

Pennsylvania Municipal Retirement System

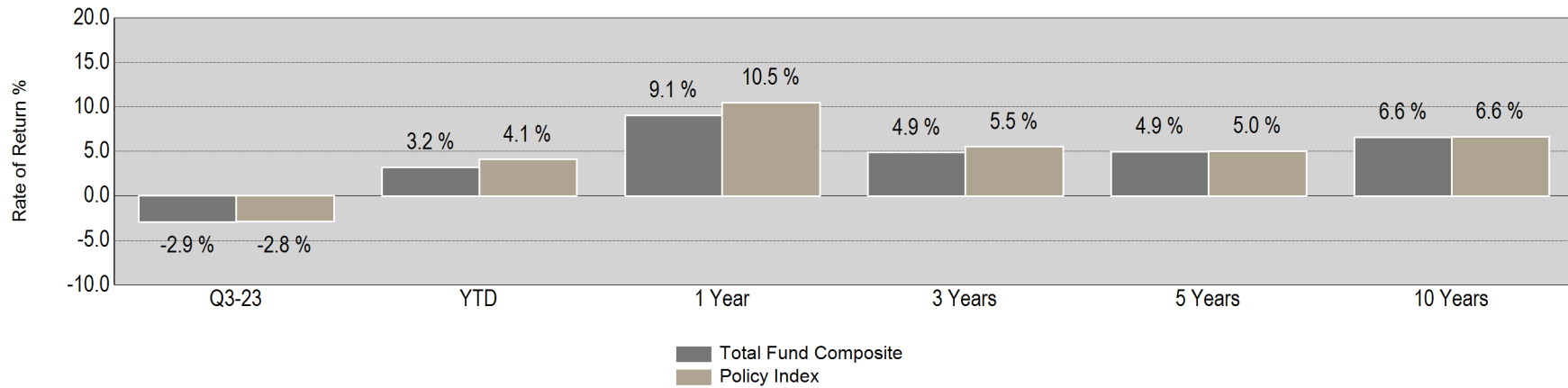
Quarterly Performance Report
As of September 30, 2023



Summary of Cash Flows

	Third Quarter	Year-To-Date	One Year	Three Years	Five Years	Ten Years
Beginning Market Value	\$3,170,648,200	\$3,021,555,622	\$2,854,675,272	\$2,767,248,105	\$2,587,454,938	\$1,833,525,970
Net Cash Flow	-\$27,988,587	-\$68,506,220	-\$64,151,156	-\$150,281,677	-\$250,929,512	-\$412,359,178
Net Investment Change	-\$89,892,139	\$99,718,072	\$262,243,357	\$435,801,046	\$716,242,048	\$1,631,600,682
Ending Market Value	\$3,052,767,474	\$3,052,767,474	\$3,052,767,474	\$3,052,767,474	\$3,052,767,474	\$3,052,767,474

Return Summary (Net)



Asset Allocation vs. Target

	Current	Policy	Difference*
U.S. Equity	32.2%	32.5%	-\$9,041,539
Global Equity	4.9%	5.0%	-\$3,297,285
Non-U.S. Equity	15.2%	15.0%	\$7,518,947
Emerging Markets	2.2%	2.5%	-\$8,115,554
Real Assets	17.5%	15.0%	\$76,753,562
U.S. Fixed Income	27.1%	29.0%	-\$56,682,185
Cash Equivalent	0.8%	1.0%	-\$7,135,946
Total	100.0%	100.0%	

Pennsylvania Municipal Retirement System

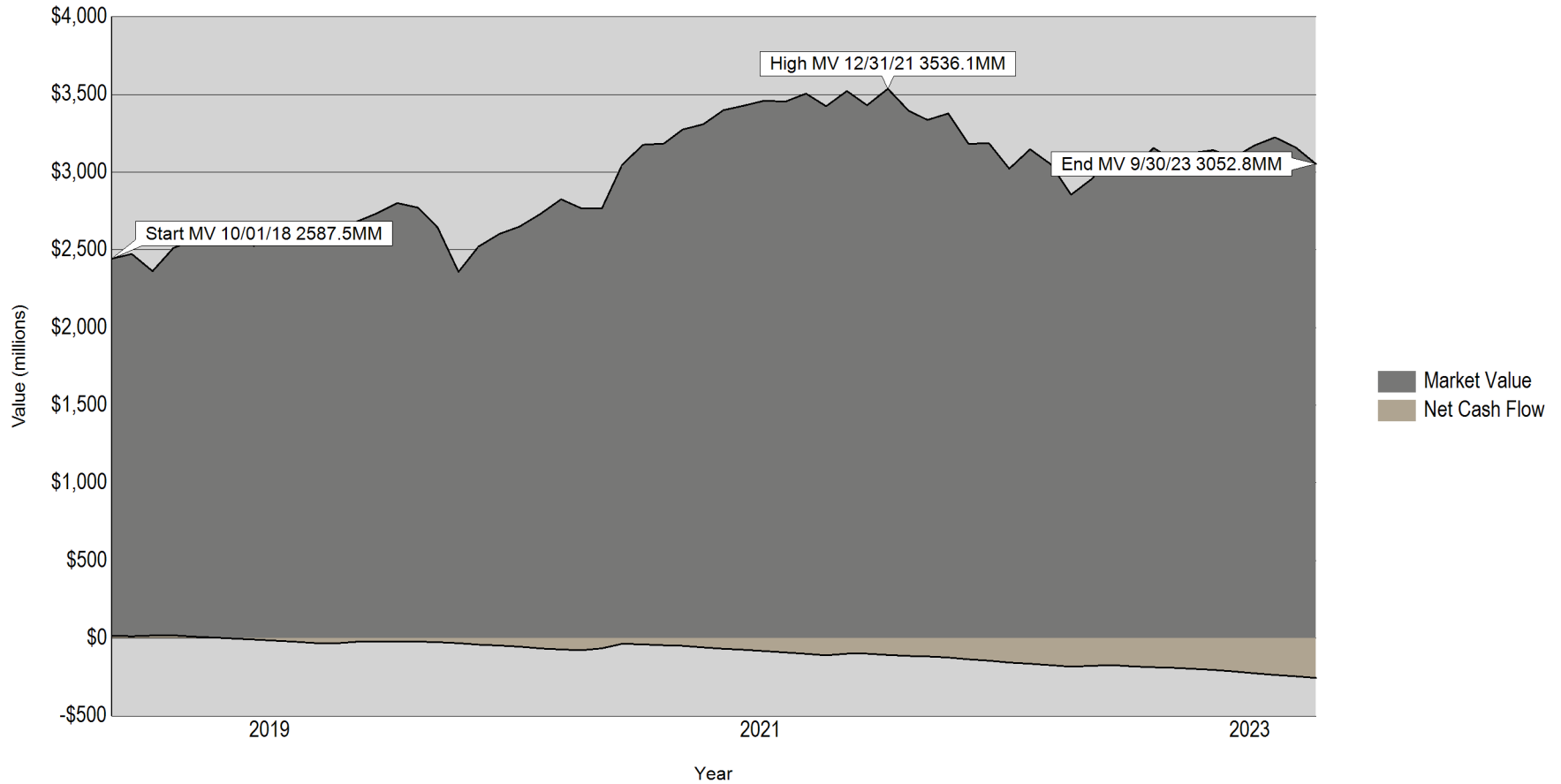
Market Value Summary

As of September 30, 2023

Cash Flow Summary by Manager From July 01, 2023 to September 30, 2023

	Beginning Market Value	Net Cash Flow	Net Investment Change	Ending Market Value
MFS Large Cap Value	\$150,678,002	\$0	-\$24,189,179	\$126,488,824
Xpounce S&P 500	\$273,403,536	\$0	-\$8,950,874	\$264,452,662
Northern Trust S&P 500	\$277,914,282	\$0	-\$17,542,764	\$260,371,518
Polen Focus Growth	\$105,747,041	\$0	-\$3,493,809	\$102,253,232
Northern Trust Dow Jones Completion Index	\$101,359,382	\$0	-\$3,446,227	\$97,913,154
Copeland SMID Cap Dividend Growth	\$53,262,811	\$0	-\$2,821,382	\$50,441,429
Smith, Graham & Co Small Cap Value	\$44,362,253	\$0	-\$1,603,316	\$42,758,937
Emerald Small Cap Growth	\$42,051,834	\$0	-\$3,623,698	\$38,428,136
Rhumbline Global Min. Volatility	\$153,568,290	\$0	-\$4,227,201	\$149,341,088
SSGA MSCI World ex US	\$261,005,816	\$0	-\$10,600,397	\$250,405,419
Hardman Johnston Int'l Equity	\$101,546,765	\$0	-\$6,322,386	\$95,224,380
Hudson Edge Int'l Equity	\$126,599,635	\$0	-\$6,968,342	\$119,631,293
Jarislowsky, Fraser Limited	\$182,925	\$0	-\$9,949	\$172,976
SSGA MSCI Emerging Markets Index	\$70,484,309	\$0	-\$2,280,677	\$68,203,633
Forest Investment Associates	\$144,492,290	\$0	\$310,409	\$144,802,699
PRISA LP	\$64,071,596	\$0	-\$2,615,227	\$61,456,369
PRISA II	\$129,354,805	\$0	-\$5,596,114	\$123,758,692
PennMuni-Nuveen U.S. Real Estate Fund	\$201,094,054	\$0	\$2,094,867	\$203,188,921
N. Front Street (Nuveen)	\$1,462,002	\$0	\$0	\$1,462,002
SSGA US Aggregate Bond Index	\$340,336,891	\$0	-\$10,951,544	\$329,385,347
Federated Hermes Core Aggregate Strategy	\$342,340,974	\$0	-\$11,138,065	\$331,202,909
Ares Global Multi-Asset Credit	\$164,031,124	\$0	\$4,001,002	\$168,032,126
Cash Management	\$21,297,581	-\$27,988,587	\$30,082,735	\$23,391,729
Total	\$3,170,648,200	-\$27,988,587	-\$89,892,139	\$3,052,767,474

Market Value History



Pennsylvania Municipal Retirement System

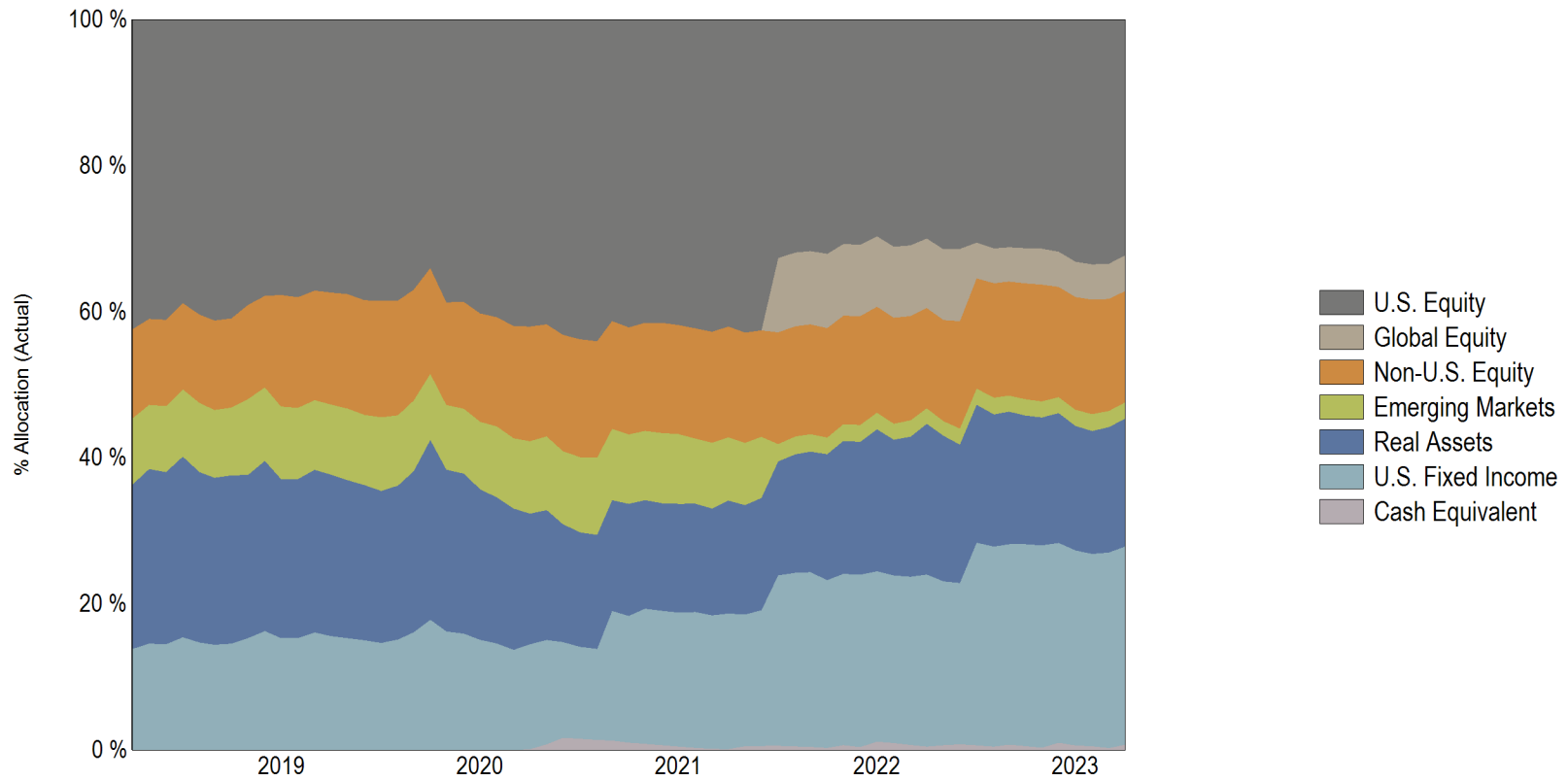
Asset Allocation Summary

As of September 30, 2023

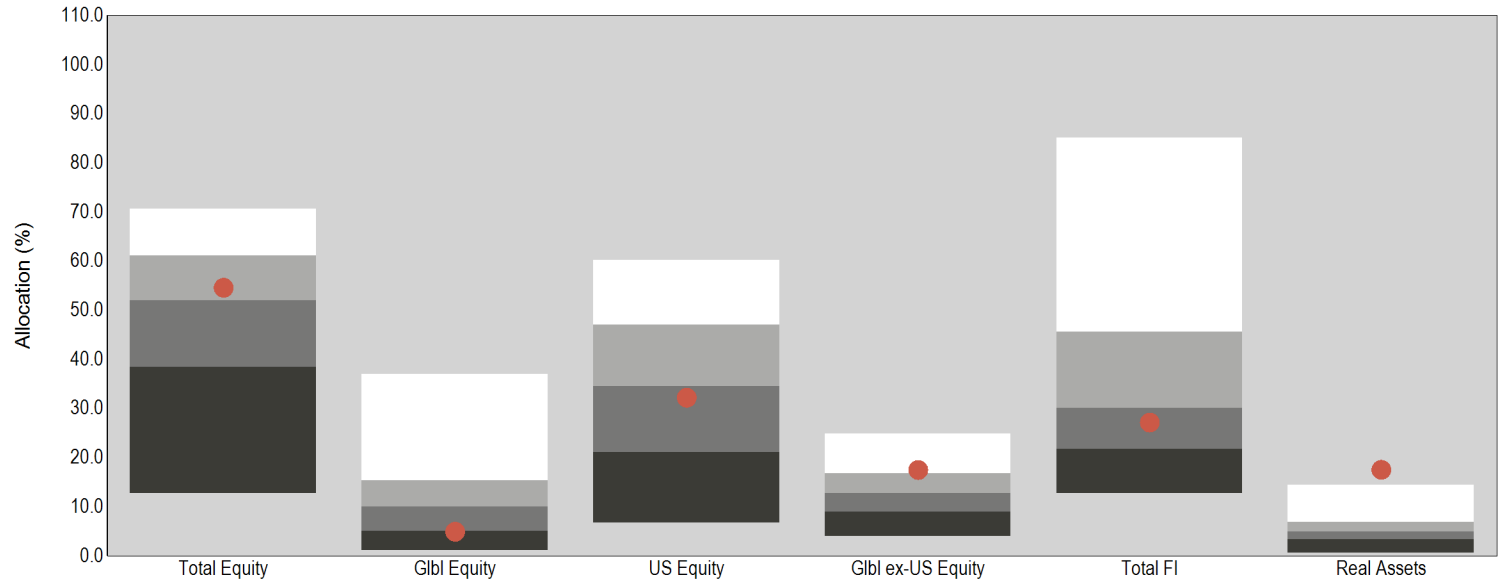
	Market Value	% of Portfolio	Policy %	Policy Difference
Total Fund Composite	3,052,767,474	100.0	100.0	0
Total Equity Composite	1,666,086,679	54.6	55.0	-12,935,431
U.S. Equity Composite	983,107,890	32.2	32.5	-9,041,539
MFS Large Cap Value	126,488,824	4.1		
Xponance S&P 500	264,452,662	8.7		
Northern Trust S&P 500	260,371,518	8.5		
Polen Focus Growth	102,253,232	3.3		
Northern Trust Dow Jones Completion Index	97,913,154	3.2		
Copeland SMID Cap Dividend Growth	50,441,429	1.7		
Smith, Graham & Co Small Cap Value	42,758,937	1.4		
Emerald Small Cap Growth	38,428,136	1.3		
Global Equity Composite	149,341,088	4.9	5.0	-3,297,285
Rhumblin Global Min. Volatility	149,341,088	4.9		
Non-U.S. Equity Composite	533,637,700	17.5	17.5	-596,607
SSGA MSCI World ex US	250,405,419	8.2		
Hardman Johnston Int'l Equity	95,224,380	3.1		
Hudson Edge Int'l Equity	119,631,293	3.9		
SSGA MSCI Emerging Markets Index	68,203,633	2.2		
Real Assets Composite	534,668,683	17.5	15.0	76,753,562
Forest Investment Associates	144,802,699	4.7		
PRISA LP	61,456,369	2.0		
PRISA II	123,758,692	4.1		
PennMuni-Nuveen U.S. Real Estate Fund	203,188,921	6.7		
N. Front Street (Nuveen)	1,462,002	0.0		
Total Fixed Income Composite	828,620,382	27.1	29.0	-56,682,185
SSGA US Aggregate Bond Index	329,385,347	10.8		
Federated Hermes Core Aggregate Strategy	331,202,909	10.8		
Ares Global Multi-Asset Credit	168,032,126	5.5		
Cash Composite	23,391,729	0.8	1.0	-7,135,946

*Residual value for Jarislowsky (approx. \$173K) included in Non-US Equity and Total Fund Composite values.

Asset Allocation History



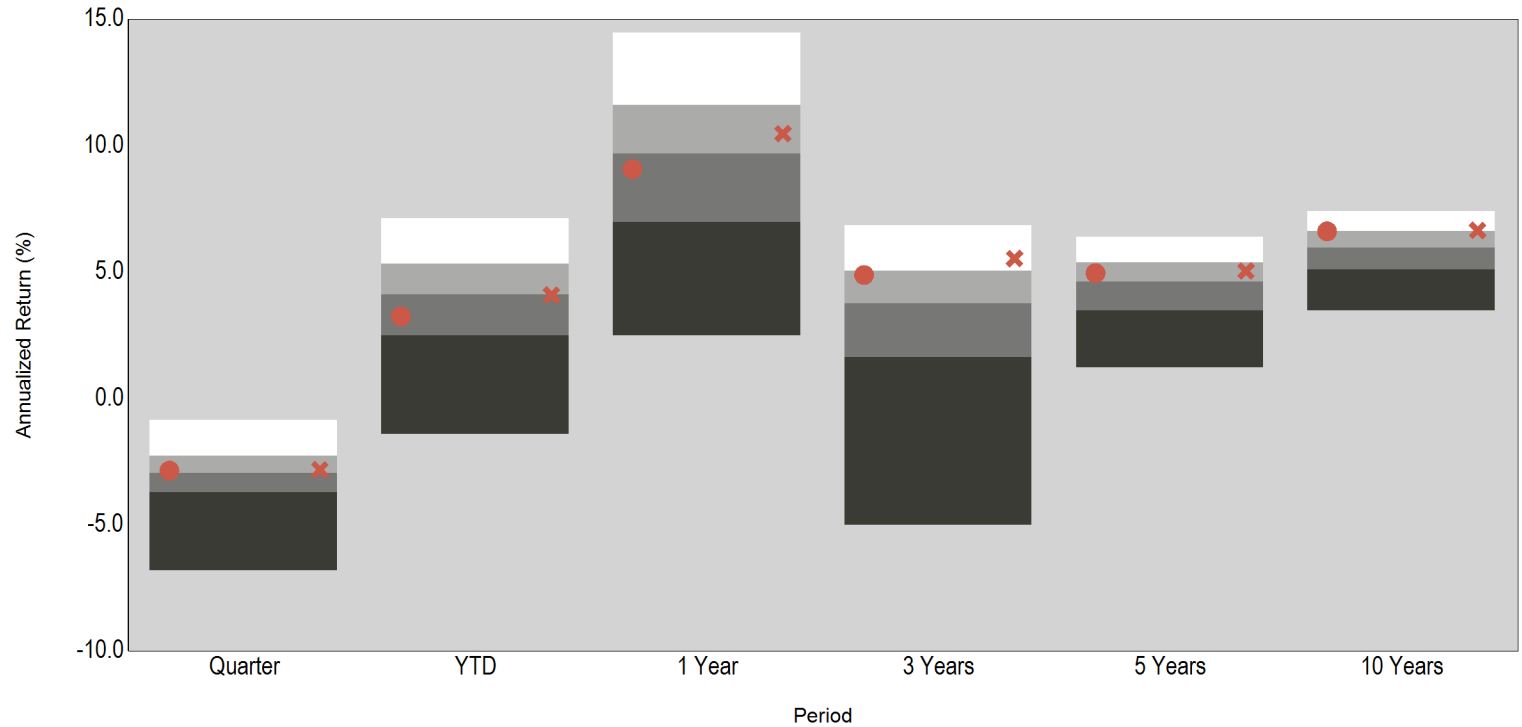
Total Plan Allocation vs. InvMetrics All DB Net
As of September 30, 2023



Allocation (Rank)

5th Percentile	70.7	37.0	60.2	24.9	85.1	14.4						
25th Percentile	61.1	15.4	47.0	16.8	45.5	6.8						
Median	52.0	10.0	34.5	12.8	30.0	4.9						
75th Percentile	38.5	5.0	21.1	8.9	21.7	3.3						
95th Percentile	12.7	1.2	6.7	4.0	12.8	0.6						
# of Portfolios	1,355	328	1,235	1,165	1,397	306						
● Total Fund Composite	54.6	(44)	4.9	(77)	32.2	(54)	17.5	(24)	27.1	(57)	17.5	(3)

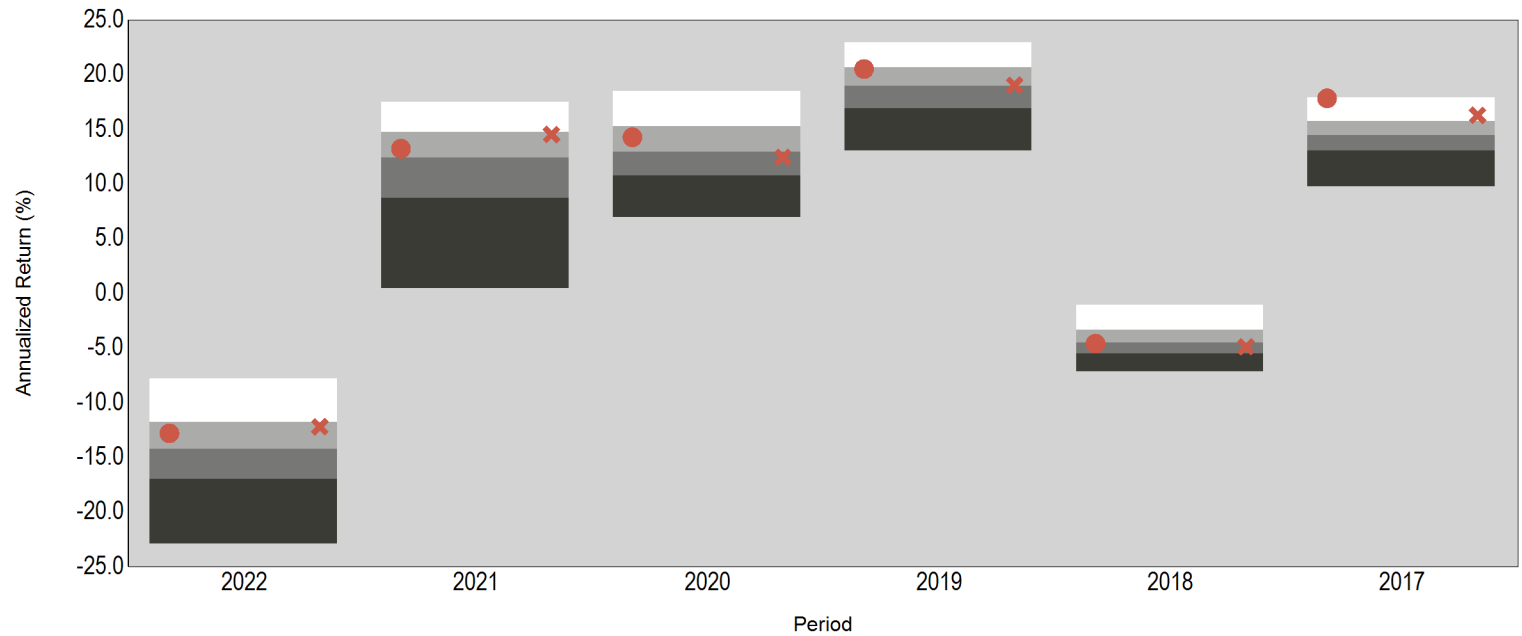
InvMetrics All DB Net Return Comparison



Return (Rank)

5th Percentile	-0.9	7.1	14.5	6.8	6.4	7.4						
25th Percentile	-2.3	5.3	11.6	5.0	5.4	6.6						
Median	-3.0	4.1	9.7	3.7	4.6	5.9						
75th Percentile	-3.7	2.5	7.0	1.6	3.5	5.1						
95th Percentile	-6.8	-1.4	2.5	-5.0	1.2	3.5						
# of Portfolios	1,517	1,501	1,484	1,434	1,381	1,133						
● Total Fund Composite	-2.9	(46)	3.2	(66)	9.1	(58)	4.9	(28)	4.9	(40)	6.6	(25)
▲ Policy Index	-2.8	(45)	4.1	(51)	10.5	(39)	5.5	(19)	5.0	(37)	6.6	(24)

InvMetrics All DB Net Return Comparison



	Return (Rank)											
5th Percentile	-7.8		17.5		18.5		23.0		-1.1		17.9	
25th Percentile	-11.8		14.7		15.3		20.7		-3.3		15.8	
Median	-14.2		12.4		12.9		18.9		-4.5		14.5	
75th Percentile	-17.0		8.7		10.8		16.9		-5.5		13.0	
95th Percentile	-22.9		0.5		7.0		13.0		-7.2		9.7	
# of Portfolios	1,531		1,646		1,745		1,580		1,647		1,009	
● Total Fund Composite	-12.8	(35)	13.2	(42)	14.3	(36)	20.5	(27)	-4.6	(53)	17.8	(6)
▲ Policy Index	-12.2	(30)	14.5	(27)	12.4	(56)	19.0	(49)	-4.9	(60)	16.3	(19)

RISK RETURN STATISTICS
October 01, 2018 Through September 30, 2023

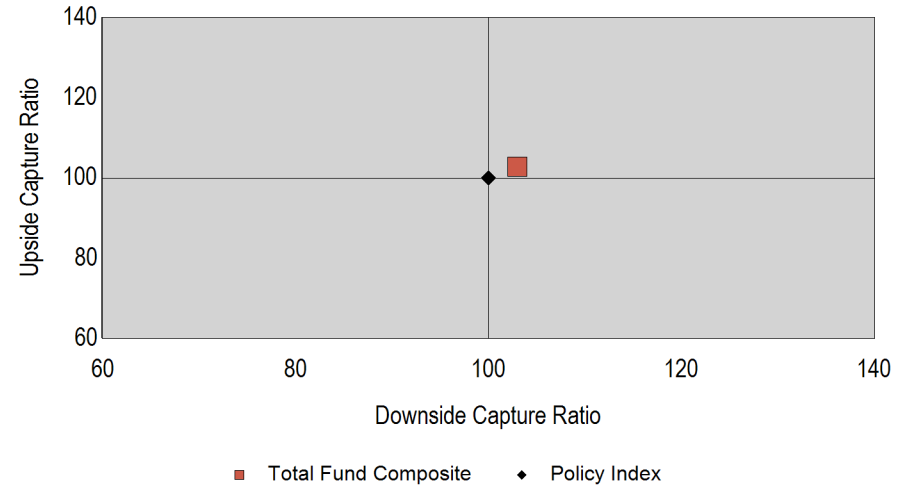
	Total Fund Composite	Policy Index
RETURN SUMMARY STATISTICS		
Number of Periods	20	20
Maximum Return	13.40	12.26
Minimum Return	-15.48	-14.88
Annualized Return	4.95	5.03
Total Return	27.31	27.82
Annualized Excess Return Over Risk Free	3.32	3.40
Annualized Excess Return	-0.08	0.00

	Total Fund Composite	Policy Index
RISK SUMMARY STATISTICS		
Beta	1.04	1.00
Upside Deviation	7.53	7.03
Downside Deviation	10.50	10.08

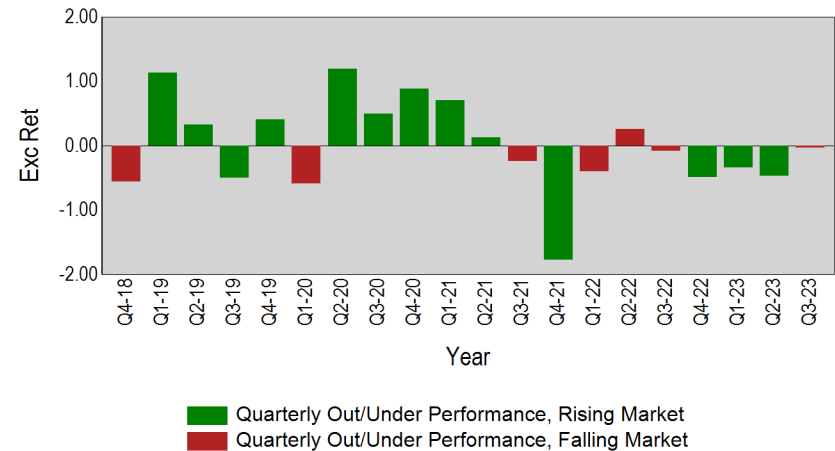
	Total Fund Composite	Policy Index
RISK/RETURN SUMMARY STATISTICS		
Annualized Standard Deviation	14.99	14.30
Alpha	-0.06	0.00
Sharpe Ratio	0.22	0.24
Excess Return Over Market / Risk	-0.01	0.00
Tracking Error	1.41	0.00
Information Ratio	-0.06	--

	Total Fund Composite	Policy Index
CORRELATION STATISTICS		
R-Squared	0.99	1.00
Correlation	1.00	1.00

Upside Capture Ratio vs. Downside Capture Ratio
5 Years Ending September 30, 2023



Quarterly Excess Performance
Total Fund Composite vs. Policy Index



Pennsylvania Municipal Retirement System

Performance Summary (Net)

As of September 30, 2023

	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Market Value	Inception	Inception Date
Total Fund Composite	-2.9	3.2	9.1	4.9	4.9	6.6	3,052,767,474	8.2	Jan-86
Policy Index	-2.8	4.1	10.5	5.5	5.0	6.6		8.7	Jan-86
InvMetrics All DB Net Rank	46	66	58	28	40	25		32	Jan-86
Total Equity Composite	-3.9	7.4	18.6	7.5	--	--	1,666,086,679	7.5	Oct-20
MSCI ACWI IMI Net USD	-3.4	9.4	20.2	6.9	--	--		6.9	Oct-20
U.S. Equity Composite	-3.6	9.9	18.4	9.7	7.8	10.3	983,107,890	8.4	Jan-06
Russell 3000	-3.3	12.4	20.5	9.4	9.1	11.3		9.2	Jan-06
InvMetrics Public DB US Eq Net Rank	67	59	68	54	70	54		39	Jan-06
MFS Large Cap Value	-3.2	-1.1	12.2	--	--	--	126,488,824	5.8	Jun-22
Russell 1000 Value	-3.2	1.8	14.4	--	--	--		6.4	Jun-22
eV US Large Cap Value Equity Net Rank	74	79	74	--	--	--		62	Jun-22
Xponance S&P 500	-3.3	13.0	21.6	--	--	--	264,452,662	-4.3	Dec-21
S&P 500	-3.3	13.1	21.6	--	--	--		-4.3	Dec-21
eV US Large Cap Core Equity Net Rank	56	24	28	--	--	--		45	Dec-21
Northern Trust S&P 500	-3.3	13.1	21.6	--	--	--	260,371,518	-4.3	Dec-21
S&P 500	-3.3	13.1	21.6	--	--	--		-4.3	Dec-21
eV US Large Cap Core Equity Net Rank	56	24	28	--	--	--		45	Dec-21
Polen Focus Growth	-3.3	20.5	22.7	1.2	8.9	13.9	102,253,232	14.0	Oct-10
Russell 1000 Growth	-3.1	25.0	27.7	8.0	12.4	14.5		15.0	Oct-10
eV US Large Cap Growth Equity Net Rank	46	52	67	85	71	15		27	Oct-10
Northern Trust Dow Jones Completion Index	-3.4	8.7	14.3	--	--	--	97,913,154	-11.9	Dec-21
Dow Jones U.S. Completion Total Stock Market	-3.4	8.8	14.3	--	--	--		-12.0	Dec-21
eV US Small-Mid Cap Core Equity Net Rank	41	21	56	--	--	--		91	Dec-21
Copeland SMID Cap Dividend Growth	-5.3	8.0	18.9	12.9	7.1	--	50,441,429	8.5	Sep-17
Russell 2500	-4.8	3.6	10.0	7.5	2.6	--		4.6	Sep-17
Russell 2000	-5.1	2.5	8.9	7.2	2.4	--		4.4	Sep-17
eV US Small Cap Core Equity Net Rank	70	14	14	35	14	--		16	Sep-17
Smith, Graham & Co Small Cap Value	-3.7	0.4	9.7	9.1	3.3	--	42,758,937	4.5	Dec-16
Russell 2000 Value	-3.0	-0.5	7.8	13.3	2.6	--		4.7	Dec-16
Russell 2000	-5.1	2.5	8.9	7.2	2.4	--		5.9	Dec-16
eV US Small Cap Value Equity Net Rank	65	74	79	94	74	--		82	Dec-16
Emerald Small Cap Growth	-8.6	3.6	10.4	1.0	2.8	8.1	38,428,136	9.7	Oct-98
Russell 2000 Growth	-7.3	5.2	9.6	1.1	1.6	6.7		7.1	Oct-98
eV US Small Cap Growth Equity Net Rank	76	57	47	58	72	59		61	Oct-98

Pennsylvania Municipal Retirement System

Performance Summary (Net)

As of September 30, 2023

	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Market Value	Inception	Inception Date
Global Equity Composite	-2.8	0.9	12.3	--	--	--	149,341,088	-7.1	Dec-21
<i>Global Equity Policy Index</i>	-2.5	1.2	11.5	--	--	--		-7.3	Dec-21
<i>InvMetrics Public DB Gbl Eq Net Rank</i>	79	99	99	--	--	--		95	Dec-21
Rhumblin Global Min. Volatility	-2.8	0.9	10.0	--	--	--	149,341,088	-5.4	Dec-21
<i>MSCI ACWI Minimum Volatility Index</i>	-2.5	1.2	9.8	--	--	--		-5.4	Dec-21
<i>MSCI ACWI</i>	-3.4	10.1	20.8	--	--	--		-5.9	Dec-21
<i>eV Global Low Volatility Equity Net Rank</i>	29	66	86	--	--	--		66	Dec-21
Non-U.S Equity Composite	-4.7	4.7	21.0	3.0	3.8	4.2	533,637,700	6.2	May-12
<i>MSCI ACWI ex USA IMI</i>	-3.5	5.3	20.2	3.8	2.6	3.5		5.7	May-12
<i>InvMetrics Public DB ex-US Eq Net Rank</i>	68	66	51	51	18	27		33	May-12
SSGA MSCI World ex US	-4.1	7.0	24.4	6.4	3.8	4.2	250,405,419	5.4	Apr-12
<i>MSCI World ex USA</i>	-4.1	6.7	24.0	6.1	3.4	3.8		5.1	Apr-12
<i>eV ACWI ex-US Core Equity Net Rank</i>	45	35	25	22	32	57		43	Apr-12
Hardman Johnston Int'l Equity	-6.2	0.5	19.9	-1.7	4.5	5.6	95,224,380	6.8	Apr-12
<i>MSCI EAFE</i>	-4.1	7.1	25.6	5.8	3.2	3.8		5.2	Apr-12
<i>MSCI ACWI ex USA Growth</i>	-7.3	2.6	15.8	-1.9	2.5	3.9		4.7	Apr-12
<i>eV EAFE All Cap Equity Net Rank</i>	90	97	75	94	16	10		12	Apr-12
Hudson Edge Int'l Equity	-5.7	4.7	19.6	6.7	5.6	5.5	119,631,293	7.9	Feb-12
<i>MSCI EAFE</i>	-4.1	7.1	25.6	5.8	3.2	3.8		5.6	Feb-12
<i>MSCI ACWI ex USA Value</i>	-0.1	8.2	25.2	9.6	2.3	2.6		3.8	Feb-12
<i>eV EAFE All Cap Equity Net Rank</i>	79	75	77	31	7	10		10	Feb-12
SSGA MSCI Emerging Markets Index	-3.2	1.7	12.1	-2.0	0.5	2.0	68,203,633	5.8	Nov-08
<i>MSCI Emerging Markets</i>	-2.9	1.8	11.7	-1.7	0.6	2.1		6.0	Nov-08
<i>eV Emg Mkts Equity Net Rank</i>	50	67	63	63	78	77		75	Nov-08

Pennsylvania Municipal Retirement System

Performance Summary (Net)

As of September 30, 2023

	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Market Value	Inception	Inception Date
Real Assets Composite	-0.9	-4.3	-7.4	5.0	4.0	6.2	534,668,683	7.3	Apr-93
<i>Real Assets Policy Index</i>	-1.0	-3.9	-5.7	8.5	6.1	7.9		7.5	Apr-93
Forest Investment Associates	1.4	3.7	5.6	8.6	3.9	5.4	144,802,699	4.3	Mar-99
<i>NCREIF Timberland Property Index</i>	1.4	4.9	10.0	9.2	5.9	5.9		6.3	Mar-99
PRISA LP	-3.3	-7.1	-12.5	6.1	5.1	7.6	61,456,369	6.2	Jan-86
<i>NFI-ODCE</i>	-2.2	-8.2	-12.9	6.2	4.7	7.2		6.1	Jan-86
<i>InvMetrics Public DB Real Estate Priv Net Rank</i>	89	25	29	49	42	12		--	Jan-86
PRISA II	-3.8	-8.3	-14.2	6.3	4.9	8.2	123,758,692	4.0	Jul-07
<i>NFI-ODCE</i>	-2.2	-8.2	-12.9	6.2	4.7	7.2		4.7	Jul-07
<i>InvMetrics Public DB Real Estate Priv Net Rank</i>	90	30	56	48	51	1		41	Jul-07
PennMuni-Nuveen U.S. Real Estate Fund	0.0	-6.3	-9.6	1.8	3.7	6.5	203,188,921	5.2	Dec-08
<i>NFI-ODCE</i>	-2.2	-8.2	-12.9	6.2	4.7	7.2		5.6	Dec-08
<i>InvMetrics Public DB Real Estate Priv Net Rank</i>	8	24	20	99	83	79		46	Dec-08
N. Front Street (Nuveen)	0.0	2.3	-22.7	-11.5	-7.4	--	1,462,002	-7.7	Sep-16
<i>Consumer Price Index</i>	0.9	3.7	3.7	5.7	4.0	--		3.5	Sep-16
Total Fixed Income Composite	-2.1	0.5	2.2	-4.9	0.3	1.3	828,620,382	5.5	Jan-86
<i>Bloomberg US Aggregate TR</i>	-3.2	-1.2	0.6	-5.2	0.1	1.1		5.5	Jan-86
<i>InvMetrics Public DB US Fix Inc Net Rank</i>	46	43	38	82	75	63		--	Jan-86
SSGA US Aggregate Bond Index	-3.2	-1.0	0.7	-5.2	0.1	1.1	329,385,347	4.1	Apr-97
<i>Bloomberg US Aggregate TR</i>	-3.2	-1.2	0.6	-5.2	0.1	1.1		4.1	Apr-97
<i>eV US Core Fixed Inc Net Rank</i>	63	64	69	73	76	79		77	Apr-97
Federated Hermes Core Aggregate Strategy	-3.3	-1.7	-0.1	--	--	--	331,202,909	-3.7	Jul-22
<i>Bloomberg US Aggregate TR</i>	-3.2	-1.2	0.6	--	--	--		-3.3	Jul-22
<i>eV US Core Fixed Inc Net Rank</i>	71	94	96	--	--	--		87	Jul-22
Ares Global Multi-Asset Credit	2.4	8.6	--	--	--	--	168,032,126	8.6	Dec-22
<i>50% Bloomberg HY / 50% CSFB Lev Loans</i>	1.9	7.9	--	--	--	--		7.9	Dec-22
<i>eV US High Yield Fixed Inc Net Rank</i>	3	4	--	--	--	--		4	Dec-22
Cash Composite							23,391,729		

*PennMuni-Nuveen and N. Front Street as of 6/30/23

Investment Manager	Asset Class	Status	Reason
MFS Large Cap Value	US Stock Large Cap Value	In Compliance	---
Xponance S&P 500	US Stock Large Cap Core	In Compliance	---
Northern Trust S&P 500	US Stock Large Cap Core	In Compliance	---
Polen Focus Growth	US Stock Large Cap Growth	In Compliance	---
Northern Trust Dow Jones Completion Index	US Stock SMID Cap Core	In Compliance	---
Smith, Graham & Co Small Cap Value	US Stock Small Cap Value	Alert	Organizational Issues
Copeland Small Cap Dividend Growth	US Stock Small Cap Core	In Compliance	---
Emerald Small Cap Growth	US Stock Small Cap Growth	In Compliance	---
Rhumblin Global Min. Volatility	Global Stock Low Volatility	In Compliance	---
SSGA MSCI World ex US	Non-US Stock All Cap Core	In Compliance	---
Hardman Johnston Int'l Equity	Non-US Stock All Cap Core	In Compliance	---
HGK Int'l Equity	Non-US Stock All Cap Core	In Compliance	---
SSGA MSCI Emerging Markets Index	Non-US Stock Emerging	In Compliance	---
Forest Investment Associates	Real Assets - Timberland	In Compliance	---
PRISA LP	Real Estate	In Compliance	---
PRISA II	Real Estate	In Compliance	---
PennMuni-Nuveen U.S. Real Estate Fund	Real Estate	In Compliance	---
N. Front Street (Nuveen)	Real Estate	In Compliance	---
SSGA US Aggregate Bond Index	US Fixed Income Core	In Compliance	---
Federated Hermes Core Aggregate Strategy	US Fixed Income Core	In Compliance	---
Ares Global Multi-Asset Credit Fund	Opportunistic Credit	In Compliance	---

Investment Manager Evaluation Terminology

The following terminology has been developed by Marquette Associates to facilitate efficient communication between the investment program's responsible parties. Each term signifies a particular status with the investment program.

In Compliance – Marquette has not been notified of any issues or changes to the investment manager that would materially impede upon its ability to execute the investment strategy or adhere to any applicable investment guidelines.

Alert – The investment manager has experienced a problem in performance (usually relative to a benchmark), a change in investment characteristics, an alteration in management style, ownership, or key investment professionals, and/or any other irregularities that may impede upon its ability to execute the investment strategy or adhere to any applicable investment guidelines.

On Notice – The investment manager has experienced continued concern with one or more Alert issues. Failure to improve upon stated issues within a certain time frame may justify termination.

Termination – The investment manager has been terminated and transition plans are in place.

Policy Index History

Total Fund Composite		
12/1/2022	Present	32.5% Russell 3000 / 5% Global Equity Policy Index / 17.5% MSCI ACWI ex USA IMI / 15% Real Assets Policy Index / 29% Bloomberg US Aggregate TR / 1% 91 Day T-Bills
1/1/2022	11/30/2022	32.5% Russell 3000 / 10% Global Equity Policy Index / 17.5% MSCI ACWI ex USA IMI / 15% Real Assets Policy Index / 24% Bloomberg US Aggregate TR / 1% 91 Day T-Bills
10/1/2020	12/31/2021	25% S&P 500 / 15% Russell 2000 / 15% MSCI EAFE / 10% MSCI Emerging Markets / 20% NFI-ODCE / 15% Bloomberg US Aggregate TR
Total Equity Composite		
10/1/2020	Present	MSCI ACWI IMI Net USD
U.S. Equity Composite		
1/1/2006	Present	Russell 3000
Large Cap U.S. Equity Composite		
1/1/1986	Present	S&P 500
SMID Cap U.S. Equity Composite		
1/1/1993	Present	Russell 2000
Global Equity Composite		
12/1/2022	Present	100% MSCI ACWI Minimum Volatility Index
1/1/2022	11/30/2022	50% MSCI ACWI / 50% MSCI ACWI Minimum Volatility Index
Non-U.S Equity Composite		
5/31/2012	Present	MSCI ACWI ex USA IMI
Developed Non-U.S. Equity Composite		
1/1/1993	Present	MSCI EAFE
Emerging Markets Composite		
1/1/2009	Present	MSCI Emerging Markets
Real Assets Composite		
1/1/2022	9/30/2023	66.67% NFI-ODCE / 33.33% NCREIF Timberland Property Index
4/1/1993	12/31/2021	100% NFI-ODCE
Total Fixed Income Composite		
1/31/1986	Present	Bloomberg US Aggregate TR
Cash Composite		
	Present	91 Day T-Bills

Pennsylvania Municipal Retirement System

Fee Summary

As of September 30, 2023

Account	Fee Schedule	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
MFS Large Cap Value	0.35% of First 100.0 Mil, 0.33% Thereafter	4.2%	\$436,089	0.34%
Xponance S&P 500	0.02% of Assets	8.7%	\$52,891	0.02%
Northern Trust S&P 500	0.00% of Assets	8.6%	\$10,415	0.00%
Polen Focus Growth	0.50% of First 100.0 Mil, 0.40% Thereafter	3.4%	\$509,013	0.50%
Northern Trust Dow Jones Completion Index	0.02% of Assets	3.2%	\$14,687	0.02%
Copeland SMID Cap Dividend Growth	0.50% of Assets	1.7%	\$252,207	0.50%
Smith, Graham & Co Small Cap Value	0.75% of First 50.0 Mil, 0.60% Thereafter	1.4%	\$320,692	0.75%
Emerald Small Cap Growth	0.60% of First 10.0 Mil, 0.55% of Next 5.0 Mil, 0.50% Thereafter	1.3%	\$204,641	0.53%
Rhumblin Global Min. Volatility	0.07% of Assets	4.9%	\$97,072	0.06%
SSGA MSCI World ex US	0.04% of Assets	8.3%	\$100,162	0.04%
Hardman Johnston Int'l Equity	0.75% of First 25.0 Mil, 0.60% Thereafter	3.1%	\$608,846	0.64%
Hudson Edge Int'l Equity	0.65% of Assets	3.9%	\$777,603	0.65%
SSGA MSCI Emerging Markets Index	0.05% of Assets	2.3%	\$34,102	0.05%
Forest Investment Associates	0.75% of Assets	4.8%	\$1,086,020	0.75%
PRISA LP	1.00% of First 25.0 Mil, 0.95% of Next 25.0 Mil, 0.85% of Next 50.0 Mil, 0.75% of Next 100.0 Mil, 0.70% of Next 100.0 Mil, 0.65% Thereafter	2.0%	\$584,879	0.95%

Pennsylvania Municipal Retirement System

Fee Summary

As of September 30, 2023

Account	Fee Schedule	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
PRISA II	1.20% of First 25.0 Mil, 1.15% of Next 25.0 Mil, 1.05% of Next 50.0 Mil, 0.95% of Next 100.0 Mil, 0.90% of Next 100.0 Mil, 0.85% Thereafter	4.1%	\$1,338,208	1.08%
PennMuni-Nuveen U.S. Real Estate Fund	0.85% of Assets	6.7%	\$1,727,106	0.85%
N. Front Street (Nuveen)	0.85% of Assets	0.0%	\$12,427	0.85%
SSGA US Aggregate Bond Index	0.02% of First 100.0 Mil, 0.01% of Next 300.0 Mil, 0.01% Thereafter	10.9%	\$42,939	0.01%
Federated Hermes Core Aggregate Strategy	0.12% of First 100.0 Mil, 0.10% of Next 400.0 Mil, 0.07% Thereafter	10.9%	\$351,203	0.11%
Ares Global Multi-Asset Credit	0.35% of Assets	5.5%	\$588,112	0.35%
Investment Management Fee		100.0%	\$9,149,313	0.30%

Investment Managers



Pennsylvania Municipal Retirement System

Total Equity Composite

As of September 30, 2023

Characteristics

	Portfolio	MSCI ACWI IMI Net USD
Number of Holdings	6,485	9,207
Weighted Avg. Market Cap. (\$B)	282.2	366.6
Median Market Cap. (\$B)	5.0	1.9
Price To Earnings	18.4	17.5
Price To Book	3.3	3.2
Price To Sales	1.7	1.6
Return on Equity (%)	18.4	18.6
Yield (%)	2.1	2.3

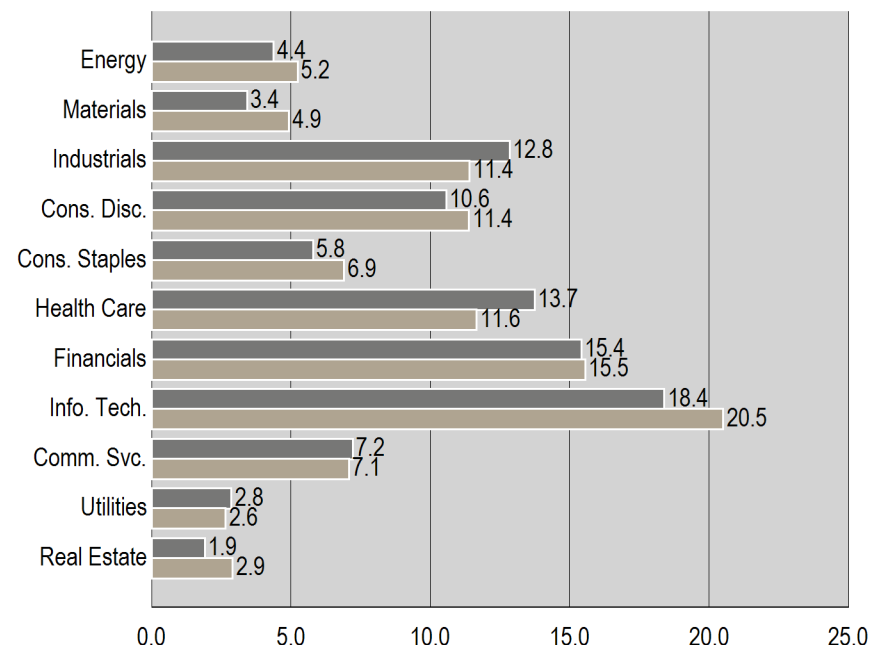
Top Holdings

MICROSOFT CORP	2.5%
APPLE INC	2.2%
AMAZON.COM INC	1.5%
ISHARES MSCI EMERGING MARKETS MIN VOL FACTOR ETF	1.2%
NVIDIA CORPORATION	1.0%
ALPHABET INC	0.9%
ALPHABET INC	0.8%
UNITEDHEALTH GROUP INCORPORATED	0.7%
JPMORGAN CHASE & CO	0.7%
VISA INC	0.7%
Total	12.2%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
Total Equity Composite	15.3%	16.8%	62.5%	5.4%
MSCI ACWI IMI Net USD	17.0%	16.2%	66.8%	0.0%
<i>Weight Over/Under</i>	<i>-1.7%</i>	<i>0.6%</i>	<i>-4.3%</i>	<i>5.4%</i>

Sector Allocation (%) vs MSCI ACWI IMI Net USD



Region Allocation Summary

Region	% of Total	% of Bench	% Diff
North America ex U.S.	3.0%	2.9%	0.1%
United States	63.2%	61.0%	2.2%
Europe Ex U.K.	14.9%	11.9%	2.9%
United Kingdom	4.3%	3.8%	0.5%
Pacific Basin Ex Japan	2.9%	2.9%	0.0%
Japan	5.2%	6.1%	-0.9%
Emerging Markets	5.8%	10.9%	-5.2%
Other	0.7%	0.3%	0.3%
Total	100.0%	100.0%	0.0%

Characteristics

	Portfolio	Russell 3000
Number of Holdings	3,946	2,994
Weighted Avg. Market Cap. (\$B)	413.7	549.4
Median Market Cap. (\$B)	2.1	2.3
Price To Earnings	20.5	21.0
Price To Book	3.8	3.9
Price To Sales	1.9	2.2
Return on Equity (%)	20.7	22.3
Yield (%)	1.6	1.6

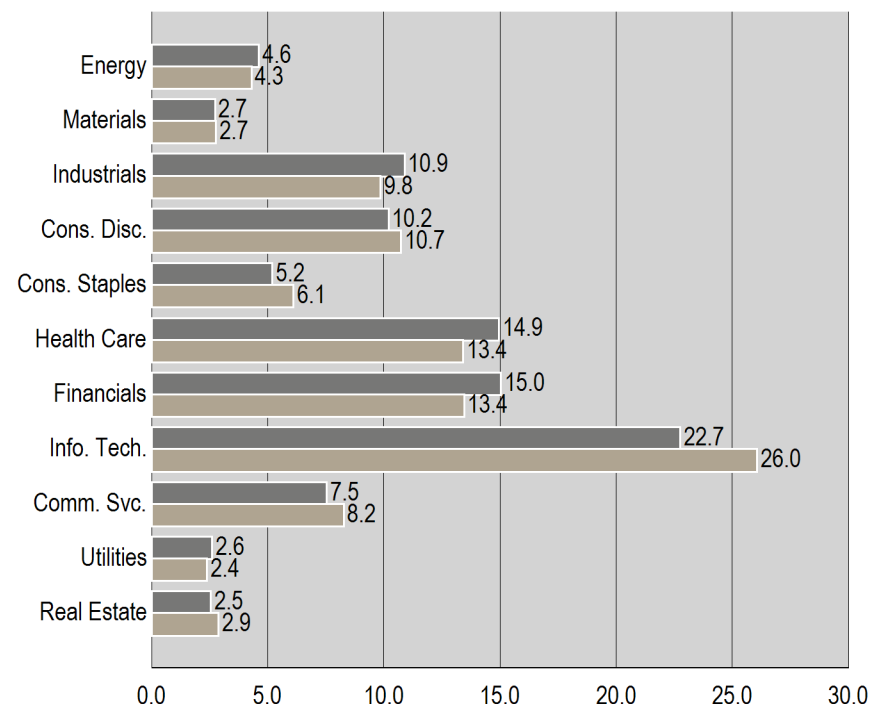
Top Holdings

MICROSOFT CORP	4.2%
APPLE INC	3.8%
AMAZON.COM INC	2.4%
NVIDIA CORPORATION	1.6%
ALPHABET INC	1.6%
ALPHABET INC	1.4%
JPMORGAN CHASE & CO	1.2%
UNITEDHEALTH GROUP INCORPORATED	1.1%
VISA INC	1.1%
MASTERCARD INC	1.1%
Total	19.3%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
U.S. Equity Composite	8.9%	21.6%	66.3%	3.3%
Russell 3000	5.6%	21.1%	73.3%	0.0%
<i>Weight Over/Under</i>	3.3%	0.4%	-7.0%	3.3%

Sector Allocation (%) vs Russell 3000



Common Holdings Matrix

	<i>MFS Large Cap Value</i>		<i>Xponance S&P 500</i>		<i>Northern Trust S&P 500</i>		<i>Polen Focus Growth</i>		<i>Northern Trust Dow Jones Completion Index</i>		<i>Copeland SMID Cap Dividend Growth</i>		<i>Smith, Graham & Co Small Cap Value</i>		<i>Emerald Small Cap Growth</i>	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
MFS Large Cap Value	--	--	66	17	65	17	3	11	1	1	0	0	0	0	0	0
Xponance S&P 500	66	94	--	--	500	99	23	94	6	0	9	13	0	0	0	0
Northern Trust S&P 500	65	93	500	99	--	--	23	94	7	0	9	13	0	0	0	0
Polen Focus Growth	3	5	23	23	23	23	--	--	2	1	0	0	0	0	0	0
Northern Trust Dow Jones Completion Index	1	1	6	1	7	1	2	7	--	--	58	82	68	100	107	93
Copeland SMID Cap Dividend Growth	0	0	9	0	9	0	0	0	58	5	--	--	1	2	5	5
Smith, Graham & Co Small Cap Value	0	0	0	0	0	0	0	0	68	2	1	2	--	--	0	0
Emerald Small Cap Growth	0	0	0	0	0	0	0	0	107	5	5	8	0	0	--	--

Characteristics

	Portfolio	MSCI ACWI IMI Net USD
Number of Holdings	272	9,207
Weighted Avg. Market Cap. (\$B)	99.0	366.6
Median Market Cap. (\$B)	20.4	1.9
Price To Earnings	17.5	17.5
Price To Book	3.3	3.2
Price To Sales	1.1	1.6
Return on Equity (%)	20.9	18.6
Yield (%)	2.7	2.3

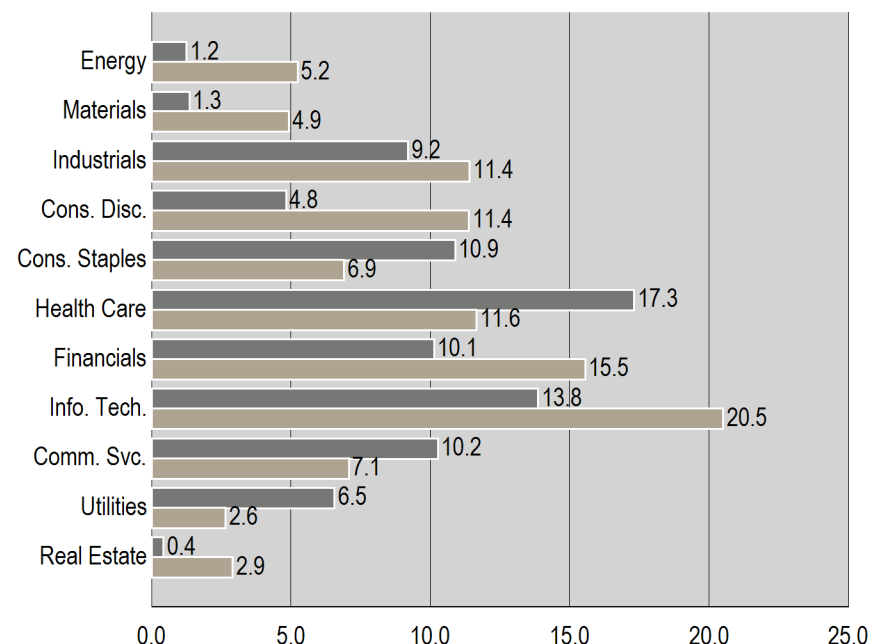
Top Holdings

ISHARES MSCI EMERGING MARKETS MIN VOL FACTOR ETF	12.7%
WASTE MANAGEMENT INC.	1.5%
MERCK & CO INC	1.5%
ELI LILLY AND CO	1.4%
PEPSICO INC	1.3%
JOHNSON & JOHNSON	1.3%
WALMART INC	1.3%
CISCO SYSTEMS INC	1.3%
MOTOROLA SOLUTIONS INC	1.3%
GILEAD SCIENCES INC	1.2%
Total	24.7%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
Global Equity Composite	20.0%	24.6%	54.8%	0.6%
MSCI ACWI IMI Net USD	17.0%	16.2%	66.8%	0.0%
<i>Weight Over/Under</i>	3.0%	8.5%	-12.0%	0.6%

Sector Allocation (%) vs MSCI ACWI IMI Net USD



Region Allocation Summary

Region	% of Total	% of Bench	% Diff
North America ex U.S.	1.9%	2.9%	-1.1%
United States	68.4%	61.0%	7.4%
Europe Ex U.K.	6.3%	11.9%	-5.6%
United Kingdom	0.3%	3.8%	-3.5%
Pacific Basin Ex Japan	3.4%	2.9%	0.5%
Japan	10.5%	6.1%	4.4%
Emerging Markets	8.4%	10.9%	-2.5%
Other	0.7%	0.3%	0.4%
Total	100.0%	100.0%	0.0%

Common Holdings Matrix

ERROR:
Error building Common Holdings Matrix-No accounts found

Characteristics

	Portfolio	MSCI ACWI ex USA IMI
Number of Holdings	2,535	6,730
Weighted Avg. Market Cap. (\$B)	76.7	73.8
Median Market Cap. (\$B)	8.7	1.6
Price To Earnings	15.2	13.5
Price To Book	2.6	2.3
Price To Sales	1.4	1.1
Return on Equity (%)	14.5	14.1
Yield (%)	2.8	3.4

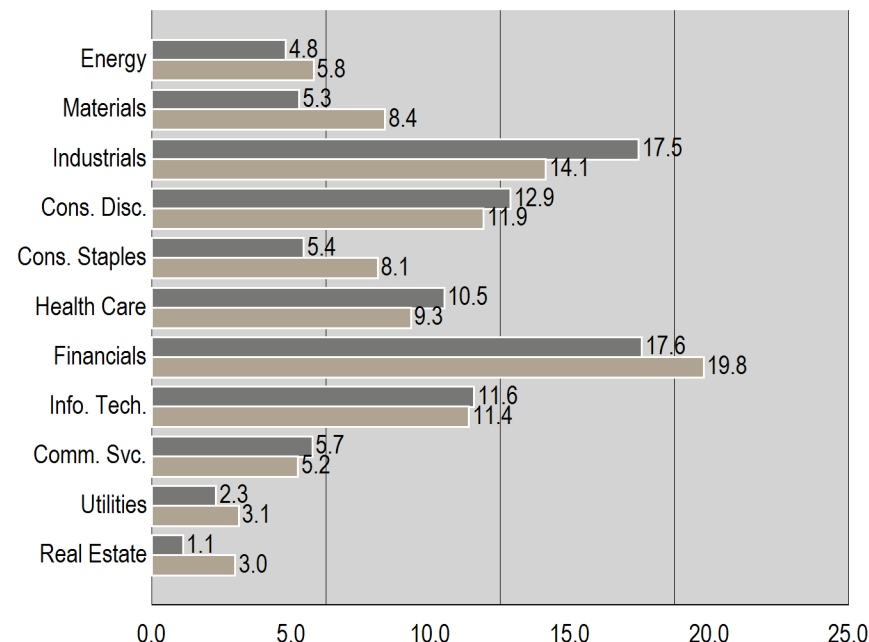
Top Holdings

RHEINMETALL	1.9%
ASTRAZENECA PLC	1.5%
ASML HOLDING NV	1.5%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	1.4%
SAFRAN SA	1.2%
BAE SYSTEMS PLC	1.2%
AIRBUS SE	1.1%
AIA GROUP LTD	1.1%
DEUTSCHE TELEKOM AG	1.1%
SANOFI	1.0%
Total	13.2%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
Non-U.S Equity Composite	11.1%	27.5%	50.8%	10.6%
MSCI ACWI ex USA IMI	27.7%	23.5%	48.8%	0.0%
<i>Weight Over/Under</i>	<i>-16.6%</i>	<i>3.9%</i>	<i>2.0%</i>	<i>10.6%</i>

Sector Allocation (%) vs MSCI ACWI ex USA IMI



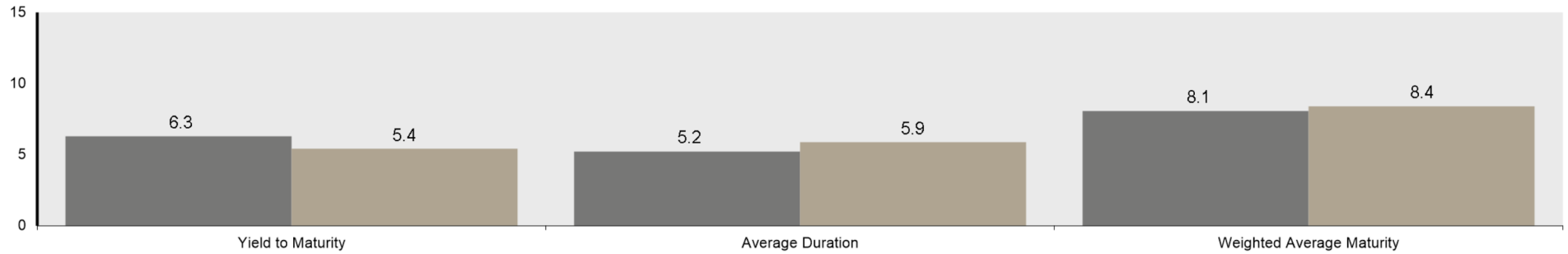
Region Allocation Summary

Region	% of Total	% of Bench	% Diff
North America ex U.S.	8.8%	7.5%	1.3%
United States	0.7%	0.0%	0.7%
Europe Ex U.K.	39.4%	30.6%	8.8%
United Kingdom	11.5%	9.8%	1.7%
Pacific Basin Ex Japan	8.1%	7.5%	0.5%
Japan	13.8%	15.6%	-1.8%
Emerging Markets	16.2%	28.1%	-11.9%
Other	1.4%	0.9%	0.6%
Total	100.0%	100.0%	0.0%

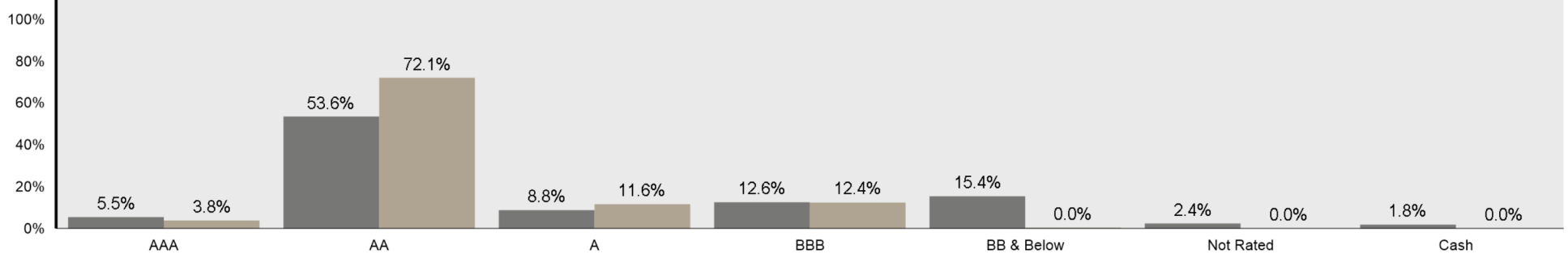
Common Holdings Matrix

	<i>SSGA MSCI World ex US</i>		<i>Hardman Johnston Int'l Equity</i>		<i>Hudson Edge Int'l Equity</i>		<i>SSGA MSCI Emerging Markets Index</i>	
	#	%	#	%	#	%	#	%
SSGA MSCI World ex US	--	--	17	55	29	84	1	0
Hardman Johnston Int'l Equity	17	6	--	--	3	8	5	8
Hudson Edge Int'l Equity	29	6	3	9	--	--	3	1
SSGA MSCI Emerging Markets Index	1	0	5	16	3	8	--	--

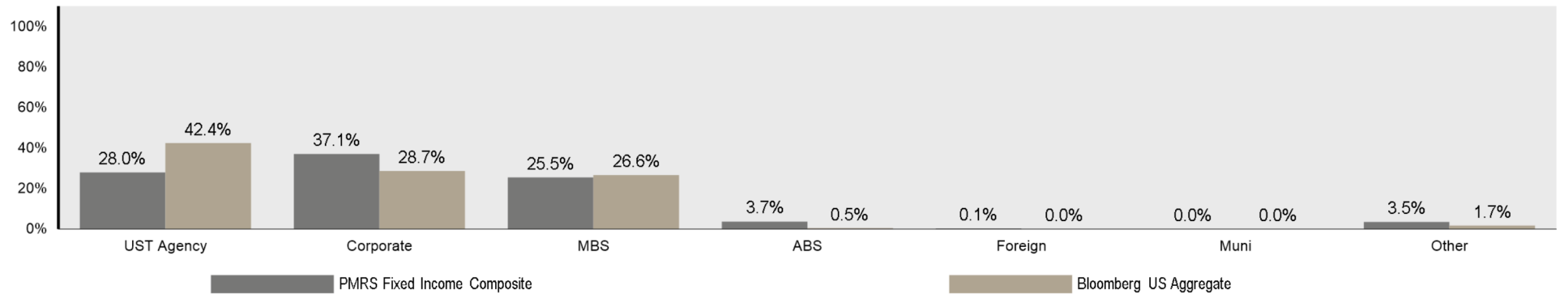
Yield to Maturity



Credit Quality



US Sector



Manager Summary: Active strategy holding diversified portfolio of 70-80 stocks. Stock selection focuses on bottom-up company analysis seeking to identify high quality undervalued stocks that have durable franchises, significant free cash flow, solid balance sheets and strong management teams.

Characteristics

	Portfolio	Russell 1000 Value
Number of Holdings	73	845
Weighted Avg. Market Cap. (\$B)	120.7	139.9
Median Market Cap. (\$B)	70.1	12.2
Price To Earnings	18.1	15.7
Price To Book	2.9	2.4
Price To Sales	1.9	1.7
Return on Equity (%)	25.7	15.8
Yield (%)	2.6	2.5

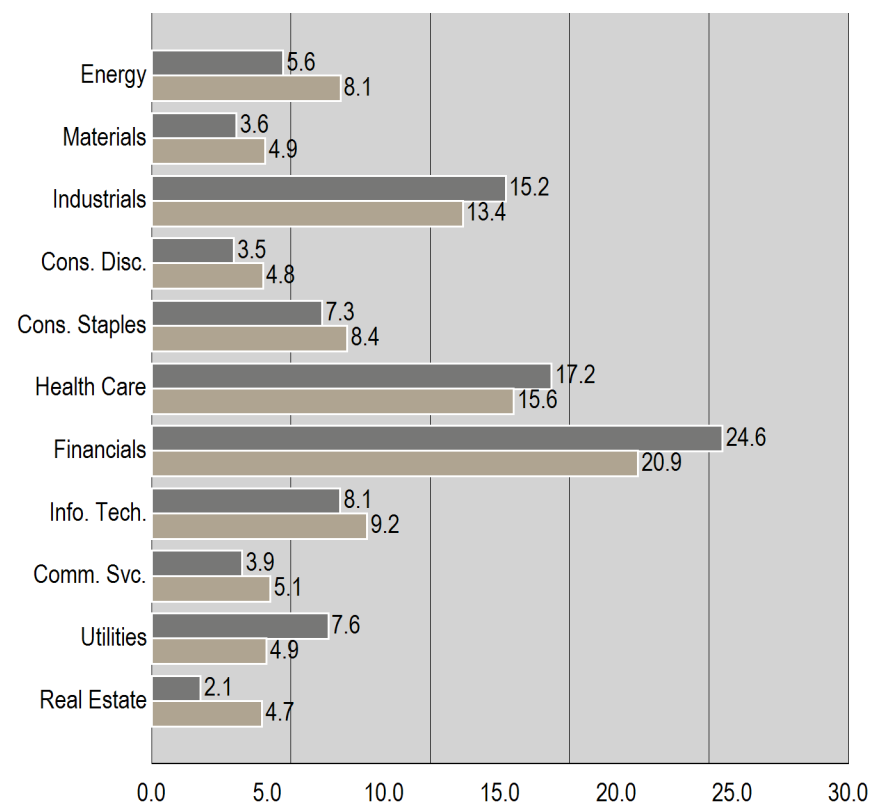
Top Holdings

JPMORGAN CHASE & CO	4.2%
THE CIGNA GROUP	3.0%
CONOCOPHILLIPS	3.0%
COMCAST CORP	2.8%
JOHNSON & JOHNSON	2.8%
MARSH & MCLENNAN COMPANIES INC	2.7%
AON PLC	2.7%
PROGRESSIVE CORP (THE)	2.5%
MCKESSON CORP	2.4%
NORTHROP GRUMMAN CORP	2.3%
Total	28.4%

Market Capitalization

	Small Cap	Mid Cap	Large Cap
MFS Large Cap Value	0.0%	10.4%	89.6%
Russell 1000 Value	2.4%	32.1%	65.6%
<i>Weight Over/Under</i>	<i>-2.4%</i>	<i>-21.7%</i>	<i>24.1%</i>

Sector Allocation (%) vs Russell 1000 Value



Manager Summary: Passive strategy that seeks to replicate the return of the Standard & Poor’s 500 index. This strategy is a low-cost option to gain diversified exposure to U.S. domiciled companies by owning the 500 largest companies by market capitalization in the U.S.

Characteristics

	Portfolio	S&P 500
Number of Holdings	505	503
Weighted Avg. Market Cap. (\$B)	624.2	626.7
Median Market Cap. (\$B)	30.4	30.4
Price To Earnings	21.9	22.1
Price To Book	4.2	4.2
Price To Sales	2.6	2.6
Return on Equity (%)	28.9	28.9
Yield (%)	1.7	1.6

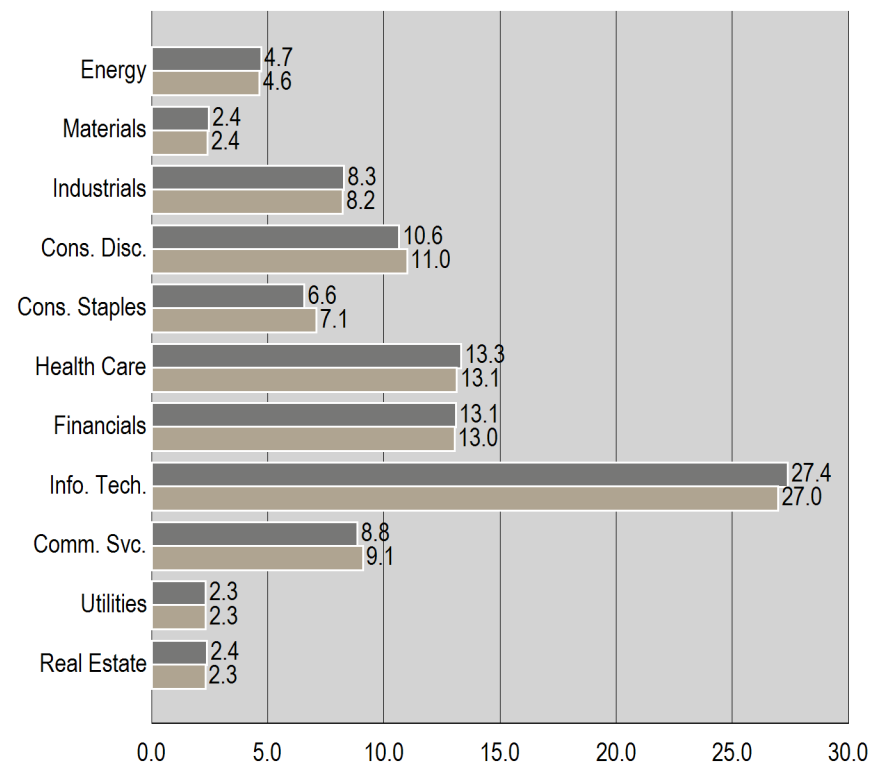
Top Holdings

APPLE INC	7.0%
MICROSOFT CORP	6.5%
AMAZON.COM INC	3.2%
NVIDIA CORPORATION	3.0%
ALPHABET INC	2.2%
TESLA INC	1.9%
META PLATFORMS INC	1.8%
ALPHABET INC	1.8%
BERKSHIRE HATHAWAY INC	1.8%
EXXON MOBIL CORP	1.3%
Total	30.5%

Market Capitalization

	Small Cap	Mid Cap	Large Cap
Xponance S&P 500	0.0%	15.3%	84.7%
S&P 500	0.3%	15.1%	84.6%
<i>Weight Over/Under</i>	<i>-0.3%</i>	<i>0.2%</i>	<i>0.1%</i>

Sector Allocation (%) vs S&P 500



Manager Summary: Passive strategy that seeks to replicate the return of the Standard & Poor's 500 index. This strategy is a low-cost option to gain diversified exposure to U.S. domiciled companies by owning the 500 largest companies by market capitalization in the U.S.

Characteristics

	Portfolio	S&P 500
Number of Holdings	506	503
Weighted Avg. Market Cap. (\$B)	625.0	626.7
Median Market Cap. (\$B)	30.0	30.4
Price To Earnings	22.0	22.1
Price To Book	4.2	4.2
Price To Sales	2.6	2.6
Return on Equity (%)	28.8	28.9
Yield (%)	1.7	1.6

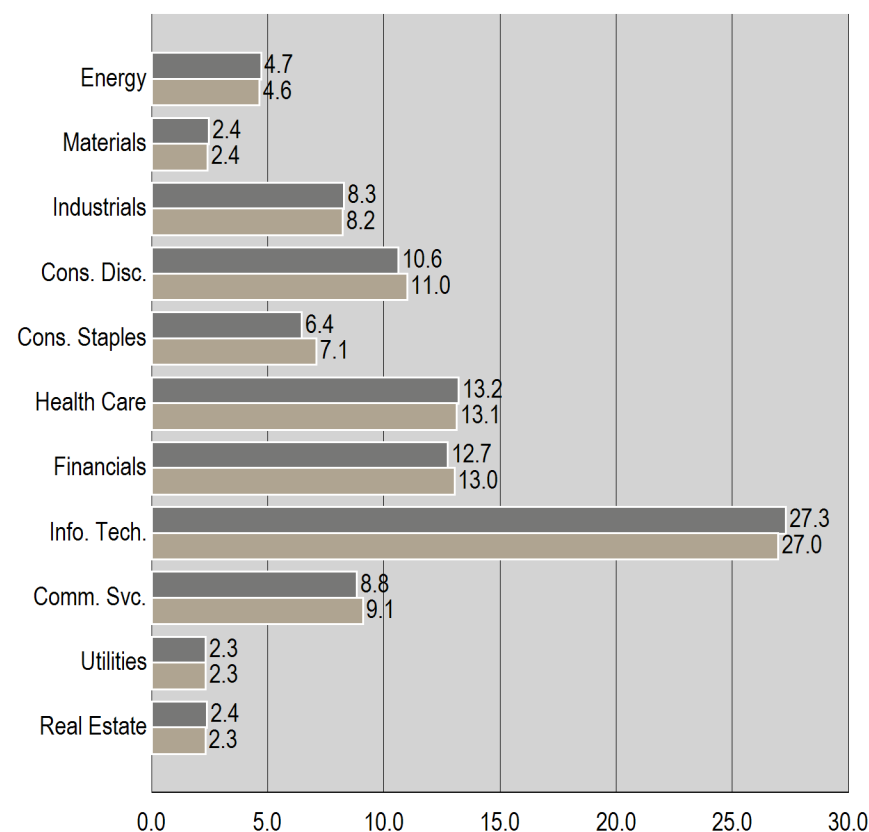
Top Holdings

APPLE INC	7.0%
MICROSOFT CORP	6.5%
AMAZON.COM INC	3.2%
NVIDIA CORPORATION	3.0%
ALPHABET INC	2.2%
TESLA INC	1.9%
META PLATFORMS INC	1.9%
ALPHABET INC	1.8%
BERKSHIRE HATHAWAY INC	1.8%
EXXON MOBIL CORP	1.3%
Total	30.6%

Market Capitalization

	Small Cap	Mid Cap	Large Cap
Northern Trust S&P 500	0.0%	15.4%	84.6%
S&P 500	0.3%	15.1%	84.6%
<i>Weight Over/Under</i>	<i>-0.3%</i>	<i>0.3%</i>	<i>0.0%</i>

Sector Allocation (%) vs S&P 500



Manager Summary: Concentrated U.S. large cap growth portfolio with 20-30 names. Investment process begins with negative screening, only including names with robust financials, strong management and attractive earnings growth potential. Then team of generalists perform bottom-up fundamental analysis reviewing industry dynamics, competitive advantage, free cash flow modeling, meet with mgmt. and perform worst case scenarios. High active share. Position limit: 50% limit on sector exposure. Low portfolio turnover (30%).

Characteristics

	Portfolio	Russell 1000 Growth
Number of Holdings	26	446
Weighted Avg. Market Cap. (\$B)	528.8	964.8
Median Market Cap. (\$B)	196.3	17.1
Price To Earnings	38.1	31.8
Price To Book	7.8	10.4
Price To Sales	5.5	4.2
Return on Equity (%)	38.1	45.8
Yield (%)	0.5	0.8

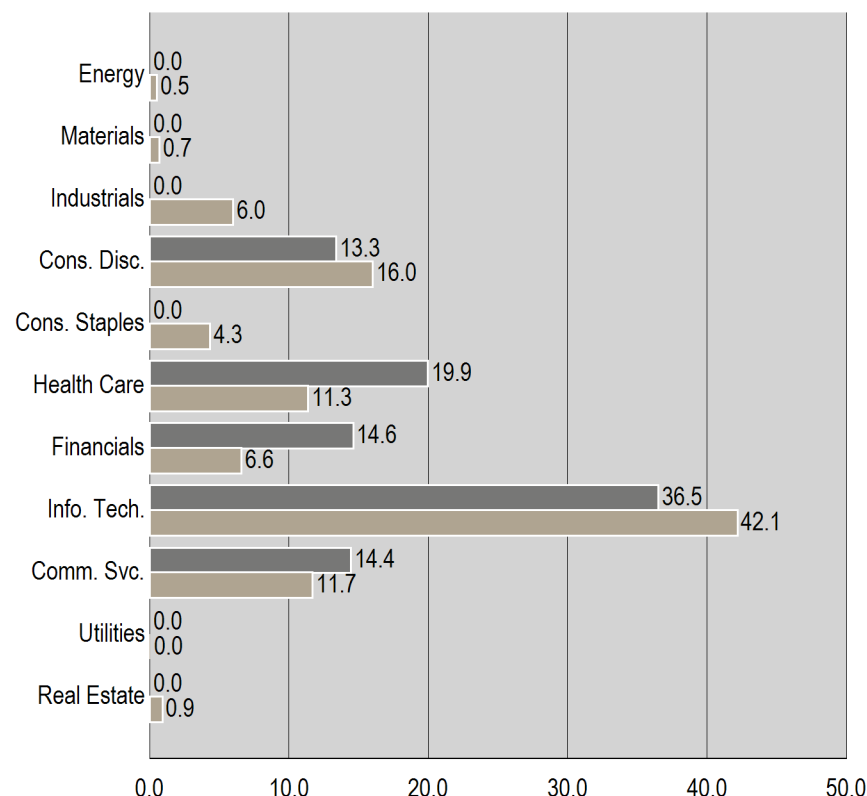
Top Holdings

NETFLIX INC	7.1%
SERVICENOW INC	6.9%
AMAZON.COM INC	6.9%
ADOBE INC	6.6%
MICROSOFT CORP	6.4%
MASTERCARD INC	5.6%
ALPHABET INC	5.4%
VISA INC	5.0%
SALESFORCE INC	5.0%
AIRBNB INC	4.8%
Total	59.7%

Market Capitalization

	Small Cap	Mid Cap	Large Cap
Polen Focus Growth	0.0%	5.8%	94.2%
Russell 1000 Growth	1.4%	10.7%	87.9%
<i>Weight Over/Under</i>	-1.4%	-4.8%	6.3%

Sector Allocation (%) vs Russell 1000 Growth



Manager Summary: The fund employs a replication technique in order to approximate the risk and return characteristics of the Dow Jones U.S. Completion Total Stock Market Index. This Index is commonly used to represent the small and mid cap segments of the U.S. equity market. The 'completion' index is a sub-set of the DJ US Total Stock Market Index that excludes components of the S&P500.

Characteristics

	Portfolio	Dow Jones U.S. Completion Total Stock Market
Number of Holdings	3,404	3,666
Weighted Avg. Market Cap. (\$B)	11.8	11.8
Median Market Cap. (\$B)	0.6	0.6
Price To Earnings	15.3	15.3
Price To Book	2.8	2.8
Price To Sales	1.3	1.3
Return on Equity (%)	5.1	5.0
Yield (%)	1.5	1.5

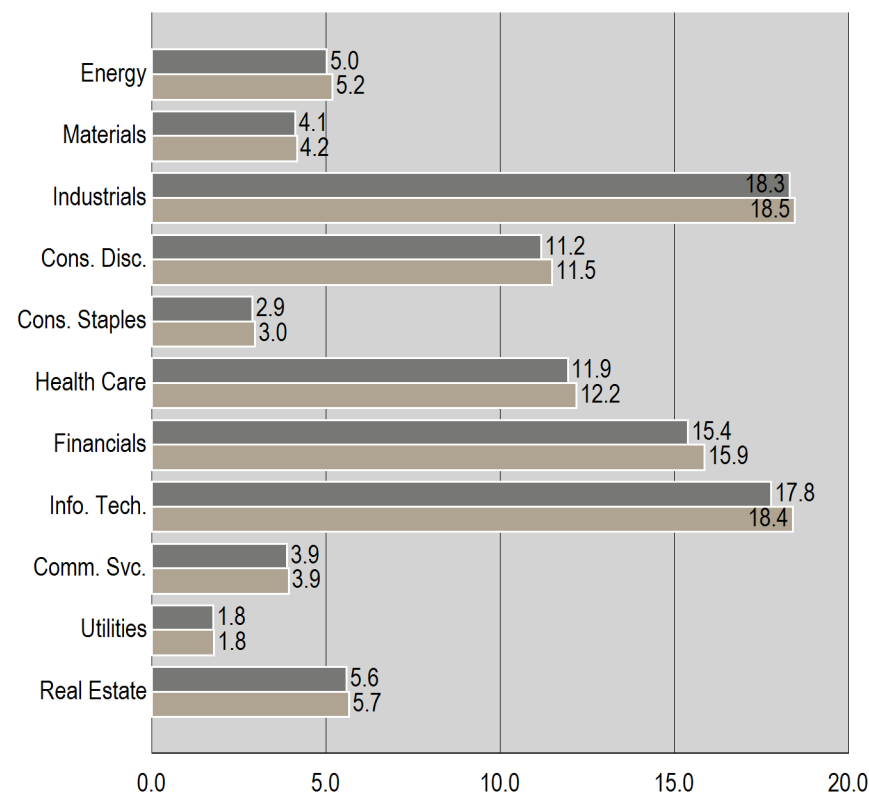
Top Holdings

UBER TECHNOLOGIES INC	1.6%
SNOWFLAKE INC	0.8%
MARVELL TECHNOLOGY INC	0.8%
LULULEMON ATHLETICA INC	0.7%
WORKDAY INC	0.7%
CHENIERE ENERGY INC.	0.7%
KKR & CO INC	0.7%
APOLLO GLOBAL MANAGEMENT INC	0.7%
CROWDSTRIKE HOLDINGS INC	0.6%
VMWARE INC	0.6%
Total	7.8%

Market Capitalization

	Small Cap	Mid Cap	Large Cap
Northern Trust Dow Jones Completion Index	28.5%	63.0%	8.5%
Dow Jones U.S. Completion Total Stock Market	36.3%	56.2%	7.5%
<i>Weight Over/Under</i>	<i>-7.8%</i>	<i>6.8%</i>	<i>0.9%</i>

Sector Allocation (%) vs Dow Jones U.S. Completion Total Stock Market



Manager Summary: Minority-owned investment management firm with fundamental bottom-up process. Stocks are first screened based on earnings, book value, and cash flow criteria with fundamental analysis performed on the top 20% within each respective sector. Sell candidates are companies that have dropped to the bottom 40% of their screen. The strategy holds 50-75 positions and is typically within plus/minus 5% of index sector weightings.

Characteristics

	Portfolio	Russell 2000 Value
Number of Holdings	71	1,448
Weighted Avg. Market Cap. (\$B)	2.7	2.4
Median Market Cap. (\$B)	1.3	0.8
Price To Earnings	11.3	10.2
Price To Book	1.9	1.6
Price To Sales	0.5	0.9
Return on Equity (%)	11.0	6.4
Yield (%)	1.6	2.7

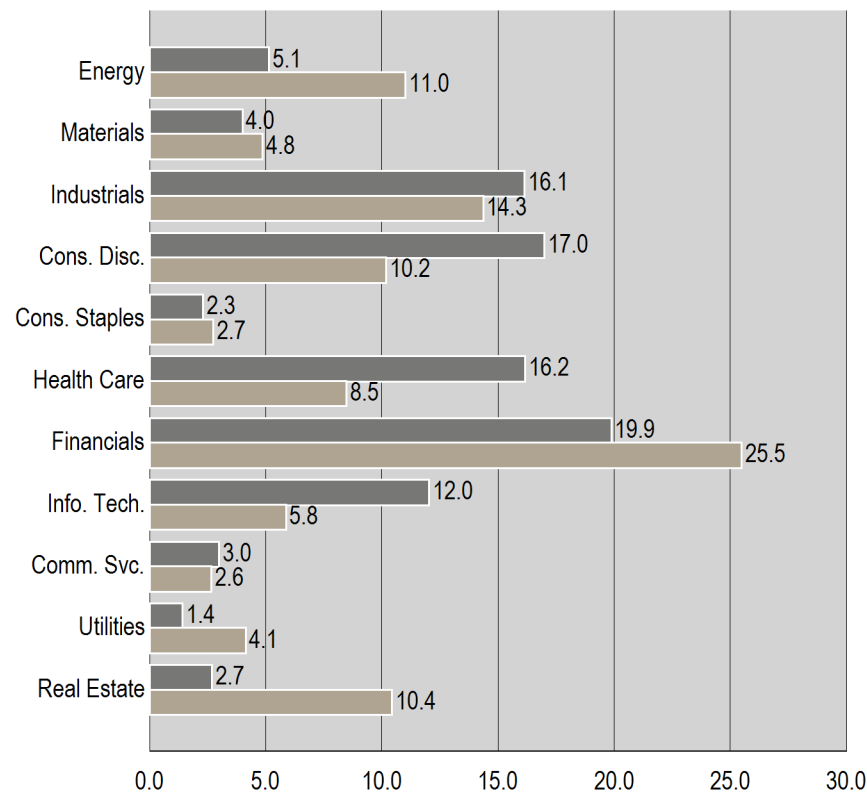
Top Holdings

DECKERS OUTDOOR CORP	2.9%
GROUP 1 AUTOMOTIVE INC.	2.8%
SELECTIVE INSURANCE GROUP INC	2.7%
LITHIA MOTORS INC.	2.5%
KOPPERS HOLDINGS INC	2.4%
DYCOM INDUSTRIES INC.	2.4%
HIBBETT INC	2.2%
SELECT MEDICAL HOLDINGS CORP	2.1%
EARTHSTONE ENERGY INC	2.1%
PRIMORIS SERVICES CORP	2.1%
Total	24.2%

Market Capitalization

	Small Cap	Mid Cap	Large Cap
Smith, Graham & Co Small Cap Value	75.2%	24.8%	0.0%
Russell 2000 Value	79.4%	20.6%	0.0%
<i>Weight Over/Under</i>	<i>-4.2%</i>	<i>4.2%</i>	<i>0.0%</i>

Sector Allocation (%) vs Russell 2000 Value



Manager Summary: A bottom-up fundamental manager who views dividend growth as a litmus test for earnings quality and focuses on attributes such as dividend coverage, cash flow strength, earnings growth, and return on capital. Fundamental research is focused on identifying companies with strong competitive positions that support steadily rising dividends. Strategy invests in larger, more established small cap firms while tending to underweight the lower market cap ranges. The strategy seeks sector diversification with 45-60 holdings.

Characteristics

	Portfolio	Russell 2500
Number of Holdings	70	2,485
Weighted Avg. Market Cap. (\$B)	7.2	6.3
Median Market Cap. (\$B)	5.3	1.4
Price To Earnings	17.9	14.5
Price To Book	3.3	2.5
Price To Sales	1.8	1.2
Return on Equity (%)	19.7	9.4
Yield (%)	2.0	1.8

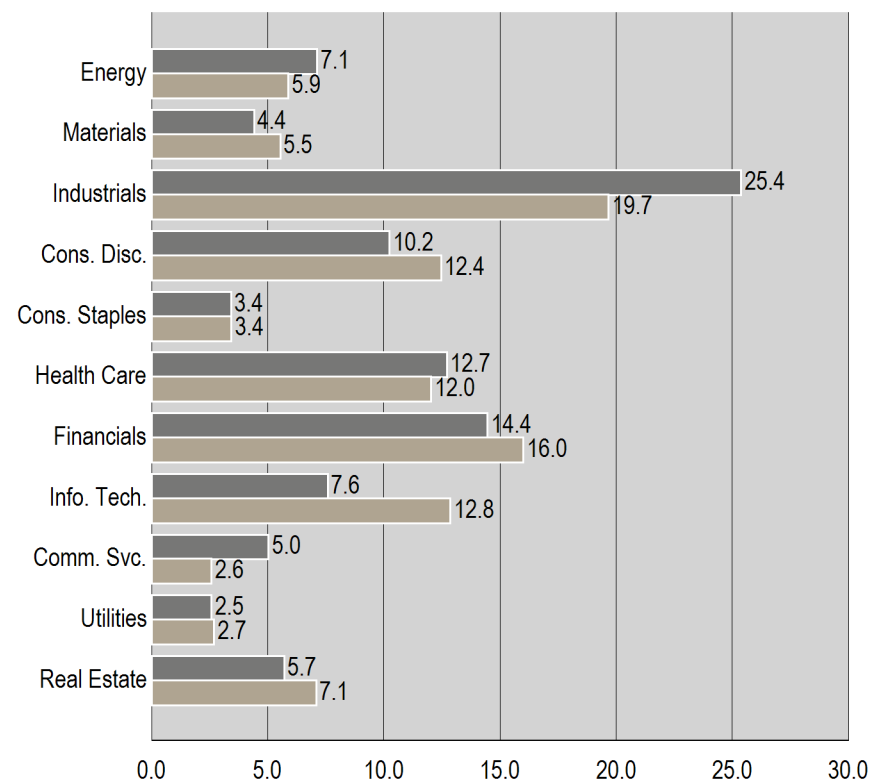
Top Holdings

RELIANCE STEEL & ALUMINUM CO	2.0%
ENSIGN GROUP INC (THE)	2.0%
NORTHERN OIL AND GAS INC	1.9%
HAMILTON LANE INC	1.9%
CASEY'S GENERAL STORES INC.	1.9%
WINGSTOP INC	1.9%
ENCOMPASS HEALTH CORP	1.9%
OASIS PETROLEUM INC	1.9%
STERIS PLC	1.9%
BROADRIDGE FINANCIAL SOLUTIONS INC	1.8%
Total	19.1%

Market Capitalization

	Small Cap	Mid Cap	Large Cap
Copeland SMID Cap Dividend Growth	23.8%	76.2%	0.0%
Russell 2500	36.9%	63.1%	0.0%
<i>Weight Over/Under</i>	<i>-13.1%</i>	<i>13.1%</i>	<i>0.0%</i>

Sector Allocation (%) vs Russell 2500



Manager Summary: Core growth strategy, fundamental, bottom-up process seeking companies with a competitive advantage, market leadership, growth rates exceeding peers, differentiated growth drivers, and low research coverage. Analysts work across the market cap spectrum supporting small, mid, and all-cap strategies with coverage of dynamic sectors. The strategy holds 110-125 companies and portfolio construction limits of no more than 15% in any one industry group.

Characteristics

	Portfolio	Russell 2000 Growth
Number of Holdings	113	1,084
Weighted Avg. Market Cap. (\$B)	3.7	3.4
Median Market Cap. (\$B)	2.9	1.2
Price To Earnings	22.1	20.8
Price To Book	3.8	3.6
Price To Sales	2.4	1.7
Return on Equity (%)	-5.7	2.4
Yield (%)	0.5	0.8

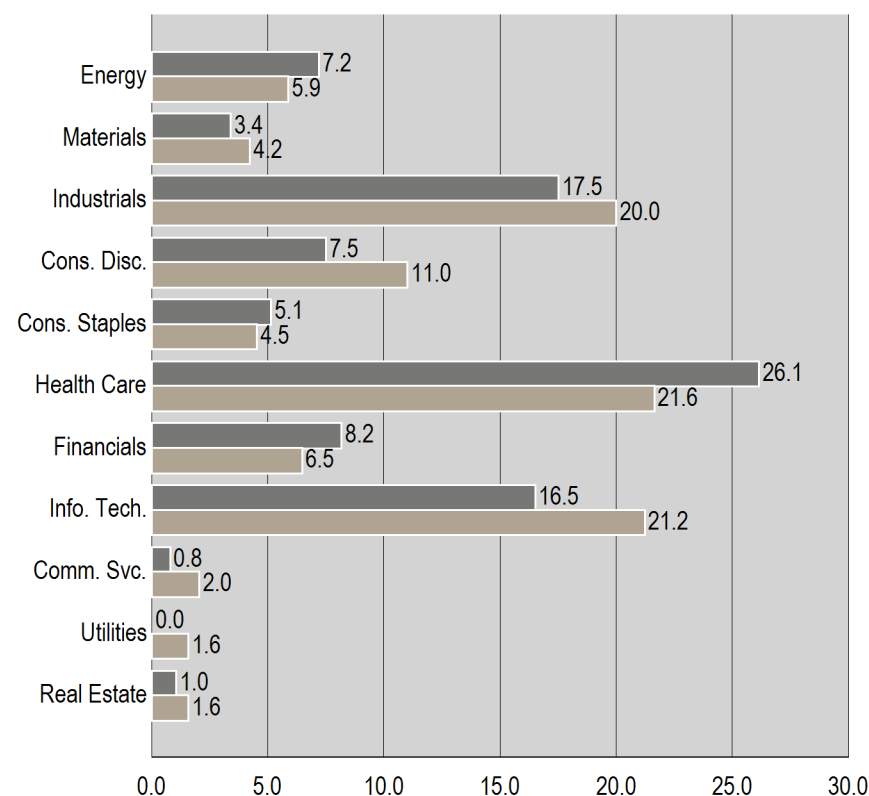
Top Holdings

CARPENTER TECHNOLOGY CORP	2.3%
CHART INDUSTRIES INC	2.1%
SUPER MICRO COMPUTER INC	2.0%
SIMPLY GOOD FOODS CO (THE)	1.9%
TRINET GROUP INC	1.9%
CHURCHILL DOWNS INC	1.9%
TENABLE HOLDINGS INC	1.8%
ACADIA PHARMACEUTICALS INC	1.7%
FRESHPET INC	1.7%
LIVANOVA PLC	1.6%
Total	19.0%

Market Capitalization

	Small Cap	Mid Cap	Large Cap
Emerald Small Cap Growth	61.8%	38.2%	0.0%
Russell 2000 Growth	64.5%	35.5%	0.0%
<i>Weight Over/Under</i>	<i>-2.8%</i>	<i>2.8%</i>	<i>0.0%</i>

Sector Allocation (%) vs Russell 2000 Growth



Manager Summary: The fund invests primarily in U.S. and foreign stocks that are expected to minimize volatility relative to the global equity market. To reduce volatility, the fund will consider stocks' risk and diversification characteristics and seek to hedge away most of the currency exposure resulting from its foreign stock holdings.

Characteristics

	Portfolio	MSCI ACWI
Number of Holdings	272	2,947
Weighted Avg. Market Cap. (\$B)	99.0	408.9
Median Market Cap. (\$B)	20.4	12.1
Price To Earnings	17.5	18.0
Price To Book	3.3	3.3
Price To Sales	1.1	1.8
Return on Equity (%)	20.9	21.1
Yield (%)	2.7	2.3

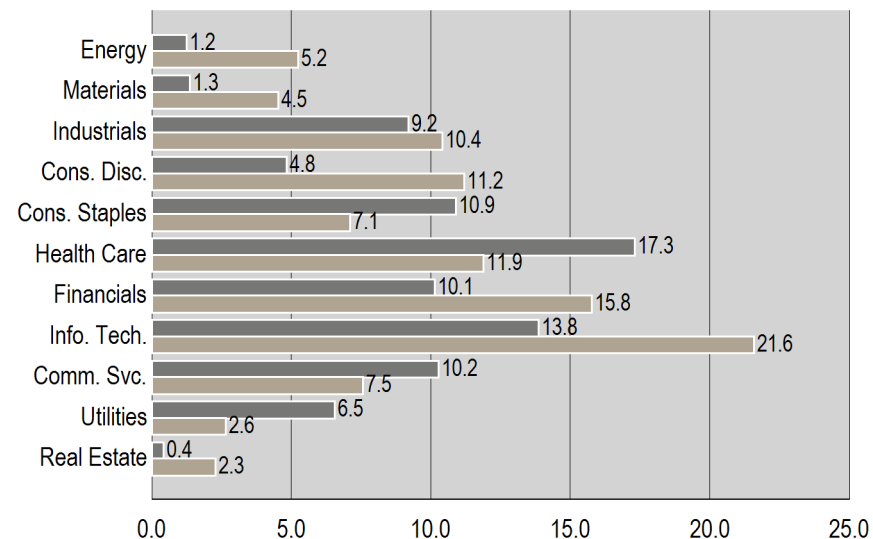
Top Holdings

ISHARES MSCI EMERGING MARKETS MIN VOL FACTOR ETF	12.7%
WASTE MANAGEMENT INC.	1.5%
MERCK & CO INC	1.5%
ELI LILLY AND CO	1.4%
PEPSICO INC	1.3%
JOHNSON & JOHNSON	1.3%
WALMART INC	1.3%
CISCO SYSTEMS INC	1.3%
MOTOROLA SOLUTIONS INC	1.3%
GILEAD SCIENCES INC	1.2%
Total	24.7%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
Rhumblin Global Min. Volatility	20.0%	24.6%	54.8%	0.6%
MSCI ACWI	7.2%	17.8%	75.1%	0.0%
<i>Weight Over/Under</i>	<i>12.8%</i>	<i>6.9%</i>	<i>-20.3%</i>	<i>0.6%</i>

Sector Allocation (%) vs MSCI ACWI



Region Allocation Summary

Region	% of Total	% of Bench	% Diff
North America ex U.S.	1.9%	2.9%	-1.0%
United States	68.4%	62.3%	6.2%
Europe Ex U.K.	6.3%	12.1%	-5.8%
United Kingdom	0.3%	3.7%	-3.4%
Pacific Basin Ex Japan	3.4%	2.7%	0.7%
Japan	10.5%	5.5%	5.0%
Emerging Markets	8.4%	10.6%	-2.1%
Other	0.7%	0.3%	0.5%
Total	100.0%	100.0%	0.0%

Manager Summary: Passive strategy that seeks to replicate the returns of the MSCI ACWI ex US index. This strategy is a low-cost option to gain diversified exposure to internationally based companies.

Characteristics

	Portfolio	MSCI World ex USA
Number of Holdings	1,059	883
Weighted Avg. Market Cap. (\$B)	76.5	78.2
Median Market Cap. (\$B)	10.2	12.3
Price To Earnings	14.1	14.0
Price To Book	2.3	2.3
Price To Sales	1.2	1.2
Return on Equity (%)	14.8	15.1
Yield (%)	3.5	3.5

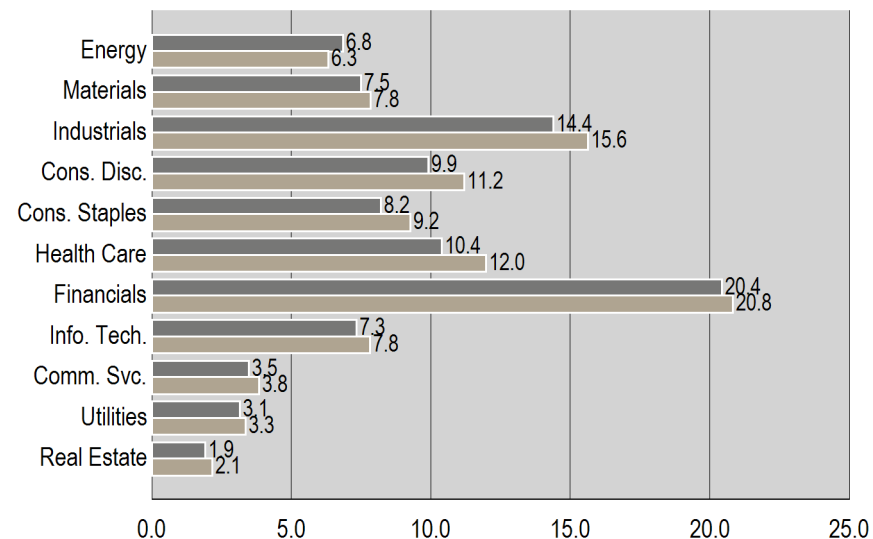
Top Holdings

NESTLE SA, CHAM UND VEVEY	1.7%
NOVO NORDISK A/S	1.6%
ASML HOLDING NV	1.4%
NOVARTIS AG	1.2%
ROYAL BANK OF CANADA	1.2%
SHELL PLC	1.2%
LVMH MOET HENNESSY LOUIS VUITTON SE	1.2%
ASTRAZENECA PLC	1.2%
ROCHE HOLDING AG	1.1%
TORONTO-DOMINION BANK (THE)	1.1%
Total	12.8%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
SSGA MSCI World ex US	8.3%	25.5%	55.8%	10.4%
MSCI World ex USA	10.3%	27.8%	61.9%	0.0%
<i>Weight Over/Under</i>	-2.0%	-2.3%	-6.1%	10.4%

Sector Allocation (%) vs MSCI World ex USA



Region Allocation Summary

Region	% of Total	% of Bench	% Diff
North America ex U.S.	17.2%	10.6%	6.6%
United States	0.8%	0.0%	0.8%
Europe Ex U.K.	43.6%	44.5%	-0.8%
United Kingdom	10.0%	13.7%	-3.7%
Pacific Basin Ex Japan	8.9%	10.1%	-1.3%
Japan	18.8%	20.5%	-1.7%
Emerging Markets	0.0%	0.0%	0.0%
Other	0.7%	0.6%	0.0%
Total	100.0%	100.0%	0.0%

Manager Summary: Concentrated portfolio (20-30 names). Utilizes fundamental research invests in quality companies with 10% EPS growth and market leaders, invest at attractive valuation. Turnover is between 20-30%. Maximum position is 5%. Given the concentrated nature of the portfolio, high idiosyncratic risk in the portfolio and sizable tracking error. High active share (around 90-95%). No currency hedge.

Characteristics

	Portfolio	MSCI EAFE
Number of Holdings	30	795
Weighted Avg. Market Cap. (\$B)	92.5	81.8
Median Market Cap. (\$B)	47.1	12.1
Price To Earnings	26.1	13.9
Price To Book	3.7	2.4
Price To Sales	2.2	1.2
Return on Equity (%)	14.3	15.7
Yield (%)	1.0	3.5

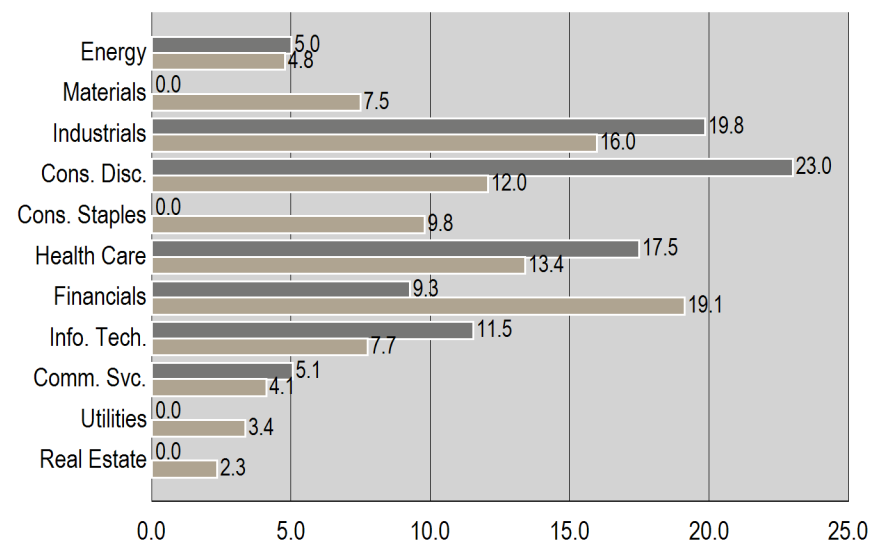
Top Holdings

SAFRAN SA	6.2%
ASTRAZENECA PLC	5.7%
DEUTSCHE TELEKOM AG	5.5%
TECHNIPFMC PLC	5.5%
AIRBUS SE	5.4%
RHEINMETALL	5.1%
GENMAB A/S	5.1%
MERCADOLIBRE INC	5.1%
PROSUS ORD	5.1%
MEITUAN DIANPING USD0.00001 A B CLASS ISIN KYG596691041	3.7%
Total	52.5%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
Hardman Johnston Int'l Equity	17.4%	15.5%	53.5%	13.5%
MSCI EAFE	10.5%	27.5%	62.1%	0.0%
<i>Weight Over/Under</i>	6.9%	-11.9%	-8.6%	13.5%

Sector Allocation (%) vs MSCI EAFE



Region Allocation Summary

Region	% of Total	% of Bench	% Diff
North America ex U.S.	0.0%	0.0%	0.0%
United States	0.0%	0.0%	0.0%
Europe Ex U.K.	47.7%	49.7%	-2.0%
United Kingdom	16.7%	15.3%	1.3%
Pacific Basin Ex Japan	8.3%	11.3%	-3.0%
Japan	6.3%	22.9%	-16.7%
Emerging Markets	15.9%	0.0%	15.9%
Other	5.1%	0.7%	4.4%
Total	100.0%	100.0%	0.0%

Manager Summary: Bottom-up fundamental manager looking for businesses that are undergoing structural change. Analysts are generalists who are unconstrained in their candidates. Looking for upside over a time horizon of 2-3 years through assessing and predicting earnings estimates. Concentrated portfolio: 25-35 names equally weighted with a max of 5% initial allocation. Sector and countries limits of 30%. Turnover is roughly 30-40%.

Characteristics

	Portfolio	MSCI EAFE
Number of Holdings	36	795
Weighted Avg. Market Cap. (\$B)	49.3	81.8
Median Market Cap. (\$B)	26.4	12.1
Price To Earnings	15.9	13.9
Price To Book	2.7	2.4
Price To Sales	2.1	1.2
Return on Equity (%)	14.1	15.7
Yield (%)	2.7	3.5

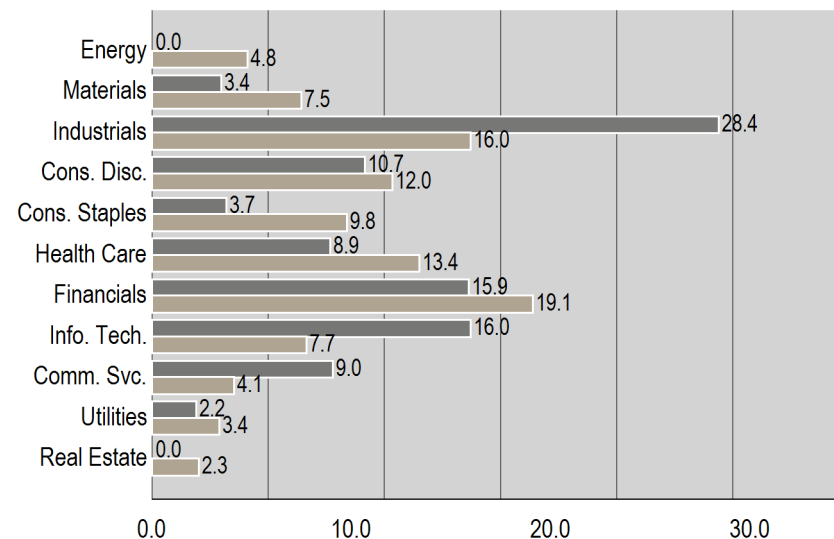
Top Holdings

BAE SYSTEMS PLC	4.9%
THALES SA	4.3%
RHEINMETALL	4.2%
GETLINK SE	3.8%
UNIVERSAL MUSIC GROUP INC	3.6%
FRANCO-NEVADA CORP	3.5%
DEUTSCHE BOERSE AG	3.4%
STMICROELECTRONICS NV	3.3%
SK HYNIX INC	3.2%
NOMURA RESEARCH INSTITUTE LTD	3.2%
Total	37.5%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
Hudson Edge Int'l Equity	5.9%	42.4%	42.4%	9.4%
MSCI EAFE	10.5%	27.5%	62.1%	0.0%
<i>Weight Over/Under</i>	-4.6%	14.9%	-19.7%	9.4%

Sector Allocation (%) vs MSCI EAFE



Region Allocation Summary

Region	% of Total	% of Bench	% Diff
North America ex U.S.	3.5%	0.0%	3.5%
United States	0.0%	0.0%	0.0%
Europe Ex U.K.	46.6%	49.7%	-3.1%
United Kingdom	17.3%	15.3%	2.0%
Pacific Basin Ex Japan	7.7%	11.3%	-3.6%
Japan	17.1%	22.9%	-5.8%
Emerging Markets	7.8%	0.0%	7.8%
Other	0.0%	0.7%	-0.7%
Total	100.0%	100.0%	0.0%

Manager Summary: Passive strategy that seeks to replicate the return of the MSCI Emerging Markets index. This strategy is a low-cost option to gain diversified exposure to emerging market based companies.

Characteristics

	Portfolio	MSCI Emerging Markets
Number of Holdings	1,467	1,437
Weighted Avg. Market Cap. (\$B)	103.7	103.6
Median Market Cap. (\$B)	6.7	6.7
Price To Earnings	12.3	12.5
Price To Book	2.3	2.4
Price To Sales	1.0	1.0
Return on Equity (%)	14.5	14.4
Yield (%)	3.2	3.2

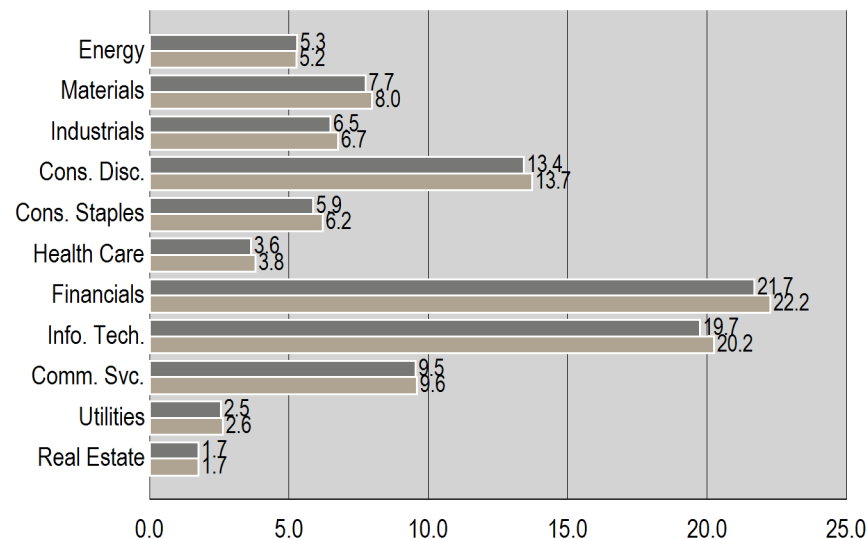
Top Holdings

TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	6.2%
TENCENT HOLDINGS LTD	4.1%
SAMSUNG ELECTRONICS CO LTD	3.8%
ALIBABA GROUP HOLDING LTD	2.8%
RELIANCE INDUSTRIES LTD	1.3%
MEITUAN DIANPING USD0.00001 A B CLASS ISIN KYG596691041	1.2%
ICICI BANK	0.9%
PDD HOLDINGS INC	0.9%
INFOSYS LTD	0.9%
CHINA CONSTRUCTION BANK CORP	0.8%
Total	22.8%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
SSGA MSCI Emerging Markets Index	7.1%	25.4%	58.2%	9.4%
MSCI Emerging Markets	16.0%	25.5%	58.5%	0.0%
<i>Weight Over/Under</i>	-8.9%	-0.1%	-0.3%	9.4%

Sector Allocation (%) vs MSCI Emerging Markets



Region Allocation Summary

Region	% of Total	% of Bench	% Diff
North America ex U.S.	0.0%	0.0%	0.0%
United States	2.7%	0.0%	2.7%
Europe Ex U.K.	0.9%	0.4%	0.4%
United Kingdom	0.0%	0.0%	0.0%
Pacific Basin Ex Japan	5.5%	0.0%	5.5%
Japan	0.0%	0.0%	0.0%
Emerging Markets	88.9%	98.7%	-9.8%
Other	1.9%	0.8%	1.1%
Total	100.0%	100.0%	0.0%

Characteristics

Fund GAV (\$MM)	\$31,327.0
Fund NAV (\$MM)	\$24,543.0
Cash (% of NAV)	3.1%
# of Investments	284
% in Top 10 by NAV	19.0%
Leverage %	23.3%
Occupancy	93.3%
# of MSAs	45
1-Year Dividend Yield	2.9%
As of Date	30-Sep-23

Strategy Breakdown

	% of Portfolio
Pre-Development	1.0%
Development	2.1%
Initial Leasing	0.0%
Operating	96.9%
Re-Development	
Other	
Queue In:	
Contribution Queue (\$MM)	\$34.48
Anticipated Drawdown (Months)	

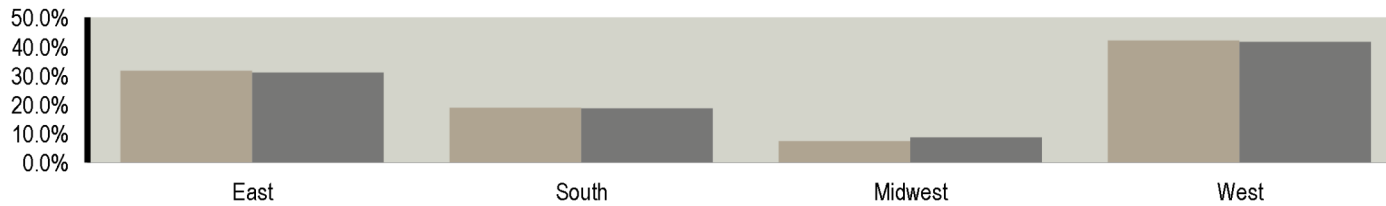
Top Five Metro Areas

	% of NAV
Los Angeles-Long Beach, CA	22.9%
New York-Newark, NY-NJ-CT-F	13.6%
Washington-Baltimore-Arlington	10.4%
San Jose-San Francisco-Oaklar	6.6%
Boston-Worcester-Providence,	4.9%

Queue Out:

Redemption Queue (\$MM)	\$3,364.73
Anticipated Payout (Months)	

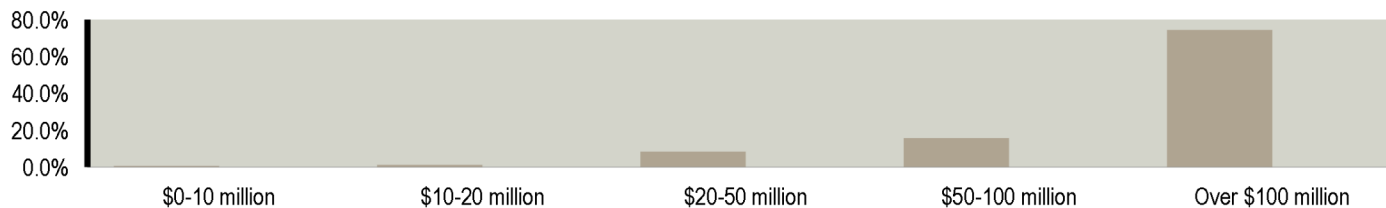
Regional Breakdown by NAV (Excluding Cash & Debt)



Property Type Breakdown by NAV (Excluding Cash & Debt)



Property Size Breakdown by NAV (Excluding Cash & Debt)



■ PRISA ■ NCREIF-ODCE

Characteristics

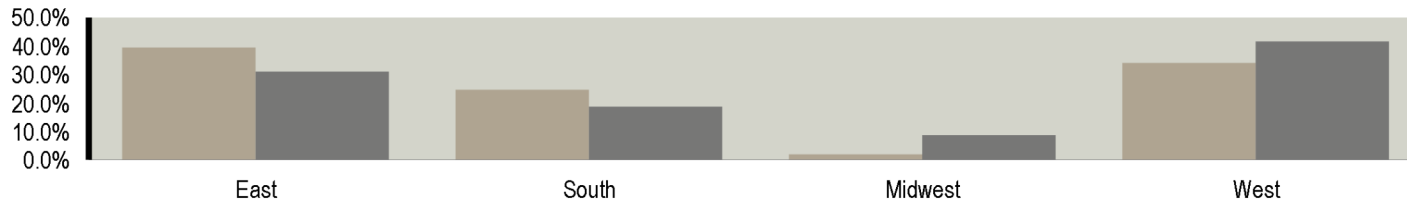
Fund GAV (\$MM)	\$17,056.0
Fund NAV (\$MM)	\$9,883.0
Cash (% of NAV)	1.3%
# of Investments	149
% in Top 10 by NAV	21.1%
Leverage %	36.2%
Occupancy	86.6%
# of MSAs	66
1-Year Dividend Yield	2.5%
As of Date	30-Jun-23

Strategy Breakdown

	% of Portfolio
Pre-Development	4.8%
Development	10.6%
Initial Leasing	11.1%
Operating	70.5%
Re-Development	0.0%
Other	3.1%
<u>Queue In:</u>	
Contribution Queue (\$MM)	\$0.00
Anticipated Drawdown (Months)	0

Top Five Metro Areas	% of NAV
Northern NJ	8.7%
San Francisco	8.0%
Boston	7.4%
San Jose	5.5%
Fort Lauderdale	5.1%
<u>Queue Out:</u>	
Redemption Queue (\$MM)	\$1,351.00
Anticipated Payout (Months)	0

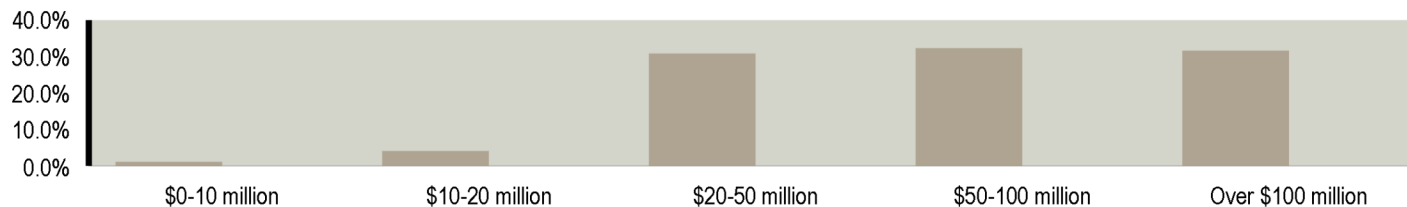
Regional Breakdown by NAV (Excluding Cash & Debt)



Property Type Breakdown by NAV (Excluding Cash & Debt)



Property Size Breakdown by NAV (Excluding Cash & Debt)



■ PRISA II ■ NCREIF-ODCE

Characteristics

Fund NAV (\$MM)	\$274.3
Cash (% of NAV)	0.0%
# of Investments	8
Occupancy	83.2%
NOI	5.9%
Loan to Value	7.1%
As of Date	3/31/2023

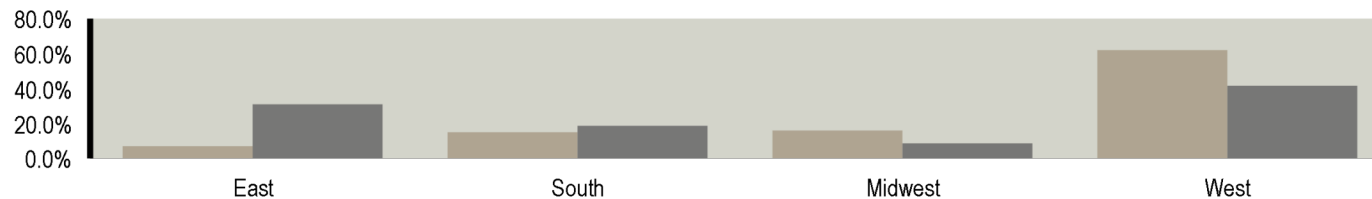
Asset Summary

Property	Acquisition
Copley Corporate Center	2010
SR Ranch	2011
Des Peres Corners	2010
708 Uptown	2014
Fairway Center II	2016
Republic Distribution Center	2013
526 Route 46	2014
Shoppes at Monarch Lakes	2010

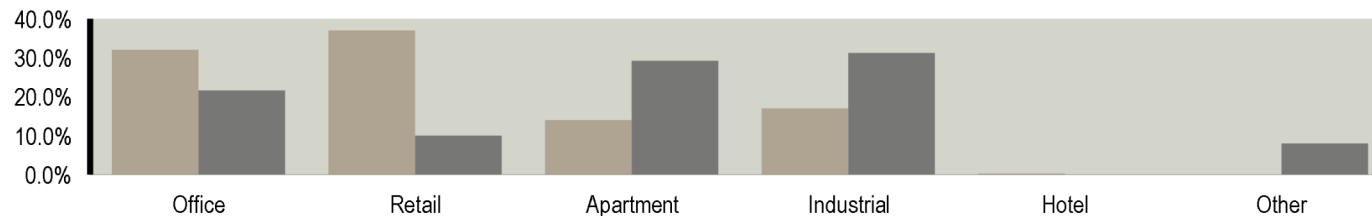
Portfolio Allocation

#	Property	Type	Location	% of Fund NAV
1	Copley Corporate Center	Office	San Diego, CA	13.3%
2	SR Ranch	Retail	San Diego, CA	17.0%
3	Des Peres Corners	Retail	Des Peres, MO	16.4%
4	708 Uptown	Apartment	Seattle, WA	16.9%
5	Fairway Center II	Office	Brea, CA	10.1%
6	Republic Distribution Center	Industrial	Houston, TX	11.7%
7	526 Route 46	Industrial	Teterboro, NJ	9.3%
8	Shoppes at Monarch Lakes	Retail	Miramar, FL	5.2%
Total				100.0%

Regional Breakdown by NAV



Property Type Breakdown by NAV



Net Assets (\$MM) 142.5

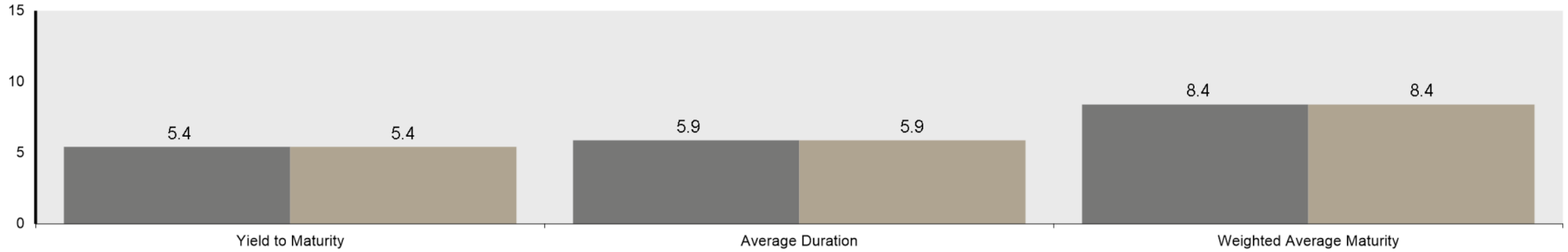
Portfolio Allocation

#	Property	Type	Location	% of Fund NAV
1	Bear Island	Pine	Virginia	6.2%
2	Fitz-Weller	Pine	New York	3.8%
3	Carter Pasture	Douglas Fir/Cedar	Texas	7.1%
4	Dupont	Douglas Fir/Hemlock	Georgia	22.2%
5	Black River	Pine	South Carolina	18.0%
6	Coquille	Pine	Oregon	19.7%
7	Bucktails	Pine	Pennsylvania	8.8%
8	North River	Maple/Oak	Washington	14.1%
Total				100.0%

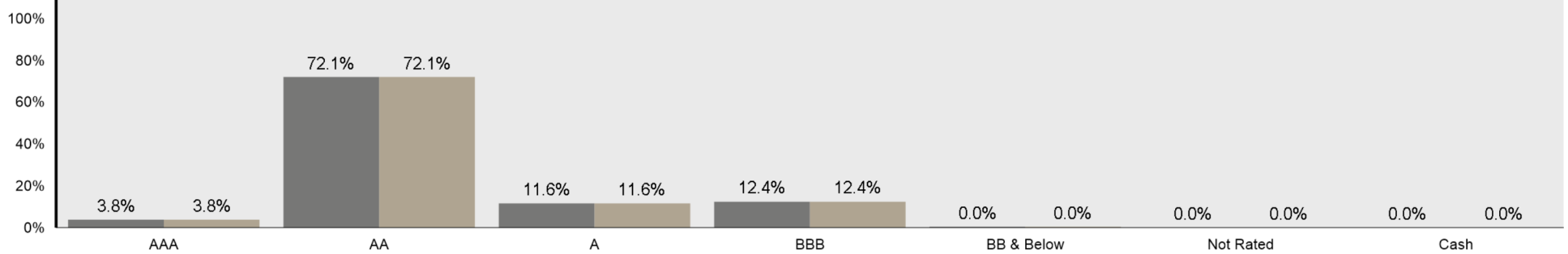
Regional Breakdown by NAV



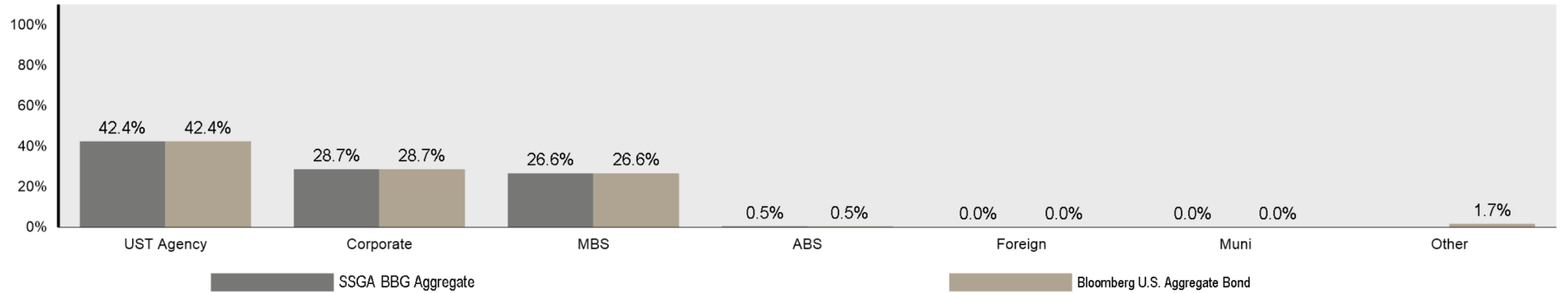
Yield to Maturity



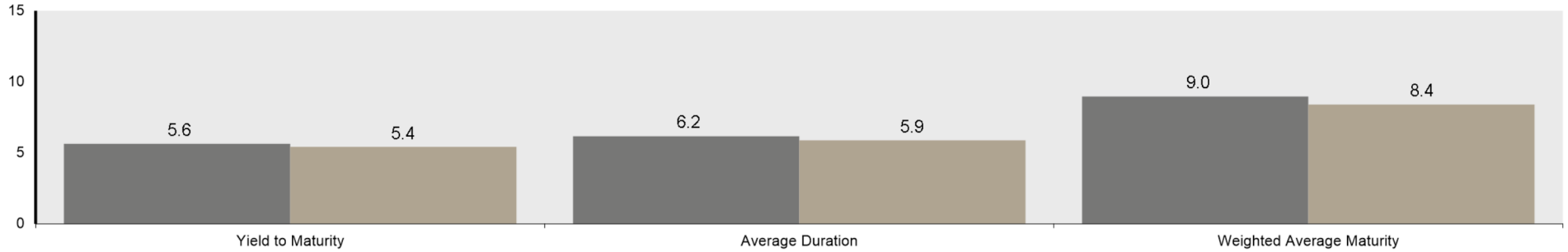
Credit Quality



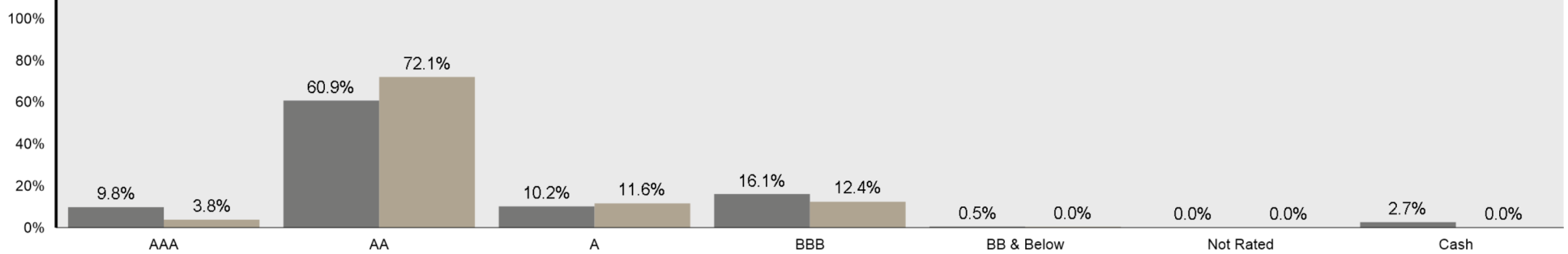
US Sector



Yield to Maturity



Credit Quality



US Sector

