



Pension Plan

Employees' Retirement System
of Milwaukee County
Monthly Update
December 31, 2018

Market Value: \$1,611.5 Million and 100.0% of Fund

Investment Manager	Asset Class	Status	Reason
NTGI Agg Bond Index	Core Fixed Income	In Compliance	---
Galliard	Core Fixed Income	In Compliance	---
Boston Partners	Large-Cap Value	In Compliance	---
NTGI S&P 500 Index	Large-Cap Core	In Compliance	---
NTGI S&P 400 Mid-Cap (Index)	Mid-Cap Core	In Compliance	---
Silvercrest Asset Management	Small-Cap Value	In Compliance	---
NTGI ACWI Ex-US IMI (Index)	Non-U.S. All-Cap Core	In Compliance	---
Segall Bryant & Hamill Intl Sm Cap	Non-U.S. Small-Cap Value	In Compliance	---
OFI Institutional Asset Management	Emerging Markets	Termination	Professional Turnover
QMA Emerging Markets Small Cap	Emerging Markets	In Compliance	---
ABS	Hedged Equity Hedge FoF	Alert	Performance
Parametric Defensive Equity	Long/Short Hedge Fund	In Compliance	---
American Realty Advisors	Core Real Estate	In Compliance	---
Morgan Stanley	Core Real Estate	In Compliance	---
UBS	Core Real Estate	In Compliance	---
IFM	Core Infrastructure	In Compliance	---
J.P. Morgan Infrastructure	Core Infrastructure	In Compliance	---
Siguler Guff III	Private Equity	In Compliance	---
Siguler Guff II	U.S. Private Equity FoF	In Compliance	---
Adams Street	U.S. Private Equity FoF	In Compliance	---
Mesirow VI	U.S. Private Equity FoF	In Compliance	---
Mesirow Private Equity Fund VII-A	U.S. Private Equity FoF	In Compliance	---

Investment Manager Evaluation Terminology

The following terminology has been developed by Marquette Associates to facilitate efficient communication among the Investment Manager, Investment Consultant, and the Plan Sponsor. Each term signifies a particular status with the Fund and any conditions that may require improvement. In each case, communication is made only after consultation with the Trustees and/or the Investment Committee of the Plan.

In Compliance – The investment manager states it is acting in accordance with the Investment Policy Guidelines.

Alert – The investment manager is notified of a problem in performance (usually related to a benchmark or volatility measure), a change in investment characteristics, an alteration in management style or key investment professionals, and/or any other irregularities.

On Notice – The investment manager is notified of continued concern with one or more Alert issues. Failure to improve upon stated issues within a specific time frame justifies termination.

Termination – The Trustees have decided to terminate the investment manager. The investment manager is notified and transition plans are in place.

Total Fund Composite

Market Value: \$1,611.5 Million and 100.0% of Fund

Ending December 31, 2018

	Asset Class	Market Value (\$)	3 Mo Net Cash Flows (\$)	% of Portfolio	Policy %	Policy Difference (\$)
Total Fund Composite		1,611,458,073	-38,807,540	100.0	100.0	0
Fixed Income Composite		314,750,904	20,737,415	19.5	23.0	-55,884,453
NTGI Agg Bond Index	Core Fixed Income	116,152,885	115,579,600	7.2		
Galliard	Core Fixed Income	198,589,424	-4,972,518	12.3		
U.S. Equity Composite		336,286,637	-38,733,782	20.9	23.0	-34,348,720
Boston Partners	Large-Cap Value	83,740,084	-20,849,882	5.2	5.5	-4,890,110
NTGI S&P 500 Index	Large-Cap Core	113,991,767	112,163,751	7.1	8.0	-14,924,879
NTGI S&P 400 Mid-Cap (Index)	Mid-Cap Core	101,099,159	52,351,549	6.3	7.0	-11,702,906
Silvercrest Asset Management	Small-Cap Value	37,415,413	-8,546,859	2.3	2.5	-2,871,038
International Equity Composite		269,145,182	-113,202	16.7	15.5	19,369,181
NTGI ACWI Ex-US IMI (Index)	Non-U.S. All-Cap Core	164,861,556	0	10.2	12.0	-28,513,412
Segall Bryant & Hamill Intl Sm Cap	Non-U.S. Small-Cap Value	56,023,194	0	3.5	2.5	15,736,742
OFI Institutional Asset Management	Emerging Markets	35,043,583	-82,252	2.2		
QMA Emerging Markets Small Cap	Emerging Markets	13,216,849	-30,950	0.8	1.0	-2,897,732
Hedged Equity Composite		144,826,214	27,732	9.0	8.5	7,852,278
ABS	Hedged Equity Hedge FoF	68,053,536	27,732	4.2	4.0	3,595,213
Parametric Defensive Equity	Long/Short Hedge Fund	76,772,678	0	4.8	4.5	4,257,065
Real Estate Composite		184,008,819	-2,113,016	11.4	10.0	22,863,012
American Realty Advisors	Core Real Estate	42,671,840	-523,638	2.6		
Morgan Stanley	Core Real Estate	98,170,965	-1,152,208	6.1		
UBS	Core Real Estate	43,166,014	-437,170	2.7		
Infrastructure Composite		143,755,819	-17,511,118	8.9	10.0	-17,389,988
IFM	Core Infrastructure	74,934,189	-7,975,156	4.7		
J.P. Morgan Infrastructure	Core Infrastructure	68,821,631	-9,535,962	4.3		

Total Fund Composite

Market Value: \$1,611.5 Million and 100.0% of Fund

Ending December 31, 2018

	Asset Class	Market Value (\$)	3 Mo Net Cash Flows (\$)	% of Portfolio	Policy %	Policy Difference (\$)
Private Equity Composite		179,358,087	-7,697,971	11.1	10.0	18,212,279
Progress	U.S. Private Equity FoF	398	0	0.0		
Brinson 1998	U.S. Private Equity FoF	7,985	0	0.0		
Brinson 1999	U.S. Private Equity FoF	39,532	0	0.0		
Brinson 2000	U.S. Private Equity FoF	102,106	-90,167	0.0		
Brinson 2001	U.S. Private Equity FoF	447,339	0	0.0		
Brinson 2002	U.S. Private Equity FoF	137,382	0	0.0		
Brinson 2003	U.S. Private Equity FoF	301,361	0	0.0		
Brinson 2004	U.S. Private Equity FoF	319,934	-76,727	0.0		
Adams Street 2005	U.S. Private Equity FoF	2,503,576	-342,280	0.2		
Adams Street 2009	U.S. Private Equity FoF	24,048,704	-882,464	1.5		
Adams Street 2012	Global Divers. Private Equity FoF	35,869,974	0	2.2		
Adams Street Co-Investment III	Private Equity Co- Investment	32,870,523	2,160,000	2.0		
Siguler Guff II	U.S. Private Equity FoF	31,382,500	-8,192,332	1.9		
Siguler Guff III	U.S. Private Equity FoF	20,060,708	-2,177,079	1.2		
Mesirov VI	U.S. Private Equity FoF	25,224,881	-296,921	1.6		
Mesirov Private Equity Fund VII-A	U.S. Private Equity FoF	6,041,184	2,200,000	0.4		
Total Cash Equivalents		39,366,625	6,598,564	2.4	0.0	39,366,625

Total Fund Composite

Annualized Performance (Net of Fees)

Market Value: \$1,611.5 Million and 100.0% of Fund

Ending December 31, 2018

	1 Mo	3 Mo	YTD	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	7 Yrs	10 Yrs
Total Fund Composite	-3.4%	-6.7%	-2.9%	-2.9%	6.1%	6.4%	5.4%	5.4%	7.6%	8.3%
<i>Total Fund Benchmark</i>	-3.4%	-6.4%	-4.0%	-4.0%	4.8%	5.7%	4.6%	4.7%	7.0%	8.1%
<i>InvestorForce Public DB Net Rank</i>	13	21	12	12	9	11	2	7	25	30
Fixed Income Composite	1.5%	1.2%	-0.1%	-0.1%	1.4%	1.7%	1.6%	2.4%	2.1%	4.4%
<i>BBgBarc US Aggregate TR</i>	1.8%	1.6%	0.0%	0.0%	1.8%	2.1%	1.7%	2.5%	2.1%	3.5%
<i>InvestorForce Public DB Total Fix Inc Net Rank</i>	13	52	64	64	85	72	59	36	58	48
U.S. Equity Composite	-9.8%	-15.2%	-8.4%	-8.4%	4.2%	7.0%	5.0%	5.9%	11.0%	12.4%
<i>Wilshire 5000 Total Market</i>	-9.3%	-14.3%	-5.3%	-5.3%	7.1%	9.1%	6.9%	8.1%	12.5%	13.2%
<i>InvestorForce Public DB US Eq Net Rank</i>	72	76	87	87	89	91	82	82	68	61
International Equity Composite	-4.9%	-12.5%	-16.7%	-16.7%	3.9%	4.0%	2.5%	1.5%	5.5%	6.3%
<i>MSCI ACWI ex USA</i>	-4.5%	-11.5%	-14.2%	-14.2%	4.5%	4.5%	1.8%	0.7%	4.8%	6.6%
<i>InvestorForce Public DB ex-US Eq Net Rank</i>	56	59	75	75	61	67	44	27	54	75
Hedged Equity Composite	-3.9%	-8.1%	-4.6%	-4.6%	3.4%	2.8%	2.6%	3.1%	5.8%	--
<i>HFRX Equity Hedge Index</i>	-4.2%	-8.6%	-9.4%	-9.4%	-0.2%	-0.1%	-0.7%	-0.3%	2.0%	1.4%
<i>Russell 3000</i>	-9.3%	-14.3%	-5.2%	-5.2%	7.1%	9.0%	6.8%	7.9%	12.5%	13.2%
<i>MSCI ACWI</i>	-7.0%	-12.8%	-9.4%	-9.4%	6.0%	6.6%	4.3%	4.3%	8.4%	9.5%
<i>InvestorForce Public DB Hedge Funds Net Rank</i>	94	94	81	81	14	7	7	20	1	--
Real Estate Composite	1.9%	1.8%	7.5%	7.5%	7.5%	7.6%	9.2%	10.0%	10.7%	13.5%
<i>Custom Real Estate Benchmark</i>	0.5%	1.5%	7.4%	7.4%	7.0%	7.3%	8.9%	9.4%	10.0%	13.1%
<i>NFI</i>	0.5%	1.5%	7.4%	7.4%	7.0%	7.3%	8.9%	9.4%	10.0%	6.0%
<i>InvestorForce All DB Real Estate Priv Net Rank</i>	7	8	33	33	28	32	33	29	13	1
Infrastructure Composite	0.0%	-0.1%	10.0%	10.0%	13.7%	10.2%	8.5%	6.7%	7.3%	--
<i>CPI +4%</i>	0.3%	0.8%	6.3%	6.3%	6.3%	6.2%	5.9%	5.6%	5.6%	5.9%
Private Equity Composite	0.0%	0.0%	12.8%	12.8%	14.4%	13.2%	11.5%	11.4%	11.2%	11.7%
<i>Cambridge Associates All PE</i>	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%

Investment Manager

Annualized Performance (Net of Fees)

Market Value: \$1,611.5 Million and 100.0% of Fund

Ending December 31, 2018

	1 Mo	3 Mo	YTD	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	7 Yrs	10 Yrs
Total Fund Composite	-3.4%	-6.7%	-2.9%	-2.9%	6.1%	6.4%	5.4%	5.4%	7.6%	8.3%
<i>Total Fund Benchmark</i>	-3.4%	-6.4%	-4.0%	-4.0%	4.8%	5.7%	4.6%	4.7%	7.0%	8.1%
<i>InvestorForce Public DB Net Rank</i>	13	21	12	12	9	11	2	7	25	30
Fixed Income Composite	1.5%	1.2%	-0.1%	-0.1%	1.4%	1.7%	1.6%	2.4%	2.1%	4.4%
<i>BBgBarc US Aggregate TR</i>	1.8%	1.6%	0.0%	0.0%	1.8%	2.1%	1.7%	2.5%	2.1%	3.5%
<i>InvestorForce Public DB Total Fix Inc Net Rank</i>	13	52	64	64	85	72	59	36	58	48
<i>NTGI Agg Bond Index</i>	--	--	--	--	--	--	--	--	--	--
<i>BBgBarc US Aggregate TR</i>	1.8%	1.6%	0.0%	0.0%	1.8%	2.1%	1.7%	2.5%	2.1%	3.5%
<i>eV US Core Fixed Inc Net Rank</i>	--	--	--	--	--	--	--	--	--	--
<i>Galliard</i>	1.4%	1.1%	-0.1%	-0.1%	--	--	--	--	--	--
<i>BBgBarc US Aggregate TR</i>	1.8%	1.6%	0.0%	0.0%	1.8%	2.1%	1.7%	2.5%	2.1%	3.5%
<i>eV US Core Fixed Inc Net Rank</i>	77	70	42	42	--	--	--	--	--	--
U.S. Equity Composite	-9.8%	-15.2%	-8.4%	-8.4%	4.2%	7.0%	5.0%	5.9%	11.0%	12.4%
<i>Wilshire 5000 Total Market</i>	-9.3%	-14.3%	-5.3%	-5.3%	7.1%	9.1%	6.9%	8.1%	12.5%	13.2%
<i>InvestorForce Public DB US Eq Net Rank</i>	72	76	87	87	89	91	82	82	68	61
<i>Boston Partners</i>	-9.9%	-13.5%	-8.4%	-8.4%	4.7%	7.9%	4.7%	6.1%	12.1%	12.4%
<i>Russell 1000 Value</i>	-9.6%	-11.7%	-8.3%	-8.3%	2.1%	7.0%	4.2%	5.9%	11.0%	11.2%
<i>eV US Large Cap Value Equity Net Rank</i>	61	48	43	43	28	26	37	37	11	23
<i>NTGI S&P 500 Index</i>	--	--	--	--	--	--	--	--	--	--
<i>S&P 500</i>	-9.0%	-13.5%	-4.4%	-4.4%	7.9%	9.3%	7.2%	8.5%	12.7%	13.1%
<i>eV US Large Cap Core Equity Net Rank</i>	--	--	--	--	--	--	--	--	--	--
<i>NTGI S&P 400 Mid-Cap (Index)</i>	-11.3%	-17.3%	-11.0%	-11.0%	--	--	--	--	--	--
<i>S&P 400 MidCap</i>	-11.3%	-17.3%	-11.1%	-11.1%	1.7%	7.7%	5.1%	6.0%	11.2%	13.7%
<i>eV US Mid Cap Core Equity Net Rank</i>	78	67	49	49	--	--	--	--	--	--
<i>Silvercrest Asset Management</i>	-11.5%	-18.1%	-15.8%	-15.8%	-2.9%	6.8%	4.4%	4.5%	--	--
<i>Russell 2000 Value</i>	-12.1%	-18.7%	-12.9%	-12.9%	-3.1%	7.4%	3.5%	3.6%	9.6%	10.4%
<i>eV US Small Cap Value Equity Net Rank</i>	43	34	62	62	45	33	22	23	--	--

Investment Manager

Annualized Performance (Net of Fees)

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Ending December 31, 2018

	1 Mo	3 Mo	YTD	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	7 Yrs	10 Yrs
International Equity Composite	-4.9%	-12.5%	-16.7%	-16.7%	3.9%	4.0%	2.5%	1.5%	5.5%	6.3%
MSCI ACWI ex USA	-4.5%	-11.5%	-14.2%	-14.2%	4.5%	4.5%	1.8%	0.7%	4.8%	6.6%
InvestorForce Public DB ex-US Eq Net Rank	56	59	75	75	61	67	44	27	54	75
NTGI ACWI Ex-US IMI (Index)	-4.8%	-11.8%	-14.3%	-14.3%	4.7%	4.7%	2.3%	1.1%	--	--
MSCI ACWI ex USA IMI	-4.7%	-11.9%	-14.8%	-14.8%	4.4%	4.4%	2.1%	0.8%	5.1%	7.0%
eV Non-US Diversified Eq Gross Rank	31	22	44	44	49	34	66	67	--	--
Segall Bryant & Hamill Intl Sm Cap	-6.9%	-17.6%	-24.7%	-24.7%	-0.8%	--	--	--	--	--
MSCI EAFE Small Cap	-6.4%	-16.0%	-17.9%	-17.9%	4.5%	3.7%	5.2%	3.1%	8.8%	10.5%
eV EAFE Small Cap Value Net Rank	63	96	99	99	97	--	--	--	--	--
OFI Institutional Asset Management	-3.1%	-8.0%	-12.1%	-12.1%	9.1%	8.4%	2.5%	1.0%	--	--
MSCI Emerging Markets	-2.7%	-7.5%	-14.6%	-14.6%	8.3%	9.2%	2.6%	1.6%	3.2%	8.0%
Diversified Emerging Mkts MStar MF Rank	55	61	11	11	17	31	38	56	--	--
QMA Emerging Markets Small Cap	-2.6%	-9.6%	--	--	--	--	--	--	--	--
MSCI Emerging Markets Small Cap	-1.6%	-7.2%	-18.6%	-18.6%	4.4%	3.7%	0.9%	1.0%	3.8%	9.9%
eV Emg Mkts Small Cap Equity Net Rank	85	76	--	--	--	--	--	--	--	--
Hedged Equity Composite	-3.9%	-8.1%	-4.6%	-4.6%	3.4%	2.8%	2.6%	3.1%	5.8%	--
HFRX Equity Hedge Index	-4.2%	-8.6%	-9.4%	-9.4%	-0.2%	-0.1%	-0.7%	-0.3%	2.0%	1.4%
Russell 3000	-9.3%	-14.3%	-5.2%	-5.2%	7.1%	9.0%	6.8%	7.9%	12.5%	13.2%
MSCI ACWI	-7.0%	-12.8%	-9.4%	-9.4%	6.0%	6.6%	4.3%	4.3%	8.4%	9.5%
InvestorForce Public DB Hedge Funds Net Rank	94	94	81	81	14	7	7	20	1	--
ABS	-2.7%	-8.0%	-6.4%	-6.4%	2.7%	0.3%	1.3%	2.0%	4.9%	--
HFRX Equity Hedge Index	-4.2%	-8.6%	-9.4%	-9.4%	-0.2%	-0.1%	-0.7%	-0.3%	2.0%	1.4%
Russell 3000	-9.3%	-14.3%	-5.2%	-5.2%	7.1%	9.0%	6.8%	7.9%	12.5%	13.2%
MSCI ACWI	-7.0%	-12.8%	-9.4%	-9.4%	6.0%	6.6%	4.3%	4.3%	8.4%	9.5%
Parametric Defensive Equity	-5.0%	-8.1%	-2.9%	-2.9%	4.2%	5.5%	--	--	--	--
HFRX Equity Hedge Index	-4.2%	-8.6%	-9.4%	-9.4%	-0.2%	-0.1%	-0.7%	-0.3%	2.0%	1.4%
S&P 500	-9.0%	-13.5%	-4.4%	-4.4%	7.9%	9.3%	7.2%	8.5%	12.7%	13.1%

Investment Manager

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Ending December 31, 2018

	1 Mo	3 Mo	YTD	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	7 Yrs	10 Yrs
Real Estate Composite	1.9%	1.8%	7.5%	7.5%	7.5%	7.6%	9.2%	10.0%	10.7%	13.5%
Custom Real Estate Benchmark	0.5%	1.5%	7.4%	7.4%	7.0%	7.3%	8.9%	9.4%	10.0%	13.1%
NFI	0.5%	1.5%	7.4%	7.4%	7.0%	7.3%	8.9%	9.4%	10.0%	6.0%
InvestorForce All DB Real Estate Priv Net Rank	7	8	33	33	28	32	33	29	13	1
American Realty Advisors	1.8%	1.8%	7.8%	7.8%	7.4%	7.0%	8.7%	9.1%	9.6%	--
NFI	0.5%	1.5%	7.4%	7.4%	7.0%	7.3%	8.9%	9.4%	10.0%	6.0%
Morgan Stanley	2.0%	2.0%	8.0%	8.0%	8.4%	8.7%	10.1%	10.9%	11.8%	--
NFI	0.5%	1.5%	7.4%	7.4%	7.0%	7.3%	8.9%	9.4%	10.0%	6.0%
UBS	1.7%	1.5%	6.1%	6.1%	5.7%	5.8%	7.3%	7.9%	--	--
NFI	0.5%	1.5%	7.4%	7.4%	7.0%	7.3%	8.9%	9.4%	10.0%	6.0%
Infrastructure Composite	0.0%	-0.1%	10.0%	10.0%	13.7%	10.2%	8.5%	6.7%	7.3%	--
CPI +4%	0.3%	0.8%	6.3%	6.3%	6.3%	6.2%	5.9%	5.6%	5.6%	5.9%
IFM	0.0%	-0.3%	16.5%	16.5%	18.8%	14.4%	12.1%	9.8%	9.6%	--
CPI +4%	0.3%	0.8%	6.3%	6.3%	6.3%	6.2%	5.9%	5.6%	5.6%	5.9%
J.P. Morgan Infrastructure	0.0%	0.0%	3.7%	3.7%	8.8%	6.2%	5.2%	3.8%	5.1%	--
CPI +4%	0.3%	0.8%	6.3%	6.3%	6.3%	6.2%	5.9%	5.6%	5.6%	5.9%
Private Equity Composite	0.0%	0.0%	12.8%	12.8%	14.4%	13.2%	11.5%	11.4%	11.2%	11.7%
Cambridge Associates All PE	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%
Progress	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%	6.1%	-1.4%
Cambridge Associates All PE	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%
Brinson 1998	0.0%	0.0%	2.7%	2.7%	1.9%	1.0%	1.7%	1.5%	1.9%	1.2%
Cambridge Associates All PE	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%
Brinson 1999	0.0%	0.0%	5.6%	5.6%	3.3%	1.5%	3.0%	-0.5%	2.4%	3.4%
Cambridge Associates All PE	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%
Brinson 2000	0.0%	0.0%	12.2%	12.2%	10.3%	5.7%	4.5%	2.1%	3.2%	5.6%
Cambridge Associates All PE	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%
Brinson 2001	0.0%	0.0%	8.9%	8.9%	8.2%	3.5%	1.4%	2.4%	5.3%	6.7%
Cambridge Associates All PE	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%
Brinson 2002	0.0%	0.0%	-0.4%	-0.4%	1.4%	4.5%	3.3%	0.8%	3.9%	7.2%
Cambridge Associates All PE	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%
Brinson 2003	0.0%	0.0%	8.4%	8.4%	10.3%	7.7%	7.1%	8.7%	9.5%	8.6%
Cambridge Associates All PE	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%
Brinson 2004	0.0%	0.0%	16.2%	16.2%	13.8%	10.6%	7.6%	6.9%	8.5%	10.8%
Cambridge Associates All PE	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%

Investment Manager

Annualized Performance (Net of Fees)

Market Value: \$1,611.5 Million and 100.0% of Fund

Ending December 31, 2018

	1 Mo	3 Mo	YTD	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	7 Yrs	10 Yrs
Adams Street 2005	0.0%	0.0%	12.0%	12.0%	12.6%	10.0%	8.8%	8.6%	9.8%	10.6%
<i>Cambridge Associates All PE</i>	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%
Adams Street 2009	0.0%	0.0%	11.8%	11.8%	15.1%	12.8%	12.0%	12.9%	12.5%	--
<i>Cambridge Associates All PE</i>	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%
Adams Street 2012	0.0%	0.0%	14.0%	14.0%	15.4%	12.2%	10.6%	10.7%	--	--
<i>Cambridge Associates All PE</i>	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%
Adams Street Co-Investment III	0.0%	0.0%	13.5%	13.5%	14.5%	19.1%	13.2%	--	--	--
<i>Cambridge Associates All PE</i>	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%
Siguler Guff II	0.0%	0.0%	10.8%	10.8%	13.1%	13.4%	11.7%	12.0%	--	--
<i>Cambridge Associates All PE</i>	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%
Siguler Guff III	0.0%	0.0%	15.9%	15.9%	13.4%	--	--	--	--	--
<i>Cambridge Associates All PE</i>	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%
Mesirow VI	0.0%	0.0%	16.3%	16.3%	18.1%	14.4%	9.9%	--	--	--
<i>Cambridge Associates All PE</i>	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%
Mesirow Private Equity Fund VII-A	0.0%	0.0%	--	--	--	--	--	--	--	--
<i>Cambridge Associates All PE</i>	0.0%	0.0%	7.9%	7.9%	13.4%	12.1%	10.9%	11.0%	12.5%	12.9%

Investment Manager

Annualized Performance (Net of Fees)

Market Value: \$1,611.5 Million and 100.0% of Fund

Ending December 31, 2018

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Total Fund Composite	-2.9%	16.1%	7.0%	2.3%	5.4%	15.4%	11.2%	0.3%	12.2%	18.4%
Total Fund Benchmark	-4.0%	14.3%	7.6%	1.1%	5.3%	15.0%	10.8%	1.0%	12.5%	20.0%
InvestorForce Public DB Net Rank	12	21	63	2	53	45	61	57	50	54
Fixed Income Composite	-0.1%	2.9%	2.5%	1.1%	5.6%	-1.4%	4.7%	7.3%	6.8%	15.3%
BBgBarc US Aggregate TR	0.0%	3.5%	2.6%	0.5%	6.0%	-2.0%	4.2%	7.8%	6.5%	5.9%
InvestorForce Public DB Total Fix Inc Net Rank	64	75	70	20	17	51	61	27	67	35
NTGI Agg Bond Index	--	--	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR	0.0%	3.5%	2.6%	0.5%	6.0%	-2.0%	4.2%	7.8%	6.5%	5.9%
eV US Core Fixed Inc Net Rank	--	--	--	--	--	--	--	--	--	--
Galliard	-0.1%	--	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR	0.0%	3.5%	2.6%	0.5%	6.0%	-2.0%	4.2%	7.8%	6.5%	5.9%
eV US Core Fixed Inc Net Rank	42	--	--	--	--	--	--	--	--	--
U.S. Equity Composite	-8.4%	18.5%	12.9%	-0.7%	9.5%	34.4%	16.2%	-1.4%	19.2%	32.0%
Wilshire 5000 Total Market	-5.3%	21.0%	13.4%	0.7%	12.7%	33.1%	16.1%	1.0%	17.2%	28.3%
InvestorForce Public DB US Eq Net Rank	87	85	45	64	73	44	40	82	31	22
Boston Partners	-8.4%	19.7%	14.5%	-4.1%	11.6%	36.8%	21.0%	1.1%	13.4%	26.7%
Russell 1000 Value	-8.3%	13.7%	17.3%	-3.8%	13.5%	32.5%	17.5%	0.4%	15.5%	19.7%
eV US Large Cap Value Equity Net Rank	43	25	43	61	48	27	7	40	52	39
NTGI S&P 500 Index	--	--	--	--	--	--	--	--	--	--
S&P 500	-4.4%	21.8%	12.0%	1.4%	13.7%	32.4%	16.0%	2.1%	15.1%	26.5%
eV US Large Cap Core Equity Net Rank	--	--	--	--	--	--	--	--	--	--
NTGI S&P 400 Mid-Cap (Index)	-11.0%	--	--	--	--	--	--	--	--	--
S&P 400 MidCap	-11.1%	16.2%	20.7%	-2.2%	9.8%	33.5%	17.9%	-1.7%	26.6%	37.4%
eV US Mid Cap Core Equity Net Rank	49	--	--	--	--	--	--	--	--	--
Silvercrest Asset Management	-15.8%	11.9%	29.1%	-2.4%	5.1%	--	--	--	--	--
Russell 2000 Value	-12.9%	7.8%	31.7%	-7.5%	4.2%	34.5%	18.0%	-5.5%	24.5%	20.6%
eV US Small Cap Value Equity Net Rank	62	38	27	20	50	--	--	--	--	--

Investment Manager

Annualized Performance (Net of Fees)

Market Value: \$1,611.5 Million and 100.0% of Fund

Ending December 31, 2018

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
International Equity Composite	-16.7%	29.6%	4.1%	-2.0%	-2.2%	16.0%	16.5%	-13.0%	12.5%	29.1%
MSCI ACWI ex USA	-14.2%	27.2%	4.5%	-5.7%	-3.9%	15.3%	16.8%	-13.7%	11.2%	41.4%
InvestorForce Public DB ex-US Eq Net Rank	75	30	54	27	24	58	84	39	41	84
NTGI ACWI Ex-US IMI (Index)	-14.3%	27.8%	4.7%	-4.4%	-3.7%	16.1%	--	--	--	--
MSCI ACWI ex USA IMI	-14.8%	27.8%	4.4%	-4.6%	-3.9%	15.8%	17.0%	-14.3%	12.7%	43.6%
eV Non-US Diversified Eq Gross Rank	44	56	23	89	54	86	--	--	--	--
Segall Bryant & Hamill Intl Sm Cap	-24.7%	30.7%	--	--	--	--	--	--	--	--
MSCI EAFE Small Cap	-17.9%	33.0%	2.2%	9.6%	-4.9%	29.3%	20.0%	-15.9%	22.0%	46.8%
eV EAFE Small Cap Value Net Rank	99	70	--	--	--	--	--	--	--	--
OFI Institutional Asset Management	-12.1%	35.4%	7.1%	-13.6%	-4.6%	--	--	--	--	--
MSCI Emerging Markets	-14.6%	37.3%	11.2%	-14.9%	-2.2%	-2.6%	18.2%	-18.4%	18.9%	78.5%
Diversified Emerging Mkts MStar MF Rank	11	57	56	48	76	--	--	--	--	--
QMA Emerging Markets Small Cap	--	--	--	--	--	--	--	--	--	--
MSCI Emerging Markets Small Cap	-18.6%	33.8%	2.3%	-6.8%	1.0%	1.0%	22.2%	-27.2%	27.2%	113.8%
eV Emg Mkts Small Cap Equity Net Rank	--	--	--	--	--	--	--	--	--	--
Hedged Equity Composite	-4.6%	12.0%	1.7%	2.1%	5.2%	19.1%	6.9%	-4.3%	--	--
HFRX Equity Hedge Index	-9.4%	10.0%	0.1%	-2.3%	1.4%	11.1%	4.8%	-19.1%	8.9%	13.1%
Russell 3000	-5.2%	21.1%	12.7%	0.5%	12.6%	33.6%	16.4%	1.0%	16.9%	28.3%
MSCI ACWI	-9.4%	24.0%	7.9%	-2.4%	4.2%	22.8%	16.1%	-7.3%	12.7%	34.6%
InvestorForce Public DB Hedge Funds Net Rank	81	2	55	22	28	1	56	90	--	--
ABS	-6.4%	12.7%	-4.3%	4.0%	4.9%	20.6%	5.2%	-3.0%	--	--
HFRX Equity Hedge Index	-9.4%	10.0%	0.1%	-2.3%	1.4%	11.1%	4.8%	-19.1%	8.9%	13.1%
Russell 3000	-5.2%	21.1%	12.7%	0.5%	12.6%	33.6%	16.4%	1.0%	16.9%	28.3%
MSCI ACWI	-9.4%	24.0%	7.9%	-2.4%	4.2%	22.8%	16.1%	-7.3%	12.7%	34.6%
Parametric Defensive Equity	-2.9%	11.7%	8.2%	--	--	--	--	--	--	--
HFRX Equity Hedge Index	-9.4%	10.0%	0.1%	-2.3%	1.4%	11.1%	4.8%	-19.1%	8.9%	13.1%
S&P 500	-4.4%	21.8%	12.0%	1.4%	13.7%	32.4%	16.0%	2.1%	15.1%	26.5%

Investment Manager

Annualized Performance (Net of Fees)

Market Value: \$1,611.5 Million and 100.0% of Fund

Ending December 31, 2018

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Real Estate Composite	7.5%	7.5%	7.8%	14.2%	13.0%	14.2%	11.0%	13.0%	14.4%	34.9%
Custom Real Estate Benchmark	7.4%	6.7%	7.8%	13.9%	11.5%	12.9%	9.8%	15.0%	15.1%	33.7%
NFI	7.4%	6.7%	7.8%	13.9%	11.5%	12.9%	9.8%	15.0%	15.3%	-30.4%
InvestorForce All DB Real Estate Priv Net Rank	33	28	50	36	19	22	30	60	43	2
American Realty Advisors	7.8%	7.1%	6.1%	14.3%	10.6%	11.3%	10.2%	13.8%	--	--
NFI	7.4%	6.7%	7.8%	13.9%	11.5%	12.9%	9.8%	15.0%	15.3%	-30.4%
Morgan Stanley	8.0%	8.8%	9.2%	14.6%	14.2%	16.2%	11.7%	16.5%	--	--
NFI	7.4%	6.7%	7.8%	13.9%	11.5%	12.9%	9.8%	15.0%	15.3%	-30.4%
UBS	6.1%	5.3%	6.2%	11.7%	10.4%	9.2%	--	--	--	--
NFI	7.4%	6.7%	7.8%	13.9%	11.5%	12.9%	9.8%	15.0%	15.3%	-30.4%
Infrastructure Composite	10.0%	17.7%	3.5%	3.6%	-0.4%	6.6%	10.9%	7.6%	--	--
CPI +4%	6.3%	6.2%	6.2%	4.8%	4.8%	5.6%	5.8%	7.1%	5.6%	6.8%
IFM	16.5%	21.1%	6.1%	5.4%	1.1%	6.5%	11.5%	6.7%	--	--
CPI +4%	6.3%	6.2%	6.2%	4.8%	4.8%	5.6%	5.8%	7.1%	5.6%	6.8%
J.P. Morgan Infrastructure	3.7%	14.3%	1.1%	2.2%	-1.5%	6.9%	10.1%	6.7%	--	--
CPI +4%	6.3%	6.2%	6.2%	4.8%	4.8%	5.6%	5.8%	7.1%	5.6%	6.8%
Private Equity Composite	12.8%	16.0%	10.8%	6.7%	11.2%	9.8%	11.6%	8.6%	18.0%	12.1%
Cambridge Associates All PE	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%
Progress	0.0%	0.0%	0.0%	0.0%	13.0%	-7.0%	44.1%	-28.4%	2.7%	-22.3%
Cambridge Associates All PE	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%
Brinson 1998	2.7%	1.0%	-0.8%	3.8%	0.7%	1.0%	5.2%	-12.4%	5.7%	6.1%
Cambridge Associates All PE	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%
Brinson 1999	5.6%	1.1%	-2.0%	7.5%	-13.5%	14.7%	5.8%	3.3%	8.1%	5.5%
Cambridge Associates All PE	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%
Brinson 2000	12.2%	8.4%	-2.9%	1.0%	-7.3%	7.1%	5.2%	8.3%	10.7%	14.8%
Cambridge Associates All PE	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%
Brinson 2001	8.9%	7.5%	-5.3%	-4.4%	6.5%	16.5%	9.2%	5.6%	11.9%	13.2%
Cambridge Associates All PE	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%
Brinson 2002	-0.4%	3.3%	11.1%	-0.3%	-8.6%	17.2%	7.1%	8.4%	23.5%	14.5%
Cambridge Associates All PE	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%
Brinson 2003	8.4%	12.2%	2.7%	5.4%	15.3%	21.3%	2.6%	-3.2%	11.0%	12.0%
Cambridge Associates All PE	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%
Brinson 2004	16.2%	11.4%	4.4%	-0.8%	4.3%	18.4%	7.2%	13.8%	24.5%	11.4%
Cambridge Associates All PE	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%

Investment Manager

Annualized Performance (Net of Fees)

Market Value: \$1,611.5 Million and 100.0% of Fund

Ending December 31, 2018

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Adams Street 2005	12.0%	13.2%	4.9%	5.2%	7.9%	15.8%	10.2%	8.3%	17.8%	11.5%
<i>Cambridge Associates All PE</i>	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%
Adams Street 2009	11.8%	18.6%	8.2%	9.9%	16.3%	16.1%	7.0%	14.2%	29.6%	--
<i>Cambridge Associates All PE</i>	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%
Adams Street 2012	14.0%	16.8%	5.9%	6.3%	11.0%	0.9%	--	--	--	--
<i>Cambridge Associates All PE</i>	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%
Adams Street Co-Investment III	13.5%	15.5%	28.9%	-2.8%	--	--	--	--	--	--
<i>Cambridge Associates All PE</i>	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%
Siguler Guff II	10.8%	15.5%	13.9%	6.9%	13.1%	-0.2%	--	--	--	--
<i>Cambridge Associates All PE</i>	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%
Siguler Guff III	15.9%	10.9%	--	--	--	--	--	--	--	--
<i>Cambridge Associates All PE</i>	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%
Mesirow VI	16.3%	19.9%	7.4%	-2.6%	--	--	--	--	--	--
<i>Cambridge Associates All PE</i>	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%
Mesirow Private Equity Fund VII-A	--	--	--	--	--	--	--	--	--	--
<i>Cambridge Associates All PE</i>	7.9%	19.1%	9.7%	7.2%	11.2%	20.7%	12.6%	8.0%	19.6%	14.2%

Total Fund Composite

Fee Schedule

Market Value: \$1,611.5 Million and 100.0% of Fund

Asset Class	Investment Manager	Fee Schedule	Expense Ratio & Estimated Annual Fee ¹	Industry Average ²
Core Fixed Income	NTGI Agg Bond Index	0.0175% on the Balance	0.0175% \$20,327	0.28%
Core Fixed Income	Galliard	0.20% on the first \$50 million 0.15% on the next \$50 million 0.10% on the Balance	0.14% \$273,589	0.23%
Large-Cap Value	Boston Partners	0.40% on the first \$15 million 0.30% on the next \$25 million 0.20% on the next \$25 million 0.15% on the next \$35 million 0.10% on the Balance	0.25% \$213,110	0.51%
Large-Cap Core	NTGI S&P 500 Index	0.005% on the Balance	0.005% \$5,700	0.05%
Mid-Cap Core	NTGI S&P 400 Mid-Cap (Index)	0.01% on the Balance	0.01% \$10,110	0.22%
Small-Cap Value	Silvercrest Asset Management	0.65% on the first \$50 million 0.55% on the Balance	0.65% \$243,200	0.96%
Non-U.S. All-Cap Core	NTGI ACWI Ex-US IMI (Index)	0.04% on the Balance	0.04% \$65,945	0.10%
Non-U.S. Small-Cap Value	Segall Bryant & Hamill Intl Sm Cap	0.85% on the Balance	0.85% \$476,197	1.08%
Emerging Markets	OFI Institutional Asset Management	0.85% on the first \$50 million 0.80% on the next \$50 million 0.70% on the Balance	0.85% \$297,870	0.95%
Emerging Markets	QMA Emerging Markets Small Cap	0.80% on the Balance	0.80% \$105,735	1.25%
Hedged Equity Hedge FoF	ABS	0.85% on the Balance *redemptions quarterly with 45 days notice	0.85% \$578,455	1.00%
Long/Short Hedge Fund	Parametric Defensive Equity	0.325% on the first \$50 million 0.30% on the next \$50 million 0.275% on the Balance	0.32% \$242,818	1.69%
Core Real Estate	American Realty Advisors	0.95% on the Balance	0.95% \$405,382	1.01%
Core Real Estate	Morgan Stanley	0.90% on the Balance	0.90% \$883,539	1.01%

Total Fund Composite

Fee Schedule

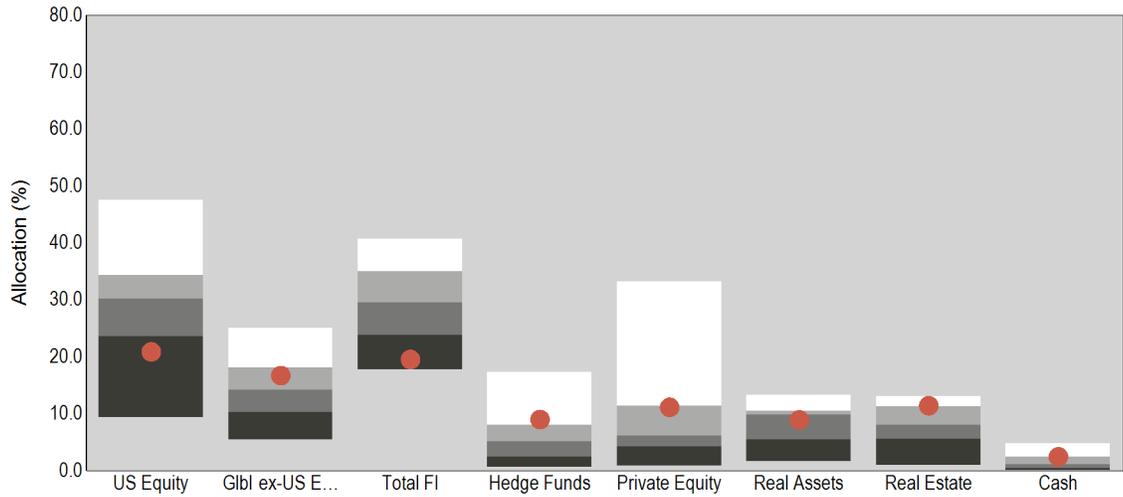
Market Value: \$1,611.5 Million and 100.0% of Fund

Asset Class	Investment Manager	Fee Schedule	Expense Ratio & Estimated Annual Fee ¹	Industry Average ²
Core Real Estate	UBS	0.955% on the first \$10 million 0.825% on the next \$15 million 0.805% on the next \$25 million	0.85% \$365,486	1.01%
Core Infrastructure	IFM	0.97% on the Balance Performance Fee: 20% of return above 8% on a rolling three year basis	0.97% \$726,862	2.00%
Core Infrastructure	J.P. Morgan Infrastructure	1.00% on the Balance Performance Fee: 15% with 7% Hurdle	1.00% \$688,216	2.00%
Private Equity	Siguler Guff III	0.67% on the first \$50 million 0.60% on the Balance 10% carry on secondaries and co-invest	0.64% \$614,890	1.25%
U.S. Private Equity FoF	Siguler Guff II	0.69% on commitment	0.88% \$276,000	1.59%
U.S. Private Equity FoF	Adams Street	0.89% on commitment	1.77% \$355,200	2.49%
U.S. Private Equity FoF	Mesirov VI	0.70% on commitment	0.83% \$210,000	1.49%
U.S. Private Equity FoF	Mesirov Private Equity Fund VII-A	0.70% on commitment	4.63% \$280,000	8.28%
Cash Overlay	Northern Trust - Cash Overlay	0.07% on the first \$100 million 0.06% on the next \$150 million 0.05% on the Balance	0.07% \$17,812	0.16%
Total Investment Management Fees			0.46% \$7,356,444	0.80%
Custodian	Northern Trust	\$150,000 Annual Fee (approximate)	\$150,000	N/A
Total Fund			0.47% \$7,506,444	

Total Fund Allocation

Market Value: \$1,611.5 Million and 100.0% of Fund

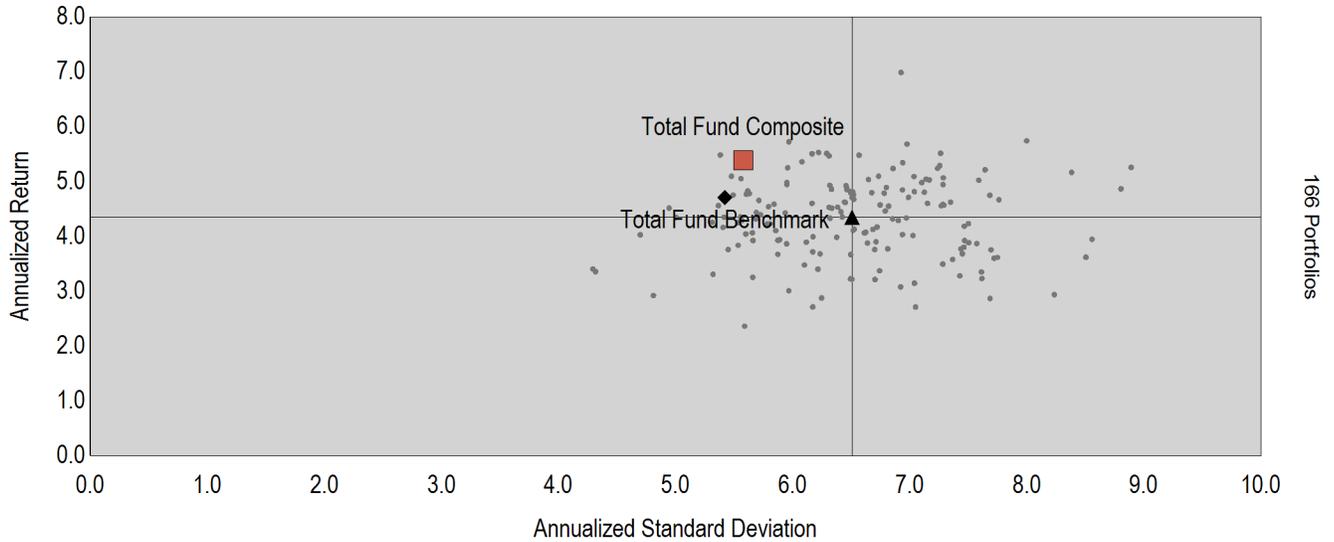
**Total Plan Allocation vs. InvestorForce Public DB Net
As of December 31, 2018**



	Allocation (Rank)															
5th Percentile	47.5	25.0	40.6	17.4	33.2	13.3	13.0	4.8								
25th Percentile	34.3	18.1	34.9	8.0	11.4	10.4	11.3	2.4								
Median	30.1	14.2	29.5	5.1	6.1	9.9	8.1	1.1								
75th Percentile	23.6	10.3	23.8	2.4	4.2	5.4	5.5	0.4								
95th Percentile	9.3	5.5	17.8	0.7	0.9	1.6	1.0	0.0								
# of Portfolios	75	96	117	26	45	26	76	108								
● Total Fund Composite	20.9	(86)	16.7	(35)	19.5	(91)	9.0	(19)	11.1	(30)	8.9	(56)	11.4	(22)	2.4	(24)

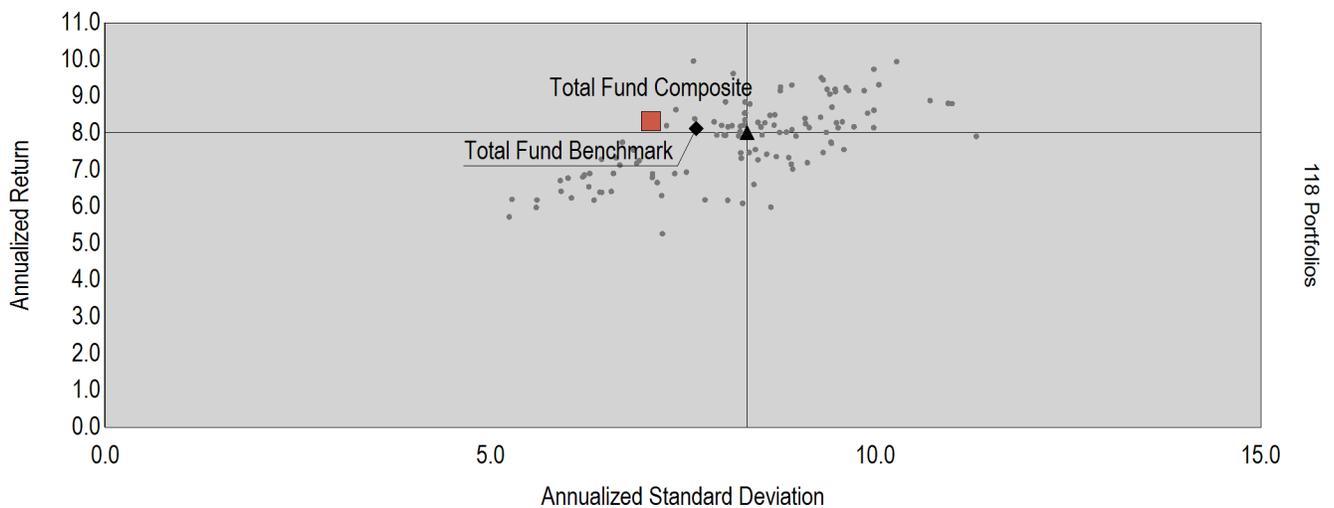
Market Value: \$1,611.5 Million and 100.0% of Fund

Annualized Return vs. Annualized Standard Deviation
5 Years Ending December 31, 2018



	Anlzd Return	Anlzd Standard Deviation
Total Fund Composite	5.4%	5.6%
Total Fund Benchmark	4.7%	5.4%

Annualized Return vs. Annualized Standard Deviation
10 Years Ending December 31, 2018



	Anlzd Return	Anlzd Standard Deviation
Total Fund Composite	8.3%	7.1%
Total Fund Benchmark	8.1%	7.7%