



# Vermont Pension Investment Committee

## Fourth Fiscal Quarter 2017 Investment Performance Analysis

September 26, 2017

Christopher Levell, ASA, CFA, CAIA, Partner Margaret Belmondo, CIMA<sup>®</sup>, Senior Consultant Nedelina Petkova, Senior Analyst

255 State Street, Boston, MA 02109 | TEL: 617.374.1300 | FAX: 617.374.1313 | www.nepc.com BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

NEPC Update	1
Market Environment	2
State Teachers' Retirement System	3
State Employees' Retirement System	4
State Municipal Employees' Retirement System	5
Manager Characteristics	6
Appendix	7







# Highlights of Second Quarter Happenings at NEPC

#### June 30, 2017

#### **NEPC Insights**

- 2017 First Quarter Market Thoughts (April 2017)
- The French Election A Sigh of Relief (May 2017)
- An Insight into a Goals-Based Asset Allocation Framework (May 2017)
- The Essential Guide to Third-Party Valuations for Hedge Fund Investors (May 2017)
- Market Chatter: What's Next for Puerto Rico Bondholders? (June 2017)
- Are US Equities Falling out of Favor? (June 2017)

#### **Webinar Replays**

• NEPC's 7th Annual Investment Manager Webinar (May 2017)

To download NEPC's recent insights and webinar replays, visit: <u>www.NEPC.com/insights</u>



#### **Recent Updates**

 Healthcare Financial Management Association (HFMA) has awarded NEPC's Healthcare practice with the "Peer Reviewed by HFMA ®" designation.\*



#### **NEPC Gives Back**

- NEPC's Stacey Flier, CFA, Private Wealth Senior Consultant, hosted an educational day to discuss the importance of education and preparing for future careers to a group of 7th grade girls that attend St. Andrew Nativity School, a college-prep middle school in Portland, OR, that provides education for lowincome, primarily minority, students of all religious backgrounds.
- NEPC participated in the J.P. Morgan Corporate Challenge Series, a world-wide series of 3.5-mile running events open to groups from organizations within the business and public sectors in Boston. The Corporate Challenge is set up to be the world's greenest road race, and this year the race made a donation to the Boston Children's Hospital Trust.



#### **Conference Recap**

 NEPC hosted its 22<sup>nd</sup> Annual Investment Conference in Boston in May. This year's agenda focused on the uncertainty and challenges facing investors today. Over 200 NEPC clients attended the panel discussions, keynote presentations and breakout sessions. Thank you to everyone who took time out of their schedules to make this conference our biggest and, according to our attendees, our best one yet! Check out some pictures from the event here: http://info.nepc.com/nepc-22nd-annual-investment-conference

\*HFMA staff and volunteers determined that this business solution has met specific criteria developed under the HFMA Peer Review Process. HFMA does not endorse or guarantee the use of this business solution.





3

# **Market Environment**



## Key Market Themes

### • The US economy is experiencing an extended economic growth cycle

- US consumers and a tightening labor market are driving the US economy
- Growth recovery in Europe and the emerging markets reinforces US economic conditions
- Stable economic growth is a positive backdrop but expected risk asset returns are subdued

### • Federal Reserve monetary policy remains on a gradual normalization path

- Despite the June increase, markets continue to price in a slow pace for Fed rate hikes
- Market impact of the Fed's planned reduction of the \$4.5T balance sheet is untested
- Chair Yellen's uncertain tenure may stoke market unease has her term expires in Feb. 2018

# China is modestly tightening financial conditions to slow credit growth and manage an orderly transition to a consumer led economy

- Markets have responded positively to the PBOC's management of a more stable yuan
- Capital outflow pressure persists and large scale currency devaluation remains a tail risk
- Continued credit expansion and real estate development risk inflating asset price bubbles

### • Globalization backlash is disrupting the political and economic orthodoxy

- Outcomes of the French and UK elections have eased market fears but conditions driving anti-establishment political sentiment have not subsided
- Capital market fundamentals may not be materially altered but risks stemming from globalization backlash likely lead to higher levels of currency volatility
- Potential changes to US trade policy under the current administration remain uncertain



### **Current Opportunities**

- Trim US equity gains as US equity markets continue to rally
  - Expanding valuations have driven recent gains and profit margins sit near all-time highs
- Maintain overweight exposure to non-US developed market equities
  - We believe a multi-year earnings recovery offers the potential for an elevated return
- Emerging market equities remain attractive and offer robust total returns
  - Fundamentals support an overweight relative to index weights (e.g. 15% to 20%)
- Allocate to TIPS as inflation expectations are priced attractively
  - Preserve US duration exposure with a bias to TIPS over core bonds
- Reduce high yield bonds with credit spreads below long-term medians
  - Credit markets continue to benefit from high demand in a low rate environment but current credit spread levels do not provide adequate compensation for the risks
- For tactical investors, look to fund emerging local debt from risk assets
  - Valuations for many emerging market currencies remain attractive despite the recent rally
- Add macro hedge fund strategies for portfolio diversification benefits
  - Systematic strategies tend to exhibit low correlation to equity markets



# Year to Date Performance: All Assets Have Moved Higher





### Key Market Themes

## **Extended US Economic Cycle**

### **US recession concerns are muted**

The US economy appears on a path of slow but steady growth as excess capacity is gradually absorbed by the economy

The labor market recovery has been strong but slack remains as many have yet to return to the workforce

### US household balance sheets have room to expand and support further consumer spending gains

Improvement of economic conditions in Europe and emerging markets reinforce US economic gains as global growth factors synchronize

US corporate profitability is near all time highs and may be a challenge for companies to boost economic growth rate



Source: FRED



Source: Congressional Budget Office, Bloomberg

## Key Market Themes

### **Federal Reserve Gradualism**

# The Federal Reserve is expected to slowly increase interest rates

Expected path of Fed policy through 2019 matters more than timing of the next hike as the disconnect between market expectations and Fed signaling has grown

A relatively accommodative Fed is likely to continue, unless there is a dramatic acceleration in inflation

# Reduction of the Fed balance sheet will likely be a gradual process

The market impact is untested but the Fed has announced a specific schedule to not reinvest a portion of the balance sheet securities that mature

Politics could intersect with Fed policy as Fed Chair Janet Yellen's term is set to expire in February 2018



Federal Reserve Balance Sheet Assets 5000 4500 Other Securities 4000 MBS 3500 Treasuries **3**000 **Solution** 2500 2000 1500 1000 500 0 2013 2015 2017 2019 2022 2005 2001 2009 2012

Source: Fed, Bloomberg

Forecast based on the June Fed Minutes: MBS assumes \$4B per month for 3-month intervals over 12 months with a \$20B cap; Treasuries assume \$6B per month for 3-month intervals over 12 months with a \$30B cap; Other Securities are assumed to stay constant



Source: Fed, Bloomberg, NEPC

## Despite Transparency, a Number of Outstanding Questions Remain...

# What does this mean for the future path of rate hikes?

"The evolution of the economy will warrant <u>gradual increases</u> in the federal funds rate over time to achieve and maintain maximum employment and stable prices."

- Fed Chair Janet Yellen July 12<sup>th</sup>, 2017

# What implications does this have for other central banks?

**ECB:** "A very substantial degree of monetary accommodation is still needed for underlying inflation pressures to gradually build..."

- ECB President Mario Draghi July 20th, 2017

**BoJ:** Though the monetary stimulus program remained unchanged in July, the 2% inflation target was postponed further – indicating ongoing stimulus measures will continue to be necessary



Source: Bloomberg, Federal Reserve, Bank of Japan, ECB, NEPC

## The Fed's Challenge

"With further gradual adjustments in the stance of monetary policy, the economy will continue to expand at a moderate pace over the next couple of years, with the job market strengthening somewhat further and inflation rising to 2%"

- Fed Chair Janet Yellen July 12th, 2017

- The ongoing challenge for the Fed will be to balance continued strength in the labor market with lagging inflation
  - Even with sustained improvements in unemployment, there has been significant difficulty reaching the 2% inflation target
- Despite historically low unemployment, structural changes in demographics and the labor pool have introduced uncertainty regarding the remaining slack in the labor force



### Key Market Themes

### **China Transitions**

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

China's economic transition is pivoting from a production to a service and consumption based economy

Fixed investment is required to sustain the production based economy and support labor force migration

Any disruption to these transitions will have global repercussions due to China's role in the global economy

### China's government is negotiating a balance between deleveraging and near term economic growth

Unrestrained growth in credit and real estate markets pose a systematic risk

Concerns of capital outflows have forced greater intervention from the central bank to limit currency movements





Source: China Foreign Exchange Trade System, Bloomberg

Source: Bank for International Settlements

# **State Teachers' Retirement System**



# Total Fund Performance Summary - Net

	Market Value	3 Mo F	Rank	YTD F	Rank	Fiscal YTD	Rank	1 Yr F	Rank	3 Yrs F	Rank	5 Yrs F	Rank	7 Yrs F	Rank	10 Yrs F	Rank
Teachers Composite	\$1,726,119,339	2.6%	74	6.7%	70	10.4%	79	10.4%	79	3.7%	82	6.5%	92	7.7%	79	3.9%	88
Policy Index		2.5%	77	6.3%	82	10.1%	84	10.1%	84	3.8%	81	6.5%	93	7.3%	90	3.9%	87
Allocation Index		2.6%	63	6.7%	70	10.4%	80	10.4%	80	3.7%	84	6.4%	94	7.1%	93	3.9%	88
InvestorForce Public DB Net Median		2.8%		7.3%		11.9%		11.9%		4.9%		8.2%		8.6%		5.0%	

3 Years Ending June 30, 2017										
	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank		
Teachers Composite	3.73%	82	5.52%	22	0.63	74	1.12	53		
Policy Index	3.78%	81	5.24%	10	0.68	65	1.18	47		
Allocation Index	3.66%	84	5.44%	19	0.63	75	1.06	63		

5 Years Ending June 30, 2017										
	AnIzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank		
Teachers Composite	6.54%	92	5.38%	27	1.19	82	2.10	65		
Policy Index	6.48%	93	5.05%	13	1.25	74	2.24	49		
Allocation Index	6.37%	94	5.10%	16	1.22	78	2.10	65		



#### Actual vs Target Allocation (%)



# Total Fund Risk/Return - Net

1 Year Ending June 30, 2017



### 1 Year Ending June 30, 2017

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Teachers Composite	10.43%	79	3.10%	32	3.19	63
Policy Index	10.07%	84	3.05%	27	3.13	66
S&P 500	17.90%	1	6.09%	99	2.85	80
Citi WGBI	-4.14%	99	6.58%	99	-0.71	99
MSCI ACWI	18.78%	1	5.34%	99	3.42	45
MSCI ACWI ex USA	20.45%	1	7.16%	99	2.78	84
InvestorForce Public DB Net Median	11.88%		3.39%		3.34	

- Allocation Index  $\circ$
- Universe Median ۸
- 68% Confidence Interval
- InvestorForce Public DB Net



# Total Fund Risk/Return - Net

#### 3 Years Ending June 30, 2017



3 Years	En	diı	ng J	lune	e 3(	0,	2017	

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Teachers Composite	3.73%	82	5.52%	22	0.63	74
Policy Index	3.78%	81	5.24%	10	0.68	65
S&P 500	9.61%	1	10.35%	99	0.91	18
Citi WGBI	-1.00%	99	5.98%	40	-0.21	99
MSCI ACWI	4.82%	51	10.78%	99	0.43	96
MSCI ACWI ex USA	0.80%	99	12.44%	99	0.05	99
InvestorForce Public DB Net Median	4.85%		6.24%		0.74	

- Teachers Composite
- Policy Index
- Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net



#### 5 Years Ending June 30, 2017



### 5 Years Ending June 30, 2017 Anizd Anizd Anizd

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Teachers Composite	6.54%	92	5.38%	27	1.19	82
Policy Index	6.48%	93	5.05%	13	1.25	74
S&P 500	14.63%	1	9.56%	99	1.51	23
Citi WGBI	-0.20%	99	5.33%	25	-0.07	99
MSCI ACWI	10.54%	2	9.97%	99	1.04	93
MSCI ACWI ex USA	7.22%	80	11.56%	99	0.61	99
InvestorForce Public DB Net Median	8.19%		5.87%		1.37	

- Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net



## 7 Years Ending June 30, 2017



- Policy Index
- Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net

#### 7 Years Ending June 30, 2017

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Teachers Composite	7.72%	79	6.75%	30	1.12	62
Policy Index	7.28%	90	6.56%	25	1.09	73
S&P 500	15.41%	1	11.69%	99	1.31	22
Citi WGBI	1.68%	99	5.67%	8	0.27	99
MSCI ACWI	10.48%	3	13.05%	99	0.79	98
MSCI ACWI ex USA	6.66%	96	14.97%	99	0.44	99
InvestorForce Public DB Net Median	8.59%		7.34%		1.17	

#### 10 Years Ending June 30, 2017



#### 10 Years Ending June 30, 2017 Anlzd

	Anlzd Return	Anlzd Return Rank	AnIzd Standard Deviation	Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Teachers Composite	3.91%	88	10.48%	77	0.33	91
Policy Index	3.94%	87	9.36%	46	0.37	82
S&P 500	7.18%	1	15.21%	99	0.44	59
Citi WGBI	3.49%	95	6.80%	9	0.45	57
MSCI ACWI	3.71%	93	16.95%	99	0.19	99
MSCI ACWI ex USA	1.13%	99	19.14%	99	0.04	99
InvestorForce Public DB Net Median	5.03%		9.59%		0.48	

- Universe Median ۸
- 68% Confidence Interval
- InvestorForce Public DB Net



## Total Marketable Assets - Net

Annualized Return vs. Annualized Standard Deviation 3 Years Ending June 30, 2017



- Total Marketable Assets
- Total Marketable Assets Custom Index
- Universe Median
- 68% Confidence Interval

NEPC, LLC

InvestorForce Public DB Net





Annualized Standard Deviation

- SSgA S&P 500 Cap-Wgt
- SSgA S&P 500 Equal-Wgt
- \* T. Rowe
- ▲ Champlain
- Wellington
- Acadian
- Mondrian
  - SSgA ACWI Ex US
- ▲ SSgA AC\
   ◆ Aberdeen
- \* PIMCO Core Plus
- \* Z Terminated Wellington DAS
- ▲ PIMCO Unconstrained

- \* KDP
- Guggenheim
- BlackRock TIPS
   Wellington Oppo
- Wellington Opportunistic EMD
- ▲ Mellon Dynamic Growth
- AQR Global Risk Premium
   Vermont Cash
- Z Terminated Schroder
- Total Marketable Assets Custom Index
- ▲ Universe Median
- 68% Confidence Interval

# Total Fund Asset Allocation vs. Policy Targets

Current

5.2%

14.7%

7.4%

4.6%

4.8%

4.7%

5.9%

5.5%

5.3%

4.3%

1 6%

9.2%

7.4%

0.0%





	Policy	Current	Effective Net Allocation
Large Cap Equity	18.5%	17.1%	17.2%
Small/Mid Cap Equity	5.5%	5.2%	5.6%
International Equity	14.0%	14.7%	15.0%
Emerging Markets Equity	6.0%	7.4%	7.6%
Core Bonds	6.0%	4.6%	4.6%
Long Treasury	2.0%	2.0%	2.0%
High Yield	5.0%	4.8%	4.9%
TIPS	6.0%	4.7%	5.4%
Unconstrained Bonds	6.0%	5.9%	6.0%
Diversified Bond	6.0%	5.5%	7.6%
Emerging Market Debt	5.0%	5.3%	5.3%
Risk Parity	4.0%	4.3%	
Private Equity	1.5%	1.6%	1.6%
Absolute Return	8.0%	9.2%	9.3%
Real Estate	6.5%	7.4%	7.4%
Commodities			0.6%
Cash		0.0%	0.0%
Total	100.0%	100.0%	100.0%

Asset Allocation vs. Target

Effective Net Allocation breaks out the exposure of AQR Global Risk Premium. Absolute Return includes Grosvenor, Pinnacle Natural Resources, L.P., and Allianz Structured Alpha.



# Total Fund Asset Growth Summary



3 Years Ending June 30, 2017

Market Value Net Cash Flow

	Last Three Months	Year-To-Date	Fiscal Year-To-Date	One Year	Three Years
Beginning Market Value	\$1,711,935,122	\$1,677,902,518	\$1,617,794,214	\$1,617,794,214	\$1,699,754,628
Contributions	\$195,409,960	\$205,073,221	\$318,275,369	\$318,275,369	\$1,065,189,518
Withdrawals	-\$227,123,265	-\$271,129,291	-\$377,013,274	-\$377,013,274	-\$1,226,098,568
Net Cash Flow	-\$31,713,304	-\$66,056,070	-\$58,737,905	-\$58,737,905	-\$160,909,051
Net Investment Change	\$45,897,521	\$114,272,891	\$167,063,030	\$167,063,030	\$187,273,761
Ending Market Value	\$1,726,119,339	\$1,726,119,339	\$1,726,119,339	\$1,726,119,339	\$1,726,119,339



# Total Fund Asset Growth Summary by Manager

			Quarter Ending Ju	ıne 30, 2017		
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
Aberdeen	\$120,091,604	\$212,792	-\$212,792	\$0	\$7,903,122	\$127,994,726
Acadian	\$72,440,061	\$92,347	-\$6,092,347	-\$6,000,000	\$7,393,407	\$73,833,468
Allianz Structured Alpha	\$31,333,455	\$0	-\$107,458	-\$107,458	\$538,264	\$31,764,261
AQR Global Risk Premium	\$144,088,451	\$132,432	-\$71,420,055	-\$71,287,623	\$2,204,975	\$75,005,803
BlackRock TIPS	\$67,432,345	\$14,270,020	-\$12,495	\$14,257,525	-\$256,729	\$81,433,141
Champlain	\$36,914,242	\$10,503,056	-\$76,042	\$10,427,014	\$2,155,423	\$49,496,679
GAM	\$175,063	\$0	\$0	\$0	\$1,646	\$176,710
GAM Unconstrained Bond	\$59,455,449	\$0	-\$77,251	-\$77,251	\$1,229,456	\$60,607,654
Grosvenor	\$85,053,904	\$0	\$0	\$0	\$370,269	\$85,424,173
Guggenheim	\$63,986,285	\$82,936	-\$82,936	\$0	\$1,135,270	\$65,121,555
Harbourvest Dover Street Fund IX	\$1,392,184	\$630,087	\$0	\$630,087	\$0	\$2,022,270
Harbourvest Dover VIII Fund	\$7,916,201	\$0	-\$313,849	-\$313,849	\$0	\$7,602,352
Harbourvest Partners IX Buyout Fund	\$6,792,440	\$0	-\$69,058	-\$69,058	\$0	\$6,723,382
Harbourvest Partners IX Credit Opportunities	\$979,194	\$0	-\$18,682	-\$18,682	\$0	\$960,511
Harbourvest Partners IX Venture Fund	\$5,031,765	\$0	-\$20,088	-\$20,088	\$0	\$5,011,677
Harbourvest Partners X Buyout Fund	\$2,097,981	\$499,043	-\$173,647	\$325,396	\$0	\$2,423,377
Harbourvest Partners X Venture Fund	\$935,167	\$256,651	\$0	\$256,651	-\$24,147	\$1,167,671
HIPEP VII	\$2,082,798	\$238,145	\$0	\$238,145	\$0	\$2,320,943
KDP	\$18,168,257	\$28,699	-\$28,699	\$0	\$327,405	\$18,495,662
Mellon Dynamic Growth	\$33,953,507	\$0	-\$34,259,798	-\$34,259,798	\$357,688	\$51,397
Mondrian	\$67,602,561	\$70,453	-\$70,453	\$0	\$2,961,019	\$70,563,580
Morgan Stanley Prime Property	\$60,262,935	\$0	\$0	\$0	\$0	\$60,262,935
PIMCO Core Plus	\$92,713,114	\$67,814	-\$67,814	\$0	\$1,608,384	\$94,321,498
PIMCO Unconstrained	\$41,438,519	\$63,818	-\$63,818	\$0	\$448,225	\$41,886,744
Pinnacle Natural Resources, L.P.	\$22,113,567	\$20,503,513	\$0	\$20,503,513	-\$945,724	\$41,671,356



# Total Fund Asset Growth Summary by Manager

			Quarter Ending Ju	ıne 30, 2017		
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
RREEF America REIT III	\$256,846	\$0	-\$1,100	-\$1,100	-\$6,323	\$249,423
Siguler Guff DREOF II	\$13,207,491	\$0	-\$367,165	-\$367,165	\$495,793	\$13,336,119
Siguler Guff DREOF II Co-Investment	\$3,948,206	\$0	\$0	\$0	\$90,052	\$4,038,258
SSgA ACWI Ex US	\$77,618,394	\$26,775,990	-\$12,788	\$26,763,203	\$5,160,329	\$109,541,925
SSgA Barclays Aggregate Index	\$53,633,156	\$44,559,151	-\$19,306,373	\$25,252,778	\$1,052,082	\$79,938,016
SSgA S&P 500 Cap-Wgt	\$190,642,150	\$30,481,955	-\$15,970	\$30,465,985	\$6,445,765	\$227,553,900
SSgA S&P 500 Equal-Wgt	\$72,357,585	\$7,675	-\$6,007,675	-\$6,000,000	\$1,738,189	\$68,095,774
State Street Long U.S. Treasury Index		\$34,541,790	\$0	\$34,541,790	\$201,068	\$34,742,858
T. Rowe	\$2,468	\$0	\$0	\$0	\$0	\$2,468
Transwestern / Aslan III	\$128,447	\$0	\$0	\$0	\$0	\$128,447
UBS Trumbull	\$49,571,639	\$109,260	-\$109,260	\$0	\$583,553	\$50,155,193
Vermont Cash	\$1,653,303	\$3,112,492	-\$4,001,424	-\$888,931	\$0	\$764,372
Wellington	\$32,306,692	\$8,166,291	-\$71,342	\$8,094,949	-\$535,487	\$39,866,154
Wellington Opportunistic EMD	\$89,146,947	\$0	\$0	\$0	\$2,215,961	\$91,362,908
Z Terminated - Schroder	\$21,035,499	\$0	-\$20,503,513	-\$20,503,513	-\$531,986	\$0
Z Terminated - SSgA Russell 2000 Growth	\$7,954,626	\$1,753	-\$8,096,702	-\$8,094,949	\$140,323	\$0
Z Terminated - SSgA S&P 400	\$9,864,884	\$1,798	-\$10,428,812	-\$10,427,014	\$562,130	\$0
Z Terminated - Wellington DAS	\$44,155,742	\$0	-\$45,033,859	-\$45,033,859	\$878,117	\$0
Total	\$1,711,935,122	\$195,409,960	-\$227,123,265	-\$31,713,304	\$45,897,521	\$1,726,119,339



# Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Teachers Composite	1,726,119,339	100.0	100.0	2.6	74	6.7	70	10.4	79	10.4	79	3.7	82	6.5	92	3.9	88
Policy Index				2.5	77	6.3	82	10.1	84	10.1	84	3.8	81	6.5	93	3.9	87
Allocation Index				2.6	63	6.7	70	10.4	80	10.4	80	3.7	84	6.4	94	3.9	88
InvestorForce Public DB Net Median				2.8		7.3		11.9		11.9		4.9		8.2		5.0	
Total Marketable Assets	1,410,680,281	81.7		3.1	29	8.0	20	11.5	58	11.5	58	3.6	87	6.4	94		
Total Marketable Assets Custom Index				2.9	44	7.1	55	10.6	74	10.6	74	3.4	90	6.6	91		
InvestorForce Public DB Net Median				2.8		7.3		11.9		11.9		4.9		8.2		5.0	
US Equity	385,014,975	22.3	24.0	2.7	52	7.8	49	17.9	60	17.9	60	9.3	24				
Russell 3000				3.0	46	8.9	39	18.5	55	18.5	55	9.1	27	14.6	34	7.3	46
eA All US Equity Net Median				2.8		7.6		19.1		19.1		7.6		13.8		7.1	
Large Cap Comp	295,652,142	17.1	18.5	2.9	52	8.9	48	17.7	51	17.7	51	9.3	27	14.9	23	7.7	32
S&P 500				3.1	48	9.3	45	17.9	50	17.9	50	9.6	22	14.6	28	7.2	45
eA US Large Cap Equity Net Median				3.0		8.7		17.8		17.8		7.8		13.7		7.0	
SSgA S&P 500 Cap-Wgt	227,553,900	13.2	14.0	3.1	48	9.3	45	17.9	49	17.9	49	9.6	22	14.6	28		
S&P 500				3.1	48	9.3	45	17.9	50	17.9	50	9.6	22	14.6	28	7.2	45
SSgA S&P 500 Equal-Wgt	68,095,774	3.9	4.5	2.5	61	7.9	59	17.2	56	17.2	56	8.5	39	15.5	14	8.0	26
S&P 500 Equal Weighted				2.5	61	8.1	58	17.3	56	17.3	56	8.5	37	15.5	13	8.3	19
T. Rowe	2,468	0.0	0.0														
Small/Mid Cap Comp	89,362,833	5.2	5.5	1.9	62	4.4	72	18.6	59	18.6	59	9.5	15	14.7	25	8.3	27
Russell 2000				2.5	51	5.0	69	24.6	15	24.6	15	7.4	38	13.7	44	6.9	62
eA US Small-Mid Cap Equity Net Median				2.5		6.6		19.7		19.7		6.6		13.4		7.4	
Champlain	49,496,679	2.9	2.8	4.8	24	10.6	33	21.3	19	21.3	19	11.2	4	15.9	12		
Russell 2500 eA US Mid Cap Equity Net				2.1	57	6.0	71	19.8	29	19.8	29	6.9	55	14.0	48	7.4	53
Median				2.5		8.1		17.2		17.2		7.2		14.0		7.6	
Wellington	39,866,154	2.3	2.8	-1.1	90	-2.5	93	14.6	94	14.6	94	7.8	33	13.0	65	8.1	16
Russell 2000 Value				0.7	56	0.5	64	24.9	30	24.9	30	7.0	46	13.4	60	5.9	76
eA US Small Cap Value Equity Net Median				0.9		1.7		22.3		22.3		6.7		14.0		6.9	

# Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Int'l Equity Comp	253,938,973	14.7	14.0	6.9	42	15.9	34	22.4	34	22.4	34	2.6	46	10.0	43	1.5	65
MSCI EAFE				6.1	67	13.8	61	20.3	48	20.3	48	1.1	77	8.7	67	1.0	76
eA All EAFE Equity Net Median				6.6		14.6		20.1		20.1		2.3		9.6		2.3	
Acadian	73,833,468	4.3	4.0	10.7	4	21.8	4	31.0	3	31.0	3	6.2	12	13.1	14	1.7	61
Mondrian	70,563,580	4.1	4.0	4.3	95	12.1	84	16.0	79	16.0	79	0.5	86	8.4	72	1.6	64
MSCI EAFE				6.1	67	13.8	61	20.3	48	20.3	48	1.1	77	8.7	67	1.0	76
SSgA ACWI Ex US	109,541,925	6.3	6.0	5.9	77	14.3	74	20.7	45	20.7	45	1.0	72	7.4	81		
MSCI ACWI ex USA				5.8	79	14.1	76	20.5	45	20.5	45	0.8	74	7.2	82	1.1	75
eA ACWI ex-US All Cap Equity Net Median				6.9		15.8		20.0		20.0		2.4		9.2		2.5	
Emerging Market Comp	127,994,726	7.4	6.0	6.4	50	18.8	56	18.7	71	18.7	71	1.6	55	3.9	73		
Aberdeen	127,994,726	7.4	6.0	6.4	50	18.8	56	18.7	71	18.7	71	1.6	55	3.9	75		
MSCI Emerging Markets				6.3	53	18.4	62	23.7	42	23.7	42	1.1	68	4.0	73	1.9	66
eA Emg Mkts Equity Net Median				6.4		19.3		22.9		22.9		1.7		5.2		2.5	
US Fixed Income	476,547,127	27.6	31.0	1.3	55	3.1	37	3.5	27	3.5	27	3.4	30				
BBgBarc US Aggregate TR				1.4	50	2.3	56	-0.3	84	-0.3	84	2.5	52	2.2	61	4.5	52
eA All US Fixed Inc Net Median				1.4		2.5		0.9		0.9		2.5		2.8		4.5	
Diversified Fixed	311,496,769	18.0	20.0	1.7	38	3.5	31	2.2	34	2.2	34	3.5	28	2.9	47	4.0	63
BBgBarc US Aggregate TR				1.4	50	2.3	56	-0.3	84	-0.3	84	2.5	52	2.2	61	4.5	52
eA All US Fixed Inc Net Median				1.4		2.5		0.9		0.9		2.5		2.8		4.5	
PIMCO Core Plus	94,321,498	5.5	6.0	1.7	22	3.3	5	1.1	17	1.1	17	2.6	46	2.3	66		
BBgBarc US Aggregate TR				1.4	64	2.3	65	-0.3	72	-0.3	72	2.5	59	2.2	72	4.5	76
SSgA Barclays Aggregate Index	79,938,016	4.6	6.0	1.4	68	2.2	71	-0.4	74	-0.4	74						
BBgBarc US Aggregate TR				1.4	64	2.3	65	-0.3	72	-0.3	72	2.5	59	2.2	72	4.5	76
3-Month Libor Total Return USD				0.3	99	0.6	99	1.0	20	1.0	20	0.6	99	0.5	99	1.0	99
eA US Core Fixed Inc Net Median				1.5		2.4		0.2		0.2		2.6		2.5		4.7	
State Street Long U.S. Treasury Index	34,742,858	2.0															
BBgBarc US Treasury Long TR				4.0		5.4		-7.2		-7.2		5.6		2.8		7.3	

# Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Unconstrained Fixed Income	102,494,398	5.9	6.0	1.5	62	4.2	48	7.9	30	7.9	30						
25% HY, 25% EMD, 50% BC Agg				1.8	48	3.9	59	4.3	76	4.3	76	3.6	16	4.2	43	6.1	26
BBgBarc Global Aggregate TR				2.6	21	4.4	43	-2.2	99	-2.2	99	-0.4	97	0.8	98	3.7	91
eA Global Unconstrained Fixed Inc Net Median				1.8		4.1		7.0		7.0		2.5		4.0		5.5	
PIMCO Unconstrained	41,886,744	2.4	2.5	0.9	94	3.0	76	7.0	51	7.0	51	1.8	75	1.4	97		
25% HY, 25% EMD, 50% BC Agg 2 Maarth Liber Total Bature				1.8	48	3.9	59	4.3	76	4.3	76	3.6	16	4.2	43	6.1	26
3-Month Libor Total Return USD				0.3	95	0.6	99	1.0	98	1.0	98	0.6	90	0.5	99	1.0	99
GAM Unconstrained Bond	60,607,654	3.5	3.5	1.9	43	5.1	32	8.5	26	8.5	26						
3-Month LIBOR + 3%				1.1	90	2.1	93	4.1	80	4.1	80	3.6	15	3.5	64	4.0	89
eA Global Unconstrained Fixed Inc Net Median				1.8		4.1		7.0		7.0		2.5		4.0		5.5	
High Yield Comp	83,617,217	4.8	5.0	1.6	73	3.7	81	11.6	41	11.6	41	4.4	30	6.5	35	7.1	36
BBgBarc US High Yield TR				2.2	35	4.9	24	12.7	27	12.7	27	4.5	28	6.9	25	7.7	14
eA US High Yield Fixed Inc Net Median				2.0		4.4		11.3		11.3		3.8		6.3		6.8	
KDP	18,495,662	1.1	1.0	1.6	73	3.4	82	7.9	87	7.9	87	2.7	84	4.6	93		
BBgBarc US High Yield TR				2.2	35	4.9	24	12.7	27	12.7	27	4.5	28	6.9	25	7.7	14
BofA Merrill Lynch US High Yield BB-B Rated				2.2	29	4.6	44	11.2	52	11.2	52	4.5	26	6.7	31	7.1	36
Guggenheim	65,121,555	3.8	4.0	1.6	73	3.7	78	12.6	29	12.6	29	4.7	21				
BBgBarc US High Yield TR				2.2	35	4.9	24	12.7	27	12.7	27	4.5	28	6.9	25	7.7	14
eA US High Yield Fixed Inc Net Median				2.0		4.4		11.3		11.3		3.8		6.3		6.8	



# Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD I (%)	Rank	1 Yr (%) F	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
TIPS	81,433,141	4.7	6.0														
BlackRock TIPS	81,433,141	4.7	6.0	-0.4		0.8		-0.6		-0.6		0.6		0.2			
BBgBarc US TIPS TR				-0.4		0.9		-0.6		-0.6		0.6		0.3		4.3	
Emerging Market Debt	91,362,908	5.3	5.0														
Wellington Opportunistic EMD	91,362,908	5.3	5.0	2.5	48	6.8	62	9.0	27	9.0	27	5.1	9	5.9	14		
JP Morgan EMBI Global TR				2.2	61	6.2	74	5.5	86	5.5	86	4.6	18	5.2	29	7.3	22
eA All Emg Mkts Fixed Inc Net Median				2.4		7.8		7.3		7.3		2.4		3.7		6.3	
Risk Parity/GAA	75,057,200	4.3	4.0	1.1	83	5.4	58	5.1	76	5.1	76	0.4	79	4.3	59	4.0	66
Mellon Dynamic Growth	51,397	0.0	2.0	1.2	47	4.1	38	3.3	82	3.3	82	4.7	18	6.4	31	2.9	51
Mellon Dynamic Growth Benchmark				3.7	9	8.0	12	9.3	35	9.3	35	2.8	43	6.2	33	3.6	34
Risk Parity	75,005,803	4.3	4.0	1.2	81	5.8	53	5.6	71	5.6	71	0.1	82	4.2	62		
eA Global TAA Net Median				2.5		6.3		7.0		7.0		1.5		5.0		4.3	
AQR Global Risk Premium	75,005,803	4.3	4.0	1.2	81	5.8	53	5.6	71	5.6	71	0.1	82	4.2	62		
60% MSCI World (Net) / 40% CITI WGBI				3.6	26	8.2	34	8.8	40	8.8	40	2.9	32	6.7	24	4.1	64
Cash	764,372	0.0	0.0														
Vermont Cash	764,372	0.0	0.0	0.0		0.0		0.0		0.0		0.0		0.0		0.7	
91 Day T-Bills				0.2		0.4		0.5		0.5		0.2		0.2		0.4	

Risk Parity Composite formerly shown as Risk Parity/GAA. Mellon Dynamic Growth Benchmark: 60% MSCI All Country World Index IMI / 40% Citigroup GDP Weighted.



## Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Real Estate	128,170,374	7.4	6.5	0.8		2.2		6.4		6.4		10.3		11.4			
NCREIF Property Index				1.8		3.3		7.0		7.0		10.2		10.5		6.4	
NCREIF ODCE				1.7		3.5		7.9		7.9		11.3		11.8		5.2	
UBS Trumbull	50,155,193	2.9		1.0		1.9		4.6		4.6		9.1		9.0		4.7	
Siguler Guff DREOF II	13,336,119	0.8		3.9		4.2		12.5		12.5		11.3					
Siguler Guff DREOF II Co- Investment	4,038,258	0.2		2.3		5.9											
RREEF America REIT III	249,423	0.0		-2.9		-3.6		-16.1		-16.1		-3.0		6.3		-5.7	
Morgan Stanley Prime Property	60,262,935	3.5		0.0		1.9		6.7		6.7		11.4		12.4		5.2	
Transwestern / Aslan III	128,447	0.0		0.0		0.0		0.0		0.0		-3.8		9.4		-23.6	
Absolute Return	159,036,500	9.2	8.0	-0.2	80	-0.2	91	4.2	74	4.2	74	0.0	80	4.5	64		
HFRI Fund of Funds Composite Index				0.7	62	3.1	54	6.4	57	6.4	57	1.5	59	3.9	70	0.9	91
eV Alt Fund of Funds - Multi- Strategy Median				1.0		3.2		7.2		7.2		2.0		5.2		2.9	
Grosvenor	85,424,173	4.9	3.0	0.4	70	2.2	65	7.5	49	7.5	49	1.7	54	5.6	42		
Allianz Structured Alpha	31,764,261	1.8	2.0	1.4	41	2.3	65	5.0	67	5.0	67	8.0	6	6.4	31		
91 Day T-Bills				0.2	73	0.4	88	0.5	91	0.5	91	0.2	78	0.2	98	0.4	94
eV Alt Fund of Funds - Multi- Strategy Median				1.0		3.2		7.2		7.2		2.0		5.2		2.9	
Pinnacle Natural Resources, L.P.	41,671,356	2.4	3.0	-3.0		-10.9		-9.4		-9.4							
Bloomberg Commodity Index				-3.0		-5.3		-6.5		-6.5		-14.8		-9.2		-6.5	
GAM	176,710	0.0	0.0														

Absolute Return composite formerly shown as Hedge Funds composite. As of 04/01/2016, Absolute Return includes Allianz Structured Alpha.

Allianz Structured Alpha was included Diversified Fixed income composite prior to 04/01/2016.

Real Estate performance reported on a quarterly basis. NCREIF Property is available 25 days after quarter end.

Real Estate values are finalized as of 06/30/2017. Morgan Stanley will be liquidated, funding UBS and SSgA Long US Treasury Index.



# Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD F (%)	Rank	1 Yr (%) F	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Private Equity	28,232,184	1.6	1.5	0.0		0.3		7.6		7.6		13.8					
Cambridge Associates US All PE				0.0		4.3		13.3		13.3		8.4		12.7		9.0	
Harbourvest Partners IX Credit Opportunities	960,511	0.1															
Harbourvest Partners IX Venture Fund	5,011,677	0.3															
Harbourvest Partners IX Buyout Fund	6,723,382	0.4															
Harbourvest Partners X Venture Fund	1,167,671	0.1															
Harbourvest Partners X Buyout Fund	2,423,377	0.1															
Harbourvest Dover VIII Fund	7,602,352	0.4															
Harbourvest Dover Street Fund IX	2,022,270	0.1															
HIPEP VII	2,320,943	0.1															

Harbourvest values based on final Capital Account Statements for Q1, and cash adjusted through Q2.



# Total Fund Return Summary vs. Peer Universe - Net



Teachers Composite vs. InvestorForce Public DB Net

	Return (Rank)							
5th Percentile	3.7	8.9	10.2	14.7	7.1	6.2	8.9	9.9
25th Percentile	3.2	7.8	8.8	12.9	6.5	5.4	8.1	9.0
Median	2.8	7.3	8.0	11.9	6.0	4.9	7.4	8.2
75th Percentile	2.5	6.6	7.3	10.6	5.1	4.1	6.8	7.4
95th Percentile	1.9	5.3	5.4	8.1	4.0	2.9	5.4	6.2
# of Portfolios	283	283	282	282	278	269	255	245
<ul> <li>Teachers Composite</li> </ul>	2.6 (74)	) 6.7 (70)	6.9 (84)	10.4 (79)	5.8 (56)	3.7 (82)	6.2 (88)	6.5 (92)
Policy Index	2.5 (77)	6.3 (82)	6.5 (90)	10.1 (84)	5.7 (59)	3.8 (81)	6.2 (88)	6.5 (93)
× Allocation Index	2.6 (63)	) 6.7 (70)	6.6 (89)	10.4 (80)	5.5 (61)	3.7 (84)	6.0 (91)	6.4 (94)



# Total Fund Return Summary vs. Peer Universe - Net



#### Teachers Composite vs. InvestorForce Public DB Net

	Return (Rank)					
5th Percentile	8.5	10.3		10.6	7.3	6.2
25th Percentile	7.6	9.4		9.8	6.6	5.5
Median	6.9	8.6		9.1	6.0	5.0
75th Percentile	6.4	7.8		8.3	5.4	4.4
95th Percentile	5.0	6.7		7.0	4.4	3.5
# of Portfolios	230	220		211	206	199
<ul> <li>Teachers Composite</li> </ul>	5.7	(89) 7.7	(79)	8.9 (56)	5.2 (84)	3.9 (88)
Policy Index	5.5	(92) 7.3	(90)	7.8 (87)	4.9 (89)	3.9 (87)
× Allocation Index	5.4	(92) 7.1	(93)	8.0 (85)	5.0 (86)	3.9 (88)



# Total Fund Return Summary vs. Peer Universe - Net



#### Teachers Composite vs. InvestorForce Public DB Net

	Return (Rank)										
5th Percentile	14.7		2.8		4.4		18.6	15.0		4.4	
25th Percentile	12.9		1.4		3.6		16.7	12.9		1.9	
Median	11.9		0.4		2.8		15.5	11.3		0.9	
75th Percentile	10.6		-0.9		1.6		14.1	9.9		0.0	
95th Percentile	8.1		-2.9		-0.1		11.9	7.4		-2.9	
# of Portfolios	282		258		231		173	192		147	
<ul> <li>Teachers Composite</li> </ul>	10.4	(79)	1.4	(25)	-0.3	(96)	13.9 (8	33) 8.0	(94)	1.9	(26)
Policy Index	10.1	(84)	1.4	(25)	0.1	(94)	13.7 (8	34) 7.7	(94)	0.9	(51)
× Allocation Index	10.4	(80)	0.9	(37)	0.0	(95)	13.1 (9	8.0	(94)	0.6	(59)



## Total Fund Allocation vs. Peer Universe - Net



#### Total Plan Allocation vs. InvestorForce Public DB Net As of June 30, 2017



**5th Percentile** 

Median

25th Percentile

75th Percentile

95th Percentile

# of Portfolios

## Total Fund Risk Statistics vs. Peer Universe - Net

# Teachers Composite vs. IFx Public DB Net 3 Years


## Total Fund Risk Statistics vs. Peer Universe - Net

### Teachers Composite vs. IFx Public DB Net 5 Years

Anizd Return	Anlzd Sta	andard Deviation	Anlzd	Alpha	Sharpe Ratio		
11.2         10.7         10.2         9.7         9.2         8.7         8.2         7.7         7.2         6.7         6.2         5.7         5.2	3.6 4.1 4.6 5.1 5.6 6.1 6.6 7.1 7.6 8.1 8.6	• * *	2.6 2.1 1.6 1.1 0.6 0.1 -0.4 -0.9 -1.4 -1.9 -2.4 -2.9		2.0 1.9 1.8 1.7 1.6 1.5 1.4 1.3 1.2 1.1 1.0 0.9 0.8		
<ul> <li>Teachers Composite Value</li> <li>Rank</li> <li>Policy Index Value</li> <li>Rank</li> <li>Allocation Index Value</li> <li>Rank</li> <li>Allocation Index Value</li> <li>Rank</li> <li>Universe</li> <li>5th %tile</li> <li>9. 25th %tile</li> <li>8. Median</li> <li>7.</li> </ul>	<ul> <li>Teachers Com</li> <li>Value</li> <li>Rank</li> <li>Policy Index</li> <li>Value</li> <li>Rank</li> <li>Allocation Inde</li> <li>Rank</li> <li>Allocation Inde</li> <li>Rank</li> <li>Universe</li> <li>Sth %tile</li> <li>Sth %tile</li> <li>Median</li> <li>Afther with the</li> <li>Median</li> <li>Sth %tile</li> <li>Sth %tile</li> </ul>	5.38 27 5.05 13	<ul> <li>Teachers Composit Value Rank</li> <li>Policy Index Value Rank</li> <li>Allocation Index Value Rank</li> <li>Universe 5th %tile 25th %tile Median 75th %tile</li> <li>95th %tile</li> </ul>	e -0.30 64 0.00 46 -0.16 57 1.18 0.45 -0.08 -0.62 -1.88	<ul> <li>Teachers Composi Value Rank</li> <li>Policy Index Value Rank</li> <li>Allocation Index Value Rank</li> <li>Universe 5th %tile 25th %tile Median 75th %tile 95th %tile</li> </ul>	te 1.19 82 1.25 74 1.22 78 1.75 1.49 1.37 1.24 0.99	

## Total Fund Risk Statistics vs. Peer Universe - Net

### Teachers Composite vs. IFx Public DB Net 7 Years

Anlzd	Return	AnIzd Standa	ard Deviation	Anlzd	Alpha	Sharpe	Ratio
11.7         11.2         10.7         10.2         9.7         9.2         8.7         8.2         7.7         7.2         6.7         6.2         5.7		4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0 10.5		2.5 2.0 1.5 1.0 0.5 -0.5 -1.0 -1.5 -2.0 -2.5 -3.0		1.8         1.7         1.6         1.5         1.4         1.3         1.2         1.1         0.9         0.8         0.7	
<ul> <li>Teachers Composi</li> </ul>	te	<ul> <li>Teachers Composi</li> </ul>	te	<ul> <li>Teachers Composit</li> </ul>	e	<ul> <li>Teachers Composite</li> </ul>	e
Value	7.72	Value	6.75	Value	0.28	Value	1.12
Rank	79	Rank	30	Rank	28	Rank	62
Policy Index		Policy Index		Policy Index		Policy Index	
Value	7.28	Value	6.56	Value	0.00	Value	1.09
Rank	90	Rank	25	Rank	39	Rank	73
× Allocation Index		Allocation Index		Allocation Index		× Allocation Index	
Value	7.15	Value	6.63	Value	-0.21	Value	1.06
Rank	93	Rank	27	Rank	51	Rank	78
Universe		Universe		Universe		Universe	
5th %tile	10.34	5th %tile	5.02	5th %tile	1.14	5th %tile	1.46
25th %tile	9.41	25th %tile	6.57	25th %tile	0.36	25th %tile	1.29
		Median	7.34	Median	-0.21	Median	1.17
Median	8.59	75th %tile	8.06	75th %tile	-0.81	75th %tile	1.08
75th %tile	7.83	95th %tile	8.06 9.00	95th %tile	-2.01	95th %tile	0.89
95th %tile	6.71	9001 7000E	9.00	0001 /000	2.01		

### Teachers Composite vs. IFx Public DB Net 10 Years

	Anlzd Return		lard Deviation	Anlzd	Anlzd Alpha		
		6.0		0.0		_	
7.5		0.0		2.8			
7.0		7.0		2.3			
6.5		7.0		1.8			
6.0		8.0		1.3			
		8.0		0.8			
5.5				0.3			
5.0		9.0	••••••	-0.2	<b>× ×</b>		
4.5			<b>*</b>	-0.7		_	
4.0	A	10.0		-1.2			
3.5				-1.7			
		11.0					
3.0				-2.2			
2.5		12.0		-2.7			
eachers Composi	te	Teachers Composition	site	<ul> <li>Teachers Composi</li> </ul>			
		<ul> <li>Teachers Compose Value</li> </ul>	site 10.48	Value	-0.46		
alue	te 3.91 88			Value Rank			
alue ank	3.91	Value Rank ▲ Policy Index	10.48 77	Value Rank ▲ Policy Index	-0.46 69		
alue ank blicy Index	3.91	Value Rank ▲ Policy Index Value	10.48 77 9.36	Value Rank ▲ Policy Index Value	-0.46 69 0.00		
alue ank blicy Index alue ank	3.91 88	Value Rank ▲ Policy Index Value Rank	10.48 77	Value Rank ▲ Policy Index Value Rank	-0.46 69		
alue ank blicy Index alue ank location Index	3.91 88 3.94 87	Value Rank Policy Index Value Rank X Allocation Index	10.48 77 9.36 46	Value Rank Policy Index Value Rank X Allocation Index	-0.46 69 0.00 49		
alue ank blicy Index alue ank location Index alue	3.91 88 3.94 87 3.91	Value Rank Policy Index Value Rank X Allocation Index Value	10.48 77 9.36 46 9.66	Value Rank Policy Index Value Rank X Allocation Index Value	-0.46 69 0.00 49 -0.15		
alue ank blicy Index alue ank location Index alue	3.91 88 3.94 87	Value Rank Policy Index Value Rank X Allocation Index	10.48 77 9.36 46	Value Rank Policy Index Value Rank X Allocation Index	-0.46 69 0.00 49		
alue ank olicy Index alue ank location Index alue ank	3.91 88 3.94 87 3.91	Value Rank Policy Index Value Rank X Allocation Index Value	10.48 77 9.36 46 9.66	Value Rank Policy Index Value Rank X Allocation Index Value	-0.46 69 0.00 49 -0.15		
alue ank olicy Index alue ank location Index alue ank	3.91 88 3.94 87 3.91 88	Value Rank Policy Index Value Rank Allocation Index Value Rank	10.48 77 9.36 46 9.66	Value Rank Policy Index Value Rank Allocation Index Value Rank	-0.46 69 0.00 49 -0.15 57 1.41		
alue ank blicy Index alue ank location Index alue ank hiverse 5th %tile	3.91 88 3.94 87 3.91 88 6.23	Value Rank Policy Index Value Rank Allocation Index Value Rank Universe	10.48 77 9.36 46 9.66 54	Value Rank Policy Index Value Rank Allocation Index Value Rank Universe 5th %tile 25th %tile	-0.46 69 0.00 49 -0.15 57 1.41 0.51		
alue ank blicy Index alue ank location Index alue ank hiverse 5th %tile 25th %tile	3.91 88 3.94 87 3.91 88 6.23 5.55	Value Rank Policy Index Value Rank Allocation Index Value Rank Universe 5th %tile	10.48 77 9.36 46 9.66 54 6.14	Value Rank Policy Index Value Rank Allocation Index Value Rank Universe 5th %tile 25th %tile Median	-0.46 69 0.00 49 -0.15 57 1.41 0.51 -0.04		
eachers Composi alue ank olicy Index alue ank location Index alue ank niverse 5th %tile 25th %tile 25th %tile Vedian 75th %tile	3.91 88 3.94 87 3.91 88 6.23	Value Rank Policy Index Value Rank Allocation Index Value Rank Universe 5th %tile 25th %tile	10.48 77 9.36 46 9.66 54 6.14 8.25	Value Rank Policy Index Value Rank Allocation Index Value Rank Universe 5th %tile 25th %tile	-0.46 69 0.00 49 -0.15 57 1.41 0.51		



Sharpe Ratio

Teachers Composite	
Value	0.33
Rank	91
Policy Index	
Value	0.37
Rank	82
Allocation Index	
Value	0.36
Rank	86
Universe	
5th %tile	0.83
25th %tile	0.58
Median	0.48
75th %tile	0.40
95th %tile	0.30



### Vermont State Teachers

## Total Fund Attribution Analysis - Net

#### Attribution Effects Relative to Policy Index 3 Months Ending June 30, 2017



3 Months Ending June 30, 2017									
	لالاط Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects		
Large Cap Comp	2.9%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
Small/Mid Cap Comp	1.9%	1.6%	0.3%	0.0%	0.0%	0.0%	0.0%		
Int'l Equity Comp	6.9%	6.0%	0.9%	0.1%	0.1%	0.0%	0.2%		
Emerging Market Comp	6.4%	6.3%	0.1%	0.0%	0.0%	0.0%	0.1%		
Diversified Fixed	1.7%	1.4%	0.2%	0.0%	0.0%	0.0%	0.0%		
High Yield Comp	1.6%	2.2%	-0.5%	0.0%	0.0%	0.0%	0.0%		
TIPS	-0.4%	-0.4%	0.0%	0.0%	0.0%	0.0%	0.0%		
Emerging Market Debt	2.5%	2.2%	0.3%	0.0%	0.0%	0.0%	0.0%		
Risk Parity/GAA	1.1%	3.6%	-2.5%	-0.1%	0.0%	0.0%	-0.1%		
Cash	0.0%	0.2%	-0.2%	0.0%	0.0%	0.0%	0.0%		
Total Real Estate	0.8%	1.8%	-0.9%	-0.1%	0.0%	0.0%	0.0%		
Absolute Return	-0.2%	1.3%	-1.5%	-0.1%	0.0%	0.0%	-0.1%		
Private Equity	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%		
Total	2.6%	2.5%	0.1%	-0.2%	0.2%	0.0%	0.0%		

**Attribution Summary** 

Note: Plan attribution calculations are returns based and the results shown reflect the composites shown. As a result, the total returns shown may vary from the calculated returns shown on the performance report.

The target return shown for each composite is a custom index, based on aggregated policy indices. This policyindex asset weights the underlying policy indices of each option in the plan and the respective benchmark.

The allocation, selection, and interaction effects are calculated using the custom index described above alongwith the policy or target weight of each composite. May not add up due to rounding.

Absolute Return's Wtd. index Return is calculated using a weighting of the respective benchmarks for each underlying strategy part of the composite.



### Vermont State Teachers

## Total Fund Attribution Analysis - Net

#### Attribution Effects Relative to Policy Index 1 Year Ending June 30, 2017



#### 1 Year Ending June 30, 2017 Wtd: Wtd. Index Excess Selection Allocation Interaction Total Actual Return Return Effect Effect Effects Effects Return Large Cap Comp 17.7% 17.8% 0.0% 0.0% 0.2% 0.0% 0.2% 22.0% -3.3% -0.2% 0.0% -0.2% Small/Mid Cap Comp 18.6% 0.0% Int'l Equity Comp 22.4% 20.3% 2.0% 0.2% 0.2% 0.0% 0.4% Emerging Market Comp 23.7% -0.3% 0.1% 18.7% -5.0% 0.0% -0.2% **Diversified Fixed** 2.2% -0.3% 2.6% 0.5% 0.1% 0.0% 0.5% **High Yield Comp** 11.6% 12.7% -1.1% -0.1% 0.0% 0.0% -0.1% -0.6% -0.6% 0.0% 0.0% 0.0% 0.0% 0.0% **Emerging Market Debt** 9.0% 5.5% 3.4% 0.2% 0.0% 0.0% 0.2% **Risk Parity/GAA** 5.1% 8.8% -3.7% -0.2% 0.0% -0.1% -0.3%

-0.5%

-0.6%

-1.5%

-5.7%

0.5%

0.0%

0.0%

-0.1%

-0.3%

-0.3%

0.0%

0.0%

0.0%

-0.1%

0.4%

0.0%

0.0%

0.0%

0.2%

0.1%

0.0%

0.0%

-0.1%

-0.2%

0.2%

**Attribution Summary** 

Note: Plan attribution calculations are returns based and the results shown reflect the composites shown. As a result, the total returns shown may vary from the calculated returns shown on the performance report.

0.5%

7.0%

5.7%

13.3%

10.2%

0.0%

6.4%

4.2%

7.6%

10.7%

The target return shown for each composite is a custom index, based on aggregated policy indices. This policyindex asset weights the underlying policy indices of each option in the plan and the respective benchmark.

The allocation, selection, and interaction effects are calculated using the custom index described above alongwith the policy or target weight of each composite. May not add up due to rounding.

Absolute Return's Wtd. index Return is calculated using a weighting of the respective benchmarks for each underlying strategy part of the composite.



TIPS

Cash

Total

**Total Real Estate** 

Absolute Return

Private Equity

Asset Allocation Effect - Measures VPIC's ability to effectively allocate their portfolio's assets to various asset classes. The allocation effect determines whether the overweighting or underweighting of asset classes relative to a benchmark contributes positively or negatively to the overall portfolio return. Positive allocation occurs when the portfolio is overweighted in an asset class that outperforms the benchmark. Negative allocation occurs when the portfolio is overweighted in an asset class that outperforms the benchmark.

Selection Effect - Measures VPIC's ability to select managers within a given asset class relative to a benchmark. The over or underperformance of the portfolio is weighted by the benchmark weight, therefore, selection is not affected by VPIC's allocation to the asset class. The weight of the manager in the portfolio determines the size of the effect -- the larger the manager, the larger the effect is, positive or negative.

Interaction Effect - The interaction effect measures the combined impact of VPIC's manager selection and manager allocation decisions within an asset class. For example, if VPIC had superior manager selection and overweighted that particular asset class, the interaction effect is positive. If VPIC had superior manager selection, but underweighted that asset class, the interaction effect is negative. In this case, VPIC did not take advantage of the superior manager selection by allocating more assets to that asset class.



### Vermont State Teachers

## Risk Statistics - 3 Years Ending June 30, 2017 - Net

	5 i Cui		gun	C 30, 20	J <b>T</b> /	INCC.							
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank	Tracking Error	Rank
Teachers Composite	100.00%	3.73%	82	5.52%	22	-0.19%	48	0.63	74	1.12	53	0.83%	28
Policy Index		3.78%	81	5.24%	10	0.00%	36	0.68	65	1.18	47	0.00%	1
US Equity	22.31%	9.29%	24	10.81%	28	0.11%	28	0.84	19	1.43	20	1.46%	2
Russell 3000		9.10%	27	10.63%	25	0.00%	29	0.83	19	1.37	24	0.00%	1
Large Cap Comp	17.13%	9.26%	27	10.44%	36	-0.41%	31	0.86	24	1.57	17	0.73%	1
S&P 500		9.61%	22	10.35%	34	0.00%	24	0.91	18	1.52	21	0.00%	1
Small/Mid Cap Comp	5.18%	9.53%	15	12.74%	43	3.55%	18	0.73	18	1.46	10	4.17%	3
Russell 2000		7.36%	38	15.38%	93	0.00%	61	0.46	57	0.77	53	0.00%	1
Int'l Equity Comp	14.71%	2.65%	46	11.78%	42	1.56%	45	0.20	45	0.36	43	2.06%	7
MSCI EAFE		1.15%	77	12.42%	76	0.00%	78	0.07	78	0.13	76	0.00%	1
Emerging Market Comp	7.42%	1.63%	55	15.29%	61	0.64%	55	0.09	56	0.18	49	5.16%	56
MSCI Emerging Markets		1.07%	68	16.06%	78	0.00%	67	0.05	67	0.10	66	0.00%	1
US Fixed Income	27.61%	3.43%	30	2.97%	61	1.27%	27	1.08	25	1.58	29	1.67%	35
BBgBarc US Aggregate TR		2.48%	52	2.90%	59	0.00%	76	0.77	61	1.07	66	0.00%	1
Diversified Fixed	18.05%	3.52%	28	3.02%	62	1.14%	28	1.09	24	1.38	40	1.21%	24
BBgBarc US Aggregate TR		2.48%	52	2.90%	59	0.00%	76	0.77	61	1.07	66	0.00%	1
Unconstrained Fixed Income	5.94%												
25% HY, 25% EMD, 50% BC Agg		3.56%	16	3.68%	51	0.00%	48	0.90	28	1.50	28	0.00%	1
High Yield Comp	4.84%	4.35%	30	5.03%	42	0.69%	38	0.82	41	1.48	48	1.61%	36
BBgBarc US High Yield TR		4.48%	28	6.09%	83	0.00%	57	0.70	55	1.56	40	0.00%	1
TIPS	4.72%	0.58%	29	3.91%	70	-0.06%	27	0.09	28	0.15	21	0.18%	4
BBgBarc US TIPS TR		0.63%	23	3.83%	59	0.00%	18	0.10	18	0.18	18	0.00%	1
Emerging Market Debt	5.29%	5.05%	9	6.14%	28	0.44%	15	0.78	13	1.21	16	1.32%	9
JP Morgan EMBI Global TR		4.64%	18	6.04%	27	0.00%	25	0.73	21	1.07	22	0.00%	1
Total Real Estate	7.43%	10.27%		4.49%		-0.05%		2.23		138.27		1.16%	
NCREIF Property Index		10.16%		4.28%		0.00%		2.32		136.87		0.00%	
Absolute Return	9.21%	0.03%	80	3.15%	21	-1.27%	75	-0.06	83	-0.08	83	1.64%	5
HFRI Fund of Funds Composite Index		1.53%	59	3.30%	27	0.00%	56	0.39	51	0.45	56	0.00%	1
Risk Parity/GAA	4.35%	0.44%	79	7.32%	62	-2.01%	80	0.03	79	0.05	78	4.44%	41
60% MSCI World (Net) / 40% CITI WGBI		2.86%	32	7.04%	55	0.00%	42	0.37	38	0.74	26	0.00%	1

### Vermont State Teachers

## Risk Statistics - 5 Years Ending June 30, 2017 - Net

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank	Tracking Error	Rank
Teachers Composite	100.00%	6.54%	92	5.38%	27	-0.29%	64	1.19	82	2.10	65	0.81%	23
Policy Index		6.48%	93	5.05%	13	0.00%	46	1.25	74	2.24	49	0.00%	1
US Equity	22.31%												
Russell 3000		14.58%	34	9.80%	18	0.00%	29	1.47	12	2.53	17	0.00%	1
Large Cap Comp	17.13%	14.89%	23	9.66%	28	0.16%	21	1.53	10	2.90	7	0.75%	1
S&P 500		14.63%	28	9.56%	24	0.00%	26	1.51	11	2.61	18	0.00%	1
Small/Mid Cap Comp	5.18%	14.73%	25	11.88%	46	3.28%	37	1.23	28	2.55	9	3.57%	1
Russell 2000		13.70%	44	13.88%	87	0.00%	85	0.98	75	1.61	70	0.00%	1
Int'l Equity Comp	14.71%	9.99%	43	11.20%	38	1.81%	43	0.88	40	1.62	29	2.08%	7
MSCI EAFE		8.69%	67	11.74%	71	0.00%	79	0.73	72	1.28	67	0.00%	1
Emerging Market Comp	7.42%	3.94%	73	14.40%	70	0.19%	71	0.26	72	0.44	69	4.74%	51
MSCI Emerging Markets		3.96%	73	14.40%	70	0.00%	75	0.26	72	0.44	69	0.00%	1
US Fixed Income	27.61%												
BBgBarc US Aggregate TR		2.21%	61	2.86%	52	0.00%	83	0.72	77	0.98	74	0.00%	1
Diversified Fixed	18.05%	2.91%	47	3.18%	64	0.61%	53	0.86	62	1.10	64	1.12%	24
BBgBarc US Aggregate TR		2.21%	61	2.86%	52	0.00%	83	0.72	77	0.98	74	0.00%	1
Unconstrained Fixed Income	5.94%												
25% HY, 25% EMD, 50% BC Agg		4.15%	43	3.78%	57	0.00%	72	1.06	50	1.51	53	0.00%	1
High Yield Comp	4.84%	6.47%	35	4.39%	30	0.84%	33	1.44	34	2.27	46	1.36%	36
BBgBarc US High Yield TR		6.89%	25	5.28%	76	0.00%	64	1.27	58	2.37	41	0.00%	1
TIPS	4.72%	0.20%	57	4.56%	73	-0.07%	55	0.01	56	0.01	56	0.16%	1
BBgBarc US TIPS TR		0.27%	37	4.52%	59	0.00%	40	0.02	40	0.03	40	0.00%	1
Emerging Market Debt	5.29%	5.90%	14	6.65%	28	0.91%	16	0.86	16	1.20	15	1.27%	7
JP Morgan EMBI Global TR		5.20%	29	6.81%	31	0.00%	30	0.74	26	1.04	30	0.00%	1
Total Real Estate	7.43%	11.41%		4.87%		-0.02%		2.31		185.30		1.39%	
NCREIF Property Index		10.49%		4.30%		0.00%		2.40		170.08		0.00%	
Absolute Return	9.21%	4.52%	64	3.53%	33	0.80%	57	1.24	43	1.87	40	1.62%	6
HFRI Fund of Funds Composite Index		3.86%	70	3.25%	27	0.00%	67	1.14	49	1.51	53	0.00%	1
Risk Parity/GAA	4.35%	4.34%	59	7.23%	64	-1.76%	82	0.58	71	0.86	74	4.12%	44
60% MSCI World (Net) / 40% CITI WGBI		6.75%	24	6.63%	53	0.00%	47	0.99	17	2.07	5	0.00%	1

# State Employees' Retirement System



## Total Fund Performance Summary - Net

	Market Value	3 Mo I	Rank	YTD F	Rank	Fiscal YTD	Rank	1 Yr I	Rank	3 Yrs F	Rank	5 Yrs F	Rank	7 Yrs I	Rank	10 Yrs F	Rank
Employees Composite	\$1,740,006,749	2.6%	69	6.8%	67	10.6%	77	10.6%	77	3.7%	84	6.6%	91	7.8%	77	4.2%	82
Policy Index		2.5%	77	6.3%	82	10.1%	84	10.1%	84	3.8%	81	6.5%	93	7.3%	90	4.2%	80
Allocation Index		2.7%	60	6.8%	68	10.5%	78	10.5%	78	3.7%	83	6.5%	93	7.2%	91	4.2%	81
InvestorForce Public DB Net Median		2.8%		7.3%		11.9%		11.9%		4.9%		8.2%		8.6%		5.0%	

3 Years Ending June 30, 2017									
	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank	
Employees Composite	3.67%	84	5.66%	27	0.61	78	1.05	64	
Policy Index	3.78%	81	5.24%	10	0.68	65	1.18	47	
Allocation Index	3.70%	83	5.47%	21	0.63	75	1.07	62	

5 Years Ending June 30, 2017										
	AnIzd Ret	Rank	AnIzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank		
Employees Composite	6.60%	91	5.50%	31	1.17	83	2.04	70		
Policy Index	6.48%	93	5.05%	13	1.25	74	2.24	49		
Allocation Index	6.48%	93	5.16%	18	1.23	77	2.12	62		





#### 1 Year Ending June 30, 2017



InvestorForce Public DB Net

•

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Employees Composite	10.56%	77	3.14%	35	3.20	63
Policy Index	10.07%	84	3.05%	27	3.13	66
S&P 500	17.90%	1	6.09%	99	2.85	80
Citi WGBI	-4.14%	99	6.58%	99	-0.71	99
MSCI ACWI	18.78%	1	5.34%	99	3.42	45
MSCI ACWI ex USA	20.45%	1	7.16%	99	2.78	84
InvestorForce Public DB Net Median	11.88%		3.39%		3.34	

#### 1 Year Ending June 30, 2017



#### 3 Years Ending June 30, 2017



3 Years	Ending	June	30,	2017

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Employees Composite	3.67%	84	5.66%	27	0.61	78
Policy Index	3.78%	81	5.24%	10	0.68	65
S&P 500	9.61%	1	10.35%	99	0.91	18
Citi WGBI	-1.00%	99	5.98%	40	-0.21	99
MSCI ACWI	4.82%	51	10.78%	99	0.43	96
MSCI ACWI ex USA	0.80%	99	12.44%	99	0.05	99
InvestorForce Public DB Net Median	4.85%		6.24%		0.74	
	Policy Index S&P 500 Citi WGBI MSCI ACWI MSCI ACWI ex USA InvestorForce Public DB Net	ReturnEmployees Composite3.67%Policy Index3.78%S&P 5009.61%Citi WGBI-1.00%MSCI ACWI4.82%MSCI ACWI ex USA0.80%InvestorForce Public DB Net4.85%	Anizd ReturnReturn Return RankEmployees Composite3.67%84Policy Index3.78%81S&P 5009.61%1Citi WGBI-1.00%99MSCI ACWI4.82%51MSCI ACWI ex USA0.80%99InvestorForce Public DB Net4.85%	Anizd ReturnReturn RankStandard DeviationEmployees Composite3.67%845.66%Policy Index3.78%815.24%S&P 5009.61%110.35%Citi WGBI-1.00%995.98%MSCI ACWI4.82%5110.78%MSCI ACWI ex USA0.80%9912.44%InvestorForce Public DB Net4.85%6.24%	Anizd ReturnAnizd Return RankAnizd Standard DeviationStandard Deviation RankEmployees Composite3.67%845.66%27Policy Index3.78%815.24%10S&P 5009.61%110.35%99Citi WGBI-1.00%995.98%40MSCI ACWI4.82%5110.78%99InvestorForce Public DB Net4.85%756.24%75	Anizd ReturnAnizd Return RankAnizd Standard DeviationStandard Deviation RankStandard RatioEmployees Composite3.67%845.66%270.61Policy Index3.78%815.24%100.68S&P 5009.61%110.35%990.91Citi WGBI-1.00%995.98%40-0.21MSCI ACWI4.82%5110.78%990.43InvestorForce Public DB Net4.85%

- Employees Composite
- Policy Index ٠
- Allocation Index 0
- Universe Median ۸
- 68% Confidence Interval
- InvestorForce Public DB Net •



### 15.0 10.0 Annualized Return 5.0 . 0.0 2.0 8.0 0.0 1.0 3.0 4.0 5.0 6.0 7.0 9.0 Annualized Standard Deviation

### 5 Years Ending June 30, 2017



5 Years Ending June 30, 2017

#### Employees Composite

- Policy Index
- Allocation Index
- Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net





#### 7 Years Ending June 30, 2017



7.34%

7 Years Ending June 30, 2017

Policy Index	7.28%	90	6.56%	25	1.09	
S&P 500	15.41%	1	11.69%	99	1.31	
Citi WGBI	1.68%	99	5.67%	8	0.27	
MSCI ACWI	10.48%	3	13.05%	99	0.79	
MSCI ACWI ex USA	6.66%	96	14.97%	99	0.44	
InvestorForce Public DB Net	0 500/		7 2 4 0/		4 47	

---

8.59%

- Universe Median
- .
- 68% Confidence Interval
- InvestorForce Public DB Net •



98

99

1.17

---

Median

#### 10 Years Ending June 30, 2017



InvestorForce Public DB Net

•

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Employees Composite	4.15%	82	10.44%	77	0.36	86
Policy Index	4.23%	80	9.10%	41	0.42	70
S&P 500	7.18%	1	15.21%	99	0.44	59
Citi WGBI	3.49%	95	6.80%	9	0.45	57
MSCI ACWI	3.71%	93	16.95%	99	0.19	99
MSCI ACWI ex USA	1.13%	99	19.14%	99	0.04	99

---

9.59%

5.03%

### 10 Years Ending June 30, 2017



0.48

--

Median

InvestorForce Public DB Net

## Total Marketable Assets - Net

Annualized Return vs. Annualized Standard Deviation 3 Years Ending June 30, 2017



- Total Marketable Assets
- Total Marketable Assets Custom Index
- Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net





Annualized Standard Deviation

- SSgA S&P 500 Cap-Wgt
- SSgA S&P 500 Equal-Wgt
- \* T. Rowe

- ▲ Champlain
- Wellington
- \* Acadian
- Mondrian
- ▲ SSgA ACWI Ex US
- Aberdeen
- \* PIMCO Core Plus
- \* Z Terminated Wellington DAS
- PIMCO Unconstrained

- \* KDP
- Guggenheim
- \* BlackRock TIPS
- \* Wellington Opportunistic EMD
- ▲ Mellon Dynamic Growth
- AQR Global Risk Premium
- \* Vermont Cash
- Z Terminated- Schroder
- Total Marketable Assets Custom Index
- Universe Median
- 68% Confidence Interval

## Total Fund Asset Allocation vs. Policy Targets

Current

5.4%

14.9%

7.2%

5.3% 2.0%

5.0%

4.5%

5.9%

5.6%

5.1%

4.1%

= = 0/

8.8%

6.1%

0.0%



Effective Net Allocation										
	18.5%									
	5.8%									
	15.2%									
	7.4%									
	5.3%									
	2.0%									
	5.0%									
	5.1%									
	5.9%									
	7.7%									
	5.1%									
	1.5% 8.8%									
	6.1% 0.6% 0.1%									

Asset Allocati	on vs. Target		
	Policy	Current	Effective Net Allocation
Large Cap Equity	18.5%	18.5%	18.5%
Small/Mid Cap Equity	5.5%	5.4%	5.8%
International Equity	14.0%	14.9%	15.2%
Emerging Markets Equity	6.0%	7.2%	7.4%
Core Bonds	6.0%	5.3%	5.3%
Long Treasury	2.0%	2.0%	2.0%
High Yield	5.0%	5.0%	5.0%
TIPS	6.0%	4.5%	5.1%
Unconstrained Bonds	6.0%	5.9%	5.9%
Diversified Bond	6.0%	5.6%	7.7%
Emerging Market Debt	5.0%	5.1%	5.1%
Risk Parity	4.0%	4.1%	
Private Equity	1.5%	1.5%	1.5%
Absolute Return	8.0%	8.8%	8.8%
Real Estate	6.5%	6.1%	6.1%
Commodities			0.6%
Cash		0.1%	0.1%
Total	100.0%	100.0%	100.0%

Effective Net Allocation breaks out the exposure of AQR Global Risk Premium. Absolute Return includes Grosvenor, Pinnacle Natural Resources, L.P., and Allianz Structured Alpha.



## Total Fund Asset Growth Summary



	Last Three Months	Year-To-Date	Fiscal Year-To-Date	One Year	Three Years
Beginning Market Value	\$1,698,765,699	\$1,633,425,741	\$1,608,681,493	\$1,608,681,493	\$1,650,586,256
Contributions	\$190,241,079	\$199,826,821	\$236,036,458	\$236,036,458	\$844,574,099
Withdrawals	-\$196,547,595	-\$208,341,555	-\$270,070,901	-\$270,070,901	-\$938,319,544
Net Cash Flow	-\$6,306,517	-\$8,514,735	-\$34,034,443	-\$34,034,443	-\$93,745,445
Net Investment Change	\$47,547,567	\$115,095,744	\$165,359,700	\$165,359,700	\$183,165,938
Ending Market Value	\$1,740,006,749	\$1,740,006,749	\$1,740,006,749	\$1,740,006,749	\$1,740,006,749

3 Years Ending June 30, 2017



## Total Fund Asset Growth Summary by Manager

		June 30, 2017				
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
Aberdeen	\$118,134,913	\$211,984	-\$211,984	\$0	\$7,774,354	\$125,909,267
Acadian	\$72,214,486	\$87,185	-\$87,185	\$0	\$7,802,051	\$80,016,537
Allianz Structured Alpha	\$31,088,191	\$0	-\$101,205	-\$101,205	\$528,640	\$31,515,625
AQR Global Risk Premium	\$136,246,511	\$141,836	-\$67,549,667	-\$67,407,831	\$2,084,971	\$70,923,651
BlackRock TIPS	\$64,665,711	\$13,493,133	-\$11,567	\$13,481,566	-\$244,593	\$77,902,684
Champlain	\$36,294,247	\$10,325,374	-\$73,487	\$10,251,887	\$2,119,222	\$48,665,355
GAM	\$165,474	\$0	\$0	\$0	\$1,556	\$167,030
GAM Unconstrained Bond	\$59,229,765	\$0	-\$78,291	-\$78,291	\$1,226,122	\$60,377,596
Grosvenor	\$80,299,835	\$0	\$0	\$0	\$349,573	\$80,649,409
Guggenheim	\$68,529,755	\$78,393	-\$78,393	\$0	\$1,215,882	\$69,745,638
Harbourvest Dover Street Fund IX	\$1,595,849	\$722,264	\$0	\$722,264	\$0	\$2,318,113
Harbourvest Dover VIII Fund	\$7,356,047	\$0	-\$291,641	-\$291,641	\$0	\$7,064,406
Harbourvest Partners IX Buyout Fund	\$6,285,450	\$0	-\$63,904	-\$63,904	\$0	\$6,221,546
Harbourvest Partners IX Credit Opportunities	\$906,469	\$0	-\$17,295	-\$17,295	\$0	\$889,174
Harbourvest Partners IX Venture Fund	\$4,683,578	\$0	-\$18,698	-\$18,698	\$0	\$4,664,881
Harbourvest Partners X Buyout Fund	\$2,021,150	\$480,767	-\$167,288	\$313,479	\$0	\$2,334,629
Harbourvest Partners X Venture Fund	\$900,920	\$247,252	\$0	\$247,252	\$0	\$1,148,172
HIPEP VII	\$1,913,486	\$218,786	\$0	\$218,786	\$0	\$2,132,272
KDP	\$17,111,101	\$27,648	-\$27,648	\$0	\$308,354	\$17,419,455
Mellon Dynamic Growth	\$32,947,759	\$0	-\$33,244,977	-\$33,244,977	\$347,093	\$49,875
Mondrian	\$69,656,139	\$65,578	-\$65,578	\$0	\$3,050,966	\$72,707,105
Morgan Stanley Prime Property	\$48,160,530	\$0	\$0	\$0	\$0	\$48,160,530
PIMCO Core Plus	\$95,187,475	\$69,874	-\$69,874	\$0	\$1,651,309	\$96,838,784
PIMCO Unconstrained	\$42,095,618	\$63,318	-\$63,318	\$0	\$455,333	\$42,550,951
Pinnacle Natural Resources, L.P.	\$21,798,620	\$20,241,790	\$0	\$20,241,790	-\$911,219	\$41,129,191



## Total Fund Asset Growth Summary by Manager

			Quarter Ending Ju	ıne 30, 2017		
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
RREEF America REIT III	\$205,264	\$0	-\$879	-\$879	-\$5,053	\$199,332
Siguler Guff DREOF II	\$13,111,434	\$0	-\$367,106	-\$367,106	\$494,799	\$13,239,126
Siguler Guff DREOF II Co-Investment	\$3,866,124	\$0	\$0	\$0	\$88,180	\$3,954,304
SSgA ACWI Ex US	\$75,899,336	\$25,574,683	-\$13,129	\$25,561,554	\$5,029,906	\$106,490,797
SSgA Barclays Aggregate Index	\$49,681,232	\$42,980,599	-\$2,006,112	\$40,974,487	\$976,606	\$91,632,325
SSgA S&P 500 Cap-Wgt	\$214,453,323	\$28,993,606	-\$5,515,766	\$23,477,839	\$7,067,800	\$244,998,962
SSgA S&P 500 Equal-Wgt	\$75,123,307	\$7,797	-\$7,797	\$0	\$1,922,829	\$77,046,136
State Street Long U.S. Treasury Index		\$34,049,838	\$0	\$34,049,838	\$198,204	\$34,248,042
T. Rowe	\$3,085	\$0	\$0	\$0	\$0	\$3,085
Transwestern / Aslan III	\$102,653	\$0	\$0	\$0	\$0	\$102,653
UBS Trumbull	\$39,616,332	\$87,317	-\$87,317	\$0	\$466,360	\$40,082,692
Vermont Cash	\$772,429	\$2,731,628	-\$2,100,907	\$630,721	\$0	\$1,403,150
Wellington	\$36,986,312	\$9,337,263	-\$69,762	\$9,267,501	-\$613,052	\$45,640,761
Wellington Opportunistic EMD	\$87,293,616	\$0	\$0	\$0	\$2,169,892	\$89,463,508
Z Terminated - SSgA Russell 2000 Growth	\$8,074,767	\$1,730	-\$9,269,231	-\$9,267,501	\$1,192,734	\$0
Z Terminated - SSgA S&P 400	\$9,793,138	\$1,437	-\$10,253,323	-\$10,251,887	\$458,749	\$0
Z Terminated - Wellington DAS	\$43,526,865	\$0	-\$44,392,476	-\$44,392,476	\$865,610	\$0
Z Terminated- Schroder	\$20,767,402	\$0	-\$20,241,790	-\$20,241,790	-\$525,612	\$0
Total	\$1,698,765,699	\$190,241,079	-\$196,547,595	-\$6,306,517	\$47,547,567	\$1,740,006,749



## Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Employees Composite	1,740,006,749	100.0	100.0	2.6	69	6.8	67	10.6	77	10.6	77	3.7	84	6.6	91	4.2	82
Policy Index				2.5	77	6.3	82	10.1	84	10.1	84	3.8	81	6.5	93	4.2	80
Allocation Index				2.7	60	6.8	68	10.5	78	10.5	78	3.7	83	6.5	93	4.2	81
InvestorForce Public DB Net Median				2.8		7.3		11.9		11.9		4.9		8.2		5.0	
Total Marketable Assets	1,454,033,665	83.6		3.1	29	8.0	20	11.6	57	11.6	57	3.6	87	6.5	93		
Total Marketable Assets Custom Index				2.9	44	7.1	55	10.6	74	10.6	74	3.4	90	6.6	91		
InvestorForce Public DB Net Median				2.8		7.3		11.9		11.9		4.9		8.2		5.0	
US Equity	416,354,300	23.9	24.0	2.6	53	7.8	49	17.8	60	17.8	60	9.1	27				
Russell 3000				3.0	46	8.9	39	18.5	55	18.5	55	9.1	27	14.6	34	7.3	46
eA All US Equity Net Median				2.8		7.6		19.1		19.1		7.6		13.8		7.1	
Large Cap Comp	322,048,184	18.5	18.5	2.9	52	9.0	48	17.8	51	17.8	51	9.3	27	14.9	23	7.7	30
S&P 500				3.1	48	9.3	45	17.9	50	17.9	50	9.6	22	14.6	28	7.2	45
eA US Large Cap Equity Net Median				3.0		8.7		17.8		17.8		7.8		13.7		7.0	
SSgA S&P 500 Cap-Wgt	244,998,962	14.1	14.0	3.1	48	9.3	45	17.9	49	17.9	49	9.6	22	14.6	28		
S&P 500				3.1	48	9.3	45	17.9	50	17.9	50	9.6	22	14.6	28	7.2	45
SSgA S&P 500 Equal-Wgt	77,046,136	4.4	4.5	2.5	61	7.9	59	17.2	56	17.2	56	8.4	40	15.4	14	8.0	27
S&P 500 Equal Weighted				2.5	61	8.1	58	17.3	56	17.3	56	8.5	37	15.5	13	8.3	19
T. Rowe	3,085	0.0	0.0														
Small/Mid Cap Comp	94,306,116	5.4	5.5	1.7	66	4.1	75	18.1	63	18.1	63	9.1	20	14.5	30	8.2	29
Russell 2000				2.5	51	5.0	69	24.6	15	24.6	15	7.4	38	13.7	44	6.9	62
eA US Small-Mid Cap Equity Net Median				2.5		6.6		19.7		19.7		6.6		13.4		7.4	
Champlain	48,665,355	2.8	2.8	4.8	24	10.6	33	21.3	19	21.3	19	11.2	4	16.0	12		
Russell 2500				2.1	57	6.0	71	19.8	29	19.8	29	6.9	55	14.0	48	7.4	53
eA US Mid Cap Equity Net Median				2.5		8.1		17.2		17.2		7.2		14.0		7.6	
Wellington	45,640,761	2.6	2.8	-1.0	90	-2.4	93	14.6	94	14.6	94	7.7	33	13.0	66	8.1	17
Russell 2000 Value				0.7	56	0.5	64	24.9	30	24.9	30	7.0	46	13.4	60	5.9	76
eA US Small Cap Value Equity Net Median				0.9		1.7		22.3		22.3		6.7		14.0		6.9	

## Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Int'l Equity Comp	259,214,439	14.9	14.0	7.0	42	16.0	33	22.5	33	22.5	33	2.7	44	10.0	43	1.3	69
MSCI EAFE				6.1	67	13.8	61	20.3	48	20.3	48	1.1	77	8.7	67	1.0	76
eA All EAFE Equity Net Median				6.6		14.6		20.1		20.1		2.3		9.6		2.3	
Acadian	80,016,537	4.6	4.0	10.7	4	21.8	4	31.0	3	31.0	3	6.2	12	13.1	14	1.7	61
Mondrian	72,707,105	4.2	4.0	4.3	95	12.0	85	16.0	79	16.0	79	0.5	86	8.4	72	1.6	63
MSCI EAFE				6.1	67	13.8	61	20.3	48	20.3	48	1.1	77	8.7	67	1.0	76
SSgA ACWI Ex US	106,490,797	6.1	6.0	5.9	78	14.3	75	20.7	45	20.7	45	1.0	72	7.4	81		
MSCI ACWI ex USA				5.8	79	14.1	76	20.5	45	20.5	45	0.8	74	7.2	82	1.1	75
eA ACWI ex-US All Cap Equity Net Median				6.9		15.8		20.0		20.0		2.4		9.2		2.5	
Emerging Market Comp	125,909,267	7.2	6.0	6.4	50	18.8	56	18.7	71	18.7	71	1.6	55	3.9	73		
Aberdeen	125,909,267	7.2	6.0	6.4	50	18.8	56	18.7	71	18.7	71	1.6	55	3.9	74		
MSCI Emerging Markets				6.3	53	18.4	62	23.7	42	23.7	42	1.1	68	4.0	73	1.9	66
eA Emg Mkts Equity Net Median				6.4		19.3		22.9		22.9		1.7		5.2		2.5	
US Fixed Income	490,715,475	28.2	31.0	1.3	54	3.1	36	3.5	27	3.5	27	3.4	30				
BBgBarc US Aggregate TR				1.4	50	2.3	56	-0.3	84	-0.3	84	2.5	52	2.2	61	4.5	52
eA All US Fixed Inc Net Median				1.4		2.5		0.9		0.9		2.5		2.8		4.5	
Diversified Fixed	325,647,698	18.7	20.0	1.7	38	3.5	31	2.3	34	2.3	34	3.5	29	2.9	47	4.0	63
BBgBarc US Aggregate TR				1.4	50	2.3	56	-0.3	84	-0.3	84	2.5	52	2.2	61	4.5	52
eA All US Fixed Inc Net Median				1.4		2.5		0.9		0.9		2.5		2.8		4.5	
PIMCO Core Plus	96,838,784	5.6	6.0	1.7	22	3.3	5	1.1	17	1.1	17	2.6	51	2.3	66		
BBgBarc US Aggregate TR				1.4	64	2.3	65	-0.3	72	-0.3	72	2.5	59	2.2	72	4.5	76
SSgA Barclays Aggregate Index	91,632,325	5.3	6.0	1.4	68	2.2	71	-0.4	74	-0.4	74						
BBgBarc US Aggregate TR				1.4	64	2.3	65	-0.3	72	-0.3	72	2.5	59	2.2	72	4.5	76
3-Month Libor Total Return USD				0.3	99	0.6	99	1.0	20	1.0	20	0.6	99	0.5	99	1.0	99
eA US Core Fixed Inc Net Median				1.5		2.4		0.2		0.2		2.6		2.5		4.7	
State Street Long U.S. Treasury Index	34,248,042	2.0															
BBgBarc US Treasury Long TR				4.0		5.4		-7.2		-7.2		5.6		2.8		7.3	

## Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	<sup>3 Mo</sup> (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Unconstrained Fixed Income	102,928,547	5.9	6.0	1.5	62	4.2	48	7.9	30	7.9	30						
25% HY, 25% EMD, 50% BC Agg				1.8	48	3.9	59	4.3	76	4.3	76	3.6	16	4.2	43	6.1	26
BBgBarc Global Aggregate TR				2.6	21	4.4	43	-2.2	99	-2.2	99	-0.4	97	0.8	98	3.7	91
eA Global Unconstrained Fixed Inc Net Median				1.8		4.1		7.0		7.0		2.5		4.0		5.5	
PIMCO Unconstrained	42,550,951	2.4	2.5	0.9	94	3.0	76	7.0	51	7.0	51	1.8	75	1.4	97		
25% HY, 25% EMD, 50% BC Agg 2 Maatta Libor Total Bature				1.8	48	3.9	59	4.3	76	4.3	76	3.6	16	4.2	43	6.1	26
3-Month Libor Total Return USD				0.3	95	0.6	99	1.0	98	1.0	98	0.6	90	0.5	99	1.0	99
GAM Unconstrained Bond	60,377,596	3.5	3.5	1.9	43	5.1	32	8.5	26	8.5	26						
3-Month LIBOR + 3%				1.1	90	2.1	93	4.1	80	4.1	80	3.6	15	3.5	64	4.0	89
eA Global Unconstrained Fixed Inc Net Median				1.8		4.1		7.0		7.0		2.5		4.0		5.5	
High Yield Comp	87,165,093	5.0	5.0	1.7	72	3.6	81	11.6	41	11.6	41	4.4	30	6.5	35	7.1	36
BBgBarc US High Yield TR				2.2	35	4.9	24	12.7	27	12.7	27	4.5	28	6.9	25	7.7	14
eA US High Yield Fixed Inc Net Median				2.0		4.4		11.3		11.3		3.8		6.3		6.8	
KDP	17,419,455	1.0	1.0	1.6	73	3.4	83	7.9	87	7.9	87	2.7	84	4.6	93		
BBgBarc US High Yield TR				2.2	35	4.9	24	12.7	27	12.7	27	4.5	28	6.9	25	7.7	14
BofA Merrill Lynch US High Yield BB-B Rated				2.2	29	4.6	44	11.2	52	11.2	52	4.5	26	6.7	31	7.1	36
Guggenheim	69,745,638	4.0	4.0	1.7	72	3.7	78	12.6	29	12.6	29	4.7	21				
BBgBarc US High Yield TR				2.2	35	4.9	24	12.7	27	12.7	27	4.5	28	6.9	25	7.7	14
eA US High Yield Fixed Inc Net Median				2.0		4.4		11.3		11.3		3.8		6.3		6.8	



## Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD I (%)	Rank	1 Yr (%) F	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
TIPS	77,902,684	4.5	6.0														
BlackRock TIPS	77,902,684	4.5	6.0	-0.4		0.8		-0.6		-0.6		0.6		0.2			
BBgBarc US TIPS TR				-0.4		0.9		-0.6		-0.6		0.6		0.3		4.3	
Emerging Market Debt	89,463,508	5.1	5.0														
Wellington Opportunistic EMD	89,463,508	5.1	5.0	2.5	48	6.8	62	9.0	27	9.0	27	5.1	9	5.9	14		
JP Morgan EMBI Global TR				2.2	61	6.2	74	5.5	86	5.5	86	4.6	18	5.2	29	7.3	22
eA All Emg Mkts Fixed Inc Net Median				2.4		7.8		7.3		7.3		2.4		3.7		6.3	
Risk Parity/GAA	70,973,526	4.1	4.0	1.1	84	5.4	58	5.0	77	5.0	77	0.5	76	4.4	58	3.9	66
Mellon Dynamic Growth	49,875	0.0	0.0	1.2	47	4.1	38	3.4	82	3.4	82	4.7	18	6.5	30	2.9	51
Mellon Dynamic Growth Benchmark				3.7	9	8.0	12	9.3	35	9.3	35	2.8	43	6.2	33	3.6	34
Risk Parity	70,923,651	4.1	4.0	1.2	82	5.8	53	5.6	72	5.6	72	0.1	83	4.2	62		
eA Global TAA Net Median				2.5		6.3		7.0		7.0		1.5		5.0		4.3	
AQR Global Risk Premium	70,923,651	4.1	4.0	1.2	82	5.8	53	5.6	72	5.6	72	0.1	83	4.2	62		
60% MSCI World (Net) / 40% CITI WGBI				3.6	26	8.2	34	8.8	40	8.8	40	2.9	32	6.7	24	4.1	64
Cash	1,403,150	0.1	0.0														
Vermont Cash	1,403,150	0.1		0.0		0.0		0.0		0.0		0.0		0.0		0.7	
91 Day T-Bills				0.2		0.4		0.5		0.5		0.2		0.2		0.4	

Risk Parity Composite formerly shown as Risk Parity/GAA.

Mellon Dynamic Growth was included in Risk Parity/GAA composite prior to 04/01/2016.



## Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Real Estate	105,738,638	6.1	6.5	0.9		2.3		6.6		6.6		10.4		11.4			
NCREIF Property Index				1.8		3.3		7.0		7.0		10.2		10.5		6.4	
NCREIF ODCE				1.7		3.5		7.9		7.9		11.3		11.8		5.2	
UBS Trumbull	40,082,692	2.3		1.0		1.9		4.6		4.6		8.8		8.8		4.5	
Siguler Guff DREOF II	13,239,126	0.8		3.9		4.2		12.5		12.5		10.7					
Siguler Guff DREOF II Co- Investment	3,954,304	0.2		2.3		5.9											
RREEF America REIT III	199,332	0.0		-2.9		-3.6		-16.1		-16.1		-1.9		7.0		-5.5	
Morgan Stanley Prime Property	48,160,530	2.8		0.0		1.9		6.7		6.7		11.6		12.5		5.2	
Transwestern / Aslan III	102,653	0.0		0.0		0.0		0.0		0.0		3.6		14.3		-21.9	
Absolute Return	153,461,254	8.8	8.0	-0.2	80	-0.2	91	4.1	76	4.1	76	0.0	80	4.5	64		
HFRI Fund of Funds Composite Index				0.7	62	3.1	54	6.4	57	6.4	57	1.5	59	3.9	70	0.9	91
eV Alt Fund of Funds - Multi- Strategy Median				1.0		3.2		7.2		7.2		2.0		5.2		2.9	
Grosvenor	80,649,409	4.6	3.0	0.4	70	2.2	65	7.5	49	7.5	49	1.7	54	5.6	42		
Allianz Structured Alpha	31,515,625	1.8	2.0	1.4	41	2.3	65	5.0	67	5.0	67	8.0	6	6.4	31		
91 Day T-Bills				0.2	73	0.4	88	0.5	91	0.5	91	0.2	78	0.2	98	0.4	94
eV Alt Fund of Funds - Multi- Strategy Median				1.0		3.2		7.2		7.2		2.0		5.2		2.9	
Pinnacle Natural Resources, L.P.	41,129,191	2.4	3.0	-3.0		-10.9		-9.4		-9.4							
Bloomberg Commodity Index				-3.0		-5.3		-6.5		-6.5		-14.8		-9.2		-6.5	
GAM	167,030	0.0	0.0														

Absolute Return composite formerly shown as Hedge Funds composite. As of 04/01/2016, Absolute Return includes Allianz Structured Alpha.

Allianz Structured Alpha was included Diversified Fixed income composite prior to 04/01/2016.

Real Estate performance reported on a quarterly basis. NCREIF Property is available 25 days after quarter end.

Real Estate values are finalized as of 06/30/2017. Morgan Stanley will be liquidated, funding UBS and SSgA Long US Treasury Index.



## Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%) F	Rank
Private Equity	26,773,193	1.5	1.5	0.0		0.3		7.8		7.8		13.7					
Cambridge Associates US All PE				0.0		4.3		13.3		13.3		8.4		12.7		9.0	
Harbourvest Partners IX Credit Opportunities	889,174	0.1															
Harbourvest Partners IX Venture Fund	4,664,881	0.3															
Harbourvest Partners IX Buyout Fund	6,221,546	0.4															
Harbourvest Partners X Venture Fund	1,148,172	0.1															
Harbourvest Partners X Buyout Fund	2,334,629	0.1															
Harbourvest Dover VIII Fund	7,064,406	0.4															
Harbourvest Dover Street Fund IX	2,318,113	0.1															
HIPEP VII	2,132,272	0.1															

Harbourvest values based on final Capital Account Statements for Q1, and cash adjusted through Q2.



## Total Fund Return Summary vs. Peer Universe - Net



#### Employees Composite vs. InvestorForce Public DB Net

	Return (Rank)							
5th Percentile	3.7	8.9	10.2	14.7	7.1	6.2	8.9	9.9
25th Percentile	3.2	7.8	8.8	12.9	6.5	5.4	8.1	9.0
Median	2.8	7.3	8.0	11.9	6.0	4.9	7.4	8.2
75th Percentile	2.5	6.6	7.3	10.6	5.1	4.1	6.8	7.4
95th Percentile	1.9	5.3	5.4	8.1	4.0	2.9	5.4	6.2
# of Portfolios	283	283	282	282	278	269	255	245
<ul> <li>Employees Composite</li> </ul>	2.6 (69)	6.8 (67)	7.0 (82)	10.6 (77)	5.7 (58)	3.7 (84)	6.2 (88)	6.6 (91)
Policy Index	2.5 (77)	6.3 (82)	6.5 (90)	10.1 (84)	5.7 (59)	3.8 (81)	6.2 (88)	6.5 (93)
× Allocation Index	2.7 (60)	6.8 (68)	6.7 (88)	10.5 (78)	5.6 (60)	3.7 (83)	6.1 (90)	6.5 (93)



## Total Fund Return Summary vs. Peer Universe - Net



Employees Composite vs. InvestorForce Public DB Net

	Return (Rank)					
5th Percentile	8.5	10.3	1	0.6	7.3	6.2
25th Percentile	7.6	9.4		9.8	6.6	5.5
Median	6.9	8.6		9.1	6.0	5.0
75th Percentile	6.4	7.8		8.3	5.4	4.4
95th Percentile	5.0	6.7		7.0	4.4	3.5
# of Portfolios	230	220	2	211	206	199
Employees Composite	5.8	(88) 7.8	(77)	8.9 (55)	5.4 (78)	4.2 (82)
Policy Index	5.5	(92) 7.3	(90)	7.8 (87)	5.1 (85)	4.2 (80)
× Allocation Index	5.4	(92) 7.2	(91)	8.0 (85)	5.2 (84)	4.2 (81)



## Total Fund Return Summary vs. Peer Universe - Net



Employees Composite vs. InvestorForce Public DB Net

	Return (Rank)										
5th Percentile	14.7		2.8		4.4		18.6	15.0		4.4	
25th Percentile	12.9		1.4		3.6		16.7	12.9		1.9	
Median	11.9		0.4		2.8		15.5	11.3		0.9	
75th Percentile	10.6		-0.9		1.6		14.1	9.9		0.0	
95th Percentile	8.1		-2.9		-0.1		11.9	7.4		-2.9	
# of Portfolios	282		258		231		173	192		147	
<ul> <li>Employees Composite</li> </ul>	10.6	(77)	1.1	(32)	-0.3	(96)	14.2 (7	3) 8.2	(93)	1.9	(26)
Policy Index	10.1	(84)	1.4	(25)	0.1	(94)	13.7 (8	4) 7.7	(94)	0.8	(52)
× Allocation Index	10.5	(78)	0.9	(36)	0.0	(95)	13.4 (8	9) 8.2	(93)	0.2	(70)

## Total Fund Allocation vs. Peer Universe - Net



Total Plan Allocation vs. InvestorForce Public DB Net As of June 30, 2017

	Allocat	ion (Rank)																	
5th Percentile	53.3	26.3	10.	1 5	2.4	6.5		21.1		20.0	11.9		15.5		16.4		5.4		
25th Percentile	40.3	19.1	6.	4 3	1.6	4.9		9.1		11.8	8.5		9.9		9.4		2.1		
Median	31.8	15.0	5.	) 2	0.9	3.8		6.1		6.4	4.1		7.0		5.1		1.0		
75th Percentile	22.9	10.4	3.	5 14	4.7	2.3		3.8		3.3	1.8		4.8		3.9		0.3		
95th Percentile	11.4	5.3	2.	) (	6.0	1.0		0.9		1.0	0.6		1.2		1.4		0.0		
# of Portfolios	203	228	14	2 2	205	47		97		124	7′		172		65		244		
Employees Composite	23.9	(72) 14.9	(51) 7.	2 (19) 2	8.2 (	34) 5.1	(20)	8.8	(27)	1.5	(88) 0.0	(99)	6.1	(55)	4.1	(74)	0.1	(90)	

# Employees Composite vs. IFx Public DB Net 3 Years



# Employees Composite vs. IFx Public DB Net 5 Years



### Employees Composite vs. IFx Public DB Net 7 Years



### Employees Composite vs. IFx Public DB Net 10 Years



## Total Fund Attribution Analysis - Net

#### Attribution Effects Relative to Policy Index 3 Months Ending June 30, 2017



	3	Months End	ling June 3	0, 2017			
	Wtd. Actual Return	Ntd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Large Cap Comp	2.9%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Small/Mid Cap Comp	1.7%	1.6%	0.1%	0.0%	0.0%	0.0%	0.0%
Int'l Equity Comp	7.0%	6.0%	0.9%	0.1%	0.1%	0.0%	0.2%
Emerging Market Comp	6.4%	6.3%	0.1%	0.0%	0.0%	0.0%	0.0%
Diversified Fixed	1.7%	1.4%	0.2%	0.0%	0.0%	0.0%	0.0%
High Yield Comp	1.7%	2.2%	-0.5%	0.0%	0.0%	0.0%	0.0%
TIPS	-0.4%	-0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Emerging Market Debt	2.5%	2.2%	0.3%	0.0%	0.0%	0.0%	0.0%
Risk Parity/GAA	1.1%	3.6%	-2.5%	-0.1%	0.0%	0.0%	-0.1%
Cash	0.0%	0.2%	-0.2%	0.0%	0.0%	0.0%	0.0%
Total Real Estate	0.9%	1.8%	-0.8%	-0.1%	0.0%	0.0%	0.0%
Absolute Return	-0.2%	1.3%	-1.5%	-0.1%	0.0%	0.0%	-0.1%
Private Equity	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%
Total	2.7%	2.5%	0.1%	-0.2%	0.2%	0.0%	0.1%

**Attribution Summary** 

Note: Plan attribution calculations are returns based and the results shown reflect the composites shown. As a result, the total returns shown may vary from the calculated returns shown on the performance report.

The target return shown for each composite is a custom index, based on aggregated policy indices. This policy index asset weights the underlying policy indices of each option in the plan and the respective benchmark.

The allocation, selection, and interaction effects are calculated using the custom index described above along with the policy or target weight of each composite. May not add up due to rounding.

Absolute Return's Wtd. index Return is calculated using a weighting of the respective benchmarks for each underlying strategy part of the composite.



## Total Fund Attribution Analysis - Net

#### Attribution Effects Relative to Policy Index 1 Year Ending June 30, 2017



		1 Year Endir	ng June 30	, 2017			
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Large Cap Comp	17.8%	17.8%	0.0%	0.0%	0.3%	0.0%	0.3%
Small/Mid Cap Comp	18.1%	22.0%	-3.8%	-0.2%	0.0%	0.0%	-0.2%
Int'l Equity Comp	22.5%	20.3%	2.1%	0.2%	0.2%	0.0%	0.4%
Emerging Market Comp	18.7%	23.7%	-5.0%	-0.3%	0.1%	0.0%	-0.2%
Diversified Fixed	2.3%	-0.3%	2.6%	0.5%	0.0%	0.0%	0.5%
High Yield Comp	11.6%	12.7%	-1.1%	-0.1%	0.0%	0.0%	-0.1%
TIPS	-0.6%	-0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Emerging Market Debt	9.0%	5.5%	3.4%	0.2%	0.0%	0.0%	0.2%
Risk Parity/GAA	5.0%	8.8%	-3.8%	-0.2%	0.0%	0.0%	-0.3%
Cash	0.0%	0.5%	-0.5%	0.0%	0.0%	0.0%	0.0%
Total Real Estate	6.6%	7.0%	-0.4%	0.0%	0.1%	0.0%	0.1%
Absolute Return	4.1%	5.7%	-1.6%	-0.1%	0.0%	0.0%	-0.1%
Private Equity	7.8%	13.3%	-5.5%	-0.3%	-0.1%	0.2%	-0.2%
Total	10.8%	10.2%	0.7%	-0.3%	0.5%	0.1%	0.4%

Attribution Summary

Note: Plan attribution calculations are returns based and the results shown reflect the composites shown. As a result, the total returns shown may vary from the calculated returns shown on the performance report.

The target return shown for each composite is a custom index, based on aggregated policy indices. This policy index asset weights the underlying policy indices of each option in the plan and the respective benchmark.

The allocation, selection, and interaction effects are calculated using the custom index described above along with the policy or target weight of each composite.

May not add up due to rounding.

Absolute Return's Wtd. index Return is calculated using a weighting of the respective benchmarks for each underlying strategy part of the composite.


Asset Allocation Effect - Measures VPIC's ability to effectively allocate their portfolio's assets to various asset classes. The allocation effect determines whether the overweighting or underweighting of asset classes relative to a benchmark contributes positively or negatively to the overall portfolio return. Positive allocation occurs when the portfolio is overweighted in an asset class that outperforms the benchmark. Negative allocation occurs when the portfolio is overweighted in an asset class that outperforms the benchmark.

Selection Effect - Measures VPIC's ability to select managers within a given asset class relative to a benchmark. The over or underperformance of the portfolio is weighted by the benchmark weight, therefore, selection is not affected by VPIC's allocation to the asset class. The weight of the manager in the portfolio determines the size of the effect -- the larger the manager, the larger the effect is, positive or negative.

Interaction Effect - The interaction effect measures the combined impact of VPIC's manager selection and manager allocation decisions within an asset class. For example, if VPIC had superior manager selection and overweighted that particular asset class, the interaction effect is positive. If VPIC had superior manager selection, but underweighted that asset class, the interaction effect is negative. In this case, VPIC did not take advantage of the superior manager selection by allocating more assets to that asset class.



### Vermont State Employees

# Risk Statistics - 3 Years Ending June 30, 2017 - Net

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank	Tracking Error	Rank
Employees Composite	100.00%	3.67%	84	5.66%	27	-0.35%	56	0.61	78	1.05	64	0.88%	32
Policy Index		3.78%	81	5.24%	10	0.00%	36	0.68	65	1.18	47	0.00%	1
US Equity	23.93%	9.14%	27	10.83%	28	-0.06%	30	0.82	21	1.38	23	1.40%	2
Russell 3000		9.10%	27	10.63%	25	0.00%	29	0.83	19	1.37	24	0.00%	1
Large Cap Comp	18.51%	9.27%	27	10.45%	36	-0.42%	31	0.86	24	1.56	19	0.70%	1
S&P 500		9.61%	22	10.35%	34	0.00%	24	0.91	18	1.52	21	0.00%	1
Small/Mid Cap Comp	5.42%	9.09%	20	12.83%	46	3.06%	24	0.69	21	1.35	12	4.05%	2
Russell 2000		7.36%	38	15.38%	93	0.00%	61	0.46	57	0.77	53	0.00%	1
Int'l Equity Comp	14.90%	2.68%	44	11.78%	42	1.60%	45	0.21	44	0.37	43	2.06%	7
MSCI EAFE		1.15%	77	12.42%	76	0.00%	78	0.07	78	0.13	76	0.00%	1
Emerging Market Comp	7.24%	1.64%	55	15.29%	61	0.65%	55	0.09	56	0.18	49	5.16%	56
MSCI Emerging Markets		1.07%	68	16.06%	78	0.00%	67	0.05	67	0.10	66	0.00%	1
US Fixed Income	28.20%	3.42%	30	2.96%	61	1.27%	27	1.07	26	1.57	29	1.69%	36
BBgBarc US Aggregate TR		2.48%	52	2.90%	59	0.00%	76	0.77	61	1.07	66	0.00%	1
Diversified Fixed	18.72%	3.51%	29	3.00%	61	1.15%	28	1.09	24	1.37	40	1.22%	24
BBgBarc US Aggregate TR		2.48%	52	2.90%	59	0.00%	76	0.77	61	1.07	66	0.00%	1
Unconstrained Fixed Income	5.92%												
25% HY, 25% EMD, 50% BC Agg		3.56%	16	3.68%	51	0.00%	48	0.90	28	1.50	28	0.00%	1
High Yield Comp	5.01%	4.36%	30	5.04%	43	0.69%	38	0.82	41	1.48	48	1.62%	37
BBgBarc US High Yield TR		4.48%	28	6.09%	83	0.00%	57	0.70	55	1.56	40	0.00%	1
TIPS	4.48%	0.59%	27	3.90%	70	-0.05%	22	0.09	23	0.16	21	0.18%	4
BBgBarc US TIPS TR		0.63%	23	3.83%	59	0.00%	18	0.10	18	0.18	18	0.00%	1
Emerging Market Debt	5.14%	5.05%	9	6.14%	28	0.44%	15	0.78	13	1.21	16	1.32%	9
JP Morgan EMBI Global TR		4.64%	18	6.04%	27	0.00%	25	0.73	21	1.07	22	0.00%	1
Total Real Estate	6.08%	10.40%		4.64%		0.15%		0.61		0.56		1.44%	
NCREIF Property Index		10.16%		4.28%		0.00%		0.61		0.52		0.00%	
Absolute Return	8.82%	0.02%	80	3.15%	21	-1.29%	76	-0.07	83	-0.09	83	1.66%	6
HFRI Fund of Funds Composite Index		1.53%	59	3.30%	27	0.00%	56	0.39	51	0.45	56	0.00%	1
Risk Parity/GAA	4.08%	0.49%	76	7.32%	62	-1.96%	80	0.03	77	0.06	77	4.42%	41
60% MSCI World (Net) / 40% CITI WGBI		2.86%	32	7.04%	55	0.00%	42	0.37	38	0.74	26	0.00%	1

### Vermont State Employees

# Risk Statistics - 5 Years Ending June 30, 2017 - Net

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank	Tracking Error	Rank
Employees Composite	100.00%	6.60%	91	5.50%	31	-0.39%	67	1.17	83	2.04	70	0.84%	26
Policy Index		6.48%	93	5.05%	13	0.00%	46	1.25	74	2.24	49	0.00%	1
US Equity	23.93%												
Russell 3000		14.58%	34	9.80%	18	0.00%	29	1.47	12	2.53	17	0.00%	1
Large Cap Comp	18.51%	14.92%	23	9.67%	28	0.16%	21	1.53	10	2.87	8	0.74%	1
S&P 500		14.63%	28	9.56%	24	0.00%	26	1.51	11	2.61	18	0.00%	1
Small/Mid Cap Comp	5.42%	14.53%	30	11.96%	47	3.00%	43	1.20	31	2.44	12	3.47%	1
Russell 2000		13.70%	44	13.88%	87	0.00%	85	0.98	75	1.61	70	0.00%	1
Int'l Equity Comp	14.90%	10.04%	43	11.20%	38	1.87%	42	0.88	38	1.63	29	2.08%	7
MSCI EAFE		8.69%	67	11.74%	71	0.00%	79	0.73	72	1.28	67	0.00%	1
Emerging Market Comp	7.24%	3.95%	73	14.40%	70	0.20%	71	0.26	72	0.44	69	4.74%	51
MSCI Emerging Markets		3.96%	73	14.40%	70	0.00%	75	0.26	72	0.44	69	0.00%	1
US Fixed Income	28.20%												
BBgBarc US Aggregate TR		2.21%	61	2.86%	52	0.00%	83	0.72	77	0.98	74	0.00%	1
Diversified Fixed	18.72%	2.90%	47	3.17%	63	0.62%	53	0.86	62	1.10	64	1.13%	24
BBgBarc US Aggregate TR		2.21%	61	2.86%	52	0.00%	83	0.72	77	0.98	74	0.00%	1
Unconstrained Fixed Income	5.92%												
25% HY, 25% EMD, 50% BC Agg		4.15%	43	3.78%	57	0.00%	72	1.06	50	1.51	53	0.00%	1
High Yield Comp	5.01%	6.48%	35	4.40%	30	0.84%	33	1.44	33	2.27	46	1.37%	36
BBgBarc US High Yield TR		6.89%	25	5.28%	76	0.00%	64	1.27	58	2.37	41	0.00%	1
TIPS	4.48%	0.20%	56	4.56%	73	-0.07%	55	0.01	56	0.01	55	0.16%	1
BBgBarc US TIPS TR		0.27%	37	4.52%	59	0.00%	40	0.02	40	0.03	40	0.00%	1
Emerging Market Debt	5.14%	5.90%	14	6.65%	28	0.91%	16	0.86	16	1.20	15	1.27%	7
JP Morgan EMBI Global TR		5.20%	29	6.81%	31	0.00%	30	0.74	26	1.04	30	0.00%	1
Total Real Estate	6.08%	11.43%		4.92%		0.98%		0.11		0.12		1.51%	
NCREIF Property Index		10.49%		4.30%		0.00%		-0.09		-0.09		0.00%	
Absolute Return	8.82%	4.51%	64	3.53%	33	0.79%	57	1.23	44	1.88	40	1.63%	7
HFRI Fund of Funds Composite Index		3.86%	70	3.25%	27	0.00%	67	1.14	49	1.51	53	0.00%	1
Risk Parity/GAA	4.08%	4.35%	58	7.22%	64	-1.75%	82	0.58	71	0.86	74	4.10%	44
60% MSCI World (Net) / 40% CITI WGBI		6.75%	24	6.63%	53	0.00%	47	0.99	17	2.07	5	0.00%	1

# State Municipal Employees' Retirement System



# Total Fund Performance Summary - Net

	Market Value	3 Mo F	Rank	YTD F	Rank	Fiscal YTD	Rank	1 Yr I	Rank	3 Yrs F	Rank	5 Yrs F	Rank	7 Yrs I	Rank	10 Yrs F	Rank
Municipal Composite	\$604,084,965	2.7%	59	6.9%	62	10.8%	70	10.8%	70	3.6%	86	6.6%	90	7.8%	76	4.2%	80
Policy Index		2.5%	77	6.3%	82	10.1%	84	10.1%	84	3.8%	81	6.5%	93	7.3%	90	4.3%	78
Allocation Index		2.7%	59	6.8%	66	10.6%	74	10.6%	74	3.8%	81	6.6%	91	7.3%	89	4.3%	78
InvestorForce Public DB Net Median		2.8%		7.3%		11.9%		11.9%		4.9%		8.2%		8.6%		5.0%	

3 Years Ending June 30, 2017								
	AnIzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Municipal Composite	3.65%	86	5.72%	28	0.60	80	1.02	67
Policy Index	3.78%	81	5.24%	10	0.68	65	1.18	47
Allocation Index	3.79%	81	5.52%	22	0.64	73	1.08	60

5 Years Ending June 30, 2017								
	AnIzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Municipal Composite	6.64%	90	5.54%	33	1.17	84	2.02	72
Policy Index	6.48%	93	5.05%	13	1.25	74	2.24	49
Allocation Index	6.59%	91	5.19%	20	1.24	75	2.13	61







#### 1 Years Ending June 30, 2017

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Municipal Composite	10.77%	70	3.15%	38	3.24	59
Policy Index	10.07%	84	3.05%	27	3.13	66
S&P 500	17.90%	1	6.09%	99	2.85	80
Citi WGBI	-4.14%	99	6.58%	99	-0.71	99
MSCI ACWI	18.78%	1	5.34%	99	3.42	45
MSCI ACWI ex USA	20.45%	1	7.16%	99	2.78	84
InvestorForce Public DB Net Median	11.88%		3.39%		3.34	

1 Year Ending June 30, 2017

- Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net



#### 3 Years Ending June 30, 2017



#### 3 Years Ending June 30, 2017 Anlzd

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Municipal Composite	3.65%	86	5.72%	28	0.60	80
Policy Index	3.78%	81	5.24%	10	0.68	65
S&P 500	9.61%	1	10.35%	99	0.91	18
Citi WGBI	-1.00%	99	5.98%	40	-0.21	99
MSCI ACWI	4.82%	51	10.78%	99	0.43	96
MSCI ACWI ex USA	0.80%	99	12.44%	99	0.05	99
InvestorForce Public DB Net Median	4.85%		6.24%		0.74	

- Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net



5 Years Ending June 30, 2017



#### 5 Years Ending June 30, 2017 Anlzd

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Municipal Composite	6.64%	90	5.54%	33	1.17	84
Policy Index	6.48%	93	5.05%	13	1.25	74
S&P 500	14.63%	1	9.56%	99	1.51	23
Citi WGBI	-0.20%	99	5.33%	25	-0.07	99
MSCI ACWI	10.54%	2	9.97%	99	1.04	93
MSCI ACWI ex USA	7.22%	80	11.56%	99	0.61	99
InvestorForce Public DB Net Median	8.19%		5.87%		1.37	

- ٠
- Allocation Index 0
- Universe Median ۸
- 68% Confidence Interval
- InvestorForce Public DB Net ٠



#### 7 Years Ending June 30, 2017



# 7 Years Ending June 30, 2017

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Municipal Composite	7.79%	76	6.84%	36	1.12	65
Policy Index	7.28%	90	6.56%	25	1.09	73
S&P 500	15.41%	1	11.69%	99	1.31	22
Citi WGBI	1.68%	99	5.67%	8	0.27	99
MSCI ACWI	10.48%	3	13.05%	99	0.79	98
MSCI ACWI ex USA	6.66%	96	14.97%	99	0.44	99
InvestorForce Public DB Net Median	8.59%		7.34%		1.17	

- Allocation Index 0
- Universe Median ۸
- 68% Confidence Interval
- InvestorForce Public DB Net •



#### 10 Years Ending June 30, 2017



#### 10 Years Ending June 30, 2017 ∆nlzd

		Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Municipa	al Composite	4.22%	80	10.30%	72	0.37	84
Policy In	ıdex	4.31%	78	8.93%	36	0.43	64
S&P 500	)	7.18%	1	15.21%	99	0.44	59
Citi WG	ЗІ	3.49%	95	6.80%	9	0.45	57
MSCI A	CWI	3.71%	93	16.95%	99	0.19	99
MSCI A	CWI ex USA	1.13%	99	19.14%	99	0.04	99
Investor Median	Force Public DB Net	5.03%		9.59%		0.48	

- Universe Median ۸
- 68% Confidence Interval
- InvestorForce Public DB Net



### Total Marketable Assets - Net





- Total Marketable Assets
- Total Marketable Assets Custom Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net

#### Annualized Return vs. Annualized Standard Deviation 3 Years Ending June 30, 2017



- SSgA S&P 500 Cap-Wgt
- SSgA S&P 500 Equal-Wgt
- \* T. Rowe
- Champlain
- Wellington
- \* Acadian
- Mondrian
- SSgA ACWI Ex US
- Aberdeen
   PIMCO Core P
- PIMCO Core Plus
- Z Terminated Wellington DAS
- PIMCO Unconstrained

- ∗ KDP■ Guggenheim
- BlackRock TIPS
- Wellington Opportunistic EMD
- Mellon Dynamic Growth
- AQR Global Risk Premium
- Vermont Cash
- Z Terminated Schroder
- Total Marketable Assets Custom Index
- Universe Median
- 68% Confidence Interval

# Total Fund Asset Allocation vs. Policy Targets





#### Effective Net Allocation

#### Asset Allocation vs. Target

	Policy	Current	Effective Net Allocation
Large Cap Equity	18.5%	20.9%	20.4%
Small/Mid Cap Equity	5.5%	5.5%	5.7%
International Equity	14.0%	15.0%	14.9%
Emerging Markets Equity	6.0%	7.0%	7.0%
Core Bonds	6.0%	5.3%	5.2%
Long Treasury	2.0%	1.9%	1.9%
High Yield	5.0%	5.3%	5.2%
TIPS	6.0%	4.7%	5.2%
Unconstrained Bonds	6.0%	6.1%	5.9%
Diversified Bond	6.0%	6.2%	8.0%
Emerging Market Debt	5.0%	4.9%	4.8%
Risk Parity	4.0%	3.8%	
Private Equity	1.5%	1.4%	1.4%
Absolute Return	8.0%	8.4%	8.2%
Real Estate	6.5%	3.2%	5.4%
Commodities			0.5%
Cash		0.2%	0.2%
Total	100.0%	100.0%	100.0%

Effective Net Allocation breaks out the exposure of AQR Global Risk Premium. Absolute Return includes Grosvenor, Pinnacle Natural Resources, L.P., and Allianz Structured Alpha.



## Total Fund Asset Growth Summary



3 Years Ending June 30, 2017

Market Value

/alue	Net Cash Flow
-------	---------------

	Last Three Months	Year-To-Date	Fiscal Year-To-Date	One Year	Three Years
Beginning Market Value	\$585,326,454	\$558,383,878	\$536,594,955	\$536,594,955	\$522,918,152
Contributions	\$66,538,302	\$72,606,739	\$91,613,657	\$91,613,657	\$308,675,982
Withdrawals	-\$60,951,467	-\$64,081,323	-\$81,428,283	-\$81,428,283	-\$291,767,983
Net Cash Flow	\$5,586,835	\$8,525,416	\$10,185,374	\$10,185,374	\$16,907,999
Net Investment Change	\$13,171,675	\$37,175,670	\$57,304,635	\$57,304,635	\$64,258,814
Ending Market Value	\$604,084,965	\$604,084,965	\$604,084,965	\$604,084,965	\$604,084,965



# Total Fund Asset Growth Summary by Manager

			Quarter Ending	June 30, 2017		
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
Aberdeen	\$39,061,679	\$73,605	-\$73,605	\$0	\$2,570,614	\$41,632,293
Acadian	\$26,123,551	\$28,745	-\$28,745	\$0	\$2,822,388	\$28,945,939
Allianz Structured Alpha	\$10,164,856	\$0	-\$40,726	-\$40,726	\$180,484	\$10,304,614
AQR Global Risk Premium	\$43,061,319	\$49,128	-\$21,353,674	-\$21,304,546	\$658,964	\$22,415,737
BlackRock TIPS	\$21,504,651	\$6,264,476	-\$3,567	\$6,260,909	-\$94,349	\$27,671,211
Champlain	\$13,096,781	\$3,724,185	-\$24,792	\$3,699,394	\$764,721	\$17,560,896
GAM	\$56,898	\$0	\$0	\$0	\$535	\$57,433
GAM Unconstrained Bond	\$20,565,665	\$0	-\$25,796	-\$25,796	\$424,344	\$20,964,213
Grosvenor	\$26,475,247	\$0	\$0	\$0	\$115,256	\$26,590,503
Guggenheim	\$23,737,018	\$26,955	-\$26,955	\$0	\$421,152	\$24,158,169
Harbourvest Dover Street Fund IX	\$547,184	\$247,649	\$0	\$247,649	\$0	\$794,834
Harbourvest Dover VIII Fund	\$2,285,327	\$0	-\$90,605	-\$90,605	\$0	\$2,194,722
Harbourvest Partners IX Buyout Fund	\$1,937,207	\$0	-\$19,695	-\$19,695	\$0	\$1,917,512
Harbourvest Partners IX Credit Opportunities	\$279,509	\$0	-\$5,333	-\$5,333	\$0	\$274,176
Harbourvest Partners IX Venture Fund	\$1,452,052	\$0	-\$5,797	-\$5,797	\$0	\$1,446,255
Harbourvest Partners X Buyout Fund	\$662,929	\$157,690	-\$54,870	\$102,820	\$0	\$765,749
Harbourvest Partners X Venture Fund	\$295,498	\$81,098	\$0	\$81,098	\$0	\$376,596
HIPEP VII	\$595,324	\$68,069	\$0	\$68,069	\$0	\$663,393
KDP	\$6,885,674	\$9,068	-\$9,068	\$0	\$124,085	\$7,009,759
Mellon Dynamic Growth	\$10,584,924	\$0	-\$10,680,409	-\$10,680,409	\$111,509	\$16,023
Mondrian	\$24,055,067	\$20,331	-\$20,331	\$0	\$1,053,621	\$25,108,688
Morgan Stanley Prime Property	\$13,496,090	\$0	\$0	\$0	\$0	\$13,496,090
PIMCO Core Plus	\$33,298,797	\$3,024,130	-\$24,130	\$3,000,000	\$578,076	\$36,876,872
PIMCO Unconstrained	\$14,737,862	\$20,703	-\$20,703	\$0	\$159,414	\$14,897,276
Pinnacle Natural Resources, L.P.	\$7,303,611	\$6,254,697	\$0	\$6,254,697	-\$736,465	\$12,821,844



# Total Fund Asset Growth Summary by Manager

			Quarter Ending Ju	une 30, 2017		
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
RREEF America REIT III	\$57,522	\$0	-\$246	-\$246	-\$1,416	\$55,859
Siguler Guff DREOF II	\$6,390,428	\$0	-\$177,651	-\$177,651	\$239,821	\$6,452,598
Siguler Guff DREOF II Co-Investment	\$1,259,767	\$0	\$0	\$0	\$28,733	\$1,288,501
SSgA ACWI Ex US	\$24,808,996	\$8,135,392	-\$4,593	\$8,130,799	\$1,638,164	\$34,577,959
SSgA Barclays Aggregate Index	\$17,221,596	\$13,867,325	-\$1,997	\$13,865,328	\$331,931	\$31,418,855
SSgA S&P 500 Cap-Wgt	\$82,934,616	\$9,198,080	-\$4,868	\$9,193,212	\$2,725,393	\$94,853,221
SSgA S&P 500 Equal-Wgt	\$27,789,093	\$2,730	-\$2,730	\$0	\$711,279	\$28,500,373
State Street Long U.S. Treasury Index		\$11,408,372	\$0	\$11,408,372	\$66,408	\$11,474,780
T. Rowe	\$1,141	\$0	\$0	\$0	\$0	\$1,141
Transwestern / Aslan III	\$28,766	\$0	\$0	\$0	\$0	\$28,766
UBS Trumbull	\$11,101,738	\$24,469	-\$24,469	\$0	\$130,689	\$11,232,427
Vermont Cash	\$835,416	\$822,516	-\$369,468	\$453,049	\$0	\$1,288,465
Wellington	\$11,993,412	\$3,027,941	-\$22,803	\$3,005,138	-\$198,792	\$14,799,757
Wellington Opportunistic EMD	\$28,444,414	\$0	\$0	\$0	\$707,054	\$29,151,468
Z Terminated - Schroder	\$6,412,516	\$0	-\$6,254,697	-\$6,254,697	-\$157,819	\$0
Z Terminated - SSgA Russell 2000 Growth	\$4,425,560	\$544	-\$3,005,681	-\$3,005,138	-\$1,420,422	\$0
Z Terminated - SSgA S&P 400	\$4,773,112	\$403	-\$3,699,796	-\$3,699,394	-\$1,073,718	\$0
Z Terminated - Wellington DAS	\$14,583,643	\$0	-\$14,873,665	-\$14,873,665	\$290,022	\$0
Total	\$585,326,454	\$66,538,302	-\$60,951,467	\$5,586,835	\$13,171,675	\$604,084,965



# Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Municipal Composite	604,084,965	100.0	100.0	2.7	59	6.9	62	10.8	70	10.8	70	3.6	86	6.6	90	4.2	80
Policy Index				2.5	77	6.3	82	10.1	84	10.1	84	3.8	81	6.5	93	4.3	78
Allocation Index				2.7	59	6.8	66	10.6	74	10.6	74	3.8	81	6.6	91	4.3	78
InvestorForce Public DB Net Median				2.8		7.3		11.9		11.9		4.9		8.2		5.0	
Total Marketable Assets	513,323,094	85.0		3.1	28	8.0	18	11.7	54	11.7	54	3.6	86	6.6	92		
Total Marketable Assets Custom Index				2.9	44	7.1	55	10.6	74	10.6	74	3.4	90	6.6	91		
InvestorForce Public DB Net Median				2.8		7.3		11.9		11.9		4.9		8.2		5.0	
US Equity	155,715,387	25.8	24.0	2.7	52	7.9	48	18.0	59	18.0	59	9.2	26				
Russell 3000				3.0	46	8.9	39	18.5	55	18.5	55	9.1	27	14.6	34	7.3	46
eA All US Equity Net Median				2.8		7.6		19.1		19.1		7.6		13.8		7.1	
Large Cap Comp	123,354,734	20.4	18.5	2.9	51	9.0	47	17.8	50	17.8	50	9.3	27	14.9	23	7.7	30
S&P 500				3.1	48	9.3	45	17.9	50	17.9	50	9.6	22	14.6	28	7.2	45
eA US Large Cap Equity Net Median				3.0		8.7		17.8		17.8		7.8		13.7		7.0	
SSgA S&P 500 Cap-Wgt	94,853,221	15.7	14.0	3.1	48	9.3	45	18.0	49	18.0	49	9.6	22	14.7	28		
S&P 500				3.1	48	9.3	45	17.9	50	17.9	50	9.6	22	14.6	28	7.2	45
SSgA S&P 500 Equal-Wgt	28,500,373	4.7	4.5	2.5	61	7.9	59	17.2	56	17.2	56	8.4	40	15.4	14	8.0	27
S&P 500 Equal Weighted				2.5	61	8.1	58	17.3	56	17.3	56	8.5	37	15.5	13	8.3	19
T. Rowe	1,141	0.0	0.0														
Small/Mid Cap Comp	32,360,653	5.4	5.5	1.7	65	4.5	71	18.2	61	18.2	61	9.1	19	14.6	27	8.2	29
Russell 2000				2.5	51	5.0	69	24.6	15	24.6	15	7.4	38	13.7	44	6.9	62
eA US Small-Mid Cap Equity Net Median				2.5		6.6		19.7		19.7		6.6		13.4		7.4	
Champlain	17,560,896	2.9	2.8	4.8	24	10.6	33	21.3	18	21.3	18	11.3	4	16.0	12		
Russell 2500 eA US Mid Cap Equity Net				2.1	57	6.0	71	19.8	29	19.8	29	6.9	55	14.0	48	7.4	53
Median				2.5		8.1		17.2		17.2		7.2		14.0		7.6	
Wellington	14,799,757	2.4	2.8	-1.0	90	-2.4	93	14.6	94	14.6	94	7.8	33	13.0	65	8.1	17
Russell 2000 Value				0.7	56	0.5	64	24.9	30	24.9	30	7.0	46	13.4	60	5.9	76
eA US Small Cap Value Equity Net Median				0.9		1.7		22.3		22.3		6.7		14.0		6.9	

# Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Int'l Equity Comp	88,632,586	14.7	14.0	7.0	40	16.1	31	22.6	32	22.6	32	2.7	44	10.1	43	1.3	69
MSCI EAFE				6.1	67	13.8	61	20.3	48	20.3	48	1.1	77	8.7	67	1.0	76
eA All EAFE Equity Net Median				6.6		14.6		20.1		20.1		2.3		9.6		2.3	
Acadian	28,945,939	4.8	4.0	10.7	4	21.9	4	31.1	3	31.1	3	6.2	12	13.1	14	1.7	61
Mondrian	25,108,688	4.2	4.0	4.3	95	12.1	85	16.0	79	16.0	79	0.5	86	8.4	72	1.6	63
MSCI EAFE				6.1	67	13.8	61	20.3	48	20.3	48	1.1	77	8.7	67	1.0	76
SSgA ACWI Ex US	34,577,959	5.7	6.0	5.9	78	14.3	75	20.7	45	20.7	45	1.0	72	7.4	81		
MSCI ACWI ex USA				5.8	79	14.1	76	20.5	45	20.5	45	0.8	74	7.2	82	1.1	75
eA ACWI ex-US All Cap Equity Net Median				6.9		15.8		20.0		20.0		2.4		9.2		2.5	
Emerging Market Comp	41,632,293	6.9	6.0	6.4	51	18.8	56	18.7	71	18.7	71	1.6	55	3.9	74		
Aberdeen	41,632,293	6.9	6.0	6.4	51	18.8	56	18.7	71	18.7	71	1.6	55	3.9	75		
MSCI Emerging Markets				6.3	53	18.4	62	23.7	42	23.7	42	1.1	68	4.0	73	1.9	66
eA Emg Mkts Equity Net Median				6.4		19.3		22.9		22.9		1.7		5.2		2.5	
US Fixed Income	174,471,135	28.9	31.0	1.3	54	3.1	36	3.6	27	3.6	27	3.4	30				
BBgBarc US Aggregate TR				1.4	50	2.3	56	-0.3	84	-0.3	84	2.5	52	2.2	61	4.5	52
eA All US Fixed Inc Net Median				1.4		2.5		0.9		0.9		2.5		2.8		4.5	
Diversified Fixed	115,631,996	19.1	20.0	1.6	39	3.5	31	2.3	34	2.3	34	3.5	28	2.9	47	4.0	63
BBgBarc US Aggregate TR				1.4	50	2.3	56	-0.3	84	-0.3	84	2.5	52	2.2	61	4.5	52
eA All US Fixed Inc Net Median				1.4		2.5		0.9		0.9		2.5		2.8		4.5	
PIMCO Core Plus	36,876,872	6.1	6.0	1.7	19	3.3	5	1.1	16	1.1	16	2.6	50	2.3	66		
BBgBarc US Aggregate TR				1.4	64	2.3	65	-0.3	72	-0.3	72	2.5	59	2.2	72	4.5	76
SSgA Barclays Aggregate Index	31,418,855	5.2	6.0	1.4	68	2.2	71	-0.4	74	-0.4	74						
BBgBarc US Aggregate TR				1.4	64	2.3	65	-0.3	72	-0.3	72	2.5	59	2.2	72	4.5	76
3-Month Libor Total Return USD				0.3	99	0.6	99	1.0	20	1.0	20	0.6	99	0.5	99	1.0	99
eA US Core Fixed Inc Net Median				1.5		2.4		0.2		0.2		2.6		2.5		4.7	
State Street Long U.S. Treasury Index	11,474,780	1.9															
BBgBarc US Treasury Long TR				4.0		5.4		-7.2		-7.2		5.6		2.8		7.3	

# Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Unconstrained Fixed Income	35,861,488	5.9	6.0	1.5	62	4.2	48	7.9	30	7.9	30						
25% HY, 25% EMD, 50% BC Agg				1.8	48	3.9	59	4.3	76	4.3	76	3.6	16	4.2	43	6.1	26
BBgBarc Global Aggregate TR				2.6	21	4.4	43	-2.2	99	-2.2	99	-0.4	97	0.8	98	3.7	91
eA Global Unconstrained Fixed Inc Net Median				1.8		4.1		7.0		7.0		2.5		4.0		5.5	
PIMCO Unconstrained	14,897,276	2.5	2.5	0.9	94	3.1	76	7.0	50	7.0	50	1.9	74	1.5	97		
25% HY, 25% EMD, 50% BC Agg 3-Month Libor Total Return				1.8	48	3.9	59	4.3	76	4.3	76	3.6	16	4.2	43	6.1	26
USD				0.3	95	0.6	99	1.0	98	1.0	98	0.6	90	0.5	99	1.0	99
GAM Unconstrained Bond	20,964,213	3.5	3.5	1.9	43	5.1	32	8.5	26	8.5	26						
3-Month LIBOR + 3%				1.1	90	2.1	93	4.1	80	4.1	80	3.6	15	3.5	64	4.0	89
eA Global Unconstrained Fixed Inc Net Median				1.8		4.1		7.0		7.0		2.5		4.0		5.5	
High Yield Comp	31,167,928	5.2	5.0	1.7	71	3.7	81	11.5	43	11.5	43	4.3	31	6.4	37	7.1	36
BBgBarc US High Yield TR				2.2	35	4.9	24	12.7	27	12.7	27	4.5	28	6.9	25	7.7	14
eA US High Yield Fixed Inc Net Median				2.0		4.4		11.3		11.3		3.8		6.3		6.8	
KDP	7,009,759	1.2	1.0	1.7	71	3.5	82	8.0	87	8.0	87	2.7	83	4.6	93		
BBgBarc US High Yield TR				2.2	35	4.9	24	12.7	27	12.7	27	4.5	28	6.9	25	7.7	14
BofA Merrill Lynch US High Yield BB-B Rated				2.2	29	4.6	44	11.2	52	11.2	52	4.5	26	6.7	31	7.1	36
Guggenheim	24,158,169	4.0	4.0	1.7	72	3.7	78	12.6	29	12.6	29	4.7	22				
BBgBarc US High Yield TR				2.2	35	4.9	24	12.7	27	12.7	27	4.5	28	6.9	25	7.7	14
eA US High Yield Fixed Inc Net Median				2.0		4.4		11.3		11.3		3.8		6.3		6.8	



# Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD( (%)	Rank	1 Yr (%) F	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
TIPS	27,671,211	4.6	6.0														
BlackRock TIPS	27,671,211	4.6	6.0	-0.4		0.9		-0.6		-0.6		0.6		0.2			
BBgBarc US TIPS TR				-0.4		0.9		-0.6		-0.6		0.6		0.3		4.3	
Emerging Market Debt	29,151,468	4.8	5.0														
Wellington Opportunistic EMD	29,151,468	4.8	5.0	2.5	48	6.8	62	9.0	27	9.0	27	5.1	9	5.9	14		
JP Morgan EMBI Global TR				2.2	61	6.2	74	5.5	86	5.5	86	4.6	18	5.2	29	7.3	22
eA All Emg Mkts Fixed Inc Net Median				2.4		7.8		7.3		7.3		2.4		3.7		6.3	
Risk Parity/GAA	22,431,760	3.7	4.0	1.0	84	5.3	59	5.0	78	5.0	78	0.4	79	4.3	59	4.1	64
Mellon Dynamic Growth	16,023	0.0	0.0	1.2	47	4.1	38	3.4	82	3.4	82	4.7	18	6.5	30	2.9	50
Mellon Dynamic Growth Benchmark				3.7	9	8.0	12	9.3	35	9.3	35	2.8	43	6.2	33	3.6	34
eV Alt Fund of Funds - Multi- Strategy Median				1.0		3.2		7.2		7.2		2.0		5.2		2.9	
Risk Parity	22,415,737	3.7	4.0	1.2	82	5.8	53	5.5	73	5.5	73	0.1	83	4.2	62		
eA Global TAA Net Median				2.5		6.3		7.0		7.0		1.5		5.0		4.3	
AQR Global Risk Premium	22,415,737	3.7	4.0	1.2	82	5.8	53	5.5	73	5.5	73	0.1	83	4.1	62		
60% MSCI World (Net) / 40% CITI WGBI				3.6	26	8.2	34	8.8	40	8.8	40	2.9	32	6.7	24	4.1	64
Cash	1,288,465	0.2	0.0														
Vermont Cash	1,288,465	0.2	0.0	0.0		0.0		0.0		0.0		0.0		0.0		0.7	
91 Day T-Bills				0.2		0.4		0.5		0.5		0.2		0.2		0.4	

Risk Parity Composite formerly shown as Risk Parity/GAA.

Mellon Dynamic Growth Benchmark: 60% MSCI All Country World Index IMI / 40% Citigroup GDP Weighted.



### Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Real Estate	32,554,241	5.4	6.5	1.2		2.5		6.7		6.7		9.3		10.8			
NCREIF Property Index				1.8		3.3		7.0		7.0		10.2		10.5		6.4	
NCREIF ODCE				1.7		3.5		7.9		7.9		11.3		11.8		5.2	
UBS Trumbull	11,232,427	1.9		1.0		1.9		4.6		4.6		7.6		8.1		4.2	
Siguler Guff DREOF II	6,452,598	1.1		3.9		4.2		12.5		12.5		10.2					
Siguler Guff DREOF II Co- Investment	1,288,501	0.2		2.3		5.9											
RREEF America REIT III	55,859	0.0		-2.9		-3.6		-16.1		-16.1		-2.4		6.6		-5.6	
Morgan Stanley Prime Property	13,496,090	2.2		0.0		1.9		6.7		6.7		10.4		11.8		4.9	
Transwestern / Aslan III	28,766	0.0		0.0		0.0		0.0		0.0		6.4		16.1		-21.3	
Absolute Return	49,774,393	8.2	8.0	-0.2	80	-0.2	91	4.1	75	4.1	75	0.0	80	4.5	64		
HFRI Fund of Funds Composite Index				0.7	62	3.1	54	6.4	57	6.4	57	1.5	59	3.9	70	0.9	91
eV Alt Fund of Funds - Multi- Strategy Median				1.0		3.2		7.2		7.2		2.0		5.2		2.9	
Grosvenor	26,590,503	4.4	3.0	0.4	70	2.2	65	7.5	49	7.5	49	1.7	54	5.6	42		
Allianz Structured Alpha	10,304,614	1.7	2.0	1.4	41	2.3	65	5.0	67	5.0	67	8.0	6	6.4	31		
91 Day T-Bills				0.2	73	0.4	88	0.5	91	0.5	91	0.2	78	0.2	98	0.4	94
eV Alt Fund of Funds - Multi- Strategy Median				1.0		3.2		7.2		7.2		2.0		5.2		2.9	
Pinnacle Natural Resources, L.P.	12,821,844	2.1	3.0	-3.0		-10.9		-9.4		-9.4							
Bloomberg Commodity Index				-3.0		-5.3		-6.5		-6.5		-14.8		-9.2		-6.5	
GAM	57,433	0.0	0.0														

Absolute Return composite formerly shown as Hedge Funds composite. As of 04/01/2016, Absolute Return includes Allianz Structured Alpha.

Allianz Structured Alpha was included Diversified Fixed income composite prior to 04/01/2016.

Real Estate performance reported on a quarterly basis. NCREIF Property is available 25 days after quarter end.

Real Estate values are preliminary as of 06/30/2017. Morgan Stanley will be liquidated, funding UBS and SSgA Long US Treasury Index.



# Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Private Equity	8,433,237	1.4	1.5	0.0		0.3		7.9		7.9		12.2					
Cambridge Associates US All PE				0.0		4.3		13.3		13.3		8.4		12.7		9.0	
Harbourvest Partners IX Credit Opportunities	274,176	0.0															
Harbourvest Partners IX Venture Fund	1,446,255	0.2															
Harbourvest Partners IX Buyout Fund	1,917,512	0.3															
Harbourvest Partners X Venture Fund	376,596	0.1															
Harbourvest Partners X Buyout Fund	765,749	0.1															
Harbourvest Dover VIII Fund	2,194,722	0.4															
Harbourvest Dover Street Fund IX	794,834	0.1															
HIPEP VII	663,393	0.1															

Harbourvest values based on final Capital Account Statements for Q1, and cash adjusted through Q2.



# Total Fund Return Summary vs. Peer Universe - Net



#### Municipal Composite vs. InvestorForce Public DB Net

	Return (Rank)							
5th Percentile	3.7	8.9	10.2	14.7	7.1	6.2	8.9	9.9
25th Percentile	3.2	7.8	8.8	12.9	6.5	5.4	8.1	9.0
Median	2.8	7.3	8.0	11.9	6.0	4.9	7.4	8.2
75th Percentile	2.5	6.6	7.3	10.6	5.1	4.1	6.8	7.4
95th Percentile	1.9	5.3	5.4	8.1	4.0	2.9	5.4	6.2
# of Portfolios	283	283	282	282	278	269	255	245
<ul> <li>Municipal Composite</li> </ul>	2.7 (59)	6.9 (62)	7.2 (77)	10.8 (70)	5.8 (56)	3.6 (86)	6.2 (88)	6.6 (90)
Policy Index	2.5 (77)	6.3 (82)	6.5 (90)	10.1 (84)	5.7 (59)	3.8 (81)	6.2 (88)	6.5 (93)
× Allocation Index	2.7 (59)	6.8 (66)	6.8 (87)	10.6 (74)	5.7 (58)	3.8 (81)	6.1 (90)	6.6 (91)

# Total Fund Return Summary vs. Peer Universe - Net



Municipal Composite vs. InvestorForce Public DB Net

	Return (Rank)								
5th Percentile	8.5		10.3		10.6	7.3		6.2	
25th Percentile	7.6		9.4		9.8	6.6		5.5	
Median	6.9		8.6		9.1	6.0		5.0	
75th Percentile	6.4		7.8		8.3	5.4		4.4	
95th Percentile	5.0		6.7		7.0	4.4		3.5	
# of Portfolios	230		220		211	206		199	
<ul> <li>Municipal Composite</li> </ul>	5.8	(87)	7.8	(76)	8.9 (54	) 5.5	(73)	4.2	(80)
Policy Index	5.5	(92)	7.3	(90)	7.8 (87	) 5.1	(84)	4.3	(78)
× Allocation Index	5.5	(92)	7.3	(89)	8.0 (84	) 5.3	(80)	4.3	(78)



# Total Fund Return Summary vs. Peer Universe - Net



#### Municipal Composite vs. InvestorForce Public DB Net

	Return (Rank)									
5th Percentile	14.7	2.8		4.4		18.6	15.0		4.4	
25th Percentile	12.9	1.4		3.6		16.7	12.9		1.9	
Median	11.9	0.4		2.8		15.5	11.3		0.9	
75th Percentile	10.6	-0.9		1.6		14.1	9.9		0.0	
95th Percentile	8.1	-2.9		-0.1		11.9	7.4		-2.9	
# of Portfolios	282	258		231		173	192		147	
<ul> <li>Municipal Composite</li> </ul>	10.8	(70) 1.1	(33)	-0.6	(97)	14.2 (7	2) 8.4	(92)	1.9	(26)
<ul> <li>Policy Index</li> </ul>	10.1	(84) 1.4	(25)	0.1	(94)	13.7 (8	4) 7.7	(94)	0.8	(52)
× Allocation Index	10.6	(74) 1.0	(33)	0.0	(95)	13.5 (8	9) 8.5	(92)	0.4	(66)



### Total Fund Allocation vs. Peer Universe - Net



#### Total Plan Allocation vs. InvestorForce Public DB Net As of June 30, 2017



**5th Percentile** 

# of Portfolios

Median

### Total Fund Risk Statistics vs. Peer Universe - Net

#### Municipal Composite vs. IFx Public DB Net 3 Years



### Total Fund Risk Statistics vs. Peer Universe - Net

#### Municipal Composite vs. IFx Public DB Net 5 Years



### Total Fund Attribution Analysis - Net

#### Attribution Effects Relative to Policy Index 3 Months Ending June 30, 2017



3 Months Ending June 30, 2017										
	Wtd. <sub>V</sub> Actual Return	Vtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects			
Large Cap Comp	2.9%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Small/Mid Cap Comp	1.7%	1.6%	0.2%	0.0%	0.0%	0.0%	0.0%			
Int'l Equity Comp	7.0%	6.0%	1.0%	0.1%	0.1%	0.0%	0.2%			
Emerging Market Comp	6.4%	6.3%	0.1%	0.0%	0.0%	0.0%	0.0%			
Diversified Fixed	1.6%	1.4%	0.2%	0.0%	0.0%	0.0%	0.0%			
High Yield Comp	1.7%	2.2%	-0.5%	0.0%	0.0%	0.0%	0.0%			
TIPS	-0.4%	-0.4%	0.0%	0.0%	0.0%	0.0%	0.0%			
Emerging Market Debt	2.5%	2.2%	0.3%	0.0%	0.0%	0.0%	0.0%			
Risk Parity/GAA	1.0%	3.6%	-2.5%	-0.1%	0.0%	0.0%	-0.1%			
Cash	0.0%	0.2%	-0.2%	0.0%	0.0%	0.0%	0.0%			
Total Real Estate	1.2%	1.8%	-0.6%	0.0%	0.0%	0.0%	0.0%			
Absolute Return	-0.2%	1.3%	-1.4%	-0.1%	0.0%	0.0%	-0.1%			
Private Equity	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%			
Total	2.7%	2.5%	0.2%	-0.2%	0.2%	0.1%	0.1%			

**Attribution Summary** 

Note: Plan attribution calculations are returns based and the results shown reflect the composites shown. As a result, the total returns shown may vary from the calculated returns shown on the performance report.

The target return shown for each composite is a custom index, based on aggregated policy indices. This policy index asset weights the underlying policy indices of each option in the plan and the respective benchmark.

The allocation, selection, and interaction effects are calculated using the custom index described above along with the policy or target weight of each composite. May not add up due to rounding.

Absolute Return's Wtd. index Return is calculated using a weighting of the respective benchmarks for each underlying strategy part of the composite.



### Total Fund Attribution Analysis - Net

#### Attribution Effects Relative to Policy Index 1 Year Ending June 30, 2017



1 Year Ending June 30, 2017										
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects			
Large Cap Comp	17.8%	17.8%	0.0%	0.0%	0.4%	0.0%	0.4%			
Small/Mid Cap Comp	18.2%	22.0%	-3.7%	-0.2%	0.1%	0.0%	-0.2%			
Int'l Equity Comp	22.6%	20.3%	2.3%	0.2%	0.2%	0.0%	0.4%			
Emerging Market Comp	18.7%	23.7%	-5.0%	-0.3%	0.1%	0.0%	-0.2%			
Diversified Fixed	2.3%	-0.3%	2.6%	0.5%	0.0%	0.0%	0.5%			
High Yield Comp	11.5%	12.7%	-1.2%	-0.1%	0.0%	0.0%	-0.1%			
TIPS	-0.6%	-0.6%	0.0%	0.0%	0.0%	0.0%	0.0%			
Emerging Market Debt	9.0%	5.5%	3.4%	0.2%	0.0%	0.0%	0.2%			
Risk Parity/GAA	5.0%	8.8%	-3.8%	-0.2%	0.0%	0.0%	-0.3%			
Cash	0.0%	0.5%	-0.5%	0.0%	0.0%	0.0%	0.0%			
Total Real Estate	6.7%	7.0%	-0.2%	0.0%	0.1%	0.0%	0.1%			
Absolute Return	4.1%	5.7%	-1.6%	-0.1%	0.1%	0.0%	-0.1%			
Private Equity	7.9%	13.3%	-5.4%	-0.3%	-0.1%	0.2%	-0.2%			
Total	11.0%	10.2%	0.8%	-0.3%	0.6%	0.2%	0.5%			

Attribution Summary

Note: Plan attribution calculations are returns based and the results shown reflect the composites shown. As a result, the total returns shown may vary from the calculated returns shown on the performance report.

The target return shown for each composite is a custom index, based on aggregated policy indices. This policy index asset weights the underlying policy indices of each option in the plan and the respective benchmark.

The allocation, selection, and interaction effects are calculated using the custom index described above along with the policy or target weight of each composite. May not add up due to rounding.

Absolute Return's Wtd. index Return is calculated using a weighting of the respective benchmarks for each underlying strategy part of the composite.



Asset Allocation Effect - Measures VPIC's ability to effectively allocate their portfolio's assets to various asset classes. The allocation effect determines whether the overweighting or underweighting of asset classes relative to a benchmark contributes positively or negatively to the overall portfolio return. Positive allocation occurs when the portfolio is overweighted in an asset class that outperforms the benchmark. Negative allocation occurs when the portfolio is overweighted in an asset class that outperforms the benchmark.

Selection Effect - Measures VPIC's ability to select managers within a given asset class relative to a benchmark. The over or underperformance of the portfolio is weighted by the benchmark weight, therefore, selection is not affected by VPIC's allocation to the asset class. The weight of the manager in the portfolio determines the size of the effect -- the larger the manager, the larger the effect is, positive or negative.

Interaction Effect - The interaction effect measures the combined impact of VPIC's manager selection and manager allocation decisions within an asset class. For example, if VPIC had superior manager selection and overweighted that particular asset class, the interaction effect is positive. If VPIC had superior manager selection, but underweighted that asset class, the interaction effect is negative. In this case, VPIC did not take advantage of the superior manager selection by allocating more assets to that asset class.



# Risk Statistics - 3 Years Ending June 30, 2017 - Net

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank	Tracking Error	Rank
Municipal Composite	100.00%	3.65%	86	5.72%	28	-0.42%	60	0.60	80	1.02	67	0.91%	34
Policy Index		3.78%	81	5.24%	10	0.00%	36	0.68	65	1.18	47	0.00%	1
US Equity	25.78%	9.17%	26	10.86%	29	-0.05%	29	0.82	21	1.38	23	1.47%	2
Russell 3000		9.10%	27	10.63%	25	0.00%	29	0.83	19	1.37	24	0.00%	1
Large Cap Comp	20.42%	9.28%	27	10.46%	36	-0.41%	31	0.86	24	1.56	19	0.69%	1
S&P 500		9.61%	22	10.35%	34	0.00%	24	0.91	18	1.52	21	0.00%	1
Small/Mid Cap Comp	5.36%	9.15%	19	12.77%	44	3.14%	22	0.70	20	1.34	13	4.08%	2
Russell 2000		7.36%	38	15.38%	93	0.00%	61	0.46	57	0.77	53	0.00%	1
Int'l Equity Comp	14.67%	2.72%	44	11.78%	42	1.63%	45	0.21	44	0.37	42	2.08%	7
MSCI EAFE		1.15%	77	12.42%	76	0.00%	78	0.07	78	0.13	76	0.00%	1
Emerging Market Comp	6.89%	1.62%	55	15.29%	61	0.63%	55	0.09	57	0.17	49	5.16%	56
MSCI Emerging Markets		1.07%	68	16.06%	78	0.00%	67	0.05	67	0.10	66	0.00%	1
US Fixed Income	28.88%	3.43%	30	2.98%	61	1.27%	27	1.07	26	1.58	29	1.69%	36
BBgBarc US Aggregate TR		2.48%	52	2.90%	59	0.00%	76	0.77	61	1.07	66	0.00%	1
Diversified Fixed	19.14%	3.53%	28	3.03%	62	1.16%	28	1.09	24	1.38	39	1.24%	25
BBgBarc US Aggregate TR		2.48%	52	2.90%	59	0.00%	76	0.77	61	1.07	66	0.00%	1
High Yield Comp	5.16%	4.30%	31	5.03%	42	0.64%	40	0.81	44	1.46	48	1.62%	37
BBgBarc US High Yield TR		4.48%	28	6.09%	83	0.00%	57	0.70	55	1.56	40	0.00%	1
TIPS	4.58%	0.59%	26	3.90%	70	-0.05%	21	0.09	22	0.16	21	0.18%	4
BBgBarc US TIPS TR		0.63%	23	3.83%	59	0.00%	18	0.10	18	0.18	18	0.00%	1
Emerging Market Debt	4.83%	5.05%	9	6.14%	28	0.44%	15	0.78	13	1.21	16	1.32%	9
JP Morgan EMBI Global TR		4.64%	18	6.04%	27	0.00%	25	0.73	21	1.07	22	0.00%	1
Total Real Estate	5.39%	9.32%		4.00%		0.15%		2.27		125.25		1.18%	
NCREIF Property Index		10.16%		4.28%		0.00%		2.32		136.87		0.00%	
Absolute Return	8.24%	0.03%	80	3.15%	21	-1.28%	76	-0.07	83	-0.08	83	1.66%	6
HFRI Fund of Funds Composite Index		1.53%	59	3.30%	27	0.00%	56	0.39	51	0.45	56	0.00%	1
Risk Parity/GAA	3.71%	0.44%	79	7.29%	61	-2.01%	80	0.03	79	0.05	78	4.38%	39
60% MSCI World (Net) / 40% CITI WGBI		2.86%	32	7.04%	55	0.00%	42	0.37	38	0.74	26	0.00%	1



# Risk Statistics - 5 Years Ending June 30, 2017 - Net

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank	Tracking Error	Rank
Municipal Composite	100.00%	6.64%	90	5.54%	33	-0.41%	67	1.17	84	2.02	72	0.85%	27
Policy Index		6.48%	93	5.05%	13	0.00%	46	1.25	74	2.24	49	0.00%	1
US Equity	25.78%												
Russell 3000		14.58%	34	9.80%	18	0.00%	29	1.47	12	2.53	17	0.00%	1
Large Cap Comp	20.42%	14.91%	23	9.67%	28	0.15%	22	1.52	10	2.86	8	0.72%	1
S&P 500		14.63%	28	9.56%	24	0.00%	26	1.51	11	2.61	18	0.00%	1
Small/Mid Cap Comp	5.36%	14.60%	27	11.93%	46	3.09%	41	1.21	30	2.43	12	3.48%	1
Russell 2000		13.70%	44	13.88%	87	0.00%	85	0.98	75	1.61	70	0.00%	1
Int'l Equity Comp	14.67%	10.06%	43	11.20%	38	1.89%	42	0.88	37	1.63	29	2.09%	7
MSCI EAFE		8.69%	67	11.74%	71	0.00%	79	0.73	72	1.28	67	0.00%	1
Emerging Market Comp	6.89%	3.93%	74	14.40%	70	0.18%	71	0.26	73	0.44	69	4.74%	51
MSCI Emerging Markets		3.96%	73	14.40%	70	0.00%	75	0.26	72	0.44	69	0.00%	1
US Fixed Income	28.88%												
BBgBarc US Aggregate TR		2.21%	61	2.86%	52	0.00%	83	0.72	77	0.98	74	0.00%	1
Diversified Fixed	19.14%	2.92%	47	3.18%	64	0.62%	53	0.87	62	1.11	64	1.14%	24
BBgBarc US Aggregate TR		2.21%	61	2.86%	52	0.00%	83	0.72	77	0.98	74	0.00%	1
High Yield Comp	5.16%	6.45%	37	4.39%	30	0.82%	35	1.43	36	2.26	47	1.37%	37
BBgBarc US High Yield TR		6.89%	25	5.28%	76	0.00%	64	1.27	58	2.37	41	0.00%	1
TIPS	4.58%	0.20%	56	4.56%	73	-0.06%	55	0.01	55	0.01	55	0.16%	1
BBgBarc US TIPS TR		0.27%	37	4.52%	59	0.00%	40	0.02	40	0.03	40	0.00%	1
Emerging Market Debt	4.83%	5.90%	14	6.65%	28	0.91%	16	0.86	16	1.20	15	1.27%	7
JP Morgan EMBI Global TR		5.20%	29	6.81%	31	0.00%	30	0.74	26	1.04	30	0.00%	1
Total Real Estate	5.39%	10.75%		4.58%		0.11%		2.31		174.50		1.39%	
NCREIF Property Index		10.49%		4.30%		0.00%		2.40		170.08		0.00%	
Absolute Return	8.24%	4.52%	64	3.53%	33	0.79%	57	1.23	44	1.88	40	1.63%	7
HFRI Fund of Funds Composite Index		3.86%	70	3.25%	27	0.00%	67	1.14	49	1.51	53	0.00%	1
Risk Parity/GAA	3.71%	4.31%	59	7.21%	63	-1.79%	82	0.58	71	0.85	74	4.08%	44
60% MSCI World (Net) / 40% CITI WGBI		6.75%	24	6.63%	53	0.00%	47	0.99	17	2.07	5	0.00%	1

# **Manager Characteristics**



### Total Equity Composite



#### Annualized Return vs. Annualized Standard Deviation 3 Years Ending June 30, 2017

U.S. Effective Style Map 3 Years Ending June 30, 2017



First Rolling Period

Last Rolling Period

### Total Equity Composite

#### Characteristics

	Portfolio	MSCI ACWI
Number of Holdings	2,903	2,501
Weighted Avg. Market Cap. (\$B)	71.69	104.74
Median Market Cap. (\$B)	8.36	9.35
Price To Earnings	23.50	23.01
Price To Book	4.02	3.49
Price To Sales	2.97	2.87
Return on Equity (%)	17.38	15.98
Yield (%)	2.21	2.40
Beta	0.98	1.00
R-Squared	0.98	1.00



### Market Capitalization



#### Sector Allocation (%) vs MSCI ACWI

5.8

6.1

Energy

NEPC, LLC

# Total Equity Composite

#### **Top Positive Contributors**

Relative

#### **Top Negative Contributors**

Top Ten Holdings							
ASTRA INTERNATIONAL	1.4%						
SAMSUNG ELECTRONICS	1.4%						
TELEKOMUNIKASI INDONESIA	1.1%						
APPLE	1.1%						
BANK CENTRAL ASIA	1.0%						
SAMSUNG ELTN.PREF.	1.0%						
TAIWAN SEMICON.MNFG.	0.9%						
BANK RAKYAT INDONESIA	0.8%						
MICROSOFT	0.8%						
HOUSING DEVELOPMENT FIN.	0.7%						

	Contribution %	Return %
SAMSUNG ELTN.PREF.	0.1%	13.5%
ITC	0.1%	17.7%
YUM CHINA ORD	0.1%	45.0%
GPO FINANCE BANORTE	0.1%	15.5%
AIA GROUP	0.1%	17.2%
TAIWAN SEMICON.MNFG.	0.1%	13.6%
QANTAS AIRWAYS	0.1%	47.8%
GRUPO AEROPORTUARIO DEL SURESTE ADR 1:10	0.1%	23.5%
FOM.ECO.MEXNO.SAB DE CV SPN.ADR 1:10	0.1%	11.9%
AYALA LAND	0.1%	19.6%

	Relative	
	Contribution %	Return %
TENCENT HOLDINGS	-0.1%	25.0%
ALIBABA GROUP HLDG.SPN. ADR 1:1	-0.1%	30.7%
NESTLE 'R'	-0.1%	16.9%
HSBC HDG. (ORD \$0.50)	-0.1%	14.9%
BNC.BRADESCO PF.SPN.ADR 1:1	0.0%	-8.5%
MASSMART	0.0%	-20.7%
TRUWORTHS INTL.	0.0%	-15.5%
NOVO NORDISK 'B'	0.0%	24.2%
WW GRAINGER	0.0%	-21.9%
HON HAI PRECN.IND.	0.0%	28.2%

#### **Equity Sector Attribution**

	Attribution Effects			F	leturns	Sect	Sector Weights		
	Total	Selection	Allocation	Interaction					
	Effects	Effect	Effect	Effects	Portfolio	Benchmark	Portfolio	Benchmark	
Energy	0.0%	0.0%	0.0%	0.0%	-4.8%	-4.7%	6.6%	6.7%	
Materials	0.1%	0.1%	0.0%	0.0%	3.2%	2.1%	6.0%	5.3%	
Industrials	0.0%	0.0%	0.0%	0.0%	5.5%	5.8%	11.3%	10.6%	
Consumer Discretionary	-0.2%	-0.1%	0.0%	-0.1%	2.8%	4.2%	11.2%	12.1%	
Consumer Staples	-0.1%	0.0%	0.0%	-0.1%	3.8%	4.5%	9.9%	9.5%	
Health Care	0.4%	0.4%	0.0%	0.0%	10.3%	7.0%	11.2%	11.1%	
Financials	0.0%	0.1%	0.0%	-0.1%	5.7%	5.2%	17.3%	18.5%	
Information Technology	-0.1%	-0.1%	0.0%	0.0%	6.2%	6.7%	16.1%	16.4%	
Telecommunication Services	0.0%	0.0%	0.0%	0.0%	-1.1%	-0.1%	3.1%	3.4%	
Utilities	0.0%	0.0%	0.0%	0.0%	3.7%	3.7%	2.8%	3.1%	
Real Estate	0.0%	0.0%	0.0%	0.0%	4.0%	4.3%	4.2%	3.1%	
Cash	0.0%	0.0%	0.0%	0.0%	0.2%		0.4%	0.0%	
Portfolio	0.1%	= 0.4%	+ 0.0%	+ -0.3%	4.5%	4.4%	100.0%	100.0%	


### Domestic Equity Composite



#### Annualized Return vs. Annualized Standard Deviation 3 Years Ending June 30, 2017

68% Confidence Interval • eA All US Equity Net

#### U.S. Effective Style Map 3 Years Ending June 30, 2017



First Rolling Period

♦ Last Rolling Period

### Domestic Equity Composite

### Characteristics

	Portfolio	Russell 3000
Number of Holdings	630	3,000
Weighted Avg. Market Cap. (\$B)	101.87	128.51
Median Market Cap. (\$B)	11.69	1.56
Price To Earnings	26.37	24.73
Price To Book	4.84	4.17
Price To Sales	3.46	3.48
Return on Equity (%)	18.08	16.72
Yield (%)	1.82	1.87
Beta	1.01	1.00
R-Squared	0.98	1.00







#### Sector Allocation (%) vs Russell 3000

NE PL NEPC, LLC

### Domestic Equity Composite

#### **Top Positive Contributors**

Relative

#### **Top Negative Contributors**

Top Ten Holdings							
APPLE	2.2%						
MICROSOFT	1.6%						
AMAZON.COM	1.1%						
JOHNSON & JOHNSON	1.1%						
FACEBOOK CLASS A	1.1%						
EXXON MOBIL	1.0%						
JP MORGAN CHASE & CO.	1.0%						
BERKSHIRE HATHAWAY 'B'	1.0%						
ALPHABET 'A'	0.8%						
ALPHABET 'C'	0.8%						

	Contribution %	Return %
SAMSUNG ELTN.PREF.	0.1%	13.5%
TAIWAN SEMICON.MNFG.	0.1%	13.6%
AIA GROUP	0.1%	17.2%
ITC	0.1%	17.7%
GPO FINANCE BANORTE	0.1%	15.5%
GENERAL ELECTRIC	0.1%	-8.6%
YUM CHINA ORD	0.1%	45.0%
AT&T	0.1%	-8.1%
GRUPO AEROPORTUARIO DEL SURESTE ADR 1:10	0.1%	23.5%
FOM.ECO.MEXNO.SAB DE CV SPN.ADR 1:10	0.0%	11.9%

	Relative	
	Contribution %	Return %
AMAZON.COM	-0.1%	9.2%
MICROSOFT	-0.1%	5.2%
ORACLE	-0.1%	12.9%
ALPHABET 'A'	-0.1%	9.7%
JOHNSON & JOHNSON	-0.1%	6.9%
ALPHABET 'C'	-0.1%	9.5%
UNITEDHEALTH GROUP	-0.1%	13.5%
CITIGROUP	-0.1%	12.1%
MCDONALDS	-0.1%	18.9%
FACEBOOK CLASS A	-0.1%	6.3%

	Equity Sector Attribution										
			Attribution Effects	-	R	leturns	Sect	or Weights			
	Total	Selection	Allocation	Interaction							
	Effects	Effect	Effect	Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.1%	0.1%	-0.1%	0.1%	-4.8%	-7.7%	6.6%	6.1%			
Materials	0.0%	0.0%	0.0%	0.1%	3.2%	2.6%	6.0%	3.4%			
Industrials	0.2%	0.0%	0.0%	0.1%	5.5%	4.2%	11.3%	10.7%			
Consumer Discretionary	0.0%	-0.1%	0.0%	0.1%	2.8%	3.0%	11.2%	12.7%			
Consumer Staples	0.2%	0.2%	0.0%	0.1%	3.8%	1.2%	9.9%	8.3%			
Health Care	0.2%	0.2%	-0.1%	0.1%	10.3%	7.4%	11.2%	13.4%			
Financials	0.3%	0.1%	0.0%	0.2%	5.7%	3.8%	17.3%	15.0%			
Information Technology	0.2%	0.4%	-0.1%	-0.1%	6.2%	4.3%	16.1%	21.2%			
Telecommunication Services	0.1%	0.1%	-0.1%	0.1%	-1.1%	-6.6%	3.1%	2.2%			
Utilities	0.0%	0.0%	0.0%	0.0%	3.7%	2.2%	2.8%	3.2%			
Real Estate	0.1%	0.1%	0.0%	0.0%	4.0%	2.3%	4.2%	4.0%			
Cash	0.0%	0.0%	0.0%	0.0%	0.2%		0.5%	0.0%			
Portfolio	1.5%	= 1.1%	+ -0.3%	+ 0.8%	4.5%	3.0%	100.0%	100.0%			

### SSgA S&P 500 Cap-Wgt

NEPC, LLC

Using a replication process, we purchase each security for the Strategy in the same capitalization weight as it appears in the S&P 500 Index. Replication results in low turnover, accurate tracking, and low costs. SSgA's internal liquidity has allowed the firm to acquire many of the benchmark constituents for free. These free trading opportunities have allowed SSgA to gradually reduce security-level misweights while avoiding the open market. This process has resulted in portfolios that look and behave like the benchmark, and do so at a very low cost. SSgA's passive equity process objective is to remain fully invested in the equity market at all times. To accomplish this, it holds a small amount of unleveraged exchange-traded S&P 500® futures contracts to maintain full exposure. SSgA tends to hold approximately 1-3% of the strategy's value in suitable CFTC approved index futures contracts. This position in futures also allows the firm to accommodate cash flows into and out of the portfolio on a daily basis and to equitize dividend receivables to achieve closer tracking.



eA US Large Cap Equity Net Accounts

● SSgA S&P 500 Cap-Wgt ▲ S&P 500



### SSgA S&P 500 Cap-Wgt

			Top Positive Contributors			Top Negative Contributors			
				Relative			Relative		
Characteristic	s Portfolio	S&P 500		Contribution %	Return %		Contribution %	Return %	
Number of Holdings	505	505	CONSTELLATION BRANDS 'A'	0.0%	19.9%	O REILLY AUTOMOTIVE	0.0%	-18.9%	
Weighted Avg. Market Cap. (\$B)	154.9	154.7	CSX	0.0%	17.6%	EQUINIX	0.0%	7.7%	
Median Market Cap. (\$B)	20.6	20.6	INTUITIVE SURGICAL	0.0%	22.0%	H&R BLOCK (HRB)	0.0%	34.0%	
Price To Earnings	25.1	24.7	THERMO FISHER SCIENTIFIC (TMO)	0.0%	13.7%	ALEXANDRIA RLST.EQTIES.	0.0%	9.8%	
Price To Book	5.4	4.6	TRANSOCEAN	0.0%	-33.9%	REGENERON PHARMS. (REGN)	0.0%	26.7%	
Price To Sales	3.6	3.4	ABBVIE (ABBV)	0.0%	12.4%	AUTOZONE (AZO)	0.0%	-21.1%	
Return on Equity (%)	20.3	19.0	VISA 'A' (V)	0.0%	5.7%	EDWARDS LIFESCIENCES (EW)	0.0%	25.7%	
Yield (%)	2.0	2.0	SOUTHWESTERN ENERGY (SWN)	0.0%	-25.6%	DISCOVER FINANCIAL SVS.	0.0%	-8.6%	
Beta	1.0	1.0	ANADARKO PETROLEUM	0.0%	-26.8%	STATE STREET	0.0%	13.2%	
R-Squared	1.0	1.0	NVIDIA (NVDA)	0.0%	32.8%	INTERNATIONAL BUS.MCHS.	0.0%	-10.8%	

### SSgA S&P 500 Cap-Wgt Performance Attribution vs. S&P 500

			Attribution Effect	s	R	eturns	Secto	or Weights
	Total	Selection	Allocation	Interaction				
	Effects	Effect	Effect	Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.0%	0.0%	0.0%	0.0%	-6.4%	-6.4%	6.6%	6.6%
Materials	0.0%	0.0%	0.0%	0.0%	2.9%	2.8%	2.9%	2.9%
Industrials	0.0%	0.0%	0.0%	0.0%	4.9%	4.9%	10.1%	10.0%
Consumer Discretionary	0.0%	0.0%	0.0%	0.0%	2.4%	2.4%	12.3%	12.3%
Consumer Staples	0.0%	0.0%	0.0%	0.0%	1.6%	1.6%	9.3%	9.2%
Health Care	0.0%	0.0%	0.0%	0.0%	7.1%	7.1%	13.9%	13.9%
Financials	0.0%	0.0%	0.0%	0.0%	4.3%	4.3%	14.4%	14.4%
Information Technology	0.0%	0.0%	0.0%	0.0%	4.1%	4.1%	22.1%	22.1%
Telecommunication Services	0.0%	0.0%	0.0%	0.0%	-7.1%	-7.1%	2.4%	2.4%
Utilities	0.0%	0.0%	0.0%	0.0%	2.2%	2.2%	3.2%	3.2%
Real Estate	0.0%	0.0%	0.0%	0.0%	2.8%	2.8%	2.9%	2.9%
Cash	0.0%						0.0%	0.0%
Portfolio	0.0%	= 0.0%	+ 0.0%	+ 0.0%	3.1%	3.1%	100.0%	100.0%

The Strategy is managed using a "passive" or "indexing" investment approach, by which SSgA attempts to match, before expenses, the performance of the Index. SSgA will typically attempt to invest in the securities comprising the Index, in the same proportions as they are represented in the Index. In some cases, it may not be possible or practicable to purchase all of the securities comprising the Index, or to hold them in the same weightings as they represent in the Index. In those circumstances, SSqA may employ a sampling or optimization technique to construct the portfolio in question. From time to time securities are added to or removed from the Index. SSgA may sell securities that are represented in the Index, or purchase securities that are not yet represented in the Index, in anticipation of their removal from or addition to the Index. The Strategy may at times purchase or sell futures contracts on the Index, or options on those futures, or engage in other transactions involving the use of derivatives, in lieu of investment directly in the securities making up the Index or to enhance the Strategy's replication of the Index return. The Strategy's return may not match the return of the Index.



eA US Large Cap Equity Net Accounts

● SSgA S&P 500 Equal-Wgt ▲ S&P 500 Equal Weighted



### SSgA S&P 500 Equal-Wgt

			Top Positive Contributors			Top Negative Contributors			
				Relative			Relative		
Characteristics	Portfolio	S&P 500		Contribution %	Return %		Contribution %	Return %	
Number of Holdings	497	505	GENERAL ELECTRIC (GE)	0.1%	-8.6%	AMAZON.COM (AMZN)	-0.1%	9.2%	
Weighted Avg. Market Cap. (\$B)	41.8	154.7	AT&T	0.1%	-8.1%	MICROSOFT (MSFT)	-0.1%	5.2%	
Median Market Cap. (\$B)	20.3	20.6	WHOLE FOODS MARKET (WFM)	0.1%	43.0%	ALPHABET 'A'	-0.1%	9.7%	
Price To Earnings	25.4	24.7	H&R BLOCK	0.1%	34.0%	ALPHABET 'C'	-0.1%	9.5%	
Price To Book	4.5	4.6	INTERNATIONAL BUS.MCHS.	0.1%	-10.8%	JOHNSON & JOHNSON (JNJ)	-0.1%	6.9%	
Price To Sales	3.1	3.4	VERIZON COMMUNICATIONS	0.1%	-7.3%	FACEBOOK CLASS A (FB)	-0.1%	6.3%	
Return on Equity (%)	18.3	19.0	CISCO SYSTEMS	0.0%	-6.6%	UNITEDHEALTH GROUP (UNH)	-0.1%	13.5%	
Yield (%)	1.9	2.0	WALT DISNEY (DIS)	0.0%	-6.3%	CITIGROUP	-0.1%	12.1%	
Beta	1.0	1.0	INTEL (INTC)	0.0%	-5.8%	JP MORGAN CHASE & CO. (JPM)	-0.1%	4.6%	
R-Squared	0.9	1.0	C R BARD	0.0%	27.3%	TRANSOCEAN	-0.1%	-33.9%	

### SSgA S&P 500 Equal-Wgt Performance Attribution vs. S&P 500

		-	Attribution Effects	i	R	eturns	Secto	or Weights
	Total	Selection	Allocation	Interaction				
	Effects	Effect	Effect	Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	-0.3%	-0.3%	0.0%	0.0%	-10.5%	-6.4%	6.8%	6.6%
Materials	0.0%	0.0%	0.1%	0.0%	2.3%	2.8%	5.2%	2.9%
Industrials	0.0%	-0.1%	0.2%	0.0%	3.9%	4.9%	13.5%	10.0%
Consumer Discretionary	-0.2%	-0.2%	0.1%	-0.1%	0.5%	2.4%	16.4%	12.3%
Consumer Staples	-0.1%	-0.1%	0.0%	0.0%	0.7%	1.6%	6.6%	9.2%
Health Care	0.1%	0.2%	-0.1%	0.0%	8.8%	7.1%	12.3%	13.9%
Financials	0.0%	0.1%	-0.1%	0.0%	5.1%	4.3%	13.0%	14.4%
Information Technology	-0.4%	-0.1%	-0.4%	0.1%	3.4%	4.1%	13.4%	22.1%
Telecommunication Services	0.2%	0.1%	0.1%	-0.1%	-2.0%	-7.1%	0.8%	2.4%
Utilities	0.0%	0.0%	0.1%	0.0%	1.8%	2.2%	5.7%	3.2%
Real Estate	0.0%	0.0%	0.1%	0.0%	1.9%	2.8%	6.2%	2.9%
Cash	0.0%	0.0%	0.0%	0.0%	0.2%		0.1%	0.0%
Portfolio	-0.6%	= -0.5%	+ 0.0%	+ -0.2%	2.5%	3.1%	100.0%	100.0%



### Champlain

Champlain employs a fundamental, bottom-up approach to investing in equity assets. They believe that superior companies purchased at attractive valuations have the highest probability to wealth creation. Champlain seeks strong businesses with credible and sincere management and aims to buy shares of their stock at discounts to fair or intrinsic value. Portfolio construction applies sector weight guidelines and position size rules to manage risk. The portfolio will have some exposure to at least seven out of the eight largest sectors of the S&P 400, with a maximum weighting on 25% in any one sector. Individual positions will not represent more than 2% of the respective companies' outstanding shares and are limited to no more than 5% of assets under management. The portfolio typically holds 50-75 securities with average position sizes of 2%. The strategy's minimum market cap is \$1.5 billion at purchase and a maximum market cap of \$15 billion. In general, no more than 10% of portfolio in stocks with a market cap below \$2B and no more than 5% of portfolio in companies with market cap above \$20B.



eA US Mid Cap Equity Net Accounts





### Champlain

				ontributors		Top Negative Contributors		
Characteristics				Relative			Relative	
	Portfolio	Russell 2500		Contributio n %	Return %		Contribution %	Return %
Number of Holdings	61	2,509	WHOLE FOODS MARKET	0.8%	43.0%	WW GRAINGER	-0.5%	-21.9%
Weighted Avg. Market Cap. (\$B)	9.8	4.4	ALIGN TECHNOLOGY	0.5%	30.9%	ADV.AUTO PARTS (AAP)	-0.4%	-21.3%
Median Market Cap. (\$B)	8.6	1.1	INTEGRA LFSC.HDG. (IART)	0.5%	29.4%	FLOWERS FOODS	-0.2%	-10.0%
Price To Earnings	34.4	24.5	C R BARD	0.5%	27.3%	SNYDERS LANCE	-0.2%	-13.7%
Price To Book	5.8	3.3	COOPER COS. (COO)	0.5%	19.8%	AKAMAI TECHS. (AKAM)	-0.2%	-16.6%
Price To Sales	3.9	3.1	STERIS (STE)	0.4%	17.7%	J M SMUCKER (SJM)	-0.2%	-9.2%
Return on Equity (%)	14.1	12.1	TABLEAU SOFTWARE CL.A	0.3%	23.7%	CORE LABORATORIES	-0.2%	-11.9%
Yield (%)	1.0	1.3	PALO ALTO NETWORKS	0.3%	18.8%	FASTENAL	-0.1%	-14.9%
Beta	0.8	1.0	NORTHERN TRUST	0.3%	12.8%	MOLSON COORS BREWING 'B' (TAP)	-0.1%	-9.4%
R-Squared	0.8	1.0	IDEX	0.3%	21.3%	SPLUNK	-0.1%	-8.7%

### Champlain Performance Attribution vs. Russell 2500

			Attribution Effects	6	R	leturns	Secto	or Weights
	Total	Selection	Allocation	Interaction				
	Effects	Effect	Effect	Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.6%	0.1%	0.5%	-0.1%	-17.3%	-20.1%	1.7%	4.4%
Materials	0.2%	0.5%	-0.1%	-0.3%	11.1%	2.3%	2.8%	6.0%
Industrials	-0.1%	-0.1%	0.0%	0.0%	0.7%	1.3%	17.2%	15.6%
Consumer Discretionary	-0.8%	-1.4%	-0.2%	0.8%	-8.9%	2.3%	5.6%	12.6%
Consumer Staples	0.0%	0.1%	-0.3%	0.3%	-0.7%	-3.0%	14.3%	3.1%
Health Care	2.6%	0.9%	0.9%	0.8%	17.4%	9.4%	21.3%	11.5%
Financials	0.0%	0.1%	-0.1%	0.0%	2.3%	1.8%	13.9%	17.4%
Information Technology	0.9%	0.5%	0.2%	0.1%	8.3%	5.1%	20.0%	15.3%
Telecommunication Services	0.0%		0.0%			3.1%	0.0%	0.6%
Utilities	-0.1%		-0.1%			1.8%	0.0%	3.8%
Real Estate	-0.1%		-0.1%			1.4%	0.0%	9.8%
Cash	0.0%	0.0%	0.0%	0.0%	0.2%		3.2%	0.0%
Portfolio	3.2%	= 0.7%	+ 0.9%	+ 1.6%	5.2%	2.1%	100.0%	100.0%

### Wellington

Wellington's investment objective is to seek long-term total returns in excess of the Russell 2000 Value Index by investing in conservatively-valued securities of high-quality, small cap companies. Wellington employ a bottom-up stock selection process that utilizes Wellington Management's proprietary, fundamental research to identify undervalued companies that have the potential for significant longer-term rewards. The investment universe consists of all stocks generally between US\$100 million and US\$2 billion in market capitalization. These stocks are reviewed for certain financial and valuation requirements that correspond with our investment process and philosophy. The Small Cap Value Team conducts their own proprietary research and leverages the broader research of the firm as appropriate. The Portfolio is expected to have a lower P/E ratio and other value-oriented characteristics relative to the overall small cap market, with a similar market capitalization. The return on equity is expected to be higher than the small cap value indexes, consistent with the high-quality focus.



eA US Small Cap Value Equity Net Accounts

Wellington
A Russell 2000 Value



#### **3 Year Risk Statistics**

NEPC, LLC

June 30, 2017

# Wellington

			Top Positive Cont	ributors		Top Negative C	Top Negative Contributors			
Characteristics	Russell Portfolio 2000 Value			Relative Contributio n %	Return %		Relative Contribution %	Return %		
Number of Holdings	74	1,399	WNS HDG.ADR 1:1 (WNS)	0.3%	20.1%	SMART & FINAL STORES	-0.4%	-24.8%		
Weighted Avg. Market Cap. (\$B)	1.7	1.8	PHIBRO ANIMAL HLTH.CL.A (PAHC)	0.2%	32.2%	FRED'S 'A' (FRED)	-0.3%	-29.2%		
Median Market Cap. (\$B)	1.2	0.7	SUMMIT HOTEL PROPERTIES (INN)	0.2%	17.9%	MUELLER INDUSTRIES	-0.3%	-10.7%		
Price To Earnings	26.0	20.1	CHAS.RVR.LABS.INTL. (CRL)	0.2%	12.5%	CUBIC (CUB)	-0.3%	-12.3%		
Price To Book	2.3	1.7	ICU MEDICAL	0.2%	13.0%	FTI CONSULTING (FCN)	-0.3%	-15.1%		
Price To Sales	2.4	2.7	HANCOCK HOLDING (HBHC)	0.2%	8.1%	SEACOR HDG.	-0.2%	-16.7%		
Return on Equity (%)	8.5	7.4	FORWARD AIR	0.1%	12.3%	SP PLUS (SP)	-0.2%	-9.5%		
Yield (%)	1.6	1.7	BABCOCK & WILCOX ENTS. (BW)	0.1%	25.9%	<b>RESOLUTE ENERGY (REN)</b>	-0.2%	-26.3%		
Beta	1.0	1.0	PRIMORIS SERVICES (PRIM)	0.1%	7.6%	MATTHEWS INTL.'A' (MATW)	-0.2%	-9.2%		
R-Squared	0.9	1.0	GATX (GATX)	0.1%	6.1%	TESCO	-0.2%	-44.7%		

### Wellington Performance Attribution vs. Russell 2000 Value

			Attribution Effects	6	R	eturns	Secto	or Weights
	Total	Selection	Allocation	Interaction				
	Effects	Effect	Effect	Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.0%	0.0%	0.0%	0.0%	-21.3%	-20.8%	5.1%	5.2%
Materials	0.2%	0.1%	0.0%	0.1%	1.1%	-1.6%	7.0%	4.9%
Industrials	-1.7%	-1.0%	0.7%	-1.4%	-3.7%	4.3%	30.5%	12.9%
Consumer Discretionary	-0.9%	-1.8%	-0.2%	1.0%	-14.2%	3.4%	4.2%	10.0%
Consumer Staples	-0.3%	-0.2%	0.0%	0.0%	-15.9%	-7.5%	3.0%	2.8%
Health Care	0.4%	0.1%	0.3%	0.1%	7.2%	6.0%	9.1%	4.8%
Financials	-0.2%	-0.2%	-0.1%	0.1%	0.8%	1.2%	21.1%	32.3%
Information Technology	0.2%	0.3%	0.0%	-0.1%	2.4%	-0.2%	6.6%	10.2%
Telecommunication Services	0.0%		0.0%			2.3%	0.0%	0.6%
Utilities	-0.1%	0.0%	-0.1%	0.0%	2.3%	2.5%	3.4%	6.5%
Real Estate	0.1%	0.2%	0.0%	-0.1%	2.8%	0.8%	6.1%	9.7%
Cash	0.0%	0.0%	0.0%	0.0%	0.2%		3.9%	0.0%
Portfolio	-2.4%	= -2.6%	+ 0.5%	+ -0.4%	-2.0%	0.4%	100.0%	100.0%

### Int'l Equity Composite



#### Annualized Return vs. Annualized Standard Deviation 3 Years Ending June 30, 2017

U.S. Effective Style Map 3 Years Ending June 30, 2017



First Rolling Period

Last Rolling Period

### Int'l Equity Composite

#### Characteristics

	Portfolio	MSCI EAFE
Number of Holdings	2,257	927
Weighted Avg. Market Cap. (\$B)	42.99	55.81
Median Market Cap. (\$B)	6.70	10.24
Price To Earnings	19.99	21.00
Price To Book	2.84	2.51
Price To Sales	2.04	2.08
Return on Equity (%)	15.60	13.13
Yield (%)	2.65	3.03
Beta	0.94	1.00
R-Squared	0.97	1.00



Int'l Equity Comp MSCI EAFE



Sector Allocation (%) vs MSCI EAFE

### Int'l Equity Composite

Top Ten Holdings	
SAMSUNG ELECTRONICS	4.1
TELEKOMUNIKASI INDONESIA	3.4
ASTRA INTERNATIONAL	2.7
BANK CENTRAL ASIA	2.6
BANK RAKYAT INDONESIA	2.5
BANK MANDIRI	1.8
UNILEVER INDONESIA	1.1
SANOFI	1.0
HONDA MOTOR	0.9
TAKEDA PHARMACEUTICAL	0.9

	Top Positive	Contributors		Top Negative	e Contributors	
		Relative			Relative	
4.1%		Contribution %	Return %		Contribution %	Return %
3.4%	QANTAS AIRWAYS	0.3%	47.8%	HSBC HDG. (ORD \$0.50)	-0.2%	14.9%
2.7%	DEUTSCHE LUFTHANSA	0.3%	44.9%	NESTLE 'R'	-0.2%	16.9%
2.6%	IPSEN	0.2%	37.3%	NOVO NORDISK 'B'	-0.1%	24.2%
2.5%	ICON	0.2%	22.7%	AIA GROUP	-0.1%	17.2%
1.8%	ARISTOCRAT LEISURE	0.2%	27.1%	NINTENDO	-0.1%	44.6%
1.1%	LONZA GROUP	0.2%	25.1%	HONDA MOTOR	-0.1%	-8.6%
1.0%	TELIASONERA	0.1%	12.3%	ING GROEP	-0.1%	16.8%
0.9%	ALLIANZ	0.1%	11.2%	VODAFONE GROUP	-0.1%	13.0%
0.9%	G4S	0.1%	13.5%	TESCO	-0.1%	-5.5%
	SAMSUNG ELECTRONICS	0.1%	12.8%	LVMH	-0.1%	14.5%

Equity Sector	Attribution
---------------	-------------

			Attribution Effects		F	Returns	Secto	or Weights
	Total	Selection	Allocation	Interaction				
	Effects	Effect	Effect	Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.0%	0.1%	-0.3%	0.3%	1.2%	-0.5%	9.4%	5.0%
Materials	0.1%	0.1%	0.0%	0.0%	4.4%	3.3%	7.9%	8.0%
Industrials	0.6%	0.5%	0.0%	0.1%	11.6%	7.2%	13.9%	14.3%
Consumer Discretionary	-0.1%	0.0%	0.0%	0.0%	4.4%	4.8%	10.5%	12.2%
Consumer Staples	-0.4%	-0.2%	-0.1%	-0.1%	5.8%	8.3%	7.3%	11.4%
Health Care	0.8%	0.6%	0.0%	0.2%	12.6%	7.2%	12.9%	10.7%
Financials	-0.5%	-0.3%	-0.1%	-0.1%	6.0%	7.4%	14.7%	21.2%
Information Technology	0.6%	0.1%	0.2%	0.2%	11.4%	9.5%	11.4%	5.7%
Telecommunication Services	-0.1%	-0.1%	0.0%	0.0%	2.6%	5.0%	5.7%	4.4%
Utilities	0.0%	0.0%	0.0%	0.1%	7.6%	7.2%	3.7%	3.3%
Real Estate	0.1%	0.2%	0.0%	-0.1%	10.8%	4.7%	2.5%	3.7%
Cash	0.0%						0.0%	0.0%
Portfolio	1.1%	= 0.9%	+ -0.2%	+ 0.4%	7.5%	6.3%	100.0%	100.0%



### Acadian

Acadian believes that the larger the pool of potential investments, the greater the potential opportunity an active manager has to add value. They believe that stocks and markets have many attributes that are related to potential outperformance, and that a successful investment approach must be multi-faceted and highly adaptable. They believe that objectivity is crucial to investment success. Acadian's quantitative process and extensive database allows them to apply their valuation techniques to over 40,000 stocks worldwide. They do not limit the universe other than to employ screens based on invest-ability and availability of data. For example, they only evaluate stocks that have sufficient daily trading volume to be appropriate for institutional investment. Other than these practical considerations, they consider our investment universe to encompass all institutionally investable stocks in the world.



eA All EAFE Equity Net Accounts





#### **3 Year Risk Statistics**

NEPC, LLC

### Acadian

**R-Squared** 

0.9

1.0

#### **Top Positive Contributors Top Negative Contributors** Relative Relative **Characteristics** Contribution Contributio MSCI Return % Return % Portfolio n % % EAFE Number of Holdings 927 QANTAS AIRWAYS (A:QANX) 439 0.7% 47.8% FORTESCUE METALS GP. (A:FMGX) -0.1% -15.8% Weighted Avg. Market Cap. (\$B) 24.8 55.8 DEUTSCHE LUFTHANSA (D:LHA) 0.5% 44.9% STMICROELECTRONICS (PAR) -0.1% -6.1% (F:SGS) Median Market Cap. (\$B) 0.7 10.2 0.4% 37.3% IPSEN (F:IPN) BOLIDEN (W:BOL) -0.1% -7.0% Price To Earnings 20.3 21.0 LONZA GROUP 0.3% 25.1% UNILEVER CERTS. -0.1% 11.5% Price To Book 2.8 2.5 ARISTOCRAT LEISURE 0.3% 27.1% CANADIAN IMP.BK.COM. -0.1% -4.5% Price To Sales 1.5 2.1 ICON (ICLR) 0.3% 22.7% MYCRONIC (W:MYCR) 0.0% -9.4% Return on Equity (%) 17.9 13.1 FUJITSU 0.3% 20.6% BML (J:BMLL) 0.0% -11.6% Yield (%) SAMSUNG ELECTRONICS (KO:SGL) 2.4 3.0 0.2% 12.8% NORSK HYDRO -2.3% 0.0% 0.9 Beta 1.0 KONAMI HOLDINGS 0.2% 31.0% VOLVO 'B' (W:VOBF) 0.0% 17.9%

ACS ACTIV.CONSTR.Y SERV. (E:ACS)

#### Acadian Performance Attribution vs. MSCI EAFE

0.2%

15.5%

GLAXOSMITHKLINE (UKIR:GSK)

			Attribution Effects	;	R	eturns	Secto	r Weights
	Total	Selection	Allocation	Interaction				
	Effects	Effect	Effect	Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.4%	0.2%	-0.2%	0.4%	4.4%	-0.5%	9.4%	5.0%
Materials	0.2%	0.1%	0.0%	0.1%	4.1%	3.3%	12.4%	8.0%
Industrials	1.4%	1.0%	0.1%	0.3%	15.1%	7.2%	15.9%	14.3%
Consumer Discretionary	0.5%	0.6%	0.0%	-0.1%	10.1%	4.8%	10.8%	12.2%
Consumer Staples	-0.5%	0.4%	-0.3%	-0.6%	11.9%	8.3%	4.1%	11.4%
Health Care	1.5%	0.9%	0.1%	0.4%	16.7%	7.2%	13.5%	10.7%
Financials	-0.7%	-0.2%	-0.3%	-0.2%	6.0%	7.4%	13.7%	21.2%
Information Technology	1.3%	0.2%	0.6%	0.5%	12.5%	9.5%	14.6%	5.7%
Telecommunication Services	-0.2%	-0.1%	-0.1%	-0.1%	-0.9%	5.0%	1.4%	4.4%
Utilities	-0.3%	-0.3%	-0.1%	0.2%	-3.7%	7.2%	0.4%	3.3%
Real Estate	0.3%	0.3%	0.0%	0.0%	12.3%	4.7%	3.8%	3.7%
Cash	0.0%						0.0%	0.0%
Portfolio	3.9%	= 3.2%	+ -0.2%	+ 1.0%	10.2%	6.3%	100.0%	100.0%



3.6%

0.0%

Country Allocation

	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
Americas				
Brazil*	0.2%	0.0%	-7.3%	-6.6%
Canada	5.2%	0.0%	0.1%	0.9%
Mexico*	0.5%	0.0%	9.4%	7.4%
United States	0.4%	0.0%	21.0%	3.1%
Total-Americas	6.2%	0.0%	1.9%	
Europe				
Austria	1.7%	0.2%	13.9%	22.3%
Belgium	0.5%	1.2%	1.8%	4.9%
Denmark	1.4%	1.6%	17.9%	15.3%
Finland	3.0%	1.0%	11.1%	14.3%
France	7.3%	10.1%	11.2%	9.8%
Germany	8.4%	9.3%	15.5%	6.7%
Greece*	0.1%	0.0%	31.9%	34.2%
Ireland	1.5%	0.5%	22.7%	3.9%
Italy	3.3%	2.2%	8.9%	9.5%
Luxembourg	0.2%	0.0%	12.1%	6.3%
Netherlands	4.6%	3.4%	6.3%	8.1%
Norway	3.2%	0.6%	-1.3%	4.9%
Poland*	0.3%	0.0%	14.1%	14.1%
Portugal	0.4%	0.2%	12.7%	4.1%
Russia*	0.1%	0.0%	-16.0%	-9.9%
Spain	2.6%	3.3%	11.8%	8.3%
Sweden	5.2%	2.9%	5.8%	10.3%
Switzerland	4.7%	8.8%	14.4%	9.4%
United Kingdom	10.2%	17.9%	6.4%	4.7%
Total-Europe	58.9%	63.1%	10.1%	7.8%

#### **Country Allocation** Manager Manager Index Index Allocation (USD) Allocation (USD) Return (USD) Return (USD) AsiaPacific 0.8% -1.8% Australia 5.2% 7.7% 0.0% 0.0% -2.4% 2.7% China\* 3.5% 0.7% 7.2% Hong Kong 0.5% 19.7% 23.5% 3.3% 5.1% Japan Korea\* 4.4% 0.0% 1.0% 1.0% Malaysia\* 0.1% 0.0% -3.7% 3.9% New Zealand 0.1% 0.2% 1.2% 8.1% Philippines\* 0.0% 0.0% 4.6% 5.7% 1.2% 0.1% 5.2% Singapore 1.3% Taiwan\* 0.2% 0.0% 1.4% 2.1% Thailand\* 0.1% 0.0% 2.9% 0.1% 31.7% 36.2% 2.3% 3.9% Total-AsiaPacific Other 0.5% 0.7% 3.6% 6.7% Israel South Africa\* 2.0% 5.5% 0.0% 4.1% Turkey\* 0.0% 0.0% 7.4% 11.8% 4.0% 6.7% **Total-Other** 2.6% 0.7% Totals

91.9%

8.1%

100.0%

0.0%

4.0%

2.0%

6.3%

---

Developed

Emerging\*

### Mondrian

NEPC, LLC

The firm is an active value-oriented defensive manager. The firm's value driven investment philosophy is based on the belief that investments need to be evaluated in terms of their fundamental long-term value. The firm believes that the value of a company lies in its future income stream as dividends represent the most direct form of cash flow to a shareholder. The firm uses an inflation adjusted dividend discount model to derive the underlying value of a company. This methodology is applied consistently to individual securities across all markets and industries. The universe spans markets covered in the MSCI Indices and those developing markets with adequate investor protection and good repatriation procedures. The firm will then narrow the universe to a list of more than 1000 securities on the basis of value criteria, and then further reduce this to a shorter list of approximately 250 securities annually, for detailed fundamental analysis. The screens include basic value characteristics such as price to book, price to cash flow ratio, price to earnings ratio, and yield, as well as liquidity considerations. A focus list of approximately 80 securities is then created from that list of approximately 250 through fundamental research and deliberations of the Equity Strategy Committee. It is this list of securities on which more detailed fundamental analysis and financial modeling is carried out utilizing the dividend discount model, which is based on an evaluation of a company's future income stream, which is then discounted in real terms.



eA All EAFE Equity Net Accounts



### Mondrian

Ohanatariatian			Top Positive Contr	<b>ibutors</b> Relative		Top Negative Con	<b>tributors</b> Relative
Characteristics	Portfolio	MSCI EAFE		Contribution %	Return %		Contributio n %
Number of Holdings	56	927	TELIASONERA	0.3%	12.3%	HONDA MOTOR	-0.2%
Weighted Avg. Market Cap. (\$B)	63.2	55.8	ALLIANZ (D:ALV)	0.3%	11.2%	ENI	-0.2%
Median Market Cap. (\$B)	42.9	10.2	G4S	0.3%	13.5%	TESCO	-0.2%
Price To Earnings	19.5	21.0	ENEL	0.3%	13.4%	AHOLD KON.	-0.1%
Price To Book	1.9	2.5	KIRIN HOLDINGS (J:KB@N)	0.3%	9.0%	TELEFONICA (E:TEF)	-0.1%
Price To Sales	1.5	2.1	IBERDROLA	0.2%	10.3%	QBE INSURANCE GROUP (A:QBEX)	-0.1%
Return on Equity (%)	12.0	13.1	ABB LTD N (S:ABB)	0.2%	9.2%	AMEC FOSTER WHEELER	-0.1%
Yield (%)	3.8	3.0	SANOFI	0.2%	9.0%	(UKIR:AMFW)	-0.1%
Beta	0.9	1.0	TAIWAN SEMICON.MNFG. (TW:TSM)	0.2%	13.6%	KINGFISHER (UKIR:KGF)	0.0%
R-Squared	0.9	1.0	TAKEDA PHARMACEUTICAL (J:TA@N)	0.2%	8.3%	DAIMLER	0.0%

#### Mondrian Performance Attribution vs. MSCI EAFE

			Attribution Effects	3	R	eturns	Secto	or Weights
	Total	Selection	Allocation	Interaction				
	Effects	Effect	Effect	Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	-0.2%	-0.1%	-0.2%	0.1%	-2.2%	-0.5%	9.4%	5.0%
Materials	-0.1%	0.1%	0.0%	-0.2%	6.1%	3.3%	3.1%	8.0%
Industrials	-0.2%	-0.1%	-0.1%	0.0%	6.7%	7.2%	12.0%	14.3%
Consumer Discretionary	-0.8%	-0.8%	0.0%	0.0%	-1.9%	4.8%	10.3%	12.2%
Consumer Staples	-0.6%	-0.5%	0.0%	-0.1%	3.3%	8.3%	10.7%	11.4%
Health Care	0.2%	0.1%	0.1%	0.0%	8.0%	7.2%	12.3%	10.7%
Financials	-0.6%	-0.3%	-0.2%	-0.1%	6.0%	7.4%	15.9%	21.2%
Information Technology	0.2%	0.0%	0.2%	0.1%	9.3%	9.5%	8.1%	5.7%
Telecommunication Services	0.1%	-0.1%	0.1%	0.1%	3.1%	5.0%	10.4%	4.4%
Utilities	0.3%	0.0%	0.1%	0.3%	8.4%	7.2%	6.9%	3.3%
Real Estate	-0.1%	0.0%	-0.1%	0.0%	5.9%	4.7%	1.2%	3.7%
Cash	0.0%						0.0%	0.0%
Portfolio	-1.7%	= -1.7%	+ -0.2%	+ 0.2%	4.6%	6.3%	100.0%	100.0%

TOKIO MARINE HOLDINGS (J:MIHO)

0.0%

Return %

-8.6% -6.1%

-5.5%

-8.3%

-6.5%

-7.9% -8.7%

-2.1%

-2.1%

-1.8%

## Mondrian

	Country Alloc Manager Allocation (USD) Alloc	Index	Manager Return (USD)	Index Return (USD)
Europe				
Denmark	1.1%	1.6%	3.4%	15.3%
France	7.3%	10.1%	8.5%	9.8%
Germany	9.7%	9.3%	6.4%	6.7%
Italy	5.1%	2.2%	2.6%	9.5%
Netherlands	2.1%	3.4%	-8.0%	8.1%
Spain	5.7%	3.3%	3.3%	8.3%
Sweden	4.1%	2.9%	10.4%	10.3%
Switzerland	12.3%	8.8%	10.0%	9.4%
United Kingdom	24.0%	17.9%	2.2%	4.7%
Total-Europe	71.3%	63.1%	5.1%	7.8%

	Country A	Allocation		
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
AsiaPacific				
Australia	1.5%	7.6%	-7.9%	-1.9%
Hong Kong	1.4%	3.5%	-1.6%	7.2%
Japan	17.4%	23.5%	3.3%	5.1%
Singapore	6.6%	1.3%	4.3%	5.2%
Taiwan*	1.7%	0.0%	13.6%	9.1%
Total-AsiaPacific	28.7%	36.2%	3.4%	3.9%
Totals				
Developed	98.3%	100.0%	4.4%	6.3%
Emerging*	1.7%	0.0%	13.6%	



### SSgA ACWI Ex US

The MSCI ACWI ex US Index Strategy tends to hold each security that is held in the benchmark index, but the strategy will not be perfectly weighted in every index constituent on a daily basis. Holding securities in the perfect weights would require increased trading and therefore would incur costs. Thus, there will be securities in the fund that are either over- or under-weighted relative to the benchmark. The individual security mis-weights are very minimal, usually within 1 basis point. However, in aggregate, these small mis-weights can add up and result in tracking error if the mis-weighted securities' performance is volatile. SSgA seek to replicate the index by attempting to hold every security in the fund in its appropriate index weight. SSgA trade only when there is a change to the Index, when we have participant cash flows, or when we receive significant dividend income into the fund.



eA ACWI ex-US All Cap Equity Net Accounts

● SSgA ACWI Ex US ▲ MSCI ACWI ex USA





## SSgA ACWI Ex US

Characteristics			Top Positive Cont	ributors		Top Negative Contri	outors	
onardoteristics	Portfolio	MSCI ACWI ex USA		Relative Contribution %	Return %		Relative Contribution %	Return %
Number of Holdings	1,895	1,866	INTERCONEXION ELECTRICA (CB:ISA)	2.5%	8.9%	CORPORACION FINANCIERA COLOMBIANA	-1.4%	-8.8%
Weighted Avg. Market Cap. (\$B)	42.1	57.8	ALIBABA GROUP HLDG.SPN. ADR 1:1	0.1%	30.7%	(CB:VAL)		
Median Market Cap. (\$B)	7.7	7.6	WESTPAC BANKING	0.0%	-9.9%	INVERSIONES ARGOS	-0.9%	-2.6%
Price To Earnings	20.1	21.0	SIEMENS (IN:SIM)	0.0%	6.9%	TENCENT HOLDINGS	-0.2%	25.0%
Price To Book	3.2	2.6	BHARAT FORGE	0.0%	5.3%	NESTLE 'R'	-0.2%	16.9%
			NATIONAL AUS.BANK	0.0%	-8.0%	DAIWA HOUSE RESIDENTIAL	-0.2%	-8.5%
Price To Sales	2.7	2.2	AUS.AND NZ.BANKING GP.	0.0%	-6.8%	COLBUN MACHICURA	-0.1%	-1.6%
Return on Equity (%)	16.4	14.0	TOYOTA MOTOR	0.0%	-3.3%	HSBC HDG. (ORD \$0.50)	-0.1%	14.9%
Yield (%)	2.0	2.9	CAPITEC BANK	0.0%	12.7%	SAMSUNG ELECTRONICS	-0.1%	12.8%
Beta	1.0	1.0	CHENG SHIN RUB.INDS. (TW:CSI)	0.0%	2.9%	TAIWAN SEMICON.MNFG.	-0.1%	13.6%
R-Squared	1.0	1.0				NOVARTIS 'R'	-0.1%	12.2%

### SSgA ACWI Ex US Performance Attribution vs. MSCI ACWI ex USA

			Attribution Effects	S	R	eturns	Secto	r Weights
	Total	Selection	Allocation	Interaction				
	Effects	Effect	Effect	Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.2%	0.0%	0.3%	-0.1%	-4.3%	-2.6%	0.1%	6.8%
Materials	-1.1%	0.3%	-0.3%	-1.1%	-2.6%	1.7%	37.0%	8.0%
Industrials	-0.8%	0.3%	-0.5%	-0.6%	7.1%	7.0%	1.0%	11.9%
Consumer Discretionary	-0.5%	0.3%	-0.3%	-0.5%	5.8%	5.7%	2.5%	11.3%
Consumer Staples	-0.8%	-0.5%	-0.4%	0.2%	6.2%	7.6%	0.0%	9.9%
Health Care	-0.7%	-0.7%	-0.2%	0.2%	-4.6%	7.2%	1.6%	8.1%
Financials	-2.7%	-1.6%	-0.3%	-0.8%	-8.4%	5.9%	15.7%	23.3%
Information Technology	-1.0%	0.5%	-1.0%	-0.5%	18.0%	13.0%	1.7%	9.9%
Telecommunication Services	-0.2%	-1.2%	-0.1%	1.1%	-24.0%	4.2%	0.0%	4.5%
Utilities	2.2%	0.3%	0.8%	1.1%	6.1%	5.3%	38.0%	3.1%
Real Estate	-0.4%	-0.4%	0.0%	0.0%	-8.5%	5.9%	2.5%	3.2%
Cash	0.0%						0.0%	0.0%
Portfolio	-5.7%	= -2.7%	+ -1.9%	+ -1.1%	0.3%	6.0%	100.0%	100.0%

# SSgA ACWI Ex US

Country Allocation

	Manager Allocation (USD)	Index Allocation (USD)	Manager Return (USD)	Index Return (USD)
Americas				
Canada	0.1%	6.9%	-3.9%	0.9%
Chile*	7.9%	0.3%	-1.6%	-1.5%
Colombia*	80.6%	0.1%	0.3%	2.0%
Peru*	0.1%	0.1%	9.7%	7.4%
United States	0.5%	0.0%	11.5%	3.1%
Total-Americas	89.1%	10.0%	0.2%	0.1%
Europe				
Ireland	0.0%	0.3%	29.7%	3.9%
Netherlands	0.0%	2.4%	1.0%	8.1%
Poland*	0.0%	0.3%	6.2%	14.1%
Russia*	0.0%	0.9%	-24.0%	-9.9%
Total-Europe	0.1%	45.3%	-3.8%	7.5%

	Country A	llocation		
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
AsiaPacific				
China*	1.8%	6.3%	19.0%	10.7%
India*	4.6%	2.1%	-1.5%	3.0%
Japan	2.5%	16.4%	-8.5%	5.1%
Malaysia*	0.0%	0.6%	12.5%	5.1%
Taiwan*	1.5%	2.9%	2.2%	9.1%
Total-AsiaPacific	10.4%	41.9%	0.9%	5.8%
Other				
Israel	0.2%	0.5%	4.3%	6.6%
South Africa*	0.2%	1.6%	12.7%	3.6%
Total-Other	0.4%	2.7%	8.5%	4.4%
Totals				
Developed	3.3%	76.4%	-4.4%	5.8%
Emerging*	96.7%	23.6%	0.4%	6.4%



### Aberdeen

NEPC, LLC

Aberdeen believes, given the inefficiency of markets, that competitive long-term returns are achieved by identifying high quality stocks at attractive valuations and holding for the long term. It is their belief that sound fundamentals drive stock prices over time. They employ a fundamental bottom-up investment approach based upon a rigorous and disciplined proprietary research effort which originates with direct company due diligence visits. Portfolios are constructed to maximize their level of exposure to the most attractive companies filtered from the stock selection process. They run a representative or model' unconstrained portfolio that contains approximately 30 - 70 stocks at any given time. Once a stock has received unanimous approval by the team, the senior investment team members then decide which portfolio category it should enter (i.e. country, regional, Global Emerging Markets) and at what weighting. The Head of Global Emerging Markets then has responsibility to ensure that the decision is implemented.



eA Emg Mkts Equity Net Accounts



### Aberdeen

#### Characteristics

	Portfolio	MSCI Emerging Markets
Number of Holdings	65	845
Weighted Avg. Market Cap. (\$B)	37.0	68.1
Median Market Cap. (\$B)	16.0	5.4
Price To Earnings	22.3	20.5
Price To Book	3.6	2.8
Price To Sales	3.1	2.2
Return on Equity (%)	19.0	16.8
Yield (%)	2.5	2.4
Beta	0.9	1.0
R-Squared	0.9	1.0

Top Positive Contri	butors	
	Relative	
	Contribution %	Return %
SAMSUNG ELTN.PREF.	0.6%	13.5%
AIA GROUP	0.6%	17.2%
ITC (IN:IT)	0.5%	17.7%
YUM CHINA ORD	0.4%	45.0%
GPO FINANCE BANORTE	0.4%	15.5%
GRUPO AEROPORTUARIO DEL SURESTE ADR 1:10 (ASR)	0.4%	23.5%
FOM.ECO.MEXNO.SAB DE CV SPN.ADR 1:10	0.3%	11.9%
AYALA LAND (PH:ALI)	0.3%	19.6%
BIM BIRLESIK MAGAZALAR	0.3%	22.4%
HINDUSTAN UNILEVER	0.3%	20.0%

#### **Top Negative Contributors**

	Relative Contribution %	Return %
BNC.BRADESCO PF.SPN.ADR 1:1	-0.2%	-8.5%
MASSMART	-0.2%	-20.7%
TRUWORTHS INTL.	-0.2%	-15.5%
LUKOIL OAO ADR. (LON)	-0.2%	-8.0%
MAGNIT (RS:MGN)	-0.1%	-5.1%
TENARIS ADS. 1:2 (TS)	-0.1%	-7.2%
SIAM CEMENT FB	-0.1%	-4.1%
NAVER (KO:NHN)	-0.1%	-4.2%
MULTIPLAN EMPE. IMOBS.ON (BR:MUL)	-0.1%	-4.8%
VALE PREFERRED ADR 1:1 (VALE.P)	-0.1%	-6.2%

### Aberdeen Performance Attribution vs. MSCI Emerging Markets

			Attribution Effects	6	F	Returns	Secto	r Weights
	Total	Selection	Allocation	Interaction				
	Effects	Effect	Effect	Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.2%	0.1%	0.0%	0.0%	-3.1%	-4.6%	5.8%	7.3%
Materials	0.3%	0.1%	0.0%	0.1%	2.4%	-0.4%	9.7%	7.4%
Industrials	0.2%	1.1%	-0.2%	-0.8%	23.5%	3.6%	1.6%	5.9%
Consumer Discretionary	-0.1%	0.0%	0.0%	-0.1%	7.7%	8.5%	10.3%	10.4%
Consumer Staples	1.0%	0.2%	0.5%	0.3%	7.8%	5.2%	17.2%	7.0%
Health Care	0.1%	0.1%	-0.1%	0.0%	16.4%	4.5%	1.1%	2.4%
Financials	1.4%	0.6%	0.2%	0.6%	8.6%	4.1%	28.4%	24.2%
Information Technology	-2.7%	-1.8%	-1.8%	0.8%	7.9%	15.6%	13.7%	24.4%
Telecommunication Services	-0.2%	-0.2%	0.0%	0.0%	-1.4%	2.1%	4.8%	5.7%
Utilities	0.0%		0.0%	-		-1.5%	0.0%	2.8%
Real Estate	0.0%	-0.2%	0.5%	-0.4%	3.7%	11.4%	7.3%	2.6%
Cash	0.0%			-			0.0%	0.0%
Portfolio	0.1%	= 0.3%	+ -0.7%	+ 0.5%	6.5%	6.4%	100.0%	100.0%



	Country Allo	cation		
	Manager	Index	Manager	Index
	Allocation (USD) Allo	cation (USD)	Return (USD)	Return (USD)
Americas				
Brazil*	12.8%	7.7%	-2.5%	-6.6%
Chile*	2.2%	1.2%	2.8%	-1.5%
Mexico*	8.0%	3.7%	14.9%	7.4%
United States	1.2%	0.0%	45.0%	3.1%
Total-Americas	24.2%	13.5%	6.1%	-1.6%
Europe				
Hungary*	1.1%	0.3%	16.4%	19.6%
Luxembourg	1.5%	0.0%	-7.2%	6.4%
Poland*	1.2%	1.2%	8.2%	14.1%
Portugal	1.4%	0.0%	12.7%	4.1%
Russia*	4.2%	3.8%	-6.5%	-9.9%
United Kingdom	1.7%	0.0%	2.8%	4.7%
Total-Europe	11.1%	5.8%	1.1%	-0.4%

	Country A	llocation		
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
AsiaPacific				
Hong Kong	11.3%	0.0%	5.2%	7.2%
India*	17.5%	8.7%	10.7%	3.0%
Indonesia*	4.8%	2.5%	8.2%	8.8%
Korea*	8.2%	15.0%	8.1%	9.9%
Malaysia*	1.0%	2.4%	5.3%	5.1%
Philippines*	3.7%	1.2%	9.9%	7.4%
Taiwan*	5.0%	12.2%	11.5%	9.1%
Thailand*	5.2%	2.2%	0.1%	2.6%
Total-AsiaPacific	56.7%	71.0%	8.0%	8.8%
Other				
South Africa*	3.7%	7.0%	-14.1%	3.6%
Turkey*	4.3%	1.0%	19.6%	20.0%
Total-Other	8.0%	9.7%	4.2%	3.9%
Totals				
Developed	17.1%	0.0%	7.3%	
Emerging*	82.9%	100.0%	6.3%	6.4%



### Fixed Income Composite



#### Annualized Return vs. Annualized Standard Deviation 3 Years Ending June 30, 2017

U.S. Effective Style Map 3 Years Ending June 30, 2017



First Rolling Period

Last Rolling Period







Sectors

NEPC, LLC

NEPC, LLC

eA US Core Fixed Inc Net Accounts



Since Inception Risk Statistics





Characteristics



#### Characteristics



#### Characteristics

### PIMCO Core Plus

PIMCO's investment process expects to generate above-benchmark returns by building diversified, risk-averse portfolios based upon their long-term secular outlook. This is achieved by analyzing fundamental global trends in such areas as political factors, inflation, volatility, growth, and currency, amongst others. The three to five-year secular outlook is the core element of their decision-making process, and serves as a framework for portfolio implementation. In applying the secular outlook to the portfolio, such tools as duration position, yield curve posture and sector allocation are expressed to best represent the firm's view on the macro-economic environment. Bottom-up analysis of specific securities is also an important part of the firm's philosophy. Bonds are evaluated on a rich/cheap basis and fundamental research determines strong portfolio candidates.

# 50 0.0 -50 Quarter 1 Year 3 Years 5 Years

eA US Core Fixed Inc Net Accounts

● PIMCO Core Plus ▲ BBgBarc US Aggregate TR



#### **3 Year Risk Statistics**



June 30, 2017

### PIMCO Unconstrained

The PIMCO Unconstrained Bond Strategy is an absolute return-oriented, investment grade quality fixed income strategy that embodies PIMCO's secular thinking, global themes, and integrated investment process without the constraints of a benchmark or significant sector/instrument limitations. The strategy is designed to offer the traditional benefits of a core bond portfolio - seeks maximum long-term return consistent with capital preservation and prudent management- but with higher potential alpha and the potential to mitigate downside risk to a greater degree than what is reasonably possible from traditional active fixed income management approaches as the strategy allows for more manager discretion to adjust duration exposure, allocate across sectors and otherwise express the firm's active views. The strategy is governed by PIMCO's investment philosophy and unique, disciplined secular investment process, which focuses on long-term economic, social and political trends that may have lasting impacts on investment returns.



eA Global Unconstrained Fixed Inc Net Accounts

PIMCO Unconstrained ▲ 25% HY, 25% EMD, 50% BC Agg



### PIMCO Unconstrained

















June 30, 2017

### GAM Unconstrained Bond - USD GIPS Composite

Portfolio Sensitivity						
		Month end				
Investment strategy	Bond Weight (%)	Bonds Duration Contribution	Derivatives Duration Contribution	Total Duration Contribution		
Developed Markets	86.0	3.23	-4.37	-1.14		
Rates	16.9	1.34	-4.35	-3.01		
Inv Grade Credit	43.1	1.26	-0.01	1.25		
High Yield Credit	14.9	0.41	0.00	0.41		
Convertible	11.2	0.21	-0.01	0.20		
Cash and FX	0.0	0.00	0.00	0.00		
Emerging Markets	1.2	0.04	0.75	0.79		
Rates	0.8	0.03	0.75	0.78		
Inv Grade Credit	0.0	0.00	0.00	0.00		
High Yield Credit	0.0	0.00	0.00	0.00		
Convertible	0.4	0.01	0.00	0.01		
Cash and FX	0.0	0.00	0.00	0.00		
Total	87.2	3.26	-3.61	-0.35		

#### -

### Characteristics

	Month end
	GAM Unconstrained Bond Strategy*
Value at Risk % (97.5%, 22 days)	0.94
Coupon %	2.66
Yield to Maturity %	2.22
Current Yield %	2.61
Effective Duration	-0.35
Spread Duration	1.59
Equity Delta**	3.08
Currency Delta	-6.75
Credit Quality***	A-





NEPC, LLC

### KDP

KDP believes that the key to delivering superior risk-adjusted returns lies in controlling credit risk. To do this the firm combines rigorous, bottom-up credit analysis with an active, top-down management approach that ensures a strong overall credit profile and broad portfolio diversification. KDP employs a value-oriented approach to investing that leverages our strong fundamental research capabilities, and seeks to take advantage of market inefficiencies and anomalies on an opportunistic basis in order to capture excess credit spread. KDP places a strong emphasis on issuer, industry and sector diversification, and tends to focus on larger companies, as they tend to be more resilient in times of difficulty and their securities tend to be more liquid. KDP uses a proprietary "Default Risk Ranking (DRR)" System to screen securities eligible for purchase in its portfolios. By assigning default risk probabilities to companies covered, the DRR system is used to identify securities that are overvalued or undervalued relative to the market. The firm minimizes portfolio volatility in part by investing in securities of companies that exhibit greater resilience in times of financial distress. KDP focuses on companies with good management, stable to improving earnings, good balance sheet liquidity and a strong competitive position in industries with favorable underlying fundamentals.



#### eA US High Yield Fixed Inc Net Accounts









#### Characteristics

KDP BBgBarc US High Yield TR



Characteristics



NE NEPC, LLC


eA US High Yield Fixed Inc Net Accounts

• Guggenheim 🔺 BBgBarc US High Yield TR

Since Inception Risk Statistics





### BlackRock TIPS

In the management of an inflation-linked bond portfolio, BlackRock will utilize multiple strategies to outperform the index. These include: duration and yield curve positioning, technical supply/demand anomalies related primarily to the ILB auction cycle, seasonal factors related to non-seasonally adjusted inflation-linked indices, break-even spread between ILBs and nominal securities, and, if applicable, sector and country allocation. The team compares nominal yields with real yields and factor in their views on inflation. If the yield spread is less than the inflation rate, then ILBs are considered to trade cheaply to nominal bonds and have greater relative value. The portfolio currently holds about 31 positions, out of 27-29 issues in the benchmark. Turnover is moderate, at around 100-150%.



eA TIPS / Infl Indexed Fixed Inc Net Accounts

● BlackRock TIPS ▲ BBgBarc US TIPS TR



#### **3 Year Risk Statistics**





Characteristics



### Characteristics



#### Characteristics



eA All Emg Mkts Fixed Inc Net Accounts





## AQR Global Risk Premium Fund



#### Estimated Exposure Breakdown Long Exposure (% of NAV)

Equity Risk	
Global Developed Equities	31%
Global Emerging Equities	7%
U.S. Mid Cap Equities	2%
U.S. Small Cap Equities	1%
Total Equity Risk	41%
Nominal Interest Rate Risk	
Global Developed Bonds	93%
Global Emerging Bonds	23%
Total Nominal Interest Rate Risk	116%
Inflation Risk	
Commodities - Production Weighted	9%
Commodities - Volatility Weighted	15%
Global Inflation-Linked Bonds	35%
Total Inflation Risk	59%
Credit/Currency Risk	
Global High Yield Spread	32%
Global Corporate Credit Spread	55%
Emerging Credit Spread	3%
Emerging Currencies	25%
Total Credit/Currency Risk	115%
Total Fund Exposures	331%

	Long Exposure (% of NAV)
Equity Market Exposures	
Americas	24%
Europe	7%
Asia ex-Japan	7%
Japan	3%
Total Equity Market Exposures	41%
Bond Market Exposures - Nominal and Inflation-Lin	nked
Americas	64%
Europe	58%
Asia	29%
Total Bond Market Exposures	151%
Emerging Currency Exposures	
Asia	7%
Europe	11%
Latin America	7%
Dollar Block ex-U.S.	0%
Total Emerging Currency Exposures	25%

Source: AQR



## AQR Global Risk Premium Fund





## Mellon Dynamic Growth Fund

		Country	Current Month %			Country
		Australia	5.6		U.S. 114.8%	United States
	Developed ex-U.S. Equity 43.6%	Canada	3.0			Australia
		France	1.8			Canada
		Germany	6.8	Diversifying Strategies		Denmark
		Hong Kong	-1.9		Developed ex-U.S. -14.8%	Euro
		Italy	1.6			Japan
Growth 60.0%		Japan	10.6			New Zealand
Growth 69.9%		Netherlands	3.3	Currency 100.0%		Norway
		Spain	1.1			Sweden
		Switzerland	1.1			Switzerland
		United Kingdom	9.1			United Kingdom
		Other	1.4			Other
	U.S. Equity 21.0%	United States	21.0			
	High Yield Bonds 5.3%		5.3			
Defensive 30.9%	Developed ex U.S. Bonds -15.2%		-15.2			
	U.S. Bonds 46.1%		46.1			
Real 10.7%	Commodity 5.7%		5.7			
	Inflation-Linked Bonds 5.0%		5.0			

1. Any collective investment funds presented are maintained by The Bank of New York Mellon. Employees of Mellon Capital manage the assets of any collective investment funds in their capacity as dual officers of The Bank of New York Mellon. Not all investors may be eligible to invest in the fund(s) shown above.

Copyright © 2017 Mellon Capital Management Corporation - For Client Use Only

➤ A BNY MELLON COMPANY<sup>™</sup>

Current Month % 114.8 -3.0 0.0 10.0 10.0 0.4 -4.1 0.3 2.4 -7.3 -13.9 0.4

Source: Mellon Capital Management



## Mellon Dynamic Growth Fund

		Growth				D	efensive		F	Diversifying Strategies		
	Fund Return %	Developed ex-U.S. Equity	U.S. Equity	EM Equity	High Yield Bonds	EM Debt	Government Bonds ex-U.S.	U.S. Bonds	IG Corporates	Commodity	Inflation - Linked Bonds	Currency
Month-to-Date	-1.09	-0.49	0.13	0.00	0.01	0.00	0.19	-0.32	0.00	-0.16	-0.05	-0.40
Quarter-to-Date	1.09	0.85	0.52	0.00	0.11	0.00	0.75	0.79	0.00	-0.31	0.09	-1.71
Year-to-Date	4.18	3.06	1.15	0.00	0.25	0.00	0.30	1.51	0.00	-0.32	0.16	-1.92
1 Year	3.83	6.71	1.47	0.00	0.74	0.00	-0.61	-2.93	0.00	-0.98	0.05	-0.61
3 Year	5.32	2.53	0.27	-0.37	0.36	-0.09	-0.40	1.34	0.00	-0.17	0.00	1.85
5 Year	7.13	3.37	2.39	-0.11	0.37	-0.04	-0.25	0.84	0.07	-0.06	0.14	0.40
7 Year	8.29	2.78	2.99	0.01	0.26	-0.03	0.27	0.71	0.13	0.07	0.33	0.77
10 Year	-	-	-	-	-	-	-	-	-	-	-	-
Since Inception <sup>2</sup>	6.76	2.00	2.35	-0.10	0.26	-0.03	0.40	0.68	0.14	0.00	0.33	0.73







## Index Performance Summary as of 06/30/2017

	2009	2010	2011	2012	2013	2014	2015	2016	Q1	April	May	June	Q2	YTD
MSCI EM	78.5%	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	11.2%	11.4%	2.2%	3.0%	1.0%	6.3%	18.4%
MSCI EAFE	31.8%	7.8%	-12.1%	17.3%	22.8%	-4.9%	-0.8%	1.0%	7.2%	2.5%	3.7%	-0.2%	6.1%	13.8%
MSCI ACWI	34.6%	12.7%	-7.3%	16.1%	22.8%	4.2%	-2.4%	7.9%	6.9%	1.6%	2.2%	0.5%	4.3%	11.5%
JPM GBI-EM Global Div	22.0%	15.7%	-1.8%	16.8%	-9.0%	-5.7%	-14.9%	9.9%	6.5%	1.2%	2.0%	0.5%	3.6%	10.4%
S&P 500	26.5%	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	6.1%	1.0%	1.4%	0.6%	3.1%	9.3%
Russell 1000	28.4%	16.1%	1.5%	16.4%	33.1%	13.2%	0.9%	12.1%	6.0%	1.1%	1.3%	0.7%	3.1%	9.3%
BC US STRIPS 20+ Yr	-36.0%	10.9%	58.5%	3.0%	-21.0%	46.4%	-3.7%	1.4%	1.8%	1.8%	3.1%	1.1%	6.1%	8.0%
BC US Long Credit	16.8%	10.7%	17.1%	12.7%	-6.6%	16.4%	-4.6%	10.2%	1.7%	1.6%	2.1%	1.0%	4.7%	6.4%
JPM EMBI Glob Div	29.8%	12.2%	7.3%	17.4%	-5.3%	7.4%	1.2%	10.2%	3.9%	1.6%	0.9%	-0.1%	2.2%	6.2%
BC US Govt/Cred Long	1.9%	10.2%	22.5%	8.8%	-8.8%	19.3%	-3.3%	6.7%	1.6%	1.6%	2.0%	0.8%	4.4%	6.0%
Russell 2500	34.4%	26.7%	-2.5%	17.9%	36.8%	7.1%	-2.9%	17.6%	3.8%	0.8%	-1.1%	2.5%	2.1%	6.0%
Russell 2000	27.2%	26.9%	-4.2%	16.3%	38.8%	4.9%	-4.4%	21.3%	2.5%	1.1%	-2.0%	3.5%	2.5%	5.0%
BC US Corporate HY	58.2%	15.1%	5.0%	15.8%	7.4%	2.5%	-4.5%	17.1%	2.7%	1.2%	0.9%	0.1%	2.2%	4.9%
BC Global Agg	-6.5%	-5.3%	-5.3%	-4.1%	2.7%	-0.6%	3.3%	2.1%	1.8%	1.1%	1.5%	-0.1%	2.6%	4.4%
BC Municipal	12.9%	2.4%	10.7%	6.8%	-2.6%	9.1%	3.3%	0.2%	1.6%	0.7%	1.6%	-0.4%	2.0%	3.6%
CS Hedge Fund	18.6%	10.9%	-2.5%	7.7%	9.7%	4.1%	-0.7%	1.2%	2.1%	0.4%	0.8%	-	1.3%	3.4%
FTSE NAREIT Eqy REITs	28.0%	28.0%	8.3%	18.1%	2.5%	30.1%	3.2%	8.5%	1.2%	0.1%	-0.8%	2.2%	1.5%	2.7%
BC US Agg Bond	5.9%	6.5%	7.8%	4.2%	-2.0%	6.0%	0.5%	2.6%	0.8%	0.8%	0.8%	-0.1%	1.4%	2.3%
CS Leveraged Loan	44.9%	10.0%	1.8%	9.4%	6.2%	2.1%	-0.4%	9.9%	1.2%	0.4%	0.4%	-0.1%	0.8%	2.0%
BC US Agg Interm	6.5%	6.1%	6.0%	3.6%	-1.0%	4.1%	1.2%	2.0%	0.7%	0.6%	0.5%	-0.3%	0.9%	1.6%
BC TIPS	11.4%	6.3%	13.6%	7.0%	-8.6%	3.6%	-1.4%	4.7%	1.3%	0.6%	0.0%	-0.9%	-0.4%	0.9%
BC US Govt/Cred 1-3 Yr	3.8%	2.8%	1.6%	1.3%	0.6%	0.8%	0.7%	1.3%	0.4%	0.2%	0.2%	0.0%	0.3%	0.7%
Alerian MLP	76.4%	35.9%	13.9%	4.8%	27.6%	4.8%	-32.6%	18.3%	3.9%	-1.3%	-4.5%	-0.6%	-6.4%	-2.7%
BBG Commodity	18.9%	16.8%	-13.3%	-1.1%	-9.5%	-17.0%	-24.7%	11.8%	-2.3%	-1.5%	-1.4%	-0.3%	-3.2%	-5.6%

Source: Bloomberg, Barclays, Alerian, Nareit, MSCI, JP Morgan, Credit Suisse



## Near Term Broad Market Performance Summary as of 06/30/2017



Source: Bloomberg, Standard and Poors, Russell, MSCI, Barclays, JP Morgan

\*1 Yr Range: Represents range of cumulative high/low daily index returns for an investment made one year ago



## Long Term Broad Market Performance Summary as of 06/30/2017



Source: Bloomberg, Standard and Poors, Russell, MSCI, Barclays, JP Morgan



## US Economic Indicators



Source: Bloomberg, Federal Reserve, Bureau of Labor Statistics



### Corporate profits fall off recent highs



### Unemployment is still declining



### Manufacturing growth hit a multi-year high





Source: Bloomberg, Bureau of Economic Analysis

### International Economic Indicators



Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat





UK leading indicators have begun to decline

Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat



## Emerging Market Economic Indicators



### EM inflation varies by country



### **Relatively healthy debt/GDP ratios**

Source: Bloomberg, IMF





#### Source: Bloomberg, IMF







## Global Equity



Source: Bloomberg, Standard and Poors, MSCI \*MSCI EAFE is ex UK Telecom \*Standard deviation calculations on 20 years of data except S&P 500 (30 years)





Source: Bloomberg, Standard and Poors, MSCI



### Equities have experienced positive shortterm performance



## US Equity



Source: Bloomberg, Standard and Poors, Russell \*Russell 2000 PE is index adjusted positive\* Standard deviation calculations based on 20 years of data



**Profit margins experience an uptick** 





### US equity continues to post positive returns



Source: Bloomberg, Standard and Poors, Russell

Source: Bloomberg, Standard and Poors, Russell

## International Equity



Source: Bloomberg, MSCI, FTSE \*UK represented by FTSE 100 Index \*Standard deviation calculations based on 20 years of data, with Europe since 12/1998



### Profit margins continue trending higher





### Strong short-term performance for EAFE

Source: Bloomberg, MSCI



## Emerging Markets Equity

NEPC, LLC



Source: Bloomberg, MSCI

\*Standard deviation calculations based on 20 years of data, with Russia since 01/1998



### EM posts strong short-term returns

2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

Brazil continues to rebound off earnings

contraction

Brazil

India



Source: Bloomberg, MSCI

20%

15%

10%

5%

0%

-5%

-10%

-15%

Source: Bloomberg

Russia

China

## Global Equity by Sector



Source: Bloomberg, MSCI





Source: Bloomberg, MSCI



Source: Bloomberg, Standard and Poors



# Financials sector weight has decreased in favor of Info Tech and Industrials

Source: Bloomberg, MSCI



## **US Fixed Income**



Source: Bloomberg, Barclays

\*Standard deviation calculations based on 20 years of data

### Similar duration/yield profiles among core indices



### Yields have declined slightly relative to three months prior



Source: Bloomberg, Barclays





Source: Bloomberg, Barclays



### Rates



### Interest rate expectations have increased relative to prior months



Source: Bloomberg



### Sovereign bond yields increased, though remain in negative or neutral territory



## 10-2 spreads continue tightening