

# Pennsylvania Municipal Retirement System

Quarterly Performance Report  
As of June 30, 2023



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## DISCLOSURE

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# Marquette Update



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# Marquette Update

3Q 2023



## You're invited!

Our 2023 Symposium will be held as a hybrid event, with an in-person option in Chicago at the Union League Club and a virtual livestream. We're excited to welcome Frank Kelly and Ben Mezrich as featured speakers and our research team will also present several flash talks. [Visit our website](#) for full details and RSVP using our email invitation sent 7/10.

\$351B

assets under advisement

99%

client retention rate

37<sup>th</sup>

year in business

100%

employee-owned<sup>1</sup>

25

partners

130+

employees



### QUARTERLY RESEARCH

July 19

Halftime Market Insights

Webinar: 7/19

YouTube: 7/20

July 20

Letter from the Director of Research

### UPCOMING SPEAKING ENGAGEMENTS

- ▶ Jessica Noviskis speaking at CFA Society Chicago 2023 Industry Roundtable 7/13 ([link](#))
- ▶ Nat Kellogg speaking at ALTSCHI 2023 Forum 7/17 ([link](#))
- ▶ Nat Kellogg and Amy Miller speaking at Pension Bridge Private Equity Exclusive 7/25 ([link](#))
- ▶ Sarah E.R. Wilson speaking at Pennsylvania State Association of County Controllers' Annual Conference 7/25 ([link](#))
- ▶ Nat Kellogg speaking at Pension, Endowment and Foundation Central Summit 9/7 ([link](#))
- ▶ Dave Smith speaking at 529 Conference 9/19 ([link](#))

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Client data as of March 31, 2023; firm data as of July 2023. Client retention rate calculated as the average annual retention rate trailing ten years. <sup>1</sup>By current and former employees. Marquette is an independent investment adviser registered under the Investment Advisers Act of 1940, as amended. Registration does not imply a certain level of skill or training. More information about Marquette including our investment strategies, fees and objectives can be found in our ADV Part 2, which is available upon request and on our website.

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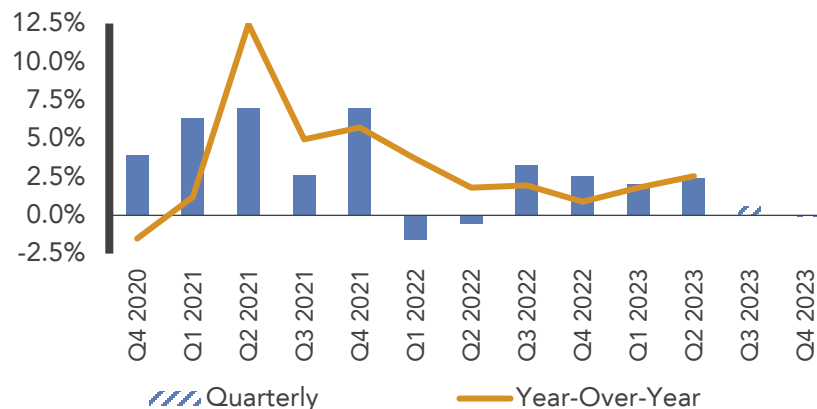
# Market Environment



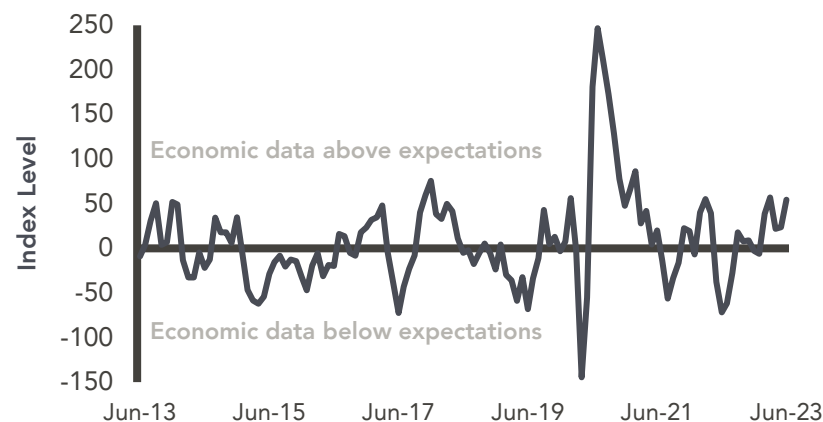
# U.S. Economy

- U.S. economic growth accelerated slightly in Q2, with real GDP growing at an annual rate of 2.4%. While a slowdown in consumer spending was a headwind, strong business investment and state and local government spending supported economic activity.
- Economic data have come in much better-than-expected in the first half of 2023, according to the Citigroup U.S. Economic Surprise Index.
- The economy has continued to defy economist expectations of an impending recession. Interest-rate sensitive sectors (housing, autos, etc.) weighed on the economy in late 2022 and early 2023 but have steadied over the past few months amid the stabilization in interest rates.
- Despite the Q2 slowdown, consumer spending remains resilient on the back of excess savings accumulated during the pandemic and a tight labor market that continues to generate nominal wage growth well above its average level seen over the past couple of decades.

U.S. Real GDP Growth



Citigroup U.S. Economic Surprise Index



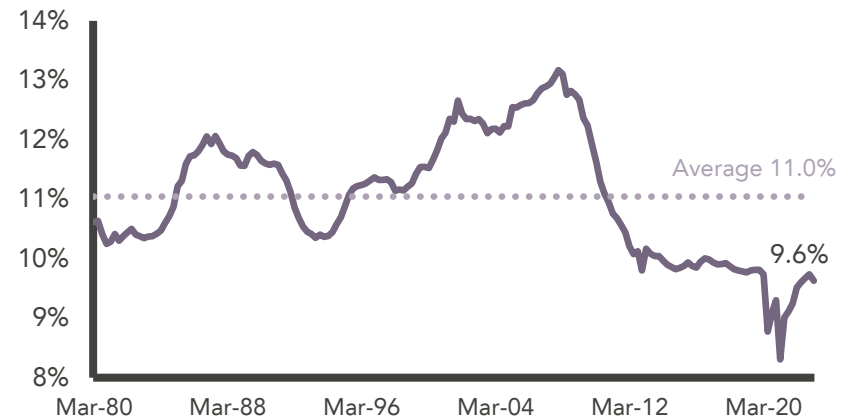
Source: Refinitiv, The Wall Street Journal

Note: In the "Real GDP Growth" chart, striped bars reflect economist estimates from The Wall Street Journal Economic Forecasting Survey.

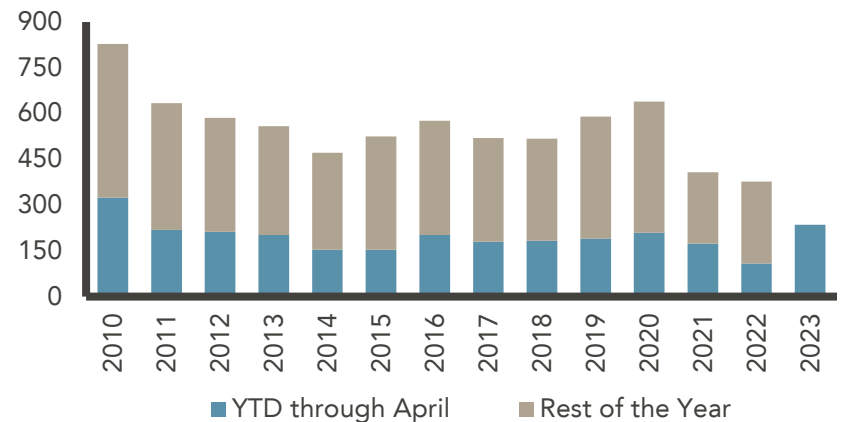
# U.S. Economy

- Many economists have been expecting a recession given the current Federal Reserve rate-hiking cycle has been the most aggressive in decades.
- What may have been underappreciated heading into this tightening cycle is that household debt service payments as a percentage of disposable personal income is well below its average since the early 1980s.
- With fixed-rate mortgages accounting for about 67% of total household debt, according to the Federal Reserve Bank of New York, consumers have been shielded to some degree from rising rates.
- The strength in consumer spending has enabled the economy to withstand rolling recessions in certain areas (e.g., housing and manufacturing).
- Other areas of the economy, such as small corporations, do not share the same benefits of long-term, fixed-rate debt. Higher rates (and tightening lending standards) are likely impacting small corporations, with U.S. corporate bankruptcy filings through April higher than the first four months of any year since 2010.

Household Debt Service Payments as a % of DPI\*



U.S. Bankruptcy Filings



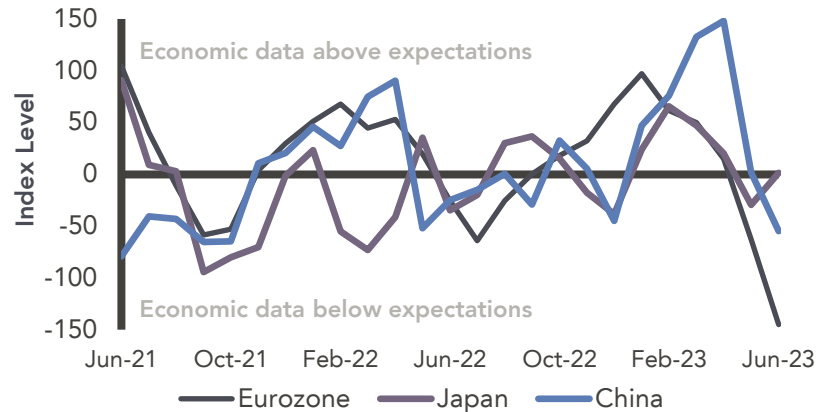
Source: Refinitiv, S&P Global Market Intelligence

\*Disposable Personal Income

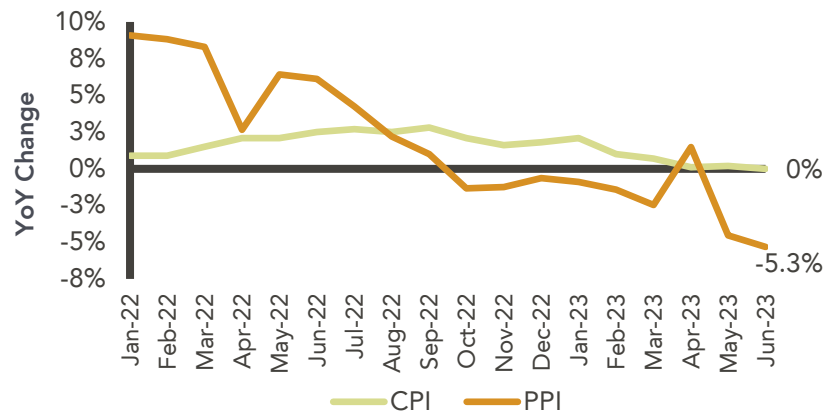
# Global Economy

- Unlike the U.S., economic data in most other major global economic regions and countries have been coming in below expectations in Q2, according to the Citigroup Economic Surprise Indices, particularly in Europe.
- Growth within Europe has become increasingly divided, with services-driven economies continuing to grow, while a slow manufacturing recovery has pushed Germany into a technical recession.
- Within China, the post-pandemic recovery has been underwhelming. While GDP grew 6.3% from a year earlier through June, most analysts had expected growth of slightly more than 7%. The overall unemployment rate, meanwhile, remained stable in June but rose to a new record of 21.3% for people between 16 and 24 years old.
- Unlike much of the Western Developed World, China inflation has been relatively muted, with producer prices firmly in deflation. However, there have been relatively few signs of large-scale stimulus forthcoming to boost the economy.

2023 Global Economic Growth Forecast



China Inflation Data

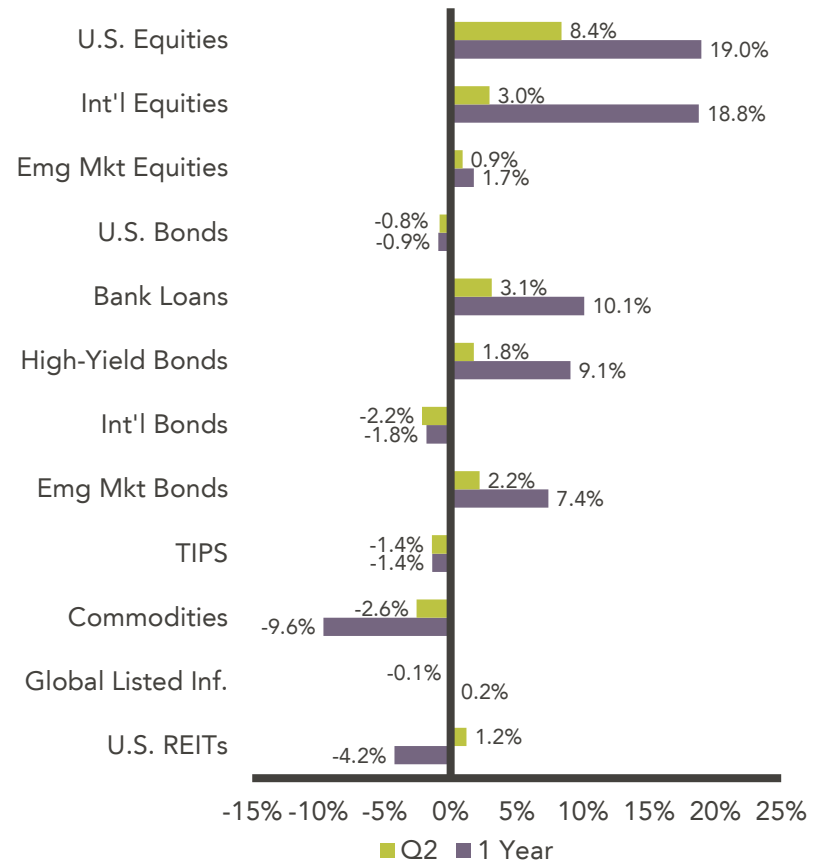


Source: Refinitiv

# Global Asset Class Performance

- Global equities continued to rally in Q2 on the back of stronger-than-expected economic growth and a respite from U.S. banking concerns. U.S. equities topped their international developed and emerging markets counterparts. U.S. dollar strength lessened gains for unhedged U.S.-based investors, with the greenback detracting approximately 1.3 and 0.8 percentage points, respectively, from international developed and emerging markets returns.
- Fixed income markets were mixed, with investment-grade bonds in the red due to higher rates across the yield curve. Sub-investment grade debt, on the other hand, posted gains, with bank loans outperforming high-yield debt given their floating-rate characteristics.
- Inflation-sensitive assets mostly underperformed in Q2. TIPS underperformed their nominal government bond counterparts due to declining inflation expectations. Global listed infrastructure and REITs also underperformed broad global and U.S. equity markets, respectively. REITs remain under pressure due to concerns over the office sector. Commodities, meanwhile, were in the red with notable weakness in industrial metals prices.

Asset Class Returns: Select Asset Class Performance

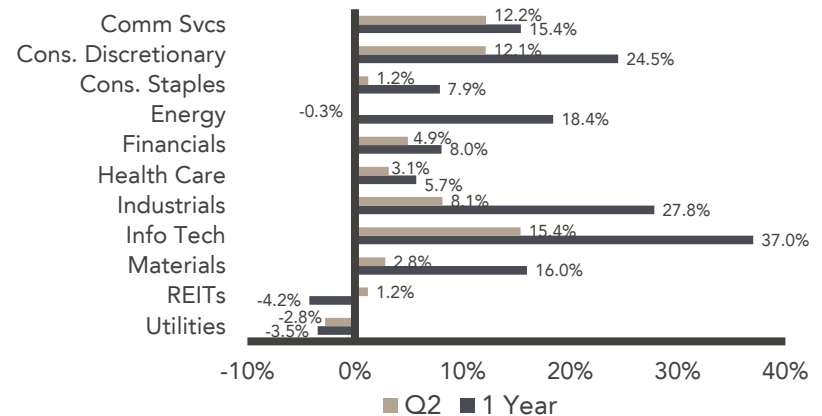


Source: Refinitiv

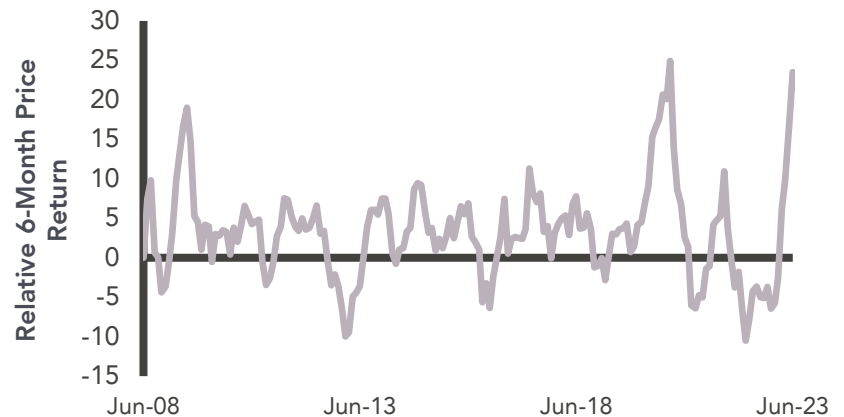
# U.S. Equity Markets

- Economic sector performance was mostly positive in Q2, with nine of eleven sectors posting gains. More defensive sectors lagged the broad markets as Utilities was in the red, while Consumer Staples and Health Care generated marginal gains. At the other end of the spectrum, Information Technology and Communication Services led the way once again.
- From a style perspective, growth stocks topped value stocks handily once again in Q2. Value suffered from the underperformance of Energy and Financials. Year-to-date, growth has outperformed value by more than 23 percentage points (as measured by their respective Russell 3000 Indices).
- While market breadth improved somewhat in June, the outperformance of the largest U.S. stocks has been considerable in 2023—seven stocks account for 67% of the S&P 500’s year-to-date return through June. The outperformance of these stocks, which are mostly mega-cap growth names, has driven the 6-month price return of the NASDAQ 100 relative to the broad market to its second-highest level over the past 15 years.

## Sector Returns



## NASDAQ 100 vs. Russell 3000 Relative 6-Month Price Return

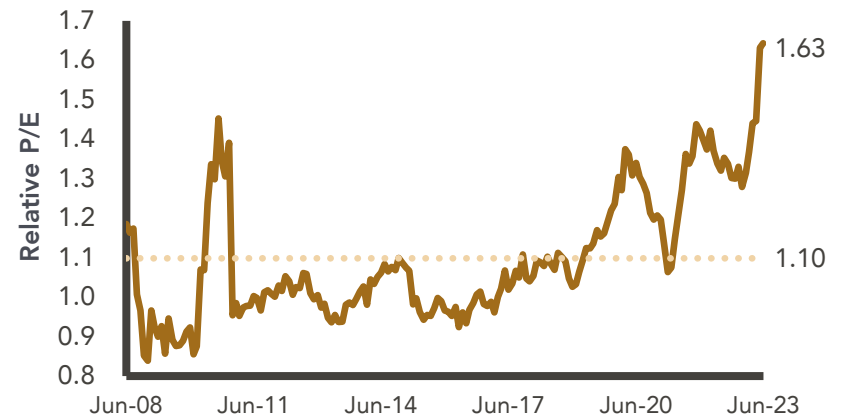


Source: Refinitiv

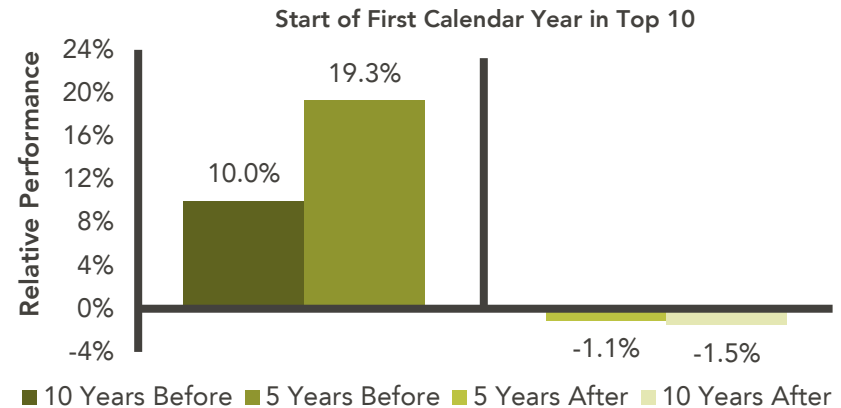
# U.S. Equity Markets

- Equity markets continue to be largely driven by the technology sector, particularly mega-cap names, as the potential impact of artificial intelligence has captured investors' attention.
- Outperformance by the sector (and other IT-related names) has driven relative valuations (as measured by trailing P/E ratios) to the highest level seen in at least the last 15 years.
- While recent outperformance of the largest stocks may persist in the short term, history argues that these stocks are poised to underperform over the intermediate and long term. According to DFA, the ten largest stocks in the U.S. underperform the broad market by an average of 1.1% and 1.5% on an annual basis over the next five and ten years, respectively.
- Historically, investors tend to extrapolate recent earnings growth into the future, leaving these stocks susceptible to long-term disappointment as the subsequent growth in their fundamentals do not justify earlier valuations. Currently, the ten largest stocks in the S&P 500 Index comprise 31.7% of the index but have contributed just 21.5% of the index's trailing 12-month earnings.

MSCI U.S. IMI Information Technology P/E vs. MSCI U.S. P/E



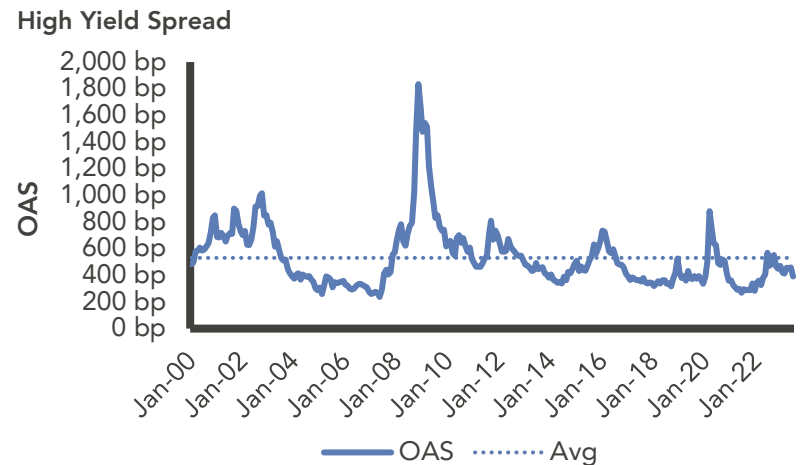
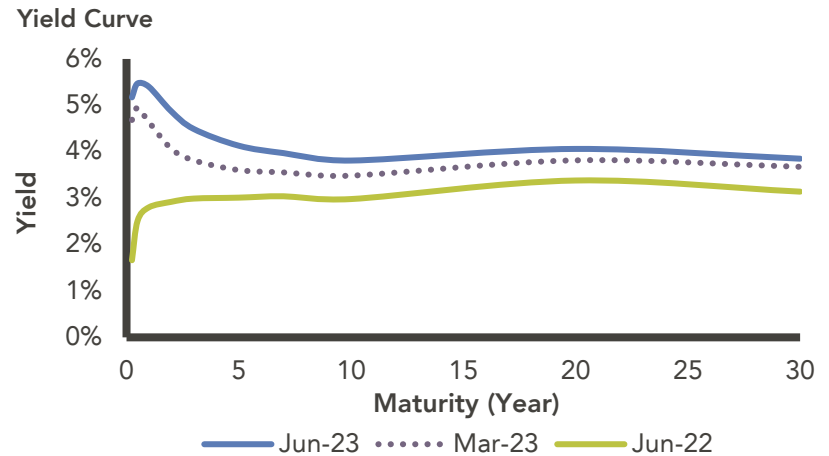
Average Annualized Outperformance of Companies Before and After They Become One of 10 Largest in U.S.



Source: DFA, Refinitiv

# U.S. Fixed Income

- Treasury rates rose across the curve in Q2, though the magnitude was more muted for longer-dated issues. The short end of the curve saw rates jump notably as the updated Summary Economic Projections from the Federal Reserve implied two additional rate hikes in the back half of the year.
- Given higher rates, the broad investment-grade bond market experienced a mildly negative return in Q2, with the Bloomberg Aggregate Index returning -0.8%.
- Sub-investment grade debt, on the other hand, posted gains amid a strong environment for risk assets, with bank loans outperforming high-yield debt given their floating rate characteristics. High-yield spreads ended June below 400 basis points for the first time since April 2022.



Source: Refinitiv



# Global Index Returns

DOMESTIC EQUITY	QTR	YTD	1 Year	3 Year	5 Year	10 Year
S&P 500 Index	8.7	16.9	19.6	14.6	12.3	12.9
Russell 3000 Index	8.4	16.2	19.0	13.9	11.4	12.3
Russell 3000 Growth Index	12.5	28.1	26.6	13.2	14.4	15.3
Russell 3000 Value Index	4.0	5.0	11.2	14.4	7.8	9.1
Russell TOP 200 Index	9.9	19.4	20.9	14.6	13.2	13.5
Russell TOP 200 Growth Index	14.4	32.2	28.0	15.1	16.4	17.0
Russell TOP 200 Value Index	4.1	5.0	12.0	13.9	8.7	9.3
Russell 1000 Index	8.6	16.7	19.4	14.1	11.9	12.6
Russell 1000 Growth Index	12.8	29.0	27.1	14.1	15.1	15.7
Russell 1000 Value Index	4.1	5.1	11.5	14.3	8.1	9.2
Russell Mid-Cap Index	4.8	9.0	14.9	12.5	8.5	10.3
Russell Mid-Cap Growth Index	6.2	15.9	23.1	7.6	9.7	11.5
Russell Mid-Cap Value Index	3.9	5.2	10.5	15.0	6.8	9.0
Russell 2000 Index	5.2	8.1	12.3	10.8	4.2	8.3
Russell 2000 Growth Index	7.1	13.6	18.5	6.1	4.2	8.8
Russell 2000 Value Index	3.2	2.5	6.0	15.4	3.5	7.3
<b>DOMESTIC EQUITY BY SECTOR (MSCI)</b>						
Communication Services	12.2	34.4	15.4	6.3	10.0	7.2
Consumer Discretionary	12.1	29.8	24.5	11.2	11.4	13.2
Consumer Staples	1.2	2.5	7.9	12.2	10.8	9.6
Energy	(0.3)	(5.3)	18.4	36.5	5.7	3.4
Financials	4.9	(0.6)	8.0	15.0	6.3	9.8
Health Care	3.1	(0.6)	5.7	9.9	10.7	12.7
Industrials	8.1	13.2	27.8	18.2	10.4	11.6
Information Technology	15.4	39.7	37.0	17.8	20.1	20.8
Materials	2.8	7.9	16.0	16.9	8.9	10.0
Real Estate	1.2	3.0	(4.2)	6.1	4.8	6.7
Utilities	(2.8)	(5.7)	(3.5)	8.1	7.5	9.2

Source: Refinitiv

# Global Index Returns

INTERNATIONAL/GLOBAL EQUITY	QTR	YTD	1 Year	3 Year	5 Year	10 Year
MSCI EAFE (Net)	3.0	11.7	18.8	8.9	4.4	5.4
MSCI EAFE Growth (Net)	2.8	14.2	20.2	6.3	5.4	6.4
MSCI EAFE Value (Net)	3.2	9.3	17.4	11.3	2.9	4.1
MSCI EAFE Small Cap (Net)	0.6	5.5	10.2	5.7	1.3	6.2
MSCI AC World Index (Net)	6.2	13.9	16.5	11.0	8.1	8.8
MSCI AC World Index Growth (Net)	9.2	24.2	23.1	9.6	10.4	11.0
MSCI AC World Index Value (Net)	3.0	4.3	10.0	11.8	5.2	6.2
MSCI Europe ex UK (Net)	2.9	15.2	24.6	10.1	6.0	6.4
MSCI United Kingdom (Net)	2.2	8.4	13.2	12.6	2.8	3.9
MSCI Pacific ex Japan (Net)	(1.8)	0.3	5.8	6.5	2.7	4.3
MSCI Japan (Net)	6.4	13.0	18.1	5.7	3.1	5.2
MSCI Emerging Markets (Net)	0.9	4.9	1.7	2.3	0.9	3.0

Source: Refinitiv

# Global Index Returns

FIXED INCOME	QTR	YTD	1 Year	3 Year	5 Year	10 Year
Merrill Lynch 3-month T-Bill	1.2	1.9	3.6	1.3	1.6	1.0
Barclays Intermediate Gov't./Credit	(0.8)	1.5	(0.1)	(2.5)	1.2	1.4
Barclays Aggregate Bond	(0.8)	2.1	(0.9)	(4.0)	0.8	1.5
Barclays Short Government	(0.6)	0.3	0.2	(1.1)	0.9	0.8
Barclays Intermediate Government	(1.1)	(0.5)	(1.0)	(2.8)	0.8	0.9
Barclays Long Government	(2.3)	(2.5)	(6.8)	(12.0)	(0.9)	1.8
Barclays Investment Grade Corp.	(0.3)	(0.8)	1.5	(3.4)	1.8	2.6
Barclays High Yield Corp. Bond	1.8	5.4	9.1	3.1	3.4	4.4
Credit Suisse Leveraged Loan	3.1	6.3	10.1	6.2	4.0	4.1
JPMorgan Global ex US Bond	(2.2)	0.8	(1.8)	(5.9)	(2.7)	(0.9)
JPMorgan Emerging Market Bond	2.2	4.1	7.4	(3.1)	0.6	2.8
INFLATION SENSITIVE						
Consumer Price Index	1.1	2.8	3.0	5.8	3.9	2.7
BC TIPS	(1.4)	1.9	(1.4)	(0.1)	2.5	2.1
Commodities	(2.6)	(7.8)	(9.6)	17.8	4.7	(1.0)
Gold	(2.5)	5.4	6.2	1.1	7.8	3.8
REITs	1.2	3.0	(4.2)	6.1	4.8	6.7
FTSE EPRA/NAREIT Global REITs	0.0	0.6	(4.9)	2.1	(0.7)	2.5
NCREIF ODCE*	(2.8)	(6.1)	(10.7)	7.1	5.6	7.8

\*Data are preliminary.

Source: Refinitiv



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# Portfolio Overview



## Observations

- Market Value as of June 30, 2023, was \$3.18 billion
- 2<sup>nd</sup> Qtr. '23 Return: Total Fund 2.5% (net) vs. Policy Index 2.8%; investment gain of \$78.7 million
- Contributors to 2<sup>nd</sup> Qtr. Performance:
  - US Growth Equity (Magnificent 7)
  - Opportunistic Credit
  - Core Real Estate
- Detractors from 2<sup>nd</sup> Qtr. Performance:
  - Value Equity
  - International Equity
  - Overweight to Real Assets
- Longer term performance has been strong:
  - 5-Year Return: 6.3% (net) vs. Policy Index 6.3%; investment gain of \$894 million
  - 10-Year Return: 7.6% (net) vs. Policy Index 7.5%; investment gain of \$1.84 billion
    - Peer Group Ranking: 27<sup>th</sup> percentile
- Very low Investment Management Fees: 0.30%

## Looking Ahead

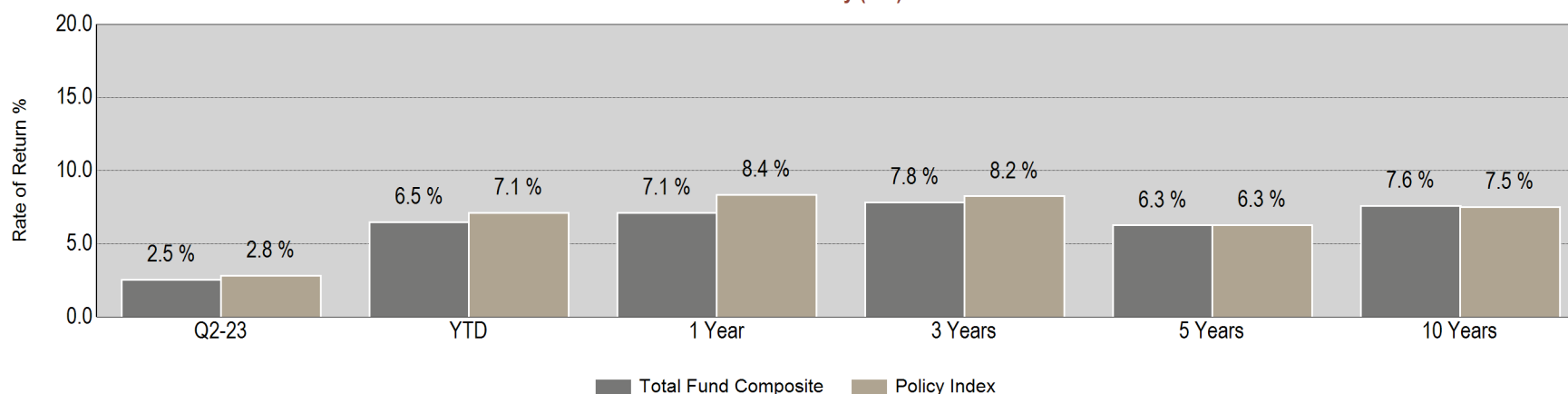
- Small Cap Value Manager Search
- Future International Value and active Emerging Markets Manager Search
- Switch Xponance from SMA to commingled fund

As of June 30, 2023

Summary of Cash Flows

	Second Quarter	Year-To-Date	One Year	Three Years	Five Years	Ten Years
Beginning Market Value	\$3,124,694,950	\$3,021,555,622	\$3,022,152,580	\$2,649,623,811	\$2,526,229,643	\$1,733,206,485
Net Cash Flow	-\$26,876,172	-\$40,517,633	-\$61,070,584	-\$148,364,107	-\$243,975,760	-\$397,146,958
Net Investment Change	\$78,698,328	\$195,479,116	\$215,435,109	\$675,257,401	\$894,263,222	\$1,840,457,578
Ending Market Value	\$3,176,517,106	\$3,176,517,106	\$3,176,517,106	\$3,176,517,106	\$3,176,517,106	\$3,176,517,106

Return Summary (Net)



Asset Allocation vs. Target

	Current	Policy	Difference*
U.S. Equity	33.0%	32.5%	\$16,411,082
Global Equity	4.8%	5.0%	-\$5,257,566
Non-U.S. Equity	15.4%	15.0%	\$12,857,576
Emerging Markets	2.2%	2.5%	-\$8,928,618
Real Assets	17.2%	15.0%	\$69,866,088
U.S. Fixed Income	26.7%	29.0%	-\$74,480,971
Cash Equivalent	0.7%	1.0%	-\$10,467,590
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	

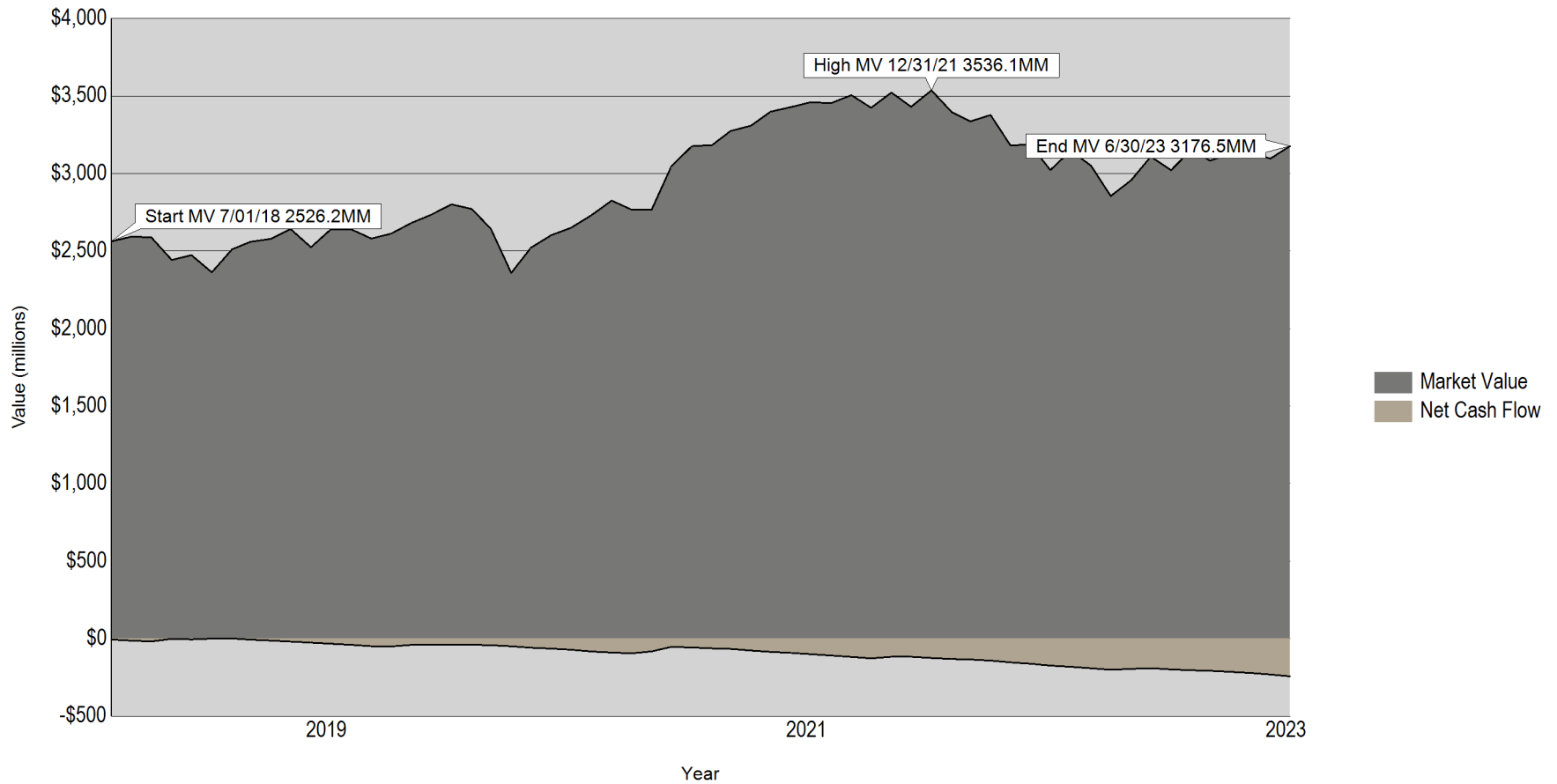
As of June 30, 2023

**Cash Flow Summary by Manager From April 01, 2023 to June 30, 2023**

	Beginning Market Value	Net Cash Flow	Net Investment Change	Ending Market Value
MFS Large Cap Value	\$145,377,888	\$0	\$5,300,115	\$150,678,002
Xpounce S&P 500	\$251,445,412	\$0	\$21,958,124	\$273,403,536
Northern Trust S&P 500	\$255,581,037	\$2,516	\$22,330,729	\$277,914,282
Polen Focus Growth	\$96,812,138	\$0	\$8,934,904	\$105,747,041
Northern Trust Dow Jones Completion Index	\$95,263,212	\$3,665	\$6,092,504	\$101,359,382
Copeland SMID Cap Dividend Growth	\$49,823,485	\$0	\$3,439,326	\$53,262,811
Smith, Graham & Co Small Cap Value	\$42,849,574	\$0	\$1,512,679	\$44,362,253
Emerald Small Cap Growth	\$38,667,711	\$0	\$3,384,123	\$42,051,834
Rhumblin Global Min. Volatility	\$150,730,929	\$24,175	\$2,813,186	\$153,568,290
SSGA MSCI World ex US	\$267,413,958	-\$14,973,451	\$8,565,309	\$261,005,816
Hardman Johnston Int'l Equity	\$103,394,775	\$0	-\$1,848,009	\$101,546,765
HGK Int'l Equity	\$124,865,341	\$0	\$1,734,294	\$126,599,635
Jarislowsky, Fraser Limited	\$188,493	-\$5	-\$5,563	\$182,925
SSGA MSCI Emerging Markets Index	\$69,809,609	\$8,752	\$665,948	\$70,484,309
Forest Investment Associates	\$144,072,503	-\$121,949	\$541,736	\$144,492,290
PRISA LP	\$65,417,777	\$0	-\$1,346,181	\$64,071,596
PRISA II	\$132,602,713	\$0	-\$3,247,908	\$129,354,805
PennMuni-Nuveen U.S. Real Estate Fund	\$206,985,070	\$0	\$0	\$206,985,070
N. Front Street (Nuveen)	\$1,439,892	\$0	\$0	\$1,439,892
SSGA US Aggregate Bond Index	\$358,318,610	-\$14,988,613	-\$2,993,106	\$340,336,891
Federated Hermes Core Aggregate Strategy	\$345,839,836	\$0	-\$3,498,862	\$342,340,974
Ares Global Multi-Asset Credit	\$159,964,932	\$0	\$4,066,192	\$164,031,124
Cash Management	\$17,830,055	\$3,168,737	\$298,789	\$21,297,581
<b>Total</b>	<b>\$3,124,694,950</b>	<b>-\$26,876,172</b>	<b>\$78,698,328</b>	<b>\$3,176,517,106</b>



Market Value History



# Pennsylvania Municipal Retirement System

# Asset Allocation Summary

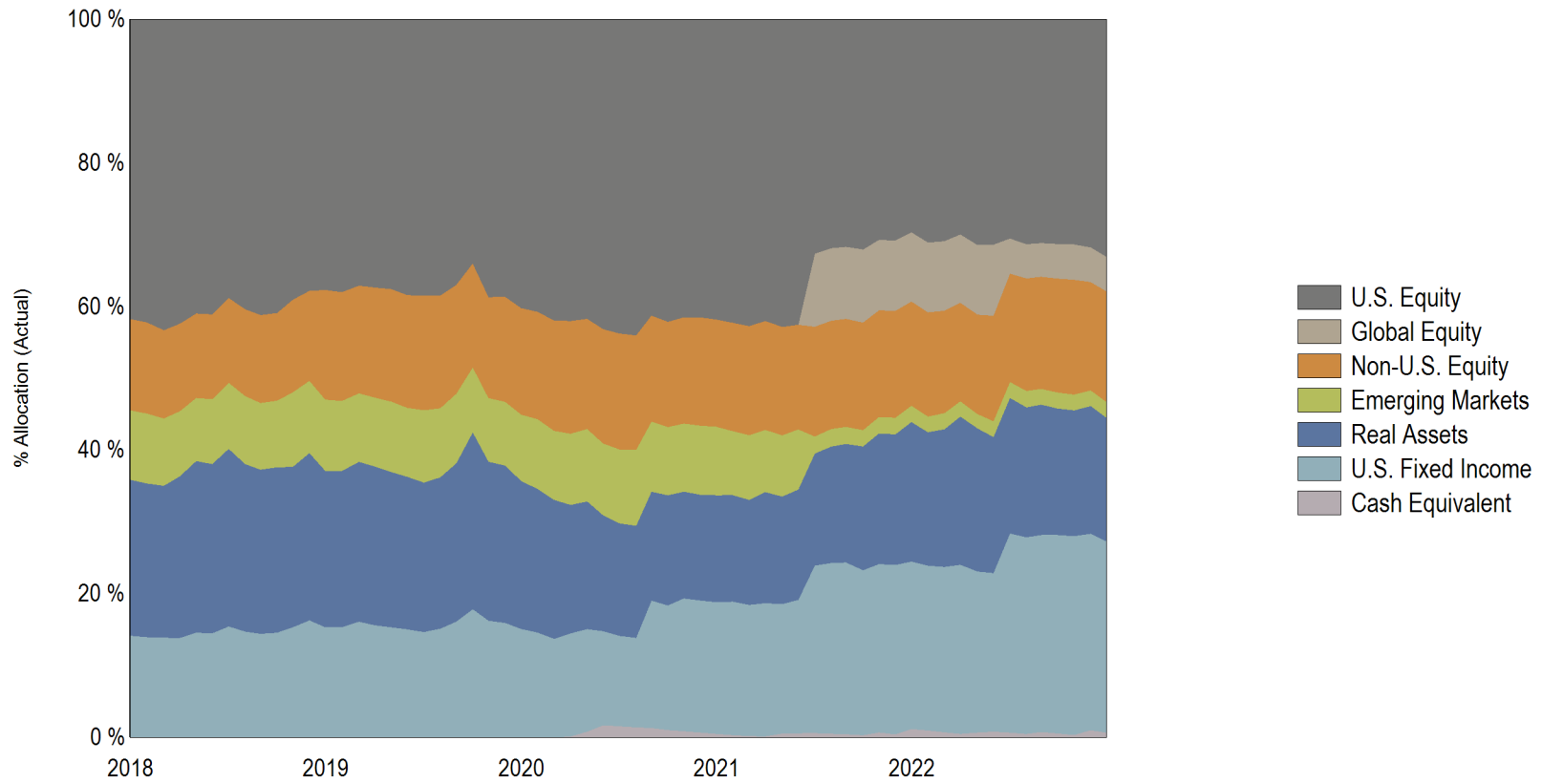
As of June 30, 2023

	Market Value	% of Portfolio	Policy %	Policy Difference
<b>Total Fund Composite</b>	<b>3,176,517,106</b>	<b>100.0</b>	<b>100.0</b>	<b>0</b>
<b>Total Equity Composite</b>	<b>1,762,166,882</b>	<b>55.5</b>	<b>55.0</b>	<b>15,082,474</b>
<b>U.S. Equity Composite</b>	<b>1,048,779,141</b>	<b>33.0</b>	<b>32.5</b>	<b>16,411,082</b>
MFS Large Cap Value	150,678,002	4.7		
Xponance S&P 500	273,403,536	8.6		
Northern Trust S&P 500	277,914,282	8.7		
Polen Focus Growth	105,747,041	3.3		
Northern Trust Dow Jones Completion Index	101,359,382	3.2		
Copeland SMID Cap Dividend Growth	53,262,811	1.7		
Smith, Graham & Co Small Cap Value	44,362,253	1.4		
Emerald Small Cap Growth	42,051,834	1.3		
<b>Global Equity Composite</b>	<b>153,568,290</b>	<b>4.8</b>	<b>5.0</b>	<b>-5,257,566</b>
Rhumblin Global Min. Volatility	153,568,290	4.8		
<b>Non-U.S. Equity Composite</b>	<b>559,819,451</b>	<b>17.6</b>	<b>17.5</b>	<b>3,928,958</b>
SSGA MSCI World ex US	261,005,816	8.2		
Hardman Johnston Int'l Equity	101,546,765	3.2		
HGK Int'l Equity	126,599,635	4.0		
SSGA MSCI Emerging Markets Index	70,484,309	2.2		
<b>Real Assets Composite</b>	<b>546,343,653</b>	<b>17.2</b>	<b>15.0</b>	<b>69,866,088</b>
Forest Investment Associates	144,492,290	4.5		
PRISA LP	64,071,596	2.0		
PRISA II	129,354,805	4.1		
PennMuni-Nuveen U.S. Real Estate Fund	206,985,070	6.5		
N. Front Street (Nuveen)	1,439,892	0.0		
<b>Total Fixed Income Composite</b>	<b>846,708,989</b>	<b>26.7</b>	<b>29.0</b>	<b>-74,480,971</b>
SSGA US Aggregate Bond Index	340,336,891	10.7		
Federated Hermes Core Aggregate Strategy	342,340,974	10.8		
Ares Global Multi-Asset Credit	164,031,124	5.2		
<b>Cash Composite</b>	<b>21,297,581</b>	<b>0.7</b>	<b>1.0</b>	<b>-10,467,590</b>

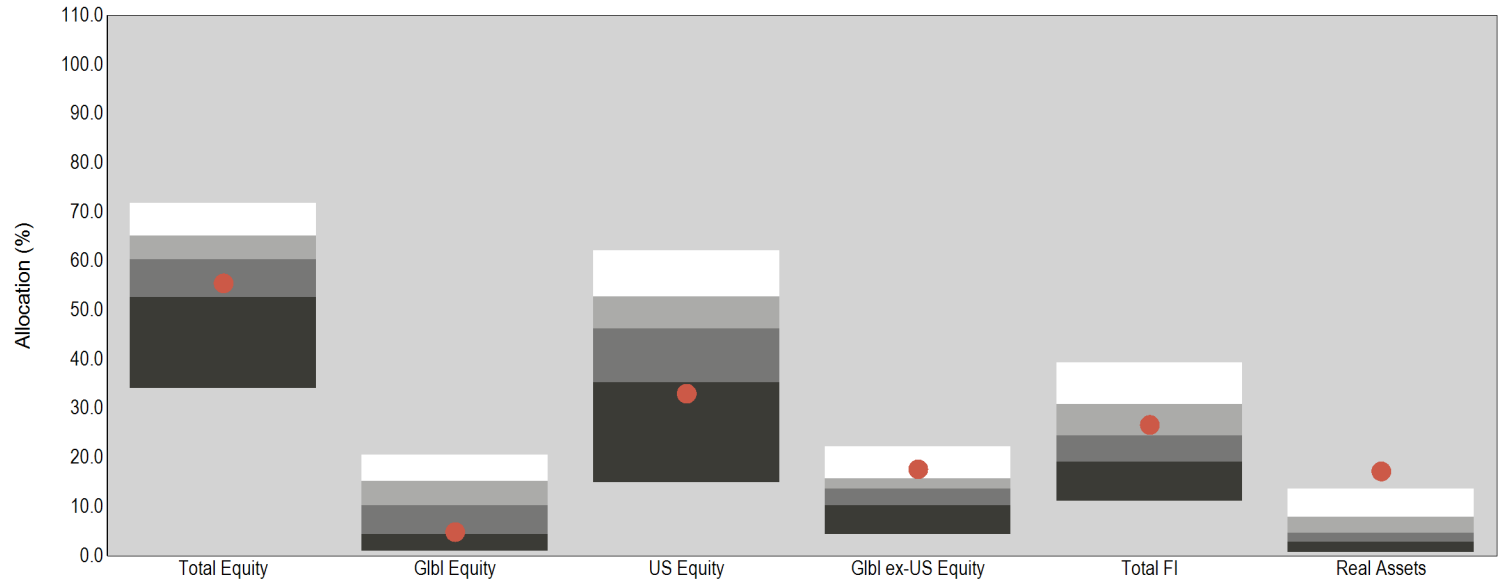
\*Residual value for Jarislowsky (approx. \$183K) included in Non-US Equity and Total Fund Composite values.

\*PennMuni and N. Front St. values as of 3/31, adjusted for contributions/distributions where relevant.

Asset Allocation History



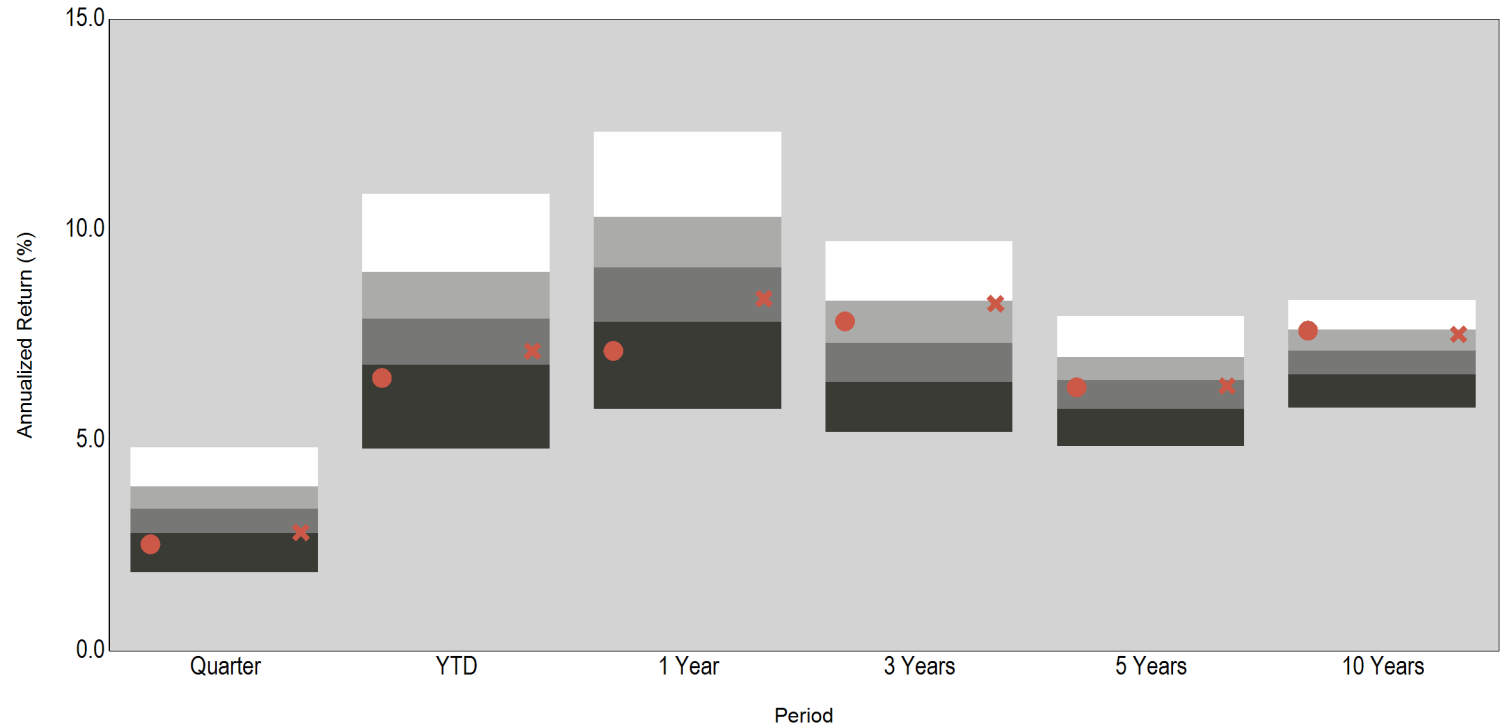
Total Plan Allocation vs. InvMetrics Public DB Net  
As of June 30, 2023



Allocation (Rank)

5th Percentile	71.8	20.6	62.1	22.2	39.3	13.7						
25th Percentile	65.2	15.2	52.7	15.8	30.9	7.8						
Median	60.3	10.3	46.2	13.6	24.5	4.7						
75th Percentile	52.7	4.4	35.3	10.3	19.1	2.8						
95th Percentile	34.1	1.0	14.9	4.4	11.2	0.7						
# of Portfolios	488	88	431	445	495	74						
● Total Fund Composite	55.5	(68)	4.8	(72)	33.0	(79)	17.6	(16)	26.7	(40)	17.2	(3)

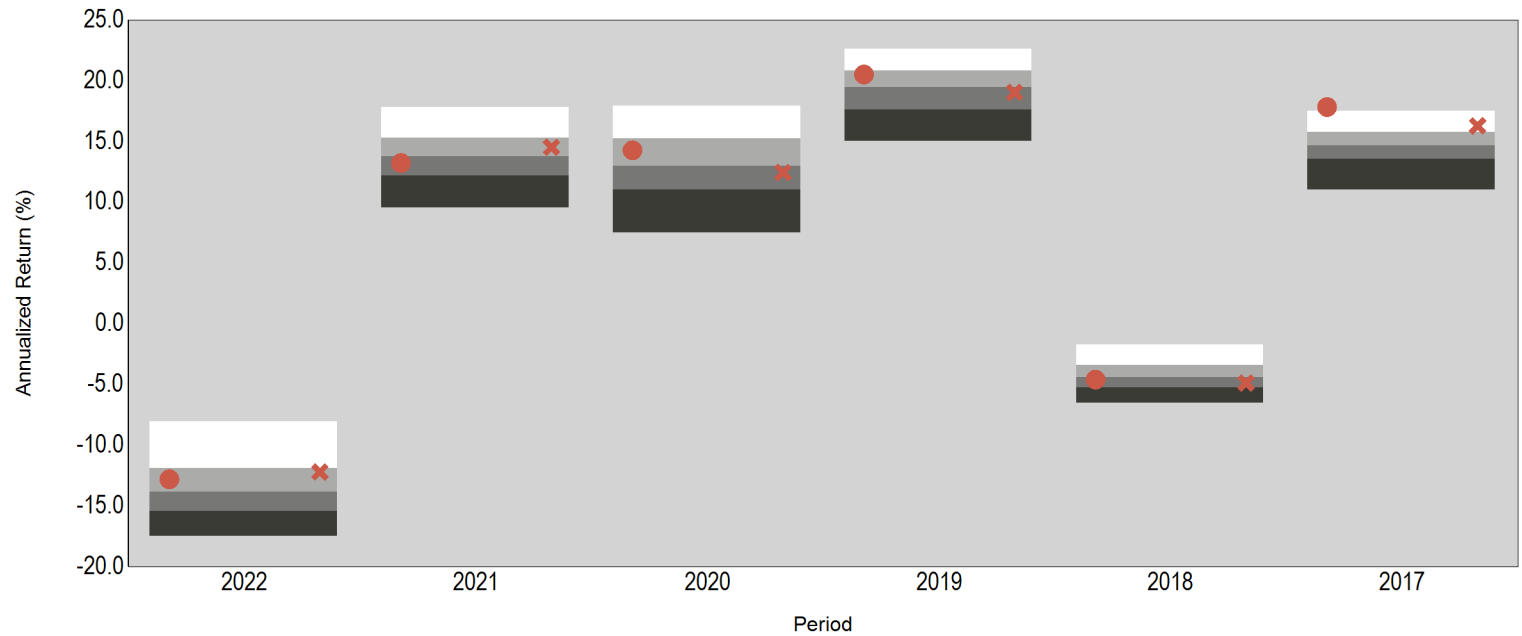
InvMetrics Public DB Net Return Comparison



Return (Rank)

5th Percentile	4.8	10.8	12.3	9.7	7.9	8.3
25th Percentile	3.9	9.0	10.3	8.3	7.0	7.6
Median	3.4	7.9	9.1	7.3	6.4	7.1
75th Percentile	2.8	6.8	7.8	6.4	5.7	6.6
95th Percentile	1.9	4.8	5.7	5.2	4.9	5.8
# of Portfolios	550	545	543	529	515	431
● Total Fund Composite	2.5 (84)	6.5 (81)	7.1 (84)	7.8 (36)	6.3 (58)	7.6 (27)
▲ Policy Index	2.8 (75)	7.1 (68)	8.4 (67)	8.2 (26)	6.3 (57)	7.5 (32)

InvMetrics Public DB Net Return Comparison



Return (Rank)

5th Percentile	-8.0	17.8	17.9	22.6	-1.7	17.5
25th Percentile	-11.9	15.3	15.3	20.8	-3.4	15.8
Median	-13.8	13.8	13.0	19.5	-4.4	14.7
75th Percentile	-15.4	12.2	11.0	17.6	-5.2	13.6
95th Percentile	-17.5	9.6	7.5	15.1	-6.5	11.1
# of Portfolios	539	559	596	550	496	269
● Total Fund Composite	-12.8 (36)	13.2 (58)	14.3 (37)	20.5 (32)	-4.6 (56)	17.8 (5)
▲ Policy Index	-12.2 (29)	14.5 (35)	12.4 (57)	19.0 (57)	-4.9 (66)	16.3 (18)

**RISK RETURN STATISTICS**

July 01, 2018 Through June 30, 2023

	Total Fund Composite	Policy Index
<b>RETURN SUMMARY STATISTICS</b>		
Number of Periods	20	20
Maximum Return	13.40	12.26
Minimum Return	-15.48	-14.88
Annualized Return	6.26	6.29
Total Return	35.44	35.66
Annualized Excess Return Over Risk Free	4.79	4.82
Annualized Excess Return	-0.03	0.00

**RISK SUMMARY STATISTICS**

Beta	1.05	1.00
Upside Deviation	7.40	6.90
Downside Deviation	11.04	10.49

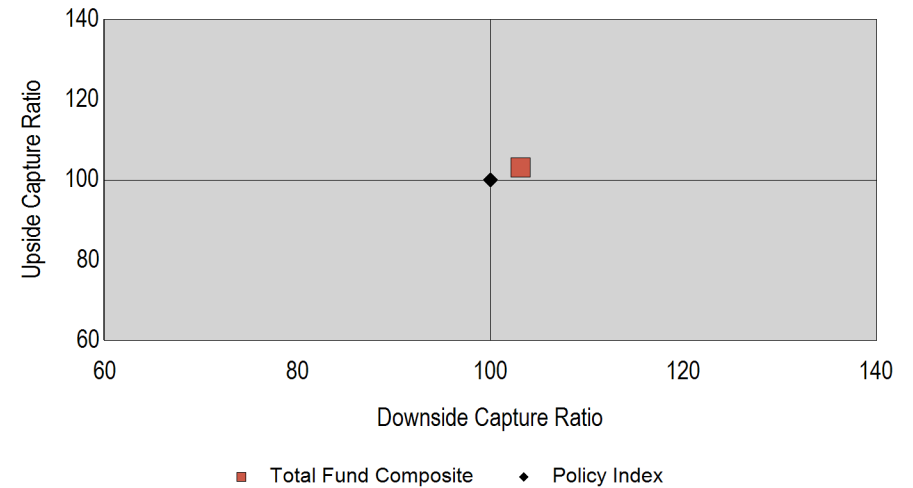
**RISK/RETURN SUMMARY STATISTICS**

Annualized Standard Deviation	14.86	14.17
Alpha	-0.07	0.00
Sharpe Ratio	0.32	0.34
Excess Return Over Market / Risk	0.00	0.00
Tracking Error	1.40	0.00
Information Ratio	-0.02	--

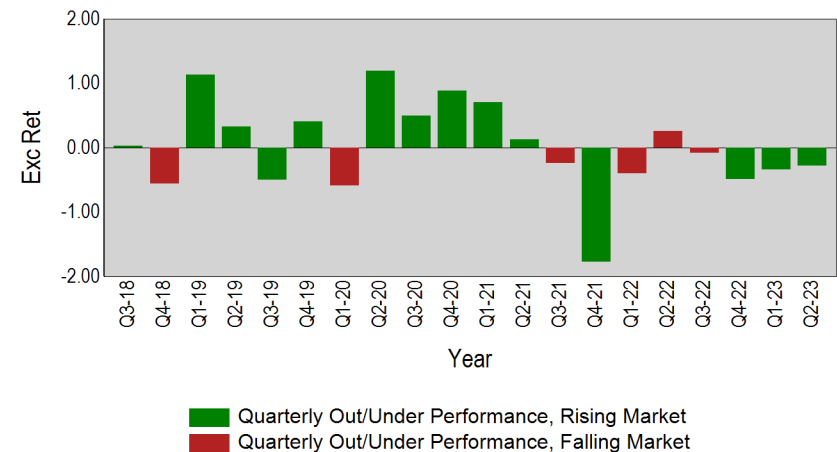
**CORRELATION STATISTICS**

R-Squared	0.99	1.00
Correlation	1.00	1.00

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



Quarterly Excess Performance  
Total Fund Composite vs. Policy Index



# Pennsylvania Municipal Retirement System

## Performance Summary (Net)

As of June 30, 2023

	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Market Value	Inception	Inception Date
<b>Total Fund Composite</b>	<b>2.5</b>	<b>6.5</b>	<b>7.1</b>	<b>7.8</b>	<b>6.3</b>	<b>7.6</b>	<b>3,176,517,106</b>	<b>8.4</b>	<b>Jan-86</b>
<i>Policy Index</i>	2.8	7.1	8.4	8.2	6.3	7.5		8.9	Jan-86
<i>InvMetrics Public DB Net Rank</i>	84	81	84	36	58	27		16	Jan-86
<b>Total Equity Composite</b>	<b>5.0</b>	<b>11.7</b>	<b>15.0</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>1,762,166,882</b>	<b>9.7</b>	<b>Oct-20</b>
<i>MSCI ACWI IMI Net USD</i>	5.9	13.2	16.1	--	--	--		8.9	Oct-20
<b>U.S. Equity Composite</b>	<b>7.5</b>	<b>13.9</b>	<b>17.2</b>	<b>13.7</b>	<b>10.1</b>	<b>11.7</b>	<b>1,048,779,141</b>	<b>8.8</b>	<b>Jan-06</b>
<i>Russell 3000</i>	8.4	16.2	19.0	13.9	11.4	12.3		9.5	Jan-06
<i>InvMetrics Public DB US Eq Net Rank</i>	57	60	75	68	63	43		50	Jan-06
MFS Large Cap Value	3.6	2.2	10.9	--	--	--	150,678,002	10.9	Jun-22
<i>Russell 1000 Value</i>	4.1	5.1	11.5	--	--	--		11.5	Jun-22
<i>eV US Large Cap Value Equity Net Rank</i>	55	76	56	--	--	--		56	Jun-22
Xponance S&P 500	8.7	16.9	19.6	--	--	--	273,403,536	-2.9	Dec-21
<i>S&amp;P 500</i>	8.7	16.9	19.6	--	--	--		-2.9	Dec-21
<i>eV US Large Cap Core Equity Net Rank</i>	24	20	25	--	--	--		42	Dec-21
Northern Trust S&P 500	8.7	16.9	19.6	--	--	--	277,914,282	-2.9	Dec-21
<i>S&amp;P 500</i>	8.7	16.9	19.6	--	--	--		-2.9	Dec-21
<i>eV US Large Cap Core Equity Net Rank</i>	24	20	24	--	--	--		42	Dec-21
Polen Focus Growth	9.2	24.6	19.3	5.7	11.8	15.0	105,747,041	14.6	Oct-10
<i>Russell 1000 Growth</i>	12.8	29.0	27.1	13.7	15.1	15.7		15.6	Oct-10
<i>eV US Large Cap Growth Equity Net Rank</i>	74	55	77	91	64	22		28	Oct-10
Northern Trust Dow Jones Completion Index	6.4	12.5	15.1	--	--	--	101,359,382	-11.8	Dec-21
<i>Dow Jones U.S. Completion Total Stock Market</i>	6.4	12.6	15.0	--	--	--		-11.9	Dec-21
<i>eV US Small-Mid Cap Core Equity Net Rank</i>	26	22	49	--	--	--		92	Dec-21
Copeland SMID Cap Dividend Growth	6.9	14.1	21.1	16.3	9.0	--	53,262,811	10.0	Sep-17
<i>Russell 2500</i>	5.2	8.8	13.0	11.1	4.3	--		5.7	Sep-17
<i>eV US Small Cap Core Equity Net Rank</i>	12	10	12	34	13	--		12	Sep-17
Smith, Graham & Co Small Cap Value	3.5	4.2	5.9	14.3	4.5	--	44,362,253	5.2	Dec-16
<i>Russell 2000 Value</i>	3.2	2.5	6.0	15.4	3.5	--		5.3	Dec-16
<i>eV US Small Cap Value Equity Net Rank</i>	57	66	86	84	67	--		78	Dec-16
Emerald Small Cap Growth	8.8	13.4	20.7	7.3	6.0	10.8	42,051,834	10.2	Oct-98
<i>Russell 2000 Growth</i>	7.1	13.6	18.5	6.1	4.2	8.8		7.5	Oct-98
<i>eV US Small Cap Growth Equity Net Rank</i>	10	40	18	54	70	40		60	Oct-98



# Pennsylvania Municipal Retirement System

## Performance Summary (Net)

As of June 30, 2023

	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Market Value	Inception	Inception Date
<b>Global Equity Composite</b>	<b>1.9</b>	<b>3.7</b>	<b>7.6</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>153,568,290</b>	<b>-6.5</b>	<b>Dec-21</b>
<i>Global Equity Policy Index</i>	2.2	3.8	7.1	--	--	--		-6.9	Dec-21
<i>InvMetrics Public DB Gbl Eq Net Rank</i>	99	99	99	--	--	--		95	Dec-21
Rhumblin Global Min. Volatility	1.9	3.7	5.8	--	--	--	153,568,290	-4.4	Dec-21
<i>MSCI ACWI Minimum Volatility Index</i>	2.2	3.8	5.8	--	--	--		-4.7	Dec-21
<i>MSCI ACWI</i>	6.2	13.9	16.5	--	--	--		-4.7	Dec-21
<i>eV Global Low Volatility Equity Net Rank</i>	66	72	89	--	--	--		75	Dec-21
<b>Non-U.S Equity Composite</b>	<b>1.7</b>	<b>9.9</b>	<b>13.2</b>	<b>7.5</b>	<b>4.5</b>	<b>5.8</b>	<b>559,819,451</b>	<b>6.8</b>	<b>May-12</b>
<i>MSCI ACWI ex USA IMI</i>	2.4	9.1	12.5	7.3	3.4	4.9		6.1	May-12
<i>InvMetrics Public DB ex-US Eq Net Rank</i>	98	60	53	43	21	26		31	May-12
SSGA MSCI World ex US	3.2	11.6	17.8	9.7	4.9	5.7	261,005,816	5.9	Apr-12
<i>MSCI World ex USA</i>	3.0	11.3	17.4	9.3	4.6	5.4		5.6	Apr-12
<i>eV ACWI ex-US Core Equity Net Rank</i>	38	38	14	27	30	48		45	Apr-12
Hardman Johnston Int'l Equity	-1.8	7.1	11.4	4.5	5.1	7.3	101,546,765	7.6	Apr-12
<i>MSCI EAFE</i>	3.0	11.7	18.8	8.9	4.4	5.4		5.7	Apr-12
<i>MSCI ACWI ex USA Growth</i>	1.9	10.7	13.3	4.0	4.1	5.6		5.5	Apr-12
<i>eV EAFE All Cap Equity Net Rank</i>	99	94	92	89	19	10		12	Apr-12
HGK Int'l Equity	1.2	11.0	11.8	11.0	6.2	7.8	126,599,635	8.6	Feb-12
<i>MSCI EAFE</i>	3.0	11.7	18.8	8.9	4.4	5.4		6.1	Feb-12
<i>MSCI ACWI ex USA Value</i>	3.0	8.3	12.2	10.4	2.7	3.7		3.9	Feb-12
<i>eV EAFE All Cap Equity Net Rank</i>	93	52	90	15	13	3		8	Feb-12
SSGA MSCI Emerging Markets Index	1.0	5.1	1.8	2.2	0.9	2.9	70,484,309	6.2	Nov-08
<i>MSCI Emerging Markets</i>	0.9	4.9	1.7	2.3	0.9	3.0		6.4	Nov-08
<i>eV Emg Mkts Equity Net Rank</i>	73	77	80	67	71	72		76	Nov-08

# Pennsylvania Municipal Retirement System

## Performance Summary (Net)

As of June 30, 2023

	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Market Value	Inception	Inception Date
<b>Real Assets Composite</b>	<b>-0.7</b>	<b>-2.4</b>	<b>-4.7</b>	<b>6.1</b>	<b>4.9</b>	<b>6.6</b>	<b>546,343,653</b>	<b>7.4</b>	<b>Apr-93</b>
<i>Real Assets Policy Index</i>	-1.3	-3.0	-3.8	9.0	6.7	8.4		7.6	Apr-93
Forest Investment Associates	0.6	2.2	8.4	8.1	4.3	5.2	144,492,290	4.3	Mar-99
<i>NCREIF Timberland Property Index</i>	1.7	3.5	11.1	8.7	5.8	5.9		6.3	Mar-99
PRISA LP	-2.1	-3.9	-9.6	7.4	6.3	8.3	64,071,596	6.3	Jan-86
<i>NFI-ODCE</i>	-2.8	-6.1	-10.7	7.1	5.6	7.8		6.2	Jan-86
<i>InvMetrics Public DB Real Estate Priv Net Rank</i>	36	21	34	41	29	23		--	Jan-86
PRISA II	-2.4	-4.7	-10.0	7.7	6.2	9.0	129,354,805	4.3	Jul-07
<i>NFI-ODCE</i>	-2.8	-6.1	-10.7	7.1	5.6	7.8		4.9	Jul-07
<i>InvMetrics Public DB Real Estate Priv Net Rank</i>	52	26	35	26	30	5		53	Jul-07
PennMuni-Nuveen U.S. Real Estate Fund	0.0	-3.5	-7.9	3.8	4.9	7.0	206,985,070	5.5	Dec-08
<i>NFI-ODCE</i>	-2.8	-6.1	-10.7	7.1	5.6	7.8		5.8	Dec-08
<i>InvMetrics Public DB Real Estate Priv Net Rank</i>	10	17	26	98	73	70		56	Dec-08
N. Front Street (Nuveen)	0.0	0.8	-23.1	-11.7	-7.7	--	1,439,892	-8.2	Sep-16
<i>Consumer Price Index</i>	1.1	2.8	3.0	5.8	3.9	--		3.5	Sep-16
<b>Total Fixed Income Composite</b>	<b>-0.3</b>	<b>2.7</b>	<b>-0.4</b>	<b>-4.0</b>	<b>0.8</b>	<b>1.5</b>	<b>846,708,989</b>	<b>5.6</b>	<b>Jan-86</b>
<i>Bloomberg US Aggregate TR</i>	-0.8	2.1	-0.9	-4.0	0.8	1.5		5.6	Jan-86
<i>InvMetrics Public DB US Fix Inc Net Rank</i>	27	34	76	95	84	57		--	Jan-86
SSGA US Aggregate Bond Index	-0.8	2.3	-0.9	-4.0	0.8	1.5	340,336,891	4.3	Apr-97
<i>Bloomberg US Aggregate TR</i>	-0.8	2.1	-0.9	-4.0	0.8	1.5		4.2	Apr-97
<i>eV US Core Fixed Inc Net Rank</i>	69	51	75	81	78	79		74	Apr-97
Federated Hermes Core Aggregate Strategy	-1.0	1.7	-1.4	--	--	--	342,340,974	-1.4	Jul-22
<i>Bloomberg US Aggregate TR</i>	-0.8	2.1	-0.9	--	--	--		-0.9	Jul-22
<i>eV US Core Fixed Inc Net Rank</i>	88	96	87	--	--	--		87	Jul-22
Ares Global Multi-Asset Credit	2.5	6.0	--	--	--	--	164,031,124	6.0	Dec-22
<i>50% Bloomberg HY / 50% CSFB Lev Loans</i>	2.4	5.9	--	--	--	--		5.9	Dec-22
<i>eV US High Yield Fixed Inc Net Rank</i>	9	9	--	--	--	--		9	Dec-22
<b>Cash Composite</b>							<b>21,297,581</b>		

\*PennMuni and N. Front St. values as of 3/31, adjusted for contributions/distributions where relevant.

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**

<b>Total Fund Composite</b>		
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
<b>Total Equity Composite</b>		
10/1/2020	Present	MSCI ACWI IMI Net USD
<b>U.S. Equity Composite</b>		
1/1/2006	Present	Russell 3000
<b>Large Cap U.S. Equity Composite</b>		
1/1/1986	Present	S&P 500
<b>SMID Cap U.S. Equity Composite</b>		
1/1/1993	Present	Russell 2000
<b>Global Equity Composite</b>		
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
<b>Non-U.S Equity Composite</b>		
5/31/2012	Present	MSCI ACWI ex USA IMI
<b>Developed Non-U.S. Equity Composite</b>		
1/1/1993	Present	MSCI EAFE
<b>Emerging Markets Composite</b>		
1/1/2009	Present	MSCI Emerging Markets
<b>Real Assets Composite</b>		
7/1/2023	Present	0.00
1/1/2022	6/30/2023	66.67% NFI-ODCE / 33.33% NCREIF Timberland Property Index
4/1/1993	12/31/2021	100% NFI-ODCE
<b>Total Fixed Income Composite</b>		
1/31/1986	Present	Bloomberg US Aggregate TR
<b>Cash Composite</b>		
	Present	91 Day T-Bills

# Pennsylvania Municipal Retirement System

## Fee Summary

As of June 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	4.8%	\$514,704	0.34%
Xponance S&P 500	0.02% of Assets	8.7%	\$54,681	0.02%
Northern Trust S&P 500	0.00% of Assets	8.8%	\$11,117	0.00%
Polen Focus Growth	0.50% of First 100.0 Mil, 0.40% Thereafter	3.4%	\$522,988	0.49%
Northern Trust Dow Jones Completion Index	0.02% of Assets	3.2%	\$15,204	0.02%
Copeland SMID Cap Dividend Growth	0.50% of Assets	1.7%	\$266,314	0.50%
Smith, Graham & Co Small Cap Value	0.75% of First 50.0 Mil, 0.60% Thereafter	1.4%	\$332,717	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%	\$222,759	0.53%
Rhumblin Global Min. Volatility	0.07% of Assets	4.9%	\$99,819	0.06%
SSGA MSCI World ex US	0.04% of Assets	8.3%	\$104,402	0.04%
Hardman Johnston Int'l Equity	0.75% of First 25.0 Mil, 0.60% Thereafter	3.2%	\$646,781	0.64%
HGK Int'l Equity	0.65% of Assets	4.0%	\$822,898	0.65%
SSGA MSCI Emerging Markets Index	0.05% of Assets	2.2%	\$35,242	0.05%
Forest Investment Associates	0.75% of Assets	4.6%	\$1,083,692	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%	\$607,109	0.95%

# Pennsylvania Municipal Retirement System

## Fee Summary

As of June 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%	\$1,391,371	1.08%
PennMuni-Nuveen U.S. Real Estate Fund	0.85% of Assets	6.6%	\$1,759,373	0.85%
N. Front Street (Nuveen)	0.85% of Assets	0.0%	\$12,239	0.85%
SSGA US Aggregate Bond Index	0.02% of First 100.0 Mil, 0.01% of Next 300.0 Mil, 0.01% Thereafter	10.8%	\$44,034	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%	\$362,341	0.11%
Ares Global Multi-Asset Credit	0.35% of Assets	5.2%	\$574,109	0.35%
<b>Investment Management Fee</b>		<b>100.0%</b>	<b>\$9,483,892</b>	<b>0.30%</b>

**Characteristics**

	Portfolio	MSCI ACWI IMI Net USD
Number of Holdings	6,356	9,172
Weighted Avg. Market Cap. (\$B)	301.4	395.6
Median Market Cap. (\$B)	5.1	2.0
Price To Earnings	19.2	18.1
Price To Book	3.4	3.3
Price To Sales	1.8	1.7
Return on Equity (%)	17.7	18.4
Yield (%)	2.0	2.2

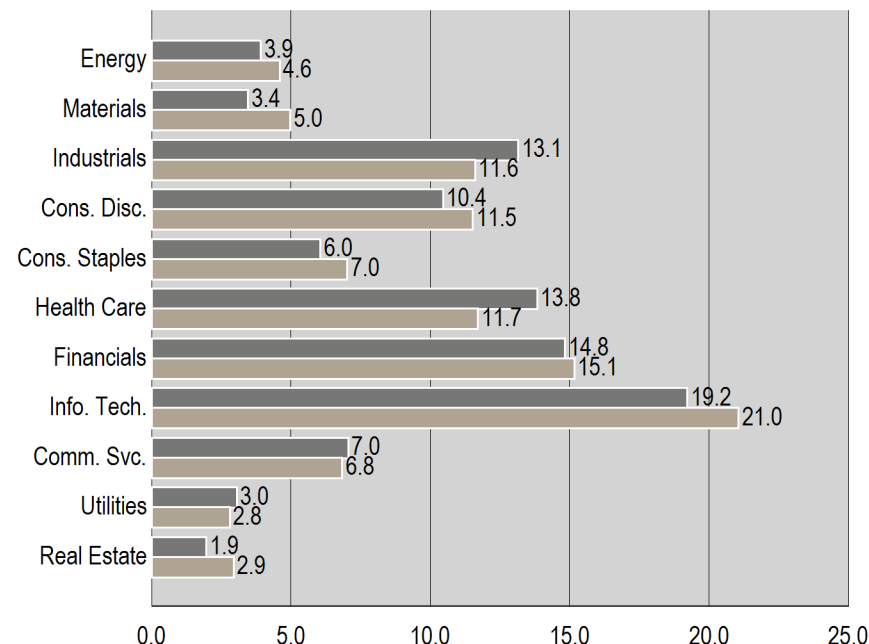
**Top Holdings**

MICROSOFT CORP	2.6%
APPLE INC	2.5%
AMAZON.COM INC	1.5%
ISHARES MSCI EMERGING MARKETS MIN VOL FACTOR ETF	1.1%
NVIDIA CORPORATION	0.9%
ALPHABET INC	0.8%
JOHNSON & JOHNSON	0.8%
ALPHABET INC	0.7%
JPMORGAN CHASE & CO	0.7%
VISA INC	0.7%
<b>Total</b>	<b>12.3%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap	Unclassified
Total Equity Composite	13.8%	15.8%	65.7%	4.7%
MSCI ACWI IMI Net USD	15.6%	15.2%	69.2%	0.0%
<i>Weight Over/Under</i>	<i>-1.8%</i>	<i>0.5%</i>	<i>-3.5%</i>	<i>4.7%</i>

**Sector Allocation (%) vs MSCI ACWI IMI Net USD**



**Region Allocation Summary**

Region	% of Total	% of Bench	% Diff
North America ex U.S.	3.1%	2.9%	0.2%
United States	63.6%	60.9%	2.7%
Europe Ex U.K.	14.8%	12.4%	2.5%
United Kingdom	4.0%	3.7%	0.2%
Pacific Basin Ex Japan	2.9%	3.0%	-0.1%
Japan	5.4%	6.0%	-0.6%
Emerging Markets	5.6%	10.7%	-5.1%
Other	0.6%	0.3%	0.3%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>

**Characteristics**

	Portfolio	Russell 3000
Number of Holdings	3,969	3,010
Weighted Avg. Market Cap. (\$B)	437.9	591.9
Median Market Cap. (\$B)	2.2	2.4
Price To Earnings	21.6	22.6
Price To Book	4.0	4.2
Price To Sales	2.1	2.4
Return on Equity (%)	20.5	22.3
Yield (%)	1.6	1.5

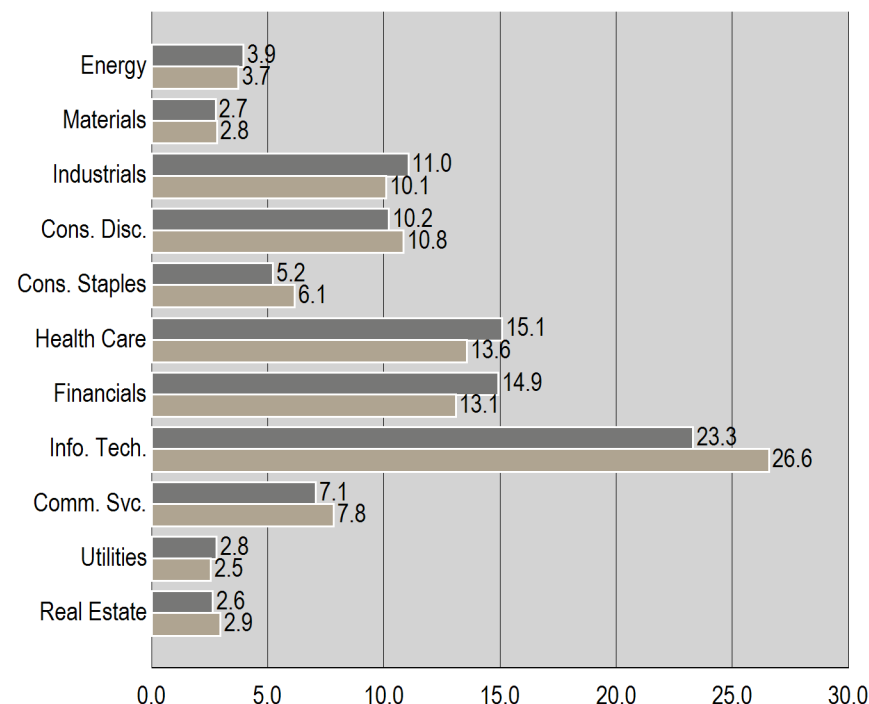
**Top Holdings**

MICROSOFT CORP	4.3%
APPLE INC	4.1%
AMAZON.COM INC	2.4%
NVIDIA CORPORATION	1.5%
ALPHABET INC	1.4%
ALPHABET INC	1.2%
JPMORGAN CHASE & CO	1.2%
VISA INC	1.1%
JOHNSON & JOHNSON	1.0%
MASTERCARD INC	1.0%
<b>Total</b>	<b>19.1%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap	Unclassified
U.S. Equity Composite	8.9%	20.8%	67.0%	3.2%
Russell 3000	5.8%	21.0%	73.2%	0.0%
<i>Weight Over/Under</i>	3.1%	-0.2%	-6.1%	3.2%

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





Common Holdings Matrix

	<i>MFS Large Cap Value</i>		<i>Xponance S&amp;P 500</i>		<i>Northern Trust S&amp;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 &amp; Co Small Cap Value</i>		<i>Emerald Small Cap Growth</i>	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
MFS Large Cap Value	--	--	67	17	67	17	3	11	1	1	0	0	0	0	0	0
Xponance S&P 500	67	93	--	--	500	100	21	90	2	0	9	13	0	0	0	0
Northern Trust S&P 500	67	93	500	99	--	--	21	90	5	0	9	13	0	0	0	0
Polen Focus Growth	3	5	21	21	21	21	--	--	3	2	0	0	0	0	0	0
Northern Trust Dow Jones Completion Index	1	1	2	0	5	0	3	8	--	--	57	82	63	97	104	94
Copeland SMID Cap Dividend Growth	0	0	9	0	9	0	0	0	57	5	--	--	1	2	5	5
Smith, Graham & Co Small Cap Value	0	0	0	0	0	0	0	0	63	2	1	2	--	--	0	0
Emerald Small Cap Growth	0	0	0	0	0	0	0	0	104	5	5	8	0	0	--	--

**Characteristics**

	Portfolio	MSCI ACWI IMI Net USD
Number of Holdings	276	9,172
Weighted Avg. Market Cap. (\$B)	100.0	395.6
Median Market Cap. (\$B)	22.0	2.0
Price To Earnings	18.8	18.1
Price To Book	3.4	3.3
Price To Sales	1.3	1.7
Return on Equity (%)	19.9	18.4
Yield (%)	2.4	2.2

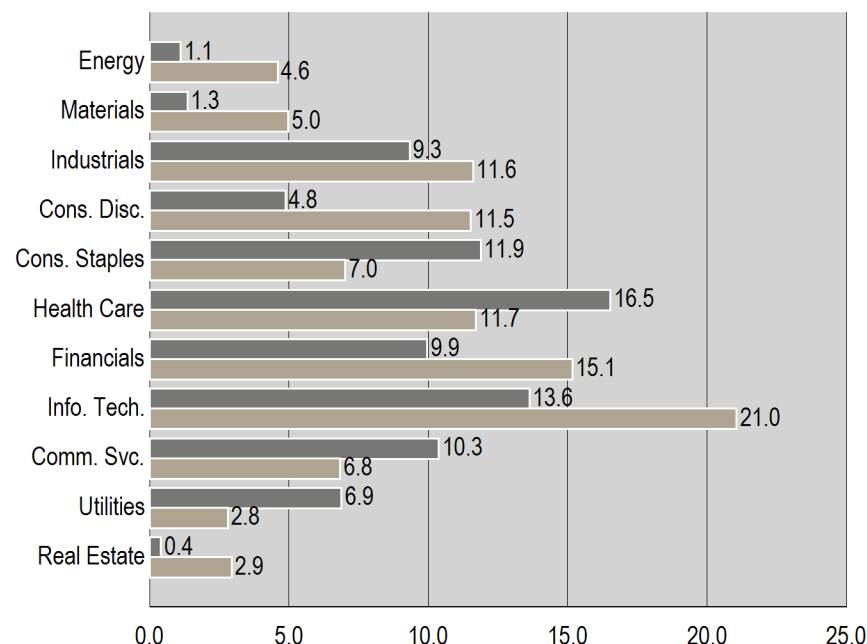
**Top Holdings**

ISHARES MSCI EMERGING MARKETS MIN VOL FACTOR ETF	12.3%
WASTE MANAGEMENT INC.	1.6%
MERCK & CO INC	1.6%
JOHNSON & JOHNSON	1.5%
PEPSICO INC	1.4%
MOTOROLA SOLUTIONS INC	1.3%
WALMART INC	1.2%
ELI LILLY AND CO	1.2%
MCDONALD'S CORP	1.2%
CISCO SYSTEMS INC	1.2%
<b>Total</b>	<b>24.6%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap	Unclassified
Global Equity Composite	17.8%	21.1%	60.3%	0.8%
MSCI ACWI IMI Net USD	15.6%	15.2%	69.2%	0.0%
<i>Weight Over/Under</i>	2.2%	5.9%	-8.9%	0.8%

**Sector Allocation (%) vs MSCI ACWI IMI Net USD**



**Region Allocation Summary**

Region	% of Total	% of Bench	% Diff
North America ex U.S.	2.0%	2.9%	-1.0%
United States	68.8%	60.9%	7.8%
Europe Ex U.K.	6.0%	12.4%	-6.3%
United Kingdom	0.4%	3.7%	-3.4%
Pacific Basin Ex Japan	3.6%	3.0%	0.6%
Japan	10.3%	6.0%	4.3%
Emerging Markets	8.1%	10.7%	-2.6%
Other	0.9%	0.3%	0.5%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>

**Characteristics**

	Portfolio	MSCI ACWI ex USA IMI
Number of Holdings	2,379	6,702
Weighted Avg. Market Cap. (\$B)	85.8	78.8
Median Market Cap. (\$B)	7.9	1.6
Price To Earnings	15.4	13.7
Price To Book	2.6	2.4
Price To Sales	1.4	1.1
Return on Equity (%)	14.2	14.1
Yield (%)	2.7	3.3

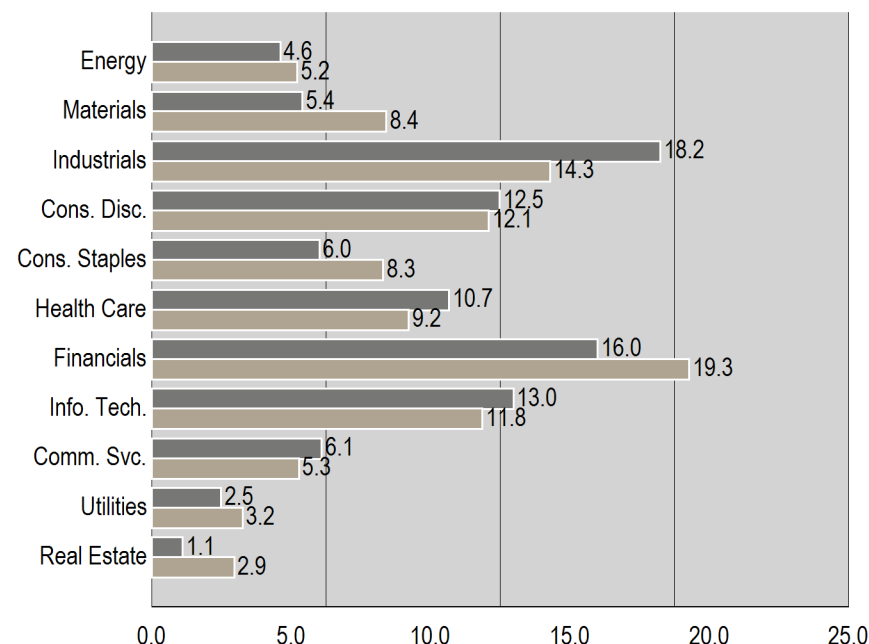
**Top Holdings**

ASML HOLDING NV	2.0%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	1.9%
RHEINMETALL	1.9%
AIA GROUP LTD	1.7%
ASTRAZENECA PLC	1.5%
AIRBUS SE	1.3%
KEYENCE CORP	1.2%
SANOFI	1.2%
BAE SYSTEMS PLC	1.2%
LVMH MOET HENNESSY LOUIS VUITTON SE	1.2%
<b>Total</b>	<b>15.0%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap	Unclassified
Non-U.S Equity Composite	9.4%	26.1%	55.7%	8.7%
MSCI ACWI ex USA IMI	25.2%	22.0%	52.8%	0.0%
<i>Weight Over/Under</i>	-15.8%	4.2%	2.9%	8.7%

**Sector Allocation (%) vs MSCI ACWI ex USA IMI**



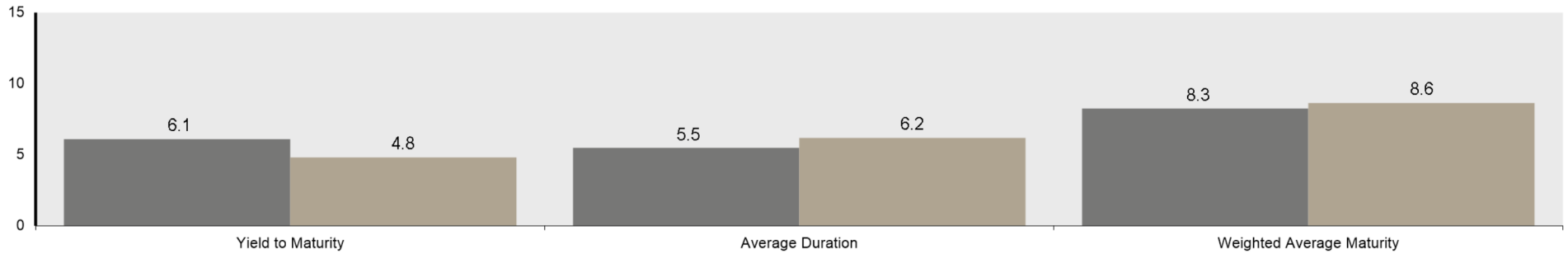
**Region Allocation Summary**

Region	% of Total	% of Bench	% Diff
North America ex U.S.	9.1%	7.5%	1.6%
United States	0.6%	0.0%	0.6%
Europe Ex U.K.	40.0%	31.7%	8.4%
United Kingdom	10.3%	9.6%	0.8%
Pacific Basin Ex Japan	8.2%	7.7%	0.5%
Japan	14.6%	15.3%	-0.7%
Emerging Markets	16.0%	27.4%	-11.4%
Other	1.2%	0.8%	0.3%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>

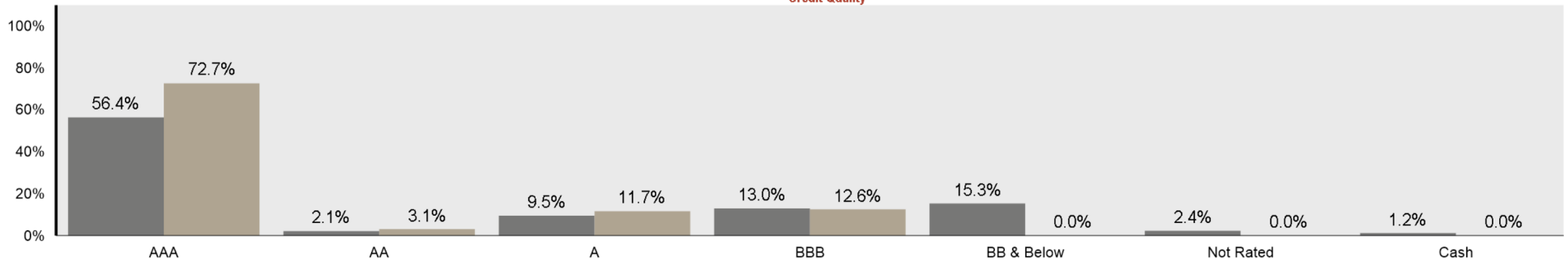
Common Holdings Matrix

	<i>SSGA MSCI World ex US</i>		<i>Hardman Johnston Int'l Equity</i>		<i>HGK Int'l Equity</i>		<i>SSGA MSCI Emerging Markets Index</i>	
	#	%	#	%	#	%	#	%
SSGA MSCI World ex US	--	--	15	61	27	80	0	0
Hardman Johnston Int'l Equity	15	7	--	--	3	8	5	9
HGK Int'l Equity	27	6	3	14	--	--	3	1
SSGA MSCI Emerging Markets Index	0	0	5	15	3	7	--	--

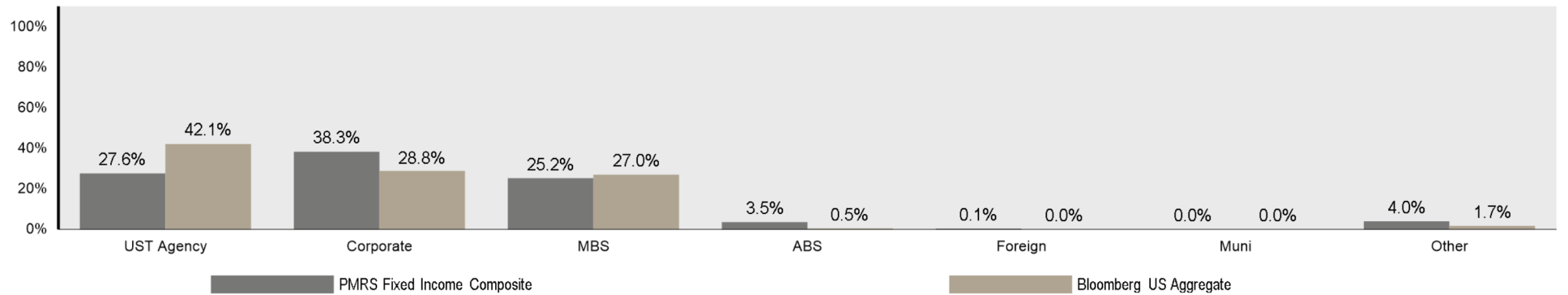
Yield to Maturity



Credit Quality



US Sector



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# Investment Managers



As of June 30, 2023

**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	75	844
Weighted Avg. Market Cap. (\$B)	127.2	140.0
Median Market Cap. (\$B)	70.5	12.6
Price To Earnings	18.2	17.0
Price To Book	3.1	2.5
Price To Sales	2.1	1.8
Return on Equity (%)	25.6	16.0
Yield (%)	2.5	2.4

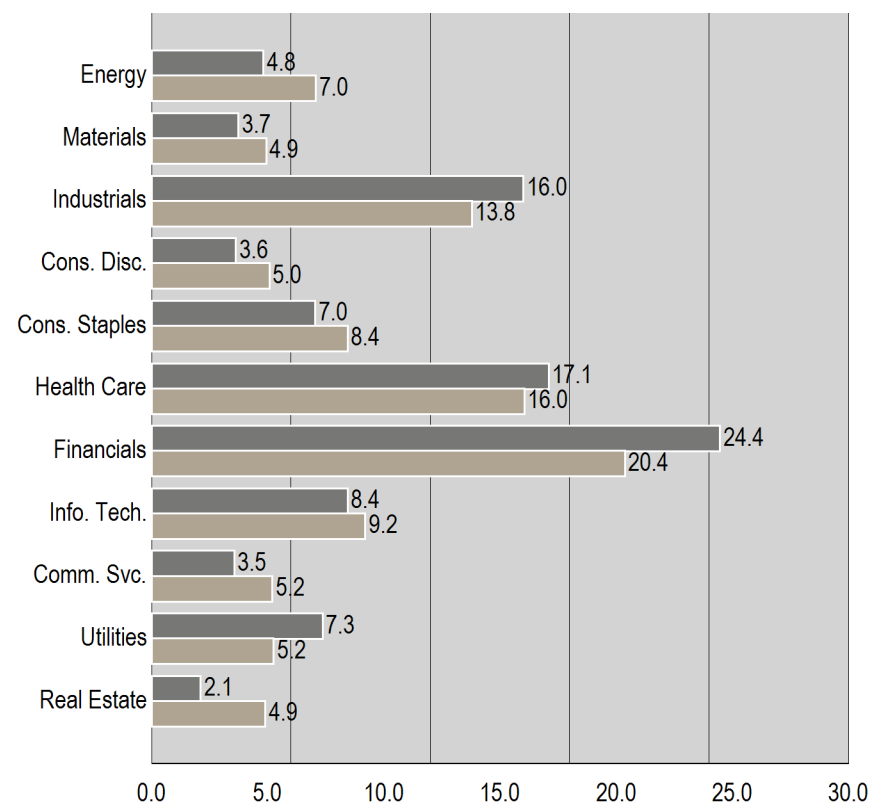
**Top Holdings**

JPMORGAN CHASE & CO	4.1%
JOHNSON & JOHNSON	2.9%
THE CIGNA GROUP	2.7%
AON PLC	2.7%
MARSH & MCLENNAN COMPANIES INC	2.6%
COMCAST CORP	2.6%
CONOCOPHILLIPS	2.5%
TEXAS INSTRUMENTS INC	2.5%
PROGRESSIVE CORP (THE)	2.3%
NORTHROP GRUMMAN CORP	2.3%
<b>Total</b>	<b>27.2%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap
MFS Large Cap Value	0.0%	6.5%	93.5%
Russell 1000 Value	2.3%	31.5%	66.3%
<i>Weight Over/Under</i>	<i>-2.3%</i>	<i>-25.0%</i>	<i>27.2%</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)	674.4	676.7
Median Market Cap. (\$B)	31.2	31.1
Price To Earnings	23.8	24.1
Price To Book	4.5	4.5
Price To Sales	2.7	2.7
Return on Equity (%)	30.6	30.6
Yield (%)	1.6	1.5

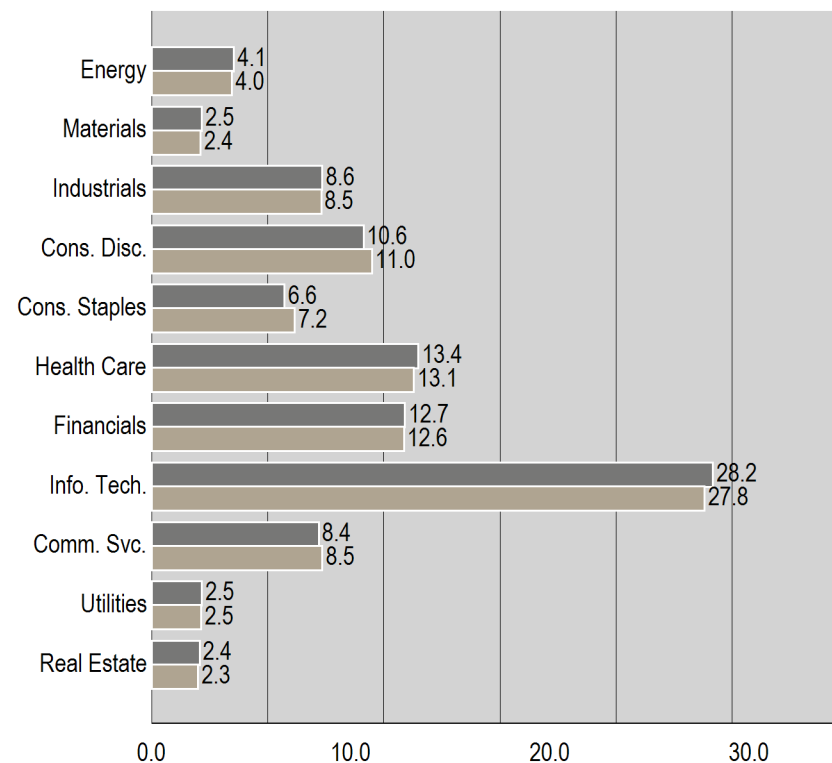
**Top Holdings**

APPLE INC	7.7%
MICROSOFT CORP	6.8%
AMAZON.COM INC	3.1%
NVIDIA CORPORATION	2.8%
ALPHABET INC	1.9%
TESLA INC	1.9%
META PLATFORMS INC	1.7%
ALPHABET INC	1.7%
BERKSHIRE HATHAWAY INC	1.6%
UNITEDHEALTH GROUP INC	1.2%
<b>Total</b>	<b>30.4%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap
Xponance S&P 500	0.0%	15.0%	85.0%
S&P 500	0.2%	14.8%	85.0%
<i>Weight Over/Under</i>	-0.2%	0.2%	0.0%

**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	503	503
Weighted Avg. Market Cap. (\$B)	675.0	676.7
Median Market Cap. (\$B)	30.6	31.1
Price To Earnings	23.7	24.1
Price To Book	4.5	4.5
Price To Sales	2.7	2.7
Return on Equity (%)	30.6	30.6
Yield (%)	1.6	1.5

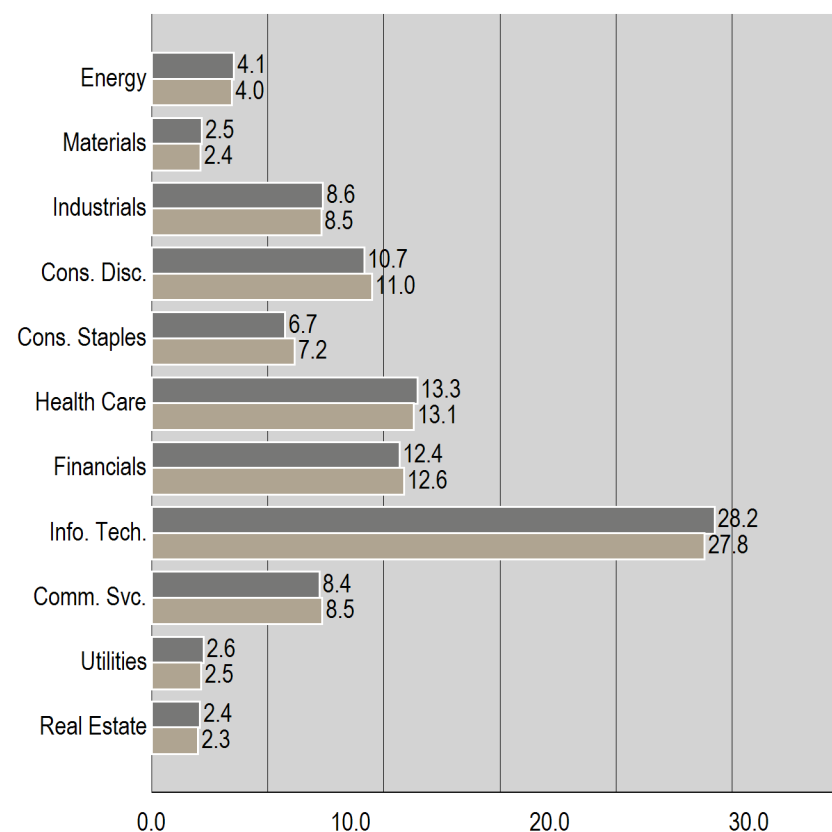
**Top Holdings**

APPLE INC	7.7%
MICROSOFT CORP	6.8%
AMAZON.COM INC	3.1%
NVIDIA CORPORATION	2.8%
ALPHABET INC	1.9%
TESLA INC	1.9%
META PLATFORMS INC	1.7%
ALPHABET INC	1.7%
BERKSHIRE HATHAWAY INC	1.6%
UNITEDHEALTH GROUP INC	1.2%
<b>Total</b>	<b>30.5%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap
Northern Trust S&P 500	0.0%	15.0%	85.0%
S&P 500	0.2%	14.8%	85.0%
<i>Weight Over/Under</i>	<i>-0.2%</i>	<i>0.3%</i>	<i>-0.1%</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	25	444
Weighted Avg. Market Cap. (\$B)	534.4	1,053.9
Median Market Cap. (\$B)	195.8	17.9
Price To Earnings	43.3	35.1
Price To Book	8.3	11.3
Price To Sales	5.6	4.5
Return on Equity (%)	34.0	51.5
Yield (%)	0.4	0.8

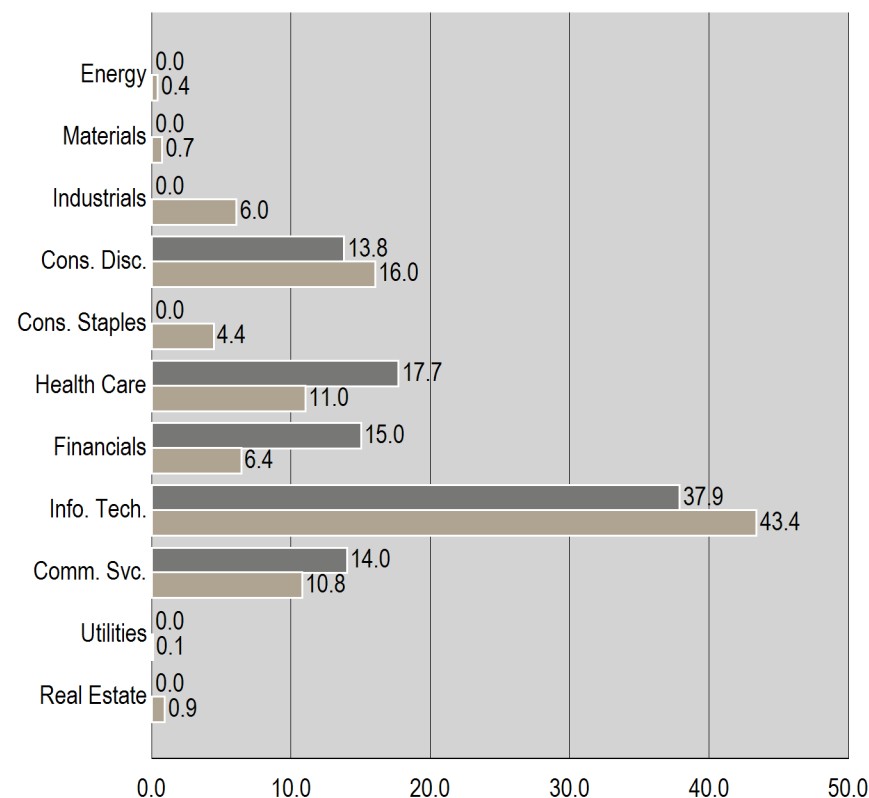
**Top Holdings**

AMAZON.COM INC	7.5%
NETFLIX INC	7.4%
SERVICENOW INC	6.9%
MICROSOFT CORP	6.9%
ADOBE INC	6.2%
MASTERCARD INC	5.5%
SALESFORCE INC	5.2%
VISA INC	5.2%
ALPHABET INC	5.1%
PAYPAL HOLDINGS INC	4.6%
<b>Total</b>	<b>60.3%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap
Polen Focus Growth	0.0%	8.1%	91.9%
Russell 1000 Growth	1.4%	11.2%	87.3%
<i>Weight Over/Under</i>	-1.4%	-3.1%	4.6%

**Sector Allocation (%) vs Russell 1000 Growth**



As of June 30, 2023

**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	3,438	3,686
Weighted Avg. Market Cap. (\$B)	11.8	11.8
Median Market Cap. (\$B)	0.7	0.6
Price To Earnings	15.3	15.3
Price To Book	3.0	3.0
Price To Sales	1.4	1.4
Return on Equity (%)	2.9	2.9
Yield (%)	1.4	1.4

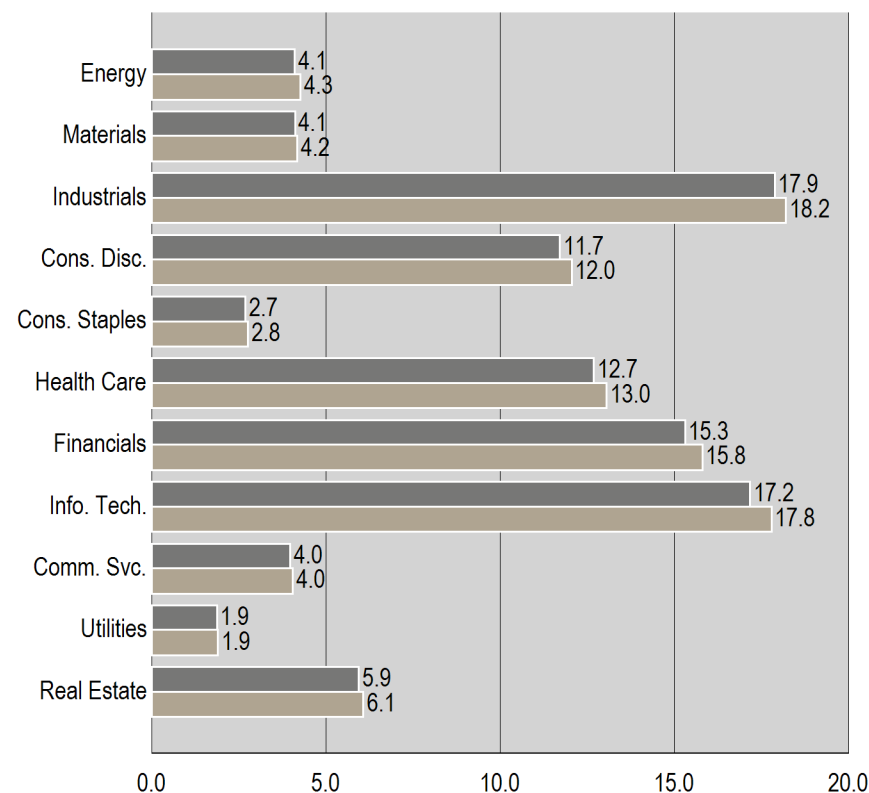
**Top Holdings**

UBER TECHNOLOGIES INC	1.4%
BLACKSTONE INC	1.0%
AIRBNB INC	0.8%
MARVELL TECHNOLOGY INC	0.8%
SNOWFLAKE INC	0.8%
WORKDAY INC	0.7%
LULULEMON ATHLETICA INC	0.7%
CHENIERE ENERGY INC.	0.6%
BLOCK INC	0.6%
TRADE DESK INC (THE)	0.5%
<b>Total</b>	<b>8.0%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap
Northern Trust Dow Jones Completion Index	29.6%	63.4%	7.0%
Dow Jones U.S. Completion Total Stock Market	37.3%	56.5%	6.2%
<i>Weight Over/Under</i>	<i>-7.6%</i>	<i>6.9%</i>	<i>0.8%</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	67	1,458
Weighted Avg. Market Cap. (\$B)	2.9	2.4
Median Market Cap. (\$B)	1.5	0.8
Price To Earnings	11.3	9.9
Price To Book	1.9	1.6
Price To Sales	0.5	0.9
Return on Equity (%)	10.6	6.6
Yield (%)	1.5	2.6

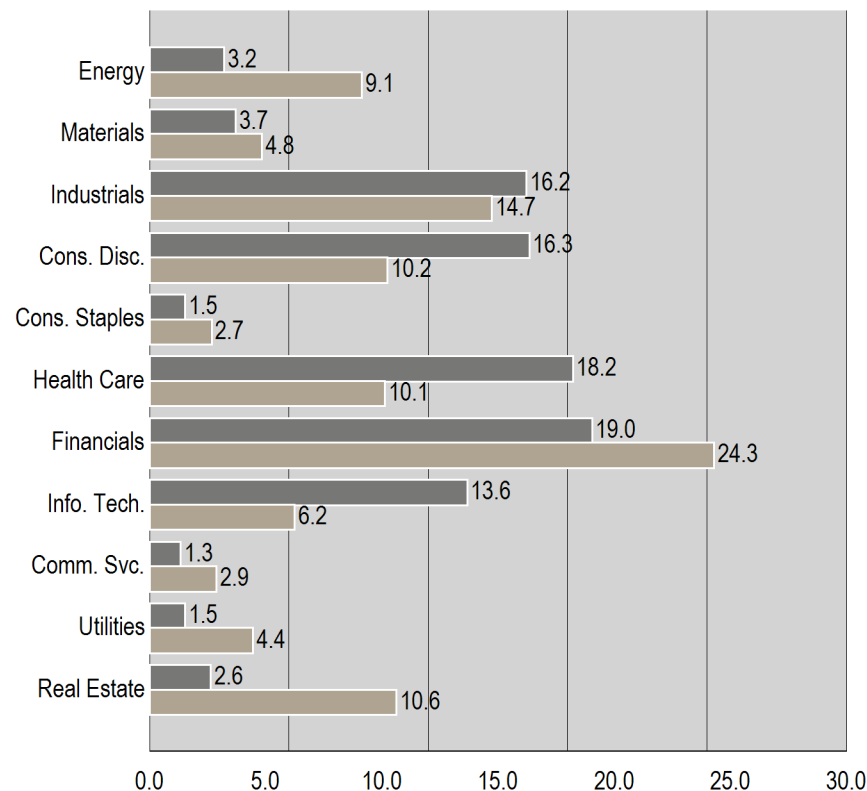
**Top Holdings**

DECKERS OUTDOOR CORP	3.0%
GROUP 1 AUTOMOTIVE INC.	3.0%
DYCOM INDUSTRIES INC.	3.0%
SELECT MEDICAL HOLDINGS CORP	2.7%
LITHIA MOTORS INC.	2.6%
ULTRA CLEAN HOLDINGS INC	2.5%
SELECTIVE INSURANCE GROUP INC	2.4%
GRIFFON CORP.	2.2%
M.D.C. HOLDINGS INC.	2.1%
KOPPERS HOLDINGS INC	2.1%
<b>Total</b>	<b>25.5%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap
Smith, Graham & Co Small Cap Value	74.8%	25.2%	0.0%
Russell 2000 Value	84.0%	16.0%	0.0%
<i>Weight Over/Under</i>	<i>-9.2%</i>	<i>9.2%</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	69	2,503
Weighted Avg. Market Cap. (\$B)	7.4	6.5
Median Market Cap. (\$B)	5.7	1.5
Price To Earnings	19.8	14.7
Price To Book	3.4	2.7
Price To Sales	1.9	1.3
Return on Equity (%)	19.6	9.3
Yield (%)	1.9	1.7

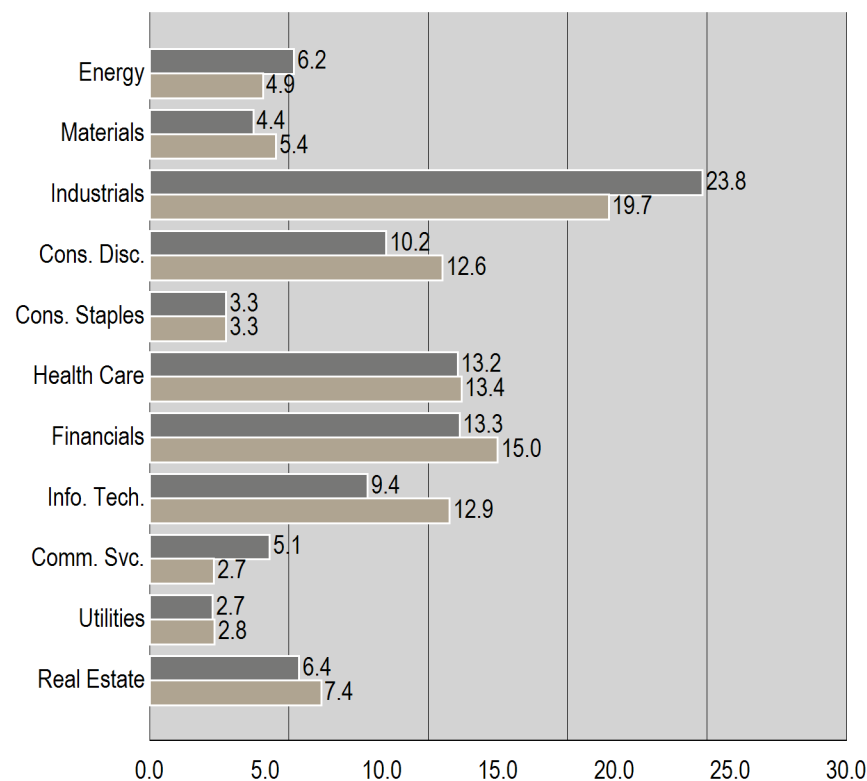
**Top Holdings**

RELIANCE STEEL & ALUMINUM CO	2.0%
ENSIGN GROUP INC (THE)	1.9%
US PHYSICAL THERAPY INC	1.9%
CHURCHILL DOWNS INC	1.8%
LEMAITRE VASCULAR INC	1.8%
GFL ENVIRONMENTAL INC	1.8%
NORTHERN OIL AND GAS INC	1.8%
STERIS PLC	1.8%
ENCOMPASS HEALTH CORP	1.8%
WINGSTOP INC	1.7%
<b>Total</b>	<b>18.5%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap
Copeland SMID Cap Dividend Growth	28.2%	71.8%	0.0%
Russell 2500	37.8%	62.2%	0.0%
<i>Weight Over/Under</i>	<i>-9.5%</i>	<i>9.5%</i>	<i>0.0%</i>

**Sector Allocation (%) vs Russell 2500**



As of June 30, 2023

**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	1,089
Weighted Avg. Market Cap. (\$B)	3.9	3.4
Median Market Cap. (\$B)	2.9	1.3
Price To Earnings	24.4	21.6
Price To Book	4.3	4.0
Price To Sales	2.7	1.8
Return on Equity (%)	-8.1	-1.5
Yield (%)	0.5	0.7

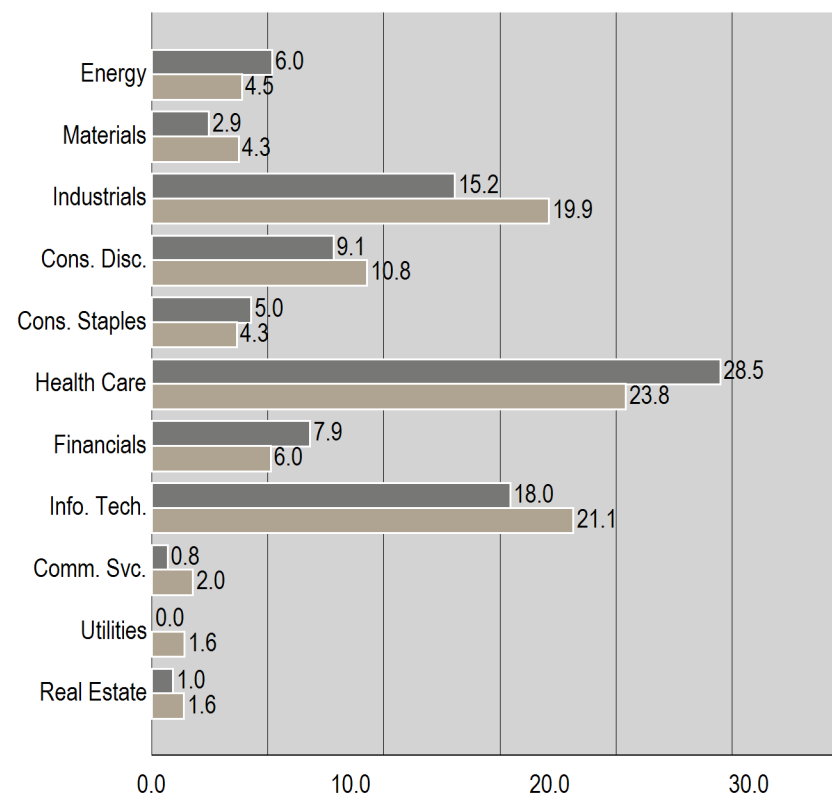
**Top Holdings**

SUPER MICRO COMPUTER INC	2.3%
CHURCHILL DOWNS INC	2.0%
CHART INDUSTRIES INC	1.8%
CARPENTER TECHNOLOGY CORP	1.8%
SIMPLY GOOD FOODS CO (THE)	1.7%
ACADIA PHARMACEUTICALS INC	1.7%
TRANSMEDICS GROUP INC	1.7%
TREACE MEDICAL CONCEPTS INC	1.6%
FRESHPET INC	1.5%
SHIFT4 PAYMENTS INC	1.5%
<b>Total</b>	<b>17.7%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap
Emerald Small Cap Growth	58.4%	41.6%	0.0%
Russell 2000 Growth	64.8%	35.2%	0.0%
<i>Weight Over/Under</i>	<i>-6.4%</i>	<i>6.4%</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	276	2,933
Weighted Avg. Market Cap. (\$B)	100.0	441.8
Median Market Cap. (\$B)	22.0	12.4
Price To Earnings	18.8	18.8
Price To Book	3.4	3.5
Price To Sales	1.3	1.8
Return on Equity (%)	19.9	20.7
Yield (%)	2.4	2.2

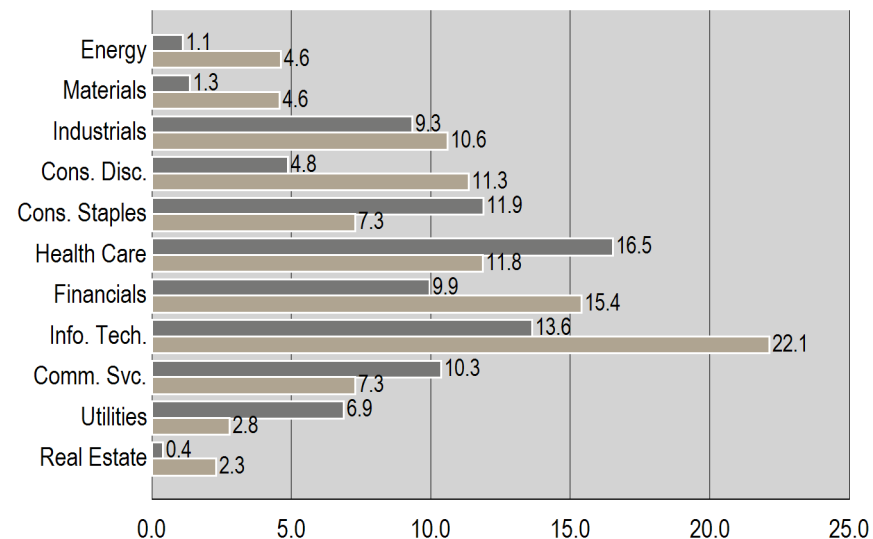
**Top Holdings**

ISHARES MSCI EMERGING MARKETS MIN VOL FACTOR ETF	12.3%
WASTE MANAGEMENT INC.	1.6%
MERCK & CO INC	1.6%
JOHNSON & JOHNSON	1.5%
PEPSICO INC	1.4%
MOTOROLA SOLUTIONS INC	1.3%
WALMART INC	1.2%
ELI LILLY AND CO	1.2%
MCDONALD'S CORP	1.2%
CISCO SYSTEMS INC	1.2%
<b>Total</b>	<b>24.6%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap	Unclassified
Rhumblin Global Min. Volatility	17.8%	21.1%	60.3%	0.8%
MSCI ACWI	5.9%	16.3%	77.8%	0.0%
<i>Weight Over/Under</i>	<i>11.9%</i>	<i>4.8%</i>	<i>-17.5%</i>	<i>0.8%</i>

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



**Region Allocation Summary**

Region	% of Total	% of Bench	% Diff
North America ex U.S.	2.0%	2.9%	-0.9%
United States	68.8%	62.1%	6.7%
Europe Ex U.K.	6.0%	12.5%	-6.5%
United Kingdom	0.4%	3.6%	-3.3%
Pacific Basin Ex Japan	3.6%	2.8%	0.8%
Japan	10.3%	5.5%	4.8%
Emerging Markets	8.1%	10.4%	-2.3%
Other	0.9%	0.2%	0.6%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>



**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	1,003	885
Weighted Avg. Market Cap. (\$B)	80.9	83.1
Median Market Cap. (\$B)	10.8	12.9
Price To Earnings	14.4	14.7
Price To Book	2.3	2.4
Price To Sales	1.2	1.2
Return on Equity (%)	14.8	14.9
Yield (%)	3.3	3.3

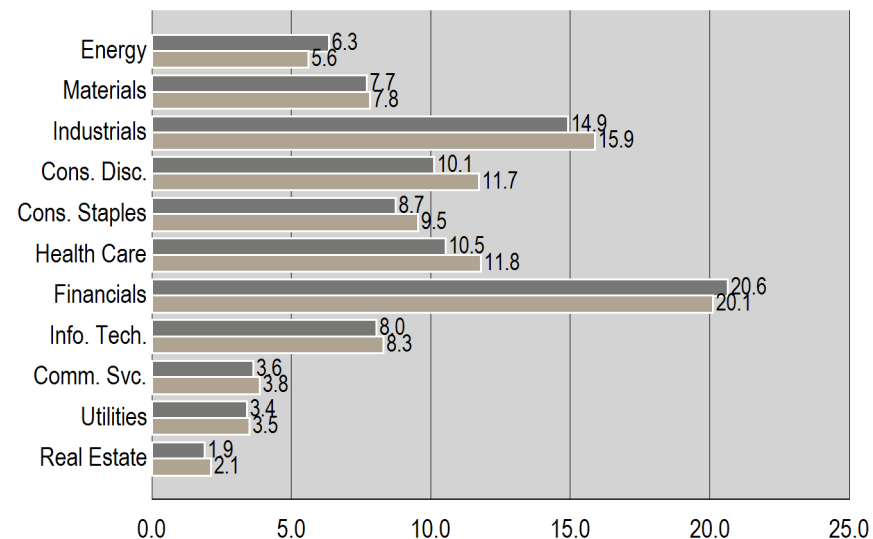
**Top Holdings**

NESTLE SA, CHAM UND VEVEY	1.8%
ASML HOLDING NV	1.6%
NOVO NORDISK 'B'	1.4%
LVMH MOET HENNESSY LOUIS VUITTON SE	1.4%
ROYAL BANK OF CANADA	1.3%
ASTRAZENECA PLC	1.2%
ROCHE HOLDING AG	1.2%
NOVARTIS AG	1.1%
TORONTO-DOMINION BANK (THE)	1.1%
SHELL PLC	1.1%
<b>Total</b>	<b>13.1%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap	Unclassified
SSGA MSCI World ex US	6.8%	23.6%	62.0%	7.6%
MSCI World ex USA	8.2%	24.9%	66.9%	0.0%
<i>Weight Over/Under</i>	-1.4%	-1.3%	-4.9%	7.6%

**Sector Allocation (%) vs MSCI World ex USA**



**Region Allocation Summary**

Region	% of Total	% of Bench	% Diff
North America ex U.S.	17.5%	10.5%	7.1%
United States	0.1%	0.0%	0.1%
Europe Ex U.K.	44.2%	45.5%	-1.3%
United Kingdom	9.9%	13.2%	-3.2%
Pacific Basin Ex Japan	9.1%	10.2%	-1.2%
Japan	18.5%	20.1%	-1.5%
Emerging Markets	0.0%	0.0%	0.0%
Other	0.6%	0.6%	0.1%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>

**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	29	798
Weighted Avg. Market Cap. (\$B)	116.6	86.8
Median Market Cap. (\$B)	59.5	12.4
Price To Earnings	28.5	14.8
Price To Book	4.1	2.5
Price To Sales	2.8	1.2
Return on Equity (%)	10.4	15.2
Yield (%)	1.0	3.3

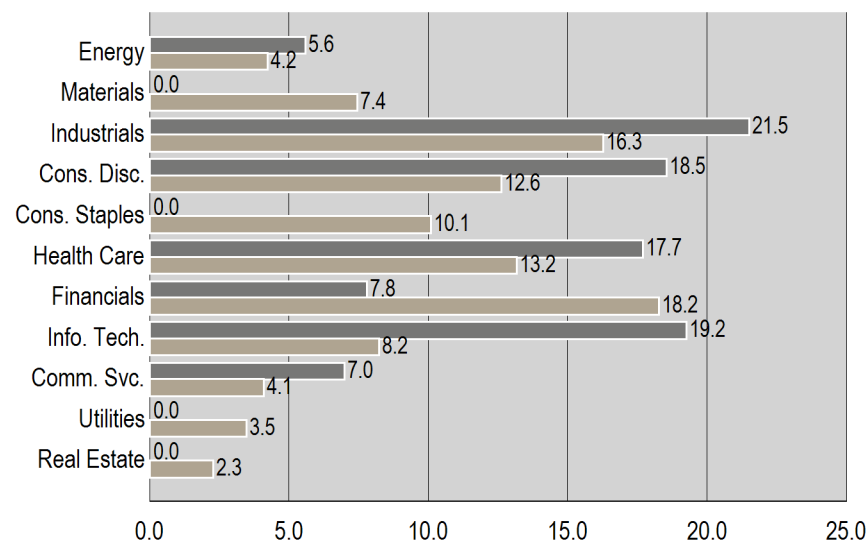
**Top Holdings**

AIRBUS SE	5.9%
TECHNIPFMC PLC	5.7%
SAFRAN SA	5.7%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	5.5%
ASTRAZENECA PLC	5.5%
KEYENCE CORP	5.5%
DEUTSCHE TELEKOM AG	5.3%
AIA GROUP LTD	5.1%
GENMAB A/S	5.0%
RHEINMETALL	4.8%
<b>Total</b>	<b>54.0%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap	Unclassified
Hardman Johnston Int'l Equity	19.3%	11.8%	61.4%	7.5%
MSCI EAFE	8.1%	24.8%	67.1%	0.0%
<i>Weight Over/Under</i>	<i>11.2%</i>	<i>-13.0%</i>	<i>-5.7%</i>	<i>7.5%</i>

**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.	46.7%	50.8%	-4.1%
United Kingdom	12.9%	14.7%	-1.8%
Pacific Basin Ex Japan	12.6%	11.4%	1.1%
Japan	8.4%	22.4%	-14.0%
Emerging Markets	16.1%	0.0%	16.1%
Other	3.3%	0.6%	2.7%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>

**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	34	798
Weighted Avg. Market Cap. (\$B)	56.9	86.8
Median Market Cap. (\$B)	27.1	12.4
Price To Earnings	16.9	14.8
Price To Book	2.9	2.5
Price To Sales	2.1	1.2
Return on Equity (%)	13.9	15.2
Yield (%)	2.2	3.3

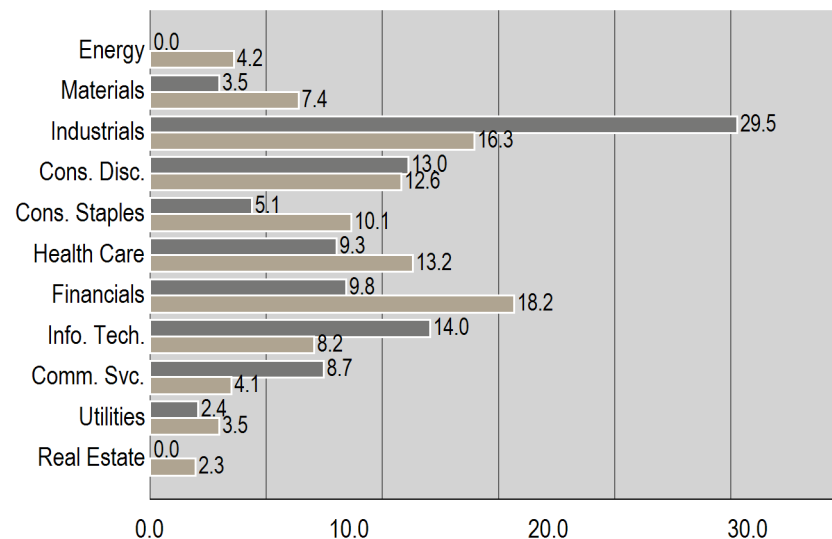
**Top Holdings**

BAE SYSTEMS PLC	4.8%
THALES	4.7%
RHEINMETALL	4.3%
SANOFI	3.9%
GETLINK SE	3.9%
ICON PLC	3.8%
STMICROELECTRONICS NV	3.7%
FRANCO-NEVADA CORP	3.6%
VESTAS WIND SYSTEMS A/S	3.6%
DEUTSCHE BOERSE AG	3.5%
<b>Total</b>	<b>39.9%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap	Unclassified
HGK Int'l Equity	1.5%	41.8%	42.8%	13.9%
MSCI EAFE	8.1%	24.8%	67.1%	0.0%
<i>Weight Over/Under</i>	-6.6%	17.0%	-24.3%	13.9%

**Sector Allocation (%) vs MSCI EAFE**



**Region Allocation Summary**

Region	% of Total	% of Bench	% Diff
North America ex U.S.	3.6%	0.0%	3.6%
United States	2.4%	0.0%	2.4%
Europe Ex U.K.	47.7%	50.8%	-3.1%
United Kingdom	14.7%	14.7%	0.0%
Pacific Basin Ex Japan	4.3%	11.4%	-7.1%
Japan	19.5%	22.4%	-2.9%
Emerging Markets	7.7%	0.0%	7.7%
Other	0.0%	0.6%	-0.6%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>

**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	1,366	1,421
Weighted Avg. Market Cap. (\$B)	109.4	111.9
Median Market Cap. (\$B)	6.0	6.7
Price To Earnings	12.2	12.2
Price To Book	2.4	2.4
Price To Sales	1.0	1.0
Return on Equity (%)	14.9	15.0
Yield (%)	3.4	3.4

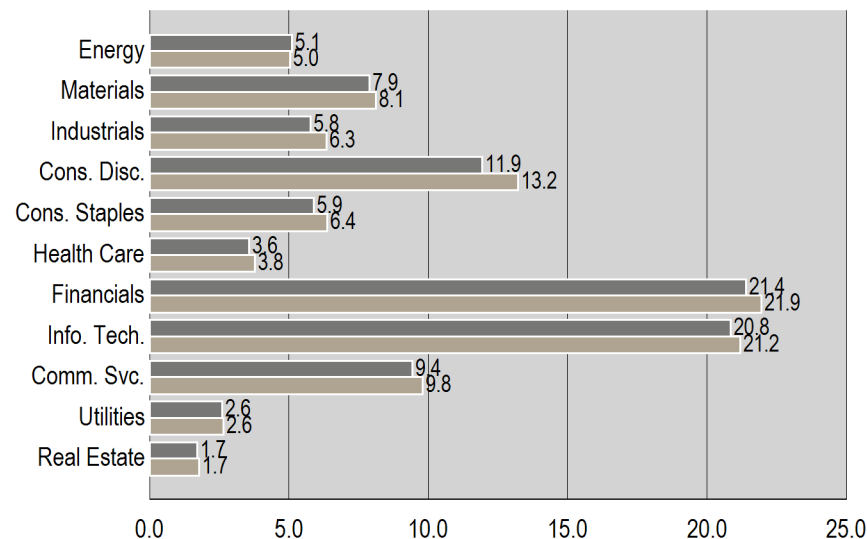
**Top Holdings**

TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	7.1%
TENCENT HOLDINGS LTD	4.1%
SAMSUNG ELECTRONICS CO LTD	4.1%
ALIBABA GROUP HOLDING LTD	2.7%
RELIANCE INDUSTRIES LTD	1.5%
MEITUAN DIANPING USD0.00001 A B CLASS ISIN KYG596691041	1.2%
CHINA CONSTRUCTION BANK CORP	1.0%
HOUSING DEVELOPMENT FINANCE CORP LTD	0.9%
ICICI BANK	0.9%
INFOSYS LTD	0.8%
<b>Total</b>	<b>24.3%</b>

**Market Capitalization**

	Small Cap	Mid Cap	Large Cap	Unclassified
SSGA MSCI Emerging Markets Index	5.8%	25.5%	63.4%	5.3%
MSCI Emerging Markets	13.8%	24.5%	61.7%	0.0%
<i>Weight Over/Under</i>	-8.0%	1.0%	1.7%	5.3%

**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	0.2%	0.0%	0.2%
Europe Ex U.K.	0.9%	0.5%	0.5%
United Kingdom	0.0%	0.0%	0.0%
Pacific Basin Ex Japan	5.6%	0.0%	5.6%
Japan	0.0%	0.0%	0.0%
Emerging Markets	91.1%	98.7%	-7.6%
Other	2.1%	0.8%	1.3%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>

**Characteristics**

Fund GAV (\$MM)	\$32,659.0
Fund NAV (\$MM)	\$25,810.0
Cash (% of NAV)	2.5%
# of Investments	288
% in Top 10 by NAV	19.0%
Leverage %	22.3%
Occupancy	93.4%
# of MSAs	45
1-Year Dividend Yield	2.8%
As of Date	30-Jun-23

**Strategy Breakdown**

	% of Portfolio
Pre-Development	0.9%
Development	1.9%
Initial Leasing	
Operating	97.1%
Re-Development	
Other	
<u>Queue In:</u>	
Contribution Queue (\$MM)	\$64.64
Anticipated Drawdown (Months)	

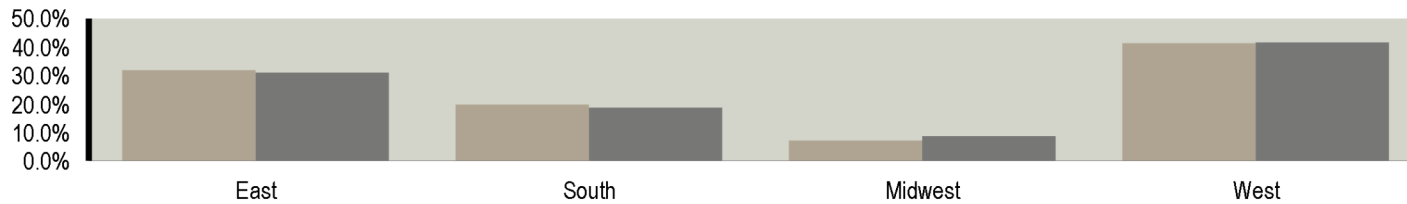
**Top Five Metro Areas**

	% of NAV
Los Angeles-Long Beach, CA	22.6%
New York-Newark, NY-NJ-CT-F	13.6%
Washington-Baltimore-Arlington	10.2%
San Jose-San Francisco-Oakland	6.5%
Boston-Worcester-Providence,	5.1%

Queue Out:

Redemption Queue (\$MM)	\$3,480.73
Anticipated Payout (Months)	

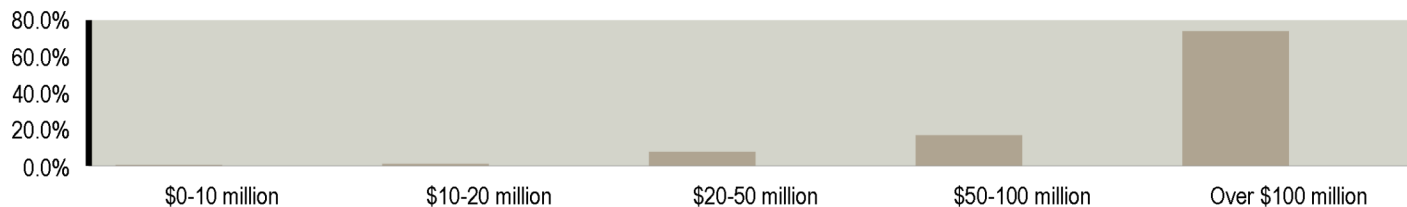
**Regional Breakdown by NAV (Excluding Cash & Debt)**



**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

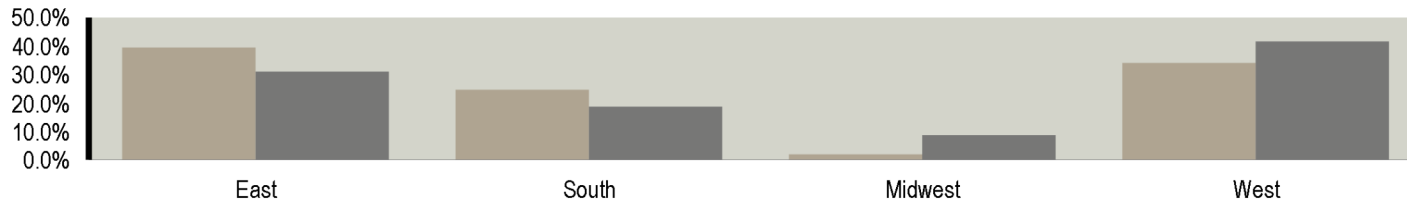
**Top Five Metro Areas**

	% of NAV
Northern NJ	8.7%
San Francisco	8.0%
Boston	7.4%
San Jose	5.5%
Fort Lauderdale	5.1%

Queue Out:

Redemption Queue (\$MM)	\$1,351.00
Anticipated Payout (Months)	0

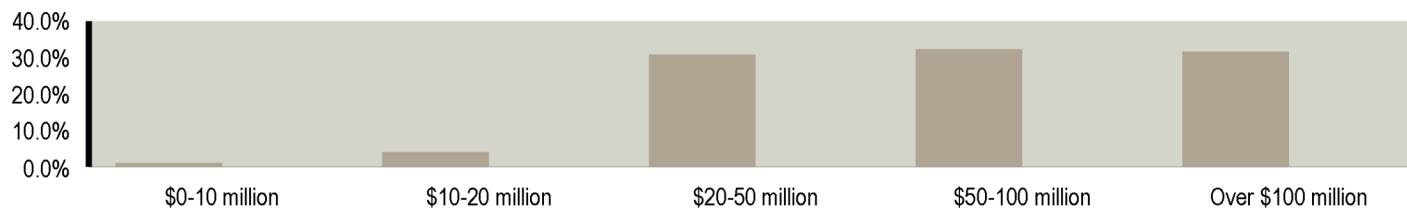
**Regional Breakdown by NAV (Excluding Cash & Debt)**



**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

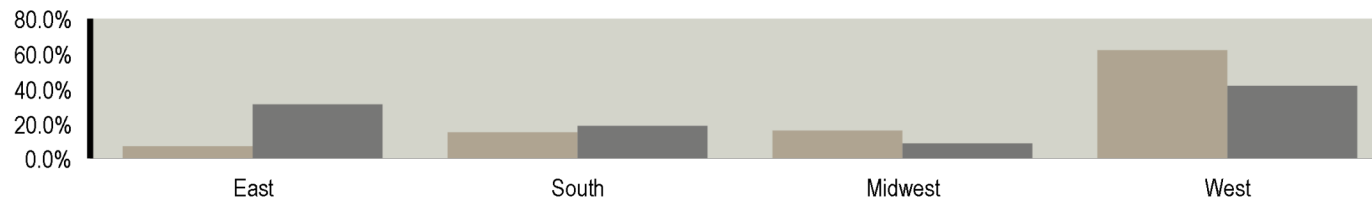
**Asset Summary**

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

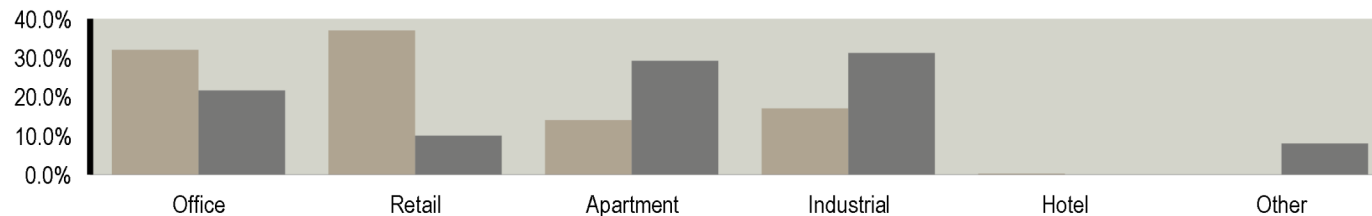
**Portfolio Allocation**

#	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%
<b>Total</b>				<b>100.0%</b>

**Regional Breakdown by NAV**



**Property Type Breakdown by NAV**



Net Assets (\$MM) 142.5

Portfolio Allocation

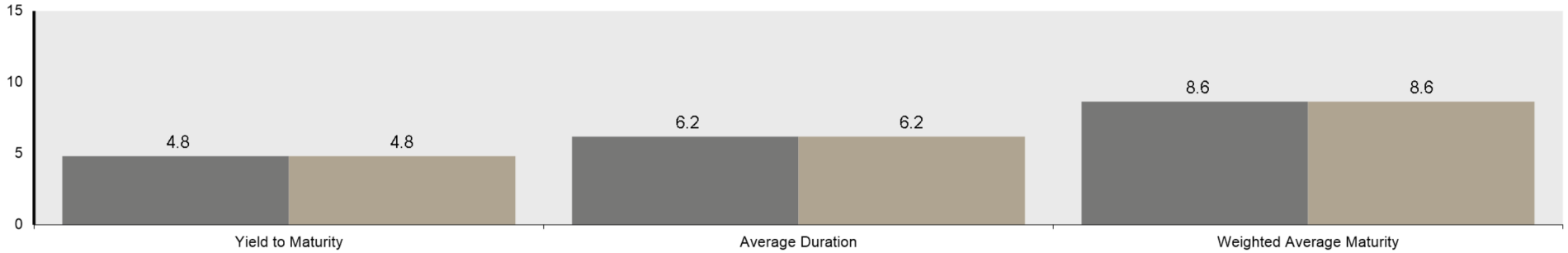
#	Property	Type	Location	% of Fund NAV
1	Bear Island	Pine	Virginia	6.2%
2	Fitz-Weller	Pine	New York	3.8%
3	Carter Pasture	Douglas Fir/Cedar	Texas	7.1%
4	Dupont	Douglas Fir/Hemlock	Georgia	22.2%
5	Black River	Pine	South Carolina	18.0%
6	Coquille	Pine	Oregon	19.7%
7	Bucktails	Pine	Pennsylvania	8.8%
8	North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

Regional Breakdown by NAV

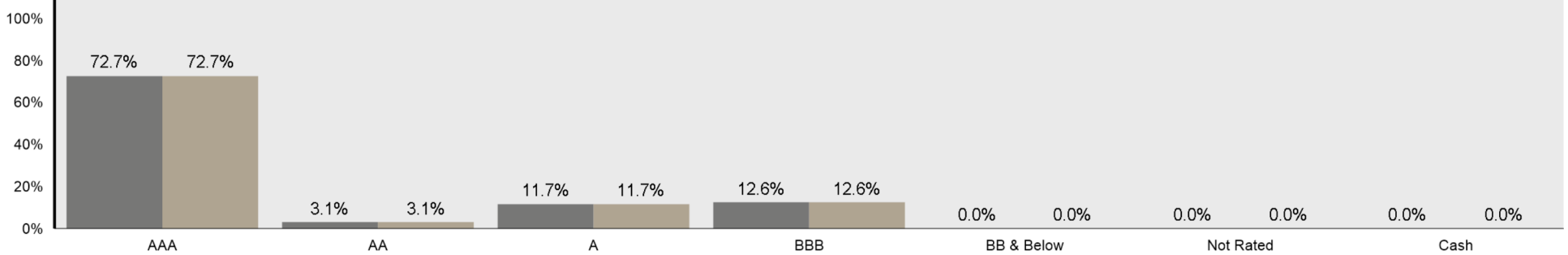




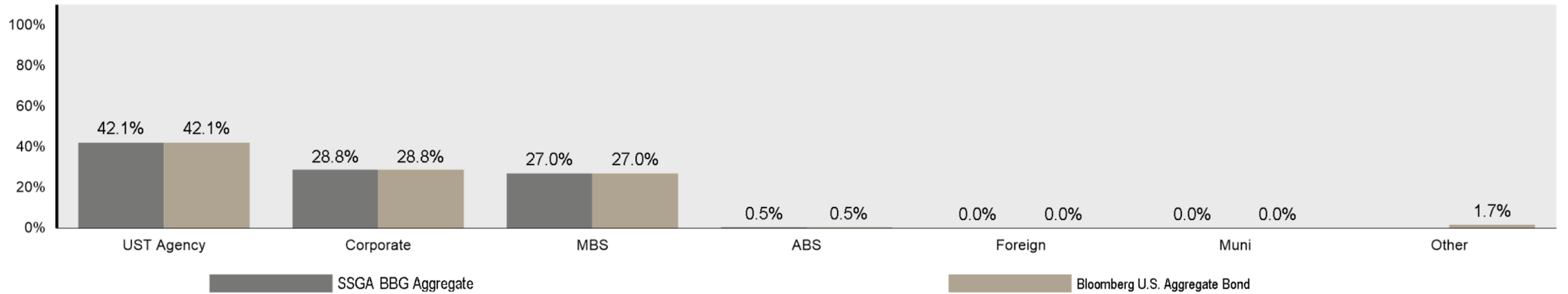
Yield to Maturity

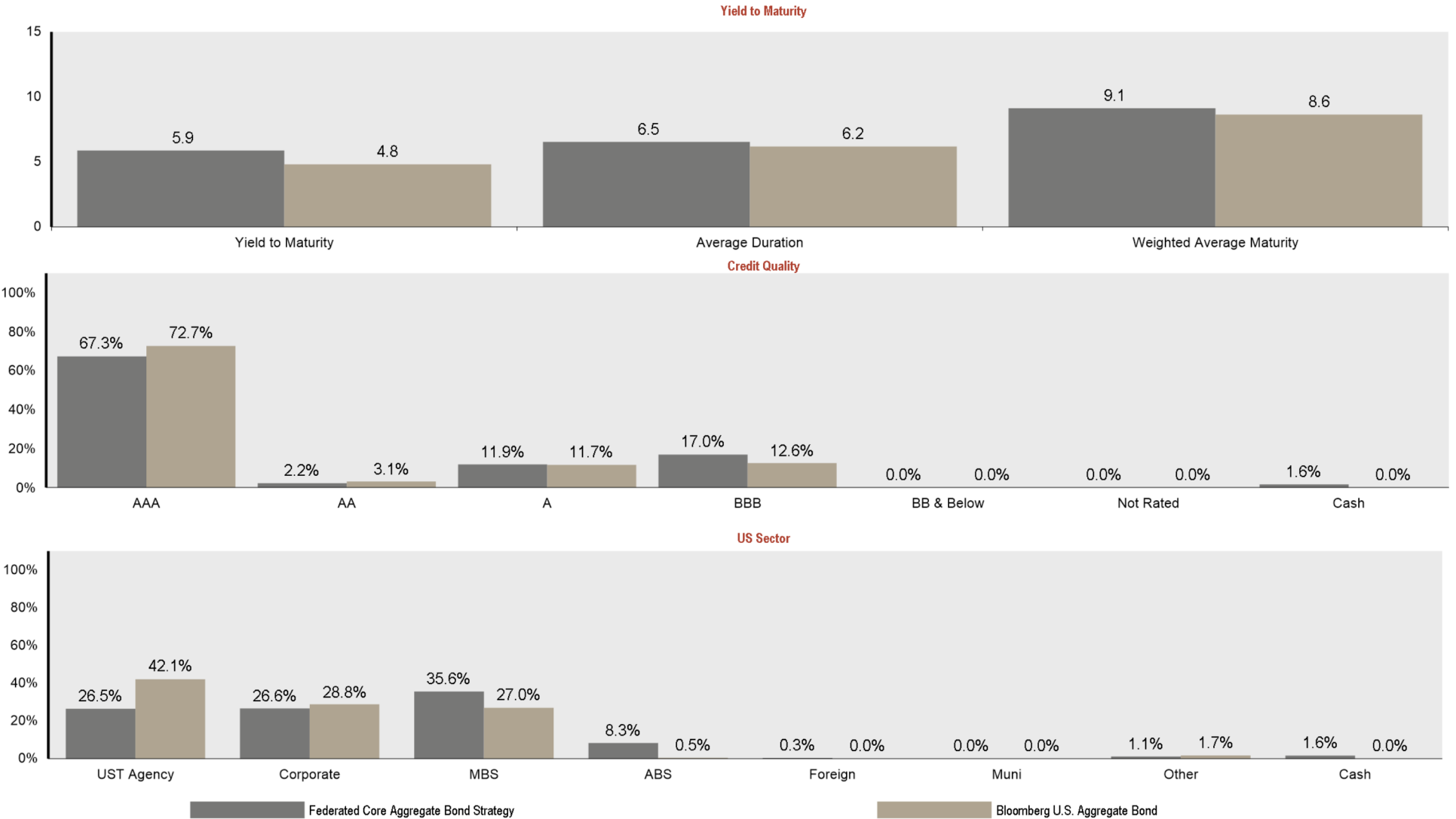


Credit Quality

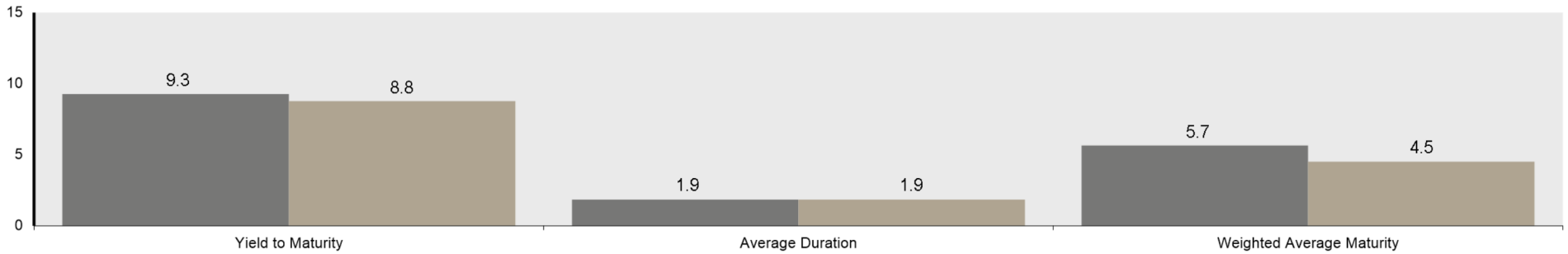


US Sector

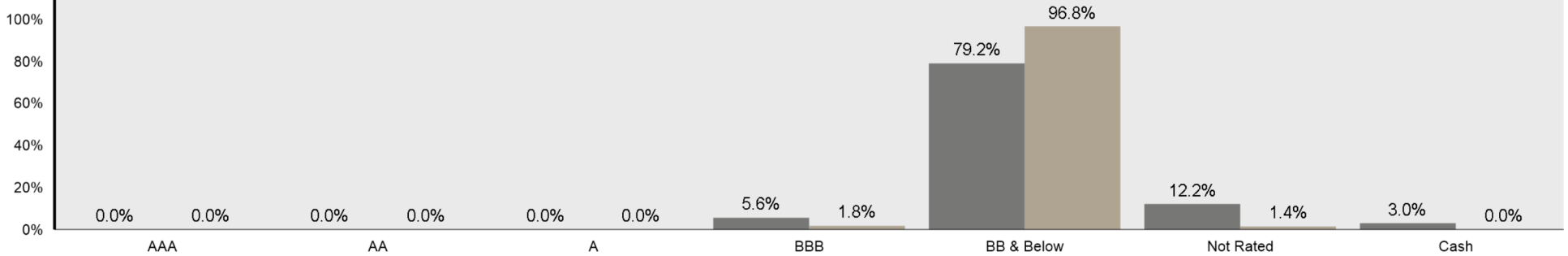




Yield to Maturity



Credit Quality



US Sector



Ares Global Multi Asset Credit Fund

50% Bbg HY Index / 50% Credit Suisse Lev. Loans Index