-17.2%	-12.8%	55.2%	62.4%	-2.8%	-0.1%	0.1%	0.3%	-2.4%
Asia/Pacific	-15.7%	-12.1%	35.6%	37.0%	-1.1%	0.0%	-0.2%	0.0%	-1.2%
Other	--	-14.8%	0.7%	0.5%	--	0.0%	0.0%	--	0.0%
<b>Total</b>	<b>-16.5%</b>	<b>-12.5%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>-3.9%</b>	<b>0.0%</b>	<b>-0.6%</b>	<b>0.6%</b>	<b>-3.9%</b>
<b>Totals</b>									
Developed	-16.6%	-12.5%	95.3%	100.0%	-3.4%	0.0%	-0.5%	0.2%	-3.8%
Emerging*	-14.5%	--	4.7%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%

\*Returns are net of fees.



# KABOUTER INT'L OPPS OFFSHORE FUND II

## SECTOR ATTRIBUTION W/CURRENCY

	Average Weight			Contribution to Return			Total Return		Total Effect	Attribution Analysis		
	Port. Average Weight	Bench. Average Weight	Variation in Average Weight	Port. Contrib. To Return	Bench. Contrib. To Return	Variation in Contribution To Return	Port. Total Return	Bench. Total Return		Allocation Effect ( Local )	Selection Effect ( Local )	Total Currency Effect
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>--</b>	<b>-14.06</b>	<b>-16.04</b>	<b>1.98</b>	<b>-14.06</b>	<b>-16.04</b>	<b>1.98</b>	<b>-0.05</b>	<b>1.95</b>	<b>0.08</b>
Communication Services	--	4.59	-4.59	--	-0.66	0.66	--	-14.47	-0.09	-0.11	--	0.02
Consumer Discretionary	5.67	13.10	-7.42	0.10	-2.08	2.19	1.78	-15.97	0.97	0.00	1.07	-0.11
Consumer Staples	3.72	6.91	-3.20	-1.05	-0.82	-0.23	-26.65	-11.95	-0.76	-0.11	-0.67	0.02
Energy	--	2.79	-2.79	--	-0.98	0.98	--	-31.22	0.52	0.46	--	0.06
Etf	0.23	--	0.23	-0.03	--	-0.03	-15.71	--	-0.01	-0.01	--	0.00
Financials	10.23	11.68	-1.44	-2.42	-2.00	-0.42	-22.23	-17.00	-0.64	-0.00	-0.58	-0.05
Health Care	21.72	7.50	14.22	-3.35	-1.15	-2.20	-15.35	-15.26	0.08	0.11	-0.17	0.13
Industrials	28.35	21.53	6.82	-4.54	-4.23	-0.31	-15.60	-19.31	0.83	-0.27	1.45	-0.35
Information Technology	7.41	9.37	-1.96	-0.94	-1.99	1.05	-12.84	-20.71	0.73	0.10	0.60	0.04
Materials	11.32	8.52	2.79	-0.90	-1.59	0.68	-9.10	-18.34	1.13	-0.08	0.96	0.24
Real Estate	3.39	11.61	-8.22	0.11	-0.48	0.59	2.71	-4.41	-0.74	-0.97	0.23	-0.00
Utilities	7.97	2.22	5.75	-1.04	-0.05	-0.99	-13.20	-2.46	-0.04	0.85	-0.96	0.08

\*Returns are gross of fees

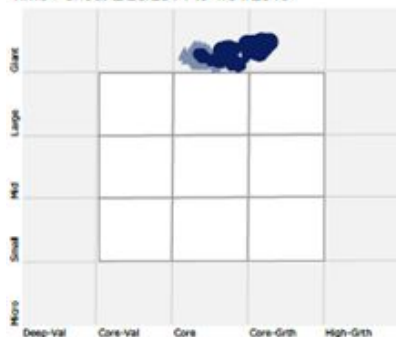


Source: Kaboutier

# ABERDEEN EMERGING MARKET EQUITY

## Holdings Based Style Trail (5 Years)

Time Period: 2/28/2014 to 1/31/2019



• Aberdeen Emerging Markets Instl - MSCI EM NR USD

## Portfolio Statistics

	Fund	Index
# of Holdings	65	1,123
% Asset in Top 10 Holdings	36.9	24.0
Turnover Ratio %	20.4	
P/E Ratio	15.0	11.9
P/B Ratio	2.3	1.6
LT Eam Growth	11.6	11.3
Hist Eam Growth	17.9	10.6
12 Mo Yield	1.3	

## Market Capitalization Breakdown

	Fund	Index
Market Cap Giant %	66.6	54.3
Market Cap Large %	25.2	34.5
Market Cap Mid %	7.2	10.7
Market Cap Small %	1.0	0.6
Market Cap Micro %	0.0	0.0
Average Market Cap	34,732.3	27,749.1
Equity Region Developed %	19.9	28.4
Equity Region Emerging %	80.1	71.6

## Top Ten Holdings

	Port Weight %	3 Month Return
Tencent Holdings Ltd	6.37	-2.90
Samsung Electronics Co Ltd Participating Preferred	5.71	-15.68
Taiwan Semiconductor Manufacturing Co Ltd	4.98	-14.67
Housing Development Finance Corp Ltd	3.78	16.49
Bank Bradesco SA ADR	3.27	42.58
Ping An Insurance (Group) Co. of China Ltd H	2.99	-13.07
Vale SA ADR	2.59	-11.12
AIA Group Ltd	2.54	-7.06
PT Astra International Tbk	2.47	16.81
Kweichow Moutai Co Ltd	2.23	-19.00

## Sector Attribution (Quarter)

	Portfolio Weights	Benchmark Weights	Portfolio Return	Benchmark Return	Allocation Effect	Selection Effect	Active Return
Communication Services	13.00	13.86	-5.63	-6.85	0.01	0.19	0.20
Consumer Discretionary	11.42	10.40	3.68	-11.46	-0.03	1.73	1.70
Consumer Staples	12.18	6.56	-5.59	-4.64	0.14	-0.13	0.01
Energy	3.51	6.99	4.04	-11.05	0.10	0.53	0.63
Financials	25.91	24.11	3.60	-0.79	0.13	1.09	1.22
Health Care	0.91	2.95	-19.64	-15.94	0.18	-0.03	0.15
Industrials	3.05	5.48	-20.69	-4.13	-0.09	-0.58	-0.67
Information Technology	13.98	15.17	-14.41	-15.44	0.10	0.16	0.26
Materials	9.55	7.71	-5.86	-10.67	-0.04	0.46	0.42
Real Estate	5.15	2.80	10.56	1.66	0.22	0.41	0.63
Utilities	0.00	2.54		3.54	-0.27	0.00	-0.27
Attribution Total	98.66	98.57	-3.09	-7.38	0.46	3.83	4.29
Cash	1.34	0.00					
Other	0.00	0.06					
Missing Performance	0.00	1.37					
Total	100.00	100.00					

## Region Attribution (Quarter)

	Portfolio Weights	Benchmark Weights	Portfolio Return	Benchmark Return	Allocation Effect	Selection Effect	Active Return
Africa	3.76	5.84	-0.55	-3.98	-0.07	0.13	0.06
Asia - Developed	19.21	26.91	-11.85	-13.80	0.53	0.40	0.93
Asia - Emerging	51.61	46.61	-1.12	-6.35	0.05	2.75	2.80
Europe - Emerging	5.00	4.73	0.85	-5.15	0.02	0.31	0.33
Eurozone	0.39	0.34	-26.38	-14.99	0.00	-0.12	-0.13
Latin America	18.01	12.00	0.73	0.74	0.65	-0.02	0.63
Middle East	0.00	1.72		2.39	-0.16	0.00	-0.16
United Kingdom	0.20	0.24	-6.31	1.81	0.02	-0.08	-0.05
United States	0.49	0.19	-36.68	-31.25	-0.09	-0.03	-0.12
Attribution Total	98.66	98.57	-3.09	-7.38	0.95	3.34	4.29
Cash	1.34	0.00					
Other	0.00	0.06					
Missing Performance	0.00	1.37					
Total	100.00	100.00					



Source: Morningstar

# ABERDEEN EMERGING MARKET EQUITY

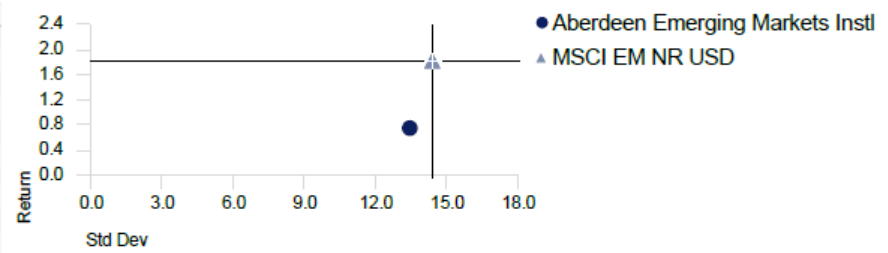
## Risk & Return Characteristics (5 Years)

Time Period: 4/1/2014 to 12/31/2018

	Fund	Index
R2	89.2	100.0
Alpha	-1.0	0.0
Beta	0.9	1.0
Std Dev	13.5	14.4
Up Capture Ratio	87.7	100.0
Down Capture Ratio	96.2	100.0
Sharpe Ratio (geo)	0.0	0.1
Information Ratio (geo)	-0.2	
Tracking Error	4.7	0.0
Correlation	0.9	1.0

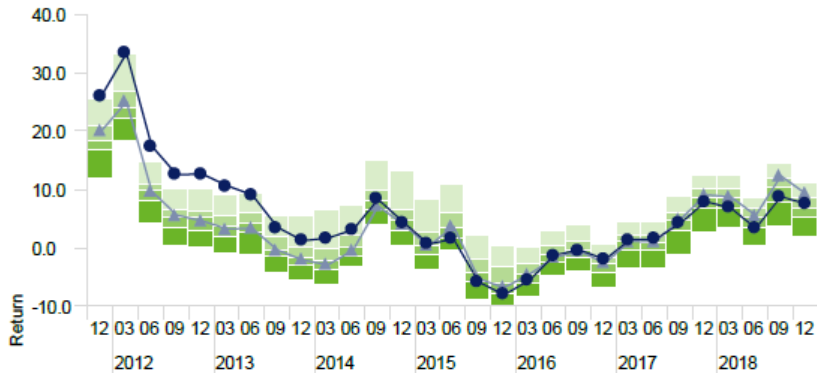
## Risk & Return Illustration (5 Years)

Time Period: 4/1/2014 to 12/31/2018



## Rolling Returns (3 Years)

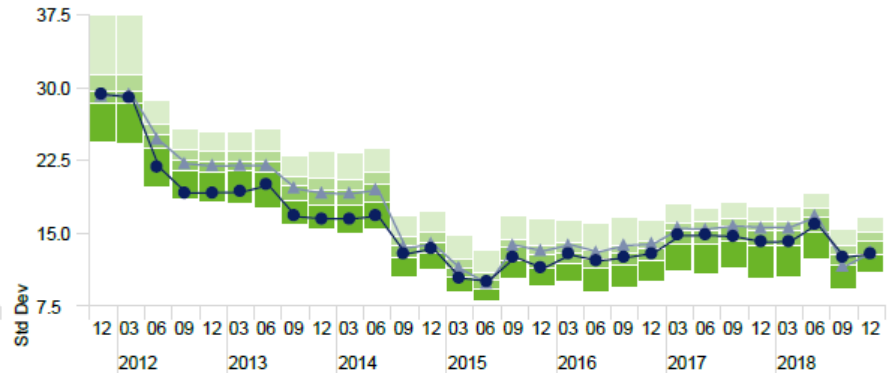
Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



—Aberdeen Emerging Markets Instl —MSCI EM NR USD

## Rolling Risk (3 Years)

Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



—Aberdeen Emerging Markets Instl —MSCI EM NR USD

## Calendar Year Returns

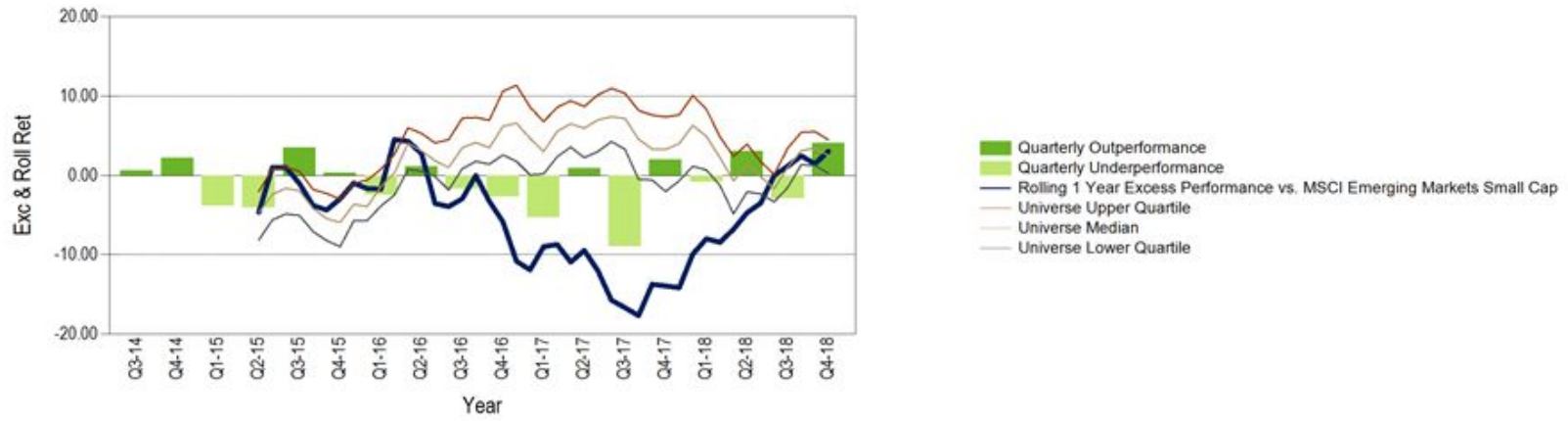
	2009	Rank	2010	Rank	2011	Rank	2012	Rank	2013	Rank	2014	Rank	2015	Rank	2016	Rank	2017	Rank	2018	Rank
Aberdeen Emerging Markets Instl	76.6	32	27.6	6	-11.0	4	26.2	8	-7.5	93	-2.5	43	-13.7	45	12.0	24	30.2	70	-14.6	35
MSCI EM NR USD	78.5		18.9		-18.4		18.2		-2.6		-2.2		-14.9		11.2		37.3		-14.6	



Source: Morningstar

# MONDRIAN EM SMALL CAP

**Annualized Excess Performance**



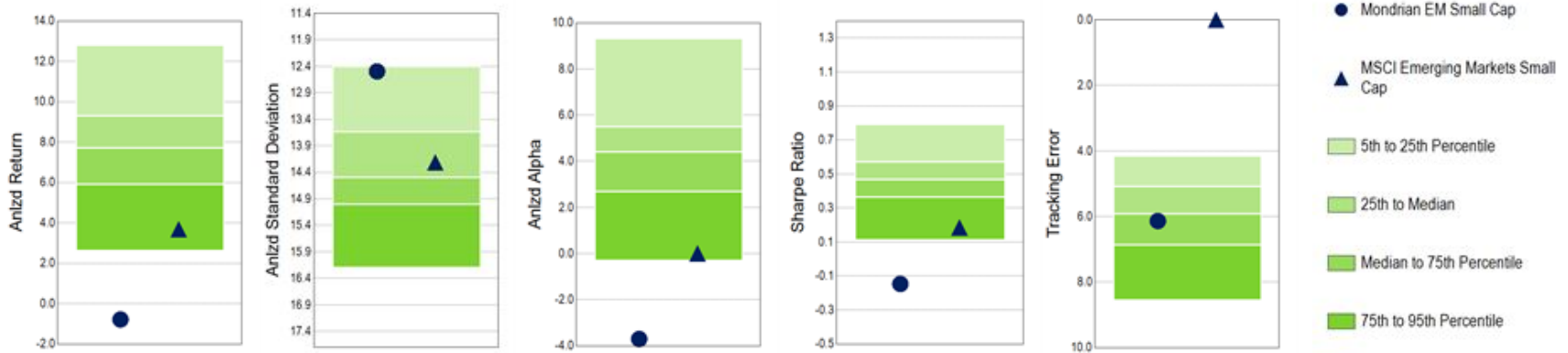
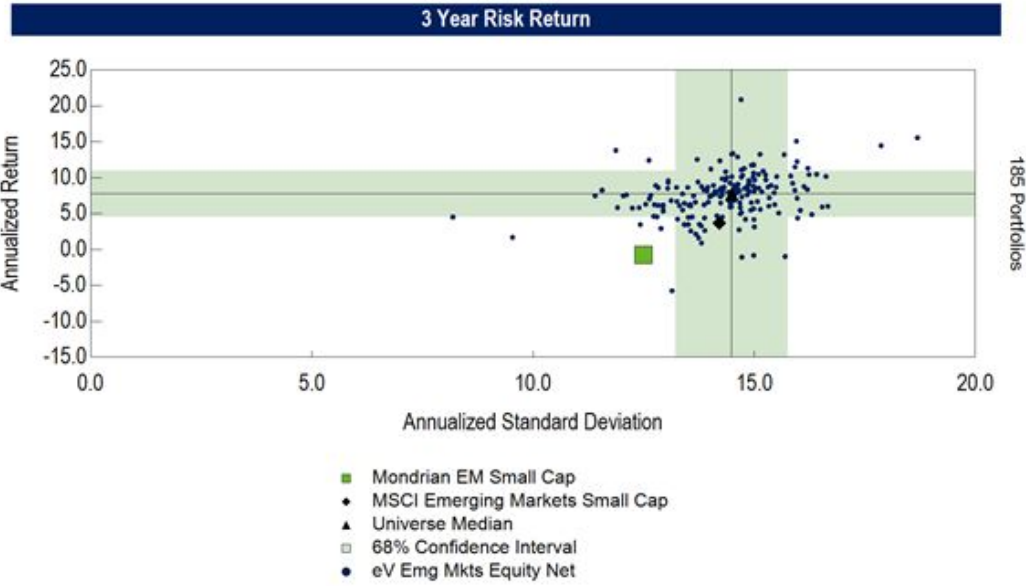
**eV Emg Mkts Equity Net Return Comparison**



\*Returns are net of fees.



# MONDRIAN EM SMALL CAP



\*Returns are net of fees.



# MONDRIAN EM SMALL CAP

Characteristics	MSCI	
	Portfolio	Emerging Markets Small Cap
Number of Holdings	108	1,587
Weighted Avg. Market Cap. (\$B)	1.5	1.1
Median Market Cap. (\$B)	0.9	0.6
Price To Earnings	30.0	15.1
Price To Book	4.5	2.3
Price To Sales	3.9	2.4
Return on Equity (%)	18.6	13.3
Yield (%)	2.5	2.9
Beta		1.0
R-Squared		1.0

Top Positive Contributors		
	Relative Contribution %	Return %
PVR	0.4%	38.6%
LINX ON	0.4%	105.4%
PI INDUSTRIES	0.3%	26.2%
APOLLO HOSPS. ENTERPRISE	0.3%	25.4%
CPMC HOLDINGS	0.2%	27.0%
D&L INDUSTRIES	0.2%	14.5%
ARWANA CITRAMULIA	0.2%	20.9%
BERGER PAINTS INDIA	0.2%	17.0%
AARTI INDUSTRIES	0.2%	29.0%
SITC INTERNATIONAL HDG.	0.2%	16.7%

Top Negative Contributors		
	Relative Contribution %	Return %
SHANKARA BUILDING PRODUCTS	-0.5%	-55.7%
CT ENVIRONMENTAL GROUP	-0.5%	-65.4%
MICROPORT SCIENTIFIC	-0.5%	-25.7%
SSY GROUP	-0.3%	-23.3%
PAGE INDUSTRIES	-0.3%	-19.9%
KOH YOUNG TECHNOLOGY	-0.2%	-24.8%
FIBRA HOTEL REIT	-0.2%	-21.6%
ATRIUM EUROPEAN RLST.	-0.2%	-15.1%
DUZONBIZON	-0.2%	-15.6%
BOLSA MEXICANA DE VALORES	-0.2%	-16.9%

Equity Sector Attribution											
	Attribution Effects					Returns		Ending Sector Weights			
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects		Portfolio	Benchmark	Portfolio	Benchmark		
Energy	0.3%	0.3%	-0.1%	0.1%		-5.9%	-19.4%	2.5%	1.8%		
Materials	2.1%	2.8%	0.1%	-0.8%		16.1%	-9.1%	10.6%	11.9%		
Industrials	1.1%	1.1%	0.0%	0.0%		3.3%	-4.7%	15.7%	14.6%		
Consumer Discretionary	-0.6%	-0.8%	0.0%	0.2%		-6.2%	-1.8%	13.0%	14.1%		
Consumer Staples	0.7%	0.3%	0.0%	0.5%		-3.0%	-7.9%	15.9%	7.1%		
Health Care	1.2%	0.8%	-0.6%	1.0%		-3.6%	-13.4%	16.7%	8.7%		
Financials	-0.5%	-0.6%	-0.2%	0.3%		-12.7%	-4.2%	3.0%	11.2%		
Information Technology	0.7%	0.8%	0.3%	-0.4%		-6.2%	-11.7%	6.4%	14.1%		
Communication Services	0.7%	0.8%	0.0%	-0.1%		13.5%	-7.7%	4.0%	4.1%		
Utilities	-0.9%	-0.9%	0.0%	0.0%		-16.4%	7.3%	3.1%	4.7%		
Real Estate	-0.3%	-0.1%	0.0%	-0.2%		-10.9%	-7.3%	7.4%	7.4%		
Cash	0.0%	0.0%	0.0%	0.0%		0.6%	--	1.1%	0.0%		
<b>Portfolio</b>	<b>4.6%</b>	<b>=</b>	<b>4.4%</b>	<b>+</b>	<b>-0.4%</b>	<b>+</b>	<b>0.6%</b>	<b>-2.5%</b>	<b>-7.1%</b>	<b>99.5%</b>	<b>99.9%</b>

\*Attribution on manager pages is holdings based, using buy-and-hold assumptions from the beginning of period portfolio. Results may differ from actual performance. Returns are gross of fees.





# MONDRIAN EM SMALL CAP

## Sector Allocation

	Fund	MSCI EM SC
Communication Services	3.9	4.3
Consumer Discretionary	12.6	14.4
Consumer Staples	15.5	7.0
Energy	2.5	1.8
Financials	3.7	11.2
Health Care	18.2	8.6
Industrials	15.2	14.6
Information Technology	6.2	14.0
Materials	10.8	11.8
Real Estate	7.2	7.5
Utilities	3.0	4.8
Cash	1.1	-
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>

## Country Allocation

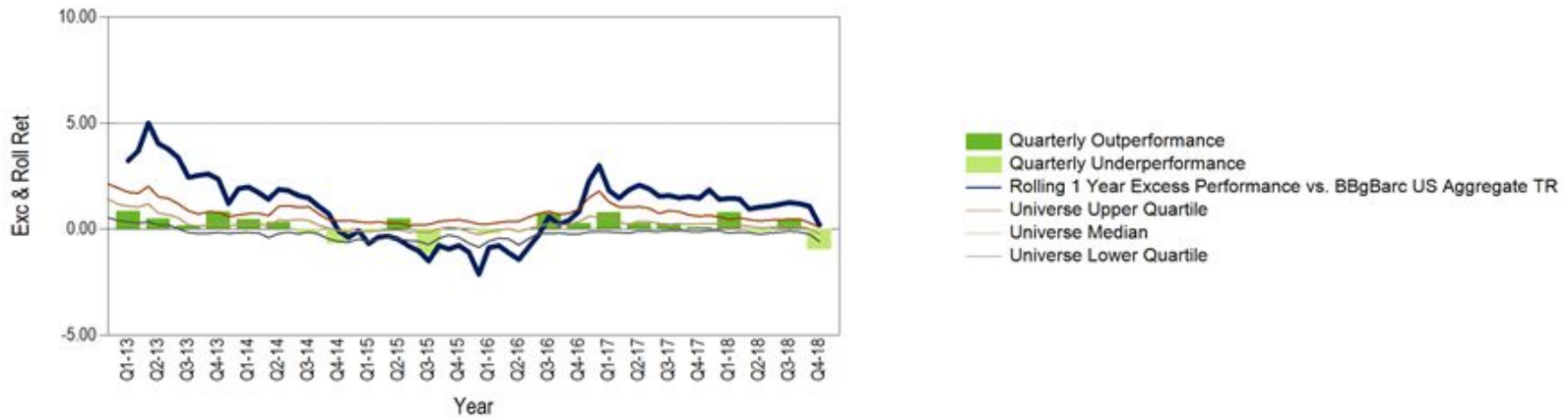
	Fund	MSCI EM SC
<b>Latin America</b>	<b>8.8</b>	<b>11.4</b>
Brazil	2.0	6.5
Mexico	4.6	2.9
Peru	2.2	0.1
<b>Europe, Middle East &amp; Africa</b>	<b>12.4</b>	<b>12.1</b>
Czech Republic	1.3	0.0
Estonia	1.3	-
Kuwait	1.6	-
Poland	2.8	1.1
Saudi Arabia	1.9	-
Slovenia	0.8	-
South Africa	1.6	5.6
UAE	0.3	0.6
United Kingdom	0.9	-
<b>Pacific-Asia</b>	<b>77.7</b>	<b>76.4</b>
<b>North Asia</b>	<b>30.1</b>	<b>48.7</b>
China/Hong Kong	17.7	11.8
South Korea	5.1	18.2
Taiwan	7.3	18.6
<b>South Asia</b>	<b>47.6</b>	<b>27.0</b>
India	27.7	16.6
Indonesia	7.3	2.5
Malaysia	5.4	3.2
Philippines	4.6	1.0
Thailand	2.7	3.8
Cash	1.1	-
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>



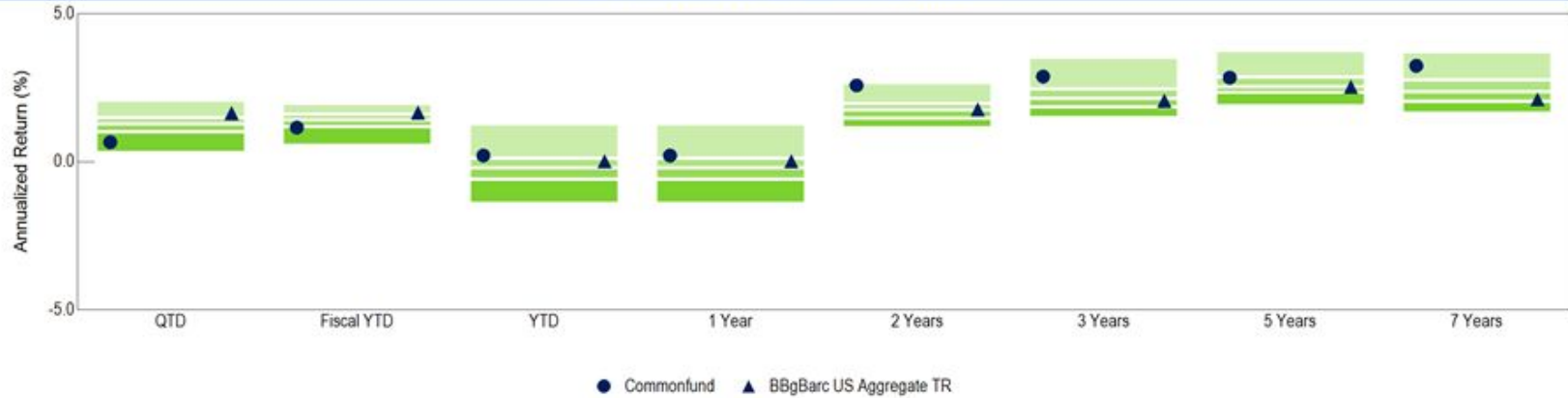
Source: Mondrian

# COMMONFUND

Annualized Excess Performance



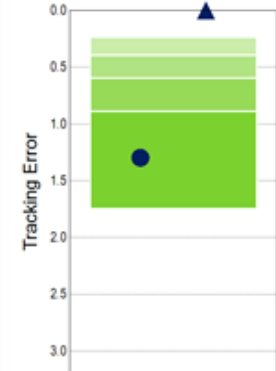
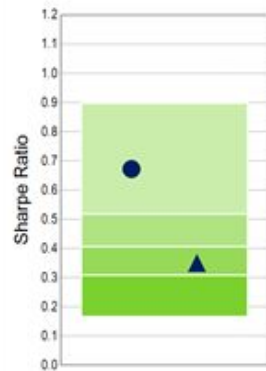
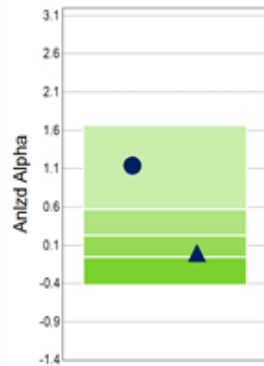
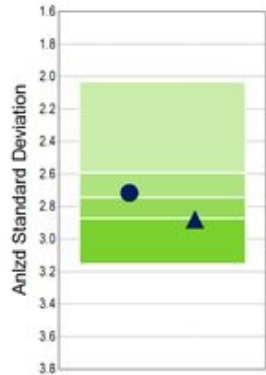
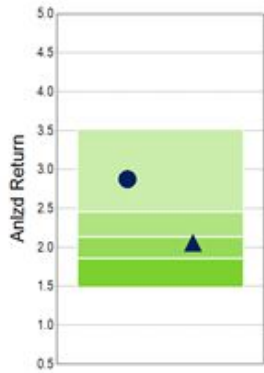
eV US Core Fixed Inc Net Return Comparison



\*Returns are net of fees.



# COMMONFUND

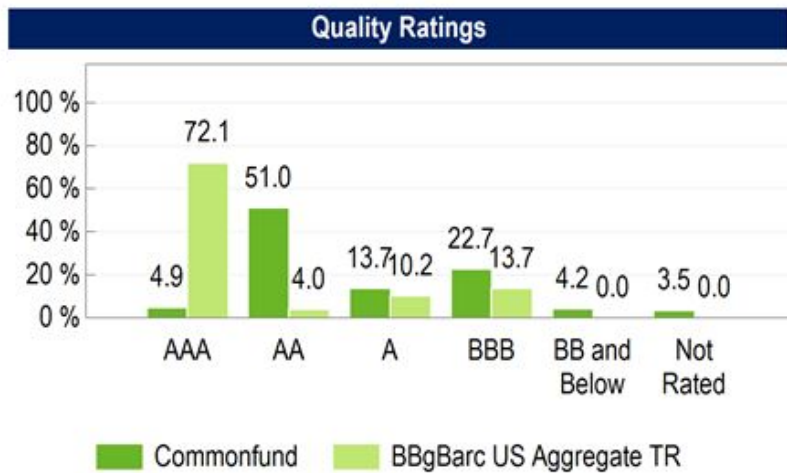
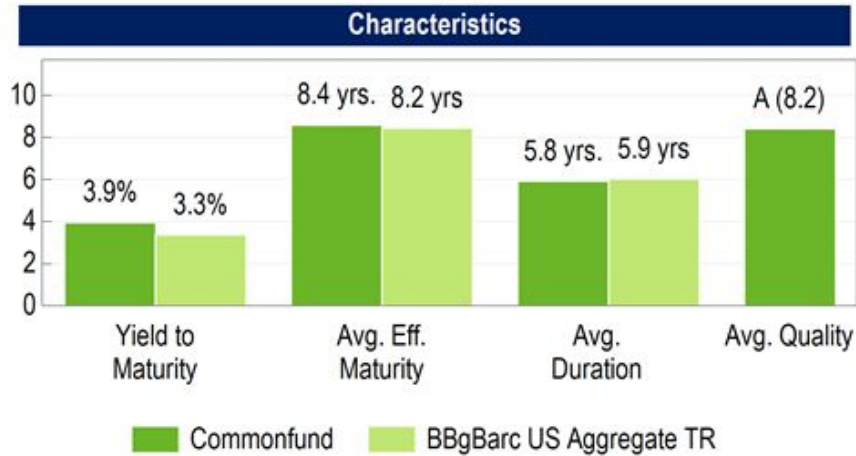


- Commonfund (Blue circle)
- BBgBarc US Aggregate TR (Blue triangle)
- 5th to 25th Percentile (Lightest green)
- 25th to Median (Light green)
- Median to 75th Percentile (Medium green)
- 75th to 95th Percentile (Darkest green)

\*Returns are net of fees.



# COMMONFUND



# COMMONFUND

## Multi-Strategy Bond Fund: Investment Managers

Investment Managers	Core	Credit	Opportunistic
Bain Capital Specialty Fin.		X	
Brandywine Asset Management			X
Cerberus Capital Management		X	
Commonfund Private Credit Fund 2018		X	
Credit Partnerships CF 2018		X	
Income Research & Management (IRM)	X		
PIMCO Income Fund (PIMIX)			X
Rimrock Capital Management	X		
Sit Investment Associates			X
Western Asset	X		X

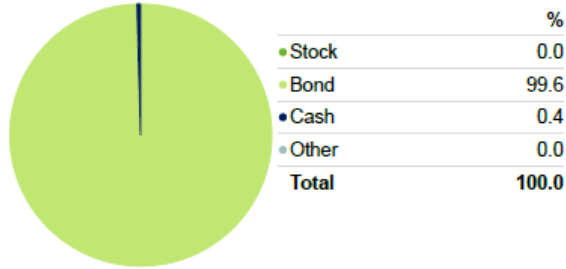


Source: Commonfund

# VANGUARD INFLATION PROTECTED SECURITIES

### Asset Allocation

Portfolio Date: 12/31/2018



### Fixed Income Statistics

Portfolio Date: 12/31/2018

Morningstar Fixed Income Style Box™

	Ltd	Mod	Ext
High			
Med			
Low			

### Fixed-Income Stats

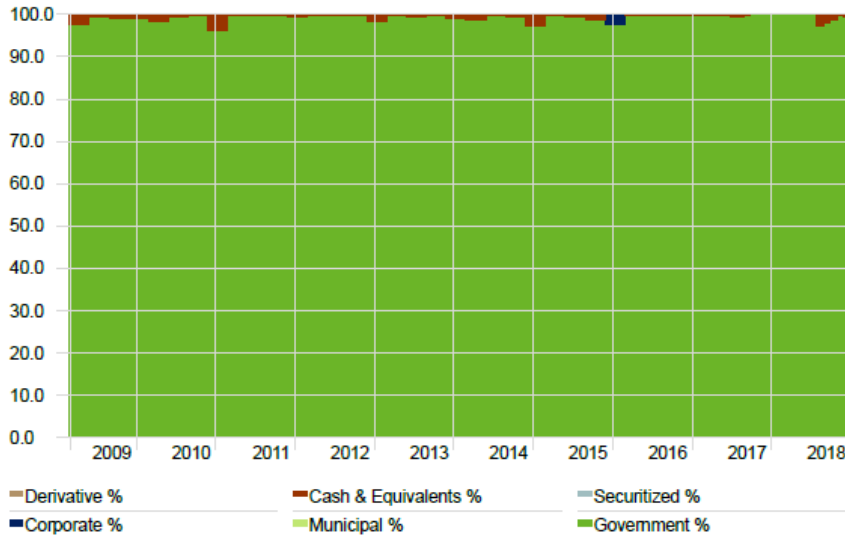
Average Eff Duration	7.6
Average Eff Maturity	8.2
Average Coupon	0.9
Average Price	99.7

### Credit Quality Breakdown

Portfolio Date: 12/31/2018

	Fund	Index
AAA %	100.0	
AA %	0.00	
A %	0.00	
BBB %	0.00	
BB %	0.00	
B %	0.00	
Below B %	0.00	
Not Rated %	0.00	
Yield to Maturity		

### Historical Sector Allocations (10 Years)



### Top Holdings

	Detail Holding Type	Portfolio Weighting %
United States Treasury Notes 0.12%	BOND - GOV'T INFLATION PROTECTED	5.09
United States Treasury Notes 0.12%	BOND - GOV'T INFLATION PROTECTED	3.89
United States Treasury Notes 0.38%	BOND - GOV'T INFLATION PROTECTED	3.87
United States Treasury Notes 0.25%	BOND - GOV'T INFLATION PROTECTED	3.87
United States Treasury Notes 0.12%	BOND - GOV'T INFLATION PROTECTED	3.82
United States Treasury Notes 0.12%	BOND - GOV'T INFLATION PROTECTED	3.72
United States Treasury Notes 0.38%	BOND - GOV'T INFLATION PROTECTED	3.67
United States Treasury Notes 0.12%	BOND - GOV'T INFLATION PROTECTED	3.61
United States Treasury Notes 0.62%	BOND - GOV'T INFLATION PROTECTED	3.58
United States Treasury Notes 0.12%	BOND - GOV'T INFLATION PROTECTED	3.53



Source: Morningstar

# VANGUARD INFLATION PROTECTED SECURITIES

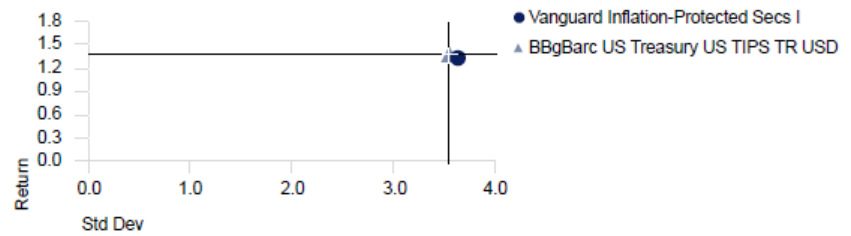
## Risk & Return Characteristics (5 Years)

Time Period: 4/1/2014 to 12/31/2018

	Fund	Index
R2	99.4	100.0
Alpha	0.0	0.0
Beta	1.0	1.0
Std Dev	3.6	3.6
Up Capture Ratio	100.5	100.0
Down Capture Ratio	102.7	100.0
Sharpe Ratio (geo)	0.2	0.2
Information Ratio (geo)	-0.1	
Tracking Error	0.3	0.0
Correlation	1.0	1.0

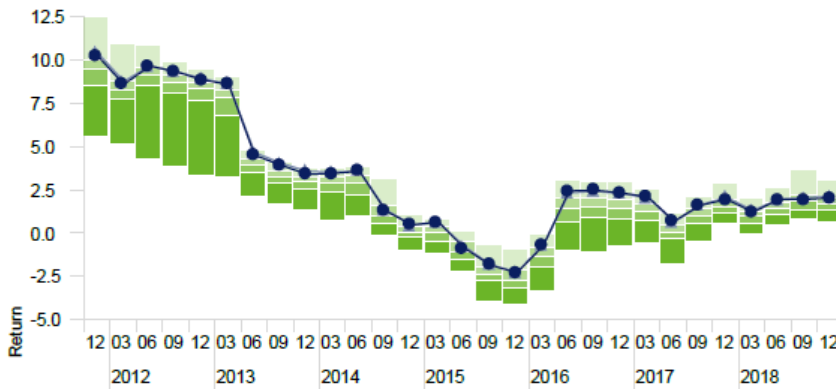
## Risk & Return Illustration (5 Years)

Time Period: 4/1/2014 to 12/31/2018



## Rolling Returns (3 Years)

Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile

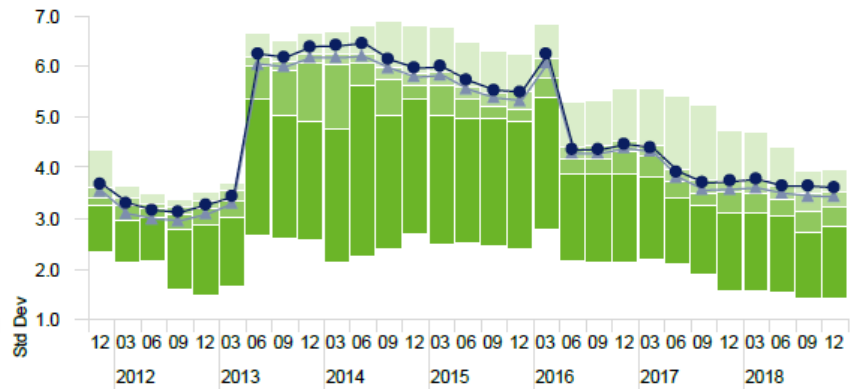


—Vanguard Inflation-Protected Secs I

—BBgBarc US Treasury US TIPS TR USD

## Rolling Risk (3 Years)

Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



—Vanguard Inflation-Protected Secs I

—BBgBarc US Treasury US TIPS TR USD

## Calendar Year Returns

	2009	Rank	2010	Rank	2011	Rank	2012	Rank	2013	Rank	2014	Rank	2015	Rank	2016	Rank	2017	Rank	2018	Rank
Vanguard Inflation-Protected Secs I	11.0	29	6.3	28	13.4	6	6.9	24	-8.8	52	4.1	5	-1.7	31	4.6	39	3.0	34	-1.4	48
BBgBarc US Treasury US TIPS TR USD	11.4		6.3		13.6		7.0		-8.6		3.6		-1.4		4.7		3.0		-1.3	

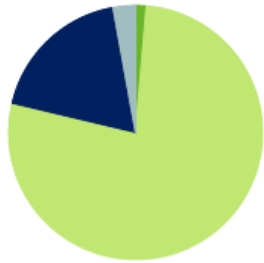


Source: Morningstar

# BLACKROCK STRATEGIC INCOME

## Asset Allocation

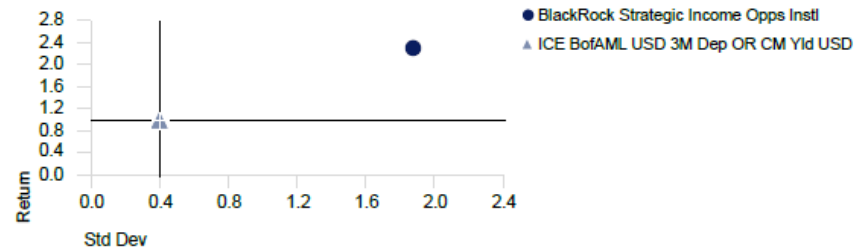
Portfolio Date: 6/30/2018



	%
Stock	1.3
Bond	77.4
Cash	18.4
Other	2.8
<b>Total</b>	<b>100.0</b>

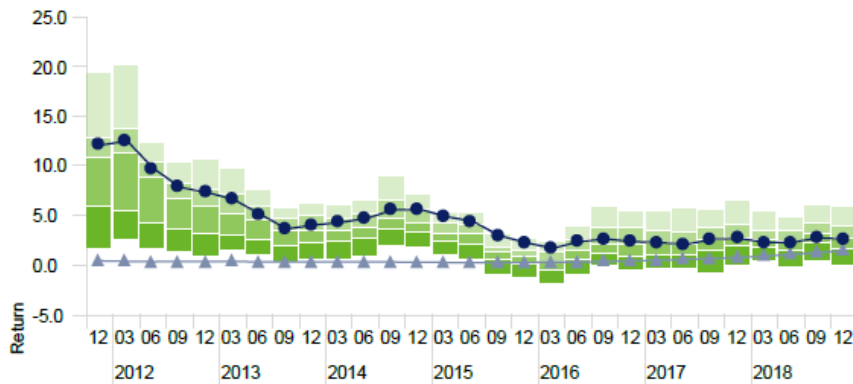
## Risk & Return Illustration (5 Years)

Time Period: 1/1/2014 to 12/31/2018



## Rolling Returns (3 Years)

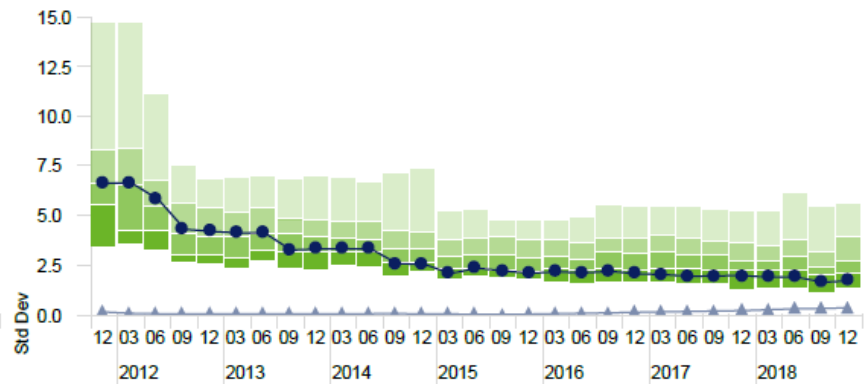
Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



—BlackRock Strategic Income Opps Instl —ICE BofAML USD 3M Dep OR CM Yld USD

## Rolling Risk (3 Years)

Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



—BlackRock Strategic Income Opps Instl —ICE BofAML USD 3M Dep OR CM Yld USD

## Calendar Year Returns

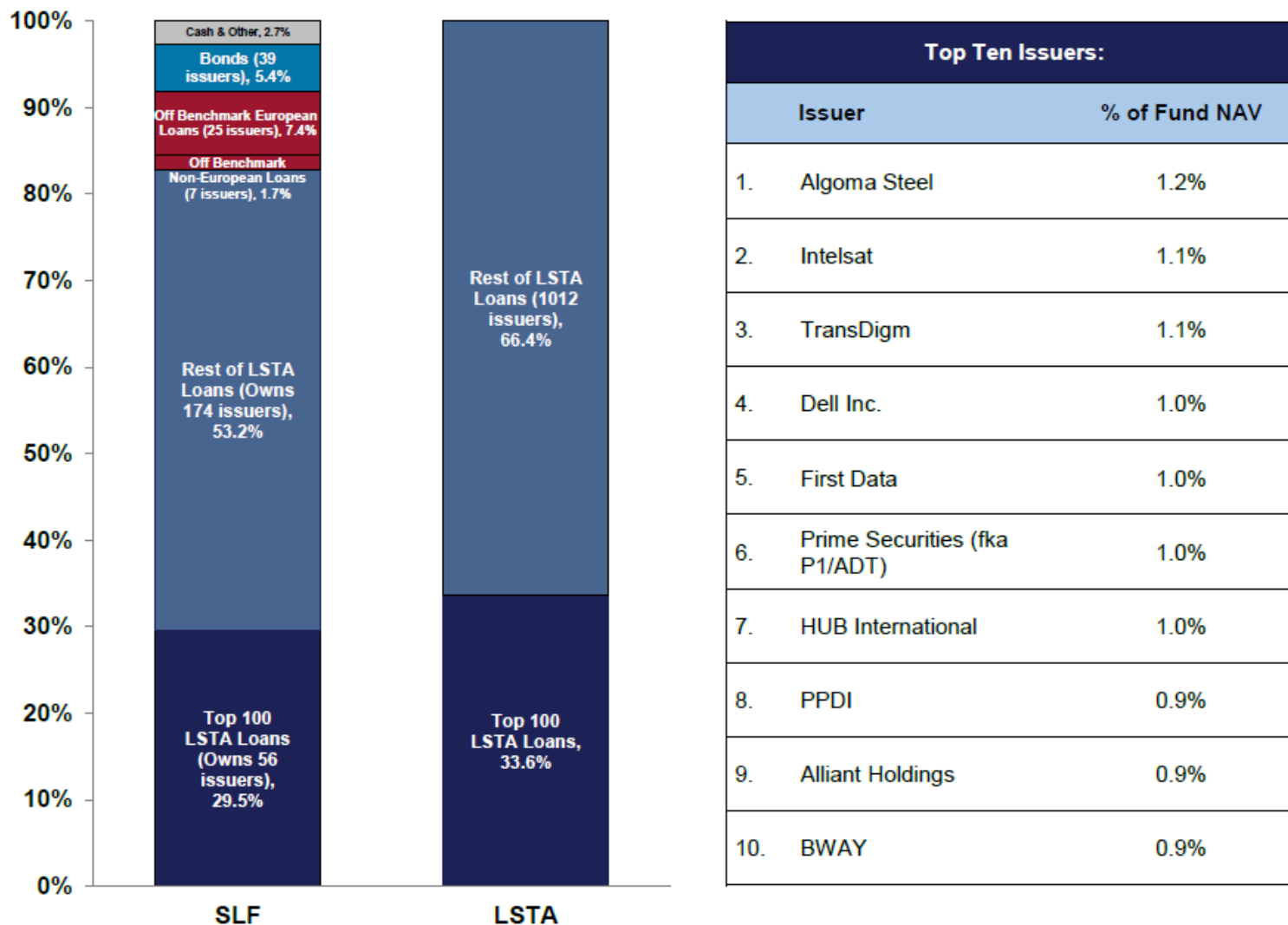
	2009	Rank	2010	Rank	2011	Rank	2012	Rank	2013	Rank	2014	Rank	2015	Rank	2016	Rank	2017	Rank	2018	Rank
BlackRock Strategic Income Opps Instl	25.2	29	13.4	1	-0.7	50	9.9	25	3.3	19	3.9	16	-0.3	32	3.6	66	4.9	39	-0.5	46
ICE BofAML USD 3M Dep OR CM Yld USD	0.7		0.3		0.3		0.4		0.3		0.2		0.3		0.8		1.3		2.4	



Source: Morningstar

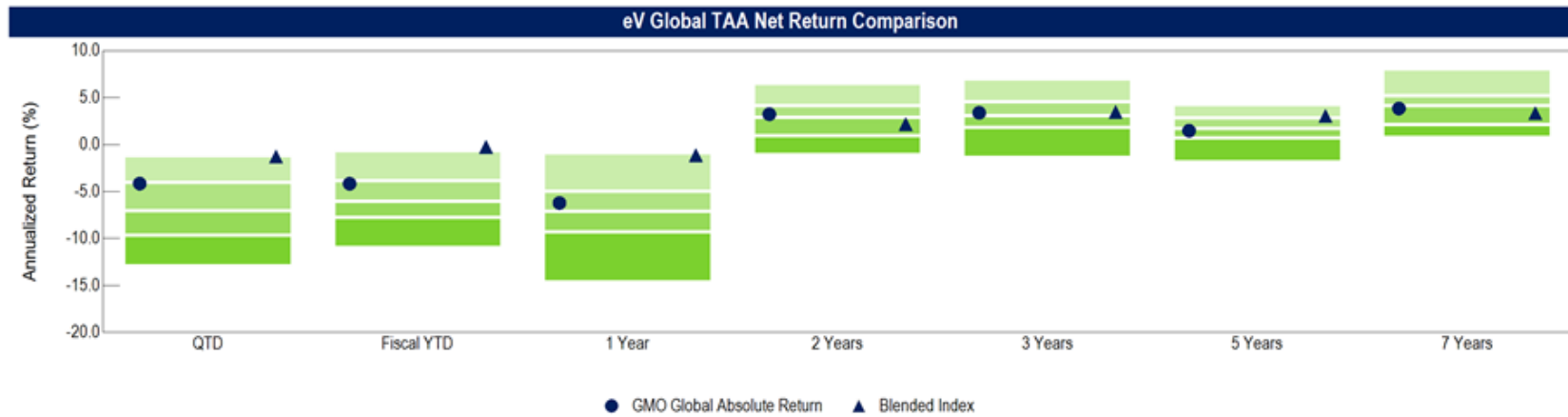
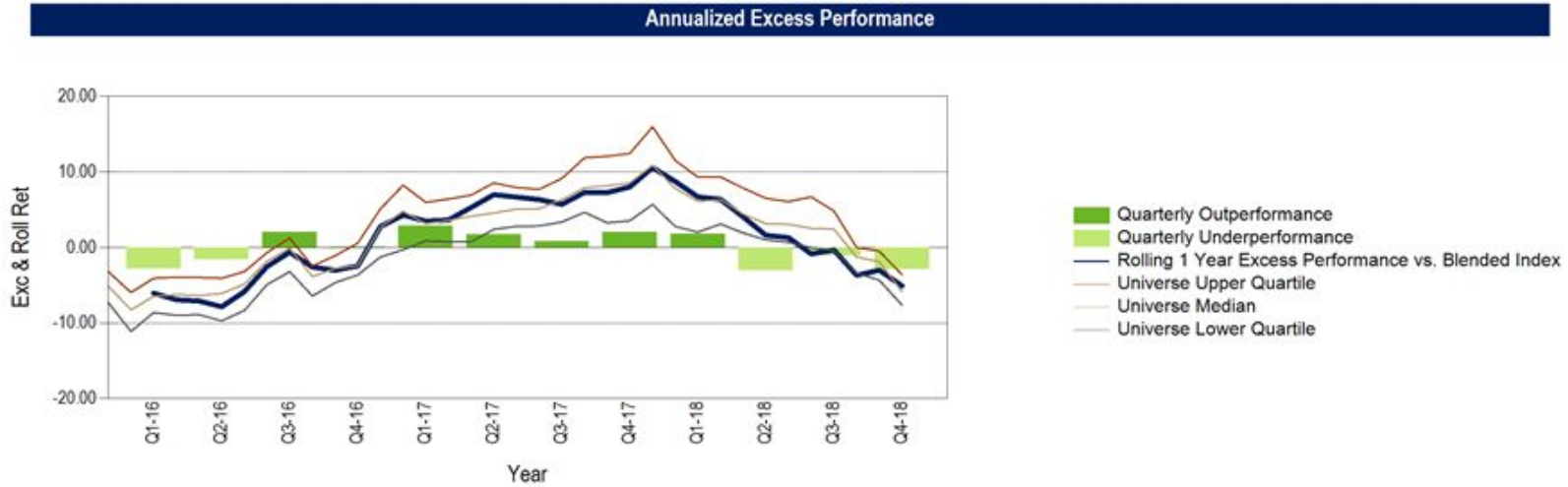


# BAIN CAPITAL SENIOR LOAN FUND



Source: Bain Capital

# GMO GLOBAL ABSOLUTE RETURN

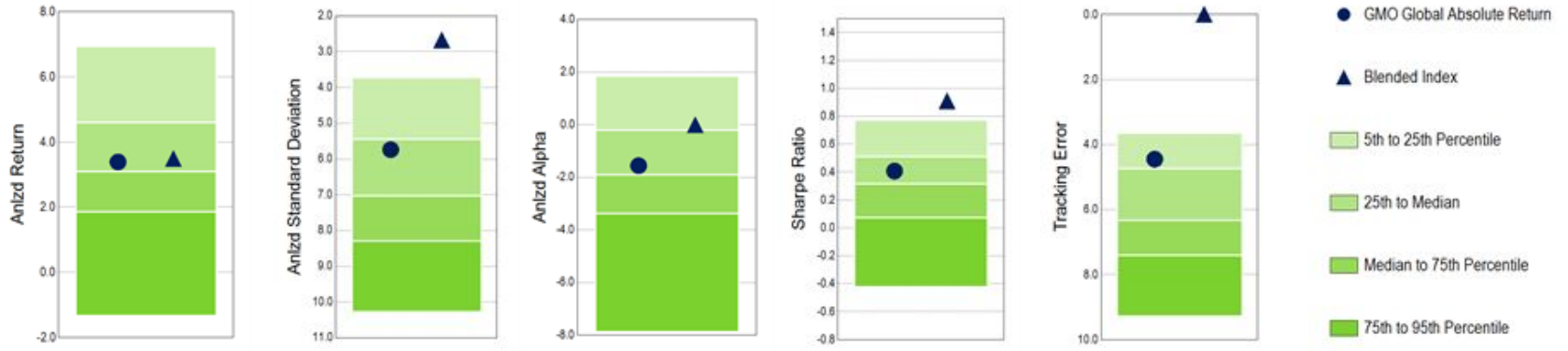


\*Returns are net of fees.

\*Blended Index: 40% BC Aggregate, 30% BC U.S. TIPS 1-10YR, 10% S&P 500, 10% BC High Yield, 10% JPM EMBI+



# GMO GLOBAL ABSOLUTE RETURN



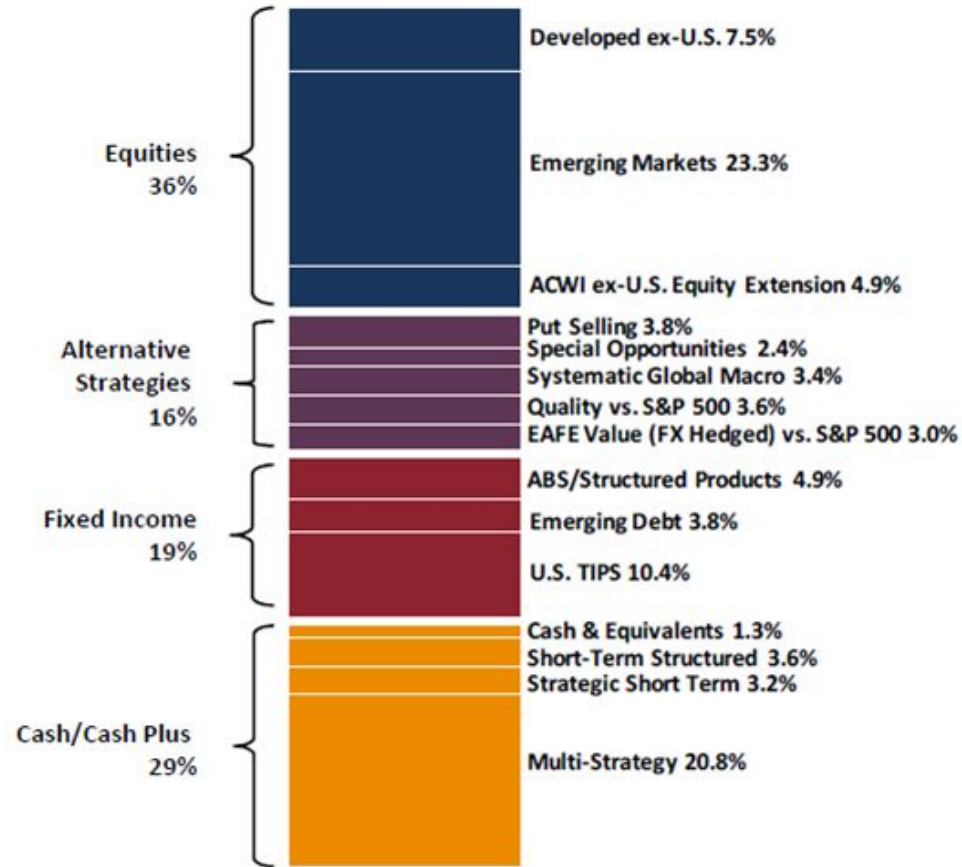
\*Returns are net of fees.

\*Blended Index: 40% BC Aggregate, 30% BC U.S. TIPS 1-10YR, 10% S&P 500, 10% BC High Yield, 10% JPM EMBI+



# GMO ALLOCATION ABSOLUTE RETURN STRATEGY

## Strategy Composition

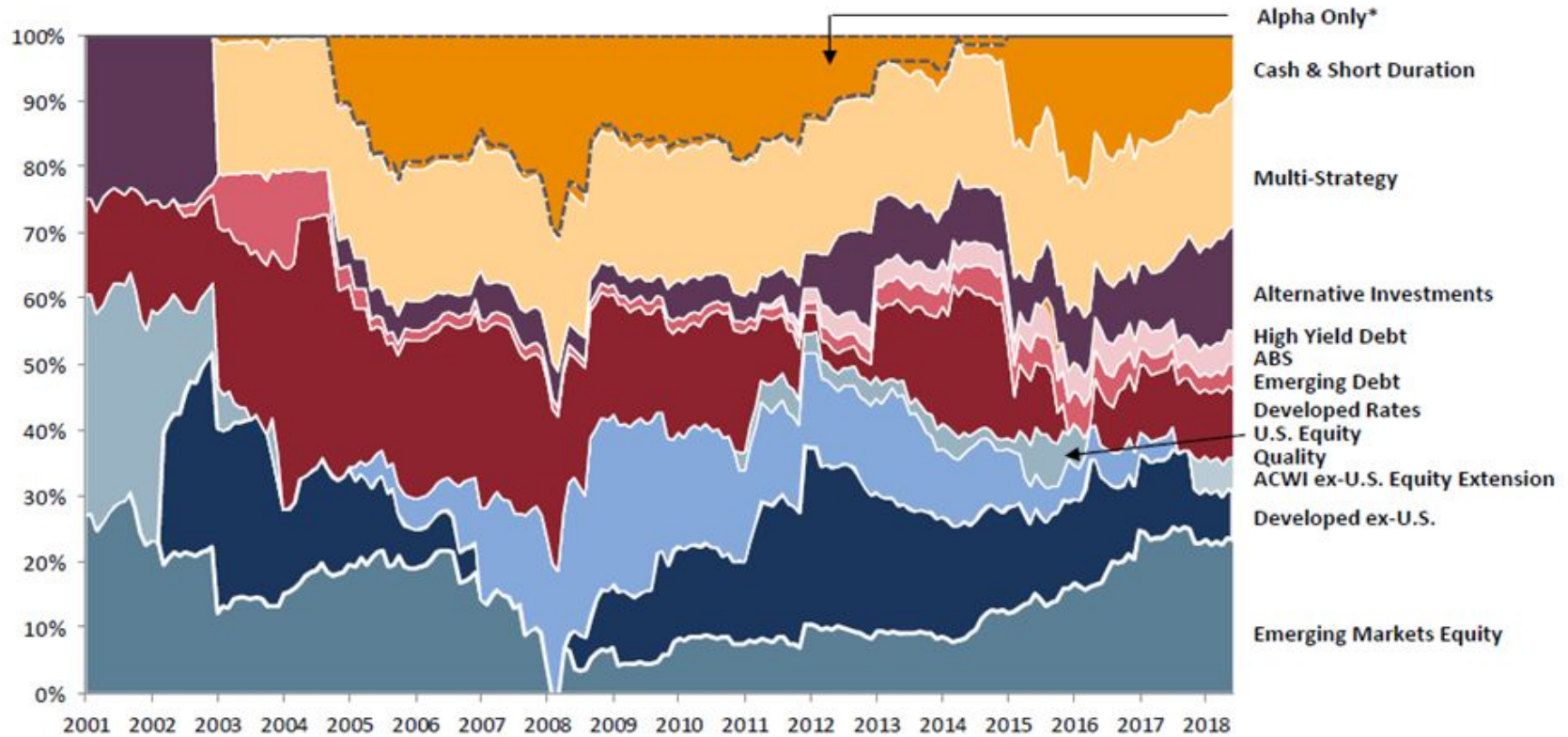


Source: GMO



# GMO ALLOCATION ABSOLUTE RETURN STRATEGY

## Allocation History

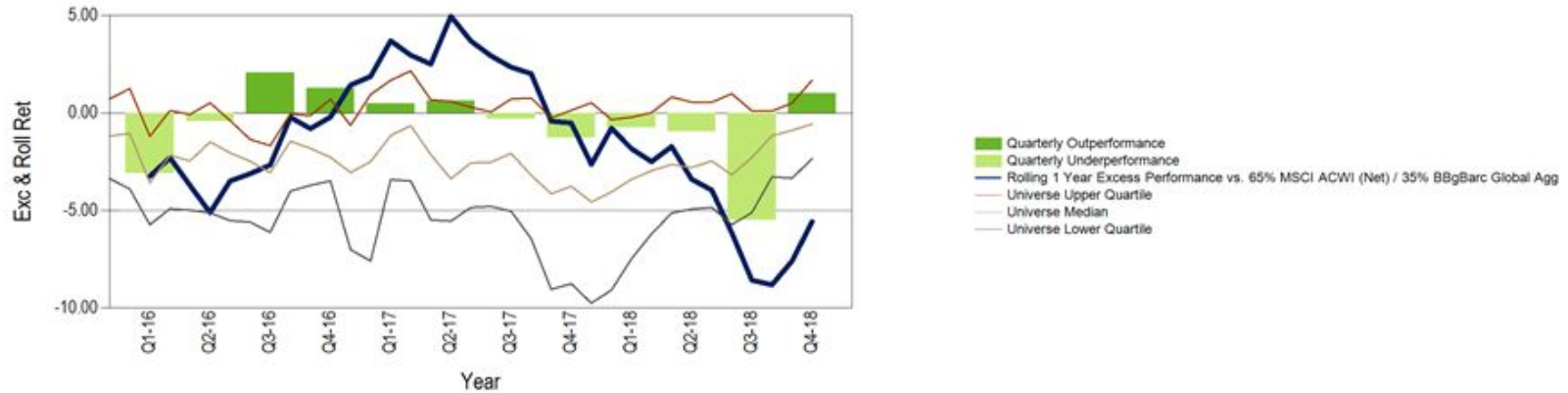


Source: GMO



# WELLINGTON OPPORTUNISTIC

Annualized Excess Performance



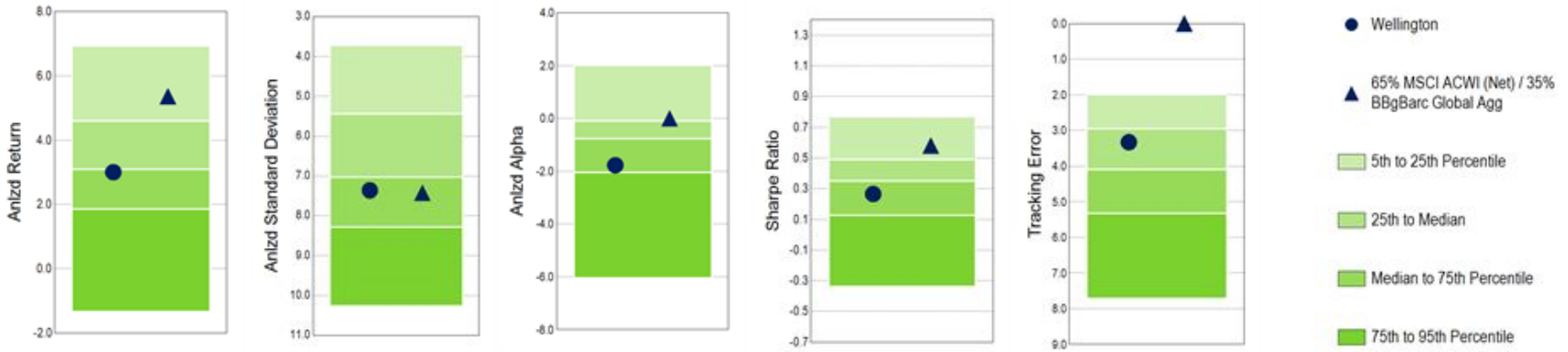
eV Global TAA Net Return Comparison



\*Returns are net of fees.



# WELLINGTON OPPORTUNISTIC

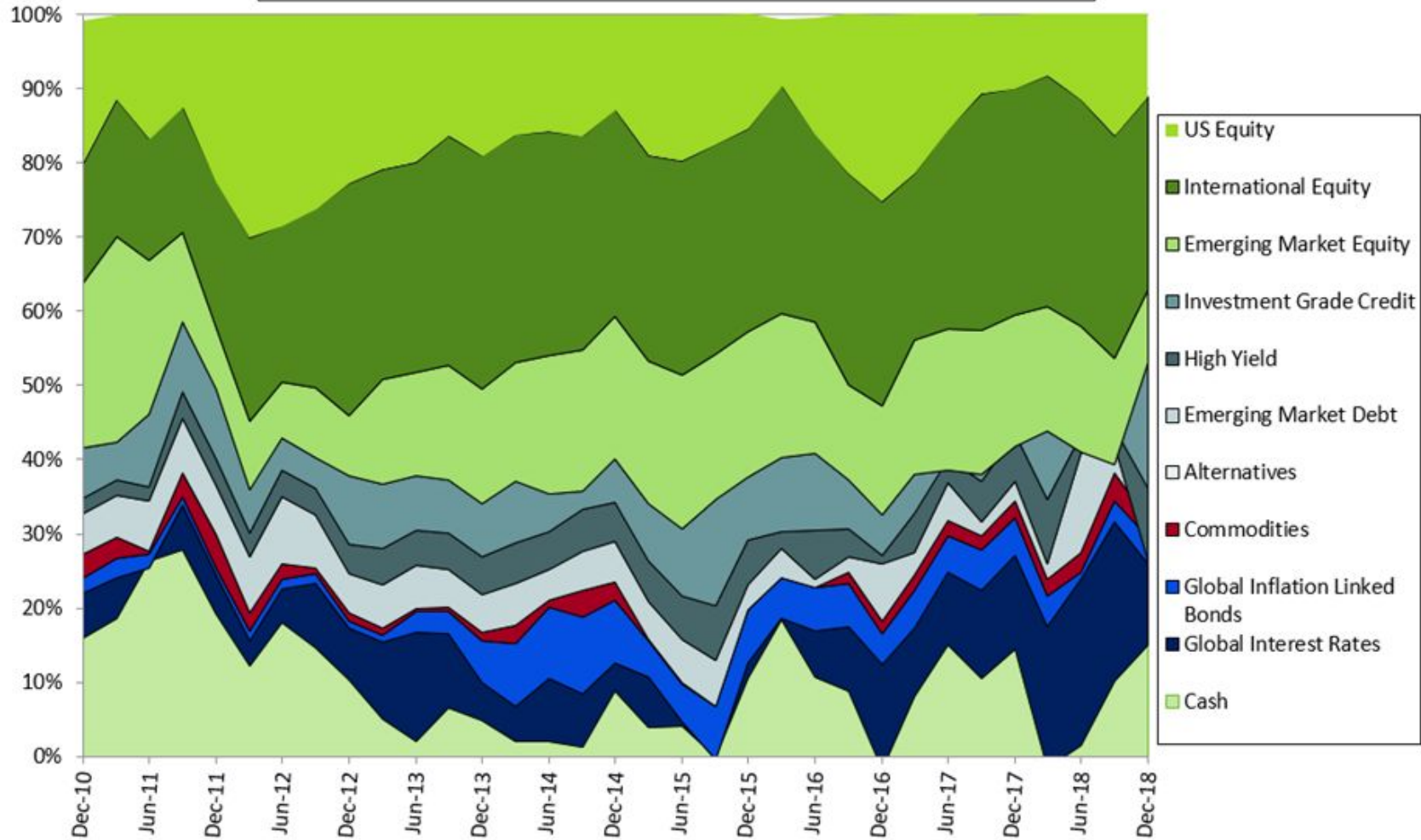


\*Returns are net of fees.



# WELLINGTON OPPORTUNISTIC

Wellington Opportunistic Investment Allocation



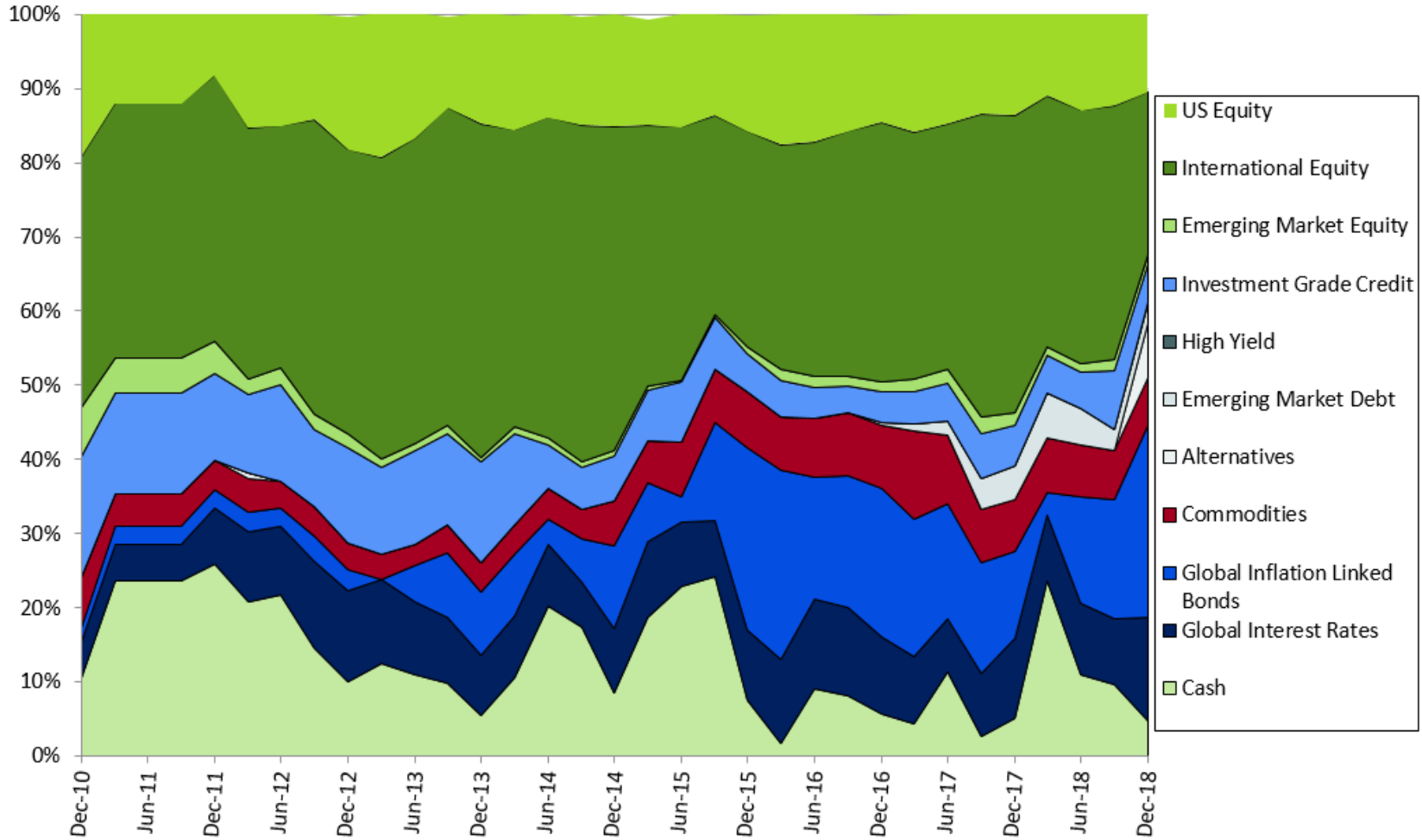
Source: Wellington





# NEWTON GLOBAL REAL RETURN

Newton Global Real Return



Source: Newton

# LIGHTHOUSE GLOBAL LONG/SHORT

General Fund Information			
<b>Fund Name</b>	Lighthouse Global Long/Short Fund		
<b>Management Company</b>	Lighthouse Investment Partners, LLC		
<b>Location</b>	Palm Beach, FL		
<b>Firm AUM</b>	\$16.6 billion	<b>Strategy</b>	Fund of Fund
<b>Strategy AUM</b>	\$1.9 billion	<b>Sub-Strategy</b>	Long/Short Equity
<b>Portfolio Managers</b>	Ethan Baron	<b>Direct or FOF</b>	FOF

Terms	
<b>Share Class</b>	--
<b>Minimum Investment</b>	\$1 million
<b>Management Fee</b>	1.15%
<b>Incentive Fee</b>	--
<b>Hurdle Rate</b>	None
<b>High Water Mark</b>	Yes
<b>Subscription</b>	Monthly
<b>Redemption</b>	Quarterly (60 days notice) or Monthly (90 days notice)
<b>Lock-Up</b>	None

**Investment Strategy**

Lighthouse's Global Long/Short Fund is a global portfolio of 20-30 separately managed accounts with industry sector and country specialist managers. The geographical allocations are similar to the MSCI World Index (30%-75% Americas, 10%-35% Europe, 5%-35% Asia).

The Fund targets returns greater than 10% over market cycles with 6%-8% volatility and an equity beta of 0.2-0.4 to the MSCI World Index.

## Strategy Information

### Region Allocation & Attribution



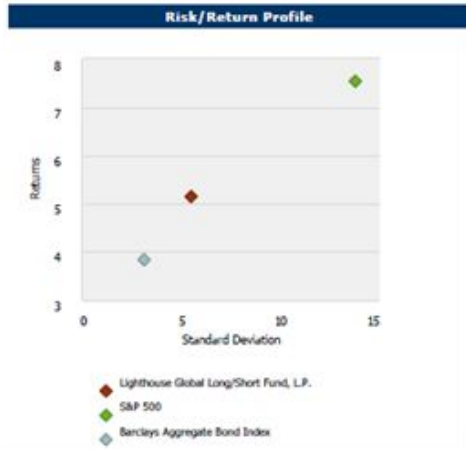
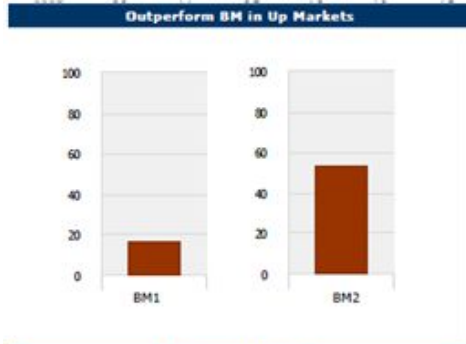
### Sector Allocation & Attribution



For more information please see NEPC's Investment Due Diligence Report and Operational Due Diligence Report

# LIGHTHOUSE GLOBAL LONG/SHORT

Monthly Performance													Performance Analysis				
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year		Lighthouse Global Long/Short Fund, L.P.	S&P 500	Barclays Aggregate Bond Index
2018	2.4	-0.3	-0.5	0.8	3.1	-1.9	0.3	-0.6	-0.4	-5.1	-2.0	-1.8	-5.8	Since Inception Return	5.1	7.5	3.8
2017	1.6	0.3	1.1	-0.5	-0.3	0.0	0.7	1.0	0.1	2.2	-0.6	1.1	6.7	1 Yr Return	-5.8	-4.4	0.0
2016	-3.6	-0.7	-0.4	0.6	1.0	0.3	1.7	-0.2	1.0	-0.9	1.2	0.3	0.0	3 Yr Return	0.2	9.3	2.1
2015	1.0	1.0	1.6	-0.5	1.1	0.2	0.4	-0.8	-1.0	2.2	0.0	1.7	7.2	5 Yr Return	2.5	8.5	2.5
2014	0.9	1.8	-1.7	-2.0	1.2	1.9	-0.5	1.7	-0.1	0.3	1.2	0.6	5.3	7 Yr Return	5.5	12.7	2.1
2013	3.2	0.5	2.7	1.5	1.0	1.0	2.2	-0.3	2.2	1.2	1.1	2.4	20.5	10 Yr Return	5.2	13.1	3.5
2012	1.7	1.7	1.6	1.2	-3.7	0.5	0.2	1.1	1.3	-0.1	0.8	0.4	6.7	Best Month	3.3	10.9	3.7
2011	-0.2	1.2	0.7	2.1	-1.1	-1.5	0.6	-3.1	-0.6	1.7	-1.0	-0.6	-1.9	Worst Month	-6.4	-16.8	-2.4
2010	0.0	0.3	1.9	0.6	-2.4	-1.7	1.7	-0.6	1.3	1.8	0.2	2.1	5.1	Percent Profitable Periods	66.7	67.9	64.9
2009	0.3	-0.5	1.1	1.3	2.3	0.7	1.6	1.4	1.5	-0.9	0.3	0.9	10.2	Product Inception Date	01/01/2005	---	01/01/2018
2008	-3.2	1.2	-4.7	1.5	2.8	-0.5	-1.4	-0.3	-6.4	-2.0	-0.6	0.0	-13.1				
2007	2.7	0.4	1.5	2.6	3.2	1.3	-0.2	-2.3	1.8	3.3	-2.4	0.2	12.6				
2006	2.1	0.0	0.7	0.6	-2.0	-0.3	0.1	2.0	1.8	1.8	2.5	2.4	12.2				



Risk Analysis			
Since Inception Standard Deviation	5.5	13.8	3.1
3 Yr Standard Deviation	5.4	11.0	2.9
5 Yr Standard Deviation	4.9	10.9	2.8
7 Yr Standard Deviation	5.0	10.7	2.8
10 Yr Standard Deviation	4.8	13.6	2.8
Sharpe Ratio	0.7	0.5	0.8
Sortino Ratio	1.0	0.6	1.4
Loss Deviation	3.9	9.8	1.8
Max Drawdown	15.2	50.9	3.8
Max Drawdown Length	16	16	7
Max Drawdown Recovery Length	25	37	2

Comparison to Benchmarks		
Annualized Alpha	3.2	5.8
Beta	0.2	-0.1
Correlation Coefficient	0.6	-0.1
R-Squared	0.4	0.0



# JOHN HANCOCK TIMBER

## INVESTMENTS

Investments										
<u>Property</u>	<u>Location</u>	<u>Acquisition date</u>	<u>Acres</u>	<u>Independent appraisals</u>		<u>Book value</u>	<u>Fair market value</u>	<u>Unrealized appreciation (depreciation)</u>		
				<u>Last</u>	<u>Next</u>					
Tyler	TX	10/31/05	86,612	Dec-17	Dec-18	\$ 76,035,013	\$ 165,110,147	\$ 89,075,134		
<b>Total equity real estate</b>			<b>86,612</b>			<b>\$ 76,035,013</b>	<b>\$ 165,110,147</b>	<b>\$ 89,075,134</b>		
<u>Other investments</u>										
		<u>Acquisition date</u>								
Red River Timberlands Company *	LA, TX	4/1/08	119,067	Dec-17	Dec-18	\$ 110,406,154	\$ 127,837,086	\$ 17,430,932		
<b>Total other investments</b>			<b>119,067</b>			<b>\$ 110,406,154</b>	<b>\$ 127,837,086</b>	<b>\$ 17,430,932</b>		

## INVESTMENT REGIONS

As of December 31, 2018

<u>NCREIF Region</u>	<u>Real Estate Market Value</u>	<u>Market Value (%)</u>	<u>Acres</u>	<u>Acres (%)</u>
Northeast	\$ 113,925,000	1.4%	42,950	1.1%
Lake States	18,075,801	0.2%	30,712	0.8%
Pacific Northwest	1,957,461,328	24.2%	878,602	22.5%
Southeast	1,071,554,048	13.2%	561,405	14.4%
Southwest	1,012,292,371	12.5%	512,303	13.1%
Non - U.S.A	3,923,720,733	48.5%	1,883,715	48.2%
	<b>\$ 8,097,029,281</b>	<b>100.0%</b>	<b>3,909,687</b>	<b>100.0%</b>



Source: Hancock

# LANDMARK EQUITY PARTNERS XV

General Fund Information			
<b>Fund Name</b>	Landmark Equity Partners XV		
<b>General Partner</b>	Landmark Partners		
<b>Main Address</b>	10 Mill Pond Lane, Simsbury, CT 06070		
<b>Target Fund Size</b>	\$2.5B	<b>Expected Final Close</b>	Up to 15 months after Initial Closing
<b>Capital Raised</b>	\$3.25B	<b>Closes to Date</b>	Yes
<b>Investment Period</b>	3-4 years	<b>Minimum Investment</b>	\$10M (negotiable)
<b>Term of Entity</b>	10 years from initial close, subject to 2 one-year extensions at GP's discretion	<b>Investment Structure</b>	Delaware L.P.
<b>Key Persons</b>	There are 6 members of the Key Person clause	<b>Fund Auditor</b>	PWC
<b>Size of Fund Team</b>	78 professionals (includes investment and administrative)	<b>Number of Past Funds</b>	28 (across all strategies)

GP Fees, Promote and Commitment	
<b>Preferred Return</b>	<ul style="list-style-type: none"> <li>8% per annum</li> </ul>
<b>GP Fees</b>	Years 1 - 4: 1.00% of LP's capital commitments Years 5 - 8: 1.00% of the aggregate amount of LP's capital contributions plus amounts subject to call for Fund obligations Years 8 - remaining life of fund: 1.00% of LP's investment percentage of the reported value of Fund XV's portfolio investments
<b>GP Commitment</b>	<ul style="list-style-type: none"> <li>1% of aggregate commitments</li> </ul>
<b>Carried Interest</b>	<ul style="list-style-type: none"> <li>10% on secondary investments only</li> </ul>

Fund Strategy			
<b>Investment Strategy</b>	<ul style="list-style-type: none"> <li>Landmark XV's primary objective is to acquire interests in private equity investments through secondary transactions.</li> <li>Landmark will build a diversified portfolio of private equity partnership interests diversified by strategy, geography and vintage year.</li> <li>Landmark strives to execute transactions on a negotiated basis and acquire portfolios of interests in private equity funds and direct investments through secondary market transactions that are unique, may require structuring, and where the opportunity for value creation exists.</li> </ul>		
<b>Target Net Returns</b>	Landmark aims to return a 1.6x-1.8x net multiple and a 15%-20% net IRR	<b>Direct or fund of funds</b>	Fund of funds (secondary interests)
<b>Investment Style</b>	Secondary	<b>Target Fund Leverage</b>	May use up to 10% leverage on aggregate commitment amount
<b>Target Asset Types</b>	Secondary investments in limited partnership interests	<b>Target Geographies</b>	Global (primary focus North America and Europe)
		<b>Target Deal Size</b>	No stated minimums or maximums

Fund Sourcing and Asset Management Capabilities	
<b>Sourcing Capabilities</b>	<ul style="list-style-type: none"> <li>Reactive deal flow is attributed to inbound leads from limited partners, general partners and intermediaries - generally in the form of an auction.</li> <li>Firm will only consider participating in a competitive process if it believes it has an edge on its competitors with regard to familiarity of a portfolio and/or believes the assets are mispriced.</li> <li>Utilizes its proprietary database, quantitative research, and portfolio management tools to proactively engage with potential sellers with the ultimate goal of sourcing investments on an exclusive basis.</li> <li>Believes that deal exclusivity hinges on talking to LPs who do not yet realize that they are potential sellers. Two-thirds of their non-auctioned deal flow is due to their research tool projects undertaken with potential sellers.</li> </ul>
<b>Value Add</b>	<ul style="list-style-type: none"> <li>Focus on sourcing exclusive transactions should on average produce pricing that is lower than the prices available in the auction channel.</li> <li>Strives to arrange preferred structures to protect downside while preserving commensurate upside participation.</li> <li>Proactive sourcing model allows the investment team more time and better access to data to conduct due diligence.</li> </ul>



# APPENDIX

NEPC, LLC

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# GLOSSARY OF TERMS

**Alpha** - Measures the relationship between the fund performance and the performance of another fund or benchmark index and equals the excess return while the other fund or benchmark index is zero.

**Alpha Jensen** - The average return on a portfolio over and above that predicted by the capital asset pricing model (CAPM), given the portfolio's beta and the average market return. Also known as the abnormal return or the risk adjusted excess return.

**Annualized Excess Return over Benchmark** - Annualized fund return minus the annualized benchmark return for the calculated return.

**Annualized Return** - A statistical technique whereby returns covering periods greater than one year are converted to cover a 12 month time span.

**Beta** - Measures the volatility or systematic risk and is equal to the change in the fund's performance in relation to the change in the assigned index's performance.

**Information Ratio** - A measure of the risk adjusted return of a financial security, asset, or portfolio.

*Formula:*

*(Annualized Return of Portfolio - Annualized Return of Benchmark)/Annualized Standard Deviation(Period Portfolio Return - Period Benchmark Return). To annualize standard deviation, multiply the deviation by the square root of the number of periods per year where monthly returns per year equals 12 and quarterly returns is four periods per year.*

**R-Squared** - Represents the percentage of a fund's movements that can be explained by movements in an index. R-Squared values range from 0 to 100. An R-Squared of 100 denotes that all movements of a fund are completely explained by movements in the index.

**Sharpe Ratio** - A measure of the excess return or risk premium per unit of risk in an investment asset or trading strategy.

**Sortino Ratio** - A method to differentiate between good and bad volatility in the Sharpe Ratio. The differentiation of up and down volatility allows the calculation to provide a risk adjusted measure of a security or fund's performance without upward price change penalties.

*Formula:*

*Calculation Average (X-Y)/Downside Deviation (X-Y) \* 2  
Where X=Return Series X Y = Return Series Y which is the risk free return (91 day T-bills)*

**Standard Deviation** - The standard deviation is a statistical term that describes the distribution of results. It is a commonly used measure of volatility of returns of a portfolio, asset class, or security. The higher the standard deviation the more volatile the returns are.

*Formula:*

*(Annualized Return of Portfolio - Annualized Return of Risk Free) / Annualized Standard Deviation (Portfolio Returns)*

**Tracking Error** - Tracking error, also known as residual risk, is a measure of the degree to which a portfolio tracks its benchmark. It is also a measure of consistency of excess returns. Tracking error is computed as the annualized standard deviation of the difference between a portfolio's return and that of its benchmark.

*Formula:*

*Tracking Error = Standard Deviation (X-Y) \*  $\sqrt{(\# \text{ of periods per year})}$*

*Where X = periods portfolio return and Y = the period's benchmark return*

*For monthly returns, the periods per year = 12*

*For quarterly returns, the periods per year = 4*

**Treynor Ratio** - A risk-adjusted measure of return based on systematic risk. Similar to the Sharpe ratio with the difference being the Treynor ratio uses beta as the measurement of volatility.

*Formula:*

*(Portfolio Average Return - Average Return of Risk-Free Rate)/Portfolio Beta*

**Up/Down Capture Ratio** - A measure of what percentage of a market's returns is "captured" by a portfolio. For example, if the market declines 10% over some period, and the manager declines only 9%, then his or her capture ratio is 90%. In down markets, it is advantageous for a manager to have as low a capture ratio as possible. For up markets, the higher the capture ratio the better. Looking at capture ratios can provide insight into how a manager achieves excess returns. A value manager might typically have a lower capture ratio in both up and down markets, achieving excess returns by protecting on the downside, whereas a growth manager might fall more than the overall market in down markets, but achieve above-market returns in a rising market.

*UpsideCapture = TotalReturn(FundReturns)/TotalReturns(BMReturn) when Period Benchmark Return is > = 0*

*DownsideCapture = TotalReturn(FundReturns)/TotalReturns(BMReturn) when Benchmark < 0*

*Data Source: InvestorForce*



# INFORMATION DISCLAIMER AND REPORTING METHODOLOGY

## Information Disclaimer

- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
- Some index returns displayed in this report or used in calculation of a policy, allocation or custom benchmark may not be available from the source or may be preliminary and subject to change.
- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodial bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
- This report is provided as a management aid for the client's internal use only. Performance contained in this report does not constitute a recommendation by NEPC.
- This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

## Reporting Methodology

- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of Return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.





# **FOURTH QUARTER 2018 SUPPLEMENTAL PERFORMANCE**

## **UNIVERSITY OF MAINE SYSTEM OPERATING FUND**

**March 11, 2019**

**Jay E. Roney, Partner**

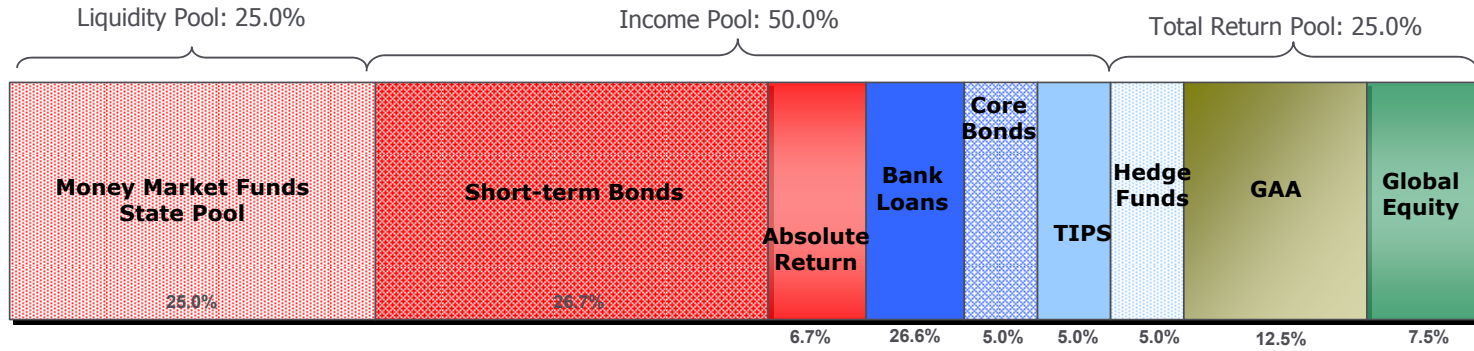
**Kelly Regan, Senior Consultant**



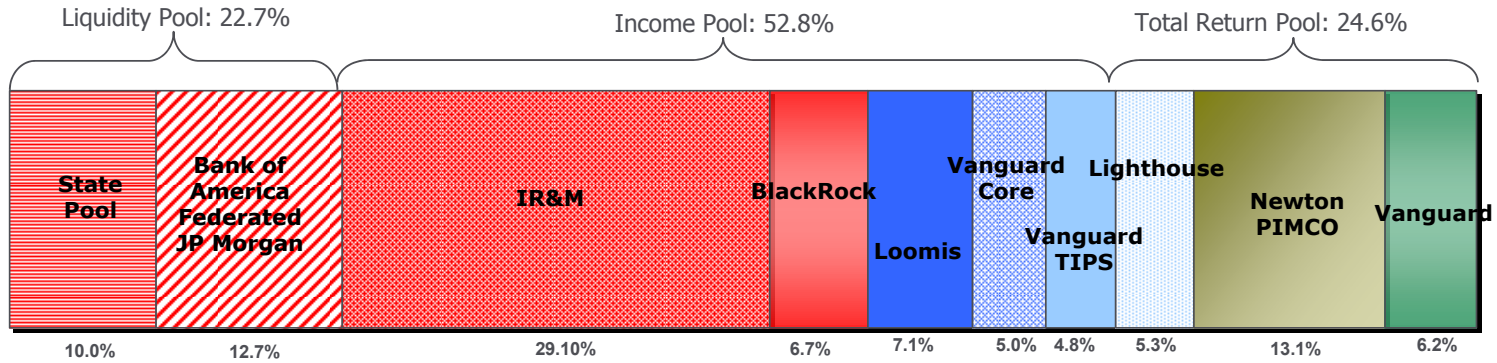
BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

# TOTAL FUND ASSET ALLOCATION

## Target Asset Allocation



## Actual Asset Allocation



\*May not add up to 100% due to rounding



# TOTAL PLAN PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)
<b>Operating Funds Composite</b>	<b>258,862,633</b>	<b>100.0</b>	<b>100.0</b>	<b>-1.2</b>	<b>-0.5</b>	<b>-0.2</b>	<b>2.1</b>	<b>2.6</b>	<b>1.6</b>	<b>2.4</b>	<b>3.1</b>
<i>Allocation Index</i>				-1.3	-0.4	0.0	2.3	2.5	1.9	2.4	--
<b>Liquidity Pool Composite</b>	<b>58,643,273</b>	<b>22.7</b>	<b>25.0</b>	<b>0.5</b>	<b>0.9</b>	<b>1.6</b>	<b>1.2</b>	<b>1.0</b>	<b>0.6</b>	<b>0.5</b>	<b>0.5</b>
State Pool	25,893,587	10.0		0.5	0.9	1.6	1.3	1.0	0.7	0.6	0.6
BOA General Fund	4,864,962	1.9		0.4	0.5	0.7	0.4	0.3	0.2	0.2	--
Federated Gov't Obligations	6,880,901	2.7		0.5	1.0	1.7	1.2	--	--	--	--
JP Morgan US Gov't Money Market Fund	21,003,823	8.1		0.5	1.0	1.7	1.2	--	--	--	--
<i>FTSE T-Bill 3 Months TR</i>				0.6	1.1	1.9	1.3	1.0	0.6	0.4	0.4
<b>Income Pool Composite</b>	<b>136,597,107</b>	<b>52.8</b>	<b>50.0</b>	<b>0.2</b>	<b>0.6</b>	<b>0.5</b>	<b>1.4</b>	<b>2.1</b>	<b>1.6</b>	<b>2.4</b>	<b>4.3</b>
Income Research + Management	75,434,786	29.1	26.7	1.0	1.4	1.5	1.2	1.3	1.1	--	--
<i>BBgBarc US Govt/Credit 1-3 Yr. TR</i>				1.2	1.5	1.6	1.2	1.2	1.0	1.0	1.5
BlackRock Strategic Income Opportunities	17,310,788	6.7	6.7	-0.5	0.0	-0.5	2.1	2.6	--	--	--
<i>3-Month Libor Total Return USD</i>				0.7	1.3	2.4	1.8	1.5	1.0	0.8	0.7
Loomis Sayles Bank Loans	18,382,260	7.1	6.7	-3.2	-1.7	-0.3	1.4	3.4	2.4	3.5	6.8
<i>Loomis Bank Loans Custom Index</i>				-3.5	-2.0	-0.4	1.5	3.4	3.0	4.2	8.5
Vanguard Total Bond Market Instl' Fund	12,933,502	5.0	5.0	1.6	1.7	0.0	1.8	2.1	2.5	2.1	--
<i>BBgBarc US Aggregate TR</i>				1.6	1.7	0.0	1.8	2.1	2.5	2.1	3.5
Vanguard Inflation-Protected Securities	12,535,771	4.8	5.0	-0.5	-1.3	-1.4	--	--	--	--	--
<i>BBgBarc US TIPS TR</i>				-0.4	-1.2	-1.3	0.8	2.1	1.7	0.9	3.6
<b>Total Return Pool Composite</b>	<b>63,622,252</b>	<b>24.6</b>	<b>25.0</b>	<b>-6.6</b>	<b>-4.9</b>	<b>-4.5</b>	<b>3.9</b>	<b>5.0</b>	<b>2.6</b>	<b>4.5</b>	<b>5.9</b>
Lighthouse	13,591,636	5.3	5.0	-8.4	-8.3	-3.6	1.7	1.2	--	--	--
<i>Credit Suisse Long Shrt Eqt USD</i>				-6.7	-5.2	-4.6	4.0	1.5	2.7	5.5	5.8
Newton Global Real Return	17,304,645	6.7	6.3	-1.4	0.6	1.2	2.7	--	--	--	--
<i>60% MSCI ACWI (Net)/ 40% BBgBarc Global Agg</i>				-7.3	-5.3	-6.0	4.9	5.2	3.1	5.5	6.8
PIMCO All Asset	16,591,633	6.4	6.3	-3.3	-2.9	-5.0	4.1	7.1	2.5	4.0	6.5
<i>Blended Index</i>				-1.3	-0.2	-1.1	2.2	3.5	3.1	3.4	5.5
Vanguard Total World Stock Index	16,134,338	6.2	7.5	-13.1	-9.6	-9.7	5.9	6.9	4.5	--	--
<i>FTSE Global All Cap Index</i>				-13.1	-9.6	-9.6	5.7	5.9	3.0	6.9	8.0

Returns are net of manager fees.

The inception date for the allocation index is 07/01/2009

Fiscal YTD begins 7/1

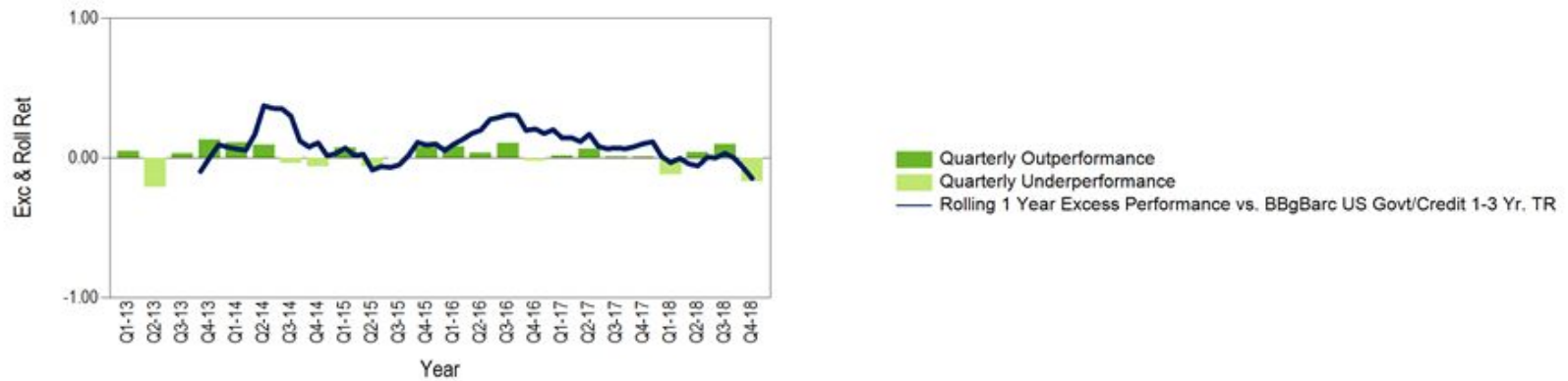
Blended Index: 40% BC Aggregate / 30% BC U.S. TIPS 1-10YR / 10% S&P 500 / 10% BC High Yield / 10% JPM EMBI+

Loomis Bank Loans Custom Index blends performance of "S&P/LSTA Leveraged Loan Index" before 9/1/2014 and "S&P/LSTA Leveraged BB Loan Index" after 9/1/2014.

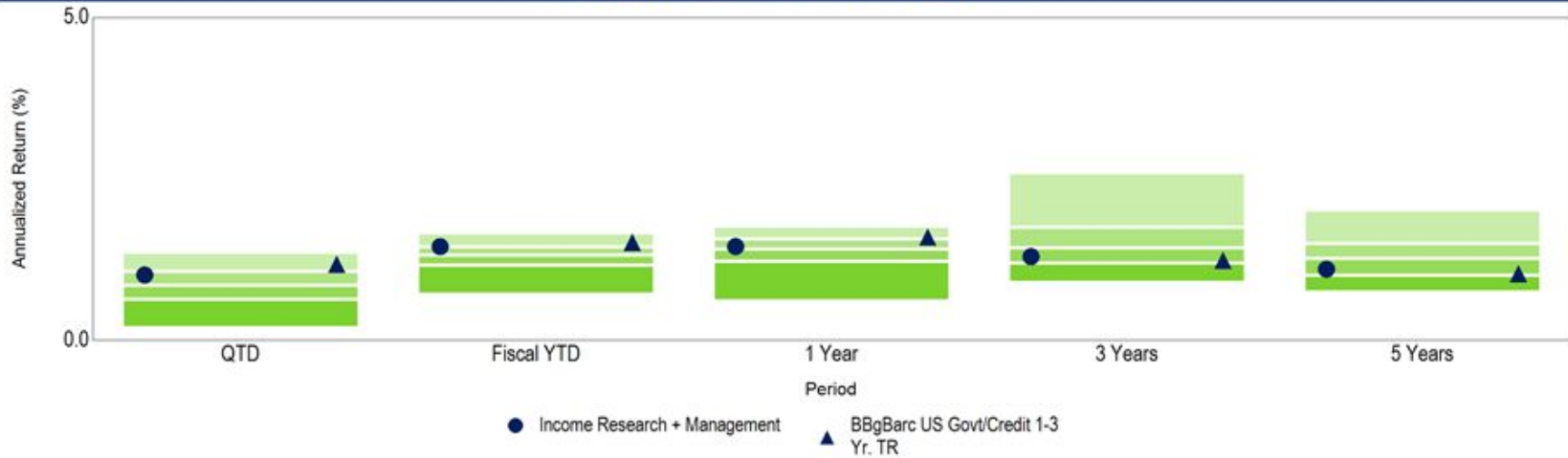
Composite excludes external loans.

# INCOME RESEARCH + MANAGEMENT

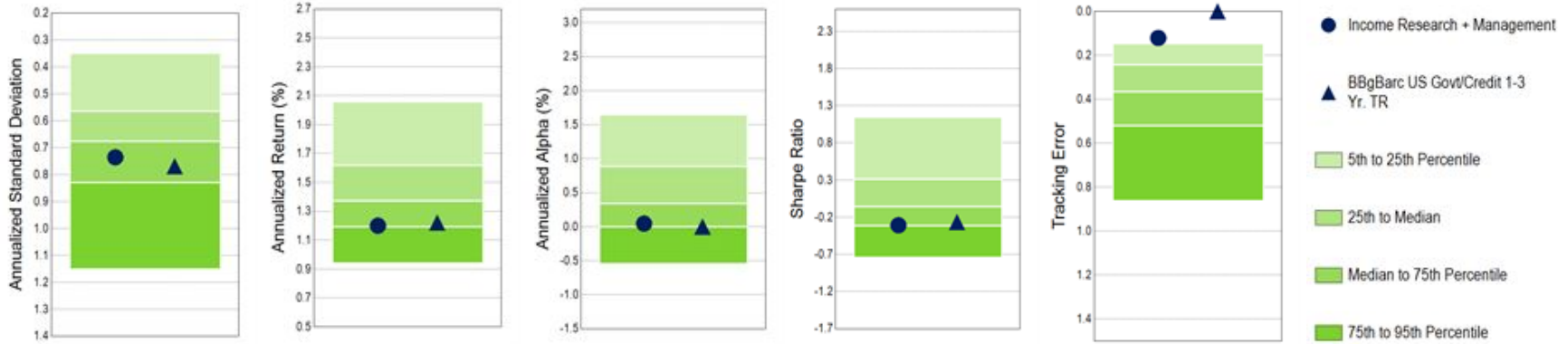
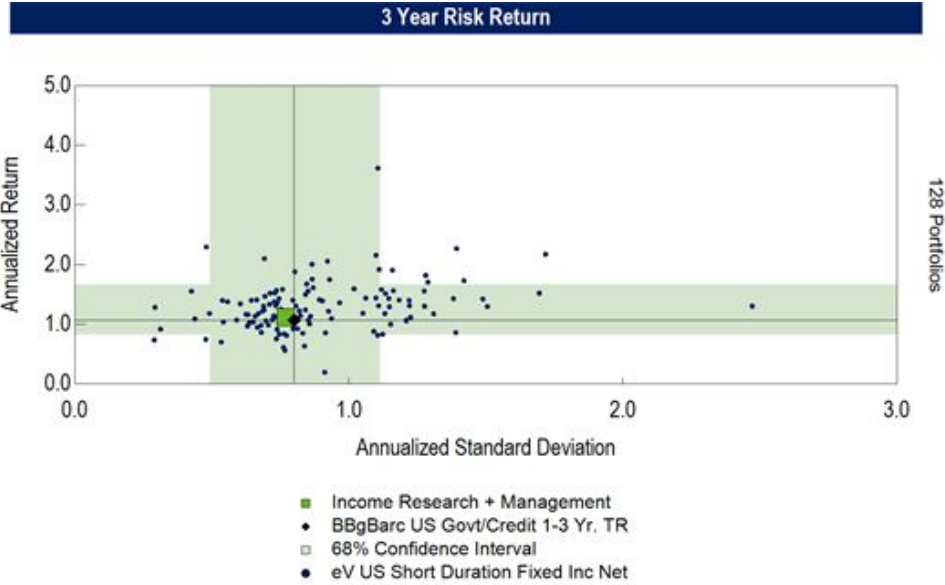
Rolling Annualized Excess Performance



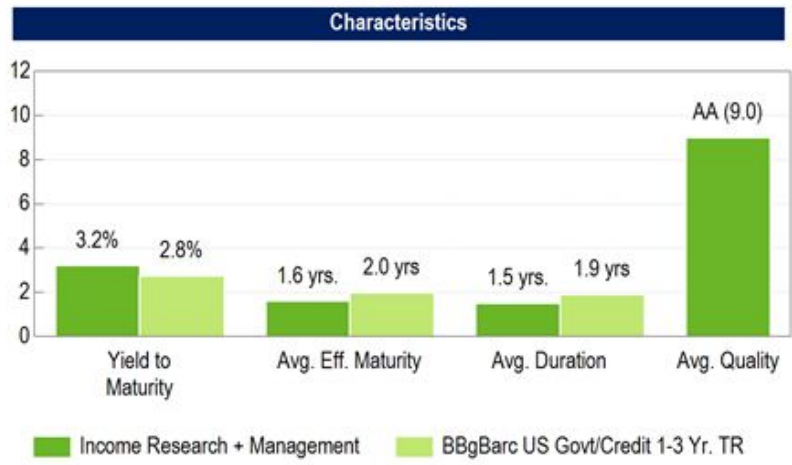
eV US Short Duration Fixed Inc Net Return Comparison



# INCOME RESEARCH + MANAGEMENT



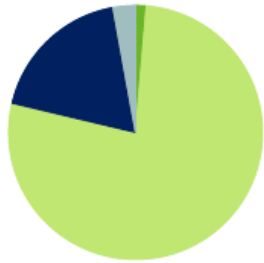
# INCOME RESEARCH + MANAGEMENT



# BLACKROCK STRATEGIC INCOME

## Asset Allocation

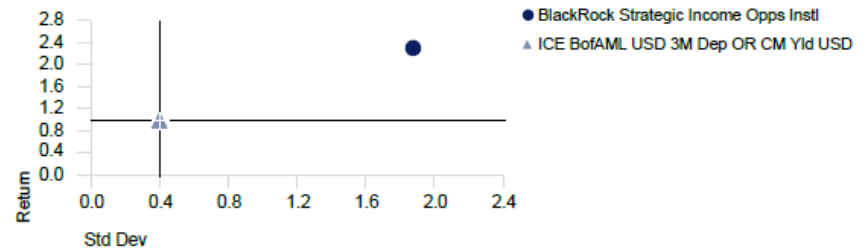
Portfolio Date: 6/30/2018



	%
Stock	1.3
Bond	77.4
Cash	18.4
Other	2.8
<b>Total</b>	<b>100.0</b>

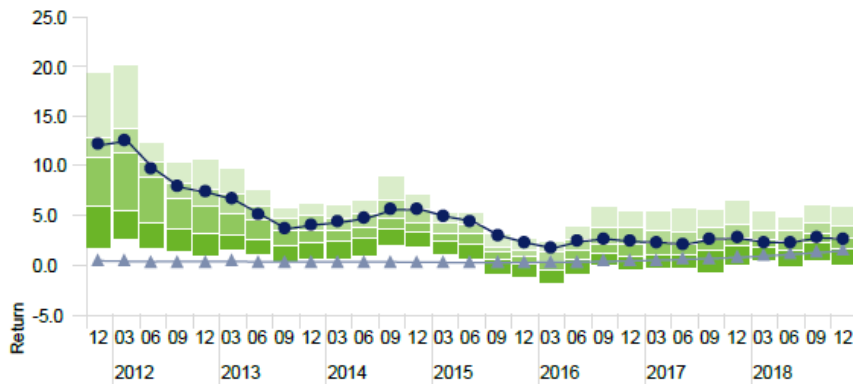
## Risk & Return Illustration (5 Years)

Time Period: 1/1/2014 to 12/31/2018



## Rolling Returns (3 Years)

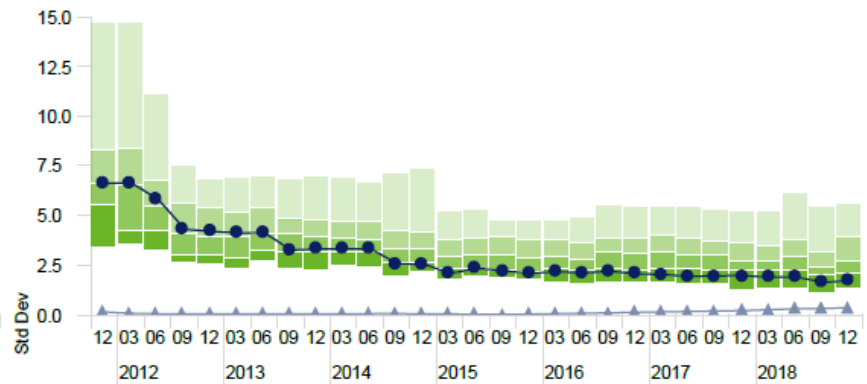
Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



—BlackRock Strategic Income Opps Instl —ICE BofAML USD 3M Dep OR CM Yld USD

## Rolling Risk (3 Years)

Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



—BlackRock Strategic Income Opps Instl —ICE BofAML USD 3M Dep OR CM Yld USD

## Calendar Year Returns

	2009	Rank	2010	Rank	2011	Rank	2012	Rank	2013	Rank	2014	Rank	2015	Rank	2016	Rank	2017	Rank	2018	Rank
BlackRock Strategic Income Opps Instl	25.2	29	13.4	1	-0.7	50	9.9	25	3.3	19	3.9	16	-0.3	32	3.6	66	4.9	39	-0.5	46
ICE BofAML USD 3M Dep OR CM Yld USD	0.7		0.3		0.3		0.4		0.3		0.2		0.3		0.8		1.3		2.4	



Source: Morningstar

# LOOMIS SAYLES BANK LOANS

HOLDINGS BY INDUSTRY (%)	
Technology	9.6
Consumer Cyclical Services	8.4
Healthcare	8.4
Building Materials	5.7
Media Entertainment	5.5
Retailers	4.2
Chemicals	4.1
Financial Other	4.0
Industrials - Other	4.0
Cable Satellite	3.6
Food & Beverage	3.4
Pharmaceuticals	3.1
Electric	2.7
Automotive	2.7
P&C	2.5
Environmental	2.1

Consumer Products	2.0
Restaurants	2.0
Gaming	1.9
Leisure	1.8
Wireless	1.4
Wirelines	1.3
Packaging	1.2
Oil Field Services	1.1
Internet & Data	1.0
Transportation Services	1.0
Aerospace/Defense	0.9
Midstream	0.9
Health Insurance	0.7
Diversified Manufacturing	0.7
Refining	0.7
Brokerage	0.7

Home Construction	0.7
Metals and Mining	0.6
Lodging	0.5
REITs	0.5
Supermarkets	0.4
Entertainment	0.4
Construction Machinery	0.3
Conglomerates	0.3
Banking	0.1
Cash & Equivalents	2.6

CREDIT QUALITY (%)		
	Portfolio	S&P/LSTA Leveraged Loan Index
AA	-	-
A	-	-
BBB	6.0	11.8
BB	48.1	30.5
B	42.2	49.6
CCC & Lower	0.1	6.5
Not Rated	1.0	1.5
Cash & Equivalents	2.6	-
Second Lien	-	3.2
Avg. Credit Quality	BB-	B+

Reflects the credit ratings assigned by Standard & Poors. If shown, the S&P/LSTA US BB Ratings Loan Index would be rated 100% BB.

SECTOR DISTRIBUTION (%)	
	Portfolio
Industrial	86.0
Financial	8.6
Utility	2.7
Cash & Equivalents	2.6

COUNTRY DISTRIBUTION (%)	
	Portfolio
United States	91.7
Canada	3.5
Other	4.8

TOP FIVE HOLDINGS (%)	
	Portfolio
Energy Transfer Equity, L.P.	0.8
Sedgwick Claims Management Services, Inc.	0.7
Virgin Media Bristol LLC	0.7
Michaels Stores, Inc.	0.7
Berry Global, Inc.	0.7



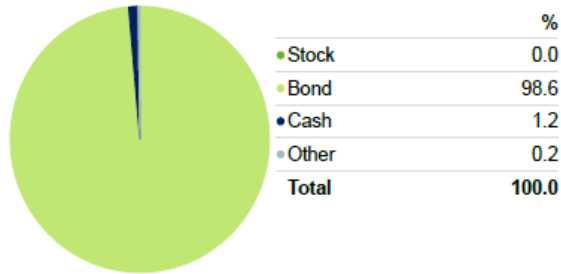
Source: Loomis Sayles



# VANGUARD TOTAL BOND MARKET I

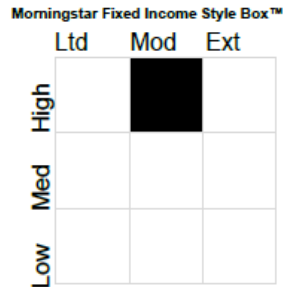
### Asset Allocation

Portfolio Date: 12/31/2018



### Fixed Income Statistics

Portfolio Date: 12/31/2018



### Fixed-Income Stats

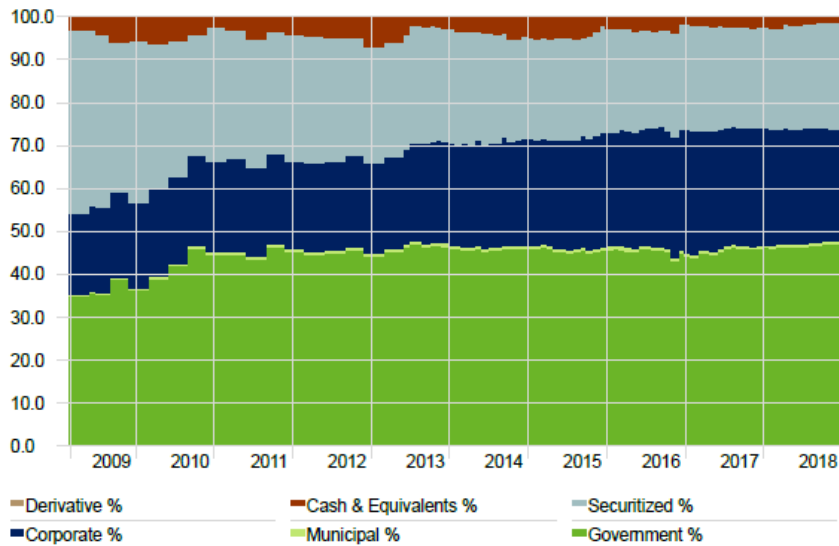
Average Eff Duration	5.9
Average Eff Maturity	8.3
Average Coupon	3.2
Average Price	100.3

### Credit Quality Breakdown

Portfolio Date: 12/31/2018

	Fund	Index
AAA %	70.9	
AA %	3.40	
A %	10.74	
BBB %	14.93	
BB %	0.00	
B %	0.00	
Below B %	0.02	
Not Rated %	0.00	
Yield to Maturity	3.30	

### Historical Sector Allocations (10 Years)



### Top Holdings

	Detail Holding Type	Portfolio Weighting %
Cmt Market Liquidity Rate	MUTUAL FUND - MONEY MARKET	1.19
United States Treasury Notes 2.12%	BOND - GOVT/TREASURY	0.46
United States Treasury Notes 2.88%	BOND - GOVT/TREASURY	0.45
United States Treasury Notes 2.62%	BOND - GOVT/TREASURY	0.42
United States Treasury Notes 2.12%	BOND - GOVT/TREASURY	0.42
United States Treasury Notes 1.38%	BOND - GOVT/TREASURY	0.41
United States Treasury Notes 1.75%	BOND - GOVT/TREASURY	0.39
United States Treasury Notes 1.62%	BOND - GOVT/TREASURY	0.38
United States Treasury Notes 2.25%	BOND - GOVT/TREASURY	0.38
United States Treasury Notes 2.88%	BOND - GOVT/TREASURY	0.38



Source: Morningstar

# VANGUARD TOTAL BOND MARKET I

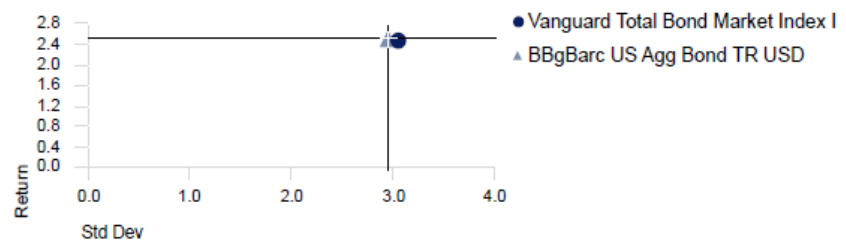
## Risk & Return Characteristics (5 Years)

Time Period: 1/1/2014 to 12/31/2018

	Fund	Index
R2	99.8	100.0
Alpha	-0.1	0.0
Beta	1.0	1.0
Std Dev	3.1	3.0
Up Capture Ratio	100.6	100.0
Down Capture Ratio	105.0	100.0
Sharpe Ratio (geo)	0.6	0.6
Information Ratio (geo)	-0.3	0.0
Tracking Error	0.2	0.0
Correlation	1.0	1.0

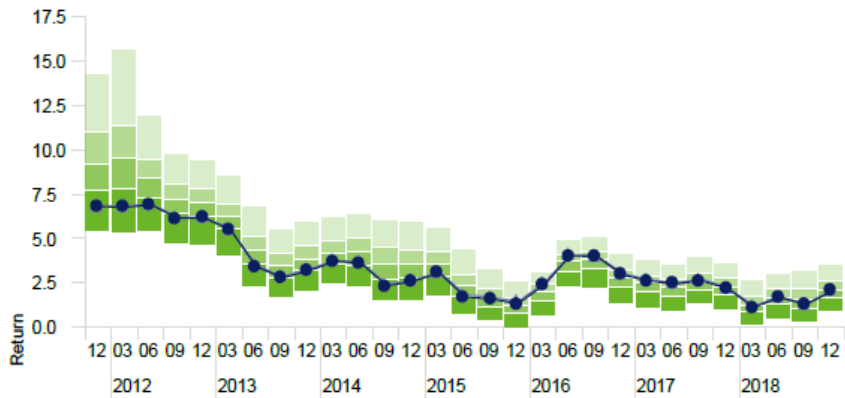
## Risk & Return Illustration (5 Years)

Time Period: 1/1/2014 to 12/31/2018



## Rolling Returns (3 Years)

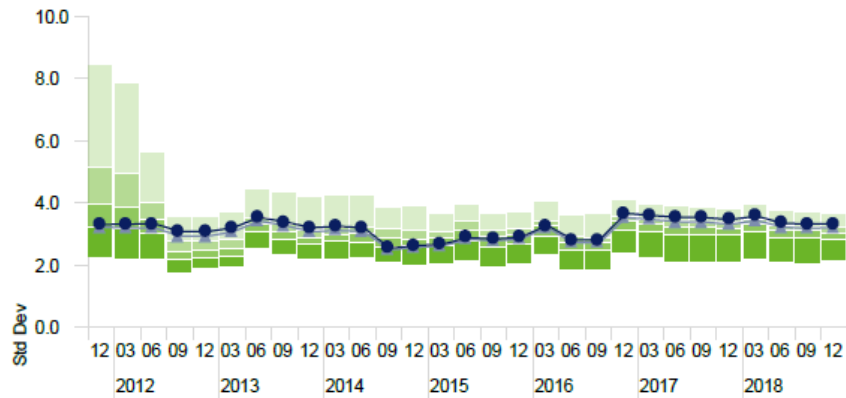
Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



— Vanguard Total Bond Market Index I — BBgBarc US Agg Bond TR USD

## Rolling Risk (3 Years)

Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



— Vanguard Total Bond Market Index I — BBgBarc US Agg Bond TR USD

## Calendar Year Returns

	2009	Rank	2010	Rank	2011	Rank	2012	Rank	2013	Rank	2014	Rank	2015	Rank	2016	Rank	2017	Rank	2018	Rank
Vanguard Total Bond Market Index I	6.1	89	6.6	70	7.7	11	4.2	83	-2.1	67	5.9	30	0.4	28	2.6	62	3.6	55	0.0	30
BBgBarc US Agg Bond TR USD	5.9		6.5		7.8		4.2		-2.0		6.0		0.5		2.6		3.5		0.0	

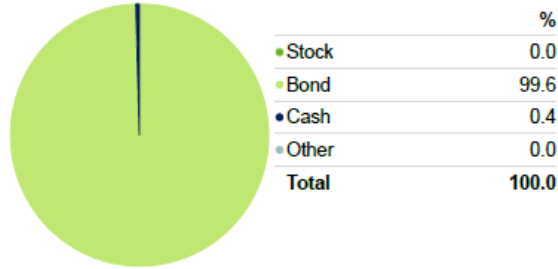


Source: Morningstar

# VANGUARD INFLATION PROTECTED SECURITIES

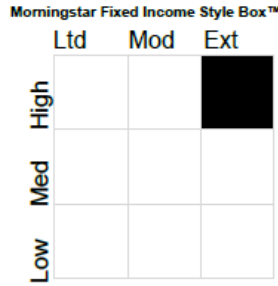
### Asset Allocation

Portfolio Date: 12/31/2018



### Fixed Income Statistics

Portfolio Date: 12/31/2018



### Fixed-Income Stats

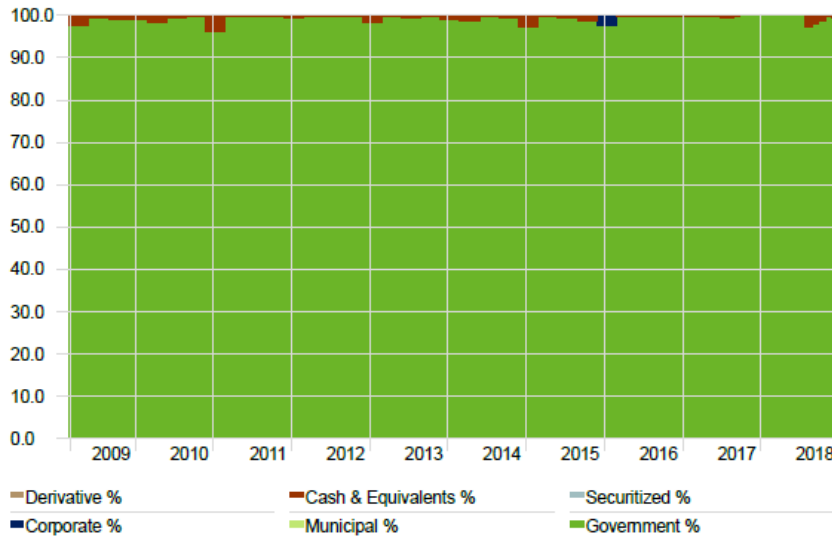
Average Eff Duration	7.6	AAA %
Average Eff Maturity	8.2	AA %
Average Coupon	0.9	A %
Average Price	99.7	BBB %
		BB %
		B %
		Below B %
		Not Rated %
		Yield to Maturity

### Credit Quality Breakdown

Portfolio Date: 12/31/2018

	Fund	Index
	100.0	
	0.00	
	0.00	
	0.00	
	0.00	
	0.00	
	0.00	
	0.00	
	0.00	

### Historical Sector Allocations (10 Years)



### Top Holdings

	Detail Holding Type	Portfolio Weighting %
United States Treasury Notes 0.12%	BOND - GOVT INFLATION PROTECTED	5.09
United States Treasury Notes 0.12%	BOND - GOVT INFLATION PROTECTED	3.89
United States Treasury Notes 0.38%	BOND - GOVT INFLATION PROTECTED	3.87
United States Treasury Notes 0.25%	BOND - GOVT INFLATION PROTECTED	3.87
United States Treasury Notes 0.12%	BOND - GOVT INFLATION PROTECTED	3.82
United States Treasury Notes 0.12%	BOND - GOVT INFLATION PROTECTED	3.72
United States Treasury Notes 0.38%	BOND - GOVT INFLATION PROTECTED	3.67
United States Treasury Notes 0.12%	BOND - GOVT INFLATION PROTECTED	3.61
United States Treasury Notes 0.62%	BOND - GOVT INFLATION PROTECTED	3.58
United States Treasury Notes 0.12%	BOND - GOVT INFLATION PROTECTED	3.53



Source: Morningstar

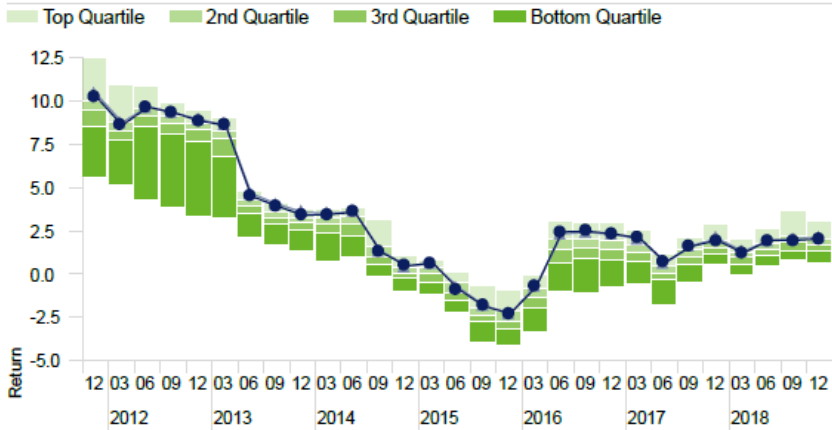
# VANGUARD INFLATION PROTECTED SECURITIES

## Risk & Return Characteristics (5 Years)

Time Period: 4/1/2014 to 12/31/2018

	Fund	Index
R2	99.4	100.0
Alpha	0.0	0.0
Beta	1.0	1.0
Std Dev	3.6	3.6
Up Capture Ratio	100.5	100.0
Down Capture Ratio	102.7	100.0
Sharpe Ratio (geo)	0.2	0.2
Information Ratio (geo)	-0.1	
Tracking Error	0.3	0.0
Correlation	1.0	1.0

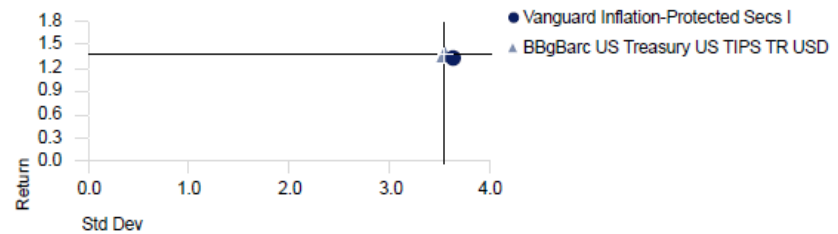
## Rolling Returns (3 Years)



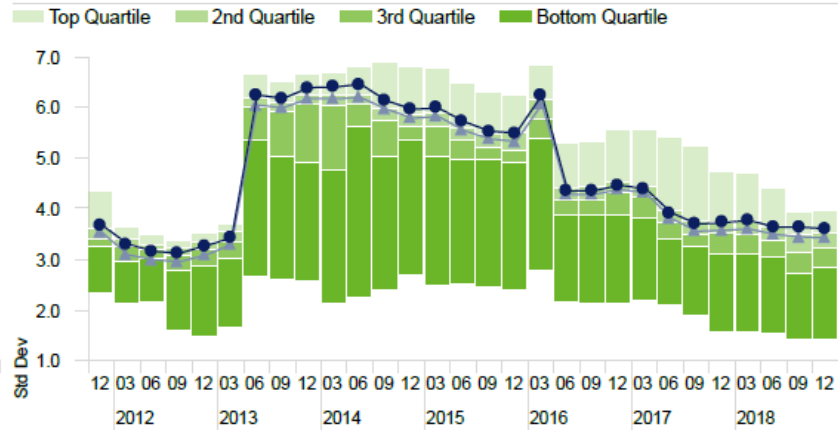
—Vanguard Inflation-Protected Secs I      —BBgBarc US Treasury US TIPS TR USD

## Risk & Return Illustration (5 Years)

Time Period: 4/1/2014 to 12/31/2018



## Rolling Risk (3 Years)



—Vanguard Inflation-Protected Secs I      —BBgBarc US Treasury US TIPS TR USD

## Calendar Year Returns

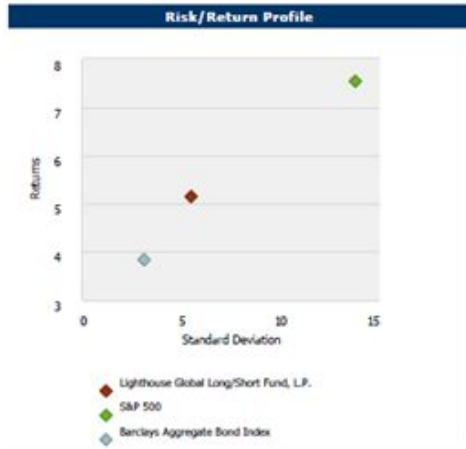
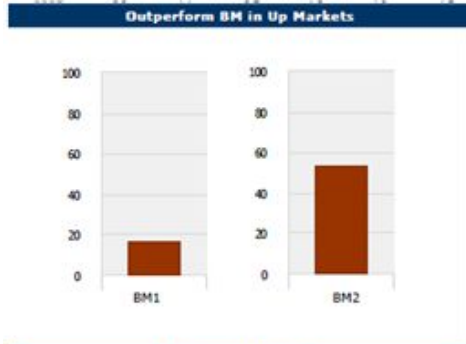
	2009	Rank	2010	Rank	2011	Rank	2012	Rank	2013	Rank	2014	Rank	2015	Rank	2016	Rank	2017	Rank	2018	Rank
Vanguard Inflation-Protected Secs I	11.0	29	6.3	28	13.4	6	6.9	24	-8.8	52	4.1	5	-1.7	31	4.6	39	3.0	34	-1.4	48
BBgBarc US Treasury US TIPS TR USD	11.4		6.3		13.6		7.0		-8.6		3.6		-1.4		4.7		3.0		-1.3	



Source: Morningstar

# LIGHTHOUSE GLOBAL LONG/SHORT

Monthly Performance													Performance Analysis				
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year		Lighthouse Global Long/Short Fund, L.P.	S&P 500	Barclays Aggregate Bond Index
2018	2.4	-0.3	-0.5	0.8	3.1	-1.9	0.3	-0.6	-0.4	-5.1	-2.0	-1.8	-5.8	Since Inception Return	5.1	7.5	3.8
2017	1.6	0.3	1.1	-0.5	-0.3	0.0	0.7	1.0	0.1	2.2	-0.6	1.1	6.7	1 Yr Return	-5.8	-4.4	0.0
2016	-3.6	-0.7	-0.4	0.6	1.0	0.3	1.7	-0.2	1.0	-0.9	1.2	0.3	0.0	3 Yr Return	0.2	9.3	2.1
2015	1.0	1.0	1.6	-0.5	1.1	0.2	0.4	-0.8	-1.0	2.2	0.0	1.7	7.2	5 Yr Return	2.5	8.5	2.5
2014	0.9	1.8	-1.7	-2.0	1.2	1.9	-0.5	1.7	-0.1	0.3	1.2	0.6	5.3	7 Yr Return	5.5	12.7	2.1
2013	3.2	0.5	2.7	1.5	1.0	1.0	2.2	-0.3	2.2	1.2	1.1	2.4	20.5	10 Yr Return	5.2	13.1	3.5
2012	1.7	1.7	1.6	1.2	-3.7	0.5	0.2	1.1	1.3	-0.1	0.8	0.4	6.7	Best Month	3.3	10.9	3.7
2011	-0.2	1.2	0.7	2.1	-1.1	-1.5	0.6	-3.1	-0.6	1.7	-1.0	-0.6	-1.9	Worst Month	-6.4	-16.8	-2.4
2010	0.0	0.3	1.9	0.6	-2.4	-1.7	1.7	-0.6	1.3	1.8	0.2	2.1	5.1	Percent Profitable Periods	66.7	67.9	64.9
2009	0.3	-0.5	1.1	1.3	2.3	0.7	1.6	1.4	1.5	-0.9	0.3	0.9	10.2	Product Inception Date	01/01/2005	---	01/01/2018
2008	-3.2	1.2	-4.7	1.5	2.8	-0.5	-1.4	-0.3	-6.4	-2.0	-0.6	0.0	-13.1				
2007	2.7	0.4	1.5	2.6	3.2	1.3	-0.2	-2.3	1.8	3.3	-2.4	0.2	12.6				
2006	2.1	0.0	0.7	0.6	-2.0	-0.3	0.1	2.0	1.8	1.8	2.5	2.4	12.2				



Risk Analysis			
Since Inception Standard Deviation	5.5	13.8	3.1
3 Yr Standard Deviation	5.4	11.0	2.9
5 Yr Standard Deviation	4.9	10.9	2.8
7 Yr Standard Deviation	5.0	10.7	2.8
10 Yr Standard Deviation	4.8	13.6	2.8
Sharpe Ratio	0.7	0.5	0.8
Sortino Ratio	1.0	0.6	1.4
Loss Deviation	3.9	9.8	1.8
Max Drawdown	15.2	50.9	3.8
Max Drawdown Length	16	16	7
Max Drawdown Recovery Length	25	37	2

Comparison to Benchmarks		
Annualized Alpha	3.2	5.8
Beta	0.2	-0.1
Correlation Coefficient	0.6	-0.1
R-Squared	0.4	0.0



# LIGHTHOUSE GLOBAL LONG/SHORT

General Fund Information			
<b>Fund Name</b>	Lighthouse Global Long/Short Fund		
<b>Management Company</b>	Lighthouse Investment Partners, LLC		
<b>Location</b>	Palm Beach, FL		
<b>Firm AUM</b>	\$16.6 billion	<b>Strategy</b>	Fund of Fund
<b>Strategy AUM</b>	\$1.9 billion	<b>Sub-Strategy</b>	Long/Short Equity
<b>Portfolio Managers</b>	Ethan Baron	<b>Direct or FOF</b>	FOF

Terms	
<b>Share Class</b>	--
<b>Minimum Investment</b>	\$1 million
<b>Management Fee</b>	1.15%
<b>Incentive Fee</b>	--
<b>Hurdle Rate</b>	None
<b>High Water Mark</b>	Yes
<b>Subscription</b>	Monthly
<b>Redemption</b>	Quarterly (60 days notice) or Monthly (90 days notice)
<b>Lock-Up</b>	None

**Investment Strategy**

Lighthouse's Global Long/Short Fund is a global portfolio of 20-30 separately managed accounts with industry sector and country specialist managers. The geographical allocations are similar to the MSCI World Index (30%-75% Americas, 10%-35% Europe, 5%-35% Asia).

The Fund targets returns greater than 10% over market cycles with 6%-8% volatility and an equity beta of 0.2-0.4 to the MSCI World Index.

## Strategy Information

### Region Allocation & Attribution



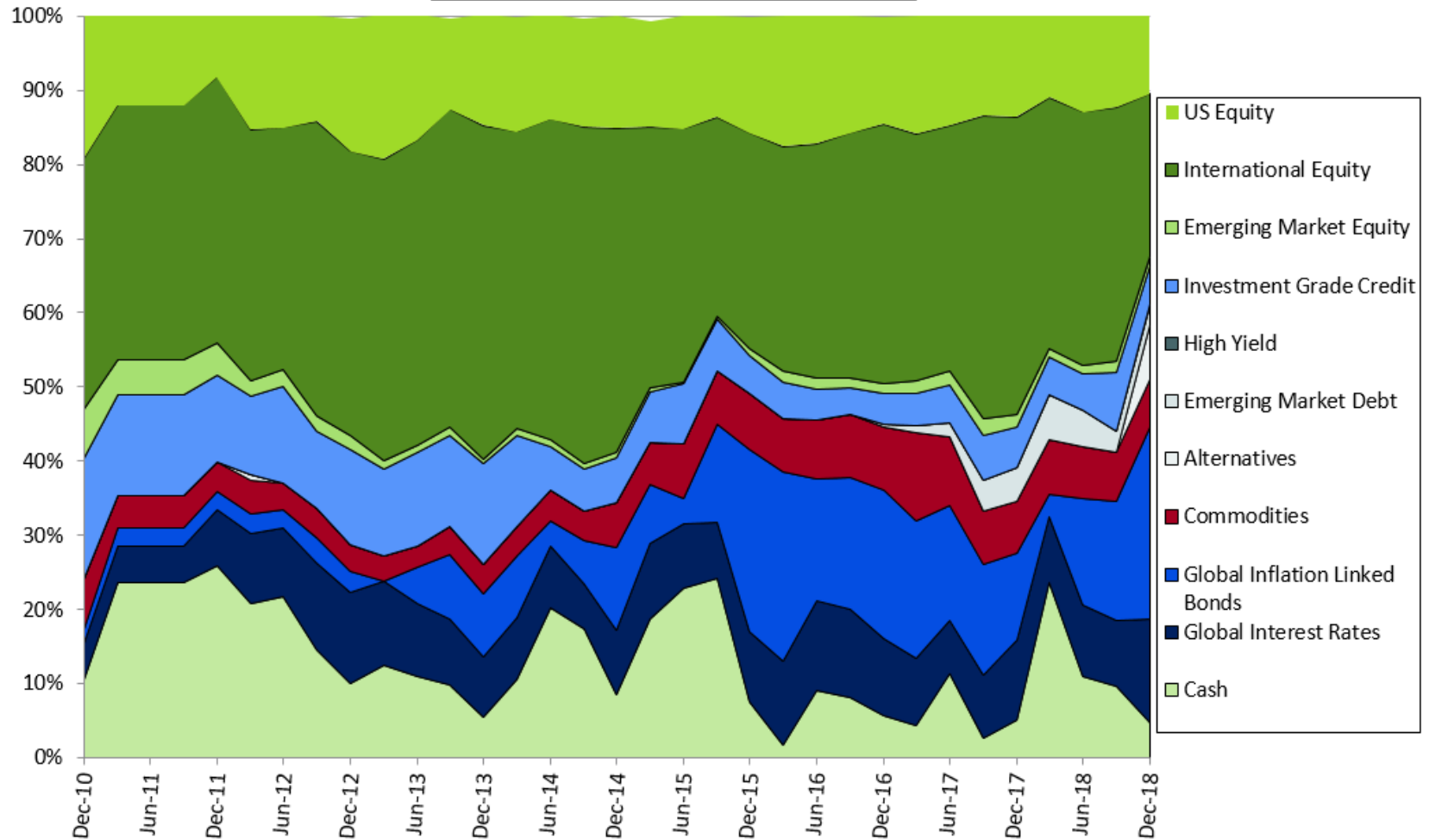
### Sector Allocation & Attribution



For more information please see NEPC's Investment Due Diligence Report and Operational Due Diligence Report

# NEWTON GLOBAL REAL RETURN

Newton Global Real Return

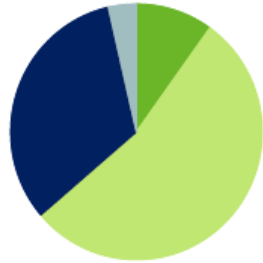


Source: Newton

# PIMCO ALL ASSET

## Asset Allocation

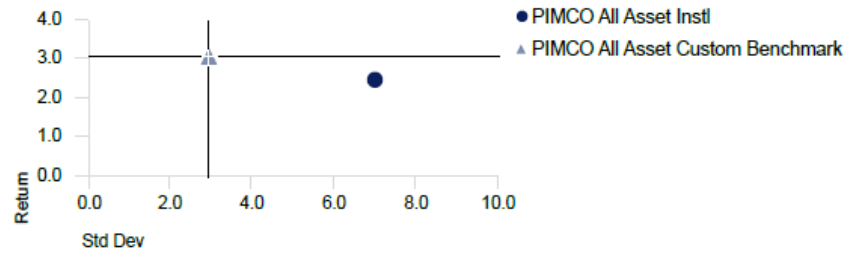
Portfolio Date: 9/30/2018



	%
Stock	9.9
Bond	53.8
Cash	32.7
Other	3.6
<b>Total</b>	<b>100.0</b>

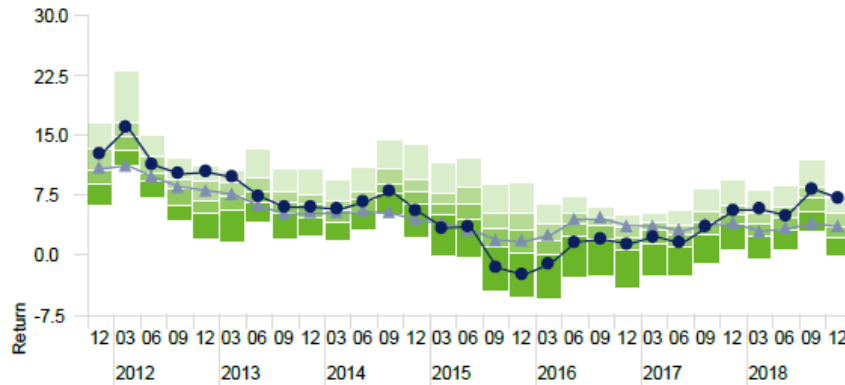
## Risk & Return Illustration (5 Years)

Time Period: 1/1/2014 to 12/31/2018



## Rolling Returns (3 Years)

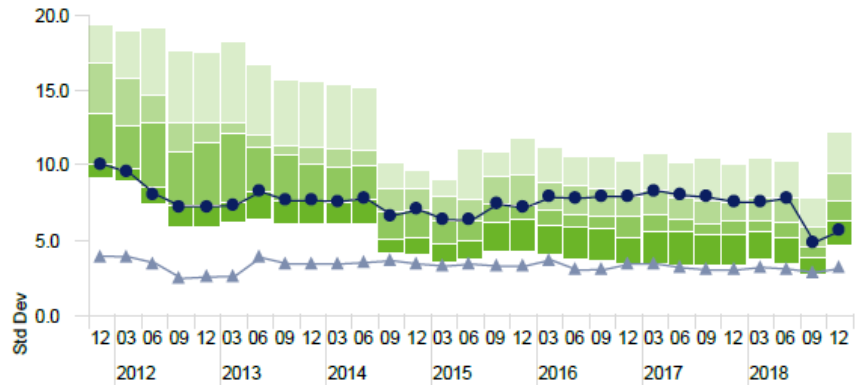
Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



— PIMCO All Asset Instl — PIMCO All Asset Custom Benchmark

## Rolling Risk (3 Years)

Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



— PIMCO All Asset Instl — PIMCO All Asset Custom Benchmark

## Calendar Year Returns

	2009	Rank	2010	Rank	2011	Rank	2012	Rank	2013	Rank	2014	Rank	2015	Rank	2016	Rank	2017	Rank	2018	Rank
PIMCO All Asset Instl	23.0	58	13.7	18	2.4	13	15.4	11	0.8	82	0.8	71	-8.7	78	13.3	7	14.0	42	-5.0	22
PIMCO All Asset Custom Benchmark	16.5		8.5		7.6		8.1		0.2		4.9		0.0		6.1		5.6		-1.1	

Source: Morningstar





# PIMCO ALL ASSET

Fund Name	All Asset Fund																		
Total Fund Net Assets (\$US MM)	17,278.1																		
	6/30/2014	3/31/2015	6/30/2015	9/30/2015	12/31/2015	3/31/2016	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018	6/30/2018	9/30/2018	12/31/2018	11/30/2018	12/31/2018
<b>Third Pillar</b>	78.71%	85.29%	85.75%	85.46%	81.91%	85.26%	81.04%	78.31%	74.27%	72.48%	70.05%	69.73%	70.82%	73.64%	74.15%	72.59%	72.30%	74.38%	74.69%
<b>Emerging Markets Equities</b>	12.81%	13.66%	13.87%	13.09%	14.11%	20.24%	22.17%	20.70%	18.77%	18.42%	17.80%	17.69%	17.76%	18.21%	18.35%	20.10%	18.62%	22.96%	22.87%
RAE Emerging Markets Fund	-	-	-	-	-	2.98%	4.22%	4.71%	4.63%	3.99%	4.47%	5.11%	5.33%	5.45%	5.31%	5.79%	-	-	-
RAE PLUS EMG Fund	5.99%	4.75%	4.73%	4.41%	4.65%	5.96%	6.11%	5.07%	3.39%	3.19%	3.70%	4.73%	6.41%	7.92%	9.14%	10.08%	-	-	-
RAE Low Volatility PLUS EMG Fund	6.80%	8.92%	8.94%	8.68%	9.46%	11.29%	11.83%	10.91%	10.74%	11.24%	9.33%	7.25%	5.76%	3.86%	2.97%	3.29%	-	-	-
EqS Emerging Markets Fund	0.02%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RAFI Dynamic Multi-Factor EM Equity ETF	-	-	-	-	-	-	-	-	-	-	-	-	0.26%	0.98%	0.92%	0.94%	-	-	-
<b>Commodities and RDITs</b>	8.76%	9.98%	8.34%	8.10%	8.82%	7.21%	8.53%	8.48%	8.23%	8.81%	8.29%	10.02%	10.66%	10.68%	10.41%	8.92%	8.84%	8.92%	8.46%
CommoditiesPLUS™ Strategy Fund	3.03%	2.88%	2.19%	1.93%	1.68%	4.14%	3.12%	3.33%	3.47%	3.22%	4.05%	4.99%	5.38%	5.28%	4.72%	3.66%	-	-	-
CommodityRealReturn Strategy Fund®	1.66%	3.90%	2.18%	1.88%	1.62%	1.52%	0.89%	0.77%	0.53%	0.56%	1.05%	1.04%	1.08%	1.07%	1.10%	1.07%	-	-	-
RealEstateRealReturn Strategy Fund	4.06%	2.31%	1.99%	2.29%	2.23%	1.54%	1.53%	1.39%	1.26%	1.73%	3.19%	3.99%	4.20%	4.33%	4.59%	4.19%	-	-	-
<b>Emerging Markets Bonds</b>	19.86%	20.82%	22.45%	22.16%	20.83%	22.27%	17.67%	18.30%	18.97%	20.92%	20.55%	20.20%	20.11%	20.55%	18.82%	18.12%	17.72%	17.48%	17.72%
Emerging Local Bond Fund	7.42%	9.00%	9.79%	9.42%	8.48%	9.50%	6.94%	7.33%	6.98%	7.09%	6.76%	6.55%	6.44%	6.69%	5.70%	5.64%	-	-	-
Emerging Markets Currency and Short-Term Investments Fund	7.10%	11.50%	12.29%	12.33%	11.94%	12.77%	10.73%	10.97%	12.99%	13.83%	13.80%	13.65%	13.66%	13.86%	12.92%	12.48%	-	-	-
Emerging Markets Bond Fund	3.90%	0.24%	0.29%	0.32%	0.32%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Emerging Markets Corporate Bond Fund	1.43%	0.07%	0.07%	0.08%	0.09%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Credit</b>	21.84%	14.96%	15.23%	16.06%	16.32%	16.65%	17.72%	16.22%	17.46%	16.40%	14.99%	12.74%	12.40%	11.90%	12.17%	9.21%	8.94%	8.18%	8.16%
High Yield Fund	1.11%	2.85%	2.88%	3.11%	2.53%	3.72%	2.90%	2.56%	2.35%	1.87%	1.01%	0.60%	0.59%	0.58%	0.58%	0.60%	-	-	-
High Yield Spectrum Fund	3.69%	3.07%	3.20%	3.60%	3.84%	4.25%	4.67%	4.68%	4.64%	4.06%	2.50%	1.57%	1.55%	1.53%	1.59%	1.62%	-	-	-
Income Fund	10.28%	5.90%	6.01%	6.47%	6.34%	6.93%	7.51%	8.19%	7.63%	6.44%	6.62%	6.55%	6.27%	6.56%	7.00%	6.64%	-	-	-
Diversified Income Fund	3.21%	0.03%	0.21%	0.24%	0.24%	0.25%	0.57%	0.51%	0.49%	0.54%	0.15%	0.00%	0.00%	0.00%	0.00%	0.00%	-	-	-
Low Duration Income Fund	1.75%	0.29%	0.33%	0.37%	0.29%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Senior Floating Rate Fund	1.79%	2.82%	2.61%	2.28%	2.07%	1.50%	2.06%	2.28%	2.34%	2.49%	3.81%	4.02%	3.99%	3.15%	2.99%	0.36%	-	-	-
Convertible Fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
European Convertible Fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Global Bonds</b>	1.21%	0.53%	1.07%	1.24%	1.17%	0.60%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
International Bond Fund (Unhedged)	0.26%	0.30%	0.30%	0.31%	0.29%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Global Advantage Strategy Fund	0.95%	0.23%	0.76%	0.93%	0.88%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Global Bond Opportunities Fund (Unhedged)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Inflation Linked Bonds</b>	0.90%	7.87%	7.88%	7.69%	7.80%	6.73%	3.21%	3.49%	3.85%	3.80%	3.97%	3.98%	3.78%	3.01%	2.81%	1.86%	1.88%	1.86%	1.93%
Real Return Fund	0.29%	1.31%	1.29%	1.19%	0.81%	0.00%	0.18%	2.77%	3.19%	3.25%	3.53%	3.44%	3.32%	2.59%	2.16%	1.45%	-	-	-
Long-Term Real Return Fund	0.53%	6.49%	6.50%	6.40%	6.99%	5.61%	2.91%	0.59%	0.54%	0.43%	0.44%	0.42%	0.43%	0.42%	0.44%	0.41%	-	-	-
Global Advantage® Inflation-Linked Bond ETF	0.08%	0.08%	0.08%	0.09%	0.10%	0.12%	0.12%	0.12%	0.12%	0.12%	-	-	-	-	-	-	-	-	-
<b>Alternative Strategies</b>	13.34%	18.38%	18.98%	18.12%	17.65%	13.19%	14.74%	12.12%	8.88%	8.43%	8.65%	8.62%	8.19%	8.39%	12.00%	14.36%	18.30%	18.09%	18.94%
Dynamic Bond Fund	2.53%	2.75%	2.44%	2.32%	2.08%	1.80%	1.96%	-	-	-	-	-	-	-	-	1.71%	-	-	-
Credit Opportunities Bond Fund	2.78%	0.52%	0.44%	0.39%	0.23%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-	-	-
Mortgage Opportunities and Bond Fund	0.55%	0.65%	0.66%	0.75%	0.74%	0.79%	0.78%	0.73%	0.74%	0.72%	0.72%	0.71%	0.69%	0.68%	0.71%	0.71%	-	-	-
TRENDS Managed Futures Strategy Fund	0.16%	0.20%	0.20%	0.24%	0.26%	0.30%	0.29%	0.29%	0.30%	0.29%	0.28%	0.28%	0.29%	0.28%	0.29%	0.97%	-	-	-
EqS Long/Short Fund	0.47%	0.36%	0.29%	0.18%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RAE Worldwide Long/Short PLUS Fund	-	6.53%	7.49%	7.93%	7.96%	6.42%	7.28%	6.90%	5.73%	5.03%	3.06%	2.96%	3.03%	3.40%	5.15%	5.55%	-	-	-
RAE Fundamental Advantage PLUS Fund	2.62%	3.93%	3.75%	3.25%	2.62%	1.69%	2.20%	2.02%	1.06%	1.29%	1.59%	1.87%	2.14%	5.03%	5.65%	5.43%	-	-	-
RAE Worldwide Fundamental Adv PLUS Fund	4.24%	3.42%	3.88%	4.07%	3.16%	2.16%	2.23%	2.18%	1.15%	1.10%	-	-	-	-	-	-	-	-	-

Source: PIMCO



# PIMCO ALL ASSET

	6/30/2014	3/31/2015	6/30/2015	9/30/2015	12/31/2015	3/31/2016	6/30/2016	9/30/2016	12/31/2016	3/31/2017	6/30/2017	9/30/2017	12/31/2017	3/31/2018	6/30/2018	9/30/2018	10/31/2018	11/30/2018	12/31/2018
<b>Second Pillar</b>	9.05%	4.95%	6.15%	6.81%	10.78%	4.87%	10.63%	12.82%	14.67%	16.12%	20.07%	21.03%	19.88%	19.00%	19.91%	21.33%	21.93%	19.91%	19.63%
US Core Bonds	3.19%	2.91%	3.17%	3.78%	3.66%	3.88%	8.28%	7.91%	4.69%	5.89%	7.71%	8.30%	7.21%	8.33%	8.46%	7.79%	7.46%	4.99%	4.17%
Total Return Fund	3.07%	1.04%	1.39%	1.65%	1.65%	1.22%	3.41%	4.47%	1.92%	2.56%	4.44%	5.70%	4.90%	4.16%	4.25%	5.68%			
Investment Grade Credit Bond Fund	0.02%	1.87%	1.78%	2.12%	2.01%	2.66%	2.87%	2.85%	2.76%	3.24%	3.26%	2.66%	2.30%	2.16%	2.21%	2.01%			
Mortgage-Backed Securities Fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
GNMA and Government Securities Fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
US Long Maturity Bonds	4.82%	1.28%	1.52%	1.94%	2.31%	0.26%	2.55%	2.10%	3.30%	7.69%	8.63%	8.52%	8.70%	7.88%	8.22%	7.72%	8.31%	8.64%	9.54%
Extended Duration Fund	-	-	-	-	-	-	0.42%	0.25%	1.51%	2.25%	2.91%	3.05%	3.13%	2.95%	3.52%	3.32%			
Long-Term US Government Fund	0.27%	0.00%	0.00%	0.00%	0.00%	0.00%	1.18%	1.06%	2.41%	4.18%	4.42%	4.28%	4.26%	3.80%	3.45%	3.14%			
Long-Term Credit Bond Fund	4.20%	0.50%	0.57%	0.77%	0.88%	0.27%	0.27%	0.17%	0.17%	0.12%	-	-	-	-	-	-			
Long Duration Total Return Fund	0.35%	0.77%	0.95%	1.16%	1.42%	0.00%	0.68%	0.62%	1.20%	1.14%	1.30%	1.29%	1.28%	1.24%	1.26%	1.26%			
Short-Term Bonds	1.13%	0.77%	1.46%	1.09%	-8.81%	0.71%	1.80%	3.40%	4.69%	2.63%	1.73%	4.06%	3.97%	4.69%	5.33%	6.92%	6.22%	6.99%	6.91%
Low Duration Fund	0.94%	0.24%	0.87%	0.41%	1.54%	0.19%	1.26%	2.36%	2.44%	2.26%	3.37%	3.72%	3.34%	4.15%	4.69%	5.58%			
Low Duration Exchange Traded Fund	0.20%	0.23%	0.24%	0.29%	0.19%	-	-	-	-	-	-	-	-	-	-	-			
Short Term Fund	0.00%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Government Money Market Fund	-	0.33%	0.35%	0.42%	-	0.54%	0.54%	1.02%	2.26%	0.38%	0.37%	0.33%	0.63%	0.32%	0.34%	0.34%			
Money Market Fund	-	-	-	-	3.13%	-	-	-	-	-	-	-	-	-	-	-			
Net Short Duration Instruments	-0.01%	-0.03%	-0.01%	-0.02%	-0.04%	-0.01%	0.00%	0.00%	-0.01%	0.00%	-0.01%	0.00%	0.00%	0.22%	0.00%	0.00%			
<b>First Pillar</b>	12.24%	9.76%	8.10%	7.73%	7.32%	9.87%	8.33%	8.87%	11.06%	11.40%	9.66%	9.24%	9.30%	7.36%	5.95%	6.69%	5.77%	6.70%	6.68%
US Equities	1.12%	2.78%	2.38%	2.17%	1.83%	0.51%	0.60%	0.23%	0.25%	0.25%	0.28%	0.26%	0.27%	0.26%	0.28%	0.28%	0.28%	0.08%	0.00%
RAE PLUS Fund	0.03%	0.20%	0.21%	0.22%	-	-	-	-	-	-	-	-	-	-	-	-			
RAE Low Volatility PLUS Fund	0.41%	1.93%	1.74%	1.65%	1.21%	0.51%	0.55%	0.23%	0.25%	0.25%	0.25%	0.26%	0.27%	0.26%	0.28%	0.28%			
RAE PLUS Small Fund	0.65%	0.64%	0.43%	0.30%	0.32%	-	-	-	-	-	-	-	-	-	-	-			
StocksPLUS® Small Fund	0.02%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Fundamental IndexPLUS™	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
StocksPLUS® Fund	0.00%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
StocksPLUS® Absolute Return Fund	0.01%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Developed ex-US Equities	11.12%	6.97%	5.73%	5.56%	5.79%	9.36%	7.73%	8.63%	10.81%	11.15%	9.62%	8.98%	9.03%	7.10%	5.67%	5.81%	5.49%	5.65%	6.88%
RAE PLUS International Fund	3.16%	1.71%	1.60%	1.47%	1.51%	1.61%	1.56%	1.89%	2.51%	2.88%	3.45%	3.52%	3.43%	1.72%	0.50%	0.51%			
RAE Low Volatility PLUS Intl Fund	5.73%	4.22%	4.13%	4.08%	4.24%	4.72%	3.35%	3.97%	5.31%	4.95%	2.50%	1.73%	1.80%	1.75%	1.83%	1.88%			
StocksPLUS® International Fund (USD-Hedged)	0.01%	-	-	-	0.05%	2.76%	2.58%	2.84%	2.83%	2.93%	2.94%	2.98%	3.02%	2.87%	3.08%	3.15%			
StocksPLUS® International Fund (Unhedged)	0.02%	-	-	-	0.27%	0.29%	0.16%	0.16%	0.40%	0.73%	0.76%	0.77%	0.76%	0.26%	0.27%				
EqS Global Dividend Fund	0.01%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
EqS Pathfinder Fund	2.19%	1.04%	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

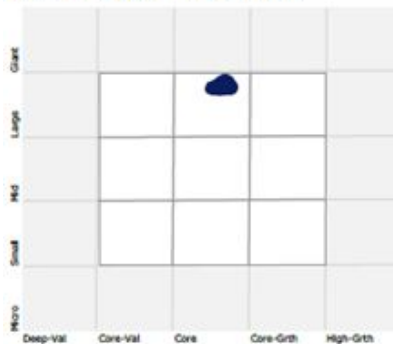
Source: PIMCO



# VANGUARD TOTAL WORLD STOCK INDEX I

## Holdings Based Style Trail (5 Years)

Time Period: 1/31/2014 to 12/31/2018



• Vanguard Total World Stock Index I • FTSE Global All Cap TR USD

## Portfolio Statistics

	Fund	Index
# of Holdings	8,060	7,851
% Asset in Top 10 Holdings	9.2	9.3
Turnover Ratio %	9.0	
P/E Ratio	14.3	15.1
P/B Ratio	1.9	2.0
LT Earn Growth	10.6	10.3
Hist Earn Growth	7.6	6.9
12 Mo Yield	2.4	

## Market Capitalization Breakdown

	Fund	Index
Market Cap Giant %	45.4	
Market Cap Large %	31.5	
Market Cap Mid %	17.7	
Market Cap Small %	4.8	
Market Cap Micro %	0.5	
Average Market Cap	36,621.4	
Equity Region Developed %	91.4	
Equity Region Emerging %	8.6	

## Top Ten Holdings

	Port Weight %	3 Month Return
Microsoft Corp	1.64	-11.19
Apple Inc	1.61	-29.80
Amazon.com Inc	1.31	-25.01
Cmt Market Liquidity Rate	0.79	
Johnson & Johnson	0.74	-5.95
Alphabet Inc Class C	0.70	-13.23
JPMorgan Chase & Co	0.69	-12.78
Facebook Inc A	0.67	-20.29
Alphabet Inc A	0.64	-13.43
Berkshire Hathaway Inc B	0.63	-4.64

## Sector Attribution (Quarter)

	Portfolio Weights	Benchmark Weights	Portfolio Return	Benchmark Return	Allocation Effect	Selection Effect	Active Return
Communication Services	8.02		-11.62				
Consumer Discretionary	10.29		-15.16				
Consumer Staples	7.43		-6.71				
Energy	6.03		-21.65				
Financials	15.83		-12.27				
Health Care	11.48		-10.84				
Industrials	11.03		-16.05				
Information Technology	14.70		-17.13				
Materials	4.96		-14.33				
Real Estate	3.65		-5.75				
Utilities	2.95		0.43				
Unclassified	0.09		-23.20				
Attribution Total	96.47		-13.26				
Cash	1.35						
Bond	0.10						
Other	0.10						
Missing Performance	1.98						
Total	100.00						

## Region Attribution (Quarter)

	Portfolio Weights	Benchmark Weights	Portfolio Return	Benchmark Return	Allocation Effect	Selection Effect	Active Return
Africa	0.63		-4.34				
Asia - Developed	4.05		-11.51				
Asia - Emerging	4.73		-6.67				
Australasia	2.05		-10.66				
Canada	2.96		-15.16				
Europe - Emerging	0.48		-10.29				
Europe - ex Euro	4.24		-11.21				
Eurozone	8.61		-14.41				
Japan	7.89		-14.73				
Latin America	1.30		-0.54				
Middle East	0.39		-7.25				
United Kingdom	5.14		-12.34				
United States	53.92		-14.29				
Unclassified	0.07		-23.24				
Attribution Total	96.47		-13.26				
Cash	1.35						
Bond	0.10						
Other	0.10						
Missing Performance	1.98						
Total	100.00						

Source: Morningstar



# VANGUARD TOTAL WORLD STOCK INDEX I

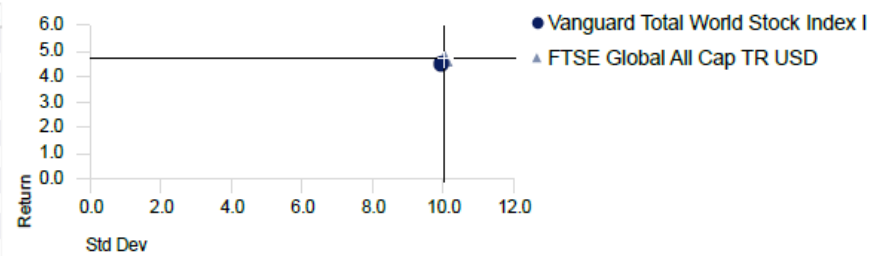
## Risk & Return Characteristics (5 Years)

Time Period: 1/1/2014 to 12/31/2018

	Fund	Index
R2	99.8	100.0
Alpha	-0.2	0.0
Beta	1.0	1.0
Std Dev	10.0	10.0
Up Capture Ratio	97.1	100.0
Down Capture Ratio	98.7	100.0
Sharpe Ratio (geo)	0.4	0.4
Information Ratio (geo)	-0.5	0.0
Tracking Error	0.4	0.0
Correlation	1.0	1.0

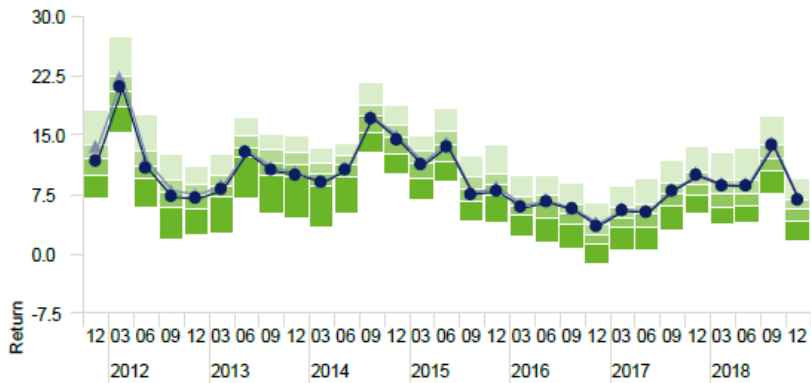
## Risk & Return Illustration (5 Years)

Time Period: 1/1/2014 to 12/31/2018



## Rolling Returns (3 Years)

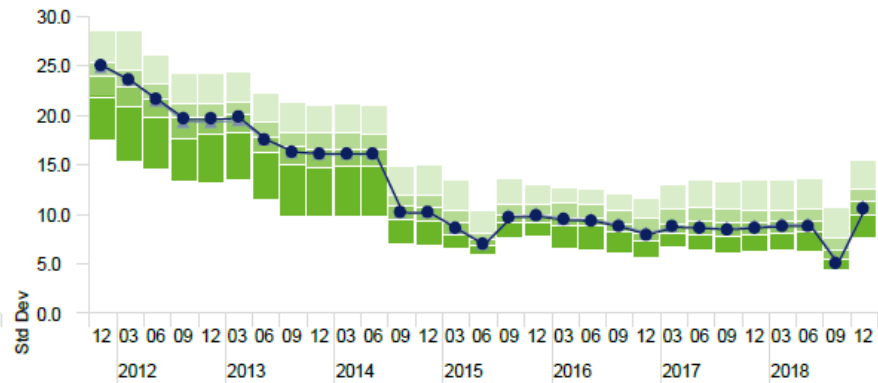
Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



— Vanguard Total World Stock Index I — FTSE Global All Cap TR USD

## Rolling Risk (3 Years)

Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



— Vanguard Total World Stock Index I — FTSE Global All Cap TR USD

## Calendar Year Returns

	2009	Rank	2010	Rank	2011	Rank	2012	Rank	2013	Rank	2014	Rank	2015	Rank	2016	Rank	2017	Rank	2018	Rank
Vanguard Total World Stock Index I	33.7	44	13.1	46	-7.7	48	17.4	40	23.0	63	4.0	34	-1.9	54	8.8	18	24.2	40	-9.7	52
FTSE Global All Cap TR USD	37.5		14.8		-7.6		17.2		23.9		4.5		-1.7		9.0		24.4		-9.6	

Source: Morningstar



# APPENDIX

NEPC, LLC

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# GLOSSARY OF TERMS

**Alpha** - Measures the relationship between the fund performance and the performance of another fund or benchmark index and equals the excess return while the other fund or benchmark index is zero.

**Alpha Jensen** - The average return on a portfolio over and above that predicted by the capital asset pricing model (CAPM), given the portfolio's beta and the average market return. Also known as the abnormal return or the risk adjusted excess return.

**Annualized Excess Return over Benchmark** - Annualized fund return minus the annualized benchmark return for the calculated return.

**Annualized Return** - A statistical technique whereby returns covering periods greater than one year are converted to cover a 12 month time span.

**Beta** - Measures the volatility or systematic risk and is equal to the change in the fund's performance in relation to the change in the assigned index's performance.

**Information Ratio** - A measure of the risk adjusted return of a financial security, asset, or portfolio.

*Formula:*  
 $(\text{Annualized Return of Portfolio} - \text{Annualized Return of Benchmark}) / \text{Annualized Standard Deviation}(\text{Period Portfolio Return} - \text{Period Benchmark Return})$ . To annualize standard deviation, multiply the deviation by the square root of the number of periods per year where monthly returns per year equals 12 and quarterly returns is four periods per year.

**R-Squared** - Represents the percentage of a fund's movements that can be explained by movements in an index. R-Squared values range from 0 to 100. An R-Squared of 100 denotes that all movements of a fund are completely explained by movements in the index.

**Sharpe Ratio** - A measure of the excess return or risk premium per unit of risk in an investment asset or trading strategy.

**Sortino Ratio** - A method to differentiate between good and bad volatility in the Sharpe Ratio. The differentiation of up and down volatility allows the calculation to provide a risk adjusted measure of a security or fund's performance without upward price change penalties.

*Formula:*  
 $\text{Calculation Average } (X-Y) / \text{Downside Deviation } (X-Y) * 2$   
 Where X=Return Series X Y = Return Series Y which is the risk free return (91 day T-bills)

**Standard Deviation** - The standard deviation is a statistical term that describes the distribution of results. It is a commonly used measure of volatility of returns of a portfolio, asset class, or security. The higher the standard deviation the more volatile the returns are.

*Formula:*  
 $(\text{Annualized Return of Portfolio} - \text{Annualized Return of Risk Free}) / \text{Annualized Standard Deviation (Portfolio Returns)}$

**Tracking Error** - Tracking error, also known as residual risk, is a measure of the degree to which a portfolio tracks its benchmark. It is also a measure of consistency of excess returns. Tracking error is computed as the annualized standard deviation of the difference between a portfolio's return and that of its benchmark.

*Formula:*  
 $\text{Tracking Error} = \text{Standard Deviation } (X-Y) * \sqrt{\# \text{ of periods per year}}$   
 Where X = periods portfolio return and Y = the period's benchmark return  
 For monthly returns, the periods per year = 12  
 For quarterly returns, the periods per year = 4

**Treynor Ratio** - A risk-adjusted measure of return based on systematic risk. Similar to the Sharpe ratio with the difference being the Treynor ratio uses beta as the measurement of volatility.

*Formula:*  
 $(\text{Portfolio Average Return} - \text{Average Return of Risk-Free Rate}) / \text{Portfolio Beta}$

**Up/Down Capture Ratio** - A measure of what percentage of a market's returns is "captured" by a portfolio. For example, if the market declines 10% over some period, and the manager declines only 9%, then his or her capture ratio is 90%. In down markets, it is advantageous for a manager to have as low a capture ratio as possible. For up markets, the higher the capture ratio the better. Looking at capture ratios can provide insight into how a manager achieves excess returns. A value manager might typically have a lower capture ratio in both up and down markets, achieving excess returns by protecting on the downside, whereas a growth manager might fall more than the overall market in down markets, but achieve above-market returns in a rising market.

$\text{Upside Capture} = \text{TotalReturn}(\text{FundReturns}) / \text{TotalReturns}(\text{BMReturn})$  when Period Benchmark Return is  $\geq 0$

$\text{Downside Capture} = \text{TotalReturn}(\text{FundReturns}) / \text{TotalReturns}(\text{BMReturn})$  when Benchmark  $< 0$

Data Source: InvestorForce



# INFORMATION DISCLAIMER AND REPORTING METHODOLOGY

## Information Disclaimer

- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
- Some index returns displayed in this report or used in calculation of a policy, allocation or custom benchmark may not be available from the source or may be preliminary and subject to change.
- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodial bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
- This report is provided as a management aid for the client's internal use only. Performance contained in this report does not constitute a recommendation by NEPC.
- This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

## Reporting Methodology

- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of Return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.



# **FOURTH QUARTER 2018 SUPPLEMENTAL PERFORMANCE**



## **UNIVERSITY OF MAINE SYSTEM PENSION PLAN**

**March 11, 2019**

**Jay E. Roney, Partner**

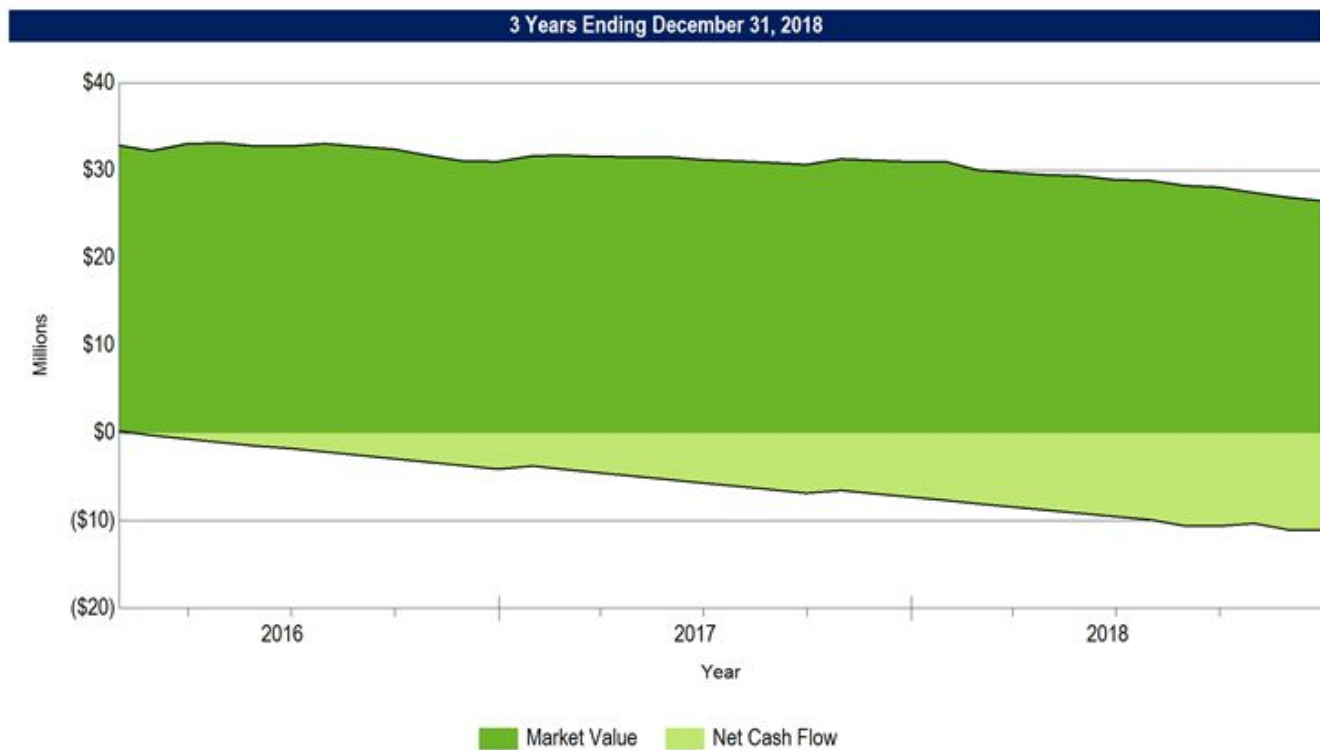
**Kelly Regan, Senior Consultant**



BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO



# ASSET GROWTH SUMMARY



	Quarter-To-Date	Fiscal Year-To-Date	One Year	Three Years
Beginning Market Value	\$28,081,876	\$28,930,221	\$30,986,608	\$33,263,078
Net Cash Flow	-\$419,656	-\$1,513,791	-\$3,742,785	-\$11,056,695
Net Investment Change	-\$1,141,593	-\$895,803	-\$723,196	\$4,314,244
Ending Market Value	\$26,520,627	\$26,520,627	\$26,520,627	\$26,520,627

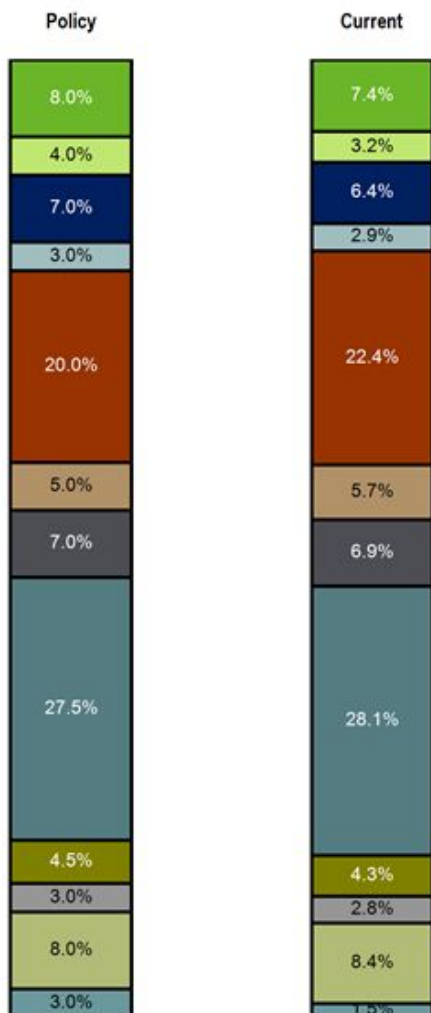


# CASH FLOW SUMMARY

	Quarter Ending December 31, 2018					Ending Market Value
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	
Bain Capital Senior Loan Fund	\$1,398,178	\$0	-\$1,758	-\$1,758	-\$39,472	\$1,356,947
BlackRock Strategic Income Opportunities	\$752,881	\$0	-\$993	-\$993	-\$2,962	\$748,926
Distribution Account	\$12,365	\$1,135,750	-\$757,190	\$378,560	\$630	\$391,555
Guggenheim US Bank Loans	\$155,315	\$0	-\$129	-\$129	\$129	\$155,315
Lighthouse	\$1,643,851	\$0	-\$370,000	-\$370,000	-\$137,394	\$1,136,458
Mondrian EM Small Cap	\$789,606	\$0	-\$5,294	-\$5,294	-\$19,004	\$765,308
Morgan Stanley Int'l	\$1,933,960	\$0	-\$4,156	-\$4,156	-\$239,851	\$1,689,953
Newton Global Real Return	\$4,053,393	\$0	-\$27,936	-\$27,936	-\$49,403	\$3,976,054
Principal	\$2,342,830	\$0	-\$150,000	-\$150,000	\$27,441	\$2,220,271
SSgA R2000 Index Fund Non Lending	\$1,147,437	\$0	-\$70,415	-\$70,415	-\$222,177	\$854,845
Vanguard Inflation-Protected Securities	\$2,002,664	\$0	-\$150,321	-\$150,321	-\$9,490	\$1,842,853
Vanguard S&P 500 Index	\$2,282,204	\$0	-\$209	-\$209	-\$308,578	\$1,973,417
Vanguard Total Bond Market Index	\$5,833,115	\$0	-\$1,023	-\$1,023	\$95,392	\$5,927,484
Wellington	\$3,734,077	\$0	-\$15,981	-\$15,981	-\$236,855	\$3,481,241
<b>Total</b>	<b>\$28,081,876</b>	<b>\$1,135,750</b>	<b>-\$1,555,405</b>	<b>-\$419,656</b>	<b>-\$1,141,593</b>	<b>\$26,520,627</b>



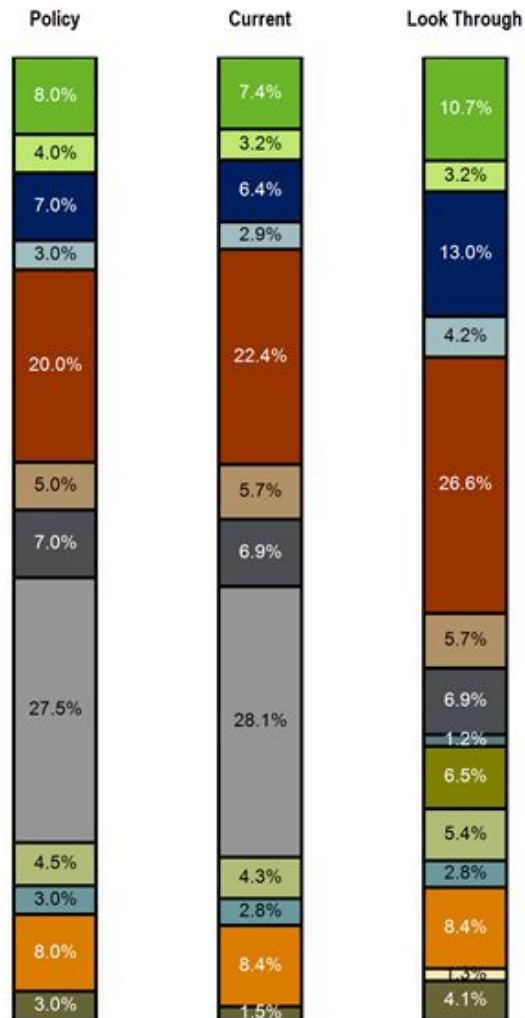
# ASSET ALLOCATION



Asset Allocation vs. Target							
	Current	Policy	Current	Difference	Policy Range	Within Range	
Large Cap Equity	\$1,973,417	8.0%	7.4%	-0.6%	3.0% - 13.0%	Yes	
Small Cap Equity	\$854,845	4.0%	3.2%	-0.8%	0.0% - 6.0%	Yes	
International Equity	\$1,689,953	7.0%	6.4%	-0.6%	2.0% - 12.0%	Yes	
Emerging Markets Equity	\$765,308	3.0%	2.9%	-0.1%	0.0% - 5.0%	Yes	
Core Bonds	\$5,927,484	20.0%	22.4%	2.4%	10.0% - 30.0%	Yes	
Bank Loans	\$1,512,262	5.0%	5.7%	0.7%	0.0% - 10.0%	Yes	
TIPS	\$1,842,853	7.0%	6.9%	-0.1%	0.0% - 14.0%	Yes	
Global Asset Allocation	\$7,457,295	27.5%	28.1%	0.6%	25.0% - 30.0%	Yes	
Hedge Funds	\$1,136,458	4.5%	4.3%	-0.2%	0.0% - 10.0%	Yes	
Absolute Return	\$748,926	3.0%	2.8%	-0.2%	0.0% - 5.0%	Yes	
Real Estate	\$2,220,271	8.0%	8.4%	0.4%	0.0% - 10.0%	Yes	
Cash	\$391,555	3.0%	1.5%	-1.5%	0.0% - 10.0%	Yes	
<b>Total</b>	<b>\$26,520,627</b>	<b>100.0%</b>	<b>100.0%</b>				



# ASSET ALLOCATION



Asset Allocation			
	Policy	Current	Look Through
Large Cap Equity	8.0%	7.4%	10.7%
Small Cap Equity	4.0%	3.2%	3.2%
International Equity	7.0%	6.4%	13.0%
Emerging Markets Equity	3.0%	2.9%	4.2%
Core Bonds	20.0%	22.4%	26.6%
Bank Loans	5.0%	5.7%	5.7%
TIPS	7.0%	6.9%	6.9%
Multi-Sector Fixed Income	--	--	1.2%
Global Bonds	--	--	6.5%
Global Asset Allocation	27.5%	28.1%	--
Hedge Funds	4.5%	4.3%	5.4%
Absolute Return	3.0%	2.8%	2.8%
Real Estate	8.0%	8.4%	8.4%
Real Assets	--	--	1.3%
Cash	3.0%	1.5%	4.1%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Net Asset Allocation breaks out the exposure of GAA managers.

Asset class weights may not add up to 100% due to rounding.

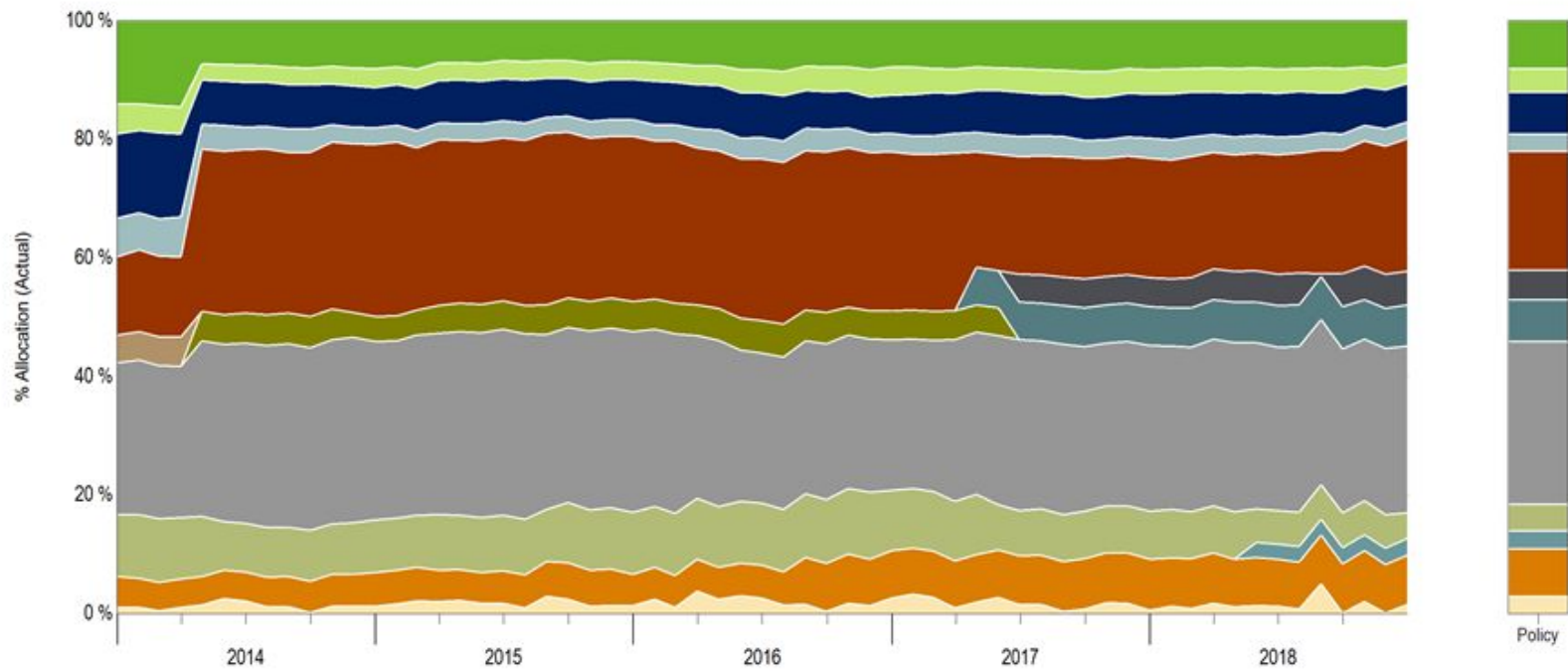
The 60% MSCI ACWI/40% CITI WGBI Index is broken down into the following categories: 32.6% Domestic Equities, 20.2% Int'l Equities, 7.1% Emerging Equities, 14.8% US Treasury Bonds, 12.6% European Government Bonds, 7.8% Japanese Debt, 2.2% United Kingdom Bonds and 2.6% Developing Market Bonds.

Diversified Fixed Income bucket includes: multi-sector fixed income., non-U.S. fixed income, and emerging fixed income .



# ASSET ALLOCATION HISTORY

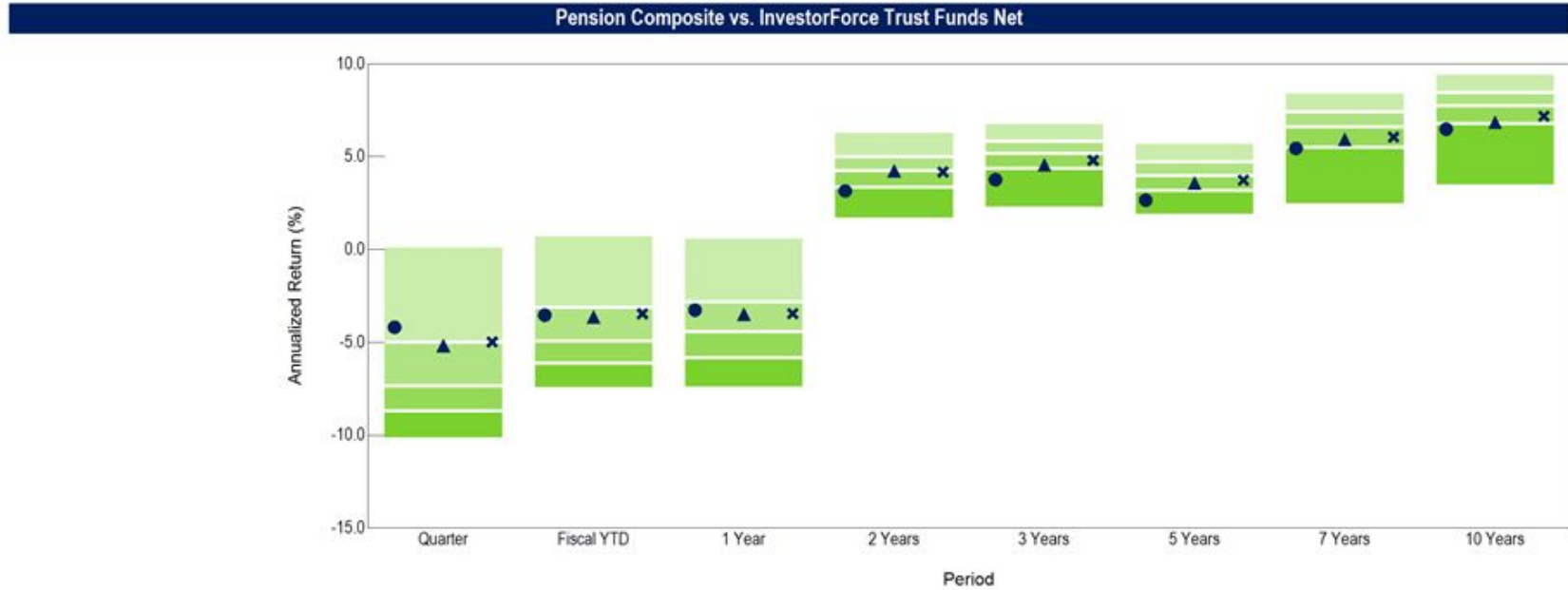
Asset Allocation History



- Large Cap Equity
- Emerging Markets Equity
- Bank Loans
- Global Asset Allocation
- Real Estate
- Small Cap Equity
- Core Bonds
- TIPS
- Hedge Funds
- Cash
- International Equity
- High Yield
- Multi-Sector Fixed Income
- Absolute Return



# RETURNS VS. PEER UNIVERSE



	Return (Rank)															
5th Percentile	0.2	0.8	0.7	6.4	6.8	5.8	8.5	9.5								
25th Percentile	-5.0	-3.1	-2.8	5.0	5.9	4.7	7.4	8.5								
Median	-7.3	-4.9	-4.4	4.3	5.2	4.0	6.6	7.8								
75th Percentile	-8.7	-6.1	-5.8	3.4	4.4	3.2	5.5	6.8								
95th Percentile	-10.2	-7.5	-7.5	1.6	2.2	1.9	2.4	3.4								
# of Portfolios	3,697	3,674	3,627	3,484	3,351	3,047	2,741	2,293								
● Pension Composite	-4.2	(21)	-3.5	(29)	-3.3	(32)	3.1	(80)	3.8	(86)	2.7	(87)	5.4	(77)	6.5	(79)
▲ Allocation Index	-5.2	(27)	-3.6	(30)	-3.5	(35)	4.2	(52)	4.6	(71)	3.6	(64)	5.9	(68)	6.8	(75)
× Policy Index	-5.0	(25)	-3.5	(28)	-3.5	(34)	4.2	(54)	4.8	(64)	3.7	(59)	6.1	(65)	7.2	(68)



# RETURNS VS. PEER UNIVERSE

Pension Composite vs. InvestorForce Trust Funds Net

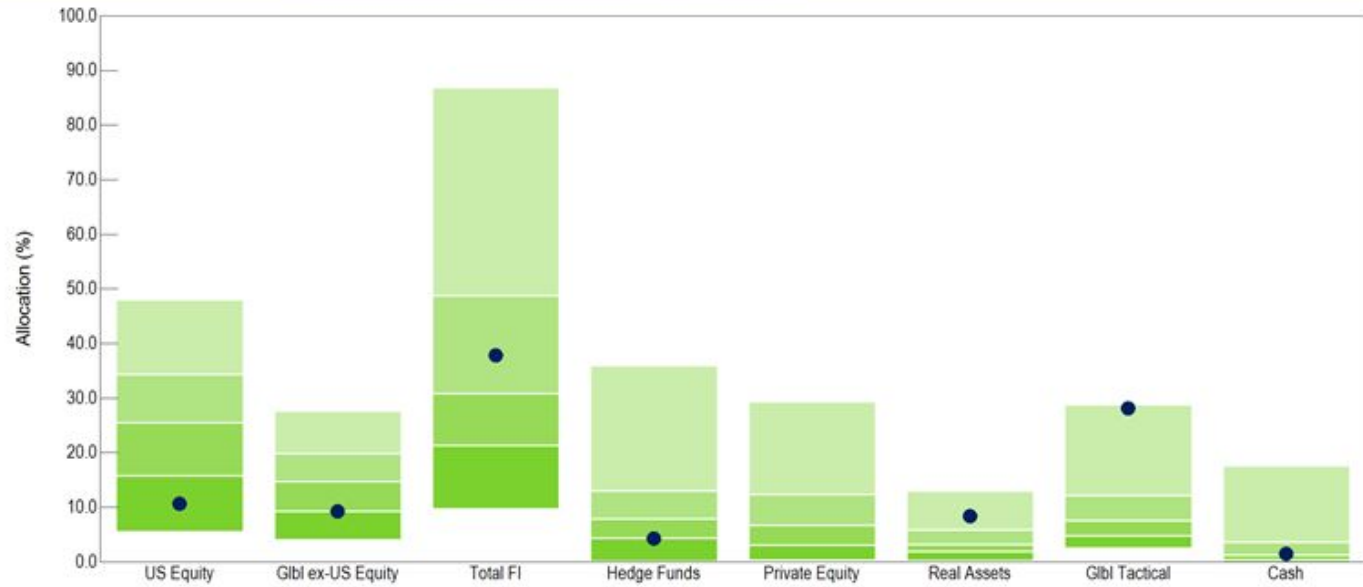


	Return (Rank)									
	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
5th Percentile	0.7	18.0	9.4	2.1	11.2	20.6	14.8	7.4	15.1	27.7
25th Percentile	-2.8	15.7	7.9	0.3	6.6	16.7	13.0	2.8	13.3	23.1
Median	-4.4	14.1	6.7	-0.9	5.0	13.4	11.7	0.6	11.9	18.9
75th Percentile	-5.8	11.4	5.3	-2.3	3.6	8.7	9.8	-1.0	10.0	13.2
95th Percentile	-7.5	3.5	2.3	-4.2	1.5	0.3	4.3	-3.2	5.0	4.8
# of Portfolios	3,627	2,518	2,446	2,339	2,007	1,709	1,539	1,403	1,326	1,233
● Pension Composite	-3.3 (32)	10.0 (80)	5.0 (80)	-1.1 (54)	3.2 (82)	11.8 (60)	13.7 (14)	-2.7 (92)	12.1 (47)	18.5 (52)
▲ Allocation Index	-3.5 (35)	12.6 (67)	5.2 (77)	0.0 (32)	4.3 (64)	13.0 (53)	11.2 (60)	0.1 (57)	10.2 (73)	17.4 (58)
× Policy Index	-3.5 (34)	12.4 (69)	6.1 (64)	-0.1 (34)	4.4 (62)	13.1 (52)	11.2 (60)	0.8 (47)	12.2 (47)	17.1 (59)



# ALLOCATIONS VS. PEER UNIVERSE

Total Plan Allocation vs. InvestorForce Trust Funds Net



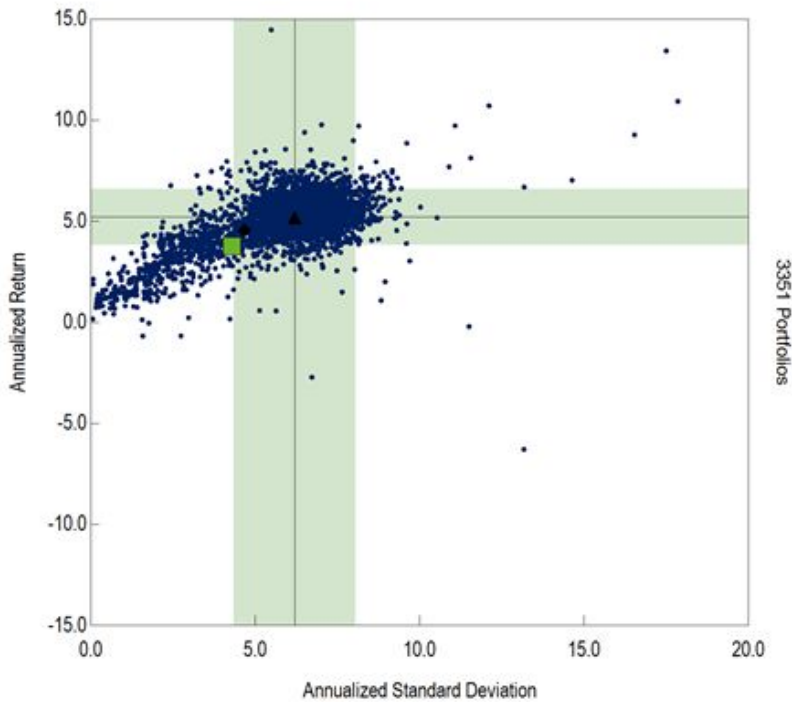
	US Equity		Gbl ex-US Equity		Total FI		Hedge Funds		Private Equity		Real Assets		Gbl Tactical		Cash	
<b>5th Percentile</b>	48.0	27.6	86.9	35.9	29.3	13.0	28.7	17.6								
<b>25th Percentile</b>	34.5	19.9	48.9	13.2	12.4	6.0	12.3	3.8								
<b>Median</b>	25.6	14.8	30.9	8.0	6.8	3.3	7.7	1.3								
<b>75th Percentile</b>	15.9	9.3	21.4	4.4	3.2	2.0	4.9	0.4								
<b>95th Percentile</b>	5.7	4.1	9.8	0.2	0.4	0.3	2.6	0.0								
<b># of Portfolios</b>	1,701	1,888	2,493	905	925	470	417	2,167								
<b>● Pension Composite</b>	10.7	(86)	9.3	(76)	37.8	(37)	4.3	(77)	--	--	8.4	(18)	28.1	(6)	1.5	(48)





# TOTAL PLAN RISK/RETURN - 3 YEAR

3 Years Ending December 31, 2018



- Pension Composite
- ◆ Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Trust Funds Net

3 Years Ending December 31, 2018				
	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Pension Composite	3.8%	86	4.3%	18
Allocation Index	4.6%	71	4.7%	21
Policy Index	4.8%	64	4.7%	21
InvestorForce Trust Funds Net Median	5.2%	--	6.2%	--

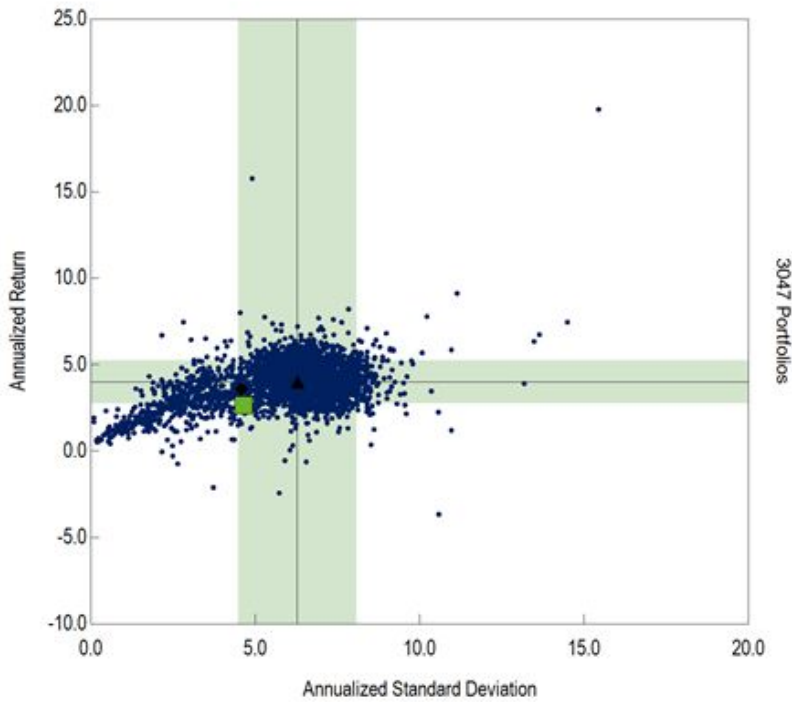
3 Years Ending December 31, 2018				
	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Pension Composite	0.6	63	0.8	36
Allocation Index	0.7	35	0.8	30
Policy Index	0.8	26	0.9	21
InvestorForce Trust Funds Net Median	0.7	--	0.7	--

\*Returns are net of fees.



# TOTAL PLAN RISK/RETURN - 5 YEAR

5 Years Ending December 31, 2018



- Pension Composite
- ◆ Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Trust Funds Net

5 Years Ending December 31, 2018				
	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Pension Composite	2.7%	87	4.6%	19
Allocation Index	3.6%	64	4.6%	19
Policy Index	3.7%	59	4.6%	19
InvestorForce Trust Funds Net Median	4.0%	--	6.3%	--

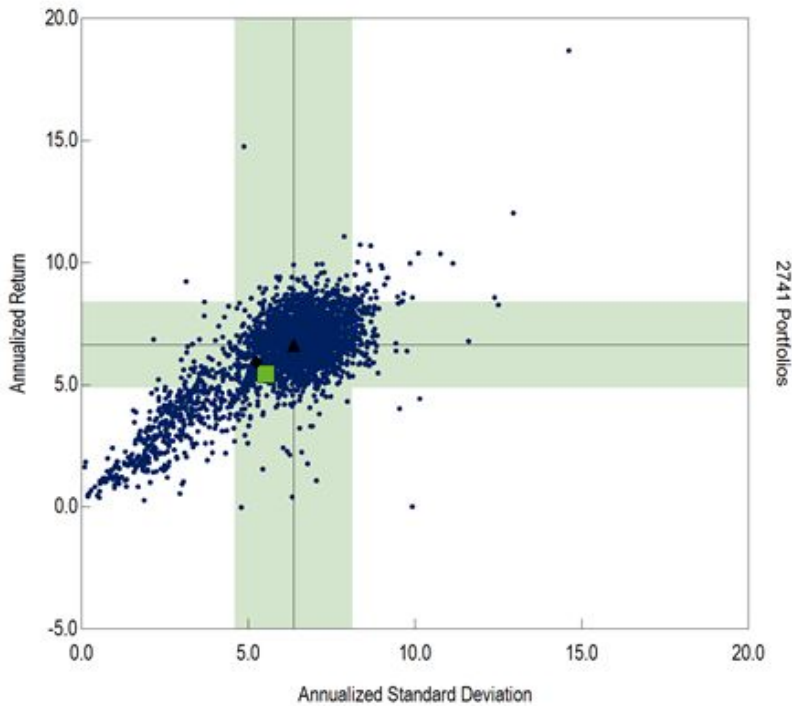
5 Years Ending December 31, 2018				
	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Pension Composite	0.4	76	0.7	58
Allocation Index	0.6	38	0.8	34
Policy Index	0.7	32	0.9	27
InvestorForce Trust Funds Net Median	0.6	--	0.7	--

\*Returns are net of fees.



# TOTAL PLAN RISK/RETURN - 7 YEAR

7 Years Ending December 31, 2018



- Pension Composite
- ◆ Allocation Index
- ▲ Universe Median
- ▭ 68% Confidence Interval
- InvestorForce Trust Funds Net

7 Years Ending December 31, 2018				
	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Pension Composite	5.4%	77	5.5%	27
Allocation Index	5.9%	68	5.2%	23
Policy Index	6.1%	65	5.2%	22
InvestorForce Trust Funds Net Median	6.6%	--	6.4%	--

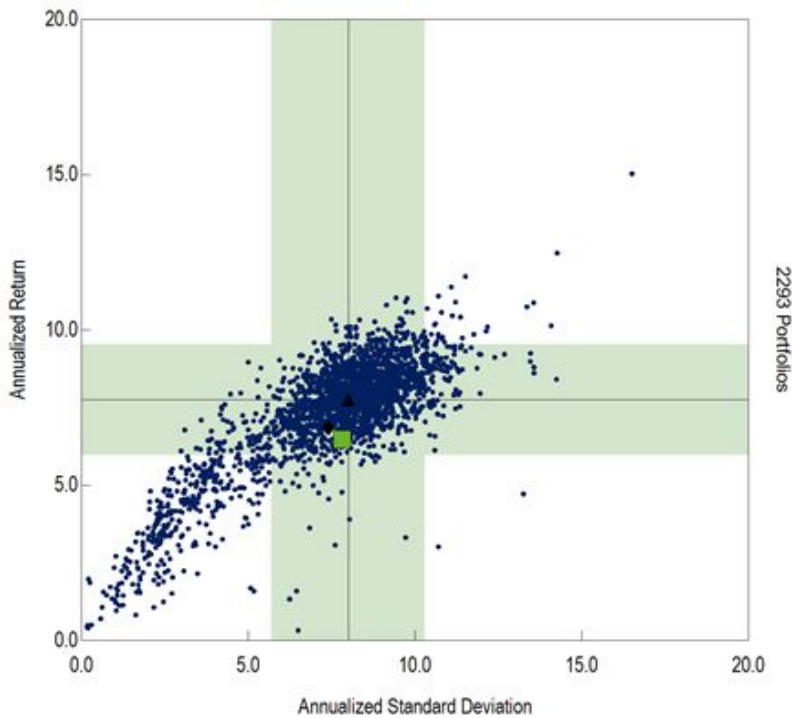
7 Years Ending December 31, 2018				
	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Pension Composite	0.9	67	1.3	43
Allocation Index	1.0	37	1.4	33
Policy Index	1.1	31	1.5	23
InvestorForce Trust Funds Net Median	1.0	--	1.3	--

\*Returns are net of fees.



# TOTAL PLAN RISK/RETURN - 10 YEAR

10 Years Ending December 31, 2018



- Pension Composite
- ◆ Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Trust Funds Net

10 Years Ending December 31, 2018				
	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Pension Composite	6.5%	79	7.8%	46
Allocation Index	6.8%	75	7.4%	37
Policy Index	7.2%	68	7.2%	32
InvestorForce Trust Funds Net Median	7.8%	--	8.0%	--

10 Years Ending December 31, 2018				
	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Pension Composite	0.8	87	1.1	84
Allocation Index	0.9	67	1.3	66
Policy Index	1.0	48	1.4	39
InvestorForce Trust Funds Net Median	0.9	--	1.3	--

\*Returns are net of fees.



# TOTAL PLAN PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)
<b>Pension Composite</b>	<b>26,520,627</b>	<b>100.0</b>	<b>100.0</b>	<b>-4.2</b>	<b>-3.5</b>	<b>-3.3</b>	<b>3.1</b>	<b>3.8</b>	<b>2.7</b>	<b>5.4</b>	<b>6.5</b>
Allocation Index				-5.2	-3.6	-3.5	4.2	4.6	3.6	5.9	6.8
Policy Index				-5.0	-3.5	-3.5	4.2	4.8	3.7	6.1	7.2
<b>Total Domestic Large Cap</b>	<b>1,973,417</b>	<b>7.4</b>	<b>8.0</b>	<b>-13.5</b>	<b>-6.9</b>	<b>-4.4</b>	<b>7.9</b>	<b>9.2</b>	<b>8.5</b>	<b>12.7</b>	<b>12.0</b>
S&P 500				-13.5	-6.9	-4.4	7.9	9.3	8.5	12.7	13.1
Vanguard S&P 500 Index	1,973,417	7.4	8.0	-13.5	-6.9	-4.4	7.9	9.2	8.5	--	--
S&P 500				-13.5	-6.9	-4.4	7.9	9.3	8.5	12.7	13.1
<b>Total Small Cap Composite</b>	<b>854,845</b>	<b>3.2</b>	<b>4.0</b>	<b>-20.2</b>	<b>-17.4</b>	<b>-11.0</b>	<b>1.0</b>	<b>7.4</b>	<b>4.2</b>	<b>10.2</b>	<b>--</b>
Russell 2000				-20.2	-17.3	-11.0	1.0	7.4	4.4	10.4	12.0
SSgA R2000 Index Fund Non Lending	854,845	3.2	4.0	-20.2	-17.4	-11.0	1.0	7.4	4.3	10.3	--
Russell 2000				-20.2	-17.3	-11.0	1.0	7.4	4.4	10.4	12.0
<b>Total International Equity (including emerging markets)</b>	<b>2,455,261</b>	<b>9.3</b>	<b>10.0</b>	<b>-9.9</b>	<b>-11.6</b>	<b>-14.2</b>	<b>2.9</b>	<b>1.2</b>	<b>-0.5</b>	<b>3.8</b>	<b>4.5</b>
MSCI EAFE				-12.5	-11.4	-13.8	3.8	2.9	0.5	5.8	6.3
Morgan Stanley Int'l	1,689,953	6.4	7.0	-12.6	-12.3	-13.8	3.9	2.0	0.0	5.4	5.6
MSCI EAFE				-12.5	-11.4	-13.8	3.8	2.9	0.5	5.8	6.3
<b>Emerging Markets Equity</b>	<b>765,308</b>	<b>2.9</b>	<b>3.0</b>	<b>-3.1</b>	<b>-10.0</b>	<b>-15.6</b>	<b>0.6</b>	<b>-0.8</b>	<b>-2.0</b>	<b>--</b>	<b>--</b>
MSCI Emerging Markets				-7.5	-8.5	-14.6	8.3	9.2	1.6	3.2	8.0
Mondrian EM Small Cap	765,308	2.9	3.0	-3.1	-10.0	-15.6	0.6	-0.8	--	--	--
MSCI Emerging Markets Small Cap				-7.2	-11.1	-18.6	4.4	3.7	1.0	3.8	9.9
<b>Total Fixed Income</b>	<b>10,031,525</b>	<b>37.8</b>	<b>35.0</b>	<b>0.4</b>	<b>0.5</b>	<b>-0.2</b>	<b>1.9</b>	<b>2.5</b>	<b>2.3</b>	<b>3.0</b>	<b>4.6</b>
BBgBarc US Aggregate TR				1.6	1.7	0.0	1.8	2.1	2.5	2.1	3.5
Vanguard Total Bond Market Index	5,927,484	22.4	20.0	1.6	1.7	0.0	1.8	2.0	--	--	--
BBgBarc US Aggregate TR				1.6	1.7	0.0	1.8	2.1	2.5	2.1	3.5
Vanguard Inflation-Protected Securities	1,842,853	6.9	7.0	-0.5	-1.3	-1.4	--	--	--	--	--
BBgBarc US TIPS TR				-0.4	-1.2	-1.3	0.8	2.1	1.7	0.9	3.6
BlackRock Strategic Income Opportunities	748,926	2.8	3.0	-0.5	0.0	--	--	--	--	--	--
3-Month Libor Total Return USD				0.7	1.3	2.4	1.8	1.5	1.0	0.8	0.7
Bain Capital Senior Loan Fund	1,356,947	5.1	5.0	-2.9	--	--	--	--	--	--	--
Credit Suisse Leveraged Loans				-3.1	-1.2	1.1	2.7	5.0	3.3	4.6	8.3
Guggenheim US Bank Loans	155,315	0.6									



# TOTAL PLAN PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)
<b>Total GAA</b>	<b>7,457,295</b>	<b>28.1</b>	<b>27.5</b>	<b>-4.0</b>	<b>-4.5</b>	<b>-5.3</b>	<b>2.4</b>	<b>3.2</b>	<b>1.2</b>	<b>3.6</b>	<b>5.9</b>
65% MSCI ACWI (Net) / 35% BBgBarc Global Agg				-8.0	-5.7	-6.4	5.1	5.4	3.3	5.9	7.2
Wellington	3,481,241	13.1	13.8	-6.9	-9.7	-11.8	1.8	3.1	2.0	4.8	6.4
65% MSCI ACWI (Net) / 35% BBgBarc Global Agg				-8.0	-5.7	-6.4	5.1	5.4	3.3	5.9	7.2
Newton Global Real Return	3,976,054	15.0	13.8	-1.4	0.6	1.2	2.8	--	--	--	--
60% MSCI ACWI (Net) / 40% FTSE WGBI				-7.1	-5.3	-5.8	5.0	5.2	3.0	5.2	6.5
<b>Total Alternative Investments</b>	<b>1,136,458</b>	<b>4.3</b>	<b>4.5</b>	<b>-8.4</b>	<b>-8.3</b>	<b>-5.6</b>	<b>-0.1</b>	<b>0.7</b>	<b>0.8</b>	<b>2.2</b>	<b>3.1</b>
HFRI Fund of Funds Composite Index				-5.0	-4.8	-4.1	1.7	1.3	1.4	2.9	3.1
Lighthouse	1,136,458	4.3	4.5	-8.4	-8.3	-3.6	1.7	1.2	--	--	--
Credit Suisse Long Shrt Eq USD				-6.7	-5.2	-4.6	4.0	1.5	2.7	5.5	5.8
<b>Total Real Assets</b>	<b>2,220,271</b>	<b>8.4</b>	<b>8.0</b>								
Principal	2,220,271	8.4	8.0	1.2	3.7	8.0	7.9	8.3	10.2	10.8	6.5
NCREIF ODCE				1.8	3.9	8.3	8.0	8.2	10.4	11.0	7.0
<b>Total Cash</b>	<b>391,555</b>	<b>1.5</b>	<b>3.0</b>								
Distribution Account	391,555	1.5	3.0	0.4	0.9	1.6	1.1	0.7	0.4	0.3	0.3
91 Day T-Bills				0.6	1.1	1.9	1.4	1.1	0.6	0.5	0.4

## Notes:

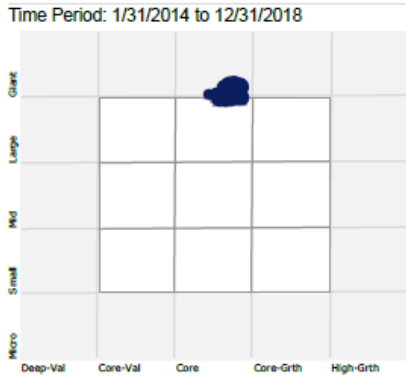
Fiscal YTD begins 7/1

Blended Index: 40% BC Aggregate, 30% BC U.S. TIPS 1-10YR, 10% S&amp;P 500, 10% BC High Yield, 10% JPM EMBI+

Returns are net of manager fees

# VANGUARD INSTITUTIONAL INDEX I

### Holdings Based Style Trail (5 Years)



\*Vanguard Institutional Index I - S&P 500 TR USD

### Portfolio Statistics

	Fund	Index
# of Holdings	510	505
% Asset in Top 10 Holdings	20.9	20.9
Turnover Ratio %	5.0	
P/E Ratio	17.2	18.4
P/B Ratio	2.9	3.0
LT Eam Growth	11.3	10.9
Hist Eam Growth	9.9	9.8
12 Mo Yield	2.0	

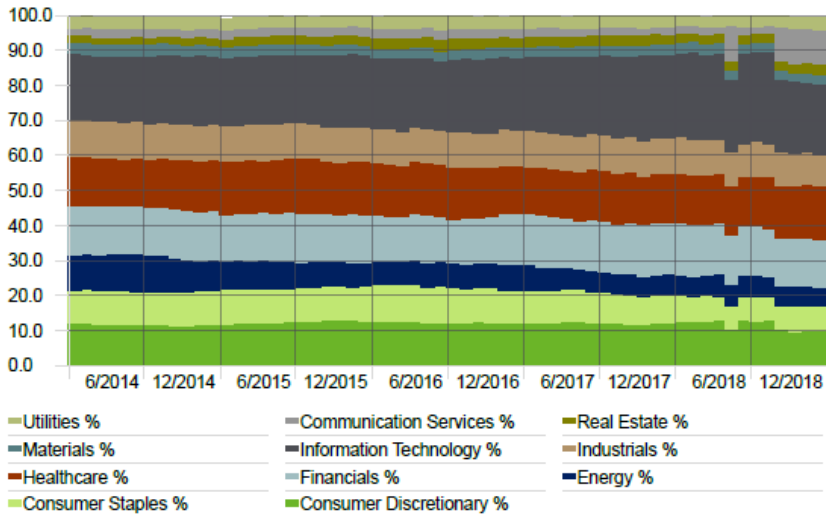
### Market Capitalization Breakdown

	Fund	Index
Market Cap Giant %	55.9	55.8
Market Cap Large %	34.0	34.1
Market Cap Mid %	10.1	10.1
Market Cap Small %	0.0	0.0
Market Cap Micro %	0.0	0.0
Average Market Cap (mil)	93,924.2	93,688.3

### Top 10 Holdings

	Portf Weight %	3 Month Ret %
Microsoft Corp	3.72	-11.19
Apple Inc	3.37	-29.80
Amazon.com Inc	2.92	-25.01
Berkshire Hathaway Inc B	1.85	-4.64
Johnson & Johnson	1.64	-5.95
JPMorgan Chase & Co	1.54	-12.78
Alphabet Inc Class C	1.51	-13.23
Facebook Inc A	1.49	-20.29
Alphabet Inc A	1.48	-13.43
Exxon Mobil Corp	1.37	-18.83

### Historical Sector Allocations (5 Years)



### Attribution (Quarter)

	Portfolio Weights	Benchmark Weights	Portfolio Return	Benchmark Return	Allocation Effect	Selection Effect	Active Return
Communication Services	9.96	10.00	-13.18	-13.18	0.00	0.00	0.00
Consumer Discretionary	9.94	9.99	-16.43	-16.42	0.00	0.00	0.00
Consumer Staples	7.13	7.14	-5.21	-5.25	0.00	0.00	0.00
Energy	5.68	5.68	-23.75	-23.71	0.00	0.00	0.00
Financials	13.47	13.52	-13.11	-13.11	0.00	0.00	0.00
Health Care	15.15	15.27	-8.79	-8.73	0.00	-0.01	-0.01
Industrials	9.44	9.47	-17.35	-17.39	0.00	0.00	0.00
Information Technology	20.51	20.56	-17.45	-17.45	0.00	0.00	0.00
Materials	2.40	2.53	-11.05	-12.30	-0.01	0.03	0.02
Real Estate	2.77	2.78	-3.84	-3.84	0.00	0.00	0.00
Utilities	3.01	3.02	1.36	1.36	0.00	0.00	0.00
Attribution Total	99.46	99.96	-13.55	-13.56	-0.01	0.02	0.01
Cash	0.35	0.00					
Bond	0.02	0.00					
Total	100.00	100.00					
Expense Ratio			0.01	0.00			
Residual(Reported - Attribution + Expense)			0.03	0.04			

Source: Morningstar



# VANGUARD INSTITUTIONAL INDEX I

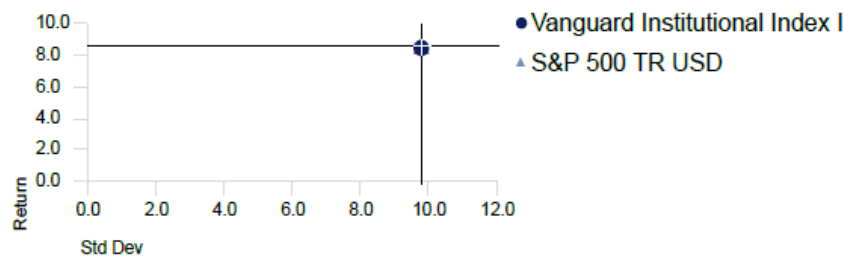
## Risk & Return Characteristics (5 Years)

Time Period: 1/1/2014 to 12/31/2018

	Fund	Index
R2	100.0	100.0
Alpha	0.0	0.0
Beta	1.0	1.0
Std Dev	9.8	9.8
Up Capture Ratio	99.8	100.0
Down Capture Ratio	100.1	100.0
Sharpe Ratio (geo)	0.8	0.8
Information Ratio (geo)	-3.3	
Tracking Error	0.0	0.0
Correlation	1.0	1.0

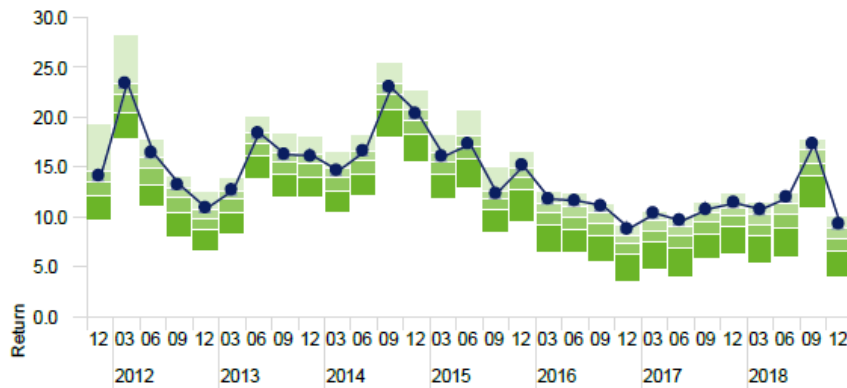
## Risk & Return Illustration (5 Years)

Time Period: 1/1/2014 to 12/31/2018



## Rolling Return (3 Years)

Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile

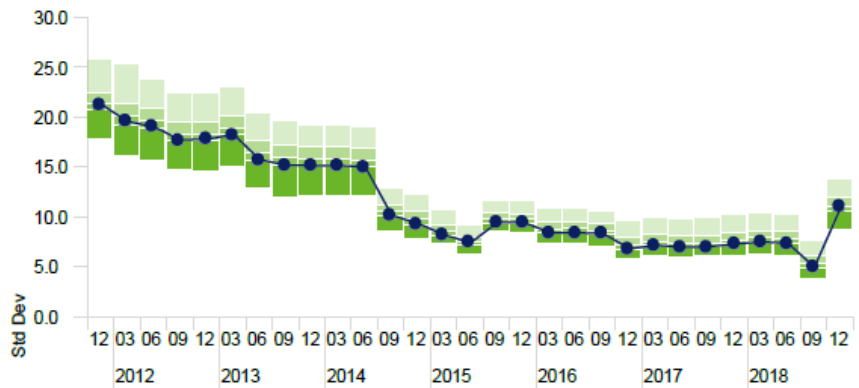


—Vanguard Institutional Index I

—S&P 500 TR USD

## Rolling Risk (3 Years)

Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



—Vanguard Institutional Index I

—S&P 500 TR USD

## Calendar Year Returns

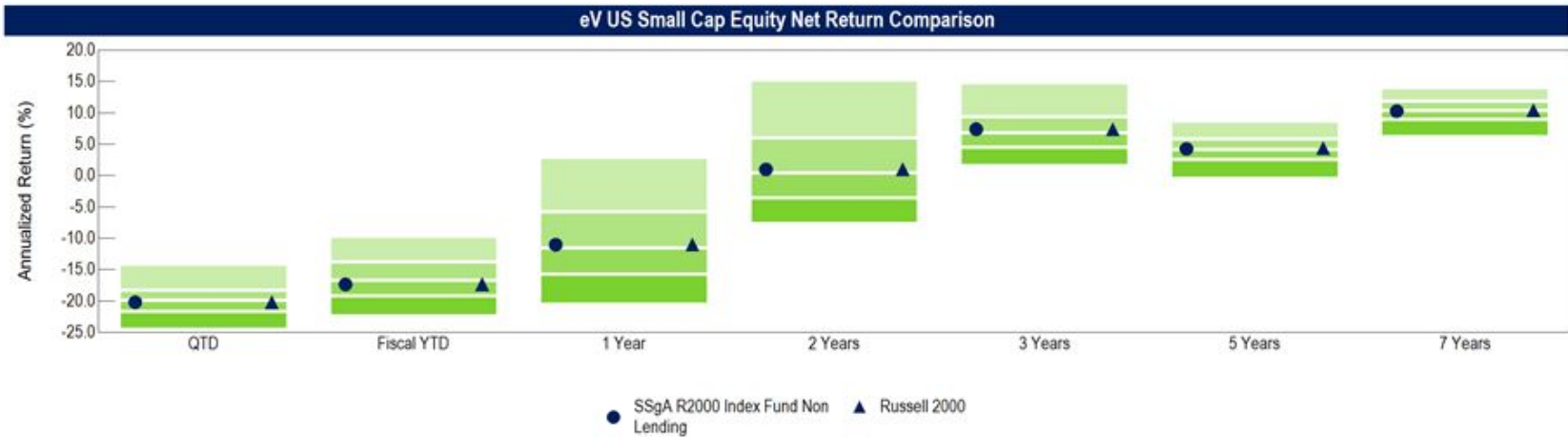
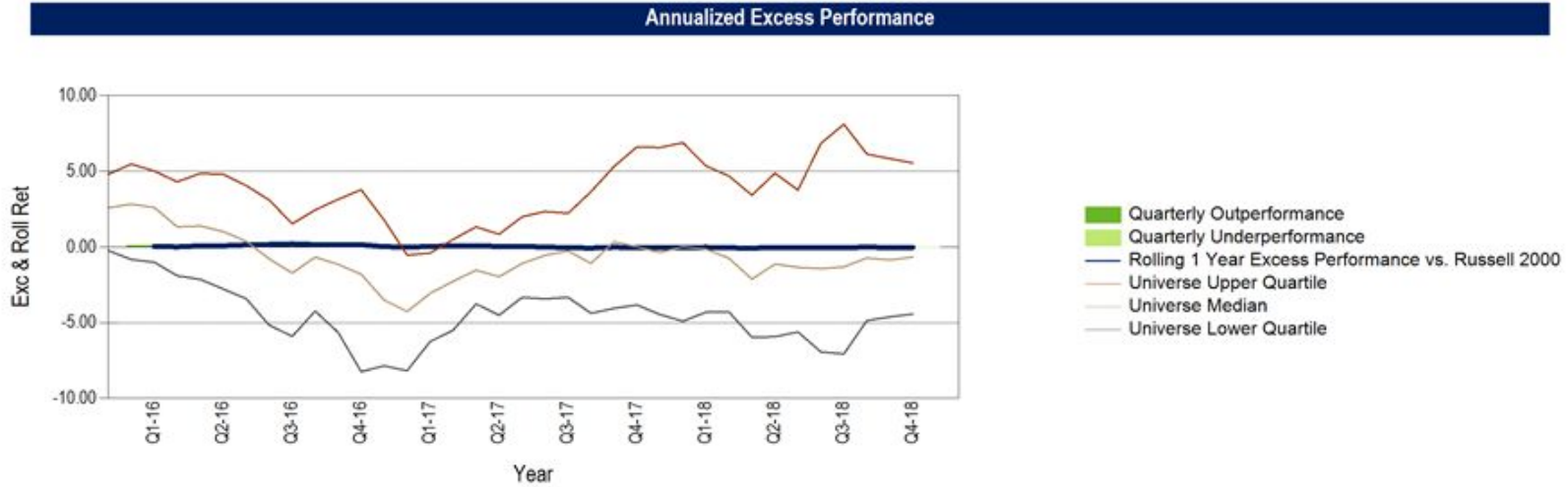
	2009	Rank	2010	Rank	2011	Rank	2012	Rank	2013	Rank	2014	Rank	2015	Rank	2016	Rank	2017	Rank	2018	Rank
Vanguard Institutional Index I	26.6	52	15.0	29	2.1	17	16.0	35	32.3	42	13.7	18	1.4	20	11.9	27	21.8	29	-4.4	27
S&P 500 TR USD	26.5		15.1		2.1		16.0		32.4		13.7		1.4		12.0		21.8		-4.4	

Source: Morningstar





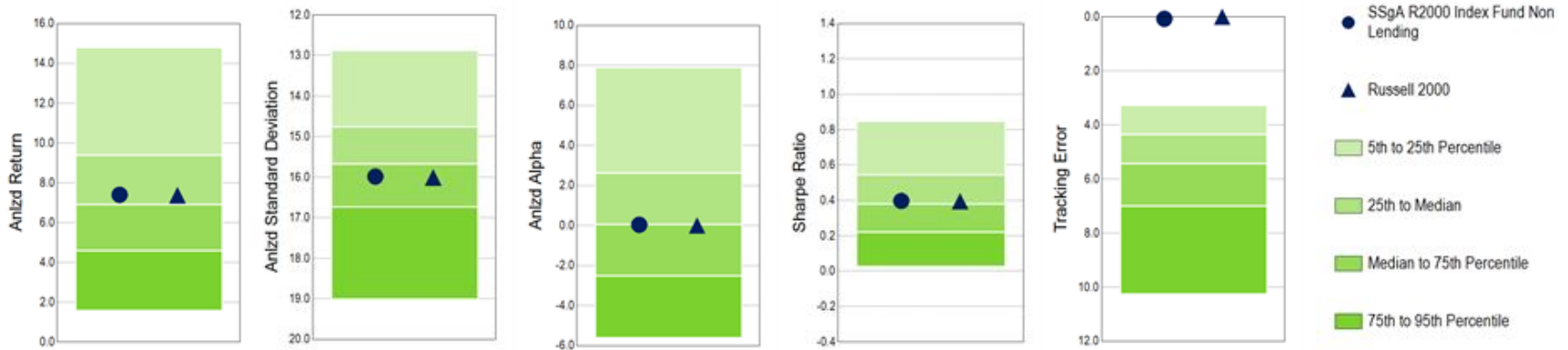
# SSgA R2000 NON LENDING



\*Returns are net of fees.



# SSgA R2000 NON LENDING



\*Returns are net of fees.



# SSgA R2000 NON LENDING

Characteristics		
	Portfolio	Russell 2000
Number of Holdings	1,974	2,032
Weighted Avg. Market Cap. (\$B)	2.0	2.0
Median Market Cap. (\$B)	0.7	0.7
Price To Earnings	14.7	14.3
Price To Book	3.6	2.6
Price To Sales	3.5	3.1
Return on Equity (%)	6.0	8.8
Yield (%)	1.6	1.4
Beta		1.0
R-Squared		1.0

Equity Sector Attribution											
	Attribution Effects				Returns		Ending Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.0%	0.0%	0.0%	0.0%	-42.0%	-42.0%	3.3%	3.4%			
Materials	0.0%	0.0%	0.0%	0.0%	-27.0%	-27.1%	3.4%	3.7%			
Industrials	0.0%	0.0%	0.0%	0.0%	-21.5%	-21.5%	13.5%	14.8%			
Consumer Discretionary	0.0%	0.0%	0.0%	0.0%	-20.2%	-20.3%	11.1%	12.2%			
Consumer Staples	0.0%	0.0%	0.0%	0.0%	-13.3%	-13.3%	2.7%	2.9%			
Health Care	0.0%	0.0%	0.0%	0.0%	-26.1%	-26.1%	14.2%	15.6%			
Financials	0.0%	0.0%	0.0%	0.0%	-16.4%	-16.5%	16.3%	18.3%			
Information Technology	0.0%	0.0%	0.0%	0.0%	-17.0%	-16.9%	13.6%	14.7%			
Communication Services	0.0%	0.0%	0.0%	0.0%	-18.9%	-18.9%	3.0%	3.3%			
Utilities	0.0%	0.0%	0.0%	0.0%	-2.0%	-2.0%	3.3%	3.8%			
Real Estate	0.0%	0.0%	0.0%	0.0%	-14.1%	-14.0%	6.7%	7.2%			
Cash	0.0%	--	--	--	--	--	8.8%	0.0%			
Unclassified	0.0%	--	--	--	--	--	0.0%	0.0%			
<b>Portfolio</b>	<b>0.0%</b>	<b>=</b>	<b>0.0%</b>	<b>+</b>	<b>0.0%</b>	<b>+</b>	<b>0.0%</b>	<b>-20.3%</b>	<b>-20.3%</b>	<b>100.0%</b>	<b>100.0%</b>

\*Attribution on manager pages is holdings based, using buy-and-hold assumptions from the beginning of period portfolio. Results may differ from actual performance. Returns are net of fees.



# MORGAN STANLEY INTERNATIONAL EQUITY I

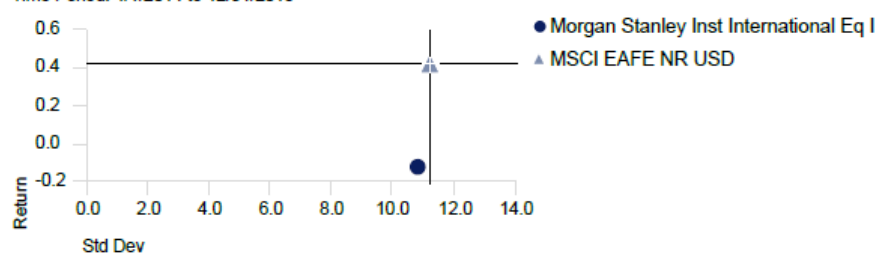
## Risk & Return Characteristics (5 Years)

Time Period: 4/1/2014 to 12/31/2018

	Fund	Index
R2	92.7	100.0
Alpha	-0.6	0.0
Beta	0.9	1.0
Std Dev	10.8	11.2
Up Capture Ratio	89.3	100.0
Down Capture Ratio	95.2	100.0
Sharpe Ratio (geo)	-0.1	0.0
Information Ratio (geo)	-0.2	0.0
Tracking Error	3.1	0.0
Correlation	1.0	1.0

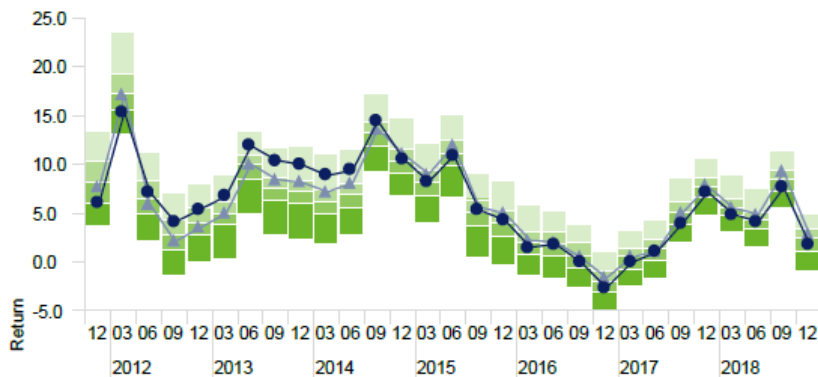
## Risk & Return Illustration (5 Years)

Time Period: 4/1/2014 to 12/31/2018



## Rolling Returns (3 Years)

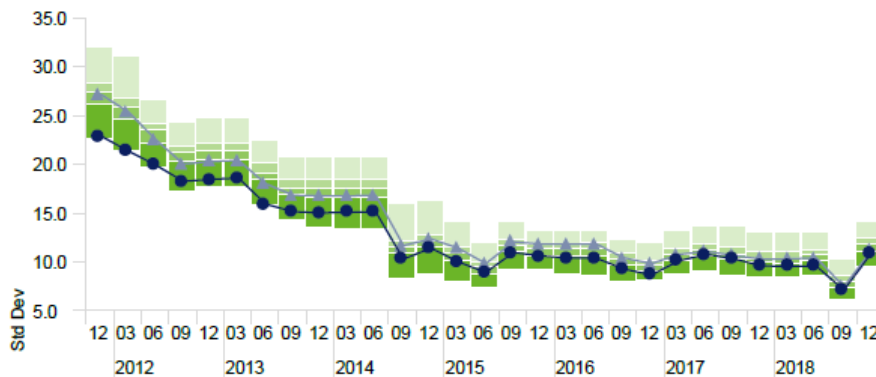
Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



—Morgan Stanley Inst International Eq I —MSCI EAFE NR USD

## Rolling Risk (3 Years)

Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



—Morgan Stanley Inst International Eq I —MSCI EAFE NR USD

## Calendar Year Returns

	2009	Rank	2010	Rank	2011	Rank	2012	Rank	2013	Rank	2014	Rank	2015	Rank	2016	Rank	2017	Rank	2018	Rank
Morgan Stanley Inst International Eq I	21.6	85	6.1	87	-7.6	5	19.6	26	20.4	43	-6.1	64	0.4	30	-2.0	82	25.2	53	-13.8	37
MSCI EAFE NR USD	31.8		7.8		-12.1		17.3		22.8		-4.9		-0.8		1.0		25.0		-13.8	

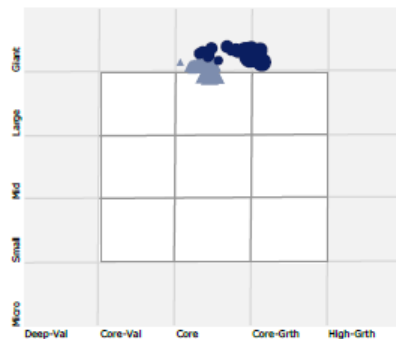


Source: Morningstar

# MORGAN STANLEY INTERNATIONAL EQUITY I

## Holdings Based Style Trail (5 Years)

Time Period: 2/28/2014 to 1/31/2019



Morgan Stanley Inst International Eq I
MSCI EAFE NR USD

## Portfolio Statistics

	Fund	Index
# of Holdings	62	921
% Asset in Top 10 Holdings	35.2	11.9
Turnover Ratio %	18.0	
P/E Ratio	12.2	13.0
P/B Ratio	2.0	1.5
LT Eam Growth	9.2	8.9
Hist Eam Growth	28.1	2.2
12 Mo Yield	2.4	

## Market Capitalization Breakdown

	Fund	Index
Market Cap Giant %	59.8	50.0
Market Cap Large %	34.8	36.7
Market Cap Mid %	4.7	13.2
Market Cap Small %	0.7	0.0
Market Cap Micro %	0.0	0.0
Average Market Cap	45,375.5	32,128.7
Equity Region Developed %	96.2	99.5
Equity Region Emerging %	3.8	0.5

## Top Ten Holdings

	Port Weight %	3 Month Return
Reckitt Benckiser Group PLC	4.42	-16.30
Unilever NV DR	4.30	-1.90
Kirin Holdings Co Ltd	3.53	-17.40
Novartis AG	3.53	-1.34
GlaxoSmithKline PLC	3.37	-4.03
RELX PLC	3.34	-2.31
Sanofi SA	3.32	-2.74
SAP SE	3.21	-19.29
Pemod Ricard SA	3.11	0.75
Henkel AG & Co KGaA Participating Preferred	3.07	-7.08

## Sector Attribution (Quarter)

	Portfolio Weights	Benchmark Weights	Portfolio Return	Benchmark Return	Allocation Effect	Selection Effect	Active Return
Communication Services	4.23	5.46	2.03	-9.83	-0.04	0.50	0.46
Consumer Discretionary	2.66	11.15	-13.07	-14.66	0.18	0.04	0.22
Consumer Staples	31.45	11.18	-11.77	-8.12	0.96	-1.18	-0.22
Energy	4.87	6.05	-17.21	-17.37	0.06	0.00	0.06
Financials	14.00	19.46	-16.91	-13.51	0.05	-0.51	-0.47
Health Care	16.94	11.00	-9.64	-10.28	0.15	0.11	0.26
Industrials	10.65	14.38	-14.45	-14.73	0.07	0.03	0.10
Information Technology	5.86	6.06	-16.45	-16.52	0.00	0.00	0.00
Materials	4.70	7.40	-11.08	-16.13	0.09	0.25	0.34
Real Estate	0.00	3.48		-5.30	-0.25	0.00	-0.25
Utilities	0.00	3.38		-0.01	-0.41	0.00	-0.41
Unclassified	0.53	0.24	-24.32	-23.53	-0.04	0.00	-0.05
Attribution Total	95.89	99.25	-12.55	-12.60	0.81	-0.76	0.05
Cash	2.40	0.00					
Other	0.00	0.03					
Missing Performance	1.71	0.72					
Total	100.00	100.00					

## Region Attribution (Quarter)

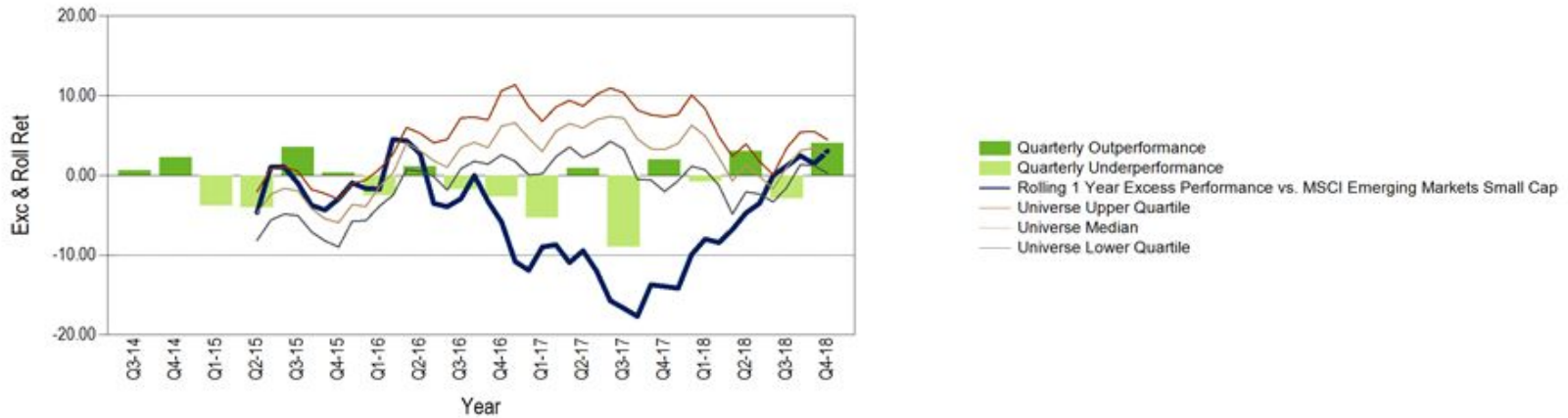
	Portfolio Weights	Benchmark Weights	Portfolio Return	Benchmark Return	Allocation Effect	Selection Effect	Active Return
Asia - Developed	4.69	5.17	-6.43	-6.38	-0.02	0.01	-0.02
Asia - Emerging	3.67	0.48	-16.22	-15.80	-0.12	-0.01	-0.13
Australasia	0.00	6.90		-9.55	-0.21	0.00	-0.21
Canada	3.52	0.00	4.09		0.57	0.00	0.57
Europe - ex Euro	7.08	13.83	-5.34	-10.53	-0.14	0.37	0.23
Eurozone	38.35	30.00	-12.46	-13.98	-0.13	0.61	0.48
Japan	13.85	24.64	-16.66	-14.23	0.17	-0.37	-0.19
Latin America	0.00	0.02		2.25	0.00	0.00	0.00
Middle East	0.00	0.46		-15.81	0.01	0.00	0.01
United Kingdom	21.18	16.39	-15.14	-11.79	0.04	-0.74	-0.70
United States	3.01	1.13	-13.06	-18.98	-0.13	0.19	0.06
Unclassified	0.53	0.24	-24.32	-23.53	-0.04	0.00	-0.05
Attribution Total	95.89	99.25	-12.55	-12.60	0.00	0.06	0.05
Cash	2.40	0.00					
Other	0.00	0.03					
Missing Performance	1.71	0.72					
Total	100.00	100.00					



Source: Morningstar

# MONDRIAN EM SMALL CAP

Annualized Excess Performance



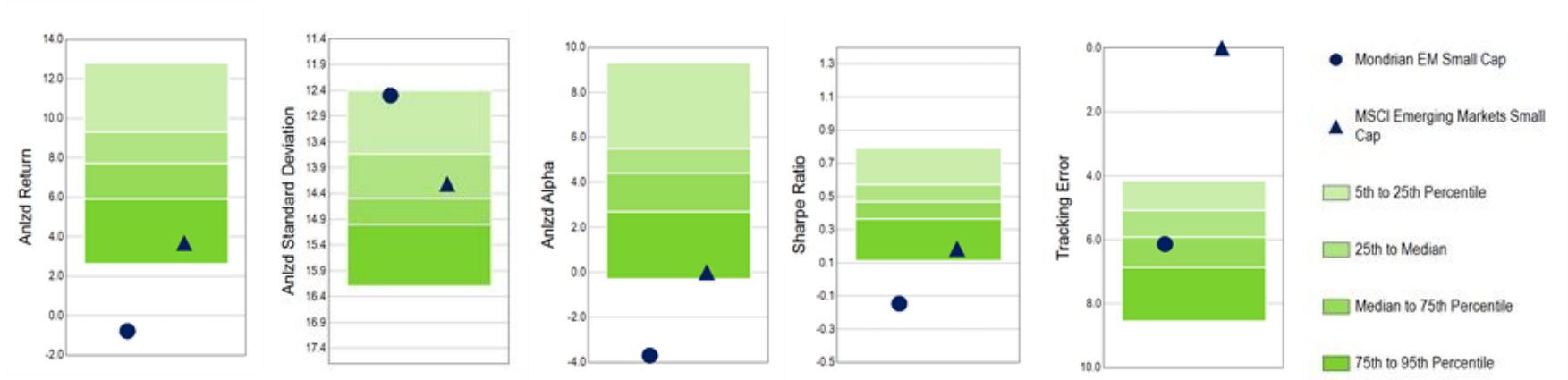
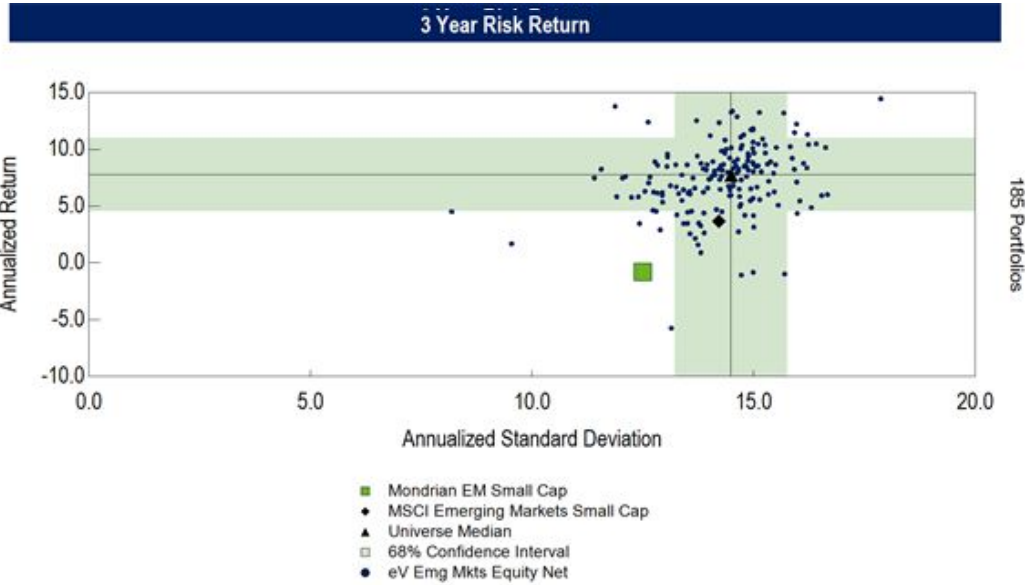
eV Emg Mkts Equity Net Return Comparison



\*Returns are net of fees.



# MONDRIAN EM SMALL CAP



# MONDRIAN EM SMALL CAP

Characteristics	Portfolio	MSCI Emerging Markets Small Cap
	Number of Holdings	108
Weighted Avg. Market Cap. (\$B)	1.5	1.1
Median Market Cap. (\$B)	0.9	0.6
Price To Earnings	30.0	15.1
Price To Book	4.5	2.3
Price To Sales	3.9	2.4
Return on Equity (%)	18.6	13.3
Yield (%)	2.5	2.9
Beta		1.0
R-Squared		1.0

Top Positive Contributors	Relative	
	Contribution %	Return %
PVR	0.4%	38.6%
LINX ON	0.4%	105.4%
PI INDUSTRIES	0.3%	26.2%
APOLLO HOSPS. ENTERPRISE	0.3%	25.4%
CPMC HOLDINGS	0.2%	27.0%
D&L INDUSTRIES	0.2%	14.5%
ARWANA CITRAMULIA	0.2%	20.9%
BERGER PAINTS INDIA	0.2%	17.0%
AARTI INDUSTRIES	0.2%	29.0%
SITC INTERNATIONAL HDG.	0.2%	16.7%

Top Negative Contributors	Relative	
	Contribution %	Return %
SHANKARA BUILDING PRODUCTS	-0.5%	-55.7%
CT ENVIRONMENTAL GROUP	-0.5%	-65.4%
MICROPORT SCIENTIFIC	-0.5%	-25.7%
SSY GROUP	-0.3%	-23.3%
PAGE INDUSTRIES	-0.3%	-19.9%
KOH YOUNG TECHNOLOGY	-0.2%	-24.8%
FIBRA HOTEL REIT	-0.2%	-21.6%
ATRIUM EUROPEAN RLST.	-0.2%	-15.1%
DUZONBIZON	-0.2%	-15.6%
BOLSA MEXICANA DE VALORES	-0.2%	-16.9%

	Equity Sector Attribution						Returns		Ending Sector Weights		
	Total	Selection	Attribution Effects		Interaction	Portfolio	Benchmark	Portfolio	Benchmark		
	Effects	Effect	Allocation	Effect	Effects						
Energy	0.3%	0.3%	-0.1%	0.1%	-5.9%	-19.4%	2.5%	1.8%			
Materials	2.1%	2.8%	0.1%	-0.8%	16.1%	-9.1%	10.6%	11.9%			
Industrials	1.1%	1.1%	0.0%	0.0%	3.3%	-4.7%	15.7%	14.6%			
Consumer Discretionary	-0.6%	-0.8%	0.0%	0.2%	-6.2%	-1.8%	13.0%	14.1%			
Consumer Staples	0.7%	0.3%	0.0%	0.5%	-3.0%	-7.9%	15.9%	7.1%			
Health Care	1.2%	0.8%	-0.6%	1.0%	-3.6%	-13.4%	16.7%	8.7%			
Financials	-0.5%	-0.6%	-0.2%	0.3%	-12.7%	-4.2%	3.0%	11.2%			
Information Technology	0.7%	0.8%	0.3%	-0.4%	-6.2%	-11.7%	6.4%	14.1%			
Communication Services	0.7%	0.8%	0.0%	-0.1%	13.5%	-7.7%	4.0%	4.1%			
Utilities	-0.9%	-0.9%	0.0%	0.0%	-16.4%	7.3%	3.1%	4.7%			
Real Estate	-0.3%	-0.1%	0.0%	-0.2%	-10.9%	-7.3%	7.4%	7.4%			
Cash	0.0%	0.0%	0.0%	0.0%	0.6%	--	1.1%	0.0%			
Unclassified	0.0%	--	--	--	--	--	0.5%	0.1%			
<b>Portfolio</b>	<b>4.6%</b>	<b>=</b>	<b>4.4%</b>	<b>+</b>	<b>-0.4%</b>	<b>+</b>	<b>0.6%</b>	<b>-2.5%</b>	<b>-7.1%</b>	<b>100.0%</b>	<b>100.0%</b>





# MONDRIAN EM SMALL CAP

Sector Allocation			Country Allocation		
	Fund	MSCI EM SC		Fund	MSCI EM SC
Communication Services	3.9	4.3	Latin America	8.8	11.4
Consumer Discretionary	12.6	14.4	Brazil	2.0	6.5
Consumer Staples	15.5	7.0	Mexico	4.6	2.9
Energy	2.5	1.8	Peru	2.2	0.1
Financials	3.7	11.2	Europe, Middle East & Africa	12.4	12.1
Health Care	18.2	8.6	Czech Republic	1.3	0.0
Industrials	15.2	14.6	Estonia	1.3	—
Information Technology	6.2	14.0	Kuwait	1.6	—
Materials	10.8	11.8	Poland	2.8	1.1
Real Estate	7.2	7.5	Saudi Arabia	1.9	—
Utilities	3.0	4.8	Slovenia	0.8	—
Cash	1.1	—	South Africa	1.6	5.6
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	UAE	0.3	0.6
			United Kingdom	0.9	—
			Pacific-Asia	77.7	76.4
			North Asia	30.1	48.7
			China/Hong Kong	17.7	11.8
			South Korea	5.1	18.2
			Taiwan	7.3	18.6
			South Asia	47.6	27.0
			India	27.7	16.6
			Indonesia	7.3	2.5
			Malaysia	5.4	3.2
			Philippines	4.6	1.0
			Thailand	2.7	3.8
			Cash	1.1	—
			<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>

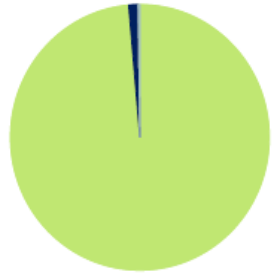


Source: Mondrian

# VANGUARD TOTAL BOND MARKET I

### Asset Allocation

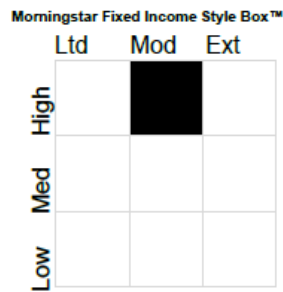
Portfolio Date: 12/31/2018



	%
Stock	0.0
Bond	98.6
Cash	1.2
Other	0.2
<b>Total</b>	<b>100.0</b>

### Fixed Income Statistics

Portfolio Date: 12/31/2018



### Fixed-Income Stats

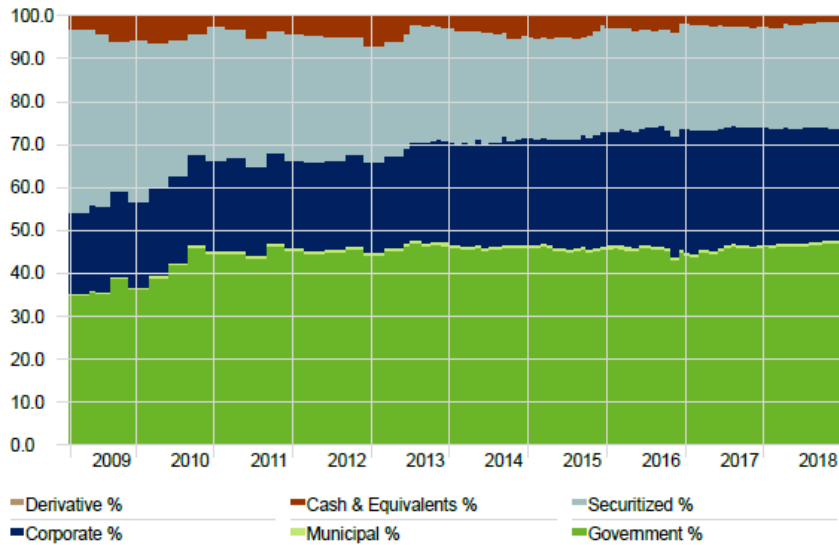
Average Eff Duration	5.9
Average Eff Maturity	8.3
Average Coupon	3.2
Average Price	100.3

### Credit Quality Breakdown

Portfolio Date: 12/31/2018

	Fund	Index
AAA %	70.9	
AA %	3.40	
A %	10.74	
BBB %	14.93	
BB %	0.00	
B %	0.00	
Below B %	0.02	
Not Rated %	0.00	
Yield to Maturity	3.30	

### Historical Sector Allocations (10 Years)



### Top Holdings

	Detail Holding Type	Portfolio Weighting %
Cmt Market Liquidity Rate	MUTUAL FUND - MONEY MARKET	1.19
United States Treasury Notes 2.12%	BOND - GOVT/TREASURY	0.46
United States Treasury Notes 2.88%	BOND - GOVT/TREASURY	0.45
United States Treasury Notes 2.62%	BOND - GOVT/TREASURY	0.42
United States Treasury Notes 2.12%	BOND - GOVT/TREASURY	0.42
United States Treasury Notes 1.38%	BOND - GOVT/TREASURY	0.41
United States Treasury Notes 1.75%	BOND - GOVT/TREASURY	0.39
United States Treasury Notes 1.62%	BOND - GOVT/TREASURY	0.38
United States Treasury Notes 2.25%	BOND - GOVT/TREASURY	0.38
United States Treasury Notes 2.88%	BOND - GOVT/TREASURY	0.38



Source: Morningstar

# VANGUARD TOTAL BOND MARKET I

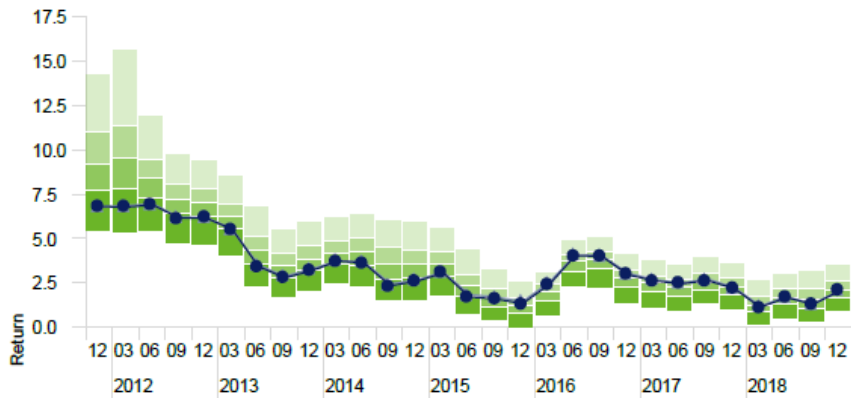
## Risk & Return Characteristics (5 Years)

Time Period: 1/1/2014 to 12/31/2018

	Fund	Index
R2	99.8	100.0
Alpha	-0.1	0.0
Beta	1.0	1.0
Std Dev	3.1	3.0
Up Capture Ratio	100.6	100.0
Down Capture Ratio	105.0	100.0
Sharpe Ratio (geo)	0.6	0.6
Information Ratio (geo)	-0.3	
Tracking Error	0.2	0.0
Correlation	1.0	1.0

## Rolling Returns (3 Years)

■ Top Quartile ■ 2nd Quartile ■ 3rd Quartile ■ Bottom Quartile



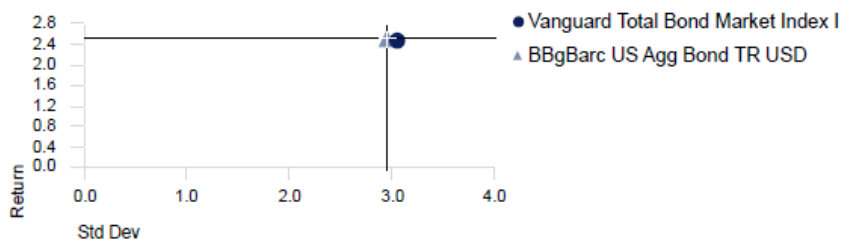
— Vanguard Total Bond Market Index I — BBgBarc US Agg Bond TR USD

## Calendar Year Returns

	2009	Rank	2010	Rank	2011	Rank	2012	Rank	2013	Rank	2014	Rank	2015	Rank	2016	Rank	2017	Rank	2018	Rank
Vanguard Total Bond Market Index I	6.1	89	6.6	70	7.7	11	4.2	83	-2.1	67	5.9	30	0.4	28	2.6	62	3.6	55	0.0	30
BBgBarc US Agg Bond TR USD	5.9		6.5		7.8		4.2		-2.0		6.0		0.5		2.6		3.5		0.0	

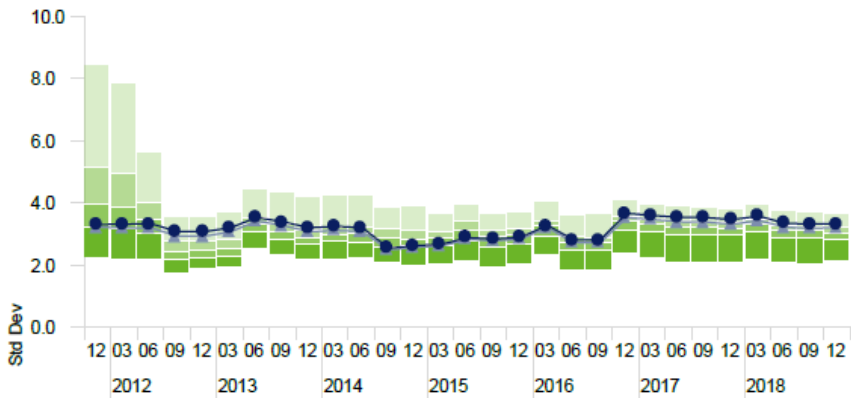
## Risk & Return Illustration (5 Years)

Time Period: 1/1/2014 to 12/31/2018



## Rolling Risk (3 Years)

■ Top Quartile ■ 2nd Quartile ■ 3rd Quartile ■ Bottom Quartile



— Vanguard Total Bond Market Index I — BBgBarc US Agg Bond TR USD

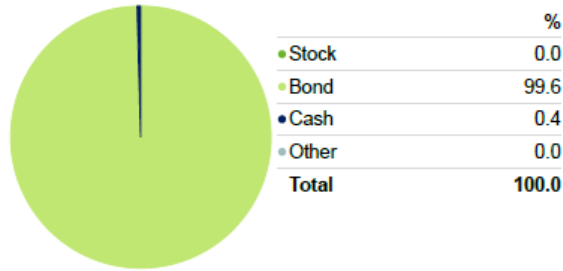


Source: Morningstar

# VANGUARD INFLATION PROTECTED SECURITIES

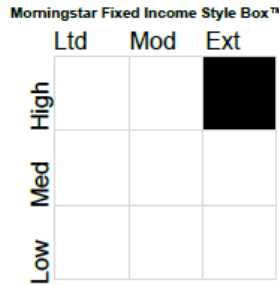
### Asset Allocation

Portfolio Date: 12/31/2018



### Fixed Income Statistics

Portfolio Date: 12/31/2018



### Fixed-Income Stats

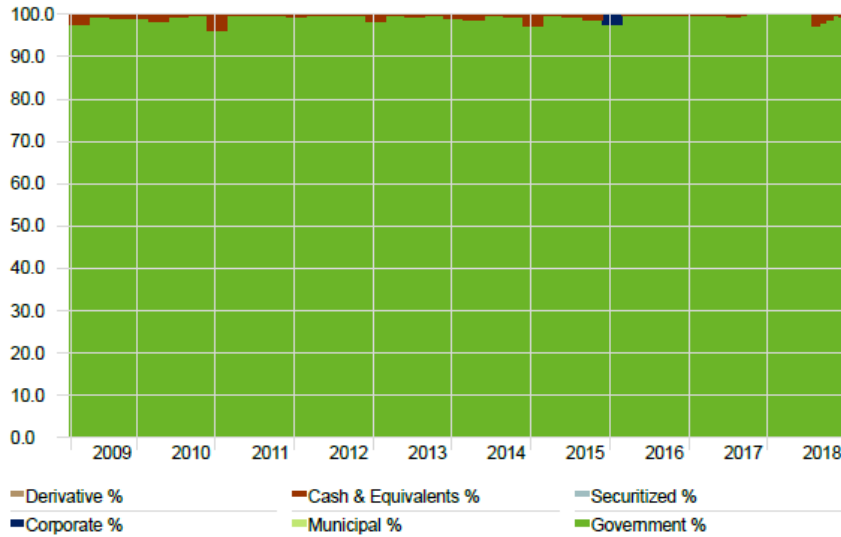
Average Eff Duration	7.6	AAA %
Average Eff Maturity	8.2	AA %
Average Coupon	0.9	A %
Average Price	99.7	BBB %

### Credit Quality Breakdown

Portfolio Date: 12/31/2018

	Fund	Index
AAA %	100.0	
AA %	0.00	
A %	0.00	
BBB %	0.00	
BB %	0.00	
B %	0.00	
Below B %	0.00	
Not Rated %	0.00	
Yield to Maturity		

### Historical Sector Allocations (10 Years)



### Top Holdings

Detail Holding Type	Portfolio Weighting %
United States Treasury Notes 0.12% BOND - GOVT INFLATION PROTECTED	5.09
United States Treasury Notes 0.12% BOND - GOVT INFLATION PROTECTED	3.89
United States Treasury Notes 0.38% BOND - GOVT INFLATION PROTECTED	3.87
United States Treasury Notes 0.25% BOND - GOVT INFLATION PROTECTED	3.87
United States Treasury Notes 0.12% BOND - GOVT INFLATION PROTECTED	3.82
United States Treasury Notes 0.12% BOND - GOVT INFLATION PROTECTED	3.72
United States Treasury Notes 0.38% BOND - GOVT INFLATION PROTECTED	3.67
United States Treasury Notes 0.12% BOND - GOVT INFLATION PROTECTED	3.61
United States Treasury Notes 0.62% BOND - GOVT INFLATION PROTECTED	3.58
United States Treasury Notes 0.12% BOND - GOVT INFLATION PROTECTED	3.53



Source: Morningstar

# VANGUARD INFLATION PROTECTED SECURITIES

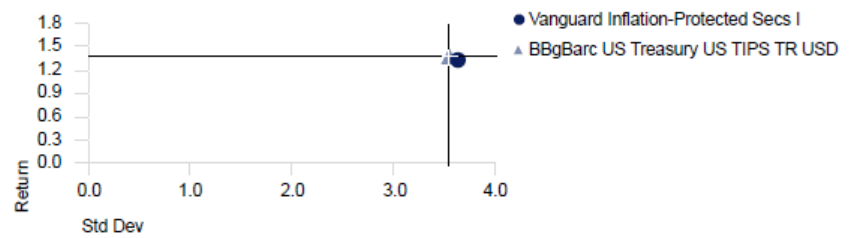
## Risk & Return Characteristics (5 Years)

Time Period: 4/1/2014 to 12/31/2018

	Fund	Index
R2	99.4	100.0
Alpha	0.0	0.0
Beta	1.0	1.0
Std Dev	3.6	3.6
Up Capture Ratio	100.5	100.0
Down Capture Ratio	102.7	100.0
Sharpe Ratio (geo)	0.2	0.2
Information Ratio (geo)	-0.1	
Tracking Error	0.3	0.0
Correlation	1.0	1.0

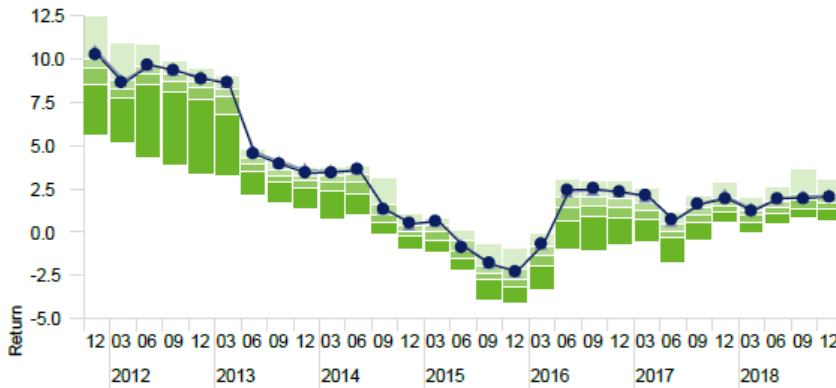
## Risk & Return Illustration (5 Years)

Time Period: 4/1/2014 to 12/31/2018



## Rolling Returns (3 Years)

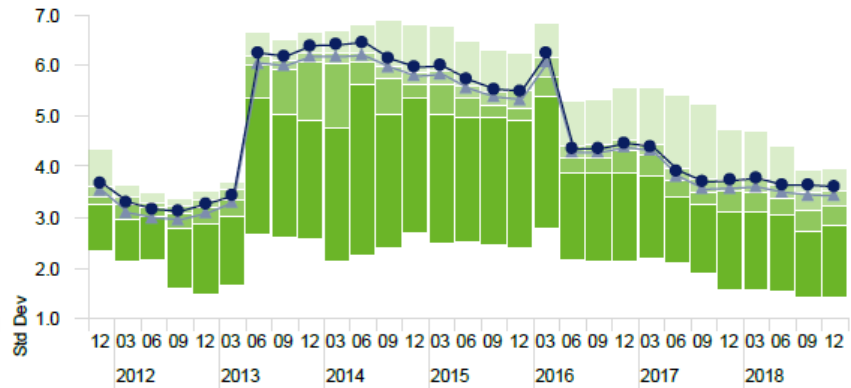
Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



—Vanguard Inflation-Protected Secs I —BBgBarc US Treasury US TIPS TR USD

## Rolling Risk (3 Years)

Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



—Vanguard Inflation-Protected Secs I —BBgBarc US Treasury US TIPS TR USD

## Calendar Year Returns

	2009	Rank	2010	Rank	2011	Rank	2012	Rank	2013	Rank	2014	Rank	2015	Rank	2016	Rank	2017	Rank	2018	Rank
Vanguard Inflation-Protected Secs I	11.0	29	6.3	28	13.4	6	6.9	24	-8.8	52	4.1	5	-1.7	31	4.6	39	3.0	34	-1.4	48
BBgBarc US Treasury US TIPS TR USD	11.4		6.3		13.6		7.0		-8.6		3.6		-1.4		4.7		3.0		-1.3	

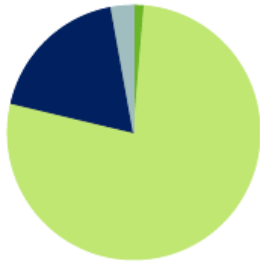


Source: Morningstar

# BLACKROCK STRATEGIC INCOME

## Asset Allocation

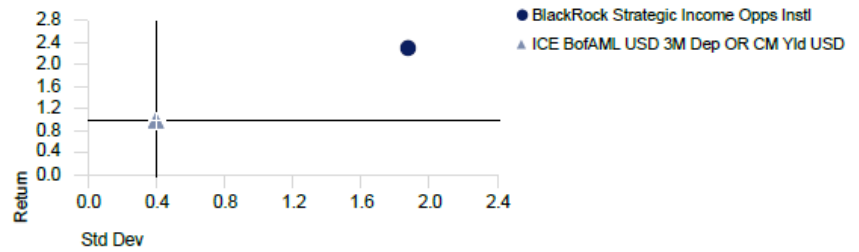
Portfolio Date: 6/30/2018



	%
Stock	1.3
Bond	77.4
Cash	18.4
Other	2.8
<b>Total</b>	<b>100.0</b>

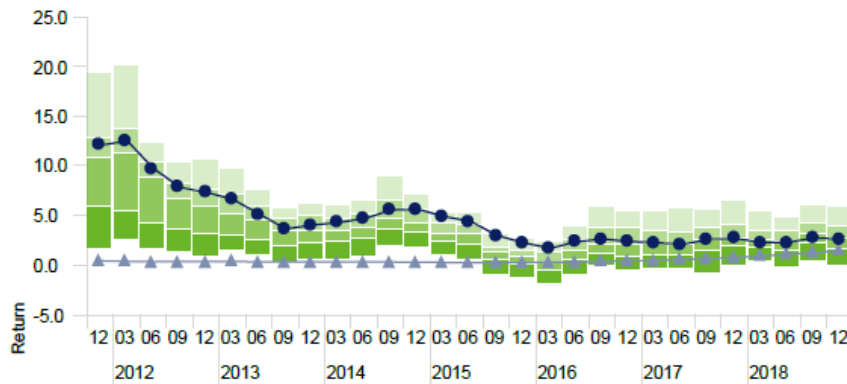
## Risk & Return Illustration (5 Years)

Time Period: 1/1/2014 to 12/31/2018



## Rolling Returns (3 Years)

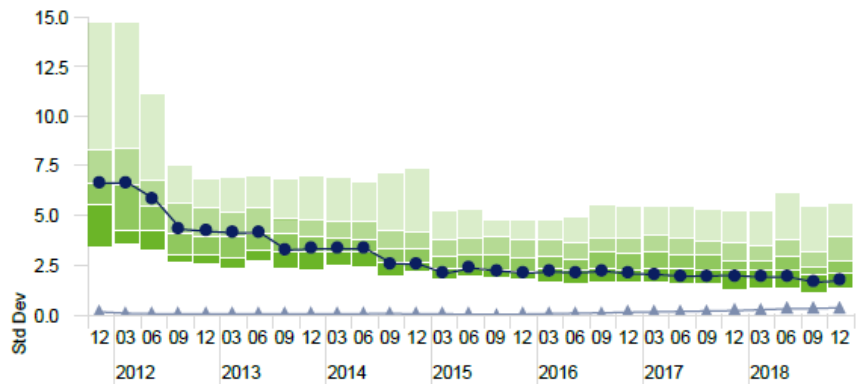
Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



—BlackRock Strategic Income Opps Inst —ICE BofAML USD 3M Dep OR CM Yld USD

## Rolling Risk (3 Years)

Top Quartile 2nd Quartile 3rd Quartile Bottom Quartile



—BlackRock Strategic Income Opps Inst —ICE BofAML USD 3M Dep OR CM Yld USD

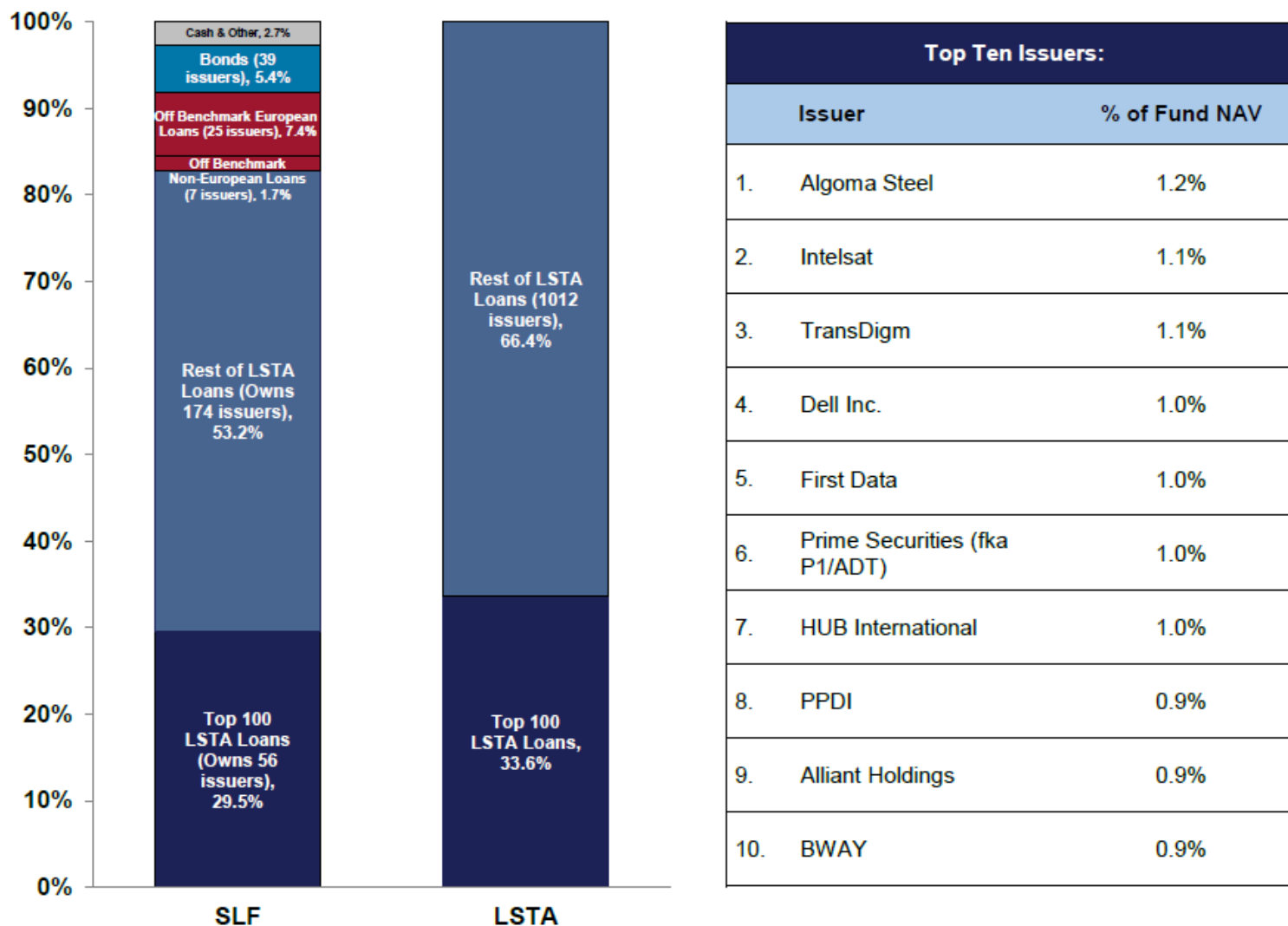
## Calendar Year Returns

	2009	Rank	2010	Rank	2011	Rank	2012	Rank	2013	Rank	2014	Rank	2015	Rank	2016	Rank	2017	Rank	2018	Rank
BlackRock Strategic Income Opps Inst	25.2	29	13.4	1	-0.7	50	9.9	25	3.3	19	3.9	16	-0.3	32	3.6	66	4.9	39	-0.5	46
ICE BofAML USD 3M Dep OR CM Yld USD	0.7		0.3		0.3		0.4		0.3		0.2		0.3		0.8		1.3		2.4	



Source: Morningstar

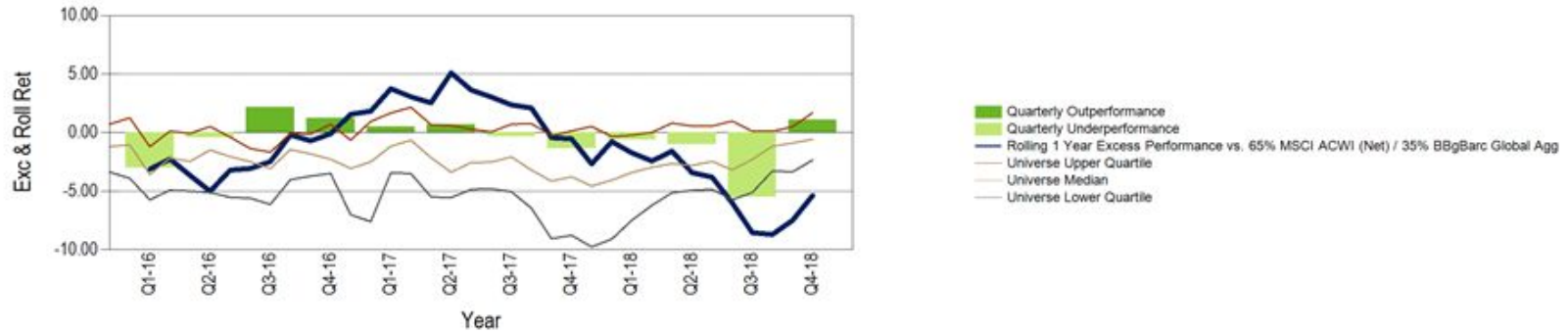
# BAIN CAPITAL SENIOR LOAN FUND



Source: Bain Capital

# WELLINGTON OPPORTUNISTIC

Annualized Excess Performance



eV Global TAA Net Return Comparison

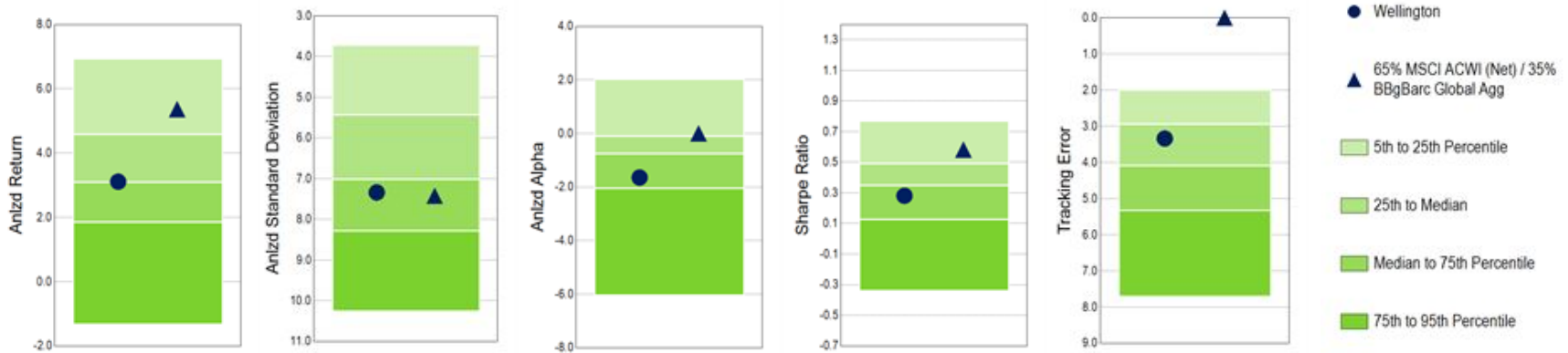


\*Returns are net of fees.





# WELLINGTON OPPORTUNISTIC

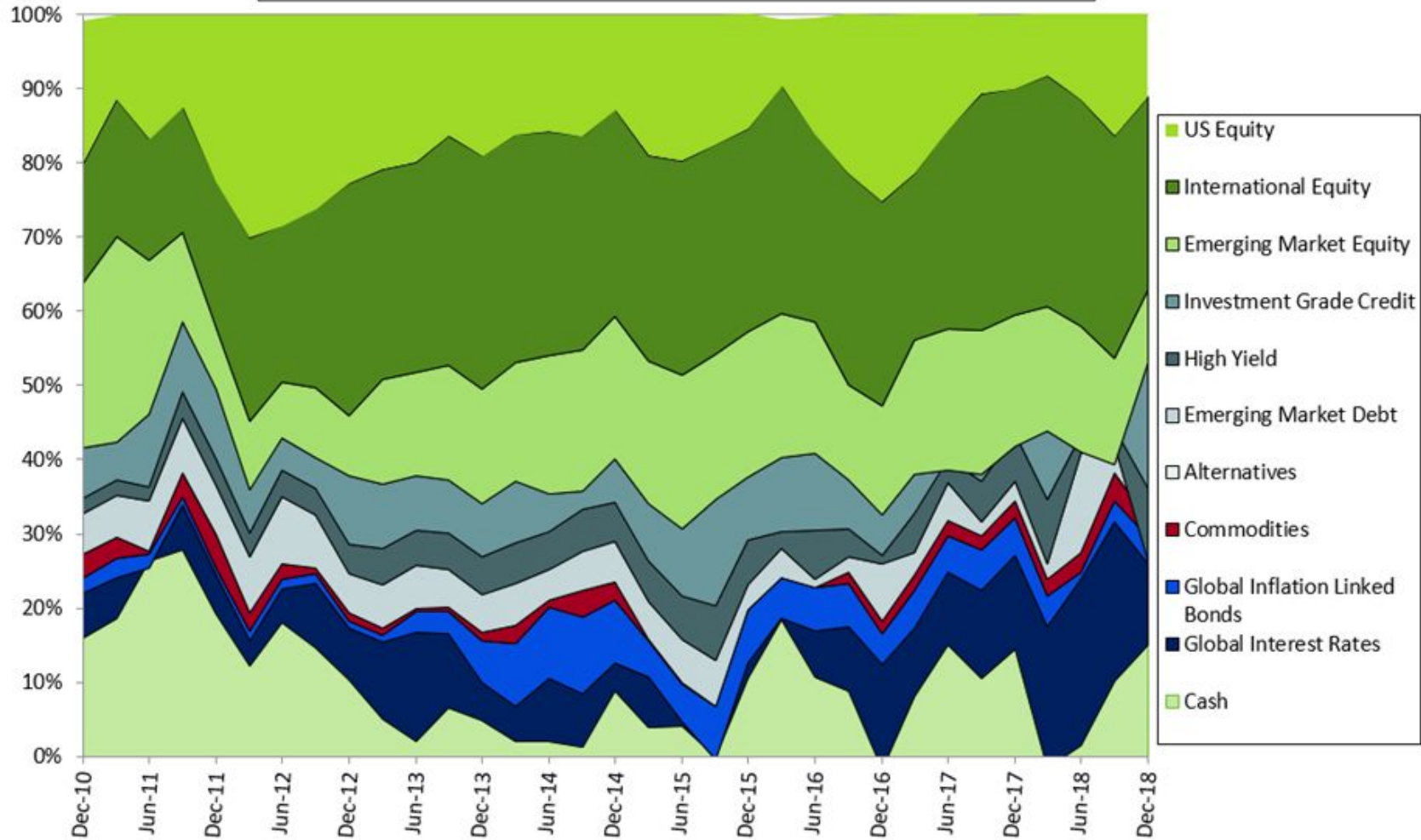


\*Returns are net of fees.



# WELLINGTON OPPORTUNISTIC

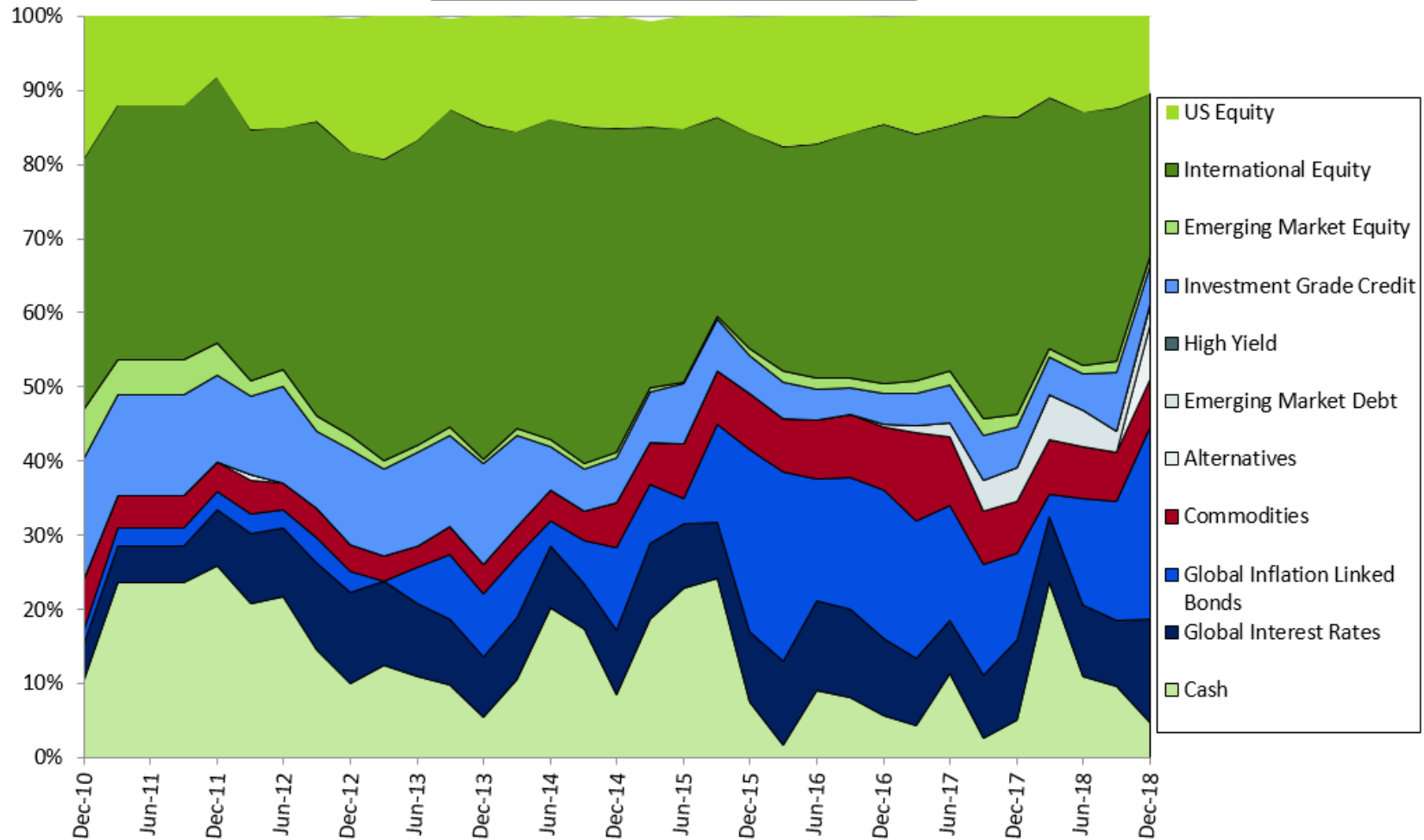
Wellington Opportunistic Investment Allocation



Source: Wellington

# NEWTON GLOBAL REAL RETURN

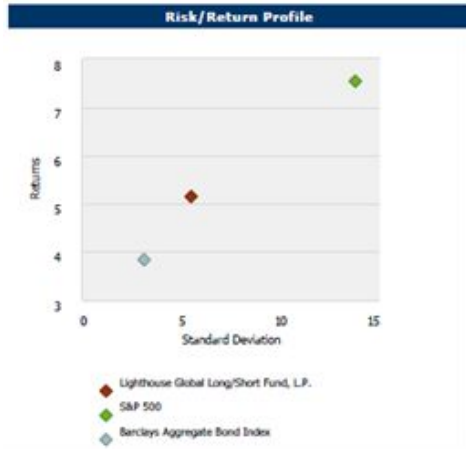
Newton Global Real Return



Source: Newton

# LIGHTHOUSE GLOBAL LONG/SHORT

Monthly Performance													Performance Analysis				
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year		Lighthouse Global Long/Short Fund, L.P.	S&P 500	Barclays Aggregate Bond Index
2018	2.4	-0.3	-0.5	0.8	3.1	-1.9	0.3	-0.6	-0.4	-5.1	-2.0	-1.8	-5.8	Since Inception Return	5.1	7.5	3.8
2017	1.6	0.3	1.1	-0.5	-0.3	0.0	0.7	1.0	0.1	2.2	-0.6	1.1	6.7	1 Yr Return	-5.8	-4.4	0.0
2016	-3.6	-0.7	-0.4	0.6	1.0	0.3	1.7	-0.2	1.0	-0.9	1.2	0.3	0.0	3 Yr Return	0.2	9.3	2.1
2015	1.0	1.0	1.6	-0.5	1.1	0.2	0.4	-0.8	-1.0	2.2	0.0	1.7	7.2	5 Yr Return	2.5	8.5	2.5
2014	0.9	1.8	-1.7	-2.0	1.2	1.9	-0.5	1.7	-0.1	0.3	1.2	0.6	5.3	7 Yr Return	5.5	12.7	2.1
2013	3.2	0.5	2.7	1.5	1.0	1.0	2.2	-0.3	2.2	1.2	1.1	2.4	20.5	10 Yr Return	5.2	13.1	3.5
2012	1.7	1.7	1.6	1.2	-3.7	0.5	0.2	1.1	1.3	-0.1	0.8	0.4	6.7	Best Month	3.3	10.9	3.7
2011	-0.2	1.2	0.7	2.1	-1.1	-1.5	0.6	-3.1	-0.6	1.7	-1.0	-0.6	-1.9	Worst Month	-6.4	-16.8	-2.4
2010	0.0	0.3	1.9	0.6	-2.4	-1.7	1.7	-0.6	1.3	1.8	0.2	2.1	5.1	Percent Profitable Periods	66.7	67.9	64.9
2009	0.3	-0.5	1.1	1.3	2.3	0.7	1.6	1.4	1.5	-0.9	0.3	0.9	10.2	Product Inception Date	01/01/2005	---	01/01/2018
2008	-3.2	1.2	-4.7	1.5	2.8	-0.5	-1.4	-0.3	-6.4	-2.0	-0.6	0.0	-13.1				
2007	2.7	0.4	1.5	2.6	3.2	1.3	-0.2	-2.3	1.8	3.3	-2.4	0.2	12.6				
2006	2.1	0.0	0.7	0.6	-2.0	-0.3	0.1	2.0	1.8	1.8	2.5	2.4	12.2				



Risk Analysis			
Since Inception Standard Deviation	5.5	13.8	3.1
3 Yr Standard Deviation	5.4	11.0	2.9
5 Yr Standard Deviation	4.9	10.9	2.8
7 Yr Standard Deviation	5.0	10.7	2.8
10 Yr Standard Deviation	4.8	13.6	2.8
Sharpe Ratio	0.7	0.5	0.8
Sortino Ratio	1.0	0.6	1.4
Loss Deviation	3.9	9.8	1.8
Max Drawdown	15.2	50.9	3.8
Max Drawdown Length	16	16	7
Max Drawdown Recovery Length	25	37	2

Comparison to Benchmarks		
Annualized Alpha	3.2	5.8
Beta	0.2	-0.1
Correlation Coefficient	0.6	-0.1
R-Squared	0.4	0.0



# LIGHTHOUSE GLOBAL LONG/SHORT

General Fund Information			
<b>Fund Name</b>	Lighthouse Global Long/Short Fund		
<b>Management Company</b>	Lighthouse Investment Partners, LLC		
<b>Location</b>	Palm Beach, FL		
<b>Firm AUM</b>	\$16.6 billion	<b>Strategy</b>	Fund of Fund
<b>Strategy AUM</b>	\$1.9 billion	<b>Sub-Strategy</b>	Long/Short Equity
<b>Portfolio Managers</b>	Ethan Baron	<b>Direct or FOF</b>	FOF

Terms	
<b>Share Class</b>	--
<b>Minimum Investment</b>	\$1 million
<b>Management Fee</b>	1.15%
<b>Incentive Fee</b>	--
<b>Hurdle Rate</b>	None
<b>High Water Mark</b>	Yes
<b>Subscription</b>	Monthly
<b>Redemption</b>	Quarterly (60 days notice) or Monthly (90 days notice)
<b>Lock-Up</b>	None

**Investment Strategy**

Lighthouse's Global Long/Short Fund is a global portfolio of 20-30 separately managed accounts with industry sector and country specialist managers. The geographical allocations are similar to the MSCI World Index (30%-75% Americas, 10%-35% Europe, 5%-35% Asia).

The Fund targets returns greater than 10% over market cycles with 6%-8% volatility and an equity beta of 0.2-0.4 to the MSCI World Index.

## Strategy Information

### Region Allocation & Attribution



### Sector Allocation & Attribution

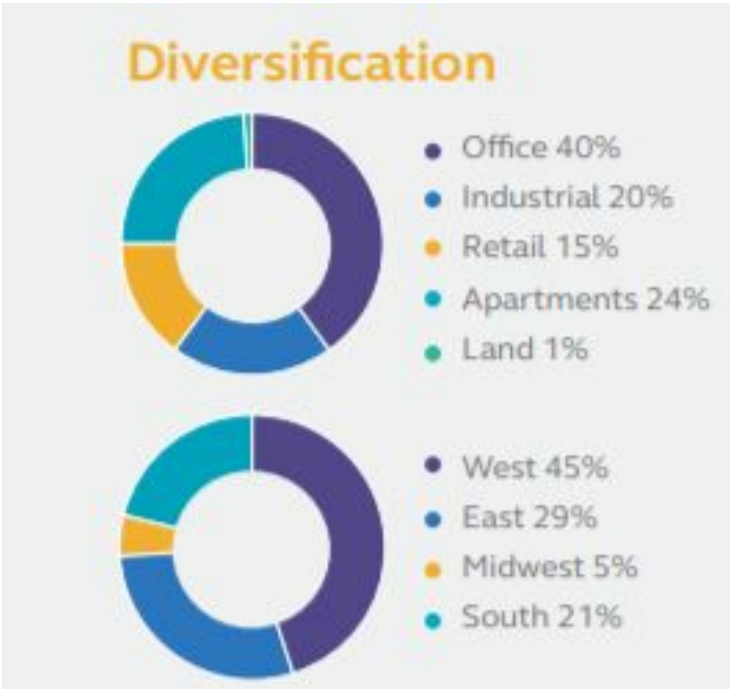


For more information please see NEPC's Investment Due Diligence Report and Operational Due Diligence Report

# PRINCIPAL U.S. PROPERTY

**4Q2018 key statistics**

Inception date	January, 1982
Gross asset value	\$10.20 billion
Net asset value	\$8.08 billion
Number of investments	136
Number of markets	42
Core portfolio occupancy*	92.6%
Cash to gross assets	2.4%
Leverage ratio**	18.3%



Source: Principal

# APPENDIX

NEPC, LLC

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## GLOSSARY OF TERMS

**Alpha** - Measures the relationship between the fund performance and the performance of another fund or benchmark index and equals the excess return while the other fund or benchmark index is zero.

**Alpha Jensen** - The average return on a portfolio over and above that predicted by the capital asset pricing model (CAPM), given the portfolio's beta and the average market return. Also known as the abnormal return or the risk adjusted excess return.

**Annualized Excess Return over Benchmark** - Annualized fund return minus the annualized benchmark return for the calculated return.

**Annualized Return** - A statistical technique whereby returns covering periods greater than one year are converted to cover a 12 month time span.

**Beta** - Measures the volatility or systematic risk and is equal to the change in the fund's performance in relation to the change in the assigned index's performance.

**Information Ratio** - A measure of the risk adjusted return of a financial security, asset, or portfolio.

*Formula:*  
 $(\text{Annualized Return of Portfolio} - \text{Annualized Return of Benchmark}) / \text{Annualized Standard Deviation}(\text{Period Portfolio Return} - \text{Period Benchmark Return})$ . To annualize standard deviation, multiply the deviation by the square root of the number of periods per year where monthly returns per year equals 12 and quarterly returns is four periods per year.

**R-Squared** - Represents the percentage of a fund's movements that can be explained by movements in an index. R-Squared values range from 0 to 100. An R-Squared of 100 denotes that all movements of a fund are completely explained by movements in the index.

**Sharpe Ratio** - A measure of the excess return or risk premium per unit of risk in an investment asset or trading strategy.

**Sortino Ratio** - A method to differentiate between good and bad volatility in the Sharpe Ratio. The differentiation of up and down volatility allows the calculation to provide a risk adjusted measure of a security or fund's performance without upward price change penalties.

*Formula:*  
 $\text{Calculation Average } (X-Y) / \text{Downside Deviation } (X-Y) * 2$   
 Where X=Return Series X Y = Return Series Y which is the risk free return (91 day T-bills)

**Standard Deviation** - The standard deviation is a statistical term that describes the distribution of results. It is a commonly used measure of volatility of returns of a portfolio, asset class, or security. The higher the standard deviation the more volatile the returns are.

*Formula:*  
 $(\text{Annualized Return of Portfolio} - \text{Annualized Return of Risk Free}) / \text{Annualized Standard Deviation (Portfolio Returns)}$

**Tracking Error** - Tracking error, also known as residual risk, is a measure of the degree to which a portfolio tracks its benchmark. It is also a measure of consistency of excess returns. Tracking error is computed as the annualized standard deviation of the difference between a portfolio's return and that of its benchmark.

*Formula:*  
 $\text{Tracking Error} = \text{Standard Deviation } (X-Y) * \sqrt{\# \text{ of periods per year}}$   
 Where X = periods portfolio return and Y = the period's benchmark return  
 For monthly returns, the periods per year = 12  
 For quarterly returns, the periods per year = 4

**Treynor Ratio** - A risk-adjusted measure of return based on systematic risk. Similar to the Sharpe ratio with the difference being the Treynor ratio uses beta as the measurement of volatility.

*Formula:*  
 $(\text{Portfolio Average Return} - \text{Average Return of Risk-Free Rate}) / \text{Portfolio Beta}$

**Up/Down Capture Ratio** - A measure of what percentage of a market's returns is "captured" by a portfolio. For example, if the market declines 10% over some period, and the manager declines only 9%, then his or her capture ratio is 90%. In down markets, it is advantageous for a manager to have as low a capture ratio as possible. For up markets, the higher the capture ratio the better. Looking at capture ratios can provide insight into how a manager achieves excess returns. A value manager might typically have a lower capture ratio in both up and down markets, achieving excess returns by protecting on the downside, whereas a growth manager might fall more than the overall market in down markets, but achieve above-market returns in a rising market.

$\text{UpsideCapture} = \text{TotalReturn}(\text{FundReturns}) / \text{TotalReturns}(\text{BMReturn})$  when  $\text{Period Benchmark Return is } > = 0$

$\text{DownsideCapture} = \text{TotalReturn}(\text{FundReturns}) / \text{TotalReturns}(\text{BMReturn})$  when  $\text{Benchmark } < 0$

Data Source: InvestorForce





# INFORMATION DISCLAIMER AND REPORTING METHODOLOGY

## Information Disclaimer

- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
- Some index returns displayed in this report or used in calculation of a policy, allocation or custom benchmark may not be available from the source or may be preliminary and subject to change.
- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodial bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
- This report is provided as a management aid for the client's internal use only. Performance contained in this report does not constitute a recommendation by NEPC.
- This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

## Reporting Methodology

- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of Return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.





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## AGENDA ITEM SUMMARY

1. **NAME OF ITEM:** Defined Contribution Plan – Quarterly Review
2. **INITIATED BY:** Kelly A. Martin, Chair
3. **BOARD INFORMATION:** X **BOARD ACTION:**
4. **OUTCOME:** **BOARD POLICY:**  
Primary Outcome: Section 709 - Investments  
Enhance fiscal positioning
5. **BACKGROUND:**  
  
Michael Pratico, Senior Vice President, with CAPTRUST Financial Advisors, will provide a quarterly overview of plan investments at the March 11, 2019 Investment Committee meeting.

UNIVERSITY OF MAINE SYSTEM  
4TH QUARTER, 2018

**DEFINED CONTRIBUTION  
QUARTERLY REVIEW**

**CAPTRUST**  
4208 Six Forks Road, Suite 1700  
Raleigh, NC 27609

Our mission is to enrich the lives of our clients, colleagues and communities through sound financial advice, integrity, and a commitment to service beyond expectation.

## IN THIS REVIEW

Period Ending 12.31.18 | Q4 18

University of Maine System

4.1

### University of Maine System Defined Contribution Plans

4th Quarter, 2018 Quarterly Review

prepared by:

**Michael S. Pratico**

Senior Vice President | Financial Advisor

**Barron V. Schmitt**

Senior Vice President | Financial Advisor

Section 1

**RETIREMENT INDUSTRY UPDATES**

Section 2

**MARKET COMMENTARY AND REVIEW**

Section 3

**PLAN INVESTMENT REVIEW**

Section 4

**FUND FACT SHEETS**

Appendix

## SECTION 1: RETIREMENT INDUSTRY UPDATES

Period Ending 12.31.18 | Q4 18

University of Maine System

4.1

SECTION 1: RETIREMENT INDUSTRY UPDATES	
Industry Updates.....	

## DEFINED CONTRIBUTION MARKETPLACE — INDUSTRY UPDATE

Period Ending 12.31.18 | Q4 18

4.1

## YEAR IN REVIEW

**\$300B**

In 2018, CAPTRUST surpassed \$300 billion in institutional and wealth management client assets under advisement.

**38**

Number of locations nationally, comprising 168 advisors and more than 500 employees. In addition, six firms decided to join CAPTRUST in 2018.

**\$23B**

CAPTRUST advised on more than \$23 billion of discretionary assets, representing more than a 50% year-over-year increase.

**80**

The CAPTRUST Community Foundation supported more than 80 children's charities in 2018, including a \$125,000 donation to Kidznotes.

## EMPLOYEE ADVICE AND WELLNESS

CAPTRUST continues its dedication to providing advice and financial wellness assistance to individual plan participants for more than 700 of our plan sponsor clients.

- 2018 individual interactions: 39,000+
- Employees surveyed who found the advice valuable: 97%
- 70% of employees who received recommendations to change made those changes

In addition to individualized advice, we continue to offer webinars and topical videos quarterly, along with online wellness content with links to articles and resources.

## INDUSTRY RECOGNITION

- #1 U.S. advisory firm for third consecutive year (2018 RIA Ranking, *Financial Advisor Magazine*)
- CAPTRUST CTO Jon Meyer honored as Outstanding C-Suite Executive (2018 C-Suite Awards, *Triangle Business Journal*)
- CAPTRUST named to Best Places to Work list for the fifth time (Best Places to Work, *Triangle Business Journal*)
- CAPTRUST advisors were featured prominently on multiple top-advisor lists produced by the National Association of Plan Advisors, including Top Women Advisors (10), Young Guns (6), and Top Office Teams (25).

Information as of 12.31.18

## 2019 PREDICTIONS: WHAT DOES THE NEW YEAR HOLD?

It's that time of year again: the time we pull out our crystal ball and make predictions about developments affecting plan sponsors and their participants in the new year.

### A shifting workforce causes employers to expand their wellness offerings

- The generational shift occurring in the U.S. workforce continues to create complexity for plan sponsors as they look to help their employees face difficult financial challenges.
- Employers will increasingly take action to address employees burdened by financial stress in hopes of mitigating the cost these stresses have on their businesses, including productivity losses, absenteeism, doctor visits, medication costs, and health insurance premiums.

### Higher interest rates present a mixed blessing (and a few challenges)

#### Pros

- Upticks in cash flow from CDs, money market funds, savings accounts, and short-term bonds will make higher interest rates welcome news for savers and retirees.
- Pre-retirees will feel more confident about their finances, encouraging them to make the move into retirement.

#### Cons

- Households with credit-card debt, auto loans, and adjustable-rate mortgages will feel a pinch as rates rise.
- Plan sponsors will want to evaluate their target date funds and capital preservation options to make sure they understand their likely behavior in light of rising interest rates.

### Regulators and legislators seek ways to solve the retirement coverage gap and provide objective advice for plan sponsors and participants

Legislators and regulators will take action specifically designed to:

- Increase access to workplace retirement plan savings vehicles for more working Americans;
- Address student loan debt and promote workplace payment programs;
- Promote best interest advice standards and minimize conflicts of interest; and
- Broaden adoption of in-plan lifetime income solutions.

### Recordkeepers and investment managers strive to add new value—and new revenue streams

New services will come in the form of student loan repayment solutions, HSAs, financial wellness programs, and rethinking QDIAs to include lower-cost managed accounts.

### Plan sponsors continue to feel the strain of increasing complexity

- Increasingly plan sponsors will look to delegate responsibility and risk to 3(38) discretionary investment managers and focus their committee efforts and resources on the core issues their participants are grappling with.
- Health savings accounts (HSAs) will raise their profiles as a supplemental form of retirement savings.
- Plan sponsors will look to regulators to provide more clarity around best practices and fiduciary protections when adopting new services.

## ADMINISTRATION CORNER

### IRS PROPOSED CHANGES TO HARDSHIP WITHDRAWAL REGULATIONS

The Bipartisan Budget Act of 2018 directed the Internal Revenue Service to change the rules governing hardship distributions. In November, the IRS proposed rules to make it easier for participants to take hardship distributions and access more of their account balances in cases of financial hardship. In addition, certain requirements and restrictions will eventually be eliminated while others will remain optional.

#### Key Highlights:

- More sources of money will be available to participants, including earnings from pre-tax and Roth elective deferrals in 401(k) plans—*optional*
- Suspending deferrals for six months is no longer a requirement—*optional for 2019 plan year, mandatory beginning January 1, 2020*
- The requirement to take a loan is being eliminated—*optional*
- The Facts and Circumstances Test is no longer a requirement—*optional for 2019 plan year, mandatory beginning January 1, 2020*
- Once the rules are finalized, plan documents will need to be amended—*mandatory*

Most retirement service providers will be adopting some or all of the proposed regulations effective January 1, 2019. For plan sponsors, a plan amendment will be needed before the end of 2019 to incorporate these hardship rule changes.

Updated approaches and plan document amendment processes will vary by service provider, but relationship managers should be able to assist in navigating the necessary steps.

### MEETING THE HARDSHIP REQUIREMENTS

While rule changes are on the horizon, the qualifying reasons for a hardship are staying the same:

- Unreimbursed medical expenses
- Purchase of an employee's principal residence
- Payment of college tuition and relative education costs for the next 12 months
- Payment necessary to prevent eviction or foreclosure of the employee's primary residence
- Funeral expenses
- Certain expenses for damage to the employee's principal residence



## SECTION 2: MARKET COMMENTARY AND REVIEW

Period Ending 12.31.18 | Q4 18

University of Maine System

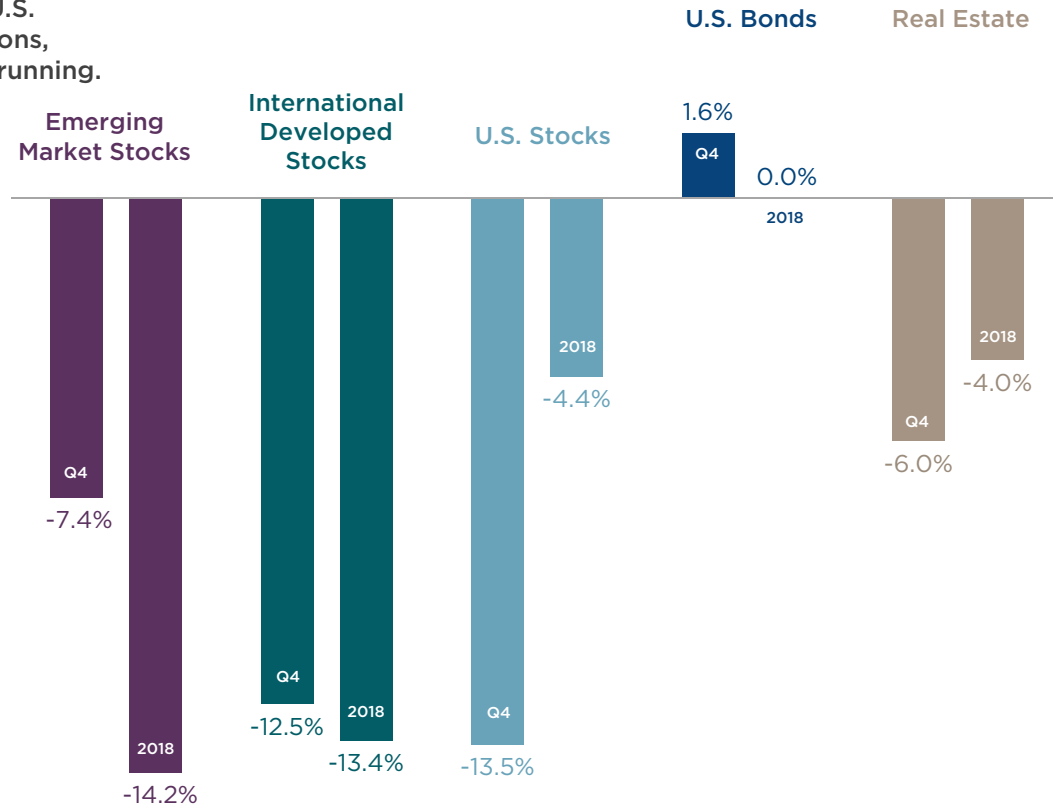
4.1

SECTION 2: MARKET COMMENTARY AND REVIEW	
Market Commentary.....	
Market Review.....	
Asset Class Returns.....	
Index Performance.....	

## MARKETS TAKE A HIT IN Q4

Most asset classes fell in the fourth quarter, adding a negative tinge to 2018's already lackluster results. Concerns over slowing growth in the U.S. and abroad, rising U.S. interest rates, and uncertainty driven by trade tensions, political turmoil, and recession fears sent investors running.

- U.S. stocks fell sharply in Q4, erasing year-to-date gains. Concerns over Fed rate hikes, slower economic growth, and trade tensions between the U.S. and China weighed on prices. They posted a modest loss for the year.
- International stocks posted double-digit losses in the fourth quarter thanks to weaker economic growth in Europe and uncertainty over Brexit.
- Emerging market stocks added to their woes in Q4 and finished the year as 2018's laggard due to a stronger U.S. dollar and slower economic growth in China.
- Bonds provided an anchor to windward amid the fourth quarter's volatile equity markets. Although they finished flat for the year, they were the standout performer as interest rates declined.
- Public real estate fell in the fourth quarter and posted a modest decline for the year.



Asset class returns are represented by the following indexes: S&P 500 Index (U.S. large-cap stocks), MSCI EAFE Index (international developed stocks), MSCI Emerging Markets Index (emerging market stocks), Bloomberg Barclays U.S. Aggregate Bond Index (U.S. bonds), and Dow Jones U.S. Real Estate Index (real estate).

## MARKET COMMENTARY

Period Ending 12.31.18 | Q4 18

## DIGGING DEEPER: STOCKS AND BONDS

4.1

## Equities

	Q4 2018	YTD 2018	Last 12 Months
U.S. Stocks	-13.5%	-4.4%	-4.4%
- Best Sector: Utilities	1.4%	4.1%	4.1%
- Worst Sector: Energy	-23.8%	-18.1%	-18.1%
International Stocks	-12.5%	-13.4%	-13.4%
Emerging Market Stocks	-7.4%	-14.2%	-14.2%

## Fixed Income

	12.31.18	9.30.18	12.31.17
1-Year U.S. Treasury Yield	2.63%	2.33%	1.76%
10-Year U.S. Treasury Yield	2.69%	2.85%	2.40%
	QTD 2018	YTD 2018	Last 12 Months
10-Year U.S. Treasury Total Return	3.87%	0.00%	0.00%

## Equities - Relative Performance by Market Capitalization and Style

	Q4 2018			2018			2017				
	Value	Blend	Growth	Value	Blend	Growth	Value	Blend	Growth		
Large	-11.7%	-13.5%	-15.9%	Large	-8.3%	-4.4%	-1.5%	Large	13.7%	21.8%	30.2%
Mid	-15.0%	-15.4%	-16.0%	Mid	-12.3%	-9.1%	-4.8%	Mid	13.3%	18.5%	25.3%
Small	-18.7%	-20.0%	-21.7%	Small	-12.9%	-11.0%	-9.3%	Small	7.8%	14.6%	22.2%

Asset class returns are represented by the following indexes: S&P 500 Index (U.S. stocks), MSCI EAFE Index (international stocks), and MSCI Emerging Markets Index (emerging market stocks). Relative performance by market capitalization and style is based upon the Russell Pure Style Indexes except for large-cap blend, which is based upon the S&P 500 Index. Source: Bloomberg, U.S. Treasury, Barclays Live.

## MARKET COMMENTARY

Period Ending 12.31.18 | Q4 18

4.1

## DIGGING DEEPER: FIXED INCOME MARKET

Interest Rates	3 Month	2 Year	5 Year	10 Year	30 Year	Mortgage Rate
September 2018	2.19%	2.81%	2.94%	3.05%	3.19%	4.57%
December 2018	2.45%	2.48%	2.51%	2.69%	3.02%	4.51%
Change	0.26%	-0.33%	-0.43%	-0.36%	-0.17%	-0.06%

Except for the very front of the curve, interest rates declined in the fourth quarter amid increased market volatility.

Bloomberg Barclays U.S. Aggregate Bond Index	Yield to Worst	Duration	Total Return	Spread	Treasury Rate	AA Spread	BBB Spread
September 2018	3.46%	6.03		0.39%	3.07%	0.53%	1.36%
December 2018	3.28%	5.87		0.66%	2.62%	0.74%	1.97%
Change	-0.18%	-0.16	1.64%	0.27%	-0.45%	0.21%	0.61%

The Bloomberg Barclays U.S. Aggregate Bond Index returned 1.64% for the quarter. Declining interest rates more than offset an increase in credit spreads.

Bloomberg Barclays U.S. Long Credit Index	Yield to Worst	Duration	Total Return	Spread	Treasury Rate	AA Spread	BBB Spread
September 2018	4.68%	13.39		1.53%	3.15%	0.96%	1.89%
December 2018	4.89%	13.28		1.96%	2.93%	1.18%	2.46%
Change	0.21%	-0.11	-1.64%	0.43%	-0.22%	0.22%	0.57%

Long credit struggled in the fourth quarter, declining 1.64%. Rising credit spreads, particularly BBB spreads, drove the index into negative territory.

Source: Bloomberg, Barclays Live, CAPTRUST, U.S Treasury. 10

## ECONOMIC OUTLOOK

The global economic picture typically consists of favorable attributes (tailwinds) and challenges (headwinds). Here, we provide our perspective on both and offer our view on which side has the upper hand.

### TAILWINDS

#### Job Openings

- Employment is at its best level in 50 years with the U.S. unemployment rate at the historically low level of 3.9%.
- There are more than 1 million more open jobs than job seekers.



#### A Very Merry Shopping Season

- U.S. retail sales for the holiday season rose 5.1% from last year.
- Consumers spent more than \$850 billion, boosted by the best wage increase in a decade and falling gas prices.

#### Strong U.S. Earnings Growth

- Corporate earnings growth has reached a 7-year high, with S&P 500 companies posting 22% earnings growth from a year earlier.

#### Stock Market Prices Incorporating Some of the Risks

- Investor concerns about trade tensions with China and moderating global economic growth are already priced into the stock market as reflected in price-to-earnings ratios at lower than historical average levels.

#### Long-term Treasury Yields Decline

- The 10-year U.S. Treasury Note's yield has declined by about 0.47% from its November peak. The lower yield helps to cut the interest cost of the increasing federal debt.

### HEADWINDS

#### Trade Tensions Weigh on Confidence

- Business and consumer confidence are waning from their high levels due to ongoing trade disputes and potential additional tariffs.
- The longer trade tensions last, the more negative the impact will be on confidence. Business owners may hesitate to spend on manufacturing and production.



#### Moderating Economic Growth

- The U.S. economy grew 3% in 2018, its biggest gain in a decade; forecasters predict growth will moderate to 2.4% in 2019. Global growth will slow to 3.5% in 2019, compared to 3.7% in 2018.
- Rising trade barriers and a reversal of capital flows to emerging market economies with weaker fundamentals and higher political risk have been dimming the economic outlook.

#### Inverted Yield Curve

- The bond market's yield curve is signaling the Federal Reserve to slow down the pace of interest rate increases.

#### Increasing Total U.S. Government Deficits and Debt

- Tax cuts enacted in December 2017 immediately decrease revenues with the promise of increased future tax revenues. In the short run, at least, this increase in the U.S. budget deficit could lead to higher interest rates.

Remember, the economy isn't the market and the market isn't the economy.

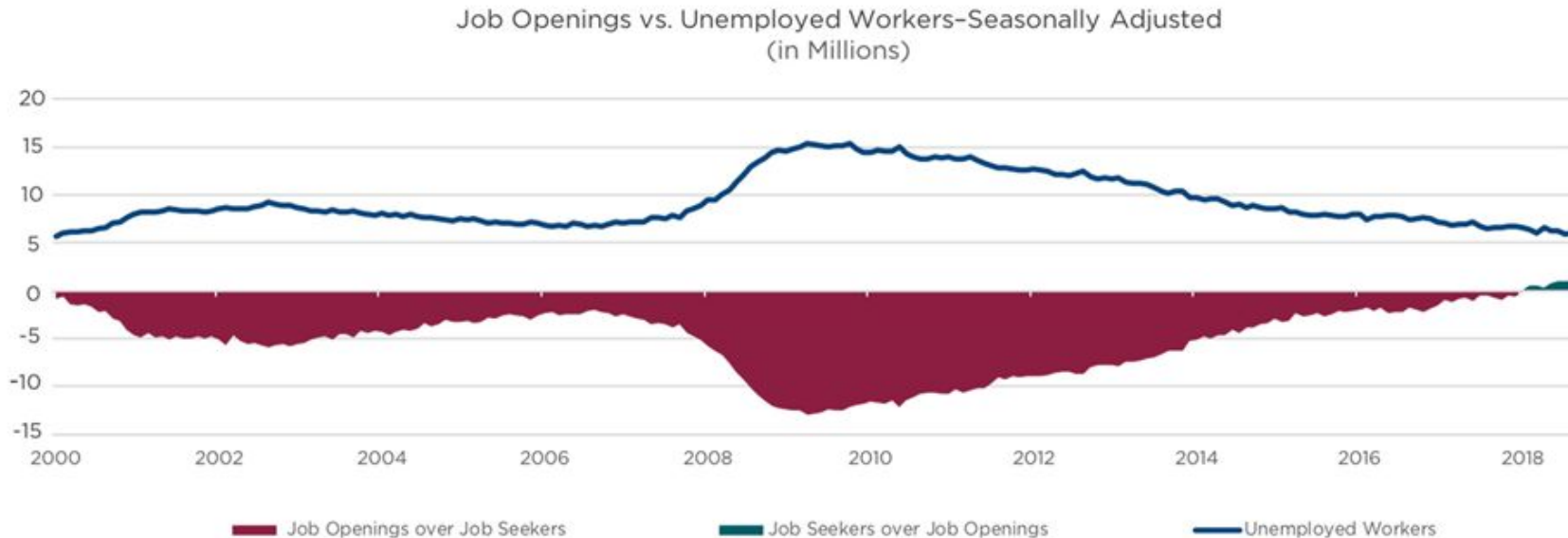
## MARKET COMMENTARY

Period Ending 12.31.18 | Q4 18

4.1

**HAPPY JOB HUNTING!**

Unemployment has been steadily decreasing. For the first time in 18 years, we are seeing job openings exceed the number of job seekers.

**OBSERVATIONS**

- Currently there are over 1 million more job openings than job seekers.
- In December, the unemployment rate ticked up to 3.9% from 3.7% in November, a 49-year low.
- Wages have finally started to rebound and enjoyed a better-than-expected gain of 3.2% year over year.
- The labor force participation rate moved up to 62.9%, compared to 62.4% in September 2015.

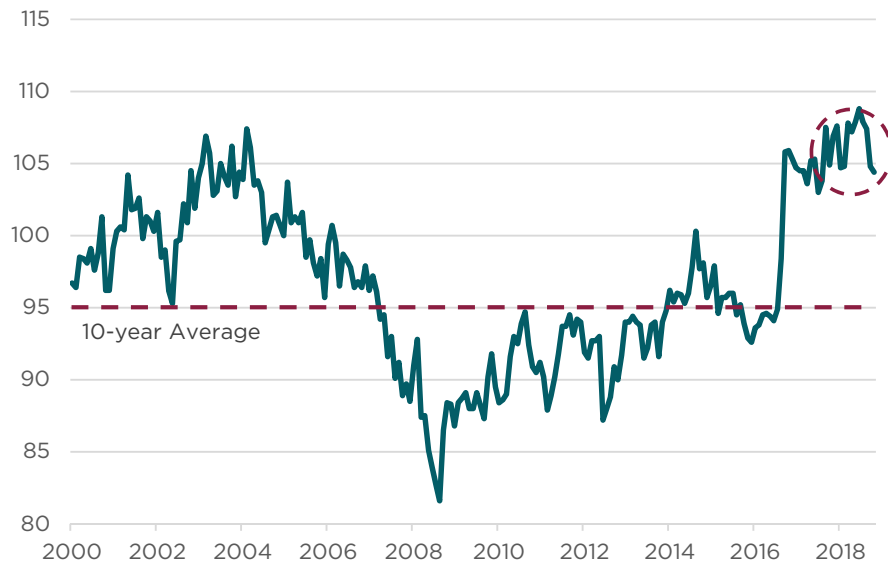
Source: Fred

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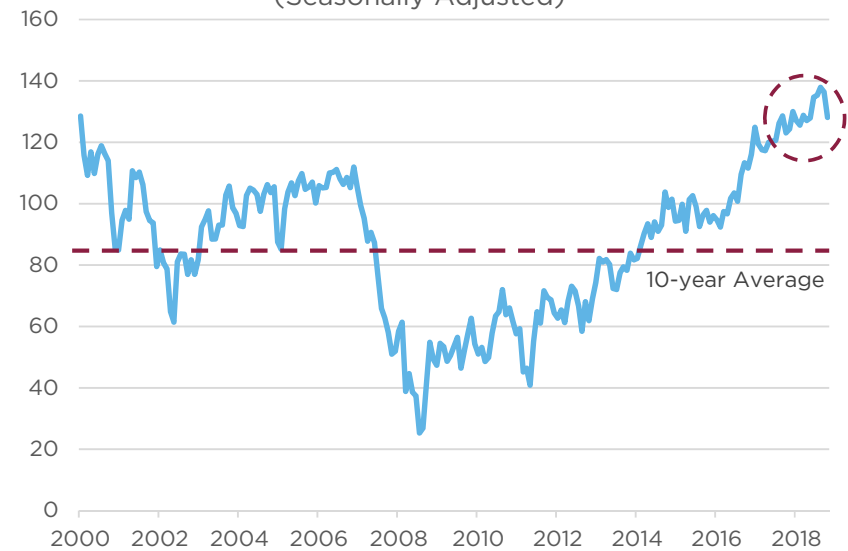
## TRADE TENSIONS WEIGH ON CONFIDENCE

Both business and consumer confidence have weakened recently, impacted by concerns over the ongoing trade dispute and potential additional tariffs. However, measures of both business and consumer confidence remain at historically high levels.

NFIB Small Business Optimism Index



Conference Board Consumer Confidence Index (Seasonally Adjusted)



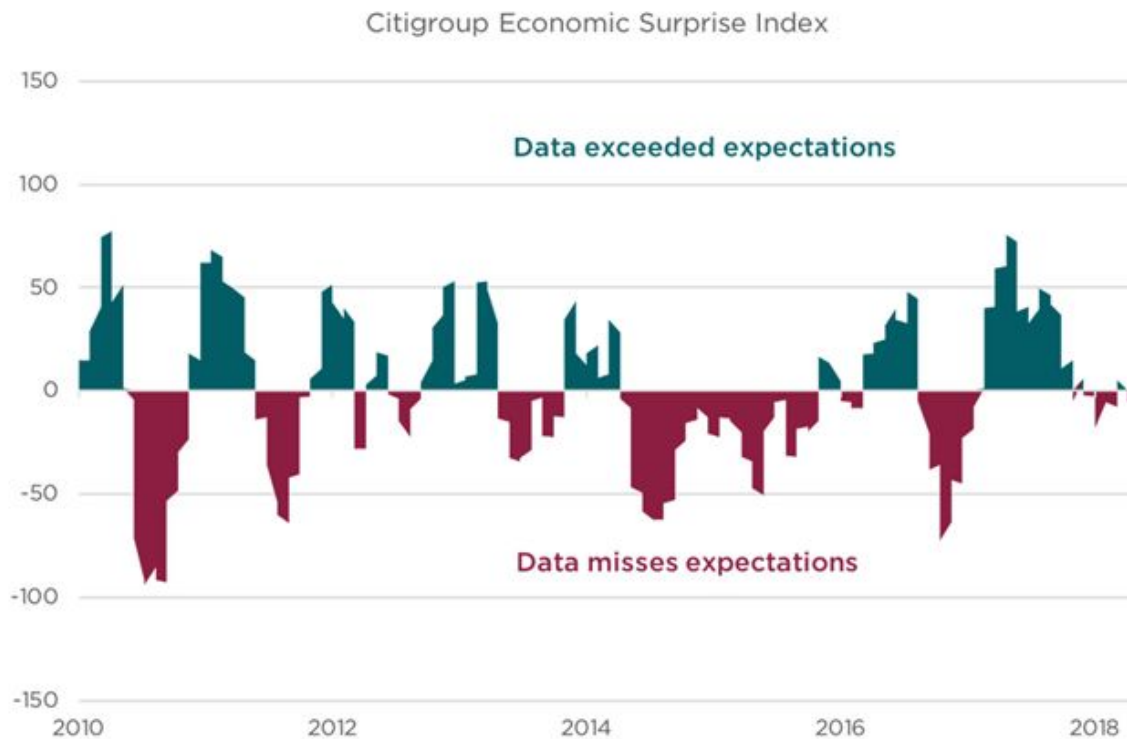
### OBSERVATIONS

- The NFIB's Small Business Optimism Index recently slipped from a record high of 108.8 in August to 104.4 in December. It's still much higher than its 10-year average of 94.96. Business confidence is an important precursor of corporate investment and capital spending.
- The Conference Board's Consumer Confidence Index has declined from its historic high of 137.9 in October to 128.1 in December. However, it's still significantly higher than its 10-year average of 83.35.

Source: Bloomberg

## MODERATING ECONOMIC GROWTH

Lately, economic data has been weaker than expectations. For example, analysts have begun to trim their estimates of 2019 year-over-year corporate earnings growth rates from 10% in September to 7.8% at year end.



### OBSERVATIONS

- The U.S. economy has enjoyed its biggest gain in a decade, with 3% real gross domestic product (GDP) growth in 2018.
- Forecasters see economic growth moderating to 2.4% in 2019, and the global economy continues to manifest moderating growth.
- Real GDP growth for Germany is projected to be 1.6% in 2019, unchanged from 2018.
- Real GDP growth for Japan is projected to be 1.0% in 2019, 0.1% higher than 2018.
- Real GDP growth for China is projected to be 6.3% in 2019, 0.3% lower than 2018.

Source: Bloomberg (Citi Economic Surprise Index), Factset (earnings growth rates), Fred (U.S. economy growth), OECD (global economy growth)



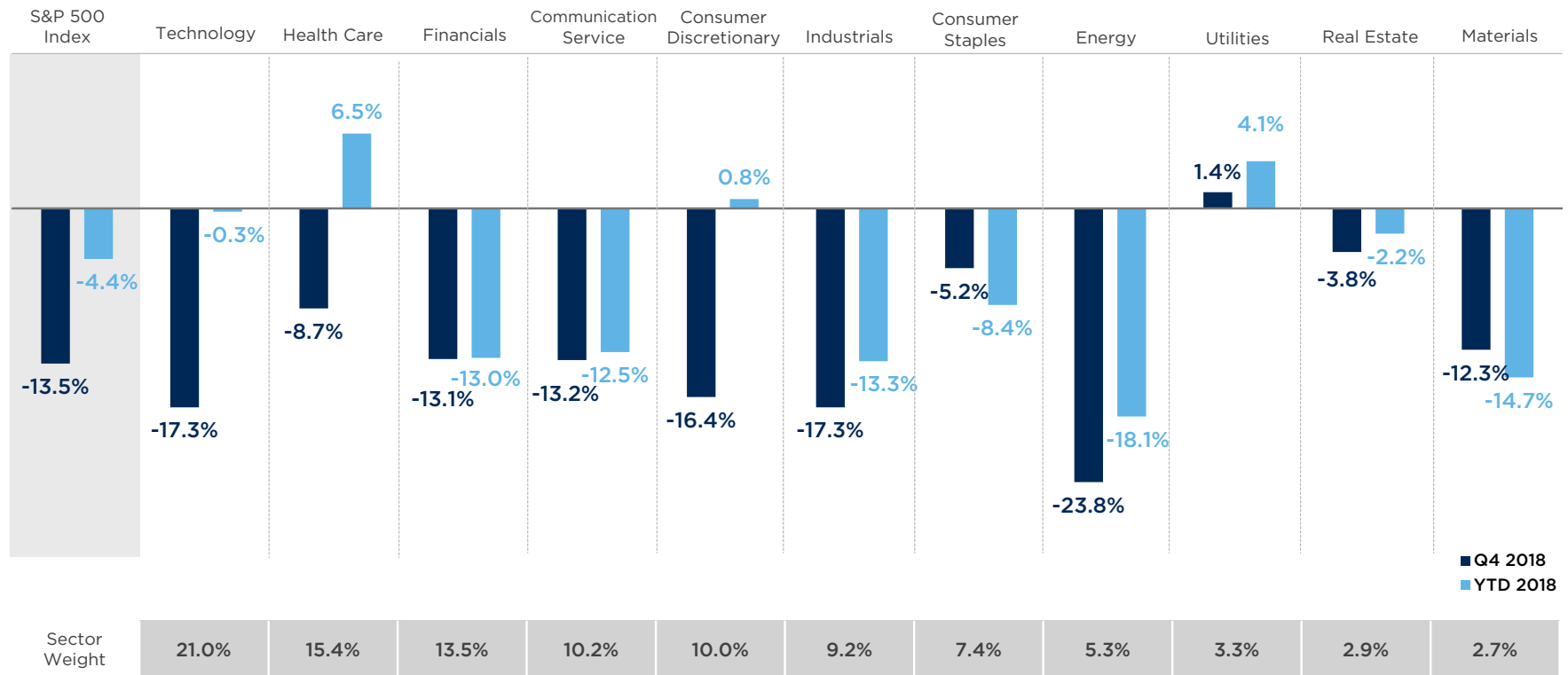
MARKET COMMENTARY

Period Ending 12.31.18 | Q4 18

## DIGGING DEEPER: U.S. EQUITY MARKETS

The S&P 500 Index is a market capitalization weighted index of U.S. large-cap stocks across a diverse set of industry sectors. The stocks represented in those 11 sectors generated a range of returns in 2018.

Returns by S&P 500 Sector



Source: Bloomberg. Data as of 12.31.2018. All calculations are cumulative total return, not annualized, including dividends for the stated period. Past performance is not indicative of future returns.

ASSET CLASS RETURNS

Period Ending 12.31.18 | Q4 18

4.1

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
International Equities 14.02%	International Equities 26.86%	Large-Cap Growth 11.81%	Fixed Income 5.08%	Mid-Cap Growth 46.29%	Small-Cap Growth 29.09%	Fixed Income 7.84%	Mid-Cap Value 18.51%	Small-Cap Growth 43.30%	Mid-Cap Value 14.75%	Large-Cap Growth 5.67%	Small-Cap Value 31.74%	Large-Cap Growth 30.21%	Cash 1.87%
Mid-Cap Value 12.65%	Small-Cap Value 23.48%	International Equities 11.63%	Cash 1.51%	Large-Cap Growth 37.21%	Mid-Cap Growth 26.38%	Large-Cap Growth 2.64%	Small-Cap Value 18.05%	Mid-Cap Growth 35.74%	Large-Cap Value 13.45%	Fixed Income 0.55%	Mid-Cap Value 20.00%	International Equities 25.62%	Fixed Income 0.01%
Mid-Cap Growth 12.10%	Large-Cap Value 22.25%	Mid-Cap Growth 11.43%	Small-Cap Value -28.92%	Small-Cap Growth 34.47%	Mid-Cap Value 24.75%	Large-Cap Value 0.39%	International Equities 17.90%	Small-Cap Value 34.52%	Large-Cap Growth 13.05%	Cash 0.05%	Large-Cap Value 17.34%	Mid-Cap Growth 25.27%	Large-Cap Growth -1.51%
Large-Cap Value 7.05%	Mid-Cap Value 20.22%	Fixed Income 7.39%	Large-Cap Value -36.85%	Mid-Cap Value 34.21%	Small-Cap Value 24.50%	Cash 0.10%	Large-Cap Value 17.51%	Large-Cap Growth 33.48%	Mid-Cap Growth 11.90%	Mid-Cap Growth -0.20%	Small-Cap Growth 11.32%	Small-Cap Growth 22.17%	Mid-Cap Growth -4.75%
Large-Cap Growth 5.26%	Small-Cap Growth 13.35%	Small-Cap Growth 7.05%	Mid-Cap Value -38.44%	International Equities 32.46%	Large-Cap Growth 16.71%	Mid-Cap Value -1.38%	Mid-Cap Growth 15.81%	Mid-Cap Value 33.46%	Fixed Income 5.97%	International Equities -0.39%	Mid-Cap Growth 7.33%	Large-Cap Value 13.66%	Large-Cap Value -8.27%
Small-Cap Value 4.71%	Mid-Cap Growth 10.66%	Cash 4.71%	Large-Cap Growth -38.44%	Small-Cap Value 20.58%	Large-Cap Value 15.51%	Mid-Cap Growth -1.65%	Large-Cap Growth 15.26%	Large-Cap Value 32.53%	Small-Cap Growth 5.60%	Small-Cap Growth -1.38%	Large-Cap Growth 7.08%	Mid-Cap Value 13.34%	Small-Cap Growth -9.31%
Small-Cap Growth 4.15%	Large-Cap Growth 9.07%	Large-Cap Value -0.17%	Small-Cap Growth -38.54%	Large-Cap Value 19.69%	International Equities 8.21%	Small-Cap Growth -2.91%	Small-Cap Growth 14.59%	International Equities 23.29%	Small-Cap Value 4.22%	Large-Cap Value -3.83%	Fixed Income 2.65%	Small-Cap Value 7.84%	Mid-Cap Value -12.29%
Cash 3.35%	Cash 5.08%	Mid-Cap Value -1.42%	International Equities -43.06%	Fixed Income 5.24%	Fixed Income 5.89%	Small-Cap Value -5.50%	Fixed Income 4.22%	Cash 0.07%	Cash 0.03%	Mid-Cap Value -4.78%	International Equities 1.51%	Fixed Income 3.54%	Small-Cap Value -12.86%
Fixed Income 1.58%	Fixed Income 4.08%	Small-Cap Value -9.78%	Mid-Cap Growth -44.32%	Cash 0.21%	Cash 0.13%	International Equities -11.73%	Cash 0.11%	Fixed Income -2.02%	International Equities -4.48%	Small-Cap Value -7.47%	Cash 0.33%	Cash 0.86%	International Equities -13.36%

- Small-Cap Value Stocks (Russell 2000 Value)
- Large-Cap Value Stocks (Russell 1000 Value)
- International Equities (MSCI EAFE)
- Small-Cap Growth Stocks (Russell 2000 Growth)
- Mid-Cap Growth Stocks (Russell Mid-Cap Growth)
- Fixed Income (Bloomberg Barclays U.S. Aggregate Bond)
- Large-Cap Growth Stocks (Russell 1000 Growth)
- Mid-Cap Value Stocks (Russell Mid-Cap Value)
- Cash (Merrill Lynch 3-Month Treasury Bill)

Source: Markov Processes, Inc., Bloomberg, Mobius

The information contained in this report is from sources believed to be reliable but not warranted by CAPTRUST Financial Advisors to be accurate or complete.

## INDEX PERFORMANCE

Period Ending 12.31.18 | Q4 18

INDEXES	Q4 2018	2018	2017	2016	2015	2014	2013	1 YEAR	3 YEAR	5 YEAR	10 YEAR
90-Day U.S. Treasury	0.56%	1.87%	0.86%	0.33%	0.05%	0.03%	0.07%	1.87%	1.02%	0.63%	0.37%
Bloomberg Barclays Government 1-3 Year	1.31%	1.58%	0.45%	0.87%	0.57%	0.64%	0.37%	1.58%	0.96%	0.82%	1.03%
Bloomberg Barclays Intermediate Govt	2.22%	1.43%	1.14%	1.05%	1.18%	2.52%	-1.25%	1.43%	1.21%	1.46%	1.83%
Bloomberg Barclays Muni Bond	1.69%	1.28%	5.45%	0.25%	3.30%	9.05%	-2.55%	1.28%	2.30%	3.82%	4.85%
Bloomberg Barclays Intermediate Govt/Credit	1.65%	0.88%	2.14%	2.08%	1.07%	3.13%	-0.86%	0.88%	1.70%	1.86%	2.90%
Bloomberg Barclays Intermediate Credit	0.75%	0.01%	3.67%	3.68%	0.90%	4.16%	-0.17%	0.01%	2.44%	2.47%	4.84%
Bloomberg Barclays Aggregate Bond	1.64%	0.01%	3.54%	2.65%	0.55%	5.97%	-2.02%	0.01%	2.06%	2.52%	3.48%
Bloomberg Barclays Corporate IG Bond	-0.18%	-2.51%	6.42%	6.11%	-0.68%	7.46%	-1.53%	-2.51%	3.26%	3.28%	5.92%
Bloomberg Barclays High Yield	-4.53%	-2.08%	7.50%	17.13%	-4.47%	2.45%	7.44%	-2.08%	7.23%	3.83%	11.12%
Bloomberg Barclays U.S. Long Corporate	-1.80%	-7.24%	12.09%	10.97%	-4.61%	15.73%	-5.68%	-7.24%	4.88%	4.96%	7.59%
S&P 500	-13.52%	-4.38%	21.83%	11.96%	1.38%	13.69%	32.39%	-4.38%	9.26%	8.49%	13.12%
Dow Jones Industrial Average	-11.31%	-3.48%	28.11%	16.50%	0.21%	10.04%	29.65%	-3.48%	12.94%	9.70%	13.16%
NASDAQ Composite	-17.54%	-3.88%	28.24%	7.50%	5.73%	13.40%	38.32%	-3.88%	9.84%	9.70%	15.45%
Russell 1000 Value	-11.72%	-8.27%	13.66%	17.34%	-3.83%	13.45%	32.53%	-8.27%	6.95%	5.95%	11.18%
Russell 1000	-13.82%	-4.78%	21.69%	12.05%	0.92%	13.24%	33.11%	-4.78%	9.09%	8.21%	13.28%
Russell 1000 Growth	-15.89%	-1.51%	30.21%	7.08%	5.67%	13.05%	33.48%	-1.51%	11.15%	10.40%	15.29%
Russell Mid-Cap Value Index	-14.95%	-12.29%	13.34%	20.00%	-4.78%	14.75%	33.46%	-12.29%	6.06%	5.44%	13.03%
Russell Mid-Cap Index	-15.37%	-9.06%	18.52%	13.80%	-2.44%	13.22%	34.76%	-9.06%	7.04%	6.26%	14.03%
Russell Mid-Cap Growth Index	-15.99%	-4.75%	25.27%	7.33%	-0.20%	11.90%	35.74%	-4.75%	8.59%	7.42%	15.12%
MSCI EAFE	-12.50%	-13.36%	25.62%	1.51%	-0.39%	-4.48%	23.29%	-13.36%	3.38%	1.00%	6.81%
MSCI ACWI ex U.S.	-11.41%	-13.78%	27.77%	5.01%	-5.25%	-3.44%	15.78%	-13.78%	4.98%	1.14%	7.06%
Russell 2000 Value	-18.67%	-12.86%	7.84%	31.74%	-7.47%	4.22%	34.52%	-12.86%	7.37%	3.61%	10.40%
Russell 2000	-20.20%	-11.01%	14.65%	21.31%	-4.41%	4.89%	38.82%	-11.01%	7.36%	4.41%	11.97%
Russell 2000 Growth	-21.65%	-9.31%	22.17%	11.32%	-1.38%	5.60%	43.30%	-9.31%	7.24%	5.13%	13.52%
MSCI Emerging Markets	-7.40%	-14.25%	37.75%	11.60%	-14.60%	-1.82%	-2.27%	-14.25%	9.65%	2.03%	8.39%
Dow Jones U.S. Real Estate Index	-5.97%	-4.03%	9.84%	7.56%	2.14%	27.24%	1.77%	-4.03%	4.28%	8.06%	12.12%
HFRX Absolute Return Index	-1.48%	-0.49%	3.39%	0.31%	2.86%	0.79%	3.58%	-0.49%	1.05%	1.36%	0.36%
Consumer Price Index (Inflation)	-0.16%	2.24%	2.11%	2.07%	0.73%	0.76%	1.50%	2.24%	2.20%	1.61%	1.85%
<b>BLENDED BENCHMARKS</b>	<b>Q4 2018</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>1 YEAR</b>	<b>3 YEAR</b>	<b>5 YEAR</b>	<b>10 YEAR</b>
25% S&P 500/5% MSCI EAFE/70% BB Agg	-2.95%	-1.55%	8.93%	5.00%	0.92%	7.37%	7.01%	-1.55%	4.04%	4.06%	6.22%
30% S&P 500/10% MSCI EAFE/60% BB Agg	-4.43%	-2.44%	10.90%	5.43%	0.95%	7.21%	9.92%	-2.44%	4.49%	4.30%	6.91%
35% S&P 500/15% MSCI EAFE/50% BB Agg	-5.90%	-3.34%	12.90%	5.85%	0.97%	7.04%	12.89%	-3.34%	4.93%	4.54%	7.58%
40% S&P 500/20% MSCI EAFE/40% BB Agg	-7.36%	-4.25%	14.93%	6.26%	0.96%	6.87%	15.93%	-4.25%	5.35%	4.76%	8.23%
45% S&P 500/25% MSCI EAFE/30% BB Agg	-8.81%	-5.17%	16.99%	6.65%	0.93%	6.69%	19.04%	-5.17%	5.77%	4.96%	8.87%
60% S&P 500/40% Bloomberg Barclays Agg	-7.58%	-2.28%	14.25%	8.41%	1.40%	10.75%	17.57%	-2.28%	6.57%	6.33%	9.59%

The opinions expressed in this report are subject to change without notice. This material has been prepared or is distributed solely for informational purposes and is not a solicitation or an offer to buy any security or to participate in any investment strategy. The performance data quoted represents past performance and does not guarantee future results. Index averages are provided for comparison purposes only. The information and statistics in this report are from sources believed to be reliable but are not guaranteed to be accurate or complete. CAPTRUST Financial Advisors is an investment adviser registered under the Investment Advisers Act of 1940. Sources: Morningstar Direct, MPI

## SECTION 3: PLAN INVESTMENT REVIEW

Period Ending 12.31.18 | Q4 18

University of Maine System

4.1

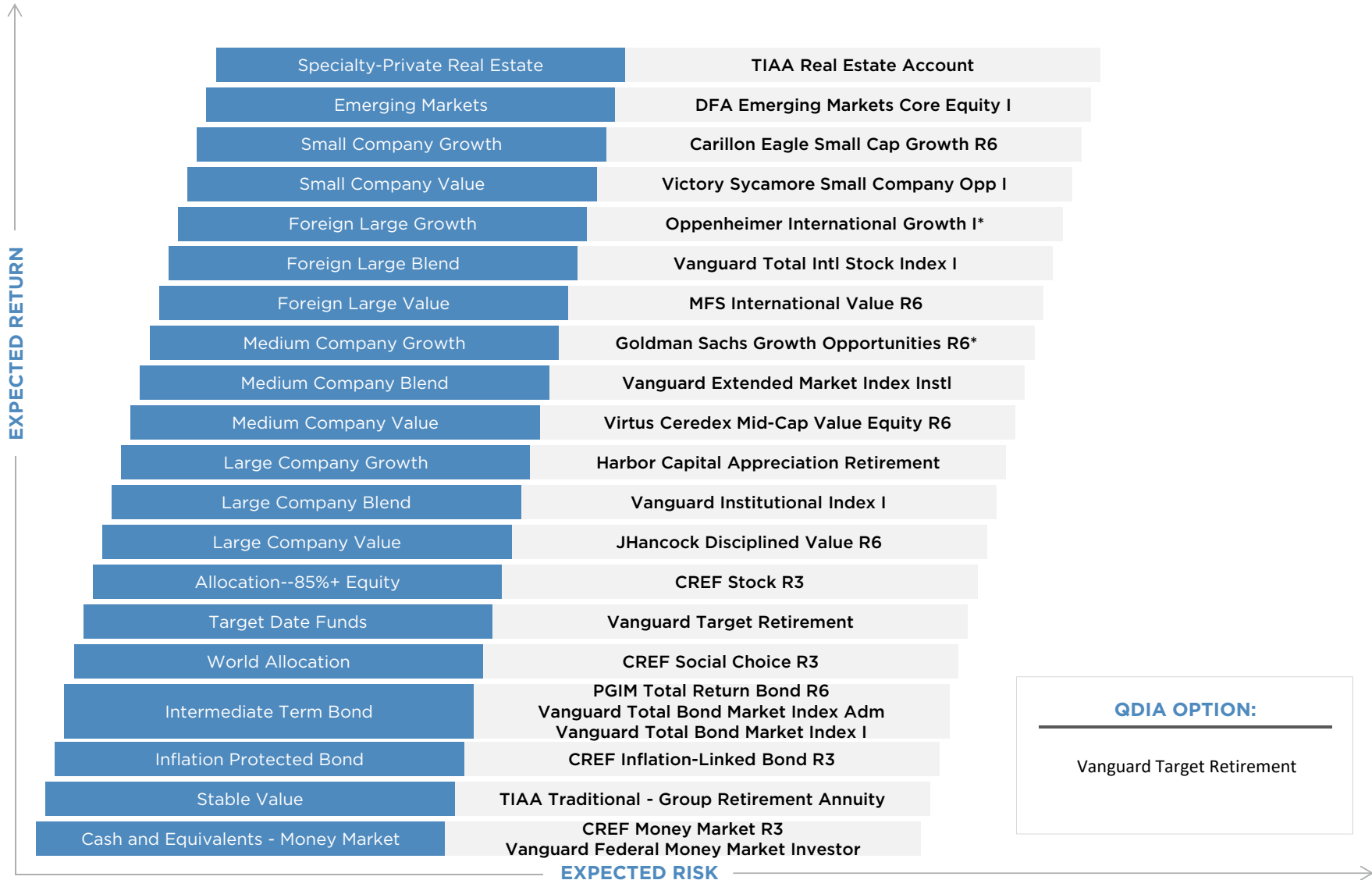
### SECTION 3: PLAN INVESTMENT REVIEW

Plan Investment Menu Review.....
Plan Assets.....
Investment Policy Monitor.....
Investment Review Select Commentary.....
Investment Performance Summary.....
Plan Performance Measurement.....

PLAN INVESTMENT REVIEW | PLAN MENU

Period Ending 12.31.18 | Q4 18

University of Maine System



4.1


Effective 01/14/2019: Goldman Sachs Mid Cap Growth (GGOUX) will be removed and replaced with MFS Mid Cap Growth Fund (OTCKX). Oppenheimer International Growth Fund (OIGIX) will be removed and replaced with American Funds Europacific Growth Fund (RERGX). Assets will map accordingly.

## PLAN INVESTMENT REVIEW | EXECUTIVE ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System


Plan Name	Plan/Contract Number	Plan Assets
University of Maine System Retirement Plan for Faculty and Professionals 403(b) DC	102965	\$1,177,614,259
University of Maine System Retirement Tax Deferred Annuity Plan 403(b) TDA	102966	\$156,926,838
University of Maine System Optional Retirement Savings 403(b)	102967	\$1,455,840
University of Maine System Optional Retirement Savings 401(a)	102968	\$1,104,249
University of Maine System Basic Retirement Plan for Classified Employees 403(b)	102969	\$35,124,910
University of Maine System Basic Retirement Plan for Classified Employees 401(a)	102970	\$66,999,016
University of Maine System Deferred Compensation Plan 457(b)	102971	\$30,128,891
<b>TOTALS</b>		<b>\$1,469,354,003</b>



University of Maine System \*  
Alternate Carrier Transfers In  
Date Range October 1, 2018 - December 31, 2018

Alternate Carrier	Amount
AMERICAN FUNDS	\$ 82,375.90
CHARLES SCHWAB	\$ 59,344.04
VALIC	\$ 160,774.94
VOYA	\$ 323,610.26
<b>Total</b>	<b>\$ 626,105.14</b>

\* 7 plans : 102965, 102966, 102967, 102968, 102969, 102970 & 102971



Disclosures

The data provided is for informational purposes only. It is not intended as an offer or solicitation or any similar communication being made for the purchase or sale of any financial instrument / product or as an official confirmation or as an official statement on any transaction.

Pursuant to your request for information, enclosed you will find data related to the Plan(s) and/or Investments specified. You have solicited this information for fiduciary due diligence and review purposes related to the referenced Plan. This report should not be used for regulatory filings or for benefit statements.

Please be advised that neither TIAA, CREF, nor their affiliates, in their satisfaction of your information request, make any representations or warranties, express or implied, as to the accuracy, completeness, or fitness for any purpose or use of this or other data for the Plan(s) that you may request. Teachers Advisors Inc. or its affiliates will not be liable for any direct, indirect, or consequential loss arising from any use of or reliance on the information supplied.

These numbers include non-approved assets held at TIAA-CREF that are no longer available for additional investments.

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4.1

## PLAN INVESTMENT REVIEW | ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System Retirement Plan for Faculty and Professionals 403(b) DC - 102965

		— MARKET VALUE —			
FUND OPTION	CURRENT INVESTMENT NAME	12.31.2017	(%)	CURRENT	(%)
Cash and Equivalents - Money Market	<b>CREF Money Market R3</b>	\$8,746,690	<b>0.70%</b>	\$33,741,188	<b>2.87%</b>
Cash and Equivalents - Money Market	<b>Vanguard Federal Money Market Investor</b>	\$990,060	<b>0.08%</b>	\$3,245,798	<b>0.28%</b>
Stable Value	<b>TIAA Traditional - Group Retirement Annuity</b>	\$434,258,268	<b>34.92%</b>	\$433,231,435	<b>36.79%</b>
Inflation Protected Bond	<b>CREF Inflation-Linked Bond R3</b>	\$13,593,255	<b>1.09%</b>	\$13,977,742	<b>1.19%</b>
Intermediate Term Bond	<b>PGIM Total Return Bond R6</b>	\$16,352,164	<b>1.32%</b>	\$21,528,393	<b>1.83%</b>
Intermediate Term Bond	<b>Vanguard Total Bond Market Index Adm</b>	\$7,174,322	<b>0.58%</b>	-	-
Intermediate Term Bond	<b>Vanguard Total Bond Market Index I</b>	-	-	\$5,319,901	<b>0.45%</b>
World Allocation	<b>CREF Social Choice R3</b>	\$35,791,845	<b>2.88%</b>	\$31,116,545	<b>2.64%</b>
Target Date Ret Income Moderate	<b>Vanguard Target Retirement Income Inv</b>	\$7,058,640	<b>0.57%</b>	\$6,252,363	<b>0.53%</b>
Target Date 2015 Moderate	<b>Vanguard Target Retirement 2015 Inv</b>	\$4,705,291	<b>0.38%</b>	\$4,581,987	<b>0.39%</b>
Target Date 2020 Moderate	<b>Vanguard Target Retirement 2020 Inv</b>	\$11,281,830	<b>0.91%</b>	\$10,668,569	<b>0.91%</b>
Target Date 2025 Moderate	<b>Vanguard Target Retirement 2025 Inv</b>	\$10,262,935	<b>0.83%</b>	\$11,636,300	<b>0.99%</b>
Target Date 2030 Moderate	<b>Vanguard Target Retirement 2030 Inv</b>	\$9,821,585	<b>0.79%</b>	\$9,811,752	<b>0.83%</b>
Target Date 2035 Moderate	<b>Vanguard Target Retirement 2035 Inv</b>	\$9,633,940	<b>0.77%</b>	\$10,491,797	<b>0.89%</b>
Target Date 2040 Moderate	<b>Vanguard Target Retirement 2040 Inv</b>	\$9,440,954	<b>0.76%</b>	\$10,398,259	<b>0.88%</b>
Target Date 2045 Moderate	<b>Vanguard Target Retirement 2045 Inv</b>	\$7,820,688	<b>0.63%</b>	\$8,840,912	<b>0.75%</b>
Target Date 2050 Moderate	<b>Vanguard Target Retirement 2050 Inv</b>	\$4,582,436	<b>0.37%</b>	\$5,836,262	<b>0.50%</b>
Target Date 2055 Moderate	<b>Vanguard Target Retirement 2055 Inv</b>	\$1,668,316	<b>0.13%</b>	\$2,071,139	<b>0.18%</b>

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## PLAN INVESTMENT REVIEW | ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System Retirement Plan for Faculty and Professionals 403(b) DC - 102965

FUND OPTION	CURRENT INVESTMENT NAME	— MARKET VALUE —			
		12.31.2017	(%)	CURRENT	(%)
Target Date 2060+ Moderate	Vanguard Target Retirement 2060 Inv	\$72,722	0.01%	\$244,692	0.02%
Target Date 2060+ Moderate	Vanguard Target Retirement 2065 Inv	\$0	0.00%	\$0	0.00%
Allocation--85%+ Equity	CREF Stock R3	\$214,743,505	17.27%	\$175,595,931	14.91%
Large Company Value	JHancock Disciplined Value R6	\$22,058,927	1.77%	\$16,925,133	1.44%
Large Company Blend	Vanguard Institutional Index I	\$34,031,139	2.74%	\$35,014,254	2.97%
Large Company Growth	Harbor Capital Appreciation Retirement	\$12,028,018	0.97%	\$10,165,637	0.86%
Medium Company Value	Virtus Ceredex Mid-Cap Value Equity R6	\$15,548,636	1.25%	\$9,207,455	0.78%
Medium Company Blend	Vanguard Extended Market Index Instl	\$15,548,329	1.25%	\$14,041,707	1.19%
Medium Company Growth	Goldman Sachs Growth Opportunities R6	\$4,930,354	0.40%	\$5,113,494	0.43%
Foreign Large Value	MFS International Value R6	\$21,124,769	1.70%	\$19,243,386	1.63%
Foreign Large Blend	Vanguard Total Intl Stock Index I	\$11,073,927	0.89%	\$12,831,913	1.09%
Foreign Large Growth	Oppenheimer International Growth I	\$4,866,072	0.39%	\$3,309,664	0.28%
Small Company Value	Victory Sycamore Small Company Opp I	\$11,471,306	0.92%	\$7,696,760	0.65%
Small Company Growth	Carillon Eagle Small Cap Growth R6	\$3,712,424	0.30%	\$3,516,252	0.30%
Emerging Markets	DFA Emerging Markets Core Equity I	\$19,843,594	1.60%	\$12,978,914	1.10%
Specialty-Private Real Estate	TIAA Real Estate Account	\$51,256,299	4.12%	\$52,094,873	4.42%
Other Assets	Non Approved Funds	\$157,443,150	12.66%	\$126,995,957	10.78%
Self-Directed Brokerage	Self Directed Accounts	\$50,540,429	4.06%	\$49,871,532	4.23%

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PLAN INVESTMENT REVIEW | ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System Retirement Plan for Faculty and Professionals 403(b) DC - 102965

		— MARKET VALUE —			
FUND OPTION	CURRENT INVESTMENT NAME	12.31.2017	(%)	CURRENT	(%)
Loan	Default Loan	-	-	\$16,365	0.00%
<b>TOTALS</b>		\$1,243,476,821	100%	\$1,177,614,259	100%

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## PLAN INVESTMENT REVIEW | ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System Retirement Tax Deferred Annuity Plan 403(b) TDA- 102966

		— MARKET VALUE —			
FUND OPTION	CURRENT INVESTMENT NAME	12.31.2017	(%)	CURRENT	(%)
Cash and Equivalents - Money Market	<b>CREF Money Market R3</b>	\$826,248	<b>0.51%</b>	\$2,776,789	<b>1.77%</b>
Cash and Equivalents - Money Market	<b>Vanguard Federal Money Market Investor</b>	\$32,998	<b>0.02%</b>	\$213,653	<b>0.14%</b>
Stable Value	<b>TIAA Traditional - Group Retirement Annuity</b>	\$54,259,359	<b>33.55%</b>	\$56,098,968	<b>35.75%</b>
Inflation Protected Bond	<b>CREF Inflation-Linked Bond R3</b>	\$2,436,960	<b>1.51%</b>	\$2,381,360	<b>1.52%</b>
Intermediate Term Bond	<b>PGIM Total Return Bond R6</b>	\$3,904,319	<b>2.41%</b>	\$5,142,723	<b>3.28%</b>
Intermediate Term Bond	<b>Vanguard Total Bond Market Index Adm</b>	\$1,628,320	<b>1.01%</b>	-	-
Intermediate Term Bond	<b>Vanguard Total Bond Market Index I</b>	-	-	\$1,339,285	<b>0.85%</b>
World Allocation	<b>CREF Social Choice R3</b>	\$5,850,210	<b>3.62%</b>	\$5,187,134	<b>3.31%</b>
Target Date Ret Income Moderate	<b>Vanguard Target Retirement Income Inv</b>	\$1,815,210	<b>1.12%</b>	\$1,672,675	<b>1.07%</b>
Target Date 2015 Moderate	<b>Vanguard Target Retirement 2015 Inv</b>	\$957,555	<b>0.59%</b>	\$841,090	<b>0.54%</b>
Target Date 2020 Moderate	<b>Vanguard Target Retirement 2020 Inv</b>	\$2,655,509	<b>1.64%</b>	\$2,788,232	<b>1.78%</b>
Target Date 2025 Moderate	<b>Vanguard Target Retirement 2025 Inv</b>	\$2,449,593	<b>1.51%</b>	\$3,610,502	<b>2.30%</b>
Target Date 2030 Moderate	<b>Vanguard Target Retirement 2030 Inv</b>	\$1,668,874	<b>1.03%</b>	\$1,721,577	<b>1.10%</b>
Target Date 2035 Moderate	<b>Vanguard Target Retirement 2035 Inv</b>	\$1,050,291	<b>0.65%</b>	\$1,117,230	<b>0.71%</b>
Target Date 2040 Moderate	<b>Vanguard Target Retirement 2040 Inv</b>	\$807,796	<b>0.50%</b>	\$980,701	<b>0.62%</b>
Target Date 2045 Moderate	<b>Vanguard Target Retirement 2045 Inv</b>	\$266,425	<b>0.16%</b>	\$304,310	<b>0.19%</b>
Target Date 2050 Moderate	<b>Vanguard Target Retirement 2050 Inv</b>	\$179,787	<b>0.11%</b>	\$193,325	<b>0.12%</b>
Target Date 2055 Moderate	<b>Vanguard Target Retirement 2055 Inv</b>	\$74,520	<b>0.05%</b>	\$72,237	<b>0.05%</b>

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## PLAN INVESTMENT REVIEW | ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System Retirement Tax Deferred Annuity Plan 403(b) TDA- 102966

FUND OPTION	CURRENT INVESTMENT NAME	— MARKET VALUE —			
		12.31.2017	(%)	CURRENT	(%)
Target Date 2060+ Moderate	Vanguard Target Retirement 2060 Inv	\$4,082	0.00%	\$4,452	0.00%
Target Date 2060+ Moderate	Vanguard Target Retirement 2065 Inv	\$0	0.00%	\$0	0.00%
Allocation--85%+ Equity	CREF Stock R3	\$19,887,105	12.30%	\$16,035,834	10.22%
Large Company Value	JHancock Disciplined Value R6	\$2,253,669	1.39%	\$1,802,893	1.15%
Large Company Blend	Vanguard Institutional Index I	\$9,515,741	5.88%	\$9,011,773	5.74%
Large Company Growth	Harbor Capital Appreciation Retirement	\$1,952,121	1.21%	\$1,622,489	1.03%
Medium Company Value	Virtus Ceredex Mid-Cap Value Equity R6	\$1,414,278	0.87%	\$1,000,005	0.64%
Medium Company Blend	Vanguard Extended Market Index Instl	\$2,580,396	1.60%	\$2,393,286	1.53%
Medium Company Growth	Goldman Sachs Growth Opportunities R6	\$392,521	0.24%	\$339,964	0.22%
Foreign Large Value	MFS International Value R6	\$3,471,616	2.15%	\$2,816,190	1.79%
Foreign Large Blend	Vanguard Total Intl Stock Index I	\$1,501,184	0.93%	\$1,968,499	1.25%
Foreign Large Growth	Oppenheimer International Growth I	\$544,502	0.34%	\$373,437	0.24%
Small Company Value	Victory Sycamore Small Company Opp I	\$1,518,633	0.94%	\$1,550,403	0.99%
Small Company Growth	Carillon Eagle Small Cap Growth R6	\$239,191	0.15%	\$244,205	0.16%
Emerging Markets	DFA Emerging Markets Core Equity I	\$2,072,874	1.28%	\$1,566,956	1.00%
Specialty-Private Real Estate	TIAA Real Estate Account	\$11,065,712	6.84%	\$10,567,548	6.73%
Other Assets	Non Approved Funds	\$20,305,370	12.55%	\$16,811,525	10.71%
Self-Directed Brokerage	Self Directed Accounts	\$2,155,163	1.33%	\$2,311,384	1.47%

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PLAN INVESTMENT REVIEW | ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System Retirement Tax Deferred Annuity Plan 403(b) TDA- 102966

		— MARKET VALUE —			
FUND OPTION	CURRENT INVESTMENT NAME	12.31.2017	(%)	CURRENT	(%)
Loan	Default Loan	-	-	\$64,204	0.04%
<b>TOTALS</b>		\$161,738,129	100%	\$156,926,838	100%

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PLAN INVESTMENT REVIEW | ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System Optional Retirement Savings 403(b) - 102967

— MARKET VALUE —

FUND OPTION	CURRENT INVESTMENT NAME	12.31.2017	(%)	CURRENT	(%)
Cash and Equivalents - Money Market	<b>CREF Money Market R3</b>	\$12,370	<b>0.84%</b>	\$10,011	<b>0.69%</b>
Cash and Equivalents - Money Market	<b>Vanguard Federal Money Market Investor</b>	\$0	<b>0.00%</b>	\$0	<b>0.00%</b>
Stable Value	<b>TIAA Traditional - Group Retirement Annuity</b>	\$615,697	<b>41.88%</b>	\$708,840	<b>48.69%</b>
Inflation Protected Bond	<b>CREF Inflation-Linked Bond R3</b>	\$17,389	<b>1.18%</b>	\$16,036	<b>1.10%</b>
Intermediate Term Bond	<b>PGIM Total Return Bond R6</b>	\$10,084	<b>0.69%</b>	\$10,372	<b>0.71%</b>
Intermediate Term Bond	<b>Vanguard Total Bond Market Index Adm</b>	\$339	<b>0.02%</b>	-	-
Intermediate Term Bond	<b>Vanguard Total Bond Market Index I</b>	-	-	\$129	<b>0.01%</b>
World Allocation	<b>CREF Social Choice R3</b>	\$37,626	<b>2.56%</b>	\$33,411	<b>2.29%</b>
Target Date Ret Income Moderate	<b>Vanguard Target Retirement Income Inv</b>	\$1,373	<b>0.09%</b>	\$270	<b>0.02%</b>
Target Date 2015 Moderate	<b>Vanguard Target Retirement 2015 Inv</b>	\$160	<b>0.01%</b>	\$155	<b>0.01%</b>
Target Date 2020 Moderate	<b>Vanguard Target Retirement 2020 Inv</b>	\$53,140	<b>3.61%</b>	\$50,294	<b>3.45%</b>
Target Date 2025 Moderate	<b>Vanguard Target Retirement 2025 Inv</b>	\$2,339	<b>0.16%</b>	\$2,218	<b>0.15%</b>
Target Date 2030 Moderate	<b>Vanguard Target Retirement 2030 Inv</b>	\$0	<b>0.00%</b>	\$0	<b>0.00%</b>
Target Date 2035 Moderate	<b>Vanguard Target Retirement 2035 Inv</b>	\$0	<b>0.00%</b>	\$0	<b>0.00%</b>
Target Date 2040 Moderate	<b>Vanguard Target Retirement 2040 Inv</b>	\$0	<b>0.00%</b>	\$0	<b>0.00%</b>
Target Date 2045 Moderate	<b>Vanguard Target Retirement 2045 Inv</b>	\$0	<b>0.00%</b>	\$0	<b>0.00%</b>
Target Date 2050 Moderate	<b>Vanguard Target Retirement 2050 Inv</b>	\$0	<b>0.00%</b>	\$0	<b>0.00%</b>
Target Date 2055 Moderate	<b>Vanguard Target Retirement 2055 Inv</b>	\$0	<b>0.00%</b>	\$0	<b>0.00%</b>

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PLAN INVESTMENT REVIEW | ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System Optional Retirement Savings 403(b) - 102967

		— MARKET VALUE —			
FUND OPTION	CURRENT INVESTMENT NAME	12.31.2017	(%)	CURRENT	(%)
Target Date 2060+ Moderate	Vanguard Target Retirement 2060 Inv	\$0	0.00%	\$0	0.00%
Target Date 2060+ Moderate	Vanguard Target Retirement 2065 Inv	\$0	0.00%	\$0	0.00%
Allocation--85%+ Equity	CREF Stock R3	\$241,018	16.40%	\$202,585	13.92%
Large Company Value	JHancock Disciplined Value R6	\$1,618	0.11%	\$1,643	0.11%
Large Company Blend	Vanguard Institutional Index I	\$14,114	0.96%	\$12,154	0.83%
Large Company Growth	Harbor Capital Appreciation Retirement	\$1,179	0.08%	\$1,306	0.09%
Medium Company Value	Virtus Ceredex Mid-Cap Value Equity R6	\$1,631	0.11%	\$653	0.04%
Medium Company Blend	Vanguard Extended Market Index Instl	\$2,439	0.17%	\$2,301	0.16%
Medium Company Growth	Goldman Sachs Growth Opportunities R6	\$48	0.00%	\$45	0.00%
Foreign Large Value	MFS International Value R6	\$3,328	0.23%	\$3,092	0.21%
Foreign Large Blend	Vanguard Total Intl Stock Index I	\$1,952	0.13%	\$2,712	0.19%
Foreign Large Growth	Oppenheimer International Growth I	\$865	0.06%	\$481	0.03%
Small Company Value	Victory Sycamore Small Company Opp I	\$1,405	0.10%	\$1,625	0.11%
Small Company Growth	Carillon Eagle Small Cap Growth R6	\$261	0.02%	\$225	0.02%
Emerging Markets	DFA Emerging Markets Core Equity I	\$1,782	0.12%	\$1,342	0.09%
Specialty-Private Real Estate	TIAA Real Estate Account	\$45,204	3.08%	\$44,719	3.07%
Other Assets	Non Approved Funds	\$402,667	27.39%	\$349,219	23.99%
Self-Directed Brokerage	Self Directed Accounts	\$0	0.00%	\$0	0.00%
<b>TOTALS</b>		<b>\$1,470,030</b>	<b>100%</b>	<b>\$1,455,840</b>	<b>100%</b>

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PLAN INVESTMENT REVIEW | ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System Optional Retirement Savings 401(a) - 102968

— MARKET VALUE —

FUND OPTION	CURRENT INVESTMENT NAME	12.31.2017	(%)	CURRENT	(%)
Cash and Equivalents - Money Market	<b>CREF Money Market R3</b>	\$8,054	<b>0.66%</b>	\$8,004	<b>0.72%</b>
Cash and Equivalents - Money Market	<b>Vanguard Federal Money Market Investor</b>	\$0	<b>0.00%</b>	\$0	<b>0.00%</b>
Stable Value	<b>TIAA Traditional - Group Retirement Annuity</b>	\$379,021	<b>31.10%</b>	\$343,012	<b>31.06%</b>
Inflation Protected Bond	<b>CREF Inflation-Linked Bond R3</b>	\$17,721	<b>1.45%</b>	\$17,093	<b>1.55%</b>
Intermediate Term Bond	<b>PGIM Total Return Bond R6</b>	\$17,554	<b>1.44%</b>	\$24,413	<b>2.21%</b>
Intermediate Term Bond	<b>Vanguard Total Bond Market Index Adm</b>	\$11,383	<b>0.93%</b>	-	-
Intermediate Term Bond	<b>Vanguard Total Bond Market Index I</b>	-	-	\$12,738	<b>1.15%</b>
World Allocation	<b>CREF Social Choice R3</b>	\$26,384	<b>2.17%</b>	\$23,450	<b>2.12%</b>
Target Date Ret Income Moderate	<b>Vanguard Target Retirement Income Inv</b>	\$911	<b>0.07%</b>	\$623	<b>0.06%</b>
Target Date 2015 Moderate	<b>Vanguard Target Retirement 2015 Inv</b>	\$0	<b>0.00%</b>	\$0	<b>0.00%</b>
Target Date 2020 Moderate	<b>Vanguard Target Retirement 2020 Inv</b>	\$43,013	<b>3.53%</b>	\$40,812	<b>3.70%</b>
Target Date 2025 Moderate	<b>Vanguard Target Retirement 2025 Inv</b>	\$487	<b>0.04%</b>	\$1,361	<b>0.12%</b>
Target Date 2030 Moderate	<b>Vanguard Target Retirement 2030 Inv</b>	\$947	<b>0.08%</b>	\$0	<b>0.00%</b>
Target Date 2035 Moderate	<b>Vanguard Target Retirement 2035 Inv</b>	\$0	<b>0.00%</b>	\$0	<b>0.00%</b>
Target Date 2040 Moderate	<b>Vanguard Target Retirement 2040 Inv</b>	\$0	<b>0.00%</b>	\$0	<b>0.00%</b>
Target Date 2045 Moderate	<b>Vanguard Target Retirement 2045 Inv</b>	\$0	<b>0.00%</b>	\$0	<b>0.00%</b>
Target Date 2050 Moderate	<b>Vanguard Target Retirement 2050 Inv</b>	\$0	<b>0.00%</b>	\$0	<b>0.00%</b>
Target Date 2055 Moderate	<b>Vanguard Target Retirement 2055 Inv</b>	\$0	<b>0.00%</b>	\$0	<b>0.00%</b>

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4.1

## PLAN INVESTMENT REVIEW | ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System Optional Retirement Savings 401(a) - 102968

		— MARKET VALUE —			
FUND OPTION	CURRENT INVESTMENT NAME	12.31.2017	(%)	CURRENT	(%)
Target Date 2060+ Moderate	Vanguard Target Retirement 2060 Inv	\$0	0.00%	\$0	0.00%
Target Date 2060+ Moderate	Vanguard Target Retirement 2065 Inv	\$0	0.00%	\$0	0.00%
Allocation--85%+ Equity	CREF Stock R3	\$149,370	12.26%	\$119,792	10.85%
Large Company Value	JHancock Disciplined Value R6	\$10,951	0.90%	\$7,768	0.70%
Large Company Blend	Vanguard Institutional Index I	\$6,948	0.57%	\$6,720	0.61%
Large Company Growth	Harbor Capital Appreciation Retirement	\$1,118	0.09%	\$1,077	0.10%
Medium Company Value	Virtus Ceredex Mid-Cap Value Equity R6	\$722	0.06%	\$551	0.05%
Medium Company Blend	Vanguard Extended Market Index Instl	\$607	0.05%	\$550	0.05%
Medium Company Growth	Goldman Sachs Growth Opportunities R6	\$21,918	1.80%	\$18,314	1.66%
Foreign Large Value	MFS International Value R6	\$19,488	1.60%	\$16,797	1.52%
Foreign Large Blend	Vanguard Total Intl Stock Index I	\$584	0.05%	\$640	0.06%
Foreign Large Growth	Oppenheimer International Growth I	\$323	0.03%	\$200	0.02%
Small Company Value	Victory Sycamore Small Company Opp I	\$333	0.03%	\$366	0.03%
Small Company Growth	Carillon Eagle Small Cap Growth R6	\$473	0.04%	\$408	0.04%
Emerging Markets	DFA Emerging Markets Core Equity I	\$21,241	1.74%	\$15,693	1.42%
Specialty-Private Real Estate	TIAA Real Estate Account	\$56,858	4.67%	\$56,699	5.13%
Other Assets	Non Approved Funds	\$283,149	23.23%	\$249,934	22.63%
Self-Directed Brokerage	Self Directed Accounts	\$139,084	11.41%	\$137,233	12.43%
<b>TOTALS</b>		<b>\$1,218,640</b>	<b>100%</b>	<b>\$1,104,249</b>	<b>100%</b>

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4.1



## PLAN INVESTMENT REVIEW | ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System Basic Retirement Plan for Classified Employees 403(b) - 102969

FUND OPTION	CURRENT INVESTMENT NAME	— MARKET VALUE —			
		12.31.2017	(%)	CURRENT	(%)
Cash and Equivalents - Money Market	<b>CREF Money Market R3</b>	\$431,803	<b>1.18%</b>	\$1,371,931	<b>3.91%</b>
Cash and Equivalents - Money Market	<b>Vanguard Federal Money Market Investor</b>	\$47,383	<b>0.13%</b>	\$19,321	<b>0.06%</b>
Stable Value	<b>TIAA Traditional - Group Retirement Annuity</b>	\$6,314,386	<b>17.23%</b>	\$6,550,622	<b>18.65%</b>
Inflation Protected Bond	<b>CREF Inflation-Linked Bond R3</b>	\$484,117	<b>1.32%</b>	\$518,912	<b>1.48%</b>
Intermediate Term Bond	<b>PGIM Total Return Bond R6</b>	\$619,270	<b>1.69%</b>	\$851,848	<b>2.43%</b>
Intermediate Term Bond	<b>Vanguard Total Bond Market Index Adm</b>	\$127,295	<b>0.35%</b>	-	-
Intermediate Term Bond	<b>Vanguard Total Bond Market Index I</b>	-	-	\$115,399	<b>0.33%</b>
World Allocation	<b>CREF Social Choice R3</b>	\$1,064,178	<b>2.90%</b>	\$910,818	<b>2.59%</b>
Target Date Ret Income Moderate	<b>Vanguard Target Retirement Income Inv</b>	\$522,092	<b>1.42%</b>	\$400,402	<b>1.14%</b>
Target Date 2015 Moderate	<b>Vanguard Target Retirement 2015 Inv</b>	\$553,650	<b>1.51%</b>	\$370,253	<b>1.05%</b>
Target Date 2020 Moderate	<b>Vanguard Target Retirement 2020 Inv</b>	\$1,202,160	<b>3.28%</b>	\$1,428,448	<b>4.07%</b>
Target Date 2025 Moderate	<b>Vanguard Target Retirement 2025 Inv</b>	\$1,460,601	<b>3.99%</b>	\$1,435,893	<b>4.09%</b>
Target Date 2030 Moderate	<b>Vanguard Target Retirement 2030 Inv</b>	\$599,958	<b>1.64%</b>	\$695,804	<b>1.98%</b>
Target Date 2035 Moderate	<b>Vanguard Target Retirement 2035 Inv</b>	\$533,790	<b>1.46%</b>	\$461,102	<b>1.31%</b>
Target Date 2040 Moderate	<b>Vanguard Target Retirement 2040 Inv</b>	\$492,684	<b>1.34%</b>	\$527,090	<b>1.50%</b>
Target Date 2045 Moderate	<b>Vanguard Target Retirement 2045 Inv</b>	\$344,417	<b>0.94%</b>	\$378,277	<b>1.08%</b>
Target Date 2050 Moderate	<b>Vanguard Target Retirement 2050 Inv</b>	\$146,145	<b>0.40%</b>	\$159,959	<b>0.46%</b>
Target Date 2055 Moderate	<b>Vanguard Target Retirement 2055 Inv</b>	\$156,473	<b>0.43%</b>	\$187,988	<b>0.54%</b>

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4.1

## PLAN INVESTMENT REVIEW | ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System Basic Retirement Plan for Classified Employees 403(b) - 102969

		— MARKET VALUE —			
FUND OPTION	CURRENT INVESTMENT NAME	12.31.2017	(%)	CURRENT	(%)
Target Date 2060+ Moderate	Vanguard Target Retirement 2060 Inv	\$29,069	0.08%	\$49,443	0.14%
Target Date 2060+ Moderate	Vanguard Target Retirement 2065 Inv	\$0	0.00%	\$1,769	0.01%
Allocation--85%+ Equity	CREF Stock R3	\$3,607,550	9.84%	\$3,053,369	8.69%
Large Company Value	JHancock Disciplined Value R6	\$830,159	2.27%	\$703,713	2.00%
Large Company Blend	Vanguard Institutional Index I	\$986,139	2.69%	\$989,242	2.82%
Large Company Growth	Harbor Capital Appreciation Retirement	\$643,998	1.76%	\$447,951	1.28%
Medium Company Value	Virtus Ceredex Mid-Cap Value Equity R6	\$514,046	1.40%	\$314,378	0.90%
Medium Company Blend	Vanguard Extended Market Index Instl	\$473,869	1.29%	\$436,113	1.24%
Medium Company Growth	Goldman Sachs Growth Opportunities R6	\$306,344	0.84%	\$246,048	0.70%
Foreign Large Value	MFS International Value R6	\$962,912	2.63%	\$846,757	2.41%
Foreign Large Blend	Vanguard Total Intl Stock Index I	\$430,086	1.17%	\$470,116	1.34%
Foreign Large Growth	Oppenheimer International Growth I	\$105,558	0.29%	\$72,983	0.21%
Small Company Value	Victory Sycamore Small Company Opp I	\$406,457	1.11%	\$213,626	0.61%
Small Company Growth	Carillon Eagle Small Cap Growth R6	\$189,283	0.52%	\$162,294	0.46%
Emerging Markets	DFA Emerging Markets Core Equity I	\$902,556	2.46%	\$597,850	1.70%
Specialty-Private Real Estate	TIAA Real Estate Account	\$2,020,549	5.51%	\$2,054,078	5.85%
Other Assets	Non Approved Funds	\$6,413,795	17.50%	\$5,424,116	15.44%
Self-Directed Brokerage	Self Directed Accounts	\$2,726,671	7.44%	\$2,656,996	7.56%
<b>TOTALS</b>		<b>\$36,649,444</b>	<b>100%</b>	<b>\$35,124,910</b>	<b>100%</b>

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4.1

## PLAN INVESTMENT REVIEW | ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System Basic Retirement Plan for Classified Employees 401(a) - 102970

		— MARKET VALUE —			
FUND OPTION	CURRENT INVESTMENT NAME	12.31.2017	(%)	CURRENT	(%)
Cash and Equivalents - Money Market	<b>CREF Money Market R3</b>	\$1,131,460	<b>1.63%</b>	\$2,164,846	<b>3.23%</b>
Cash and Equivalents - Money Market	<b>Vanguard Federal Money Market Investor</b>	\$95,429	<b>0.14%</b>	\$103,838	<b>0.15%</b>
Stable Value	<b>TIAA Traditional - Group Retirement Annuity</b>	\$14,288,311	<b>20.64%</b>	\$14,737,647	<b>22.00%</b>
Inflation Protected Bond	<b>CREF Inflation-Linked Bond R3</b>	\$968,323	<b>1.40%</b>	\$1,059,929	<b>1.58%</b>
Intermediate Term Bond	<b>PGIM Total Return Bond R6</b>	\$1,078,551	<b>1.56%</b>	\$1,497,133	<b>2.23%</b>
Intermediate Term Bond	<b>Vanguard Total Bond Market Index Adm</b>	\$238,818	<b>0.34%</b>	-	-
Intermediate Term Bond	<b>Vanguard Total Bond Market Index I</b>	-	-	\$246,046	<b>0.37%</b>
World Allocation	<b>CREF Social Choice R3</b>	\$2,850,961	<b>4.12%</b>	\$2,555,632	<b>3.81%</b>
Target Date Ret Income Moderate	<b>Vanguard Target Retirement Income Inv</b>	\$894,108	<b>1.29%</b>	\$782,154	<b>1.17%</b>
Target Date 2015 Moderate	<b>Vanguard Target Retirement 2015 Inv</b>	\$946,725	<b>1.37%</b>	\$795,796	<b>1.19%</b>
Target Date 2020 Moderate	<b>Vanguard Target Retirement 2020 Inv</b>	\$1,915,567	<b>2.77%</b>	\$1,971,028	<b>2.94%</b>
Target Date 2025 Moderate	<b>Vanguard Target Retirement 2025 Inv</b>	\$1,961,821	<b>2.83%</b>	\$2,201,354	<b>3.29%</b>
Target Date 2030 Moderate	<b>Vanguard Target Retirement 2030 Inv</b>	\$1,045,411	<b>1.51%</b>	\$1,137,658	<b>1.70%</b>
Target Date 2035 Moderate	<b>Vanguard Target Retirement 2035 Inv</b>	\$879,719	<b>1.27%</b>	\$929,292	<b>1.39%</b>
Target Date 2040 Moderate	<b>Vanguard Target Retirement 2040 Inv</b>	\$745,198	<b>1.08%</b>	\$809,531	<b>1.21%</b>
Target Date 2045 Moderate	<b>Vanguard Target Retirement 2045 Inv</b>	\$524,036	<b>0.76%</b>	\$613,813	<b>0.92%</b>
Target Date 2050 Moderate	<b>Vanguard Target Retirement 2050 Inv</b>	\$259,364	<b>0.37%</b>	\$290,146	<b>0.43%</b>
Target Date 2055 Moderate	<b>Vanguard Target Retirement 2055 Inv</b>	\$143,155	<b>0.21%</b>	\$173,984	<b>0.26%</b>

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4.1

## PLAN INVESTMENT REVIEW | ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System Basic Retirement Plan for Classified Employees 401(a) - 102970

FUND OPTION	CURRENT INVESTMENT NAME	— MARKET VALUE —			
		12.31.2017	(%)	CURRENT	(%)
Target Date 2060+ Moderate	Vanguard Target Retirement 2060 Inv	\$28,998	0.04%	\$45,984	0.07%
Target Date 2060+ Moderate	Vanguard Target Retirement 2065 Inv	\$0	0.00%	\$1,769	0.00%
Allocation--85%+ Equity	CREF Stock R3	\$9,179,601	13.26%	\$7,778,316	11.61%
Large Company Value	JHancock Disciplined Value R6	\$1,198,822	1.73%	\$1,025,700	1.53%
Large Company Blend	Vanguard Institutional Index I	\$1,624,846	2.35%	\$1,719,143	2.57%
Large Company Growth	Harbor Capital Appreciation Retirement	\$1,093,668	1.58%	\$1,027,266	1.53%
Medium Company Value	Virtus Ceredex Mid-Cap Value Equity R6	\$683,696	0.99%	\$439,521	0.66%
Medium Company Blend	Vanguard Extended Market Index Instl	\$724,862	1.05%	\$736,299	1.10%
Medium Company Growth	Goldman Sachs Growth Opportunities R6	\$428,766	0.62%	\$412,042	0.61%
Foreign Large Value	MFS International Value R6	\$1,555,197	2.25%	\$1,517,269	2.26%
Foreign Large Blend	Vanguard Total Intl Stock Index I	\$542,316	0.78%	\$728,621	1.09%
Foreign Large Growth	Oppenheimer International Growth I	\$160,570	0.23%	\$104,291	0.16%
Small Company Value	Victory Sycamore Small Company Opp I	\$546,281	0.79%	\$340,374	0.51%
Small Company Growth	Carillon Eagle Small Cap Growth R6	\$194,206	0.28%	\$198,893	0.30%
Emerging Markets	DFA Emerging Markets Core Equity I	\$1,169,774	1.69%	\$924,399	1.38%
Specialty-Private Real Estate	TIAA Real Estate Account	\$3,553,456	5.13%	\$3,628,969	5.42%
Other Assets	Non Approved Funds	\$14,368,429	20.75%	\$12,177,225	18.18%
Self-Directed Brokerage	Self Directed Accounts	\$2,219,020	3.20%	\$2,123,109	3.17%
<b>TOTALS</b>		\$69,239,464	100%	\$66,999,016	100%

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4.1

## PLAN INVESTMENT REVIEW | ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System Deferred Compensation Plan 457(b) - 102971

		— MARKET VALUE —			
FUND OPTION	CURRENT INVESTMENT NAME	12.31.2017	(%)	CURRENT	(%)
Cash and Equivalents - Money Market	<b>CREF Money Market R3</b>	\$568,491	<b>1.91%</b>	\$1,205,273	<b>4.00%</b>
Cash and Equivalents - Money Market	<b>Vanguard Federal Money Market Investor</b>	\$35,912	<b>0.12%</b>	\$76,407	<b>0.25%</b>
Stable Value	<b>TIAA Traditional - Group Retirement Annuity</b>	\$7,133,436	<b>23.96%</b>	\$7,899,472	<b>26.22%</b>
Inflation Protected Bond	<b>CREF Inflation-Linked Bond R3</b>	\$528,055	<b>1.77%</b>	\$557,696	<b>1.85%</b>
Intermediate Term Bond	<b>PGIM Total Return Bond R6</b>	\$919,646	<b>3.09%</b>	\$1,102,632	<b>3.66%</b>
Intermediate Term Bond	<b>Vanguard Total Bond Market Index Adm</b>	\$183,568	<b>0.62%</b>	-	-
Intermediate Term Bond	<b>Vanguard Total Bond Market Index I</b>	-	-	\$155,447	<b>0.52%</b>
World Allocation	<b>CREF Social Choice R3</b>	\$1,389,989	<b>4.67%</b>	\$1,359,775	<b>4.51%</b>
Target Date Ret Income Moderate	<b>Vanguard Target Retirement Income Inv</b>	\$483,934	<b>1.63%</b>	\$449,876	<b>1.49%</b>
Target Date 2015 Moderate	<b>Vanguard Target Retirement 2015 Inv</b>	\$511,514	<b>1.72%</b>	\$506,383	<b>1.68%</b>
Target Date 2020 Moderate	<b>Vanguard Target Retirement 2020 Inv</b>	\$866,151	<b>2.91%</b>	\$878,160	<b>2.91%</b>
Target Date 2025 Moderate	<b>Vanguard Target Retirement 2025 Inv</b>	\$968,607	<b>3.25%</b>	\$971,820	<b>3.23%</b>
Target Date 2030 Moderate	<b>Vanguard Target Retirement 2030 Inv</b>	\$588,562	<b>1.98%</b>	\$548,525	<b>1.82%</b>
Target Date 2035 Moderate	<b>Vanguard Target Retirement 2035 Inv</b>	\$242,119	<b>0.81%</b>	\$367,559	<b>1.22%</b>
Target Date 2040 Moderate	<b>Vanguard Target Retirement 2040 Inv</b>	\$256,932	<b>0.86%</b>	\$314,980	<b>1.05%</b>
Target Date 2045 Moderate	<b>Vanguard Target Retirement 2045 Inv</b>	\$137,767	<b>0.46%</b>	\$157,570	<b>0.52%</b>
Target Date 2050 Moderate	<b>Vanguard Target Retirement 2050 Inv</b>	\$36,617	<b>0.12%</b>	\$37,154	<b>0.12%</b>
Target Date 2055 Moderate	<b>Vanguard Target Retirement 2055 Inv</b>	\$0	<b>0.00%</b>	\$288	<b>0.00%</b>

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4.1

## PLAN INVESTMENT REVIEW | ASSET SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System Deferred Compensation Plan 457(b) - 102971

		— MARKET VALUE —			
FUND OPTION	CURRENT INVESTMENT NAME	12.31.2017	(%)	CURRENT	(%)
Target Date 2060+ Moderate	Vanguard Target Retirement 2060 Inv	\$0	0.00%	\$0	0.00%
Target Date 2060+ Moderate	Vanguard Target Retirement 2065 Inv	\$0	0.00%	\$0	0.00%
Allocation--85%+ Equity	CREF Stock R3	\$1,975,792	6.64%	\$1,778,279	5.90%
Large Company Value	JHancock Disciplined Value R6	\$737,600	2.48%	\$606,838	2.01%
Large Company Blend	Vanguard Institutional Index I	\$1,322,232	4.44%	\$1,500,515	4.98%
Large Company Growth	Harbor Capital Appreciation Retirement	\$619,078	2.08%	\$403,685	1.34%
Medium Company Value	Virtus Ceredex Mid-Cap Value Equity R6	\$389,160	1.31%	\$282,698	0.94%
Medium Company Blend	Vanguard Extended Market Index Instl	\$715,468	2.40%	\$671,538	2.23%
Medium Company Growth	Goldman Sachs Growth Opportunities R6	\$158,848	0.53%	\$149,980	0.50%
Foreign Large Value	MFS International Value R6	\$704,999	2.37%	\$604,312	2.01%
Foreign Large Blend	Vanguard Total Intl Stock Index I	\$448,106	1.50%	\$446,512	1.48%
Foreign Large Growth	Oppenheimer International Growth I	\$145,454	0.49%	\$98,030	0.33%
Small Company Value	Victory Sycamore Small Company Opp I	\$348,544	1.17%	\$246,682	0.82%
Small Company Growth	Carillon Eagle Small Cap Growth R6	\$154,110	0.52%	\$124,423	0.41%
Emerging Markets	DFA Emerging Markets Core Equity I	\$720,796	2.42%	\$500,334	1.66%
Specialty-Private Real Estate	TIAA Real Estate Account	\$1,940,793	6.52%	\$2,076,757	6.89%
Other Assets	Non Approved Funds	\$3,557,299	11.95%	\$3,116,681	10.34%
Self-Directed Brokerage	Self Directed Accounts	\$988,434	3.32%	\$932,610	3.10%
<b>TOTALS</b>		<b>\$29,778,011</b>	<b>100%</b>	<b>\$30,128,891</b>	<b>100%</b>

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INVESTMENT REVIEW | INVESTMENT POLICY MONITOR

Period Ending 12.31.18 | Q4 18

University of Maine System

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INVESTMENT	QUANTITATIVE								QUALITATIVE		TOTALS	
	Risk-Adjusted Performance		vs. Peers Performance		Style		Confidence		Fund Management	Fund Firm	Overall	Total Score
	3 Yr	5 Yr	3 Yr	5 Yr	3 Yr	5 Yr	3 Yr	5 Yr				
Inflation Protected Bond CREF Inflation-Linked Bond R3	●	●	●	●	●	●	●	●	●	●	●	93
Intermediate Term Bond PGIM Total Return Bond R6	●	●	●	●	●	●	●	●	●	●	●	100
World Allocation CREF Social Choice R3	●	●	●	●	●	●	●	●	●	●	●	100
Large Company Value JHancock Disciplined Value R6	●	▼	●	●	●	●	●	●	●	●	●	88
Large Company Growth Harbor Capital Appreciation Retirement	●	●	●	●	●	●	●	●	●	●	●	96
Medium Company Value Virtus Ceredex Mid-Cap Value Equity R6	●	●	●	●	●	●	●	●	●	●	●	100
Medium Company Growth Goldman Sachs Growth Opportunities R6	●	▼	▼	▼	●	●	▼	▼	▼	●	▼	70
Foreign Large Value MFS International Value R6	●	●	●	●	▼	▼	●	●	●	▼	●	96

LEGEND

●	IN GOOD STANDING	▼	MARKED FOR REVIEW	●	CONSIDER FOR TERMINATION
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CONTINUED...

The CAPTRUST Investment Policy Monitor ("Scorecard") is an illustration of our monitoring system and is designed to assist our clients in their efforts to provide fiduciary oversight to investment assets. It is not intended as a solicitation to buy any security. The scoring system measures quantitative areas as well as qualitative (or subjective) fields for actively managed investment options. Quantitative scoring areas include Risk Adjusted Performance (3 & 5 yr.); Performance vs. Relevant Peer Group; Style Attribution; and Confidence. Qualitative Scoring Areas measure the quality of the Management Team while also considering the stewardship of the investment option's parent company under Investment Family Items. Qualitative areas of analysis are subjective in nature. CAPTRUST typically requires at least 3 months of monitoring before including an investment in this report. Investments that have been added to our system less than 3 months prior to a report being generated may have a Fund Management assessment of '25' as a default, but will be updated, if necessary, after the first quarter of monitoring to more accurately reflect our system. Investments that are not mutual funds or have less than 3 years of performance history may not be scored. This material is for institutional investor use only and is not intended to be shared with individual investors.

INVESTMENT REVIEW | INVESTMENT POLICY MONITOR

Period Ending 12.31.18 | Q4 18

University of Maine System

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INVESTMENT	QUANTITATIVE								QUALITATIVE		TOTALS	
	Risk-Adjusted Performance		vs. Peers Performance		Style		Confidence		Fund Management	Fund Firm	Overall	Total Score
	3 Yr	5 Yr	3 Yr	5 Yr	3 Yr	5 Yr	3 Yr	5 Yr				
Foreign Large Growth Oppenheimer International Growth I	▼	▼	▼	▼	●	●	▼	▼	●	▼	●	58
Small Company Value Victory Sycamore Small Company Opp I	●	●	●	●	●	●	●	●	●	●	●	100
Small Company Growth Carillon Eagle Small Cap Growth R6	▼	▼	▼	▼	●	●	▼	▼	●	●	▼	78
Emerging Markets DFA Emerging Markets Core Equity I	●	●	●	●	●	●	●	●	●	▼	●	97

LEGEND

●	IN GOOD STANDING	▼	MARKED FOR REVIEW	●	CONSIDER FOR TERMINATION
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INVESTMENT REVIEW | INVESTMENT POLICY MONITOR

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TARGET DATE INVESTMENTS

INVESTMENT	QUANTITATIVE						QUALITATIVE				TOTALS	
	Risk-Adjusted Performance		vs. Peers Performance		Glidepath		Portfolio Construct.	Underlying Inv. Vehicles	Fund Mgmt	Fund Firm	Overall	Total Score
	3 Yr	5 Yr	3 Yr	5 Yr	% of Equities	Beta to Equities						
Vanguard Target Retirement	●	●	●	●	●	●	●	●	●	▼	●	96

CAPITAL PRESERVATION INVESTMENTS

INVESTMENT	Overall	Commentary
CREF Money Market R3	●	This Capital Preservation option is in good standing per the guidelines as established by the Investment Policy Statement
Vanguard Federal Money Market Investor	●	This Capital Preservation option is in good standing per the guidelines as established by the Investment Policy Statement
TIAA Traditional - Group Retirement Annuity	●	This Capital Preservation option is in good standing per the guidelines as established by the Investment Policy Statement.

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The CAPTRUST Financial Advisors Investment Scorecard is an illustration of our monitoring system and is designed to assist our clients in their efforts to provide fiduciary oversight to investment assets. It is not intended as a solicitation to buy any security. The scoring system measures quantitative areas as well as qualitative (or subjective) fields. Quantitative scoring areas for target date funds include Risk Adjusted Performance (3 & 5 yr.); Performance vs. Relevant Peer Group; and Glidepath. Qualitative Scoring Areas for target date funds measure the quality of the Management Team while also considering the stewardship of the investment option's parent company under Investment Family Items. Qualitative areas of analysis are subjective in nature. Qualitative Scoring for Target Date funds also includes a score for Portfolio Construction and Underlying Investment vehicles to express CAPTRUST's views on the manager or strategy. CAPTRUST typically requires at least 3 months of monitoring before including an investment in this report. Investments that have been added to our system less than 3 months prior to a report being generated may have a Fund Management assessment of '25' as a default, but will be updated, if necessary, after the first quarter of monitoring to more accurately reflect our system. Investments that are not mutual funds or have less than 3 years of performance history may not be scored. Capital Preservation options are evaluated using a comprehensive scoring methodology proprietary to the Investment Consultant. This methodology incorporates both qualitative and quantitative metrics, depending on the type of capital preservation option being evaluated, and may include quantitative criteria such as: Crediting Rate/Yield, Market to Book Ratio, Average Crediting Quality, Insurer Quality/Diversification, Duration, and Sector Allocations, and/or qualitative criteria such as quality and experience of the Management Team and stewardship of the investment option's parent company. Passively Managed options are evaluated using a comprehensive scoring methodology proprietary to the Investment Consultant. This methodology incorporates both qualitative and quantitative metrics and may include quantitative criteria such as: Tracking Error, Fees, and Performance versus relevant peer group, and/or qualitative criteria such as index replication strategy, securities lending practices, and fair value pricing methodology. Distinct investment options are evaluated using a comprehensive scoring methodology proprietary to the Investment Consultant. This methodology incorporates both qualitative and quantitative metrics. This material is for institutional investor use only and is not intended to be shared with individual investors.

INVESTMENT REVIEW | INVESTMENT POLICY MONITOR

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4.1

PASSIVE INVESTMENTS

INVESTMENT	Overall	Commentary
Vanguard Total Bond Market Index Adm	●	This fund currently meets the guidelines set forth by CAPTRUST for passively managed investments. This assessment is based on both quantitative and qualitative data. Examples of quantitative and qualitative items considered include, but are not limited to, quality of management, tracking error, and cost.
Vanguard Total Bond Market Index I	●	This fund currently meets the guidelines set forth by CAPTRUST for passively managed investments. This assessment is based on both quantitative and qualitative data. Examples of quantitative and qualitative items considered include, but are not limited to, quality of management, tracking error, and cost.
Vanguard Institutional Index I	●	This fund currently meets the guidelines set forth by CAPTRUST for passively managed investments. This assessment is based on both quantitative and qualitative data. Examples of quantitative and qualitative items considered include, but are not limited to, quality of management, tracking error, and cost.
Vanguard Extended Market Index Instl	●	This fund currently meets the guidelines set forth by CAPTRUST for passively managed investments. This assessment is based on both quantitative and qualitative data. Examples of quantitative and qualitative items considered include, but are not limited to, quality of management, tracking error, and cost.
Vanguard Total Intl Stock Index I	●	This fund currently meets the guidelines set forth by CAPTRUST for passively managed investments. This assessment is based on both quantitative and qualitative data. Examples of quantitative and qualitative items considered include, but are not limited to, quality of management, tracking error, and cost.

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INVESTMENT REVIEW | INVESTMENT POLICY MONITOR

Period Ending 12.31.18 | Q4 18

University of Maine System

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INVESTMENTS IN DISTINCT ASSET CLASSES

INVESTMENT	Overall	Commentary
CREF Stock R3		This fund currently meets the guidelines set forth by CAPTRUST for distinct investments in the Investment Policy Statement. This assessment is based on both quantitative and qualitative data. Examples of quantitative and qualitative items considered include, but are not limited to, quality of management, excess return, and risk-adjusted performance.
TIAA Real Estate Account		This fund currently meets the guidelines set forth by CAPTRUST for distinct investments in the Investment Policy Statement. This assessment is based on both quantitative and qualitative data. Examples of quantitative and qualitative items considered include, but are not limited to, quality of management, excess return, and risk-adjusted performance.

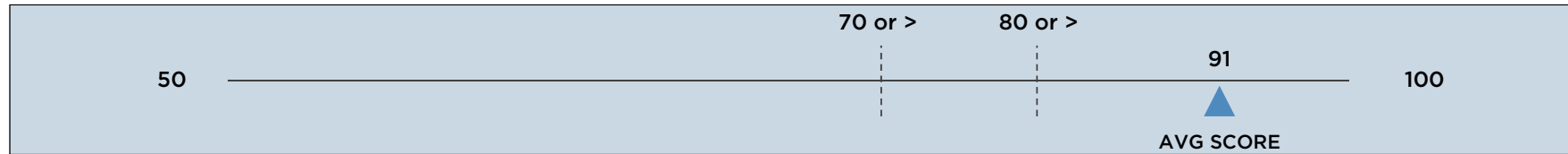
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PLAN INVESTMENT REVIEW | PLAN PERFORMANCE MEASUREMENT

Period Ending 12.31.18 | Q4 18

University of Maine System

Plan Performance Success Rate: Average score of plan investments illustrated below



INVESTMENT NAME	Q1 16	Q2 16	Q3 16	Q4 16	Q1 17	Q2 17	Q3 17	Q4 17	Q1 18	Q2 18	Q3 18	Q4 18	AVERAGE
CREF Inflation-Linked Bond R3	93	89	80	89	87	88	91	88	86	93	91	93	89
PGIM Total Return Bond R6	97	98	99	100	100	100	100	100	100	100	100	100	99
CREF Social Choice R3	100	100	100	99	99	100	100	100	100	100	100	100	99
Vanguard Target Retirement	96	96	91	96	98	96	95	95	95	95	96	96	95
JHancock Disciplined Value R6	-	-	-	90	83	93	89	93	95	86	88	88	89
Harbor Capital Appreciation Retirement	-	-	-	86	90	93	96	98	98	99	95	96	94
Virtus Ceredex Mid-Cap Value Equity R6	-	-	-	96	99	94	87	79	91	98	98	100	93
Goldman Sachs Growth Opportunities R6	-	-	-	76	73	70	67	63	76	61	69	70	69
MFS International Value R6	100	100	100	99	99	97	97	96	97	96	95	96	97
Oppenheimer International Growth I	-	-	-	94	90	90	91	86	90	78	59	58	81
Victory Sycamore Small Company Opp I	99	99	100	100	100	100	99	100	100	99	99	100	99
Carillon Eagle Small Cap Growth R6	91	91	82	85	94	92	89	86	88	86	88	78	87
DFA Emerging Markets Core Equity I	91	92	92	92	95	90	88	90	90	89	91	97	91

CONTINUED...

**SUMMARY:** Over the previous quarters the plan investment options have averaged a score of 91.

Scores are calculated quarterly using the CAPTRUST Investment Policy Monitoring System (“Scorecard”). In the 4Q2013, our methodology changed utilizing different quantitative statistics than the prior system resulting in a re-categorization of some specific funds as either “passive” (funds designed to track a given benchmark) or “distinct” funds with a limited number of comparable funds, or funds with distinct strategies that do not have an appropriate benchmark. These funds (passive and/or distinct) will no longer be included in the Plan Performance Measurement Report but will continue to be included on the Investment Policy Monitor and be scored by CAPTRUST for their ability to achieve stated goals.

4.1

## INVESTMENT REVIEW | SELECT COMMENTARY

Period Ending 12.31.18 | Q4 18

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FUND MANAGEMENT ITEMS	COMMENTARY
Goldman Sachs Growth Opp	Ashley Woodruff, managing director and portfolio manager on the U.S. Equity team within GSAM Fundamental Equity, is leaving Goldman Sachs to pursue another opportunity. Ms. Woodruff has been a portfolio manager for the Mid Cap Growth strategy alongside Steven Barry since 2014. Mr. Barry is now the sole manager of the strategy.
Harbor Capital App	Blair Boyer has been named co-head of Large Cap Growth Equity alongside Kathleen McCarragher. Mr. Boyer has been with Jennison since 1993 and a Large Cap Growth portfolio manager since 2003.
John Hancock Disciplined Value	Analysts Stephanie McGirr and David Cohen have been promoted to portfolio managers of the Boston Partners Large Cap Value strategy, including the John Hancock Disciplined Value Fund. These promotions do not affect the roles of current Portfolio Managers Mark Donovan and David Pyle, but reflect Boston Partners' long-term succession planning. Mr. Cohen's analyst responsibilities have been assumed by Aaron DeCoste, while Boston Partners anticipates transitioning Ms. McGirr's coverage at a later date.
MFS International Value	Benjamin Stone and Pablo de la Mata relinquished their portfolio management responsibilities on the MFS Global Value strategy and the equity portion of the Global Total Return and Global Tactical Allocation strategies. However, they continue to manage the International Value and European Value strategies. Upon their departure, the Global Value management team will be comprised of Vipin Narula, Steve Gorham and Nevin Chitkara.
Oppenheimer Intl Growth	The strategy's recent performance pattern is concerning, as it lagged the peer group in the growth-led 2017 rally and the 2018 sell-off. Given its conservative approach, the strategy typically holds up well in market sell-offs but did not provide downside protection in 2018. Unlike some of its peers, the strategy's emerging market exposure was not the main detractor in 2018 as it is underweight vs. the benchmark. Stocks with near-term earnings momentum outperformed in 2018, as the market is willing to pay high valuations for growth. This has been a headwind for the strategy as it is more valuation conscious than some of its peers and thus has less exposure to these stocks. While the strategy's low turnover and focus on secular growth themes has paid off over the long-term, it can cause the portfolio to be out of step with the market at times. For example, some equity managers reduced their exposure to semiconductor stocks in 2018 but the Oppenheimer team maintained conviction in this theme. We believe the strategy merits further consideration.

INVESTMENT REVIEW | SELECT COMMENTARY

Period Ending 12.31.18 | Q4 18

University of Maine System

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FUND MANAGEMENT ITEMS	COMMENTARY
Prudential Total Return Bond	Portfolio Manager, Rajat Shah, left the firm. His responsibilities have been assumed by the rest of the portfolio management team.
FUND FIRM ITEMS	COMMENTARY
Goldman Sachs Asset Management	Sean Gallagher, co-chief investment officer of the US Equity team, has retired. Steven Barry will continue to serve as chief investment officer of the US Equity team and also remains the chief investment officer of the Fundamental Equity team.
Victory Capital Management	<p>Victory Capital Holdings, the parent of Victory Capital, held an initial public offering of its common stock. The current ownership structure is: Victory employees 29%; Crestview Partners 45%; Reverence Capital Partners 12%; and public 14%.</p> <p>Victory Capital announced its acquisition of Harvest Volatility Management, a \$12 billion asset manager that specializes in derivatives-based strategies. The transaction is expected to close in the first quarter of 2019.</p> <p>Victory also announced its acquisition of USAA Asset Management, with the deal expected to close in April 2019. USAA will become Victory's 11th investment franchise and will continue to operate under the USAA brand. No changes to USAA's or Victory's investment teams are expected at this time.</p>
OppenheimerFunds	OppenheimerFunds is expected to be acquired by Invesco in the second quarter of 2019, pursuant to an agreement reached with OppenheimerFunds' parent company MassMutual.

## INVESTMENT REVIEW | SELECT COMMENTARY

Period Ending 12.31.18 | Q4 18

University of Maine System

4.1

FUND FIRM ITEMS	COMMENTARY
MFS Family of Funds	<p>Effective January 1, 2019, MFS appointed Edward Maloney as their next chief investment officer (CIO). As part of succession planning, Mr. Maloney will take on CIO responsibilities from Michael Roberge, who currently serves as CEO and CIO. Mr. Maloney, who has been with MFS since 2005, will report to Mr. Roberge going forward.</p> <p>James Swanson, MFS chief investment strategist and portfolio manager, retired from MFS on December 31, 2018. Effective January 1, 2019, Robert Almeida, currently an institutional portfolio manager, will become the firm's global investment strategist.</p> <p>In August 2018, MFS entered into a settlement with the SEC related to disclosures in certain marketing materials concerning MFS' Blended Research products. The settlement pertained specifically to a conceptual chart that presented the performance of hypothetical buckets of stock created using quantitative inputs and fundamental inputs. The SEC found that MFS failed to disclose and/or misrepresented the fact that some of the quantitative data used to create the chart was generated by back-testing MFS's quantitative model. In resolving the matter, MFS paid a penalty of \$1.9 million and was censured.</p>
Vanguard Group, Inc.	<p>Joseph Brennan has been appointed to a newly created position of global chief risk officer, reporting to CEO Tim Buckley. He will be succeeded by Rodney Comegys as head of Vanguard's Equity Index Group.</p>
Dimensional Fund Advisors	<p>Sam Gilliland, senior advisor and chief operating officer, left the firm to become CEO for a private firm outside of the financial services industry.</p>
Harbor Funds	<p>Kristof Gleich has been named president of Harbor Capital. Mr. Gleich will report to the firm's CEO Charles McCain, who had previously held the role of President. Mr. McCain will continue to serve as CEO.</p>

PLAN INVESTMENT REVIEW | TARGET DATE REVIEW

Period Ending 12.31.18 | Q4 18

University of Maine System

4.1

**VANGUARD TARGET RETIREMENT**

**MEETING DATE: JANUARY 24, 2019**

**FOCUS AREA**

**Organizational**  
**COMMENTARY**  
 There were no material changes to the target date team during the quarter.

**Investments**  
**COMMENTARY**  
 There were no changes made to the underlying investments of the Target Retirement series during the quarter.

**Performance and Positioning**  
**COMMENTARY**  
**Vanguard Target Retirement Performance Update**  
 Vanguard Target Retirement continued on its solid trajectory from the third quarter and mostly outperformed peers in the fourth quarter, finishing the year with each vintage in the top half of its peer group.

- After being a drag on performance in the first half of the year, the series's larger allocations to non-U.S. developed and emerging markets equities helped performance in the fourth quarter as U.S. markets sold off more than the rest of the world
- For the year, Target Retirement's use of passive strategies helped performance as active managers struggled to keep pace with market benchmarks, in both equity and fixed income markets
- The series also benefitted from its underlying manager's slight bias towards large-cap growth stocks within U.S. equities as that sector outperformed mid- and small-cap stocks for most of 2018

There were no changes made to the series's strategic asset allocation during the quarter.



## PLAN INVESTMENT REVIEW | PERFORMANCE SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System

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INVESTMENT NAME	Q4 '18	YTD '18	2017	2016	2015	2014	2013	1 YEAR*	3 YEAR*	5 YEAR*	10 YEAR*
<b>CASH AND EQUIVALENTS - MONEY MARKET</b>											
CREF Money Market R3	0.52%	1.46%	0.50%	0.13%	0.00%	0.00%	0.00%	1.46%	0.69%	0.42%	0.22%
Vanguard Federal Money Market Investor	0.54%	1.78%	0.81%	0.30%	0.04%	0.01%	0.02%	1.78%	0.96%	0.59%	0.34%
ICE BofA ML US Treasury Bill 3 Mon USD	0.56%	1.87%	0.86%	0.33%	0.05%	0.03%	0.07%	1.87%	1.02%	0.63%	0.37%
<b>STABLE VALUE</b>											
TIAA Traditional - Group Retirement Annuity	Current Rate is 4.00%										
ICE BofA ML US Treasury Bill 3 Mon USD	0.56%	1.87%	0.86%	0.33%	0.05%	0.03%	0.07%	1.87%	1.02%	0.63%	0.37%
Hueler Stable Value Index (gross)	0.60%	2.26%	1.95%	1.97%	1.77%	1.69%	1.83%	2.26%	2.00%	1.89%	2.25%
<b>INFLATION PROTECTED BOND</b>											
CREF Inflation-Linked Bond R3	-0.13%	-0.49%	1.85%	4.23%	-1.68%	3.34%	-9.01%	-0.49%	1.84%	1.42%	3.16%
BBgBarc US Treasury US TIPS TR USD	-0.42%	-1.26%	3.01%	4.68%	-1.44%	3.64%	-8.61%	-1.26%	2.11%	1.69%	3.64%
Inflation Protected Bond Universe	-1.02%	-1.66%	2.55%	4.58%	-2.22%	1.96%	-7.58%	-1.66%	1.78%	0.97%	2.90%
<b>INTERMEDIATE TERM BOND</b>											
PGIM Total Return Bond R6	1.36%	-0.63%	6.71%	4.83%	0.09%	7.25%	-0.91%	-0.63%	3.59%	3.59%	6.30%
Vanguard Total Bond Market Index Adm	1.61%	-0.03%	3.56%	2.60%	0.40%	5.89%	-2.15%	-0.03%	2.03%	2.46%	3.42%
Vanguard Total Bond Market Index I	1.62%	-0.01%	3.57%	2.61%	0.41%	5.90%	-2.14%	-0.01%	2.04%	2.47%	3.45%
BBgBarc Aggregate Bond Index	1.64%	0.01%	3.54%	2.65%	0.55%	5.97%	-2.02%	0.01%	2.06%	2.52%	3.48%
Intermediate Term Bond Universe	0.86%	-0.58%	3.79%	3.26%	-0.27%	5.20%	-1.39%	-0.58%	2.16%	2.29%	4.45%

\*ANNUALIZED

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This summary is intended for "Institutional (Plan Sponsor) Use Only" and only includes historical performance of the funds currently in the plan's fund lineup as compared to the peer group (universe) maintained/developed by CAPTRUST (using Morningstar open-end mutual fund data), which may include other investment types such as collective investment trusts. Fund and peer group returns are shown net of investment management fees, unless otherwise indicated, but gross of CAPTRUST advisory fees. The plan's overall performance will be reduced by CAPTRUST's advisory fees and other plan level fees not contemplated in this summary. Therefore, each participant's account performance will differ substantially. Past performance is not indicative of future results. Information from sources believed to be reliable, but not warranted by CAPTRUST to be accurate or complete.

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## PLAN INVESTMENT REVIEW | PERFORMANCE SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System

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INVESTMENT NAME	Q4 '18	YTD '18	2017	2016	2015	2014	2013	1 YEAR*	3 YEAR*	5 YEAR*	10 YEAR*
<b>WORLD ALLOCATION</b>											
<b>CREF Social Choice R3</b>	<b>-7.40%</b>	<b>-4.29%</b>	<b>14.27%</b>	<b>7.40%</b>	<b>-0.87%</b>	<b>6.83%</b>	<b>16.68%</b>	<b>-4.29%</b>	<b>5.51%</b>	<b>4.46%</b>	<b>8.43%</b>
60% MSCI World 40% BBgBarc Agg Index	-7.46%	-4.76%	14.90%	6.09%	0.26%	5.70%	14.83%	-4.76%	5.10%	4.25%	7.79%
World Allocation Universe	-8.03%	-8.09%	14.27%	6.06%	-4.34%	1.75%	11.44%	-8.09%	3.82%	1.74%	6.84%
<b>TARGET DATE RET INCOME MODERATE</b>											
<b>Vanguard Target Retirement Income Inv</b>	<b>-3.20%</b>	<b>-1.99%</b>	<b>8.47%</b>	<b>5.25%</b>	<b>-0.17%</b>	<b>5.54%</b>	<b>5.87%</b>	<b>-1.99%</b>	<b>3.82%</b>	<b>3.35%</b>	<b>5.92%</b>
Morningstar Lifetime Moderate Income Index	-4.12%	-2.20%	8.55%	5.98%	-1.30%	4.09%	6.45%	-2.20%	4.01%	2.94%	5.88%
Retirement Income Moderate	-4.25%	-3.55%	9.24%	4.86%	-1.30%	4.47%	6.10%	-3.55%	3.32%	2.66%	5.50%
<b>TARGET DATE 2015 MODERATE</b>											
<b>Vanguard Target Retirement 2015 Inv</b>	<b>-4.65%</b>	<b>-2.97%</b>	<b>11.50%</b>	<b>6.16%</b>	<b>-0.46%</b>	<b>6.56%</b>	<b>13.00%</b>	<b>-2.97%</b>	<b>4.72%</b>	<b>4.03%</b>	<b>7.84%</b>
Morningstar Lifetime Moderate 2015 Index	-5.20%	-3.54%	11.39%	7.10%	-1.73%	5.55%	10.50%	-3.54%	4.79%	3.61%	7.55%
2015 Moderate	-5.57%	-4.18%	11.21%	6.15%	-1.38%	4.75%	11.44%	-4.18%	4.20%	3.14%	7.39%
<b>TARGET DATE 2020 MODERATE</b>											
<b>Vanguard Target Retirement 2020 Inv</b>	<b>-6.50%</b>	<b>-4.24%</b>	<b>14.08%</b>	<b>6.95%</b>	<b>-0.68%</b>	<b>7.11%</b>	<b>15.85%</b>	<b>-4.24%</b>	<b>5.32%</b>	<b>4.44%</b>	<b>8.53%</b>
Morningstar Lifetime Moderate 2020 Index	-5.95%	-4.16%	12.79%	7.66%	-1.88%	5.87%	12.98%	-4.16%	5.18%	3.87%	8.27%
2020 Moderate	-6.60%	-4.93%	13.25%	6.10%	-1.33%	5.13%	14.64%	-4.93%	4.51%	3.45%	8.11%
<b>TARGET DATE 2025 MODERATE</b>											
<b>Vanguard Target Retirement 2025 Inv</b>	<b>-7.74%</b>	<b>-5.15%</b>	<b>15.94%</b>	<b>7.48%</b>	<b>-0.85%</b>	<b>7.17%</b>	<b>18.14%</b>	<b>-5.15%</b>	<b>5.73%</b>	<b>4.66%</b>	<b>9.06%</b>
Morningstar Lifetime Moderate 2025 Index	-7.01%	-4.90%	14.54%	8.39%	-2.06%	6.04%	16.28%	-4.90%	5.69%	4.16%	9.05%
2025 Moderate	-7.72%	-5.54%	15.15%	6.78%	-1.38%	5.27%	17.21%	-5.54%	5.10%	3.79%	8.84%

\*ANNUALIZED

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## PLAN INVESTMENT REVIEW | PERFORMANCE SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System

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INVESTMENT NAME	Q4 '18	YTD '18	2017	2016	2015	2014	2013	1 YEAR*	3 YEAR*	5 YEAR*	10 YEAR*
<b>TARGET DATE 2030 MODERATE</b>											
Vanguard Target Retirement 2030 Inv	-8.86%	-5.86%	17.52%	7.85%	-1.03%	7.17%	20.49%	-5.86%	6.07%	4.82%	9.57%
Morningstar Lifetime Moderate 2030 Index	-8.44%	-5.82%	16.59%	9.26%	-2.30%	6.01%	19.64%	-5.82%	6.26%	4.44%	9.74%
2030 Moderate	-9.19%	-6.43%	17.27%	7.27%	-1.36%	5.47%	19.68%	-6.43%	5.56%	4.13%	9.49%
<b>TARGET DATE 2035 MODERATE</b>											
Vanguard Target Retirement 2035 Inv	-9.93%	-6.58%	19.12%	8.26%	-1.26%	7.24%	22.82%	-6.58%	6.41%	4.99%	10.04%
Morningstar Lifetime Moderate 2035 Index	-9.95%	-6.82%	18.52%	10.07%	-2.58%	5.80%	22.04%	-6.82%	6.72%	4.61%	10.17%
2035 Moderate	-10.46%	-7.33%	19.10%	7.72%	-1.45%	5.58%	21.03%	-7.33%	5.92%	4.31%	9.77%
<b>TARGET DATE 2040 MODERATE</b>											
Vanguard Target Retirement 2040 Inv	-11.03%	-7.32%	20.71%	8.73%	-1.59%	7.15%	24.37%	-7.32%	6.75%	5.10%	10.26%
Morningstar Lifetime Moderate 2040 Index	-11.09%	-7.65%	19.87%	10.61%	-2.83%	5.51%	23.05%	-7.65%	6.98%	4.65%	10.32%
2040 Moderate	-11.39%	-7.90%	20.10%	7.53%	-1.39%	5.73%	22.93%	-7.90%	5.93%	4.38%	9.91%
<b>TARGET DATE 2045 MODERATE</b>											
Vanguard Target Retirement 2045 Inv	-11.78%	-7.90%	21.42%	8.87%	-1.57%	7.16%	24.37%	-7.90%	6.78%	5.13%	10.26%
Morningstar Lifetime Moderate 2045 Index	-11.67%	-8.17%	20.53%	10.84%	-3.03%	5.25%	23.07%	-8.17%	7.05%	4.60%	10.32%
2045 Moderate	-11.91%	-8.42%	20.57%	7.89%	-1.89%	5.27%	22.09%	-8.42%	5.99%	4.24%	9.93%
<b>TARGET DATE 2050 MODERATE</b>											
Vanguard Target Retirement 2050 Inv	-11.79%	-7.90%	21.39%	8.85%	-1.58%	7.18%	24.34%	-7.90%	6.77%	5.12%	10.27%
Morningstar Lifetime Moderate 2050 Index	-11.81%	-8.41%	20.78%	10.89%	-3.19%	5.00%	22.83%	-8.41%	7.05%	4.51%	10.27%
2050 Moderate	-11.98%	-8.33%	20.76%	7.77%	-1.60%	5.55%	23.58%	-8.33%	6.05%	4.37%	9.98%

\*ANNUALIZED

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## PLAN INVESTMENT REVIEW | PERFORMANCE SUMMARY

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University of Maine System

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INVESTMENT NAME	Q4 '18	YTD '18	2017	2016	2015	2014	2013	1 YEAR*	3 YEAR*	5 YEAR*	10 YEAR*
<b>TARGET DATE 2055 MODERATE</b>											
Vanguard Target Retirement 2055 Inv	-11.76%	-7.89%	21.38%	8.88%	-1.72%	7.19%	24.33%	-7.89%	6.77%	5.10%	-
Morningstar Lifetime Moderate 2055 Index	-11.84%	-8.57%	20.95%	10.90%	-3.34%	4.74%	22.49%	-8.57%	7.04%	4.42%	10.19%
2055 Moderate	-12.25%	-8.95%	20.73%	8.36%	-1.65%	5.99%	23.53%	-8.95%	5.99%	4.42%	-
<b>TARGET DATE 2060+ MODERATE</b>											
Vanguard Target Retirement 2060 Inv	-11.77%	-7.87%	21.36%	8.84%	-1.68%	7.16%	24.35%	-7.87%	6.76%	5.10%	-
Vanguard Target Retirement 2065 Inv	-11.77%	-7.95%	-	-	-	-	-	-7.95%	-	-	-
Morningstar Lifetime Moderate 2060 Index	-11.81%	-8.69%	21.06%	10.88%	-3.48%	4.53%	-	-8.69%	7.02%	4.34%	-
2060+ Moderate	-12.46%	-8.56%	20.72%	8.79%	-1.07%	7.24%	24.34%	-8.56%	6.27%	4.80%	-
<b>ALLOCATION--85%+ EQUITY</b>											
CREF Stock R3	-14.56%	-9.65%	23.45%	9.17%	-0.84%	6.41%	27.83%	-9.65%	6.78%	5.14%	10.84%
85% S&P 500, 15% BBgBarc Agg	-12.78%	-4.15%	20.67%	11.32%	1.33%	13.12%	29.03%	-4.15%	8.79%	8.10%	12.23%
Allocation--85%+ Equity Universe	-13.54%	-9.48%	19.04%	9.06%	-2.45%	5.61%	27.61%	-9.48%	5.46%	3.86%	9.97%
<b>LARGE COMPANY VALUE</b>											
JHancock Disciplined Value R6	-13.92%	-9.47%	19.33%	14.07%	-4.81%	11.04%	35.97%	-9.47%	7.21%	5.43%	11.79%
Russell 1000 Value	-11.72%	-8.27%	13.66%	17.34%	-3.83%	13.45%	32.53%	-8.27%	6.95%	5.95%	11.18%
Large Value Universe	-12.63%	-8.91%	15.84%	14.53%	-3.94%	10.58%	31.64%	-8.91%	6.55%	5.22%	10.81%
<b>LARGE COMPANY BLEND</b>											
Vanguard Institutional Index I	-13.53%	-4.42%	21.79%	11.93%	1.37%	13.65%	32.35%	-4.42%	9.22%	8.46%	13.11%
S&P 500 Index	-13.52%	-4.38%	21.83%	11.96%	1.38%	13.69%	32.39%	-4.38%	9.26%	8.49%	13.12%
Large Blend Universe	-13.69%	-6.56%	20.41%	10.45%	-0.73%	11.33%	31.90%	-6.56%	7.52%	6.60%	11.98%

\*ANNUALIZED

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## PLAN INVESTMENT REVIEW | PERFORMANCE SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System

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INVESTMENT NAME	Q4 '18	YTD '18	2017	2016	2015	2014	2013	1 YEAR*	3 YEAR*	5 YEAR*	10 YEAR*
<b>LARGE COMPANY GROWTH</b>											
Harbor Capital Appreciation Retirement	-16.39%	-0.96%	36.68%	-1.04%	10.99%	9.93%	37.66%	-0.96%	10.24%	10.33%	15.29%
Russell 1000 Growth	-15.89%	-1.51%	30.21%	7.08%	5.67%	13.05%	33.48%	-1.51%	11.15%	10.40%	15.29%
Large Growth Universe	-15.53%	-1.97%	28.24%	3.08%	3.77%	9.98%	34.31%	-1.97%	8.99%	8.20%	13.79%
<b>MEDIUM COMPANY VALUE</b>											
Virtus Ceredex Mid-Cap Value Equity R6	-13.21%	-7.58%	11.98%	20.53%	-5.63%	11.05%	31.21%	-7.58%	7.65%	5.51%	13.77%
Russell Mid Cap Value	-14.95%	-12.29%	13.34%	20.00%	-4.78%	14.75%	33.46%	-12.29%	6.06%	5.44%	13.03%
Mid Value Universe	-16.05%	-13.46%	13.21%	17.94%	-5.48%	9.52%	34.98%	-13.46%	4.88%	3.62%	11.53%
<b>MEDIUM COMPANY BLEND</b>											
Vanguard Extended Market Index Instl	-18.18%	-9.35%	18.12%	16.15%	-3.24%	7.56%	38.42%	-9.35%	7.54%	5.30%	13.66%
Russell Mid Cap	-15.37%	-9.06%	18.52%	13.80%	-2.44%	13.22%	34.76%	-9.06%	7.04%	6.26%	14.03%
Mid Blend Universe	-16.73%	-11.92%	15.43%	14.05%	-4.45%	8.40%	34.44%	-11.92%	4.97%	3.67%	11.81%
<b>MEDIUM COMPANY GROWTH</b>											
Goldman Sachs Growth Opportunities R6	-15.19%	-4.97%	27.24%	1.49%	-5.24%	11.44%	32.38%	-4.97%	7.06%	5.32%	14.05%
Russell Mid Cap Growth	-15.99%	-4.75%	25.27%	7.33%	-0.20%	11.90%	35.74%	-4.75%	8.59%	7.42%	15.12%
Mid Growth Universe	-17.41%	-5.85%	24.92%	5.99%	-0.71%	7.21%	35.23%	-5.85%	7.66%	5.96%	13.42%
<b>FOREIGN LARGE VALUE</b>											
MFS International Value R6	-10.81%	-8.89%	27.25%	4.31%	6.85%	1.61%	27.80%	-8.89%	6.54%	5.60%	10.07%
MSCI EAFE	-12.50%	-13.36%	25.62%	1.51%	-0.39%	-4.48%	23.29%	-13.36%	3.38%	1.00%	6.81%
Foreign Large Value Universe	-13.10%	-16.68%	22.68%	3.27%	-3.22%	-6.21%	20.72%	-16.68%	1.77%	-1.01%	5.24%

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## PLAN INVESTMENT REVIEW | PERFORMANCE SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System

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INVESTMENT NAME	Q4 '18	YTD '18	2017	2016	2015	2014	2013	1 YEAR*	3 YEAR*	5 YEAR*	10 YEAR*
<b>FOREIGN LARGE BLEND</b>											
Vanguard Total Intl Stock Index I	-11.66%	-14.39%	27.55%	4.70%	-4.24%	-4.15%	15.15%	-14.39%	4.56%	0.97%	6.38%
MSCI EAFE	-12.50%	-13.36%	25.62%	1.51%	-0.39%	-4.48%	23.29%	-13.36%	3.38%	1.00%	6.81%
Foreign Large Blend Universe	-12.99%	-15.44%	25.38%	0.88%	-1.48%	-5.04%	19.58%	-15.44%	2.27%	-0.05%	5.97%
<b>FOREIGN LARGE GROWTH</b>											
Oppenheimer International Growth I	-14.63%	-19.22%	27.15%	-1.88%	3.63%	-6.80%	25.71%	-19.22%	0.26%	-0.54%	8.10%
MSCI EAFE	-12.50%	-13.36%	25.62%	1.51%	-0.39%	-4.48%	23.29%	-13.36%	3.38%	1.00%	6.81%
Foreign Large Growth Universe	-14.12%	-14.43%	31.84%	-2.12%	1.03%	-3.93%	20.30%	-14.43%	3.24%	1.41%	7.50%
<b>SMALL COMPANY VALUE</b>											
Victory Sycamore Small Company Opp I	-14.84%	-8.26%	11.88%	30.04%	-0.39%	6.80%	33.39%	-8.26%	10.10%	7.26%	13.42%
Russell 2000 Value	-18.67%	-12.86%	7.84%	31.74%	-7.47%	4.22%	34.52%	-12.86%	7.37%	3.61%	10.40%
Small Value Universe	-19.10%	-15.71%	9.25%	25.66%	-6.81%	3.58%	35.70%	-15.71%	4.91%	2.21%	10.99%
<b>SMALL COMPANY GROWTH</b>											
Carillon Eagle Small Cap Growth R6	-21.73%	-10.06%	23.40%	10.45%	-0.39%	5.59%	34.70%	-10.06%	7.02%	5.21%	13.53%
Russell 2000 Growth	-21.65%	-9.31%	22.17%	11.32%	-1.38%	5.60%	43.30%	-9.91%	7.24%	5.13%	13.52%
Small Growth Universe	-20.74%	-5.63%	22.24%	11.29%	-2.40%	2.66%	41.34%	-5.63%	8.57%	5.26%	13.56%
<b>EMERGING MARKETS</b>											
DFA Emerging Markets Core Equity I	-6.39%	-15.25%	36.55%	12.35%	-14.86%	-0.91%	-2.64%	-15.25%	9.15%	1.87%	8.77%
MSCI Emerging Markets	-7.40%	-14.25%	37.75%	11.60%	-14.60%	-1.82%	-2.27%	-14.25%	9.65%	2.03%	8.39%
Emerging Markets Universe	-7.52%	-16.56%	35.29%	8.21%	-13.54%	-2.74%	0.31%	-16.56%	6.86%	0.65%	7.65%

\*ANNUALIZED

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PLAN INVESTMENT REVIEW | PERFORMANCE SUMMARY

Period Ending 12.31.18 | Q4 18

University of Maine System

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INVESTMENT NAME	Q4 '18	YTD '18	2017	2016	2015	2014	2013	1 YEAR*	3 YEAR*	5 YEAR*	10 YEAR*
<b>SPECIALTY-PRIVATE REAL ESTATE</b>											
<b>TIAA Real Estate Account</b>	<b>0.95%</b>	<b>4.79%</b>	<b>4.37%</b>	<b>5.20%</b>	<b>8.16%</b>	<b>12.22%</b>	<b>9.65%</b>	<b>4.79%</b>	<b>4.79%</b>	<b>6.91%</b>	<b>4.56%</b>
NCREIF Property Index	1.37%	6.71%	6.98%	7.97%	13.33%	11.81%	10.99%	6.71%	7.22%	9.33%	7.49%
Specialty-Real Estate Universe	-7.21%	-6.41%	5.70%	6.64%	2.47%	28.41%	1.67%	-6.41%	1.80%	6.84%	11.53%

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## SECTION 4: FUND FACT SHEETS

Period Ending 12.31.18 | Q4 18

University of Maine System

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SECTION 4: FUND FACT SHEETS	
Fund Fact Sheets.....	



# CREF MONEY MARKET R3

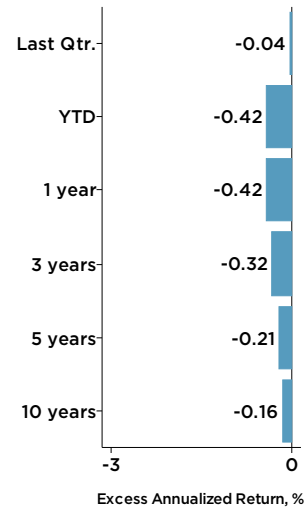
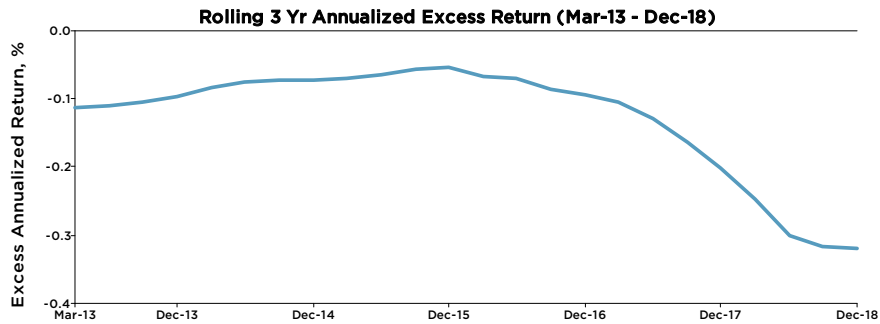
Period Ending 12.31.18 | Q4 18

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## INDUSTRY ANALYSIS

Money market reform passed in 2010 imposed new mandates on 2a-7 managers including shorter average maturities, tighter restrictions on allowable securities, increased liquidity mandates and mandatory stress testing by fund managers. In July 2014, the SEC passed further 2a-7 regulations that mandated a floating rate NAV for some products and allowed managers, under certain circumstances, to limit redemptions or charge a fee for withdrawals. The July regulations will have a multi-year phase-in period.

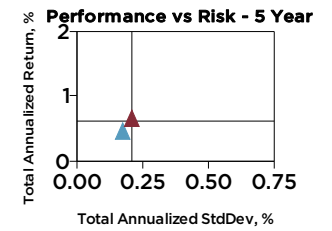
	CREF Money Market R3	90 Day US Treasury Bill Index
<b>TRAILING RETURNS</b>		
Last Qtr.	0.52	0.56
YTD	1.46	1.87
1 Year	1.46	1.87
3 Years	0.69	1.02
5 Years	0.42	0.63
10 Years	0.22	0.37
<b>CALENDAR RETURNS</b>		
2017	0.50	0.86
2016	0.13	0.33
2015	0.00	0.05
2014	0.00	0.03
2013	0.00	0.07
<b>KEY MEASURES / 5 YEAR</b>		
5 Year	0.17	0.21



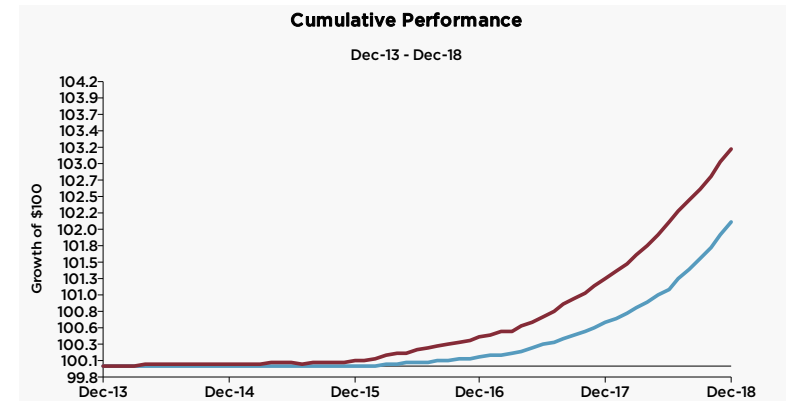
CREF Money Market R3  
■ Excess

## INVESTMENT PROFILE

Ticker	-
Strategy Incept Date	-
Prospectus Exp Ratio	-
12 Mo Yield	-



▲ CREF Money Market R3  
▲ 90 Day US Treasury Bill Index



Performance Disclosure: For use with CAPTRUST clients only. Mutual fund investing involves risk. Please visit [captrustadvisors.com/risk-disclosures/](http://captrustadvisors.com/risk-disclosures/) for a detailed description of the risks associated with investing by asset class. Statistics and data have been derived from Morningstar and are not guaranteed to be accurate or complete. Performance data included here represents past performance and does not guarantee future results. This is not a solicitation to invest. Each mutual fund has a prospectus with a complete description of the risks associated with investing in the specific fund. To request a prospectus on this fund, please call CAPTRUST at (800)216-0645.

# VANGUARD FEDERAL MONEY MARKET INVESTOR

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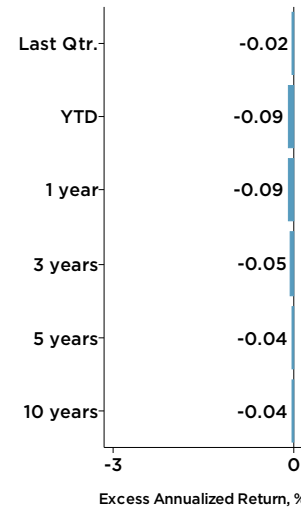
## INDUSTRY ANALYSIS

Money market reform passed in 2010 imposed new mandates on 2a-7 managers including shorter average maturities, tighter restrictions on allowable securities, increased liquidity mandates and mandatory stress testing by fund managers. In July 2014, the SEC passed further 2a-7 regulations that mandated a floating rate NAV for some products and allowed managers, under certain circumstances, to limit redemptions or charge a fee for withdrawals. The July regulations will have a multi-year phase-in period.

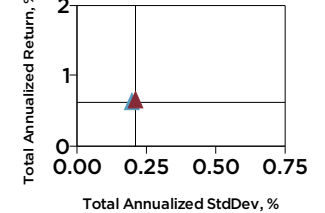
	Vanguard Federal Money Market Investor	90 Day US Treasury Bill Index
<b>TRAILING RETURNS</b>		
Last Qtr.	0.54	0.56
YTD	1.78	1.87
1 Year	1.78	1.87
3 Years	0.96	1.02
5 Years	0.59	0.63
10 Years	0.34	0.37
<b>CALENDAR RETURNS</b>		
2017	0.81	0.86
2016	0.30	0.33
2015	0.04	0.05
2014	0.01	0.03
2013	0.02	0.07
<b>KEY MEASURES / 5 YEAR</b>		
5 Year	0.20	0.21

## INVESTMENT PROFILE

Ticker	VMFXX
Strategy Incept Date	07/13/1981
Prospectus Exp Ratio	0.11%
12 Mo Yield	1.77%

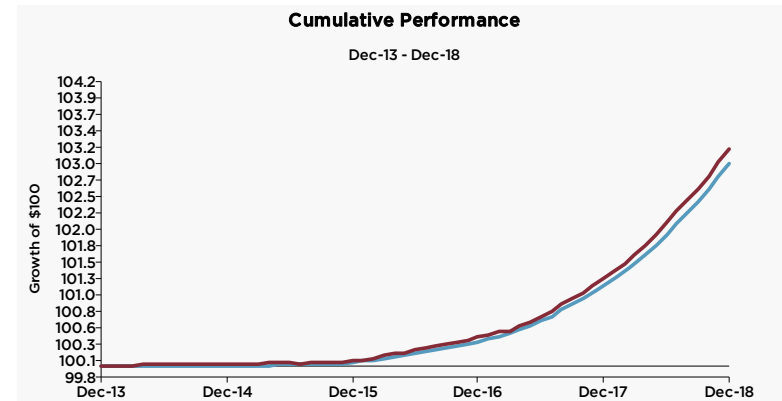
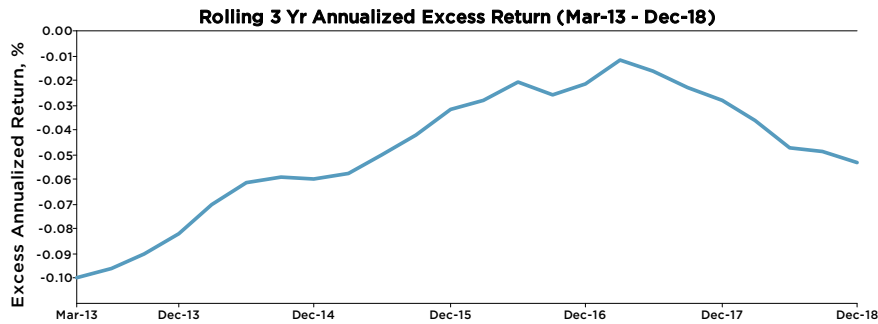


## Performance vs Risk - 5 Year



Vanguard Federal Money Market  
■ Excess

▲ Vanguard Federal Money Market Investor  
▲ 90 Day US Treasury Bill Index



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# TIAA TRADITIONAL – GROUP RETIREMENT ANNUITY (GRA)

Period Ending 12.31.18 | Q4 18

4.1

### INDUSTRY ANALYSIS

The insurance industry remains strong following a nice recovery from the 2008 financial crisis. Following the recession, many new regulations such as the Dodd-Frank Wall Street Reform and Consumer Protection Act impacted the operations of insurance companies. Although no action has been taken to date, the Trump administration has stated their intention to remove or reform many of these regulations which could again have a large impact on the insurance industry. Late in 2015, the United States Federal Reserve began increasing short-term interest rates for the first time since 2006. The U.S. fixed income marketplace as a whole has seen interest rates rise along with the Fed hikes, which poses a challenge for insurance general account managers. Increases in interest rates means a decline in value for the investments already in general accounts, which could lower the guaranteed rate. Alternatively, increased rates allow for reinvestment of new cash flows at higher levels which could increase the guaranteed rate. Managers are reacting differently to the dichotomy of these forces with some increasing guaranteed rates due to higher reinvestment while others are more reluctant to increase guaranteed rates due to losses on the current portfolio. This merits evaluation as interest rates continue to shift.

### CAPTRUST ANALYSIS

**Jennifer Dunbar – Senior Manager | Investment Research**

The TIAA Traditional Annuity is a guaranteed annuity account (group annuity contract) that is backed by the financial strength and claims-paying ability of TIAA. The product offers participants guaranteed principal and a contractually specified interest rate. The contractually agreed upon minimum annual interest rate is 3%. The TIAA Board of Trustees also reserves the right each year to declare a higher crediting rate to participants which remains effective for a twelve month period that begins each March 1.

The product has a payout structure at the participant level that varies the length of time it takes for a participant to fully redeem. This payout structure is individual contract-specific.

### GROSS CREDITING RATES - For Contributions Applied:

10/1/17 - 12/31/17	1/1/18 - 3/31/18	4/1/18 - 6/30/18	7/1/18 - 9/30/18	10/1/18 - 12/31/18
4.00%	4.00%	4.00%	4.00%	4.00%

### INVESTMENT DETAILS

<b>Crediting Rate Details:</b>	Current contributions are invested at the new money rate, which can change monthly but is guaranteed until the last day of February. Old Money is grouped by time period into vintages, rate on all vintages are reviewed for reset every March 1 <sup>st</sup> .
<b>Competing Options:</b>	Allowed.
<b>Minimum Rate:</b>	3.00% during accumulation stage and 2.50% during annuity payout stage, reset annually.

### LIQUIDITY PROVISIONS

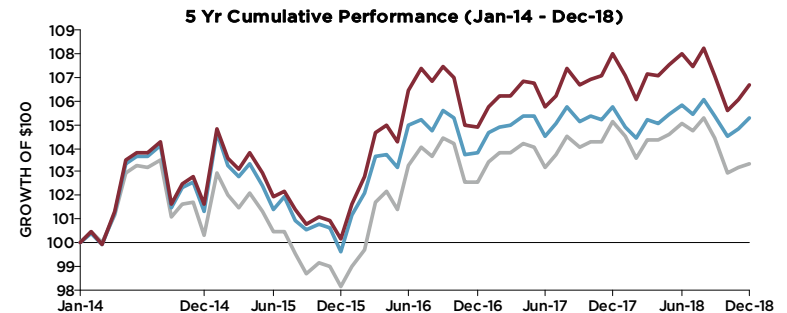
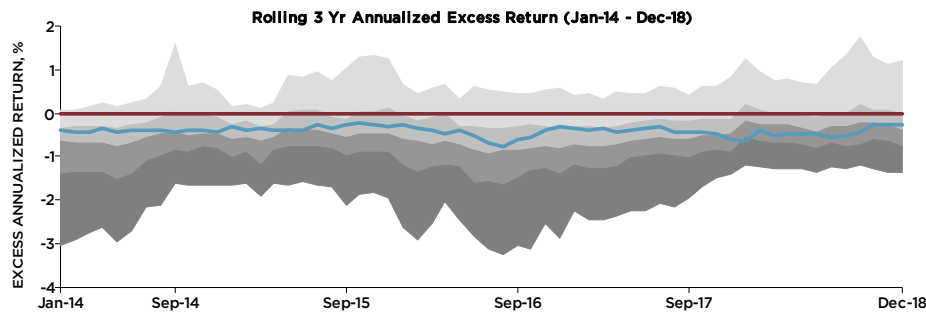
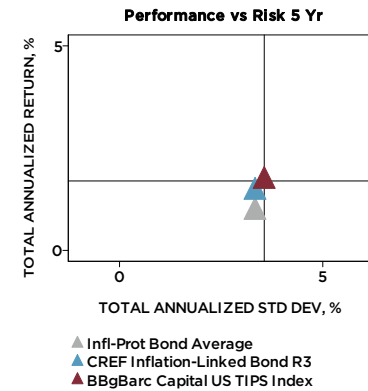
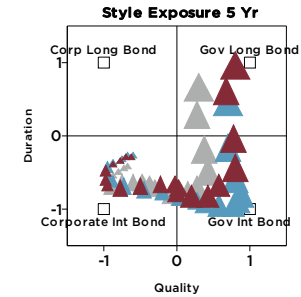
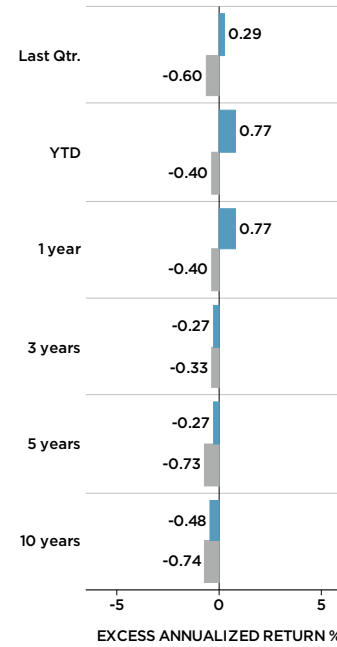
Plan Sponsor	Participant
Not applicable. Contracts are individually owned by the participant.	Lump Sum withdrawals are available within 120 days of termination of employment with a 2.5% surrender charge. Transfers and withdrawals can be made in 10 annual installments (paid over 9 years and 1 day).

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# CREF INFLATION-LINKED BOND R3

Period Ending 12.31.18 | Q4 18

	CREF Inflation-Linked Bond R3	Peer Group Rank	BBgBarc Capital US TIPS Index	Infl-Prot Bond	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	3.32	31%	3.57	3.35	204
Sharpe Ratio	0.24	21%	0.30	0.08	204
Alpha	-0.17	20%	0.00	-0.55	204
Beta	0.91	64%	1.00	0.84	204
R-Squared	95.41	41%	100.00	82.92	204
Up Mkt Capture	86.68	53%	100.00	79.08	204
Down Mkt Capture	88.36	36%	100.00	88.40	204
Information Ratio	-0.34	25%	NA	-0.87	204
<b>TRAILING RETURNS</b>					
Last Qtr.	-0.13	10%	-0.42	-1.02	228
YTD	-0.49	13%	-1.26	-1.66	222
1 Year	-0.49	13%	-1.26	-1.66	222
3 Years	1.84	42%	2.11	1.78	216
5 Years	1.42	24%	1.69	0.97	204
10 Years	3.16	35%	3.64	2.90	147
<b>CALENDAR RETURNS</b>					
2017	1.85	73%	3.01	2.55	242
2016	4.23	53%	4.68	4.58	249
2015	-1.68	36%	-1.44	-2.22	258
2014	3.34	22%	3.64	1.96	257
2013	-9.01	67%	-8.60	-7.58	257



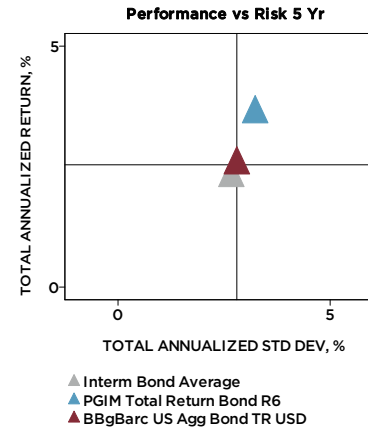
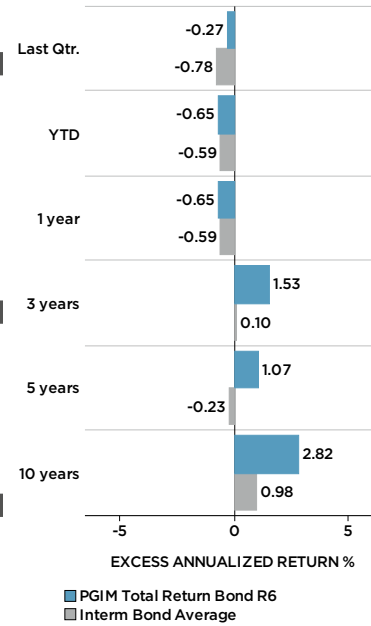
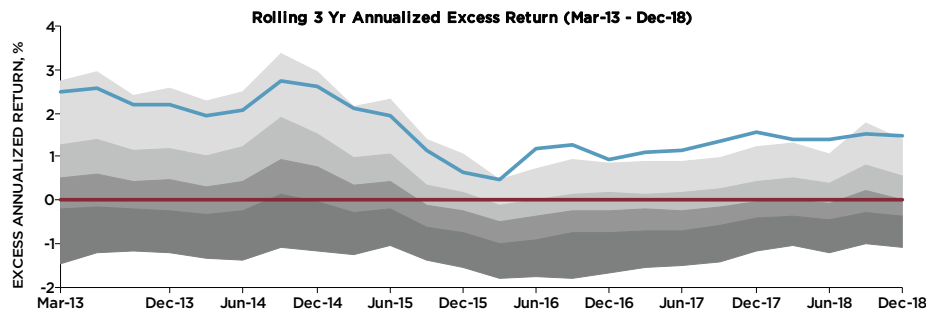
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4.1

# PGIM TOTAL RETURN BOND R6

Period Ending 12.31.18 | Q4 18

	PGIM Total Return Bond R6	Peer Group Rank	BBgBarc US Agg Bond TR USD	Intern Bond	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	3.22	95%	2.79	2.65	907
Sharpe Ratio	0.92	11%	0.68	0.63	907
Alpha	0.89	10%	0.00	0.03	907
Beta	1.10	1%	1.00	0.86	907
R-Squared	90.22	48%	100.00	83.84	907
Up Mkt Capture	123.03	1%	100.00	89.15	907
Down Mkt Capture	103.58	81%	100.00	88.11	907
Information Ratio	1.00	3%	NA	-0.36	907
<b>TRAILING RETURNS</b>					
Last Qtr.	1.36	30%	1.64	0.86	1045
YTD	-0.63	53%	0.01	-0.58	1016
1 Year	-0.63	53%	0.01	-0.58	1016
3 Years	3.59	5%	2.06	2.16	950
5 Years	3.59	3%	2.52	2.29	907
10 Years	6.30	7%	3.48	4.45	801
<b>CALENDAR RETURNS</b>					
2017	6.71	2%	3.54	3.79	1068
2016	4.83	13%	2.65	3.26	1070
2015	0.09	45%	0.55	-0.27	1074
2014	7.25	5%	5.97	5.20	1117
2013	-0.91	29%	-2.02	-1.39	1133



## INVESTMENT PROFILE

Ticker	PTRQX
CUSIP	74440B884
Net Assets \$MM	\$35,928.00
Manager Names	Team Managed
Manager Tenure	16.2 Years
Prospectus Exp Ratio	0.41%
Cat Median Exp Ratio	0.77%
Current 12b-1	N/A
Annld Ret Since Incept	4.39%
Inception Date	12/27/2010
Phone Number	800-225-1852
Sub Advisor	PGIM Fixed Income

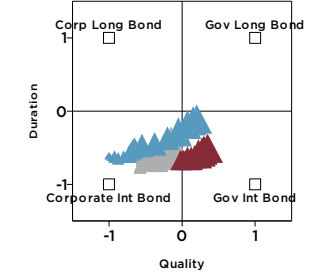
## HOLDINGS OVERVIEW

Total Number of Holdings	2649
% Assets in Top 10 Holdings	116.45%
Avg Mkt Cap \$MM	\$996.14
Turnover Ratio	56.00%

## TOP HOLDINGS

US 5 Year Note (CBT) Mar	23.63%
US 10 Year Note (CBT) Me	17.15%
2 Year US Treasury Note F	14.77%
Payb 7 Yr Cmt Fra 121318	9.70%
Recv Cmm 102 Fra 12/13/	9.70%

## Style Exposure 5 Yr



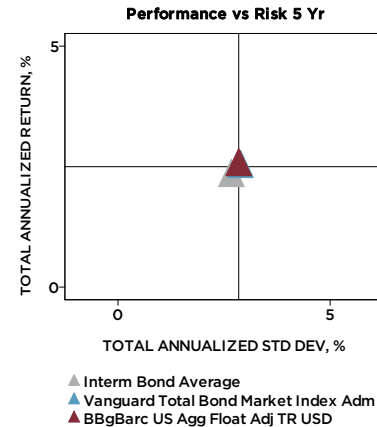
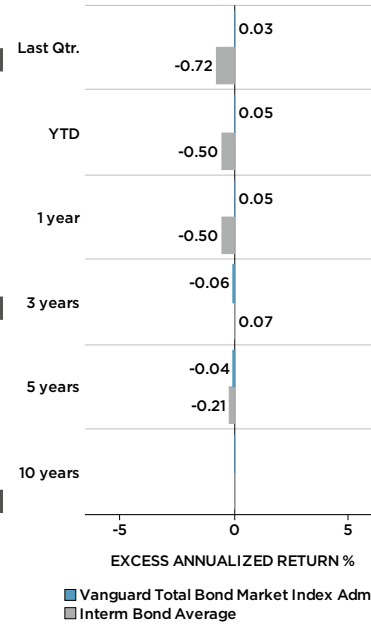
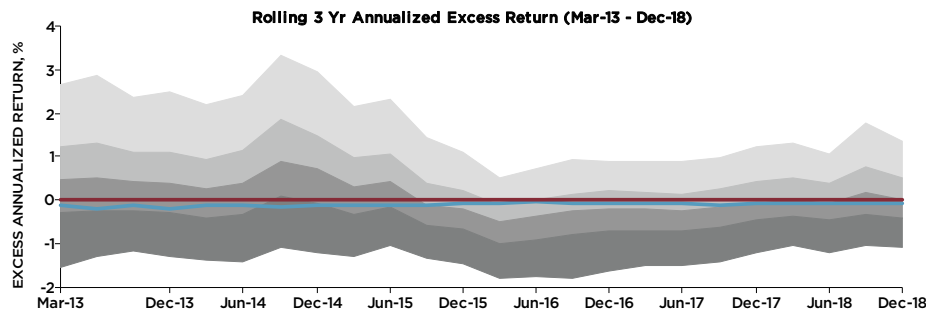
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4.1

# VANGUARD TOTAL BOND MARKET INDEX ADM

Period Ending 12.31.18 | Q4 18

	Vanguard Total Bond Market Index Adm	Peer Group Rank	BBgBarc US Agg Float Adj TR USD	Interm Bond	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	2.90	85%	2.85	2.65	907
Sharpe Ratio	0.63	49%	0.66	0.63	907
Alpha	-0.06	58%	0.00	0.08	907
Beta	1.02	5%	1.00	0.85	907
R-Squared	99.21	4%	100.00	84.03	907
Up Mkt Capture	100.10	14%	100.00	88.19	907
Down Mkt Capture	101.44	84%	100.00	85.58	907
Information Ratio	-0.13	45%	NA	-0.32	907
<b>TRAILING RETURNS</b>					
Last Qtr.	1.61	17%	1.58	0.86	1045
YTD	-0.03	26%	-0.08	-0.58	1016
1 Year	-0.03	26%	-0.08	-0.58	1016
3 Years	2.03	55%	2.09	2.16	950
5 Years	2.46	40%	2.50	2.29	907
10 Years	3.42	84%	NA	4.45	801
<b>CALENDAR RETURNS</b>					
2017	3.56	57%	3.63	3.79	1068
2016	2.60	64%	2.75	3.26	1070
2015	0.40	29%	0.44	-0.27	1074
2014	5.89	31%	5.85	5.20	1117
2013	-2.15	68%	-1.97	-1.39	1133



## INVESTMENT PROFILE

Ticker	VBTLX
CUSIP	921937603
Net Assets \$MM	\$203,989.00
Manager Names	Team Managed
Manager Tenure	5.9 Years
Prospectus Exp Ratio	0.05%
Cat Median Exp Ratio	0.77%
Current 12b-1	N/A
Annlzd Ret Since Incept	3.95%
Inception Date	11/12/2001
Phone Number	800-662-7447
Sub Advisor	N/A

## HOLDINGS OVERVIEW

Total Number of Holdings	17386
% Assets in Top 10 Holdings	4.10%
Avg Mkt Cap \$MM	N/A
Turnover Ratio	55.00%

## TOP HOLDINGS

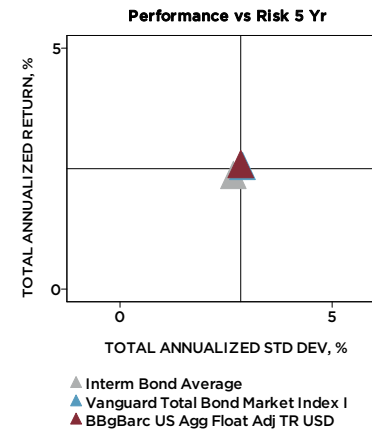
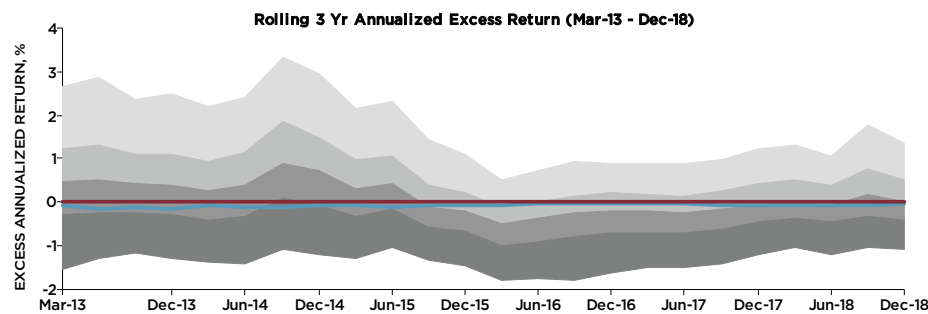
United States Treasury Not	0.47%
United States Treasury Not	0.46%
United States Treasury Not	0.42%
United States Treasury Not	0.42%
United States Treasury Not	0.42%

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# VANGUARD TOTAL BOND MARKET INDEX I

Period Ending 12.31.18 | Q4 18

	Vanguard Total Bond Market Index I	Peer Group Rank	BBgBarc US Agg Float Adj TR USD	Interm Bond	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	2.90	85%	2.85	2.65	907
Sharpe Ratio	0.64	47%	0.66	0.63	907
Alpha	-0.05	58%	0.00	0.08	907
Beta	1.02	5%	1.00	0.85	907
R-Squared	99.21	4%	100.00	84.03	907
Up Mkt Capture	100.23	14%	100.00	88.19	907
Down Mkt Capture	101.29	83%	100.00	85.58	907
Information Ratio	-0.09	43%	NA	-0.32	907
<b>TRAILING RETURNS</b>					
Last Qtr.	1.62	16%	1.58	0.86	1045
YTD	-0.01	25%	-0.08	-0.58	1016
1 Year	-0.01	25%	-0.08	-0.58	1016
3 Years	2.04	54%	2.09	2.16	950
5 Years	2.47	39%	2.50	2.29	907
10 Years	3.45	83%	NA	4.45	801
<b>CALENDAR RETURNS</b>					
2017	3.57	56%	3.63	3.79	1068
2016	2.61	64%	2.75	3.26	1070
2015	0.41	28%	0.44	-0.27	1074
2014	5.90	31%	5.85	5.20	1117
2013	-2.14	68%	-1.97	-1.39	1133



## INVESTMENT PROFILE

Ticker	VBPIX
CUSIP	921937504
Net Assets \$MM	\$203,989.00
Manager Names	Team Managed
Manager Tenure	5.9 Years
Prospectus Exp Ratio	0.04%
Cat Median Exp Ratio	0.77%
Current 12b-1	N/A
Annlzd Ret Since Incept	4.97%
Inception Date	09/18/1995
Phone Number	888-809-8102
Sub Advisor	N/A

## HOLDINGS OVERVIEW

Total Number of Holdings	17386
% Assets in Top 10 Holdings	4.10%
Avg Mkt Cap \$MM	N/A
Turnover Ratio	55.00%

## TOP HOLDINGS

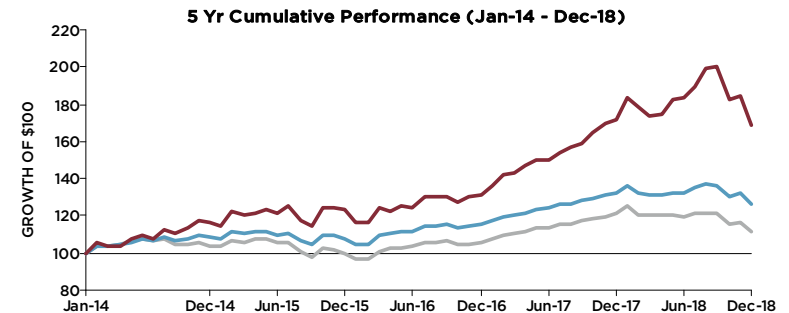
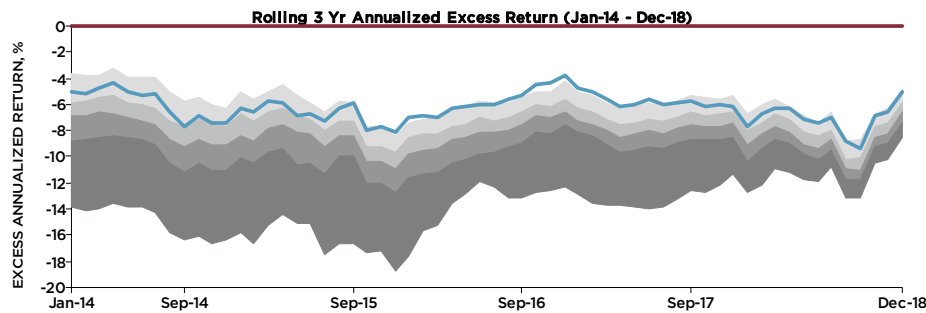
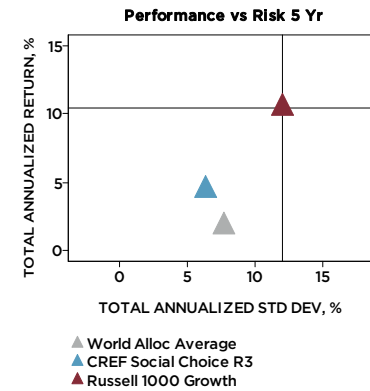
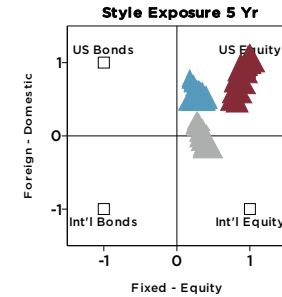
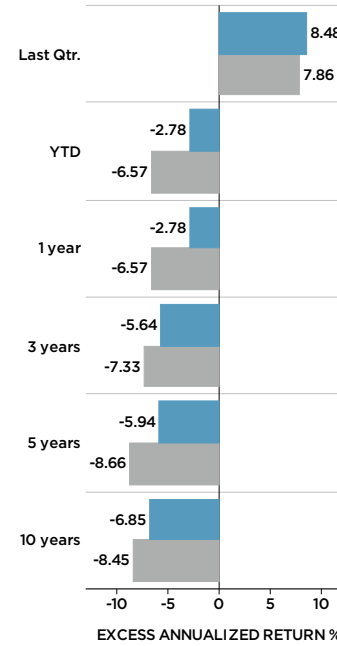
United States Treasury Not	0.47%
United States Treasury Not	0.46%
United States Treasury Not	0.42%
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United States Treasury Not	0.42%

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# CREF SOCIAL CHOICE R3

Period Ending 12.31.18 | Q4 18

	CREF Social Choice R3	Peer Group Rank	Russell 1000 Growth	World Alloc	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	6.41	13%	11.96	7.70	398
Sharpe Ratio	0.60	1%	0.82	0.17	398
Alpha	-1.10	3%	0.00	-3.94	398
Beta	0.50	52%	1.00	0.52	398
R-Squared	88.24	1%	100.00	66.65	398
Up Mkt Capture	46.19	24%	100.00	40.27	398
Down Mkt Capture	54.39	19%	100.00	66.17	398
Information Ratio	-0.85	11%	NA	-1.09	398
<b>TRAILING RETURNS</b>					
Last Qtr.	-7.40	45%	-15.89	-8.03	485
YTD	-4.29	3%	-1.51	-8.09	461
1 Year	-4.29	3%	-1.51	-8.09	461
3 Years	5.51	8%	11.15	3.82	431
5 Years	4.46	2%	10.40	1.74	398
10 Years	8.43	10%	15.29	6.84	251
<b>CALENDAR RETURNS</b>					
2017	14.27	52%	30.21	14.27	503
2016	7.40	27%	7.08	6.06	527
2015	-0.87	19%	5.67	-4.34	539
2014	6.83	4%	13.05	1.75	533
2013	16.68	27%	33.48	11.44	529



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# VANGUARD TARGET RETIREMENT

Period Ending 12.31.18 | Q4 18

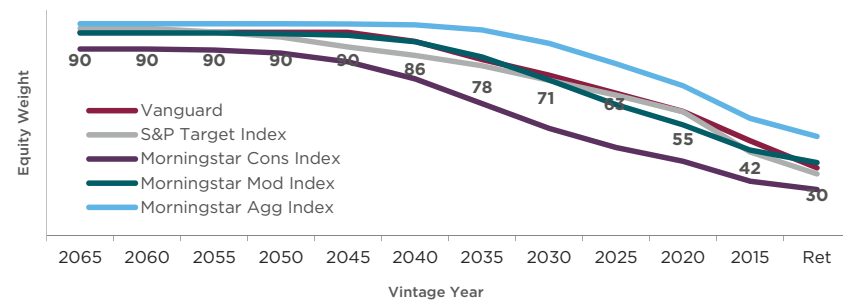
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## Investor Assumptions/Glidepath Methodology

Glidepath Management	• Through retirement (assumed at age 65) ending 7 years after retirement
Assumed Investor Savings Rate:	• Contributions start at 5% at age 25 and increase to 10% at age 65. Also includes a 50% employer match up to 3% of salary.
Assumed Investor Income Growth Rate	• 1.1% annual salary growth
Income Replacement	• The portfolios are designed to provide withdrawals in retirement based on multiples of an investor's age 65 salary.
Assumed Accumulated Savings at Retirement	• N/A
Life Expectancy	• Through age 95
Asset Allocation Flexibility	• Strict targets with narrow ranges.
Other Assumptions	• Glidepath was tested against 10,000 potential lifetime return outcomes

Vanguard uses a proprietary capital markets modeling tool to statistically analyze historical data, including interest rates, inflation, and other risk factors for global equities, fixed income, and commodity markets. This tool is used to generate forward-looking distributions of expected returns. Then, by combining these figures with their investor assumptions, Vanguard constructs target portfolios with asset allocations that seek to provide the highest probability of a successful outcome (not outliving retirement savings).

## Target Asset Allocation Glidepath per Vintage Year



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## Investment Profile

% Open Architecture:	0%	Active/Passive:	Passive
Inception Date:	10-27-2003	% Active:	0%
Net Assets \$MM:	\$234,224	Manager Tenure:	5.92 years (longest)
Manager Name:	Team	Expense Range:	0.13% - 0.15%
Avg # of Holdings:	5	Investment Structure:	Mutual Fund

## Dedicated Asset Class Granularity/Diversification

Asset Class	Through Intl Index Fund
Emerging Market Equities	
International/Global Debt	Yes
Inflation-Protected Securities	Yes
High Yield Fixed Income	No
Real Estate	No
Commodities	No

The Vanguard Target Retirement funds allocate to five broad index funds that provide comprehensive exposure to U.S. and non-U.S. equity and bond markets. Using index funds allows Vanguard to provide investment diversification at a low cost while also producing returns in line with equity and fixed income markets. Through its five index funds, the strategies gain exposure to over 25 sub-asset classes, capturing over 90% of the world's investable market.

# VANGUARD TARGET RETIREMENT

Period Ending 12.31.18 | Q4 18

4.1

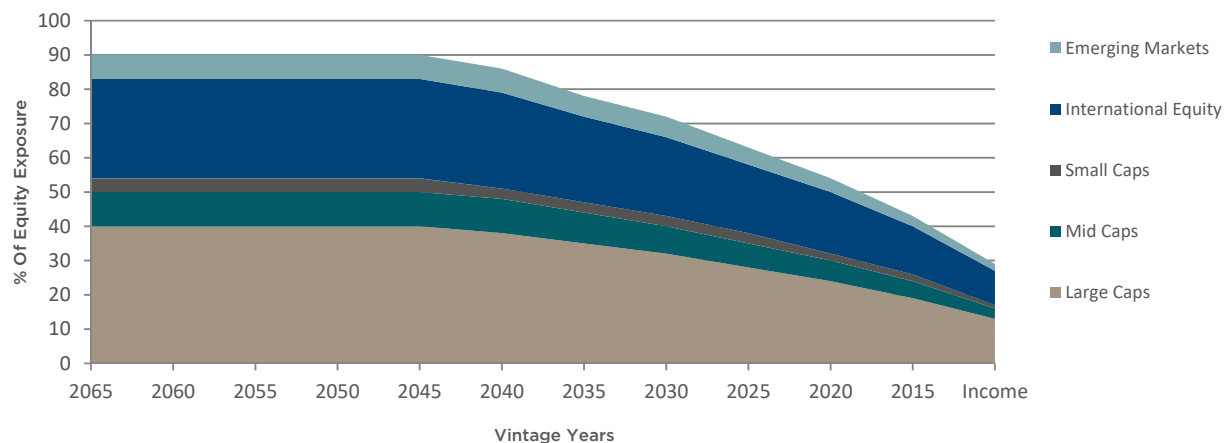
### Material Changes to the Series

- 2006:**
- Increased minimum equity allocation from 20% to 30%
  - Added Emerging Markets Equity
- Rationale:**
- Participant behavior showed lower savings rate
  - Decreased costs within the EM space led to increased liquidity
- 2010:**
- Collapsed three international equity index funds (Europe, Pacific, and Emerging Markets) with Vanguard Total International Stock Index
- Rationale:**
- More cost-effective way to gain international exposure
- 2013:**
- Replaced the broad TIPs fund with a short-term TIPs allocation
  - Eliminated the Prime Money Market fund
  - Added a 20% International Bond Index Allocation
- Rationale:**
- Short-Term TIPs provide better inflation exposure with lower interest rate risk
  - Deemed to be an unnecessary asset class
  - Dedicated exposure to move more in line with the Global fixed income Market Cap; better FI diversification
- 2015:**
- Increased international stock allocation from 30% to 40%
  - Increased International bond allocation from 20% to 30%
- Rationale:**
- Move to be more in line with the Global Market Cap

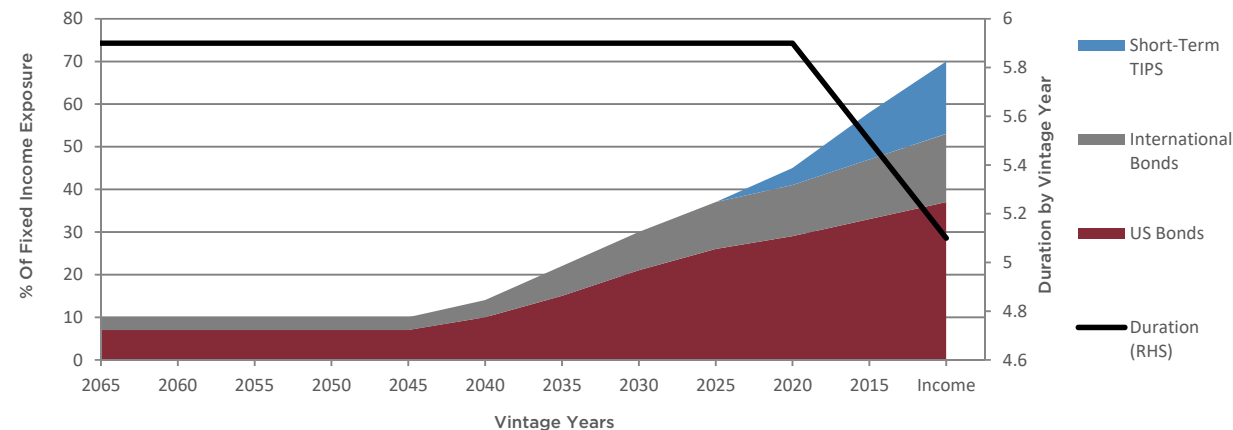
\*All information provided by the asset manager, as of 12/31/17. Asset allocations shown are static in nature and do not incorporate any tactical views implemented by the manager.

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### Equity Exposure



### Fixed Income Exposure



## TARGET DATE ANALYSIS

Period Ending 12.31.18 | Q4 18

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	3 Year				5 Year			
	Beta	Sharpe	Up Capture	Down Capture	Beta	Sharpe	Up Capture	Down Capture
Vanguard Target Retirement 2015 Inv	0.92	0.80	95.15	87.56	0.96	0.68	97.97	92.45
Morningstar Target Date 2015	0.97	0.68	94.57	95.60	0.96	0.50	92.50	99.18
S&P Target Date 2015 TR	1.00	0.71	100.00	100.00	1.00	0.61	100.00	100.00

	3 Year				5 Year			
	Beta	Sharpe	Up Capture	Down Capture	Beta	Sharpe	Up Capture	Down Capture
Vanguard Target Retirement 2025 Inv	1.03	0.70	103.41	101.81	1.02	0.58	103.86	101.08
Morningstar Target Date 2025	0.98	0.62	95.35	99.21	0.99	0.45	94.86	101.12
S&P Target Date 2025 TR	1.00	0.68	100.00	100.00	1.00	0.54	100.00	100.00

	3 Year				5 Year			
	Beta	Sharpe	Up Capture	Down Capture	Beta	Sharpe	Up Capture	Down Capture
Vanguard Target Retirement 2045 Inv	1.04	0.60	104.35	103.83	1.04	0.47	103.91	103.11
Morningstar Target Date 2045	1.03	0.54	99.81	103.90	1.03	0.39	98.62	103.59
S&P Target Date 2045 TR	1.00	0.60	100.00	100.00	1.00	0.46	100.00	100.00

\*Lowest cost share class shown

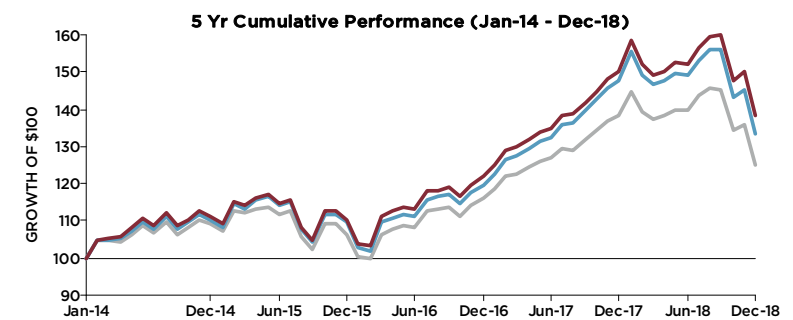
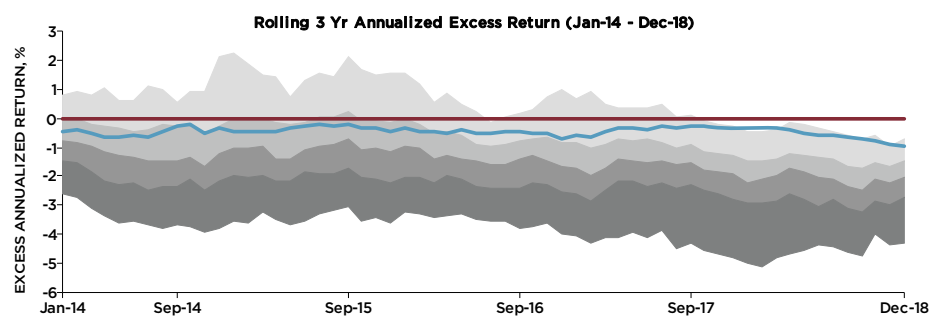
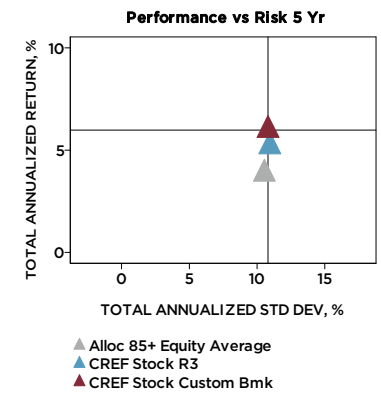
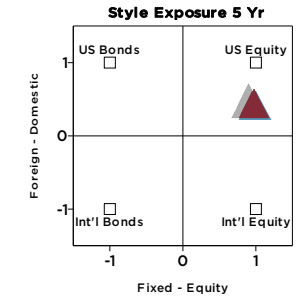
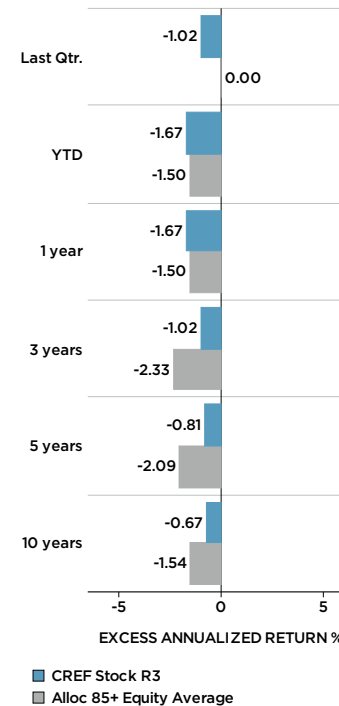
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# CREF STOCK R3

Period Ending 12.31.18 | Q4 18

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	CREF Stock R3	Peer Group Rank	CREF Stock Custom Bmk	Alloc 85+ Equity	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	10.97	81%	10.84	10.49	179
Sharpe Ratio	0.41	16%	0.49	0.31	179
Alpha	-0.87	21%	0.00	-1.75	179
Beta	1.01	12%	1.00	0.94	179
R-Squared	99.61	1%	100.00	94.15	179
Up Mkt Capture	97.91	5%	100.00	86.47	179
Down Mkt Capture	103.58	81%	100.00	98.43	179
Information Ratio	-1.10	66%	NA	-0.96	179
<b>TRAILING RETURNS</b>					
Last Qtr.	-14.56	84%	-13.54	-13.54	195
YTD	-9.65	58%	-7.98	-9.48	191
1 Year	-9.65	58%	-7.98	-9.48	191
3 Years	6.78	10%	7.80	5.46	189
5 Years	5.14	10%	5.95	3.86	179
10 Years	10.84	10%	11.51	9.97	141
<b>CALENDAR RETURNS</b>					
2017	23.45	7%	23.30	19.04	212
2016	9.17	25%	10.41	9.06	222
2015	-0.84	25%	-0.89	-2.45	224
2014	6.41	33%	7.55	5.61	217
2013	27.83	37%	28.23	27.61	197

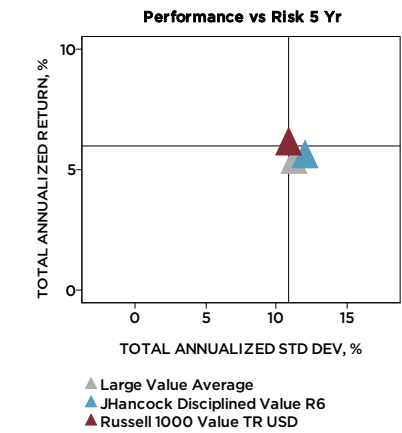
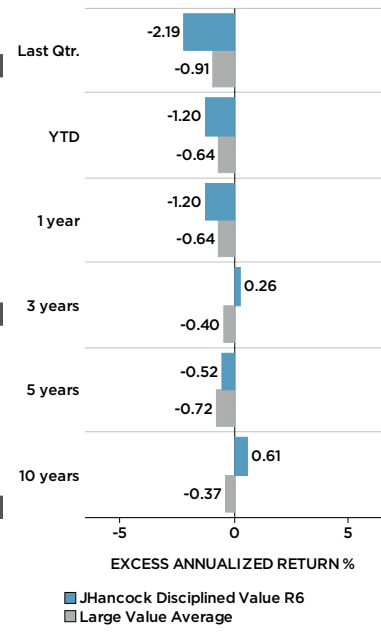
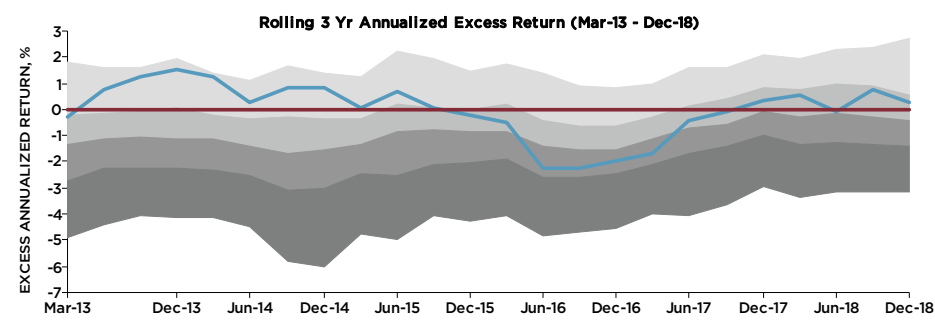


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# JHANCOCK DISCIPLINED VALUE R6

Period Ending 12.31.18 | Q4 18

	JHancock Disciplined Value R6	Peer Group Rank	Russell 1000 Value TR USD	Large Value	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	12.00	78%	10.85	11.24	1061
Sharpe Ratio	0.40	54%	0.49	0.42	1061
Alpha	-0.91	56%	0.00	-0.67	1061
Beta	1.07	21%	1.00	0.99	1061
R-Squared	94.17	49%	100.00	91.53	1061
Up Mkt Capture	100.66	26%	100.00	95.29	1061
Down Mkt Capture	104.84	64%	100.00	99.32	1061
Information Ratio	-0.16	45%	NA	-0.25	1061
<b>TRAILING RETURNS</b>					
Last Qtr.	-13.92	70%	-11.72	-12.63	1186
YTD	-9.47	59%	-8.27	-8.91	1183
1 Year	-9.47	59%	-8.27	-8.91	1183
3 Years	7.21	32%	6.95	6.55	1139
5 Years	5.43	45%	5.95	5.22	1061
10 Years	11.79	21%	11.18	10.81	936
<b>CALENDAR RETURNS</b>					
2017	19.33	13%	13.66	15.84	1257
2016	14.07	54%	17.34	14.53	1313
2015	-4.81	68%	-3.83	-3.94	1323
2014	11.04	48%	13.45	10.58	1327
2013	35.97	14%	32.53	31.64	1305



**INVESTMENT PROFILE**

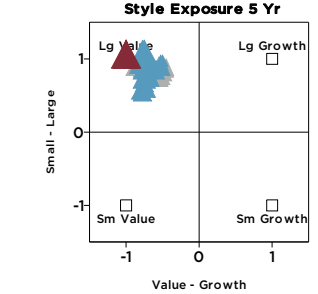
Ticker	JDVWX
CUSIP	47803U418
Net Assets \$MM	\$13,635.00
Manager Names	Team Managed
Manager Tenure	22.0 Years
Prospectus Exp Ratio	0.70%
Cat Median Exp Ratio	1.08%
Current 12b-1	0.00%
Annlzd Ret Since Incept	11.69%
Inception Date	09/01/2011
Phone Number	888-972-8696
Sub Advisor	Boston Partners Global Investors, Inc

**HOLDINGS OVERVIEW**

Total Number of Holdings	83
% Assets in Top 10 Holdings	34.18%
Avg Mkt Cap \$MM	\$87,137.39
Turnover Ratio	45.00%

**TOP HOLDINGS**

Johnson & Johnson	4.47%
Berkshire Hathaway Inc B	4.22%
JPMorgan Chase & Co	3.92%
Bank of America Corporat	3.43%
Cisco Systems Inc	3.38%



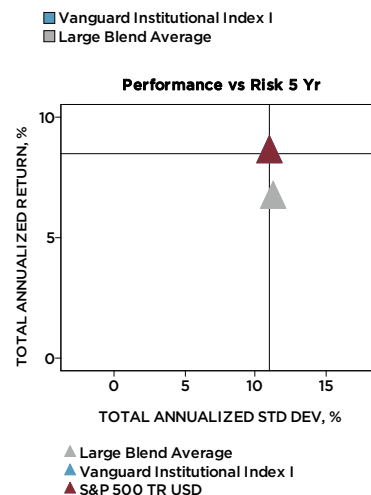
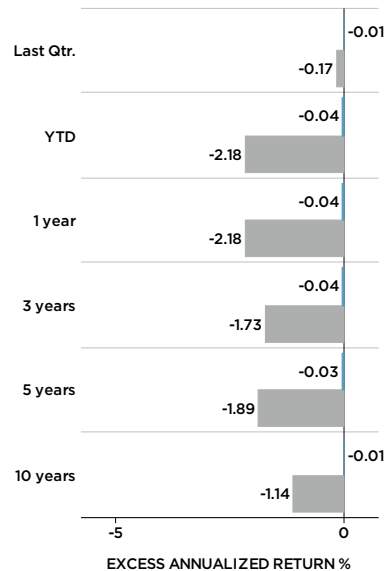
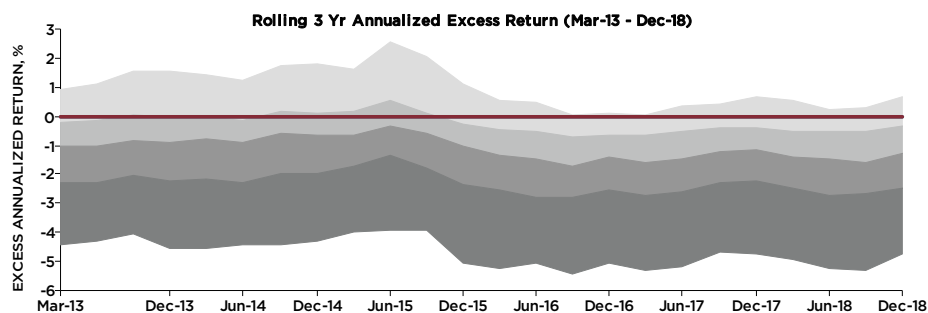
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4.1

# VANGUARD INSTITUTIONAL INDEX I

Period Ending 12.31.18 | Q4 18

	Vanguard Institutional Index I	Peer Group Rank	S&P 500 TR USD	Large Blend	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	10.95	37%	10.94	11.23	1175
Sharpe Ratio	0.72	8%	0.72	0.54	1175
Alpha	-0.03	10%	0.00	-1.82	1175
Beta	1.00	50%	1.00	0.99	1175
R-Squared	100.00	1%	100.00	93.45	1175
Up Mkt Capture	99.88	12%	100.00	92.42	1175
Down Mkt Capture	100.08	26%	100.00	103.91	1175
Information Ratio	-2.66	93%	NA	-1.26	1175
<b>TRAILING RETURNS</b>					
Last Qtr.	-13.53	38%	-13.52	-13.69	1332
YTD	-4.42	20%	-4.38	-6.56	1317
1 Year	-4.42	20%	-4.38	-6.56	1317
3 Years	9.22	13%	9.26	7.52	1239
5 Years	8.46	7%	8.49	6.60	1175
10 Years	13.11	17%	13.12	11.98	1040
<b>CALENDAR RETURNS</b>					
2017	21.79	29%	21.83	20.41	1376
2016	11.93	28%	11.96	10.45	1447
2015	1.37	21%	1.38	-0.73	1503
2014	13.65	18%	13.69	11.33	1540
2013	32.35	43%	32.39	31.90	1544



## INVESTMENT PROFILE

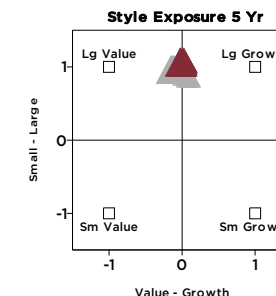
Ticker	VINIX
CUSIP	922040100
Net Assets \$MM	\$200,004.00
Manager Names	Team Managed
Manager Tenure	18.0 Years
Prospectus Exp Ratio	0.04%
Cat Median Exp Ratio	1.09%
Current 12b-1	N/A
Annlzd Ret Since Incept	9.39%
Inception Date	07/31/1990
Phone Number	888-809-8102
Sub Advisor	N/A

## HOLDINGS OVERVIEW

Total Number of Holdings	511
% Assets in Top 10 Holdings	20.85%
Avg Mkt Cap \$MM	\$101,944.77
Turnover Ratio	5.00%

## TOP HOLDINGS

Microsoft Corp	3.63%
Apple Inc	3.49%
Amazon.com Inc	2.95%
Berkshire Hathaway Inc E	1.77%
Johnson & Johnson	1.68%



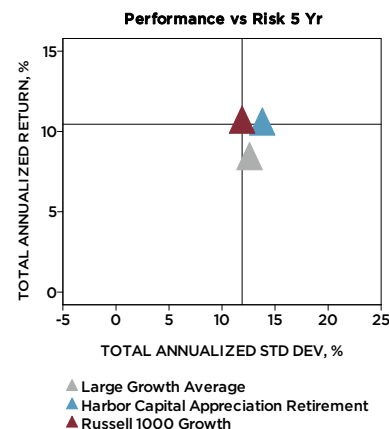
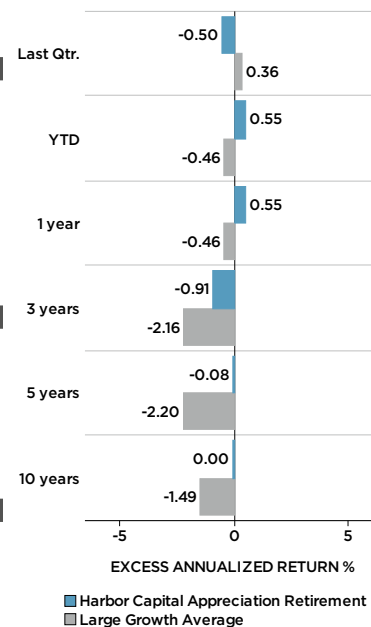
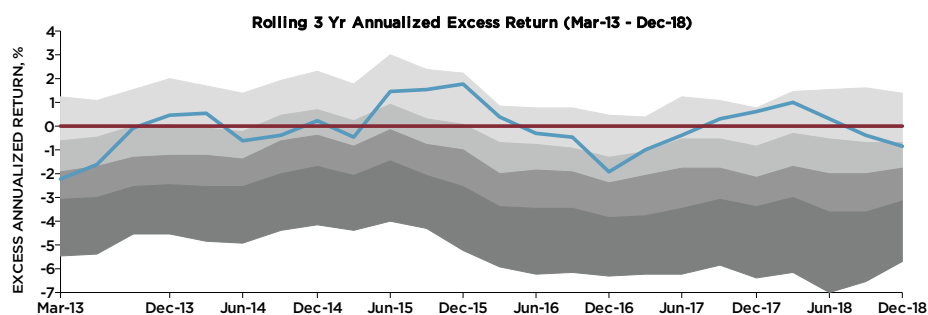
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4.1

# HARBOR CAPITAL APPRECIATION RETIREMENT

Period Ending 12.31.18 | Q4 18

	Harbor Capital Appreciation Retirement	Peer Group Rank	Russell 1000 Growth	Large Growth	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	13.75	86%	11.96	12.58	1298
Sharpe Ratio	0.71	30%	0.82	0.61	1298
Alpha	-0.91	29%	0.00	-2.12	1298
Beta	1.08	14%	1.00	0.99	1298
R-Squared	89.03	66%	100.00	89.49	1298
Up Mkt Capture	108.96	6%	100.00	93.16	1298
Down Mkt Capture	114.62	81%	100.00	105.73	1298
Information Ratio	-0.02	14%	NA	-0.54	1298
<b>TRAILING RETURNS</b>					
Last Qtr.	-16.39	66%	-15.89	-15.53	1401
YTD	-0.96	39%	-1.51	-1.97	1393
1 Year	-0.96	39%	-1.51	-1.97	1393
3 Years	10.24	28%	11.15	8.99	1343
5 Years	10.33	14%	10.40	8.20	1298
10 Years	15.29	18%	15.29	13.79	1115
<b>CALENDAR RETURNS</b>					
2017	36.68	5%	30.21	28.24	1431
2016	-1.04	84%	7.08	3.08	1547
2015	10.99	4%	5.67	3.77	1639
2014	9.93	54%	13.05	9.98	1689
2013	37.66	20%	33.48	34.31	1752



## INVESTMENT PROFILE

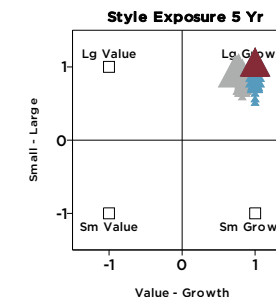
Ticker	HNACX
CUSIP	411512528
Net Assets \$MM	\$26,722.00
Manager Names	Team Managed
Manager Tenure	28.7 Years
Prospectus Exp Ratio	0.58%
Cat Median Exp Ratio	1.15%
Current 12b-1	N/A
Annlzd Ret Since Incept	14.29%
Inception Date	03/01/2016
Phone Number	800-422-1050
Sub Advisor	Jennison Associates LLC

## HOLDINGS OVERVIEW

Total Number of Holdings	59
% Assets in Top 10 Holdings	38.80%
Avg Mkt Cap \$MM	\$159,696.04
Turnover Ratio	52.00%

## TOP HOLDINGS

Amazon.com Inc	6.23%
Microsoft Corp	4.82%
Apple Inc	4.42%
Mastercard Inc A	3.92%
Netflix Inc	3.61%



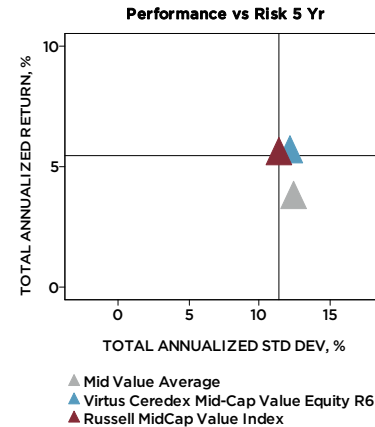
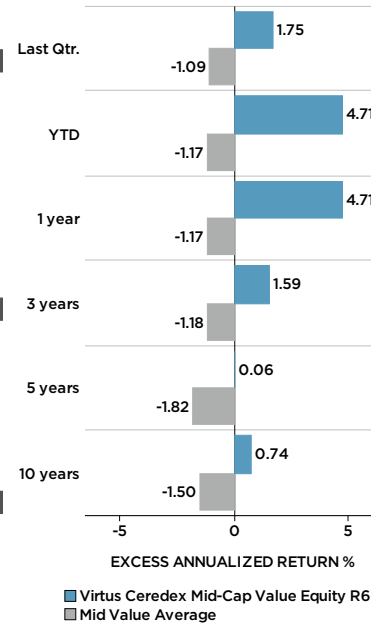
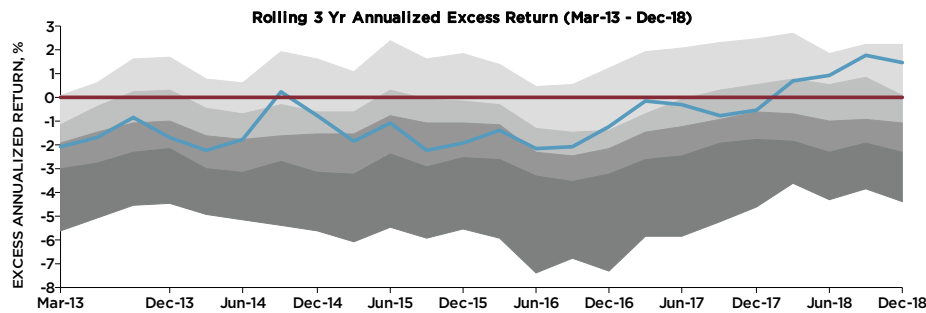
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# VIRTUS CEREDEX MID-CAP VALUE EQUITY R6

Period Ending 12.31.18 | Q4 18

	Virtus Ceredex Mid-Cap Value Equity R6	Peer Group Rank	Russell MidCap Value Index	Mid Value	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	12.21	48%	11.42	12.45	345
Sharpe Ratio	0.40	14%	0.42	0.25	345
Alpha	-0.08	15%	0.00	-2.01	345
Beta	1.03	49%	1.00	1.04	345
R-Squared	92.87	53%	100.00	91.03	345
Up Mkt Capture	103.38	15%	100.00	95.13	345
Down Mkt Capture	103.70	37%	100.00	107.26	345
Information Ratio	0.02	12%	NA	-0.47	345
<b>TRAILING RETURNS</b>					
Last Qtr.	-13.21	11%	-14.95	-16.05	398
YTD	-7.58	9%	-12.29	-13.46	397
1 Year	-7.58	9%	-12.29	-13.46	397
3 Years	7.65	9%	6.06	4.88	375
5 Years	5.51	12%	5.44	3.62	345
10 Years	13.77	4%	13.03	11.53	298
<b>CALENDAR RETURNS</b>					
2017	11.98	63%	13.34	13.21	399
2016	20.53	31%	20.00	17.94	408
2015	-5.63	58%	-4.78	-5.48	422
2014	11.05	37%	14.75	9.52	407
2013	31.21	81%	33.46	34.98	406



## INVESTMENT PROFILE

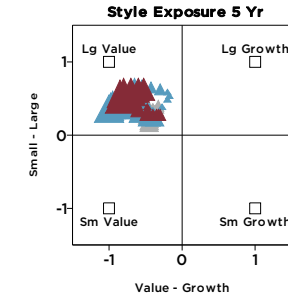
Ticker	SMVZX
CUSIP	92837F441
Net Assets \$MM	\$2,515.00
Manager Names	Don Wordell
Manager Tenure	17.1 Years
Prospectus Exp Ratio	0.80%
Cat Median Exp Ratio	1.17%
Current 12b-1	N/A
Annldz Ret Since Incept	5.14%
Inception Date	08/01/2014
Phone Number	888-784-3863
Sub Advisor	Ceredex Value Advisors LLC

## HOLDINGS OVERVIEW

Total Number of Holdings	60
% Assets in Top 10 Holdings	31.06%
Avg Mkt Cap \$MM	\$13,512.33
Turnover Ratio	82.00%

## TOP HOLDINGS

Motorola Solutions Inc	4.03%
Zimmer Biomet Holdings I	3.85%
Perrigo Co PLC	3.73%
Humana Inc	3.71%
Pinnacle Financial Partner	2.97%



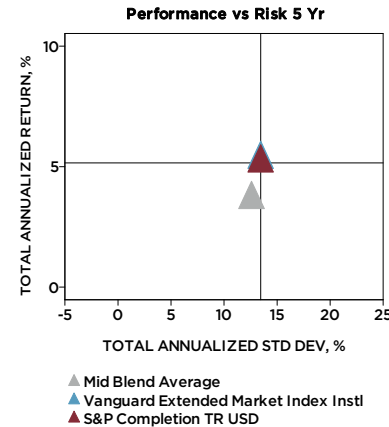
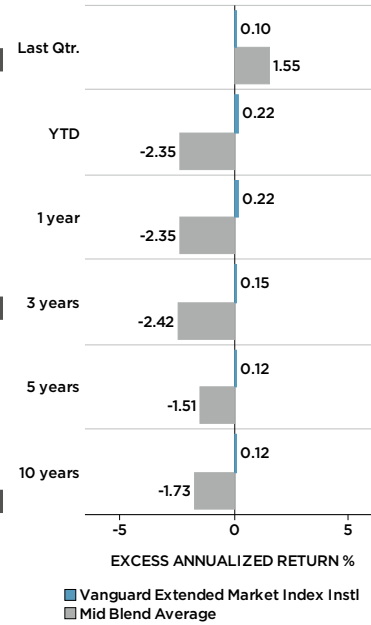
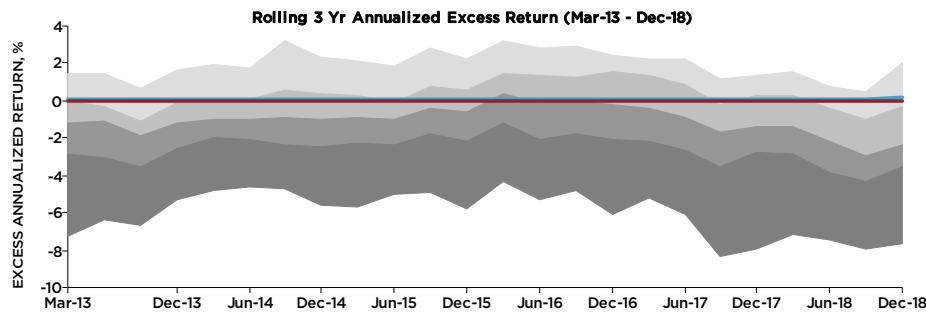
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# VANGUARD EXTENDED MARKET INDEX INSTL

Period Ending 12.31.18 | Q4 18

	Vanguard Extended Market Index Instl	Peer Group Rank	S&P Completion TR USD	Mid Blend	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	13.50	85%	13.51	12.54	372
Sharpe Ratio	0.35	40%	0.34	0.25	372
Alpha	0.13	43%	0.00	-0.90	372
Beta	1.00	5%	1.00	0.87	372
R-Squared	100.00	1%	100.00	87.19	372
Up Mkt Capture	100.44	3%	100.00	82.15	372
Down Mkt Capture	99.77	86%	100.00	88.20	372
Information Ratio	1.43	1%	NA	-0.23	372
<b>TRAILING RETURNS</b>					
Last Qtr.	-18.18	81%	-18.28	-16.73	436
YTD	-9.35	24%	-9.57	-11.92	434
1 Year	-9.35	24%	-9.57	-11.92	434
3 Years	7.54	15%	7.39	4.97	395
5 Years	5.30	30%	5.17	3.67	372
10 Years	13.66	11%	13.54	11.81	319
<b>CALENDAR RETURNS</b>					
2017	18.12	25%	18.11	15.43	452
2016	16.15	38%	15.95	14.05	442
2015	-3.24	51%	-3.35	-4.45	458
2014	7.56	63%	7.50	8.40	455
2013	38.42	18%	38.24	34.44	457



## INVESTMENT PROFILE

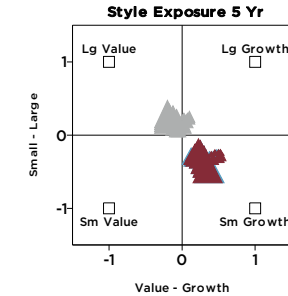
Ticker	VIEIX
CUSIP	922908884
Net Assets \$MM	\$58,480.00
Manager Names	Team Managed
Manager Tenure	21.0 Years
Prospectus Exp Ratio	0.06%
Cat Median Exp Ratio	1.15%
Current 12b-1	N/A
Annlzd Ret Since Incept	7.99%
Inception Date	07/07/1997
Phone Number	888-809-8102
Sub Advisor	N/A

## HOLDINGS OVERVIEW

Total Number of Holdings	3305
% Assets in Top 10 Holdings	5.01%
Avg Mkt Cap \$MM	\$4,118.03
Turnover Ratio	0.04%

## TOP HOLDINGS

Tesla Inc	0.96%
ServiceNow Inc	0.67%
Worldpay Inc Class A	0.52%
Workday Inc Class A	0.49%
T-Mobile US Inc	0.43%

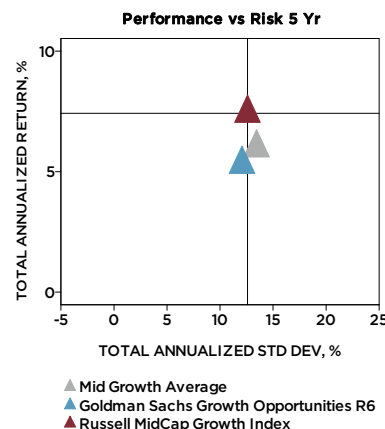
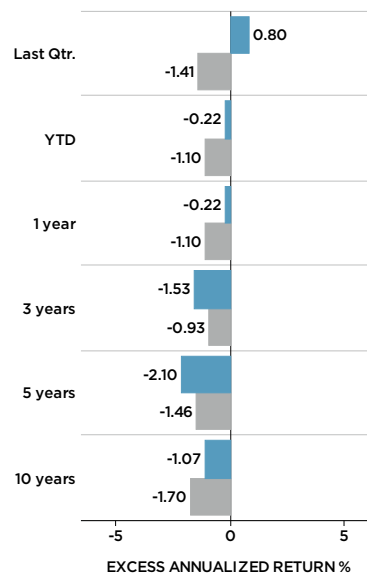
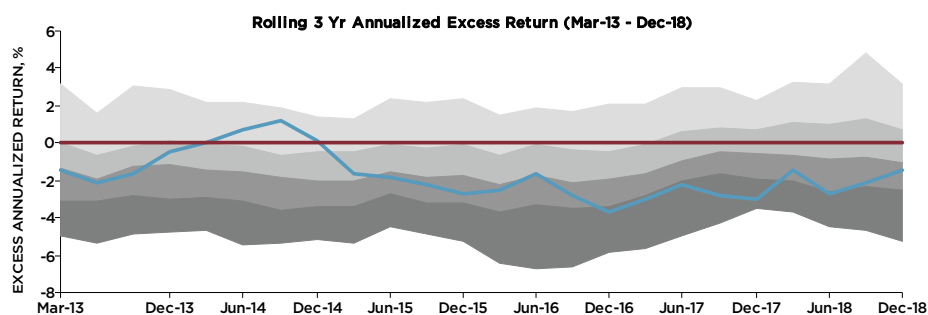


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# GOLDMAN SACHS GROWTH OPPORTUNITIES R6

Period Ending 12.31.18 | Q4 18

	Goldman Sachs Growth Opportunities R6	Peer Group Rank	Russell MidCap Growth Index	Mid Growth	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	12.15	20%	12.51	13.42	549
Sharpe Ratio	0.39	52%	0.54	0.41	549
Alpha	-1.67	53%	0.00	-1.49	549
Beta	0.94	78%	1.00	1.01	549
R-Squared	93.12	38%	100.00	88.69	549
Up Mkt Capture	87.09	86%	100.00	96.40	549
Down Mkt Capture	97.00	25%	100.00	104.96	549
Information Ratio	-0.60	72%	NA	-0.36	549
<b>TRAILING RETURNS</b>					
Last Qtr.	-15.19	24%	-15.99	-17.41	596
YTD	-4.97	40%	-4.75	-5.85	590
1 Year	-4.97	40%	-4.75	-5.85	590
3 Years	7.06	58%	8.59	7.66	570
5 Years	5.32	66%	7.42	5.96	549
10 Years	14.05	33%	15.12	13.42	493
<b>CALENDAR RETURNS</b>					
2017	27.24	28%	25.27	24.92	615
2016	1.49	82%	7.33	5.99	651
2015	-5.24	86%	-0.20	-0.71	672
2014	11.44	14%	11.90	7.21	693
2013	32.38	68%	35.74	35.23	683



## INVESTMENT PROFILE

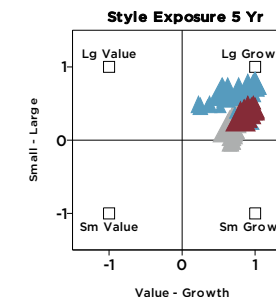
Ticker	GGOUX
CUSIP	38148U601
Net Assets \$MM	\$1,417.00
Manager Names	Steven M. Barry
Manager Tenure	19.5 Years
Prospectus Exp Ratio	0.88%
Cat Median Exp Ratio	1.26%
Current 12b-1	N/A
Annlzd Ret Since Incept	3.71%
Inception Date	07/31/2015
Phone Number	800-526-7384
Sub Advisor	N/A

## HOLDINGS OVERVIEW

Total Number of Holdings	93
% Assets in Top 10 Holdings	22.79%
Avg Mkt Cap \$MM	\$17,248.62
Turnover Ratio	60.00%

## TOP HOLDINGS

Amphenol Corp Class A	2.77%
Global Payments Inc	2.56%
Fiserv Inc	2.56%
Black Knight Inc A	2.23%
Ross Stores Inc	2.21%



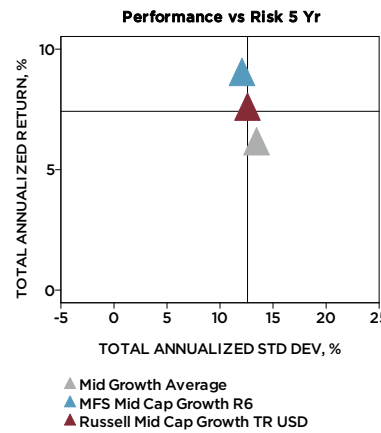
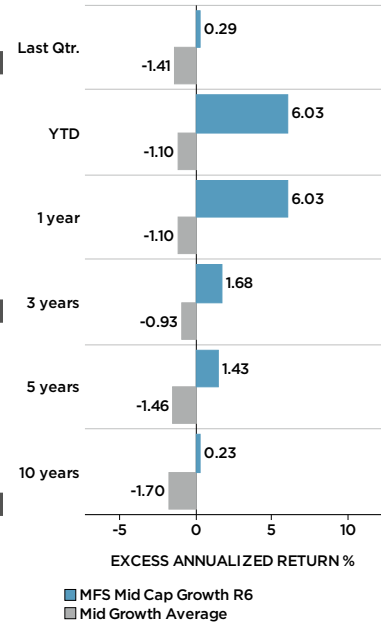
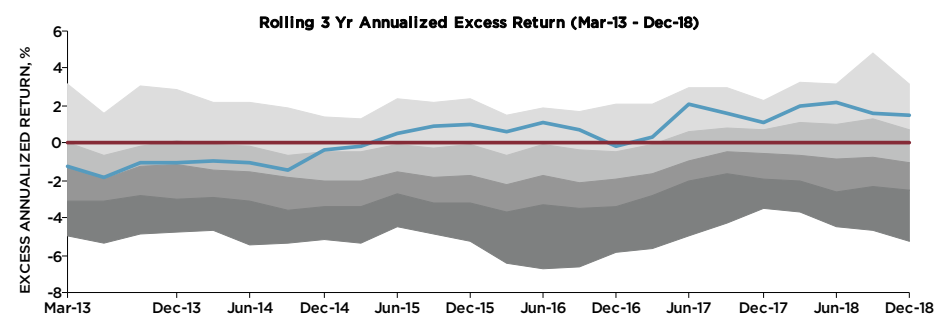
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\*Effective 1/14/2019

# MFS MID CAP GROWTH R6

Period Ending 12.31.18 | Q4 18

	MFS Mid Cap Growth R6	Peer Group Rank	Russell Mid Cap Growth TR USD	Mid Growth	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	12.11	17%	12.51	13.42	549
Sharpe Ratio	0.68	7%	0.54	0.41	549
Alpha	1.89	8%	0.00	-1.49	549
Beta	0.93	79%	1.00	1.01	549
R-Squared	92.80	42%	100.00	88.69	549
Up Mkt Capture	99.30	33%	100.00	96.40	549
Down Mkt Capture	89.49	12%	100.00	104.97	549
Information Ratio	0.40	8%	NA	-0.36	549
<b>TRAILING RETURNS</b>					
Last Qtr.	-15.70	26%	-15.99	-17.41	596
YTD	1.28	9%	-4.75	-5.85	590
1 Year	1.28	9%	-4.75	-5.85	590
3 Years	10.27	16%	8.59	7.66	570
5 Years	8.85	10%	7.42	5.96	549
10 Years	15.35	12%	15.12	13.42	493
<b>CALENDAR RETURNS</b>					
2017	26.39	35%	25.27	24.92	615
2016	4.75	56%	7.33	5.99	651
2015	4.60	9%	-0.20	-0.71	672
2014	8.95	32%	11.90	7.21	693
2013	37.27	30%	35.74	35.23	683



**INVESTMENT PROFILE**

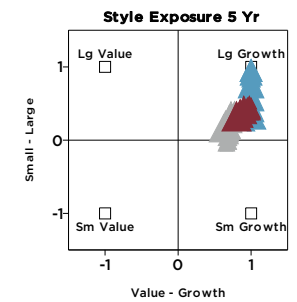
Ticker	OTCKX
CUSIP	552987554
Net Assets \$MM	\$3,511.00
Manager Names	Team Managed
Manager Tenure	10.1 Years
Prospectus Exp Ratio	0.77%
Cat Median Exp Ratio	1.26%
Current 12b-1	N/A
Annlzd Ret Since Incept	12.67%
Inception Date	01/02/2013
Phone Number	800-225-2606
Sub Advisor	N/A

**HOLDINGS OVERVIEW**

Total Number of Holdings	105
% Assets in Top 10 Holdings	22.28%
Avg Mkt Cap \$MM	\$13,032.90
Turnover Ratio	33.00%

**TOP HOLDINGS**

Bright Horizons Family Sol	3.54%
PerkinElmer Inc	2.78%
Verisk Analytics Inc	2.13%
AMETEK Inc	2.09%
Global Payments Inc	2.09%

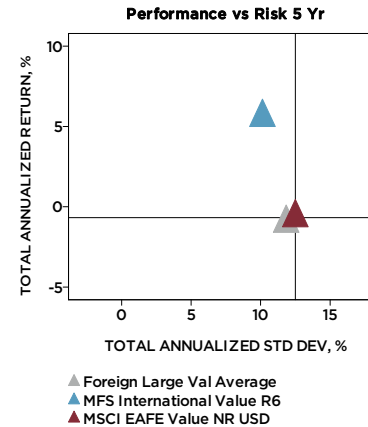
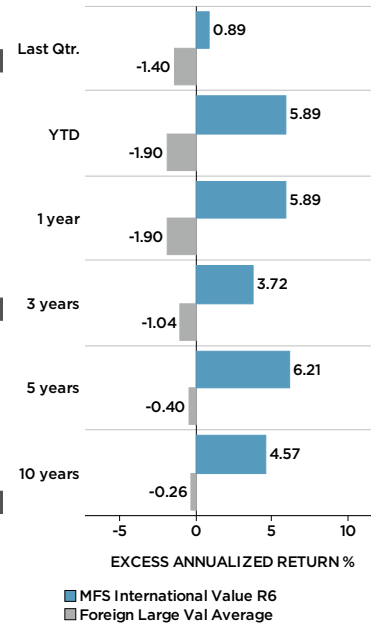
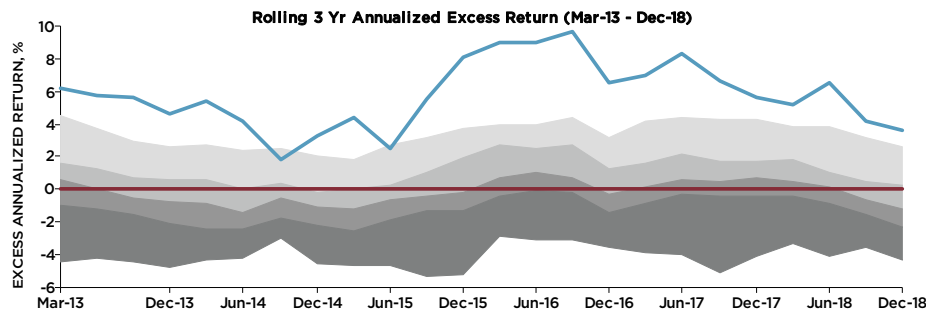


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# MFS INTERNATIONAL VALUE R6

Period Ending 12.31.18 | Q4 18

	MFS International Value R6	Peer Group Rank	MSCI EAFE Value NR USD	Foreign Large Val	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	10.18	6%	12.46	11.85	257
Sharpe Ratio	0.49	1%	-0.10	-0.13	257
Alpha	5.76	1%	0.00	-0.54	257
Beta	0.64	100%	1.00	0.89	257
R-Squared	61.08	99%	100.00	87.60	257
Up Mkt Capture	74.75	88%	100.00	85.31	257
Down Mkt Capture	45.22	1%	100.00	89.85	257
Information Ratio	0.79	3%	NA	-0.09	257
<b>TRAILING RETURNS</b>					
Last Qtr.	-10.81	9%	-11.70	-13.10	296
YTD	-8.89	2%	-14.78	-16.68	291
1 Year	-8.89	2%	-14.78	-16.68	291
3 Years	6.54	3%	2.82	1.77	285
5 Years	5.60	1%	-0.61	-1.01	257
10 Years	10.07	1%	5.50	5.24	214
<b>CALENDAR RETURNS</b>					
2017	27.25	11%	21.44	22.68	314
2016	4.31	29%	5.02	3.27	339
2015	6.85	1%	-5.68	-3.22	361
2014	1.61	1%	-5.39	-6.21	354
2013	27.80	2%	22.95	20.72	347



## INVESTMENT PROFILE

Ticker	MINJX
CUSIP	552746349
Net Assets \$MM	\$25,636.00
Manager Names	Team Managed
Manager Tenure	10.1 Years
Prospectus Exp Ratio	0.63%
Cat Median Exp Ratio	1.20%
Current 12b-1	N/A
Annlzd Ret Since Incept	6.01%
Inception Date	05/01/2006
Phone Number	800-225-2606
Sub Advisor	N/A

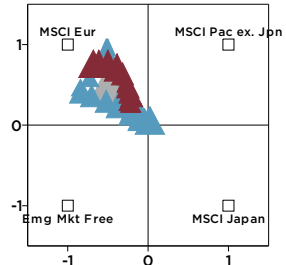
## HOLDINGS OVERVIEW

Total Number of Holdings	111
% Assets in Top 10 Holdings	26.72%
Avg Mkt Cap \$MM	\$22,698.36
Turnover Ratio	14.00%

## TOP HOLDINGS

Nestle SA	4.51%
Givaudan SA	3.17%
Henkel AG & Co KGaA Part	2.80%
Pernod Ricard SA	2.53%
Reckitt Benckiser Group PL	2.43%

## Style Exposure 5 Yr

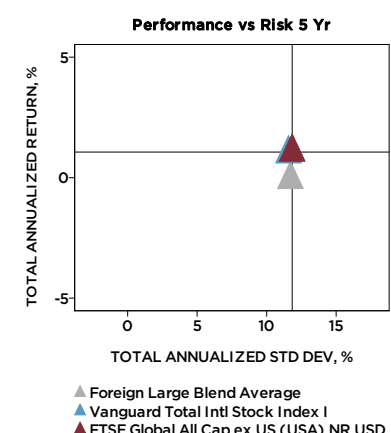
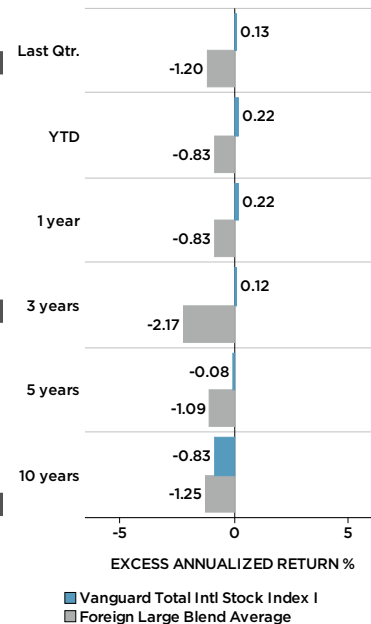
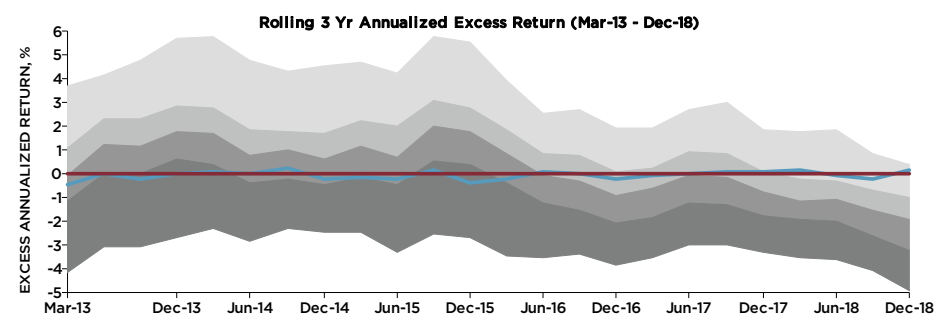


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# VANGUARD TOTAL INTL STOCK INDEX I

Period Ending 12.31.18 | Q4 18

	Vanguard Total Intl Stock Index I	Peer Group Rank	FTSE Global All Cap ex US (USA) NR USD	Foreign Large Blend	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	11.61	60%	11.81	11.64	605
Sharpe Ratio	0.03	19%	0.04	-0.05	605
Alpha	-0.07	20%	0.00	-1.07	605
Beta	0.97	25%	1.00	0.93	605
R-Squared	98.21	1%	100.00	89.92	605
Up Mkt Capture	97.34	10%	100.00	88.30	605
Down Mkt Capture	98.03	64%	100.00	95.61	605
Information Ratio	-0.05	21%	NA	-0.30	605
<b>TRAILING RETURNS</b>					
Last Qtr.	-11.66	22%	-11.79	-12.99	722
YTD	-14.39	37%	-14.62	-15.44	707
1 Year	-14.39	37%	-14.62	-15.44	707
3 Years	4.56	9%	4.44	2.27	675
5 Years	0.97	19%	1.05	-0.05	605
10 Years	6.38	32%	7.21	5.97	517
<b>CALENDAR RETURNS</b>					
2017	27.55	25%	27.41	25.38	757
2016	4.70	12%	4.72	0.88	777
2015	-4.24	81%	-4.29	-1.48	756
2014	-4.15	30%	-3.39	-5.04	767
2013	15.15	83%	15.59	19.58	789



**INVESTMENT PROFILE**

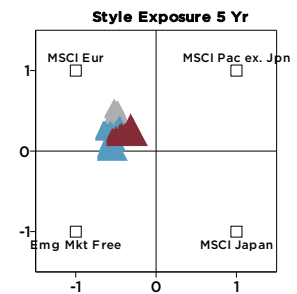
Ticker	VTSNX
CUSIP	921909784
Net Assets \$MM	\$326,952.00
Manager Names	Team Managed
Manager Tenure	10.4 Years
Prospectus Exp Ratio	0.09%
Cat Median Exp Ratio	1.15%
Current 12b-1	N/A
Annlzd Ret Since Incept	3.38%
Inception Date	11/29/2010
Phone Number	800-662-7447
Sub Advisor	N/A

**HOLDINGS OVERVIEW**

Total Number of Holdings	6296
% Assets in Top 10 Holdings	8.03%
Avg Mkt Cap \$MM	\$21,246.53
Turnover Ratio	11.57%

**TOP HOLDINGS**

Nestle SA	1.11%
Tencent Holdings Ltd	0.99%
Novartis AG	0.86%
Roche Holding AG Dividen	0.78%
Samsung Electronics Co Lt	0.76%

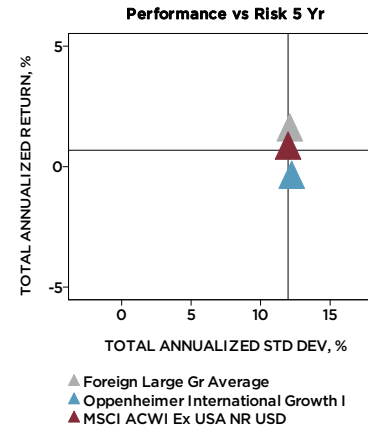
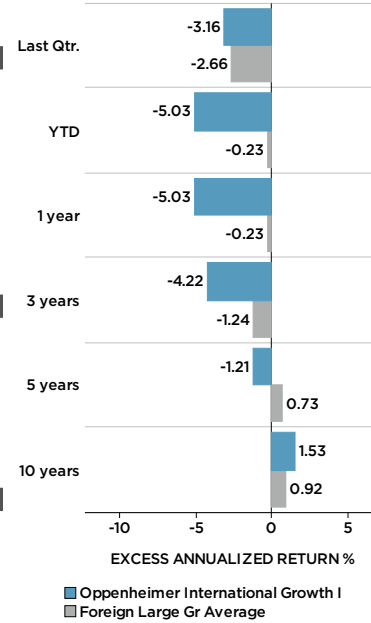
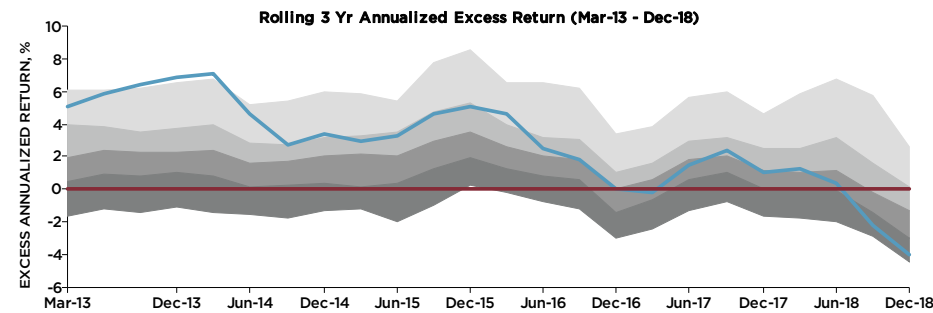


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# OPPENHEIMER INTERNATIONAL GROWTH I

Period Ending 12.31.18 | Q4 18

	Oppenheimer International Growth I	Peer Group Rank	MSCI ACWI Ex USA NR USD	Foreign Large Gr	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	12.24	66%	11.91	12.08	383
Sharpe Ratio	-0.10	86%	0.00	0.06	383
Alpha	-1.21	87%	0.00	0.73	383
Beta	0.95	32%	1.00	0.92	383
R-Squared	84.42	48%	100.00	82.88	383
Up Mkt Capture	84.18	73%	100.00	88.79	383
Down Mkt Capture	92.79	79%	100.00	85.61	383
Information Ratio	-0.25	87%	NA	0.12	383
<b>TRAILING RETURNS</b>					
Last Qtr.	-14.63	57%	-11.46	-14.12	446
YTD	-19.22	89%	-14.20	-14.43	444
1 Year	-19.22	89%	-14.20	-14.43	444
3 Years	0.26	91%	4.48	3.24	407
5 Years	-0.54	87%	0.68	1.41	383
10 Years	8.10	32%	6.57	7.50	323
<b>CALENDAR RETURNS</b>					
2017	27.15	81%	27.19	31.84	457
2016	-1.88	50%	4.50	-2.12	457
2015	3.63	20%	-5.66	1.03	457
2014	-6.80	81%	-3.87	-3.93	452
2013	25.71	16%	15.29	20.30	448



## INVESTMENT PROFILE

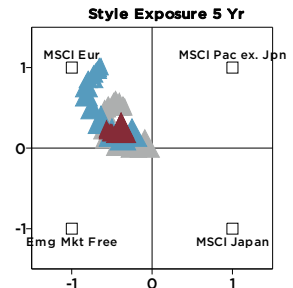
Ticker	OIGIX
CUSIP	68380L605
Net Assets \$MM	\$18,750.00
Manager Names	Team Managed
Manager Tenure	22.8 Years
Prospectus Exp Ratio	0.69%
Cat Median Exp Ratio	1.19%
Current 12b-1	N/A
Annlzd Ret Since Incept	4.30%
Inception Date	03/29/2012
Phone Number	800-225-5677
Sub Advisor	OppenheimerFunds Inc

## HOLDINGS OVERVIEW

Total Number of Holdings	84
% Assets in Top 10 Holdings	19.04%
Avg Mkt Cap \$MM	\$21,598.65
Turnover Ratio	22.00%

## TOP HOLDINGS

Infineon Technologies AG	2.29%
SAP SE	2.25%
ICICI Bank Ltd ADR	2.13%
Bunzl PLC	1.84%
Lonza Group Ltd	1.80%



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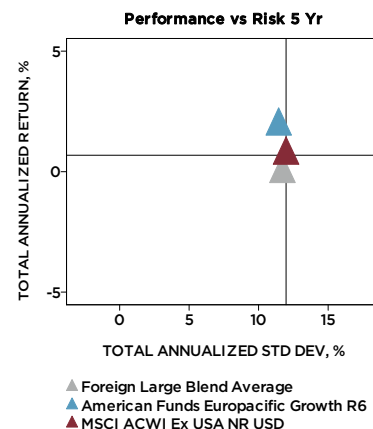
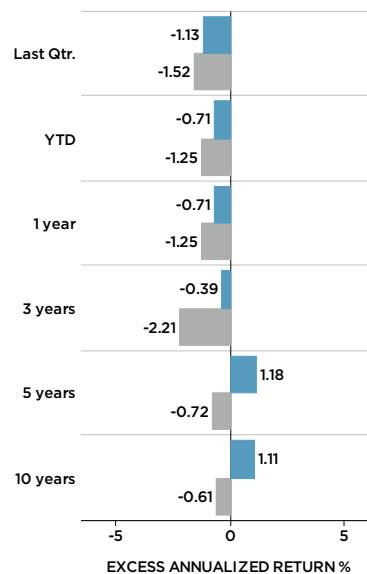
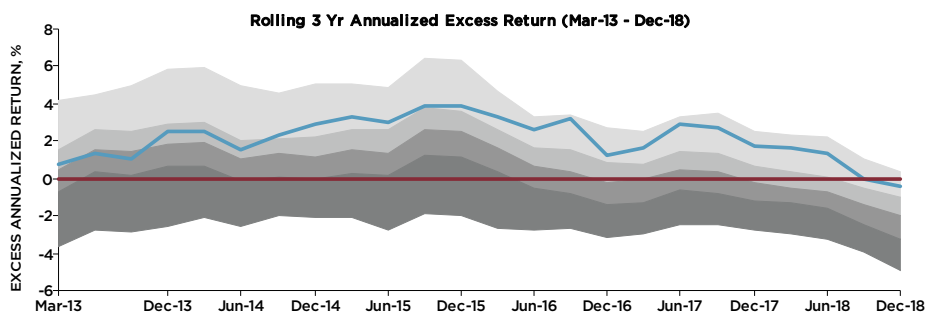
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AMERICAN FUNDS EUROPACIFIC GROWTH R6

\*Effective 1/14/2019

Period Ending 12.31.18 | Q4 18

	American Funds Europacific Growth R6	Peer Group Rank	MSCI ACWI Ex USA NR USD	Foreign Large Blend	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	11.36	30%	11.91	11.64	605
Sharpe Ratio	0.11	8%	0.00	-0.05	605
Alpha	1.19	8%	0.00	-0.72	605
Beta	0.91	70%	1.00	0.93	605
R-Squared	90.22	63%	100.00	89.86	605
Up Mkt Capture	91.22	35%	100.00	88.12	605
Down Mkt Capture	85.24	17%	100.00	93.40	605
Information Ratio	0.31	7%	NA	-0.19	605
<b>TRAILING RETURNS</b>					
Last Qtr.	-12.59	40%	-11.46	-12.99	722
YTD	-14.91	46%	-14.20	-15.44	707
1 Year	-14.91	46%	-14.20	-15.44	707
3 Years	4.08	14%	4.48	2.27	675
5 Years	1.86	8%	0.68	-0.05	605
10 Years	7.69	10%	6.57	5.97	517
<b>CALENDAR RETURNS</b>					
2017	31.17	3%	27.19	25.38	757
2016	1.01	46%	4.50	0.88	777
2015	-0.48	38%	-5.66	-1.48	756
2014	-2.29	17%	-3.87	-5.04	767
2013	20.58	45%	15.29	19.58	789



**INVESTMENT PROFILE**

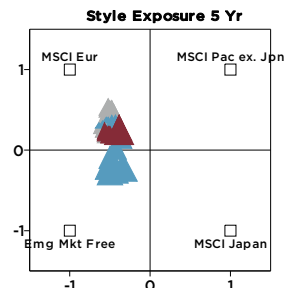
Ticker	RERGX
CUSIP	298706821
Net Assets \$MM	\$138,711.00
Manager Names	Team Managed
Manager Tenure	27.0 Years
Prospectus Exp Ratio	0.49%
Cat Median Exp Ratio	1.15%
Current 12b-1	N/A
Annlzd Ret Since Incept	7.72%
Inception Date	05/01/2009
Phone Number	800-421-4225
Sub Advisor	N/A

**HOLDINGS OVERVIEW**

Total Number of Holdings	392
% Assets in Top 10 Holdings	20.79%
Avg Mkt Cap \$MM	\$44,865.02
Turnover Ratio	0.49%

**TOP HOLDINGS**

AIA Group Ltd	2.70%
Airbus SE	2.49%
Nintendo Co Ltd	2.35%
Samsung Electronics Co L	2.34%
Reliance Industries Ltd	2.32%

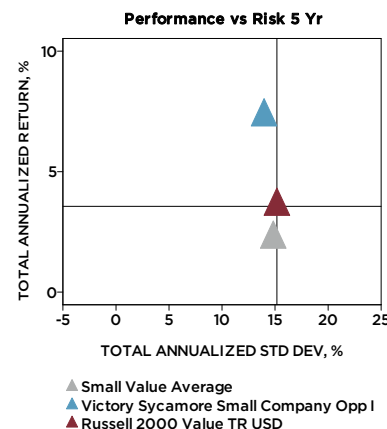
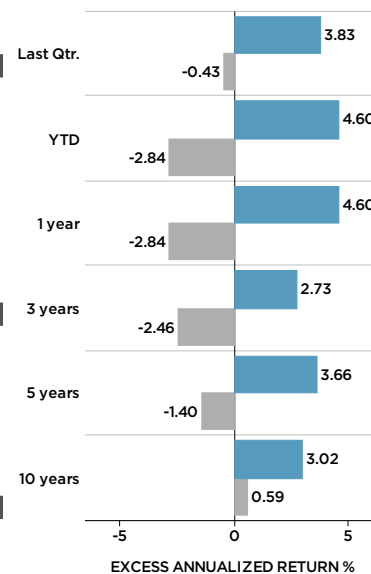
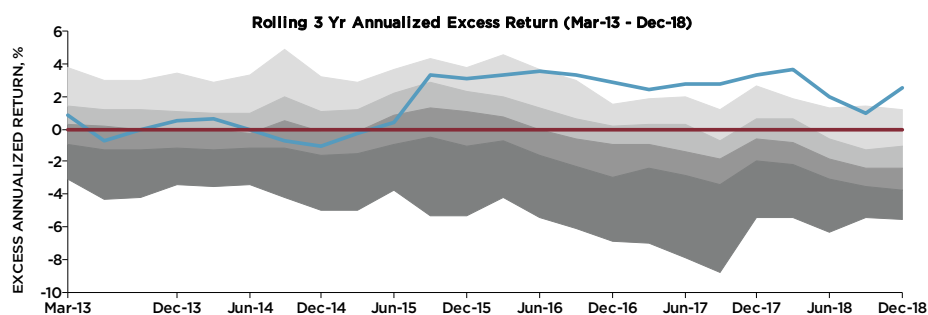


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# VICTORY SYCAMORE SMALL COMPANY OPP I

Period Ending 12.31.18 | Q4 18

	Victory Sycamore Small Company Opp I	Peer Group Rank	Russell 2000 Value TR USD	Small Value	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	13.97	25%	15.18	14.87	361
Sharpe Ratio	0.48	1%	0.20	0.11	361
Alpha	3.96	1%	0.00	-1.20	361
Beta	0.90	66%	1.00	0.93	361
R-Squared	95.04	40%	100.00	91.05	361
Up Mkt Capture	101.93	6%	100.00	87.27	361
Down Mkt Capture	84.44	16%	100.00	93.92	361
Information Ratio	1.00	1%	NA	-0.28	361
<b>TRAILING RETURNS</b>					
Last Qtr.	-14.84	10%	-18.67	-19.10	408
YTD	-8.26	4%	-12.86	-15.71	402
1 Year	-8.26	4%	-12.86	-15.71	402
3 Years	10.10	1%	7.37	4.91	386
5 Years	7.26	1%	3.61	2.21	361
10 Years	13.42	8%	10.40	10.99	316
<b>CALENDAR RETURNS</b>					
2017	11.88	27%	7.84	9.25	409
2016	30.04	18%	31.74	25.66	420
2015	-0.39	4%	-7.47	-6.81	428
2014	6.80	15%	4.22	3.58	426
2013	33.39	71%	34.52	35.70	430



## INVESTMENT PROFILE

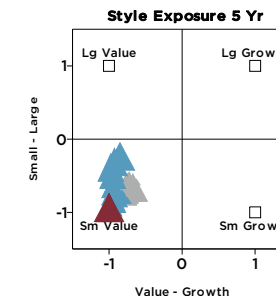
Ticker	VSOIX
CUSIP	92646A815
Net Assets \$MM	\$4,658.00
Manager Names	Team Managed
Manager Tenure	20.6 Years
Prospectus Exp Ratio	0.90%
Cat Median Exp Ratio	1.28%
Current 12b-1	0.00%
Annlzd Ret Since Incept	8.12%
Inception Date	08/31/2007
Phone Number	800-539-3863
Sub Advisor	N/A

## HOLDINGS OVERVIEW

Total Number of Holdings	108
% Assets in Top 10 Holdings	14.35%
Avg Mkt Cap \$MM	\$2,636.40
Turnover Ratio	36.00%

## TOP HOLDINGS

Sanderson Farms Inc	1.55%
EMCOR Group Inc	1.48%
iShares Russell 2000 Valu	1.47%
Horace Mann Educators C	1.45%
Performance Food Group	1.43%



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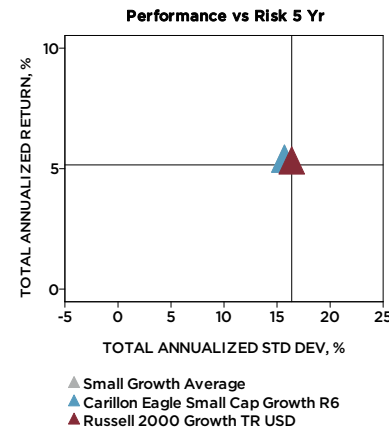
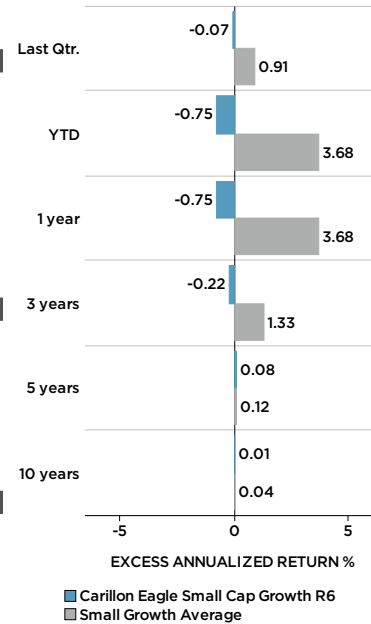
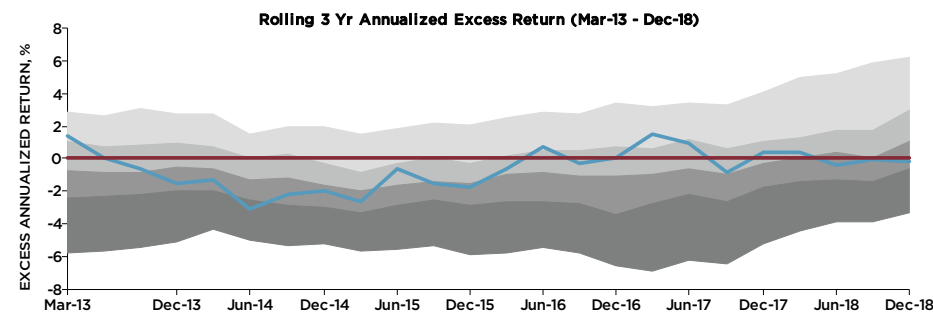
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# CARILLON EAGLE SMALL CAP GROWTH R6

Period Ending 12.31.18 | Q4 18

	Carillon Eagle Small Cap Growth R6	Peer Group Rank	Russell 2000 Growth TR USD	Small Growth	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	15.77	50%	16.30	15.77	625
Sharpe Ratio	0.29	52%	0.28	0.30	625
Alpha	0.34	53%	0.00	0.49	625
Beta	0.94	46%	1.00	0.92	625
R-Squared	94.78	27%	100.00	90.43	625
Up Mkt Capture	95.08	35%	100.00	91.60	625
Down Mkt Capture	94.61	61%	100.00	90.68	625
Information Ratio	0.02	51%	NA	0.01	625
<b>TRAILING RETURNS</b>					
Last Qtr.	-21.73	69%	-21.65	-20.74	685
YTD	-10.06	78%	-9.31	-5.63	680
1 Year	-10.06	78%	-9.31	-5.63	680
3 Years	7.02	70%	7.24	8.57	658
5 Years	5.21	51%	5.13	5.26	625
10 Years	13.53	50%	13.52	13.56	561
<b>CALENDAR RETURNS</b>					
2017	23.40	44%	22.17	22.24	725
2016	10.45	53%	11.32	11.29	746
2015	-0.39	27%	-1.38	-2.40	764
2014	5.59	26%	5.60	2.66	778
2013	34.70	87%	43.30	41.34	777



## INVESTMENT PROFILE

Ticker	HSRUX
CUSIP	14214L452
Net Assets \$MM	\$4,038.00
Manager Names	Team Managed
Manager Tenure	23.0 Years
Prospectus Exp Ratio	0.66%
Cat Median Exp Ratio	1.31%
Current 12b-1	0.00%
Annlzd Ret Since Incept	9.98%
Inception Date	08/15/2011
Phone Number	800-421-4184
Sub Advisor	Eagle Asset Management, Inc.

## HOLDINGS OVERVIEW

Total Number of Holdings	111
% Assets in Top 10 Holdings	18.76%
Avg Mkt Cap \$MM	\$3,576.25
Turnover Ratio	35.00%

## TOP HOLDINGS

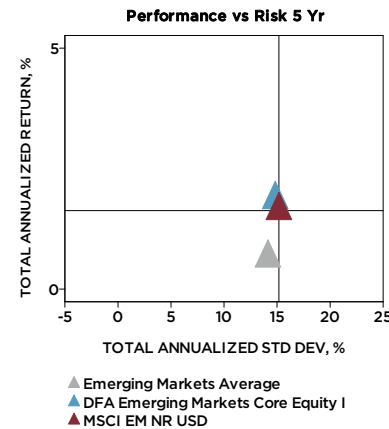
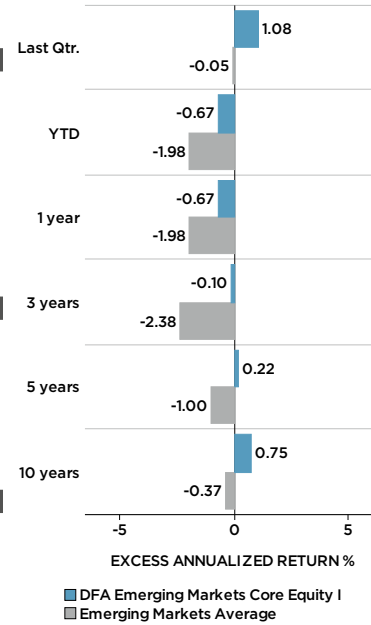
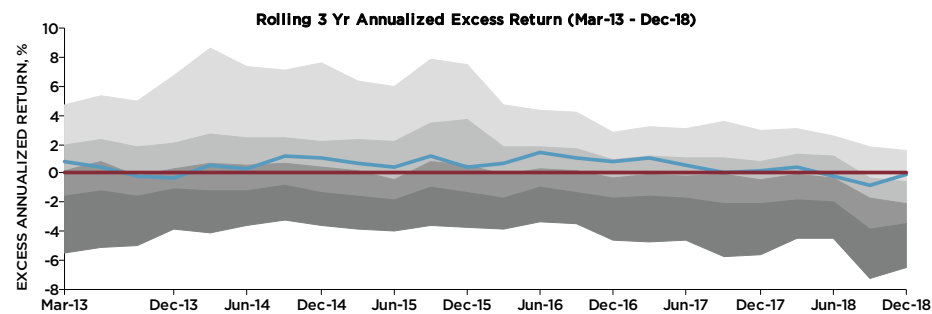
Quaker Chemical Corp	2.54%
Planet Fitness Inc A	2.16%
Teladoc Health Inc	2.15%
RealPage Inc	1.90%
Coherent Inc	1.79%

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# DFA EMERGING MARKETS CORE EQUITY I

Period Ending 12.31.18 | Q4 18

	DFA Emerging Markets Core Equity I	Peer Group Rank	MSCI EM NR USD	Emerging Markets	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	14.80	61%	15.19	14.14	609
Sharpe Ratio	0.08	25%	0.07	0.00	609
Alpha	0.26	26%	0.00	-0.87	609
Beta	0.96	29%	1.00	0.87	609
R-Squared	97.35	7%	100.00	87.43	609
Up Mkt Capture	99.24	18%	100.00	86.50	609
Down Mkt Capture	98.35	66%	100.00	92.04	609
Information Ratio	0.09	16%	NA	-0.20	609
<b>TRAILING RETURNS</b>					
Last Qtr.	-6.39	33%	-7.47	-7.52	812
YTD	-15.25	37%	-14.58	-16.56	790
1 Year	-15.25	37%	-14.58	-16.56	790
3 Years	9.15	19%	9.25	6.86	739
5 Years	1.87	23%	1.65	0.65	609
10 Years	8.77	16%	8.02	7.65	342
<b>CALENDAR RETURNS</b>					
2017	36.55	49%	37.28	35.29	817
2016	12.35	19%	11.19	8.21	858
2015	-14.86	60%	-14.92	-13.54	845
2014	-0.91	30%	-2.19	-2.74	791
2013	-2.64	61%	-2.60	0.31	698



## INVESTMENT PROFILE

Ticker	DFCEX
CUSIP	233203421
Net Assets \$MM	\$25,617.00
Manager Names	Team Managed
Manager Tenure	8.8 Years
Prospectus Exp Ratio	0.53%
Cat Median Exp Ratio	1.40%
Current 12b-1	N/A
Annlzd Ret Since Incept	6.99%
Inception Date	04/05/2005
Phone Number	888-576-1167
Sub Advisor	DFA Australia Limited/ Dimensional Fund Advisors Ltd

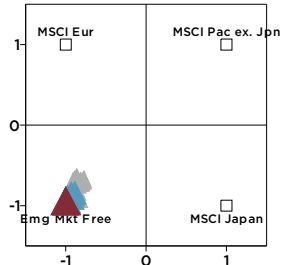
## HOLDINGS OVERVIEW

Total Number of Holdings	5103
% Assets in Top 10 Holdings	12.46%
Avg Mkt Cap \$MM	\$7,949.06
Turnover Ratio	0.63%

## TOP HOLDINGS

Samsung Electronics Co Ltd	3.58%
Tencent Holdings Ltd	1.63%
Taiwan Semiconductor Mar	1.53%
Taiwan Semiconductor Mar	1.14%
Vale SA	0.94%

## Style Exposure 5 Yr

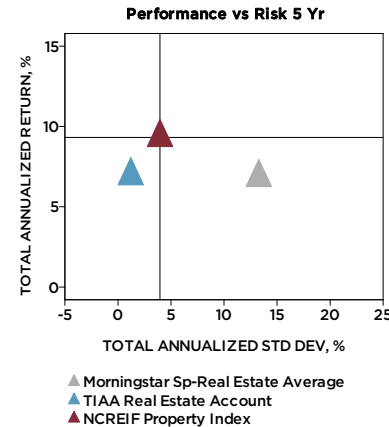
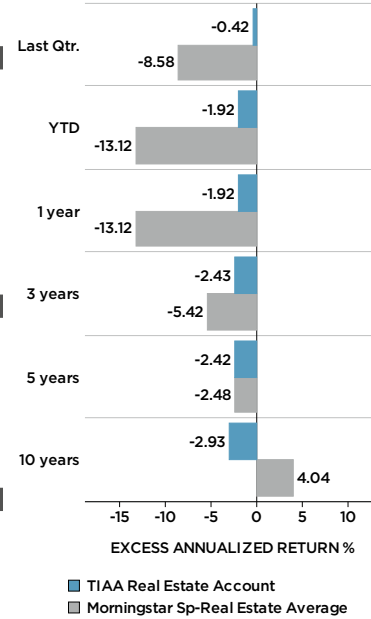
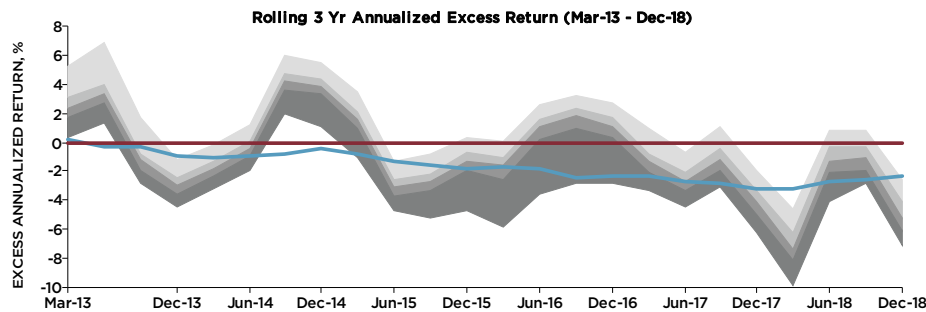


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# TIAA REAL ESTATE ACCOUNT

Period Ending 12.31.18 | Q4 18

	TIAA Real Estate Account	Peer Group Rank	NCREIF Property Index	Morningstar Sp-Real Estate	# of Funds
<b>KEY MEASURES / 5 YEAR</b>					
Standard Deviation	1.25	1%	3.94	13.20	217
Sharpe Ratio	5.01	1%	2.21	0.48	217
Alpha	6.20	25%	0.00	5.25	217
Beta	0.01	90%	1.00	0.11	217
R-Squared	0.07	74%	100.00	0.20	217
Up Mkt Capture	74.10	49%	100.00	73.38	217
Down Mkt Capture	NA	0%	NA	NA	0
Information Ratio	-0.54	99%	NA	-0.17	217
<b>TRAILING RETURNS</b>					
Last Qtr.	0.95	1%	1.37	-7.21	240
YTD	4.79	1%	6.71	-6.41	238
1 Year	4.79	1%	6.71	-6.41	238
3 Years	4.79	4%	7.22	1.80	228
5 Years	6.91	49%	9.33	6.84	217
10 Years	4.56	100%	7.49	11.53	190
<b>CALENDAR RETURNS</b>					
2017	4.37	63%	6.98	5.70	256
2016	5.20	73%	7.97	6.64	276
2015	8.16	1%	13.33	2.47	280
2014	12.22	99%	11.81	28.41	279
2013	9.65	2%	10.99	1.67	273



## INVESTMENT PROFILE

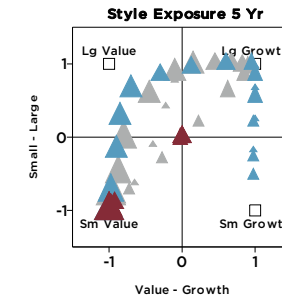
ID	VAUSA059TL
Cusip	878094200
Net Assets \$	\$25,842,896,455.96
Manager Name	Team Managed
Manager Start Date	2016-05-01
Expense Ratio	0.83%
Cat Median Exp Ratio	1.27%
Annld Ret Since Incept	6.29%
Inception Date	10-02-1995
Share Class Incep Date	10/02/1995
Phone Number	877-518-9161
Sub Advisor	

## HOLDINGS OVERVIEW

% Assets in Top 10 Holdings	20.00%
Avg Mkt Cap \$MM	\$12,808.83
Turnover Ratio	2.70%

## TOP HOLDINGS

Fashion Show	2.98%
1001 Pennsylvania Avenue	2.72%
The Florida Mall	2.69%
Ddr Joint Venture	2.20%
Fourth And Madison	2.02%



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4.1

# APPENDIX

Period Ending 12.31.18 | Q4 18

University of Maine System

4.1

APPENDIX	
Your CAPTRUST Service Team.....	
Glossary of Terms.....	
Evaluation Methodology.....	

YOUR CAPTRUST SERVICE TEAM MEMBERS

Period Ending 12.31.18 | Q4 18

University of Maine System

4.1

TEAM MEMBERS	RESPONSIBILITIES
<p><b>Michael S. Pratico</b>                      Senior Vice President   Financial Advisor                      Michael.Pratico@captrust.com</p>	<p><b>Account Role: Lead Consultant</b>                      Our Lead Consultants serve as the primary relationship manager for the fiduciaries of corporate retirement plans. They oversee and ensure quality delivery of comprehensive investment advisory services. They are available to assist with any aspect of clients' accounts, or put them in contact with the appropriate resources here at CAPTRUST.</p>
<p><b>Barron V. Schmitt</b>                      Senior Vice President   Financial Advisor                      Barry.Schmitt@captrust.com</p>	<p><b>Account Role: Consultant</b>                      Our Consultants have responsibility for client project management, client meetings, report preparation, and presentation. Projects involve the establishment of investment policies and objectives, asset allocation modeling, investment manager analyses and searches, fee analysis, performance evaluation, and other specialized projects. In addition, they will provide comprehensive written investment option and plan reviews, as well as monitor overall results and service delivery to ensure complete satisfaction.</p>
<p><b>Scott T. Matheson, CFA, CPA</b>                      Senior Director   Defined Contribution Practice Leader                      Scott.Matheson@captrust.com</p>	<p><b>Account Role: Research Analyst</b>                      Our Investment Analysts conduct investment manager research, asset allocation studies, portfolio monitoring and performance measurement. Some of their specific duties include: evaluating fund lineups and investment options, reporting due diligence findings to clients, and researching the various universes for viable investment options. Our team monitors and evaluates mutual funds, separate account managers and alternative investments for use with current and prospective clients.</p>
<p><b>Che-Che S. McCrimmon</b>                      Senior Client Management Consultant                      Che-Che.McCrimmon@captrust.com</p>	<p><b>Account Role: Client Management Consultant</b>                      The Client Management Consultants are focused on overall client management from initial conversion of new plans to CAPTRUST throughout their 'life' at CAPTRUST. As the primary contact for day-to-day client service needs, the main goal of the Client Management Consultant is to deliver exceptional proactive client service. On a daily basis, the Client Management Consultants are available to assist employees with questions related to plan enrollment and education, available investment options, and other areas.</p>

## GLOSSARY

**ALPHA**

Alpha measures a manager's rate of return in excess of that which can be explained by its systematic risk, or Beta. It is a result of regressing a manager's returns against those of a benchmark index. A positive alpha implies that a manager has added value relative to its benchmark on a risk-adjusted basis.

**BATTING AVERAGE**

Batting Average, an indicator of consistency, measures the percentage of time an active manager outperformed the benchmark.

**BETA**

Beta measures a manager's sensitivity to systematic, or market risk. Beta is a result of the analysis regressing a manager's returns against those of a benchmark Index. A manager with a Beta of 1 should move perfectly with a benchmark. A Beta of less than 1 implies that a manager's returns are less volatile than the market's (i.e., selected benchmarks). A Beta of greater than 1 implies that a manager exhibits greater volatility than the market (i.e., selected benchmark).

**CAPTURE RATIO**

Up Market Capture is the average return of a manager relative to a benchmark index using only periods where the benchmark return was positive. Down Market Capture is the average return of a manager relative to a benchmark index using only periods where the benchmark return was negative. An Up Market Capture of greater than 100% and a Down Market Capture of less than 100% is considered desirable.

**INFORMATION RATIO**

The Information Ratio measures a manager's excess return over the passive index divided by the volatility of that excess return, or Tracking Error. To obtain a higher Information Ratio, which is preferable, a manager must demonstrate the ability to generate returns above its benchmark while avoiding large performance swings relative to that same benchmark.

**PERCENTILE RANK**

Percentile Rankings are based on a manager's performance relative to all other available funds in its universe. Percentiles range from 1, being the best, to 100 being the worst. A ranking in the 50th percentile or above demonstrates that the manager has performed better on a relative basis than at least 50% of its peers.

**RISK-ADJUSTED PERFORMANCE**

Risk-adjusted Performance, or RAP, measures the level of return that an investment option would generate given a level of risk equivalent to the benchmark index.

**R-SQUARED**

R-squared measures the portion of a manager's movements that are explained by movements in a benchmark index. R-squared values range from 0 to 100. An R-squared of 100 means that all movements of a manager are completely explained by movements in the index. This measurement is identified as the coefficient of determination from a regression equation. A high R-squared value supports the validity of the Alpha and Beta measures, and it can be used as a measure of style consistency.

**SHARPE RATIO**

Sharpe ratio measures a manager's return per unit of risk, or standard deviation. It is the ratio of a manager's excess return above the risk-free rate divided by a manager's standard deviation. A higher Sharpe ratio implies greater manager efficiency.

**STANDARD DEVIATION**


Standard Deviation is a measure of the extent to which observations in a series vary from the arithmetic mean of the series. This measure of volatility or risk allows the estimation of a range of values for a manager's returns. The wider the range, the more uncertainty, and, therefore, the riskier a manager is assumed to be.

**TRACKING ERROR**

Tracking Error is the standard deviation of the portfolio's residual (i.e. excess) returns. The lower the tracking error, the closer the portfolio returns have been to its risk index. Aggressively managed portfolios would be expected to have higher tracking errors than portfolios with a more conservative investment style.

**TREYNOR RATIO**

The Treynor Ratio is a measure of reward per unit of risk. With Treynor, the numerator (i.e. reward) is defined as the annualized excess return of the portfolio versus the risk-free rate. The denominator (i.e. risk) is defined as the portfolio beta. The result is a measure of excess return per unit of portfolio systematic risk. As with Sharpe and Sortino, the Treynor Ratio only has value when it is used as the basis of comparison between portfolios. The higher the Treynor Ratio, the better.

	QUANTITATIVE EVALUATION ITEMS	QUALITATIVE EVALUATION ITEMS
<p data-bbox="310 430 625 479">  <b>MARKED FOR REVIEW</b> </p> <p data-bbox="210 511 630 625"> <b>The following categories of the Investment Policy Monitor appear “Marked For Review” when:</b> </p> <p data-bbox="210 771 630 828"> <b>CAPTRUST’s Investment Policy Monitoring Methodology</b> </p> <p data-bbox="210 836 630 998">                     The Investment Policy Monitoring Methodology document describes the systems and procedures CAPTRUST uses to monitor and evaluate the investment vehicles in your plan/account on a quarterly basis.                 </p> <p data-bbox="210 1023 630 1096">                     Our current Investment Policy Monitoring Methodology document can be accessed through the following link:                 </p> <p data-bbox="210 1128 630 1153"> <a href="http://captrustadvisors.com/investmentmonitoring">captrustadvisors.com/investmentmonitoring</a> </p>	<p data-bbox="787 381 1144 406"> <b>3/5 Year Risk- adjusted Performance</b> </p> <p data-bbox="787 414 1291 495">                     The investment option’s 3 or 5 Year Annualized Risk Adjusted Performance falls below the 50th percentile of the peer group.                 </p> <p data-bbox="787 552 1092 576"> <b>3/5 Year Performance vs. Peers</b> </p> <p data-bbox="787 584 1291 665">                     The investment option’s 3 or 5 Year Annualized Peer Relative Performance falls below the 50th percentile of the peer group.                 </p> <p data-bbox="787 738 934 763"> <b>3/5 Year Style</b> </p> <p data-bbox="787 771 1270 852">                     The investment option’s 3 or 5 Year R-Squared measure falls below the absolute threshold set per asset class.                 </p> <p data-bbox="787 901 987 925"> <b>3/5 Year Confidence</b> </p> <p data-bbox="787 933 1249 1006">                     The investment option’s 3 or 5 Year Confidence Rating falls below the 50<sup>th</sup> percentile of the peer group.                 </p> <p data-bbox="787 1055 997 1079"> <b>Glidepath Assessment</b> </p> <p data-bbox="787 1088 1291 1193">                     % of Equity Exposure: The combined percentage of an investment option’s equity exposure ranks in the top 20th percentile or bottom 20th percentile of the peer group.                 </p> <p data-bbox="787 1226 1291 1299">                     Regression to the Benchmark: The investment option’s sensitivity to market risk - as measured by beta relative to a Global Equity Index - is above 0.89.                 </p>	<p data-bbox="1375 381 1564 406"> <b>Fund Management</b> </p> <p data-bbox="1375 414 1869 470">                     A significant disruption to the investment option’s management team has been discovered.                 </p> <p data-bbox="1375 527 1501 552"> <b>Fund Family</b> </p> <p data-bbox="1375 568 1869 625">                     A significant disruption to the investment option’s parent company has been discovered.                 </p> <p data-bbox="1375 698 1596 722"> <b>Portfolio Construction</b> </p> <p data-bbox="1375 738 1879 812">                     The investment option’s combined Portfolio Construction score is 6 or below out of a possible 15 points.                 </p> <p data-bbox="1375 876 1690 901"> <b>Underlying Investment Vehicles</b> </p> <p data-bbox="1375 925 1848 998">                     The investment option’s combined Underlying Investment Vehicles score is 6 or below out of a possible 15 points.                 </p>



**AGENDA ITEM SUMMARY**

1. **NAME OF ITEM:** Contributory Retirement Plans – Investment Advisory Services Contract Extension

2. **INITIATED BY:** Kelly Martin, Chair

3. **BOARD INFORMATION:** **BOARD ACTION:** X

4. **OUTCOME:** **BOARD POLICY:**  
 Primary Outcome: Enhance fiscal positioning  
 Bylaws – Section 3

5. **BACKGROUND:**

Through a competitive procurement process, UMS engaged CAPTRUST Financial Advisors (CAPTRUST) to perform investment advisory services commencing January 2, 2013. The contract allowed for a set 7-year period with three 1-year extensions. The contract is currently in its seventh year and management recommends that the Investment Committee approve the extension of CAPTRUST for calendar year 2020.

This extension would be based on the terms of the Request for Proposal (RFP) issued in 2012 and CAPTRUST’s pricing provided in 2012. CAPTRUST fees are \$97,329 for calendar year 2019 and the contract allows for a CPI-U based annual increase capped at 5% annually for a maximum annual fee for calendar year 2020 of \$102,195.

6. **TEXT OF PROPOSED RESOLUTION:**

That the Board of Trustees, acting through the Investment Committee, approves the extension of CAPTRUST’s appointment as the University of Maine System’s investment advisers for the Contributory Retirement Plans for calendar year 2020.