

Pennsylvania Municipal Retirement System

Quarterly Performance Report
As of June 30, 2022



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TABLE OF CONTENTS

EXHIBITS

Marquette Update I
Market Environment..... II
Portfolio Overview III
Investment Managers..... IV

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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.

Marquette Update



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Marquette Update

3Q 2022



2022 Investment Symposium

You're invited! Join us Friday, September 23RD

This year's symposium will be held as a hybrid event, with an in-person option in Chicago at the Union League Club and a virtual livestream on Vimeo. We're excited to welcome Ted Seides and Dr. Jean Twenge as featured speakers and our research team will also present several flash talks. Visit our website for more information, and RSVP using our email invitation.



RECENT HIRES

James Torgerson Research Analyst	Riley Cooper Performance Analyst
P.J. Cox Assoc. Research Analyst	Ben Lamont Performance Analyst
Peter Como Research Associate	Ben Piasecki Performance Analyst
Keenan Sanchez Private Client Associate	Will Steinhafel Performance Analyst
Sebastian Savovic Software Engineer	Michael Woldeyesus Performance Analyst
Grace Colson Performance Analyst	

QUARTERLY RESEARCH

 **Live 2022 Halftime Market Insights Webinar: 7/20**
Available on YouTube 7/22

 **Letter from the Director of Research: 7/27**

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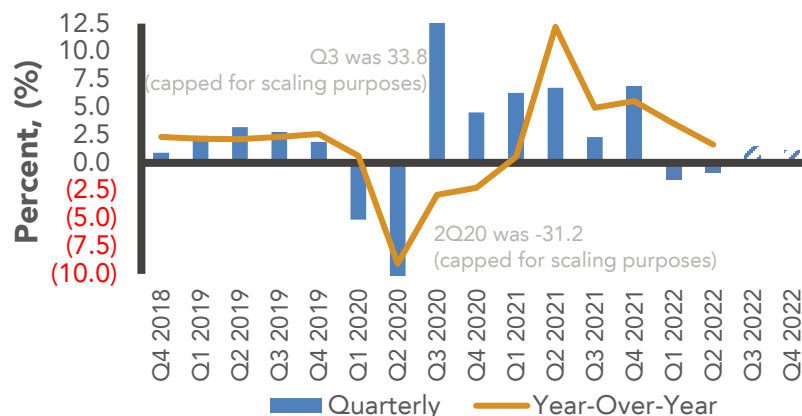
Market Environment



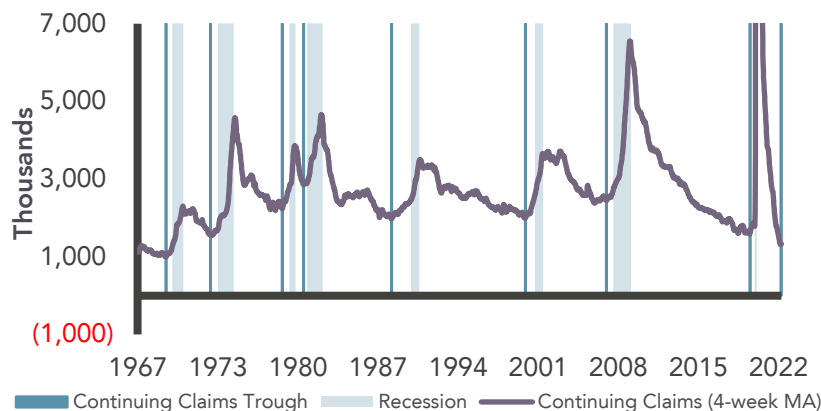
U.S. Economy

- The economy entered a technical recession¹ in Q2, as real GDP contracted by 0.9%. A slowdown in private inventory investment detracted two percentage points from the headline number, while residential investment contracted by 14% amid rising mortgage rates.
- It is an open question whether the first six months of 2022 will eventually be designated an official recession by NBER, as the business cycle dating committee's definition of a recession analyzes a wide range of economic indicators. Of these indicators, the labor market continues to buck the trend, as the Labor Department reported an average monthly gain of 375,000 jobs in Q2.
- That said, the monthly jobs report is a notoriously lagging indicator. According to Deutsche Bank, continuing jobless claims are a timelier signal. They report that an 11.5% rise above the minimum level over the previous year normally leads a recession by about two months. At the end of Q2, continuing claims were about 5% above the trough set on May 20th.

U.S. Real GDP Growth



Continuing Jobless Claims

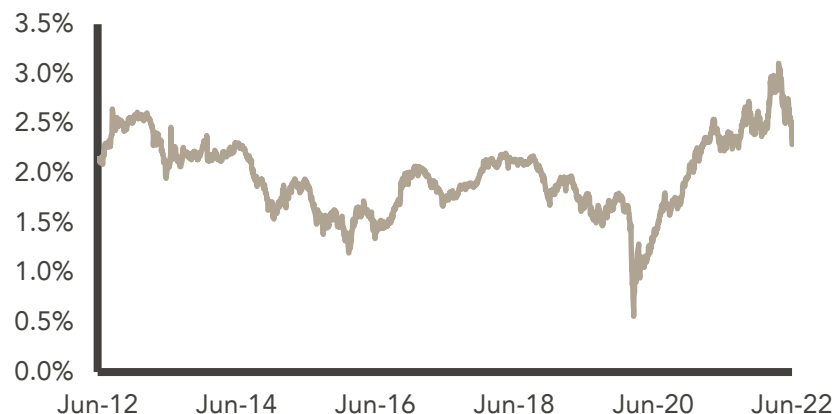


Sources: Deutsche Bank, Refinitiv, and The Wall Street Journal. ¹A technical recession is two consecutive quarters of negative real GDP growth.

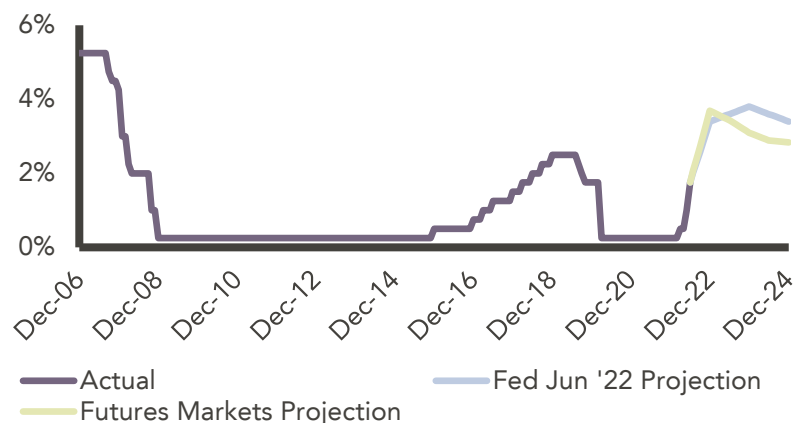
U.S. Economy

- Inflation continued to increase at multi-decade highs, reaching 9.1% over the past year through June. Looking ahead, June may mark the peak of inflation. Goods inflation has already decelerated meaningfully, while commodities have seen a material drawdown as well.
- Markets are also expecting a more benign inflation environment. 10-year breakeven inflation ended the quarter at 2.29%, down from a peak of 3.11% in late April.
- Despite early signs that inflation may decelerate in the coming months, the Fed remains committed to tightening monetary policy at the fastest rate in decades. They have raised short-term rates by 150 basis points (bps) already and are projecting a further 200 bps of rate hikes before year end.
- The futures market projects a similar increase for the rest of 2022. Interestingly, however, markets are pricing in multiple rate cuts in 2023, implying the Fed will reverse course quickly as tighter policy ripples through the economy in coming months.

10-Year Breakeven Inflation



Short-Term Interest Rates

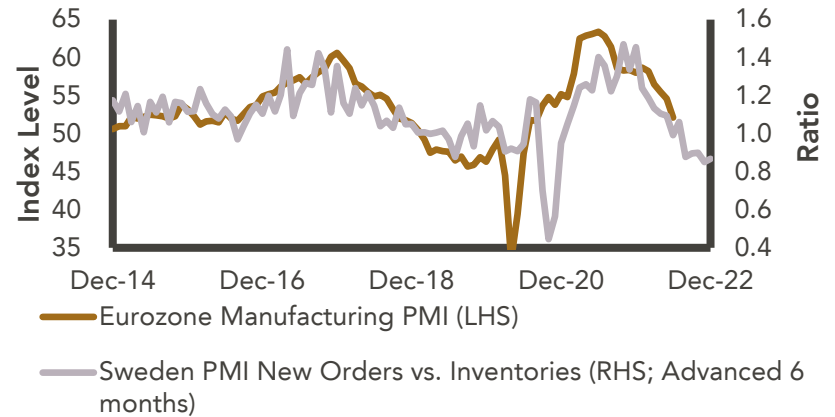


Source: Refinitiv

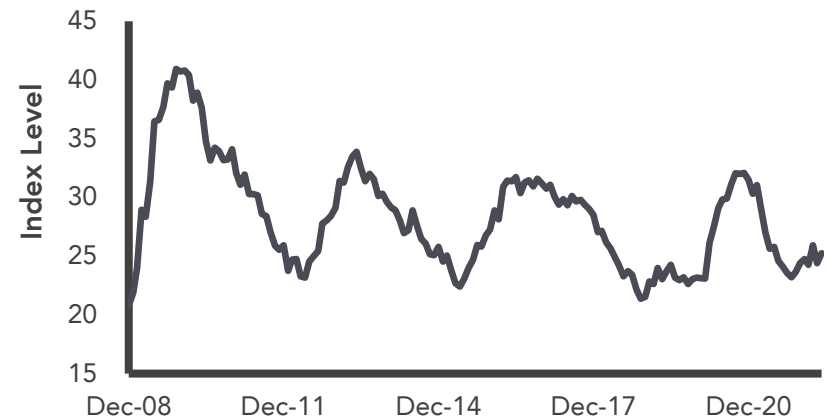
Global Economy

- Outside the U.S., similar dynamics are playing out across the global economy, with economic data continuing to come in below expectations.
- Europe, for example, may also be on the verge of a recession. Looking at economic data in Sweden, which has historically led economic activity across the Eurozone, the ratio of new orders vs. inventories implies that Eurozone Manufacturing PMI data will fall into contractionary levels in the coming months.
- One key exception is China, where economic growth slowed meaningfully in the first half of 2022 amid the country's "zero COVID policy" and a challenging property market. Here, policymakers have already begun implementing measures to kickstart economic growth. In fact, China is making 7.2 trillion yuan (\$1.1 trillion) in funds available for infrastructure spending, as President Xi Jinping has called for an "all out" effort to increase infrastructure spending this year.

European Manufacturing PMI vs. Sweden PMI Indicators



China Credit Impulse

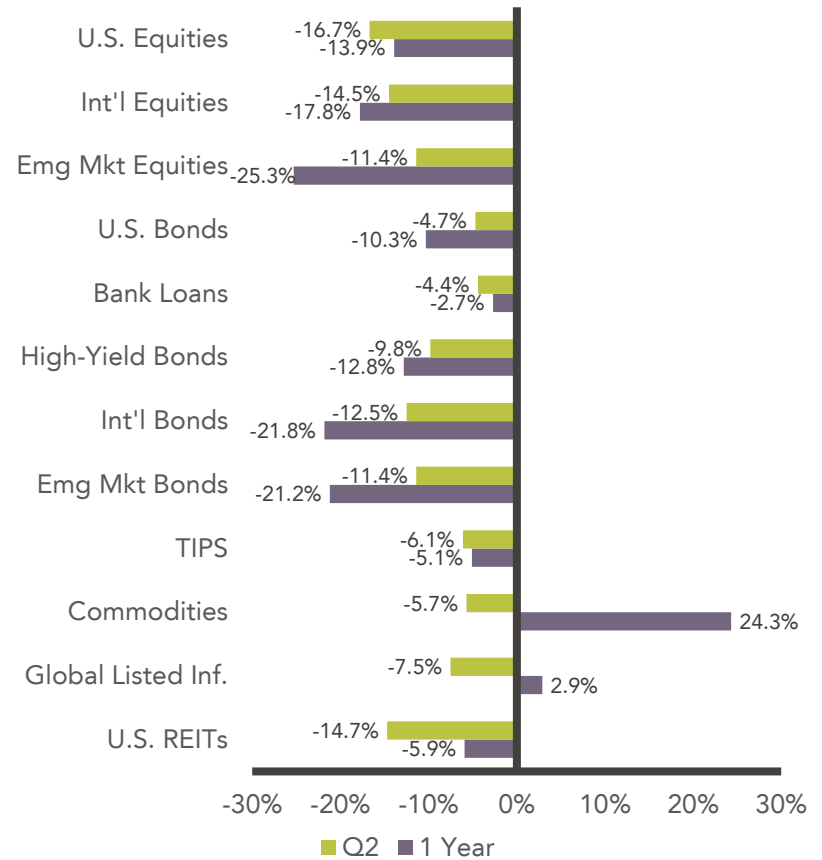


Sources: Bloomberg, Refinitiv, and Variant Perception. The credit impulse is defined as the monthly change of the flow in new credit as a share of GDP.

Global Asset Class Performance

- Global equities** ended Q2 deep in the red as the poor economic environment and its potential impact on corporate earnings weighed on investor sentiment. U.S. equities underperformed their international developed and emerging market counterparts for the first time since Q4 2020, despite U.S. dollar strength. The strong greenback detracted approximately 6.5 and 3.5 percentage points, respectively, from international developed and emerging markets returns for unhedged U.S.-based investors.
- Fixed income** returns were poor during Q2 across the credit spectrum. The Bloomberg Aggregate Bond Index returned -4.7%, bringing its 2022 return to -10.3%—its worst first half of any calendar year since the inception of the index in the mid-1970s. Sub-investment grade debt underperformed their investment-grade counterparts, though bank loans outperformed high-yield debt due to their floating-rate characteristics.
- Inflation-sensitive assets** returns were also in the red. TIPS underperformed nominal bonds amid falling inflation expectations, while commodities fell amid demand concerns and a stronger U.S. dollar. Finally, REITs were slightly ahead of the broad U.S. equity market, while global listed infrastructure equities bested global equities by a wide margin.

Asset Class Returns: Select Asset Class Performance

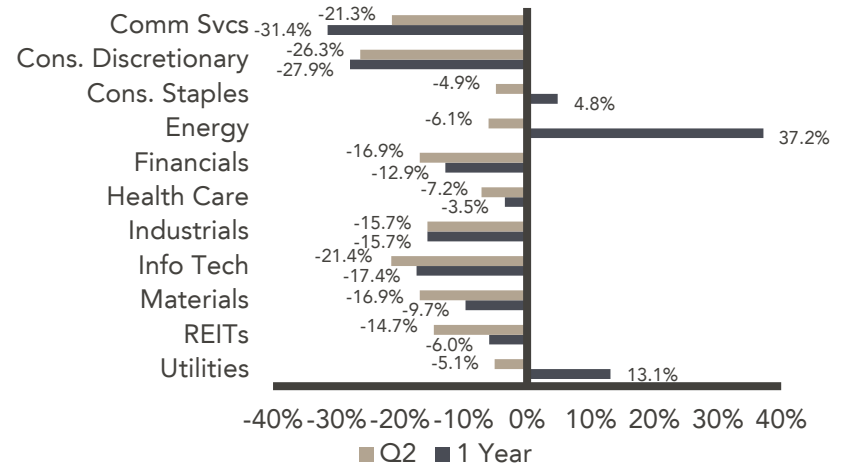


Source: Markov Processes International

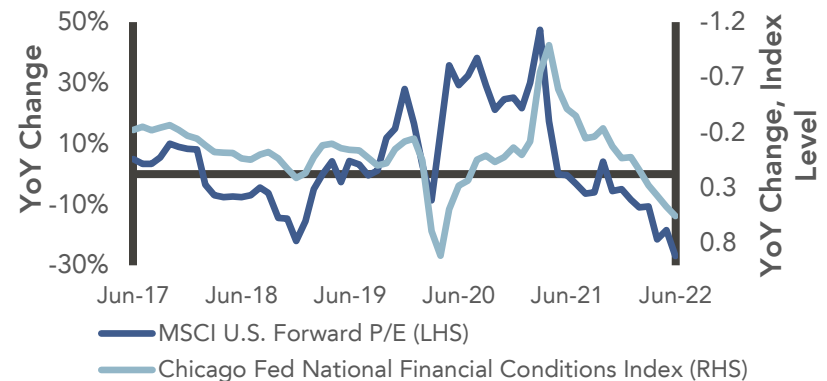
U.S. Equity Markets

- All economic sectors posted negative returns for the quarter, though there was wide dispersion in performance. More defensive sectors outperformed amid the decline, with Consumer Staples and Utilities being the best-performing sectors.
- Value stocks topped growth stocks for the second consecutive quarter amid the continued rise in interest rates, while large caps slightly beat their mid- and small-cap counterparts.
- Tightening financial conditions due to higher rates, wider credit spreads and a strong U.S. dollar drove equity multiples lower in Q2.
- Year-to-date, equity valuations have contracted nearly 28% (i.e., more than the market has declined) as investors appear to be discounting a challenging corporate earnings environment in the back half of 2022 with margins likely under pressure amid high inflation.

Sector Returns



Forward P/E vs. Financial Conditions



Sources: Federal Reserve Bank of St. Louis and Refinitiv

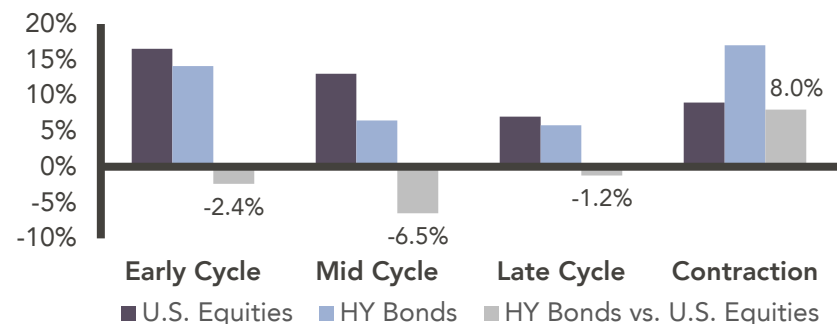
U.S. Equity Markets

- The U.S. equity market has experienced one of its worst starts to any calendar year in its history amid concerns over a possible economic recession and a drawdown in corporate earnings.
- According to Bank of America, the S&P 500 Index has experienced 15 bear markets in the post-WWII period. The average drawdown is approximately 32%.
- The key question, however, may be whether the economy enters into a recession or not, as the average drawdown that coincides with a recession is 36%, compared to a non-recessionary bear market average of 25%. Through June, the S&P has seen a maximum drawdown of nearly 25%.
- With the economy appearing to be late in the economic cycle or in a recession, investors should be mindful of where they're taking risk. History suggests that high-yield debt may offer a better risk-return outlook coming out of a contraction.

Post-WWII S&P 500 Bear Markets

Start Date	End Date	Drawdown, %	Recession?
5/31/1946	6/30/1949	-29.6	Yes
8/31/1956	10/31/1957	-21.6	Yes
12/29/1961	6/29/1962	-28.0	No
2/28/1966	10/31/1966	-22.2	No
11/29/1968	5/29/1970	-36.1	Yes
1/31/1973	10/31/1974	-48.2	Yes
11/28/1980	8/31/1982	-27.3	Yes
8/31/1987	10/30/1987	-35.9	No
7/31/1990	10/31/1990	-20.4	Yes
7/31/1998	10/31/1998	-22.5	No
3/31/2000	10/31/2002	-50.5	Yes
10/31/2007	3/31/2009	-57.7	Yes
5/31/2011	10/31/2011	-21.6	No
9/30/2018	12/31/2018	-20.2	No
2/28/2020	3/31/2020	-35.4	Yes
Average		-31.8	
Median		-28.0	

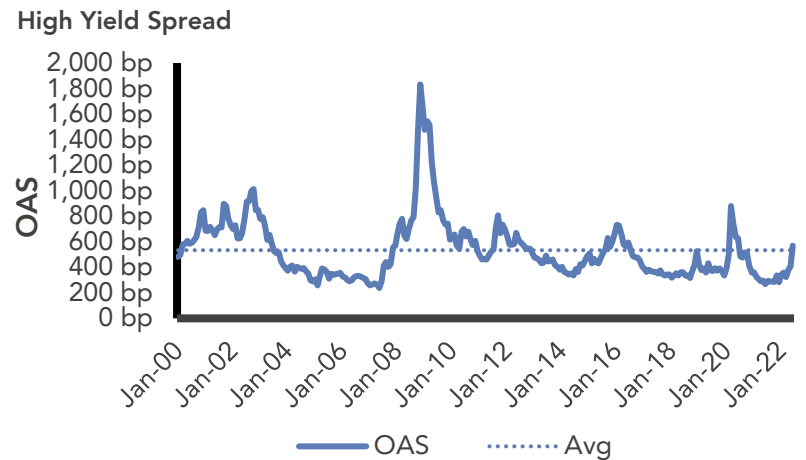
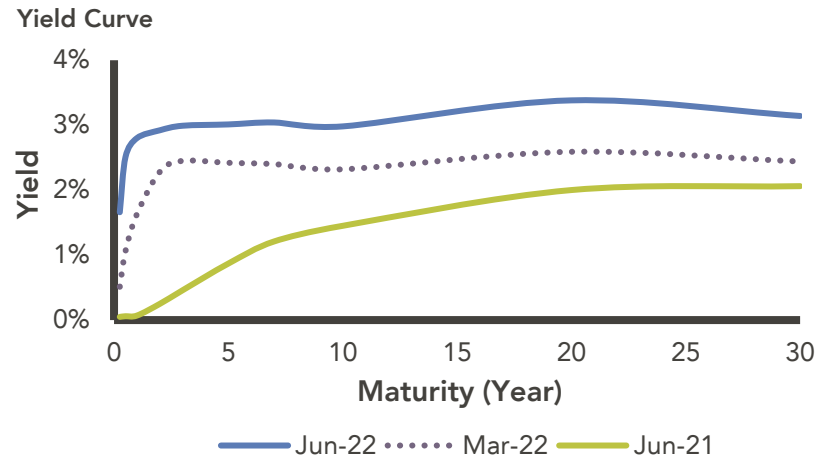
Average Next 12-month Return by Economic Cycle Phase



Sources: Bank of America and KKR Global Institute

U.S. Fixed Income

- Interest rates continued to rise in Q2, with shorter-dated issues experiencing the largest increase. Various segments across the curve remain inverted amid the prospects of tighter monetary policy and economic uncertainty.
- The bond market remained under pressure during the quarter, with the Bloomberg Aggregate Bond Index returning -4.7%. Year-to-date, the index has posted a return of -10.3%—its worst first half of any calendar year since the inception of the index in the mid-1970s.
- Sub-investment grade debt underperformed their investment-grade counterparts amid the poor environment for risk assets. High yield returned -9.8% as spreads widened notably, ending the quarter at 569 bps, up from 325 bps at the end of March. Bank Loans, meanwhile, were also in the red, but handily outperformed high-yield debt due to their floating-rate characteristics amid rising rates.



Source: Refinitiv

Global Index Returns

DOMESTIC EQUITY	QTR	YTD	1 Year	3 Year	5 Year	10 Year
S&P 500 Index	(16.1)	(20.0)	(10.6)	10.6	11.3	13.0
Russell 3000 Index	(16.7)	(21.1)	(13.9)	9.8	10.6	12.6
Russell 3000 Growth Index	(20.8)	(28.2)	(19.8)	11.8	13.6	14.4
Russell 3000 Value Index	(12.4)	(13.1)	(7.5)	6.8	7.0	10.4
Russell TOP 200 Index	(16.6)	(20.7)	(11.5)	11.5	12.2	13.4
Russell TOP 200 Growth Index	(20.9)	(27.4)	(16.2)	14.7	15.6	15.7
Russell TOP 200 Value Index	(10.9)	(11.0)	(5.1)	6.9	7.6	10.5
Russell 1000 Index	(16.7)	(20.9)	(13.0)	10.2	11.0	12.8
Russell 1000 Growth Index	(20.9)	(28.1)	(18.8)	12.6	14.3	14.8
Russell 1000 Value Index	(12.2)	(12.9)	(6.8)	6.9	7.2	10.5
Russell Mid-Cap Index	(16.8)	(21.6)	(17.3)	6.6	8.0	11.3
Russell Mid-Cap Growth Index	(21.1)	(31.0)	(29.6)	4.3	8.9	11.5
Russell Mid-Cap Value Index	(14.7)	(16.2)	(10.0)	6.7	6.3	10.6
Russell 2000 Index	(17.2)	(23.4)	(25.2)	4.2	5.2	9.4
Russell 2000 Growth Index	(19.3)	(29.5)	(33.4)	1.4	4.8	9.3
Russell 2000 Value Index	(15.3)	(17.3)	(16.3)	6.2	4.9	9.1
DOMESTIC EQUITY BY SECTOR (MSCI)						
Communication Services	(21.3)	(30.7)	(31.4)	4.7	7.1	6.9
Consumer Discretionary	(26.3)	(33.7)	(27.9)	8.3	10.9	14.0
Consumer Staples	(4.9)	(6.0)	4.8	10.6	8.5	10.6
Energy	(6.1)	30.5	37.2	10.0	6.3	3.3
Financials	(16.9)	(19.3)	(12.9)	6.2	6.7	11.9
Health Care	(7.2)	(11.0)	(3.5)	12.2	11.5	14.8
Industrials	(15.7)	(18.9)	(15.7)	5.5	6.7	11.4
Information Technology	(21.4)	(28.4)	(17.4)	16.9	19.0	18.0
Materials	(16.9)	(17.8)	(9.7)	9.8	7.7	9.7
Real Estate	(14.7)	(19.3)	(6.0)	5.3	6.7	8.1
Utilities	(5.1)	(1.1)	13.1	8.0	9.3	10.5

Source: Markov Processes International

Global Index Returns

INTERNATIONAL/GLOBAL EQUITY	QTR	YTD	1 Year	3 Year	5 Year	10 Year
MSCI EAFE (Net)	(14.5)	(19.6)	(17.8)	1.1	2.2	5.4
MSCI EAFE Growth (Net)	(16.9)	(26.8)	(23.8)	1.3	3.5	6.3
MSCI EAFE Value (Net)	(12.4)	(12.1)	(11.9)	0.2	0.5	4.2
MSCI EAFE Small Cap (Net)	(17.7)	(24.7)	(24.0)	1.1	1.7	7.2
MSCI AC World Index (Net)	(15.7)	(20.2)	(15.8)	6.2	7.0	8.8
MSCI AC World Index Growth (Net)	(20.2)	(27.9)	(23.5)	7.6	9.2	10.3
MSCI AC World Index Value (Net)	(11.5)	(12.3)	(8.1)	3.9	4.3	6.9
MSCI Europe ex UK (Net)	(15.7)	(24.2)	(21.4)	1.3	2.1	6.3
MSCI United Kingdom (Net)	(10.5)	(8.8)	(4.0)	1.2	2.2	3.7
MSCI Pacific ex Japan (Net)	(14.1)	(10.9)	(14.9)	(0.1)	3.2	5.0
MSCI Japan (Net)	(14.6)	(20.3)	(19.9)	1.0	1.8	5.6
MSCI Emerging Markets (Net)	(11.4)	(17.6)	(25.3)	0.6	2.2	3.1

Source: Markov Processes International

Global Index Returns

FIXED INCOME	QTR	YTD	1 Year	3 Year	5 Year	10 Year
Merrill Lynch 3-month T-Bill	0.1	0.1	0.2	0.6	1.1	0.6
Barclays Intermediate Gov't./Credit	(2.4)	(6.8)	(7.3)	(0.2)	1.1	1.5
Barclays Aggregate Bond	(4.7)	(10.3)	(10.3)	(0.9)	0.9	1.5
Barclays Short Government	(0.3)	(1.4)	(1.6)	0.5	1.1	0.8
Barclays Intermediate Government	(1.7)	(5.8)	(6.3)	(0.3)	0.9	1.0
Barclays Long Government	(11.9)	(21.2)	(18.4)	(2.9)	0.5	1.7
Barclays Investment Grade Corp.	(7.3)	(14.4)	(14.2)	(1.0)	1.3	2.6
Barclays High Yield Corp. Bond	(9.8)	(14.2)	(12.8)	0.2	2.1	4.5
Credit Suisse Leveraged Loan	(4.4)	(4.4)	(2.7)	2.0	3.0	3.9
JPMorgan Global ex US Bond	(12.5)	(18.8)	(21.8)	(6.7)	(2.6)	(1.8)
JPMorgan Emerging Market Bond	(11.4)	(20.3)	(21.2)	(5.2)	(1.2)	2.2
INFLATION SENSITIVE						
Consumer Price Index	3.1	6.3	9.1	5.0	3.9	2.6
BC TIPS	(6.1)	(8.9)	(5.1)	3.0	3.2	1.7
Commodities	(5.7)	18.4	24.3	14.3	8.4	(0.8)
Gold	(7.6)	(1.5)	1.3	6.9	6.6	0.3
REITs	(14.7)	(19.2)	(5.9)	5.3	6.7	8.3
FTSE EPRA/NAREIT Global REITs	(17.2)	(20.3)	(10.9)	(0.4)	2.2	4.7
NCREIF ODCE*	4.6	12.0	28.4	11.7	9.6	10.2
NCREIF Farmland**	2.6	2.6	9.7	5.9	6.2	9.6
NCREIF Timberland**	3.2	3.2	11.8	4.7	4.1	5.6

*Data are preliminary.

**Data are as of March 31, 2022.

Source: Markov Processes International

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Portfolio Overview



Observations

- Market Value as of June 30, 2022, was \$3.02 billion.
- 2nd Qtr. '22 Return: Total Fund -9.6% (net) vs. Policy Index -9.9%; investment loss of \$322 million.
 - Peer Group Ranking: 29th percentile
- Contributors to 2nd Qtr. Performance:
 - High Quality Equities
 - Low Volatility Equities (Global Min Vol)
 - International Equities
 - Core Real Estate
- Detractors from 1st Qtr. Performance:
 - Growth Tilt
 - Real Assets
- Longer term performance has been strong
 - 3-Year Return: 6.1% (net) vs. Policy Index 6.0%; investment gain of \$523 million
 - Peer Group Ranking: 27th percentile
 - 5-Year Return: 6.9% (net) vs. Policy Index 6.4%; investment gain of \$902 million
 - Peer Group Ranking: 24th percentile
- Large Cap Value mandate transition from LSV to MFS in June
- Federated active Fixed Income mandate added in June
- Very low Investment Management Fees: 0.31%

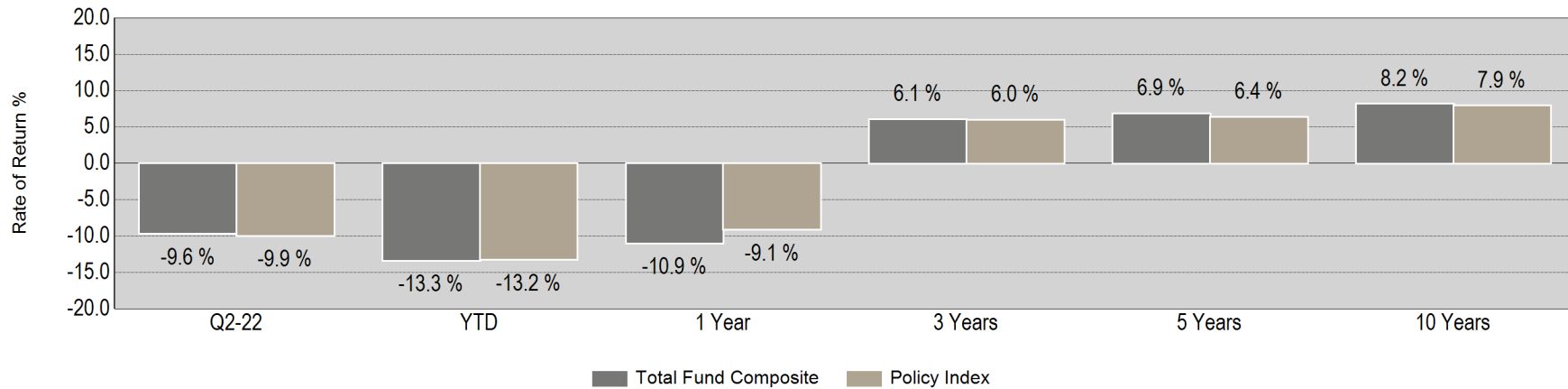
Recent Changes / Looking Ahead

- Ares Opportunistic Credit in contracting
- SMID Cap Core Manager Search in progress
- Real Estate appraisal RFI for separate account in progress

Summary of Cash Flows

	Second Quarter	Year-To-Date	One Year	Three Years	Five Years	Ten Years
Beginning Market Value	\$3,377,194,550	\$3,536,117,615	\$3,459,809,786	\$2,638,888,040	\$2,321,589,129	\$1,551,809,616
Net Cash Flow	-\$32,269,353	-\$48,587,733	-\$73,481,155	-\$139,530,757	-\$201,865,647	-\$297,679,846
Net Investment Change	-\$322,257,192	-\$464,861,877	-\$363,660,626	\$523,310,722	\$902,944,523	\$1,768,538,235
Ending Market Value	\$3,022,668,006	\$3,022,668,006	\$3,022,668,006	\$3,022,668,006	\$3,022,668,006	\$3,022,668,006

Return Summary (Net)



Asset Allocation vs. Target

	Current	Policy
U.S. Equity	29.6%	32.5%
Global Equity	9.7%	10.0%
Non-U.S. Equity	14.5%	15.0%
Emerging Markets	2.3%	2.5%
Real Assets	19.4%	15.0%
U.S. Fixed Income	23.3%	24.0%
Cash Equivalent	1.2%	1.0%
Total	100.0%	100.0%

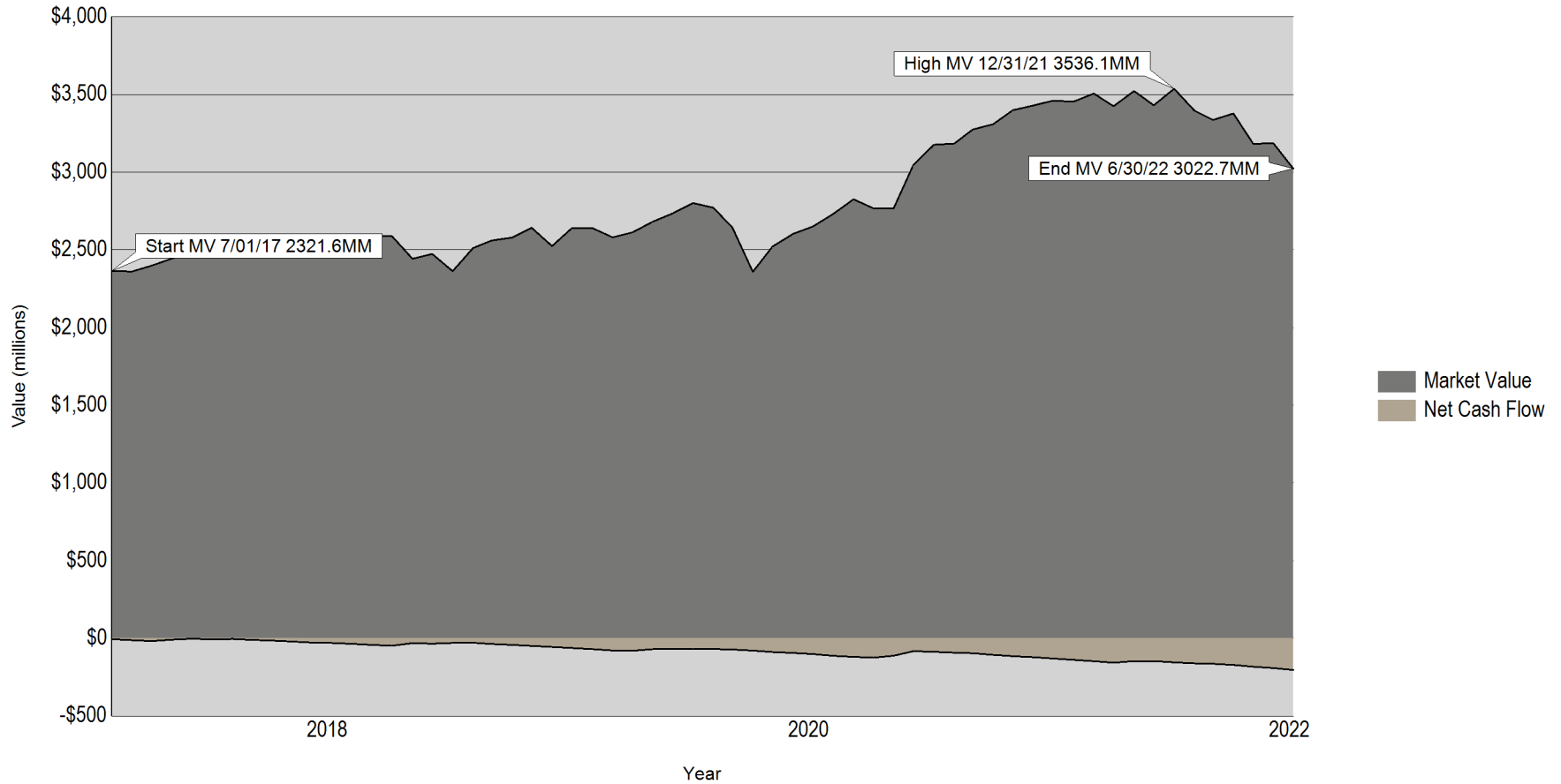
The above is an interim policy allocation until Opp. Credit is funded (5% from Global Equity)

As of June 30, 2022

Cash Flow Summary by Manager From April 01, 2022 to June 30, 2022

	Beginning Market Value	Net Cash Flow	Net Investment Change	Ending Market Value
LSV Large Cap Value	\$149,938,386	-\$139,859,337	-\$9,913,704	\$165,345
MFS Large Cap Value	--	\$131,071,439	\$4,707,729	\$135,779,168
Xpounce S&P 500	\$272,531,728	\$0	-\$43,863,150	\$228,668,578
Northern Trust S&P 500	\$287,289,965	-\$10,000,000	-\$44,900,527	\$232,389,438
Polen Focus Growth	\$115,801,122	-\$117,336	-\$27,073,831	\$88,609,954
Eagle Asset Mgmt	\$486	\$0	\$0	\$486
Northern Trust Dow Jones Completion Index	\$110,920,858	\$0	-\$22,852,045	\$88,068,813
Smith, Graham & Co Small Cap Value	\$49,538,620	-\$92,866	-\$7,557,598	\$41,888,155
Copeland Small Cap Dividend Growth	\$50,875,599	-\$63,106	-\$6,839,636	\$43,972,858
Emerald Small Cap Growth	\$43,747,086	-\$56,946	-\$8,843,997	\$34,846,142
Rhumblin Global Min. Volatility	\$169,309,132	-\$10,000,000	-\$14,281,105	\$145,028,027
iShares MSCI ACWI	\$174,694,824	-\$1,482,581	-\$26,337,631	\$146,874,612
SSGA MSCI World ex US	\$273,755,630	\$0	-\$39,490,040	\$234,265,589
Hardman Johnston Int'l Equity	\$105,570,288	-\$178,814	-\$14,245,184	\$91,146,290
HGK Int'l Equity	\$126,085,161	\$0	-\$13,553,986	\$112,531,175
Jarislowsky, Fraser Limited	\$312,076	\$0	-\$16,444	\$295,632
Mercator Asset Management	\$17,982	\$0	-\$17,982	\$0
GlobeFlex Capital	\$2,493	\$0	-\$2,493	\$0
WHV Investment Management	\$2,974	\$0	-\$2,974	\$0
SSGA MSCI Emerging Markets Index	\$77,314,935	\$0	-\$8,111,606	\$69,203,329
Forest Investment Associates	\$145,415,562	-\$1,500,000	\$233,720	\$144,149,283
PRISA LP	\$67,266,203	-\$158,566	\$3,751,598	\$70,859,235
PRISA II	\$137,706,111	-\$367,677	\$6,361,719	\$143,700,153
PennMuni-Nuveen U.S. Real Estate Fund	\$229,915,479	-\$2,817,461	\$0	\$227,098,018
N. Front Street (Nuveen)	\$1,976,687	\$0	\$0	\$1,976,687
SSGA US Aggregate Bond Index	\$776,305,124	-\$375,000,000	-\$42,744,446	\$358,560,678
Federated Hermes Core Aggregate Strategy	--	\$345,000,000	\$1,675,791	\$346,675,791
Cash Management	\$10,899,887	\$23,386,272	\$36,022	\$34,322,180
Abel Noser Transition Account	\$153	\$9,967,627	-\$8,375,390	\$1,592,389
Total	\$3,377,194,550	-\$32,269,353	-\$322,257,192	\$3,022,668,006

Market Value History



Pennsylvania Municipal Retirement System

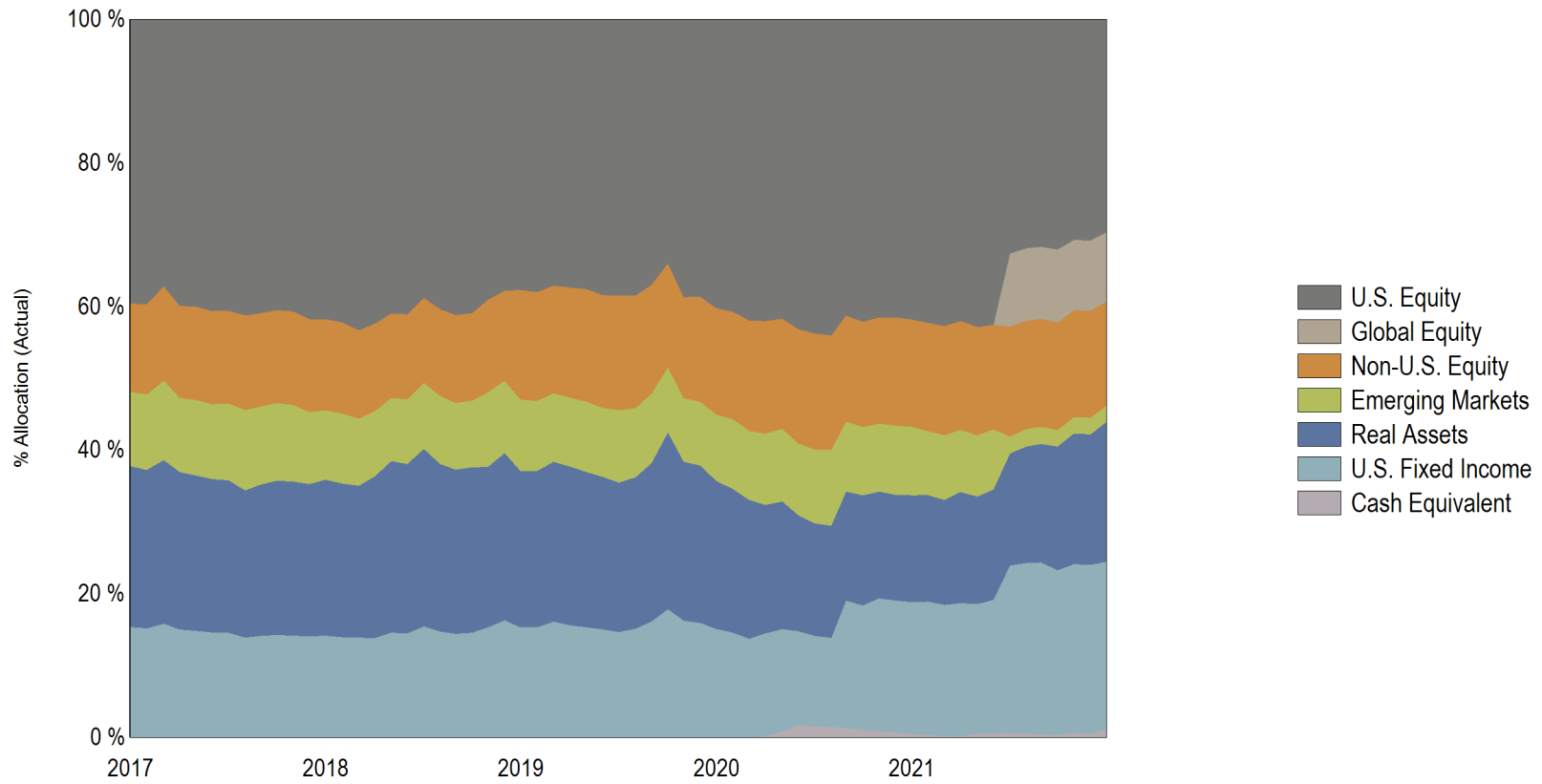
Asset Allocation Summary

As of June 30, 2022

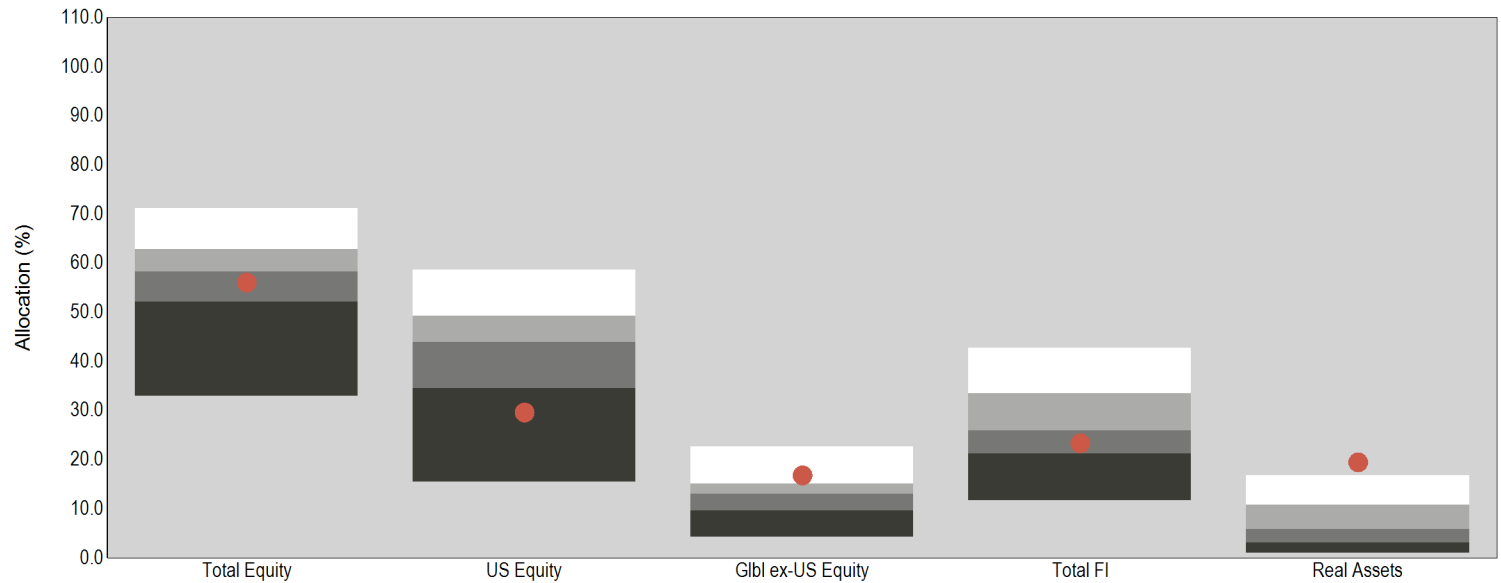
	Market Value	% of Portfolio	Policy %	Policy Difference
Total Fund Composite	3,022,668,006	100.0	100.0	0
Total Equity Composite	1,693,733,593	56.0	60.0	-119,867,211
U.S. Equity Composite	894,388,938	29.6	32.5	-87,978,164
MFS Large Cap Value	135,779,168	4.5		
Xponance S&P 500	228,668,578	7.6		
Northern Trust S&P 500	232,389,438	7.7		
Polen Focus Growth	88,609,954	2.9		
Northern Trust Dow Jones Completion Index	88,068,813	2.9		
Smith, Graham & Co Small Cap Value	41,888,155	1.4		
Copeland Small Cap Dividend Growth	43,972,858	1.5		
Emerald Small Cap Growth	34,846,142	1.2		
Global Equity Composite	291,902,639	9.7	10.0	-10,364,162
Rhumbline Global Min. Volatility	145,028,027	4.8		
iShares MSCI ACWI	146,874,612	4.9		
Non-U.S Equity Composite	507,442,016	16.8	17.5	-21,524,885
SSGA MSCI World ex US	234,265,589	7.8		
Hardman Johnston Int'l Equity	91,146,290	3.0		
HGK Int'l Equity	112,531,175	3.7		
SSGA MSCI Emerging Markets Index	69,203,329	2.3		
Real Assets Composite	587,783,375	19.4	15.0	134,383,174
Forest Investment Associates	144,149,283	4.8		
PRISA LP	70,859,235	2.3		
PRISA II	143,700,153	4.8		
PennMuni-Nuveen U.S. Real Estate Fund	227,098,018	7.5		
N. Front Street (Nuveen)	1,976,687	0.1		
Total Fixed Income Composite	705,236,469	23.3	24.0	-20,203,852
SSGA US Aggregate Bond Index	358,560,678	11.9		
Federated Hermes Core Aggregate Strategy	346,675,791	11.5		
Cash Composite	35,914,569	1.2	1.0	5,687,889

Residual value for Jarislowsky (approx. \$296k) included in Non-US Equity and Total Fund Composite values. Residual values for Eagle (approx. \$486) and LSV Large Cap Value (approx. \$165k) included in the US Equity and Total Fund Composite values. Abel Noser Transition Account has approx. \$1.5m residual cash included in Cash and Total Fund Composite values.

Asset Allocation History



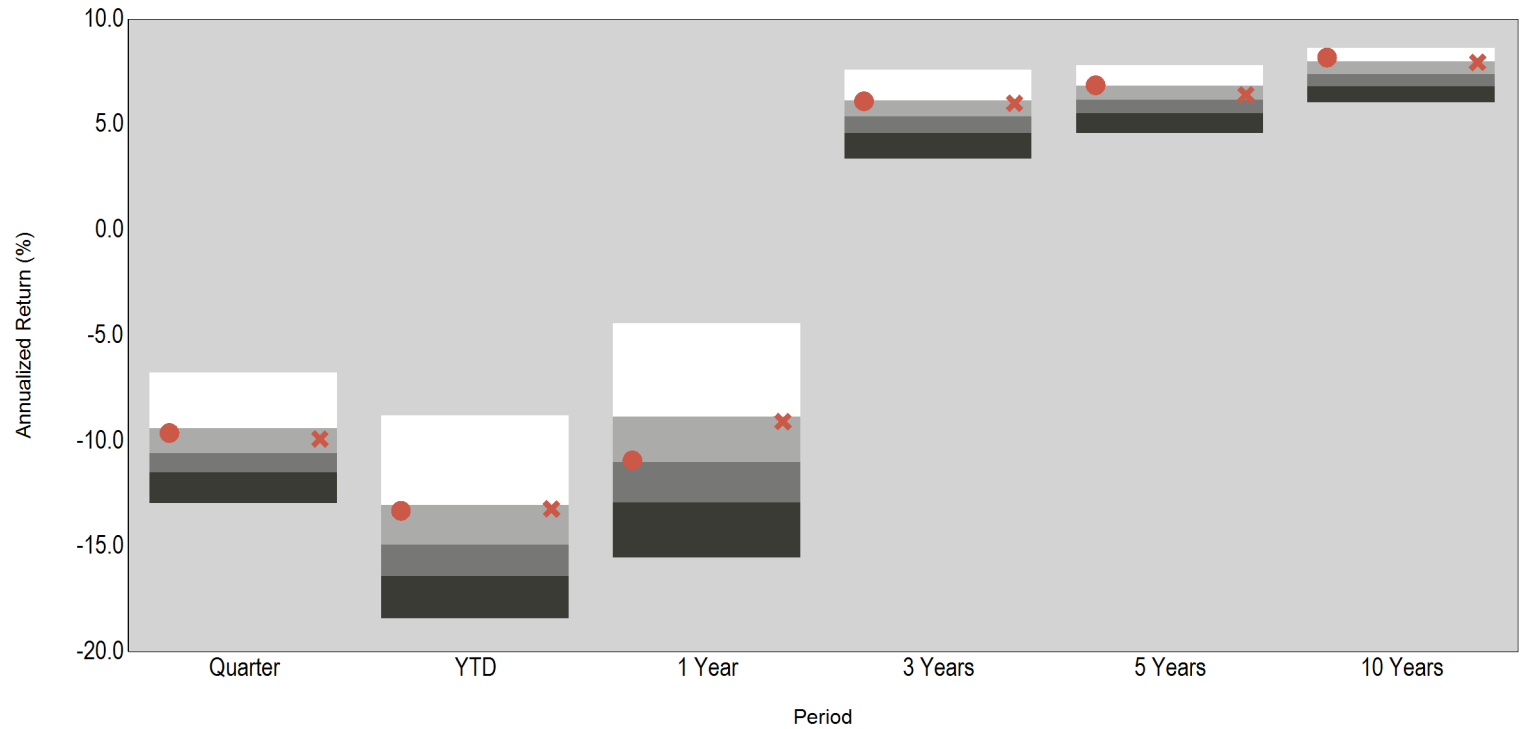
Total Plan Allocation vs. InvMetrics Public DB Net
As of June 30, 2022



Allocation (Rank)

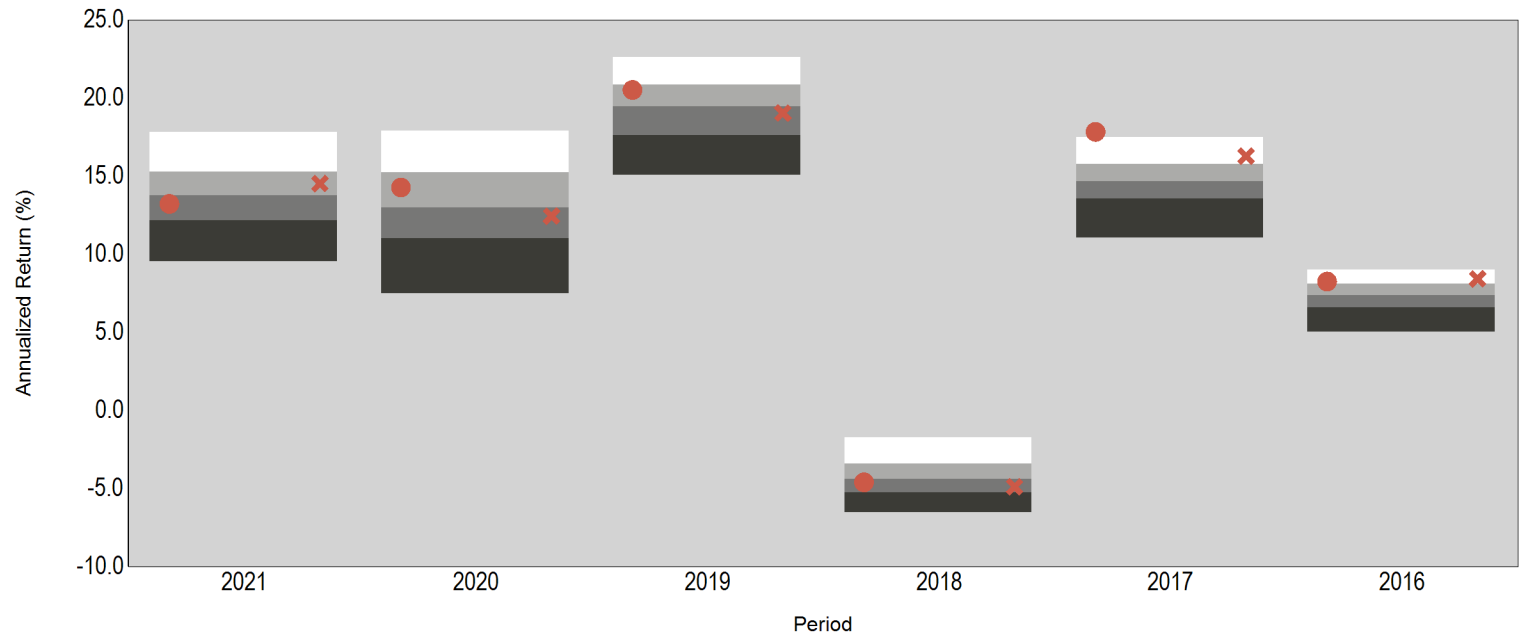
5th Percentile	71.2		58.7		22.6		42.7		16.8	
25th Percentile	62.8		49.3		15.1		33.5		10.8	
Median	58.3		43.9		12.9		25.9		5.9	
75th Percentile	52.1		34.6		9.6		21.2		3.1	
95th Percentile	33.0		15.4		4.3		11.7		1.0	
# of Portfolios	420		327		359		421		80	
● Total Fund Composite	56.0	(61)	29.6	(84)	16.8	(19)	23.3	(65)	19.4	(2)

InvMetrics Public DB Net Return Comparison



	Return (Rank)											
	Quarter		YTD		1 Year		3 Years		5 Years		10 Years	
5th Percentile	-6.8		-8.8		-4.4		7.6		7.8		8.6	
25th Percentile	-9.4		-13.0		-8.9		6.1		6.8		8.0	
Median	-10.6		-14.9		-11.0		5.4		6.2		7.4	
75th Percentile	-11.5		-16.4		-12.9		4.6		5.5		6.8	
95th Percentile	-13.0		-18.4		-15.5		3.4		4.6		6.0	
# of Portfolios	590		590		585		566		548		459	
● Total Fund Composite	-9.6	(29)	-13.3	(28)	-10.9	(49)	6.1	(27)	6.9	(24)	8.2	(19)
▲ Policy Index	-9.9	(35)	-13.2	(27)	-9.1	(27)	6.0	(28)	6.4	(40)	7.9	(27)

InvMetrics Public DB Net Return Comparison



	2021		2020		2019		2018		2017		2016	
Return (Rank)												
5th Percentile	17.8		17.9		22.6		-1.7		17.5		9.0	
25th Percentile	15.3		15.3		20.8		-3.4		15.8		8.1	
Median	13.8		13.0		19.5		-4.4		14.7		7.4	
75th Percentile	12.2		11.0		17.6		-5.2		13.6		6.6	
95th Percentile	9.6		7.5		15.1		-6.5		11.1		5.0	
# of Portfolios	559		596		550		496		269		269	
● Total Fund Composite	13.2	(58)	14.3	(37)	20.5	(32)	-4.6	(56)	17.8	(5)	8.3	(24)
▲ Policy Index	14.5	(35)	12.4	(57)	19.0	(57)	-4.9	(66)	16.3	(18)	8.4	(19)

RISK RETURN STATISTICS

July 01, 2017 Through June 30, 2022

	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	6.87	6.42
Total Return	39.38	36.48
Annualized Excess Return Over Risk Free	5.83	5.38
Annualized Excess Return	0.45	0.00

RISK SUMMARY STATISTICS

Beta	1.05	1.00
Upside Deviation	7.91	7.16
Downside Deviation	12.00	11.80

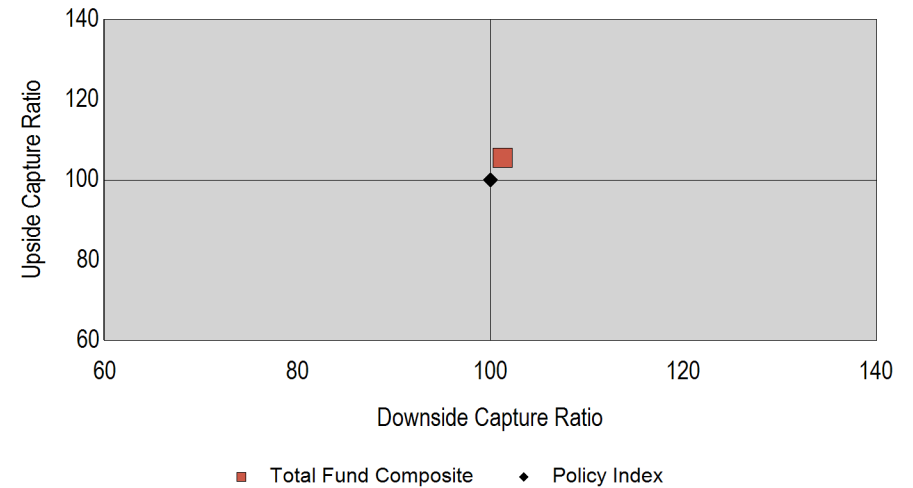
RISK/RETURN SUMMARY STATISTICS

Annualized Standard Deviation	14.48	13.76
Alpha	0.04	0.00
Sharpe Ratio	0.40	0.39
Excess Return Over Market / Risk	0.03	0.00
Tracking Error	1.43	0.00
Information Ratio	0.31	--

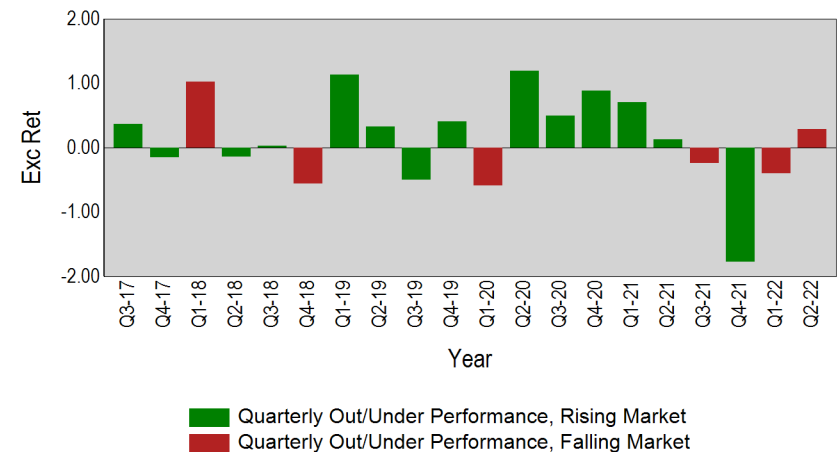
CORRELATION STATISTICS

R-Squared	0.99	1.00
Correlation	1.00	1.00

Upside Capture Ratio vs. Downside Capture Ratio
5 Years Ending June 30, 2022



Quarterly Excess Performance
Total Fund Composite vs. Policy Index



Pennsylvania Municipal Retirement System

Performance Summary (Net)

As of June 30, 2022

	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Market Value	Inception	Inception Date
Total Fund Composite	-9.6	-13.3	-10.9	6.1	6.9	8.2	3,022,668,006	8.4	Jan-86
Policy Index	-9.9	-13.2	-9.1	6.0	6.4	7.9		8.9	Jan-86
InvMetrics Public DB Net Rank	29	28	49	27	24	19		23	Jan-86
Total Equity Composite	-14.3	-19.5	-18.1	--	--	--	1,693,733,593	6.9	Oct-20
MSCI ACWI IMI Net USD	-15.8	-20.4	-16.5	--	--	--		5.0	Oct-20
U.S. Equity Composite	-15.8	-21.0	-17.4	8.6	10.0	12.3	894,388,938	8.3	Jan-06
Russell 3000	-16.7	-21.1	-13.9	9.8	10.6	12.6		9.0	Jan-06
InvMetrics Public DB US Eq Net Rank	58	76	97	78	48	30		54	Jan-06
MFS Large Cap Value	--	--	--	--	--	--	135,779,168	--	Jun-22
eV US Large Cap Value Equity Net Rank	--	--	--	--	--	--		--	Jun-22
Xpounce S&P 500	-16.1	-19.9	--	--	--	--	228,668,578	-19.9	Dec-21
S&P 500	-16.1	-20.0	--	--	--	--		-20.0	Dec-21
eV US Large Cap Core Equity Net Rank	78	64	--	--	--	--		64	Dec-21
Northern Trust S&P 500	-16.1	-20.0	--	--	--	--	232,389,438	-20.0	Dec-21
S&P 500	-16.1	-20.0	--	--	--	--		-20.0	Dec-21
eV US Large Cap Core Equity Net Rank	78	64	--	--	--	--		64	Dec-21
Polen Focus Growth	-23.5	-34.5	-29.0	6.9	12.5	13.8	88,609,954	14.2	Oct-10
Russell 1000 Growth	-20.9	-28.1	-18.8	12.6	14.3	14.8		14.7	Oct-10
eV US Large Cap Growth Equity Net Rank	81	86	79	80	38	28		13	Oct-10
Northern Trust Dow Jones Completion Index	-20.6	-28.0	--	--	--	--	88,068,813	-28.0	Dec-21
Dow Jones U.S. Completion Total Stock Market	-20.7	-28.1	--	--	--	--		-28.1	Dec-21
eV US Small-Mid Cap Core Equity Net Rank	96	94	--	--	--	--		94	Dec-21
Smith, Graham & Co Small Cap Value	-15.4	-20.4	-21.6	7.8	4.3	--	41,888,155	5.1	Dec-16
Russell 2000 Value	-15.3	-17.3	-16.3	6.2	4.9	--		5.2	Dec-16
eV US Small Cap Value Equity Net Rank	74	89	93	38	74	--		66	Dec-16
Copeland Small Cap Dividend Growth	-13.6	-18.2	-13.1	5.9	--	--	43,972,858	7.7	Sep-17
Russell 2000	-17.2	-23.4	-25.2	4.2	--	--		4.2	Sep-17
eV US Small Cap Core Equity Net Rank	28	16	20	58	--	--		16	Sep-17
Emerald Small Cap Growth	-20.3	-29.1	-30.7	2.0	6.4	11.4	34,846,142	9.7	Oct-98
Russell 2000 Growth	-19.3	-29.5	-33.4	1.4	4.8	9.3		7.1	Oct-98
eV US Small Cap Growth Equity Net Rank	51	41	48	78	77	50		60	Oct-98

Pennsylvania Municipal Retirement System

Performance Summary (Net)

As of June 30, 2022

	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Market Value	Inception	Inception Date
Global Equity Composite	-12.1	-16.0	--	--	--	--	291,902,639	-16.0	Dec-21
Global Equity Policy Index	-12.5	-16.2	--	--	--	--		-16.2	Dec-21
InvMetrics Public DB Gbl Eq Net Rank	15	15	--	--	--	--		15	Dec-21
Rhumbline Global Min. Volatility	-8.8	-11.7	--	--	--	--	145,028,027	-11.7	Dec-21
MSCI ACWI Minimum Volatility Index	-9.3	-12.0	--	--	--	--		-12.0	Dec-21
eV Global Low Volatility Equity Net Rank	32	38	--	--	--	--		38	Dec-21
iShares MSCI ACWI	-15.1	-19.9	--	--	--	--	146,874,612	-19.9	Dec-21
MSCI ACWI	-15.7	-20.2	--	--	--	--		-20.2	Dec-21
eV Global Large Cap Core Eq Net Rank	52	44	--	--	--	--		44	Dec-21
Non-U.S. Equity Composite	-13.0	-18.8	-21.1	3.0	3.9	5.7	507,442,016	6.2	May-12
MSCI ACWI ex USA IMI	-14.3	-19.1	-19.9	1.6	2.5	5.0		5.5	May-12
InvMetrics Public DB ex-US Eq Net Rank	47	41	67	9	7	14		13	May-12
SSGA MSCI World ex US	-14.4	-18.5	-16.5	2.1	3.0	5.7	234,265,589	4.8	Apr-12
MSCI World ex USA	-14.7	-18.8	-16.8	1.7	2.7	5.4		4.5	Apr-12
eV ACWI ex-US Core Equity Net Rank	44	30	13	53	48	55		50	Apr-12
Hardman Johnston Int'l Equity	-13.7	-26.7	-28.4	4.1	5.7	8.0	91,146,290	7.2	Apr-12
MSCI EAFE	-14.5	-19.6	-17.8	1.1	2.2	5.4		4.5	Apr-12
eV EAFE All Cap Equity Net Rank	50	86	88	10	5	8		8	Apr-12
HGK Int'l Equity	-10.7	-12.8	-11.2	7.4	6.0	9.5	112,531,175	8.3	Feb-12
MSCI EAFE	-14.5	-19.6	-17.8	1.1	2.2	5.4		4.9	Feb-12
eV EAFE All Cap Equity Net Rank	13	13	8	2	4	1		7	Feb-12
SSGA MSCI Emerging Markets Index	-10.5	-17.6	-25.2	0.5	2.2	2.9	69,203,329	6.5	Nov-08
MSCI Emerging Markets	-11.4	-17.6	-25.3	0.6	2.2	3.1		6.7	Nov-08
eV Emg Mkts Equity Net Rank	17	36	48	58	50	66		66	Nov-08

Pennsylvania Municipal Retirement System

Performance Summary (Net)

As of June 30, 2022

	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Market Value	Inception	Inception Date
Real Assets Composite	1.6	7.9	17.1	7.8	7.3	8.0	587,783,375	7.9	Apr-93
<i>Real Assets Policy Index</i>	3.7	9.7	25.7	10.9	9.1	9.9		8.0	Apr-93
Forest Investment Associates	0.0	9.3	11.1	2.7	3.7	5.2	144,149,283	4.1	Mar-99
<i>NCREIF Timberland Property Index</i>	1.9	5.1	12.0	5.0	4.3	5.7		6.1	Mar-99
PRISA LP	5.3	11.9	27.8	12.0	10.0	10.4	70,859,235	6.8	Jan-86
<i>NFI-ODCE</i>	4.6	12.0	28.4	11.7	9.6	10.2		6.7	Jan-86
<i>InvMetrics Public DB Real Estate Priv Net Rank</i>	42	55	67	47	39	50		--	Jan-86
PRISA II	4.4	12.1	28.0	12.1	10.3	11.2	143,700,153	5.3	Jul-07
<i>NFI-ODCE</i>	4.6	12.0	28.4	11.7	9.6	10.2		6.0	Jul-07
<i>InvMetrics Public DB Real Estate Priv Net Rank</i>	58	50	54	42	19	13		69	Jul-07
PennMuni-Nuveen U.S. Real Estate Fund	0.0	3.5	12.3	8.2	8.2	8.9	227,098,018	6.6	Dec-08
<i>NFI-ODCE</i>	4.6	12.0	28.4	11.7	9.6	10.2		7.2	Dec-08
<i>NCREIF Property Index</i>	3.2	8.7	21.5	10.2	8.9	9.7		8.1	Dec-08
<i>InvMetrics Public DB Real Estate Priv Net Rank</i>	99	99	99	97	94	99		80	Dec-08
N. Front Street (Nuveen)	0.0	0.8	-4.4	-1.1	-5.0	--	1,976,687	-5.5	Sep-16
<i>Consumer Price Index</i>	3.1	6.3	9.1	5.0	3.9	--		3.6	Sep-16
Total Fixed Income Composite	-5.2	-10.9	-10.8	-1.1	0.8	1.5	705,236,469	5.8	Jan-86
<i>Bloomberg US Aggregate TR</i>	-4.7	-10.3	-10.3	-0.9	0.9	1.5		5.8	Jan-86
<i>InvMetrics Public DB US Fix Inc Net Rank</i>	79	85	83	95	94	49		--	Jan-86
SSGA US Aggregate Bond Index	-4.7	-10.4	-10.3	-0.9	0.9	1.5	358,560,678	4.5	Apr-97
<i>Bloomberg US Aggregate TR</i>	-4.7	-10.3	-10.3	-0.9	0.9	1.5		4.5	Apr-97
<i>eV US Core Fixed Inc Net Rank</i>	39	46	40	73	71	76		68	Apr-97
Federated Hermes Core Aggregate Strategy	--	--	--	--	--	--	346,675,791	--	Jun-22
<i>eV US Core Fixed Inc Net Rank</i>	--	--	--	--	--	--		--	Jun-22
Cash Composite							35,914,569		

*PennMuni-Nuveen and N. Front Street Real Estate values are as of 3/31 adjusted for distributions where applicable. Cash composite includes residual cash in Abel Noser transition account.

As of June 30, 2022

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	---
Rhumbline Global Min. Volatility	Global Stock Low Volatility	In Compliance	---
iShares MSCI ACWI	Global Stock Large Cap Core	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	---

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		
1/1/2022	Present	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		
1/1/2022	Present	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	Present	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 June 30, 2022

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	4.5%	\$466,282	0.34%
Xponance S&P 500	0.02% of Assets	7.7%	\$45,734	0.02%
Northern Trust S&P 500	0.00% of Assets	7.8%	\$9,296	0.00%
Polen Focus Growth	0.50% of Assets	3.0%	\$443,050	0.50%
Northern Trust Dow Jones Completion Index	0.02% of Assets	2.9%	\$13,210	0.02%
Smith, Graham & Co Small Cap Value	0.75% of First 50.0 Mil, 0.60% Thereafter	1.4%	\$314,161	0.75%
Copeland Small Cap Dividend Growth	0.50% of Assets	1.5%	\$219,864	0.50%
Emerald Small Cap Growth	0.60% of First 10.0 Mil, 0.55% of Next 5.0 Mil, 0.50% Thereafter	1.2%	\$186,731	0.54%
Rhumblin Global Min. Volatility	0.07% of Assets	4.9%	\$94,268	0.06%
iShares MSCI ACWI	0.32% of Assets	4.9%	\$469,999	0.32%
SSGA MSCI World ex US	0.04% of Assets	7.8%	\$93,706	0.04%
Hardman Johnston Int'l Equity	0.75% of First 25.0 Mil, 0.60% Thereafter	3.1%	\$584,378	0.64%
HGK Int'l Equity	0.65% of Assets	3.8%	\$731,453	0.65%
SSGA MSCI Emerging Markets Index	0.05% of Assets	2.3%	\$34,602	0.05%
Forest Investment Associates	0.75% of Assets	4.8%	\$1,081,120	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	2.4%	\$664,803	0.94%

Pennsylvania Municipal Retirement System

Fee Summary

As of June 30, 2022

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	4.8%	\$1,527,651	1.06%
PennMuni-Nuveen U.S. Real Estate Fund	0.85% of Assets	7.6%	\$1,930,333	0.85%
N. Front Street (Nuveen)	0.85% of Assets	0.1%	\$16,802	0.85%
SSGA US Aggregate Bond Index	0.02% of First 100.0 Mil, 0.01% of Next 300.0 Mil, 0.01% Thereafter	12.0%	\$45,856	0.01%
Federated Hermes Core Aggregate Strategy	0.12% of First 100.0 Mil, 0.10% of Next 400.0 Mil, 0.07% Thereafter	11.6%	\$366,676	0.11%
Investment Management Fee		100.0%	\$9,339,975	0.31%

Characteristics

	Portfolio	MSCI ACWI IMI Net USD
Number of Holdings	6,665	9,006
Weighted Avg. Market Cap. (\$B)	232.1	277.4
Median Market Cap. (\$B)	6.7	1.9
Price To Earnings	16.3	15.2
Price To Book	3.2	3.0
Price To Sales	1.7	1.5
Return on Equity (%)	20.7	19.8
Yield (%)	2.0	2.4

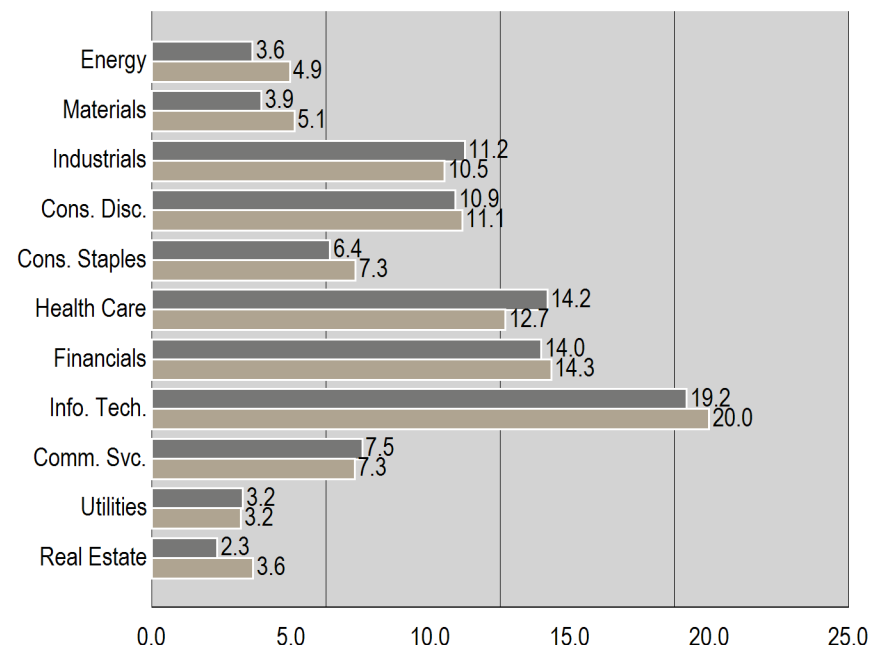
Top Holdings

MICROSOFT CORP	2.4%
APPLE INC	2.2%
AMAZON.COM INC	1.4%
ISHARES MSCI EMERGING MARKETS MIN VOL FACTOR ETF	1.2%
JOHNSON & JOHNSON	0.9%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	0.9%
ALPHABET INC	0.8%
ALPHABET INC	0.8%
VISA INC	0.7%
UNITEDHEALTH GROUP INC	0.7%
Total	12.0%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
Total Equity Composite	15.8%	15.8%	63.8%	4.6%
MSCI ACWI IMI Net USD	17.8%	16.5%	65.7%	0.0%
<i>Weight Over/Under</i>	<i>-2.0%</i>	<i>-0.7%</i>	<i>-1.9%</i>	<i>4.6%</i>

Sector Allocation (%) vs MSCI ACWI IMI Net USD



Region Allocation Summary

Region	% of Total	% of Bench	% Diff
North America ex U.S.	2.2%	3.2%	-1.0%
United States	62.6%	59.9%	2.7%
Europe Ex U.K.	13.3%	11.7%	1.6%
United Kingdom	3.6%	4.1%	-0.5%
Pacific Basin Ex Japan	3.1%	3.3%	-0.2%
Japan	4.4%	6.0%	-1.6%
Emerging Markets	10.1%	11.5%	-1.3%
Other	0.7%	0.4%	0.3%
Total	100.0%	100.0%	0.0%

Characteristics

	Portfolio	Russell 3000
Number of Holdings	3,782	2,960
Weighted Avg. Market Cap. (\$B)	316.5	412.8
Median Market Cap. (\$B)	1.9	2.4
Price To Earnings	17.6	18.1
Price To Book	3.5	3.6
Price To Sales	1.7	2.0
Return on Equity (%)	24.3	25.5
Yield (%)	1.6	1.7

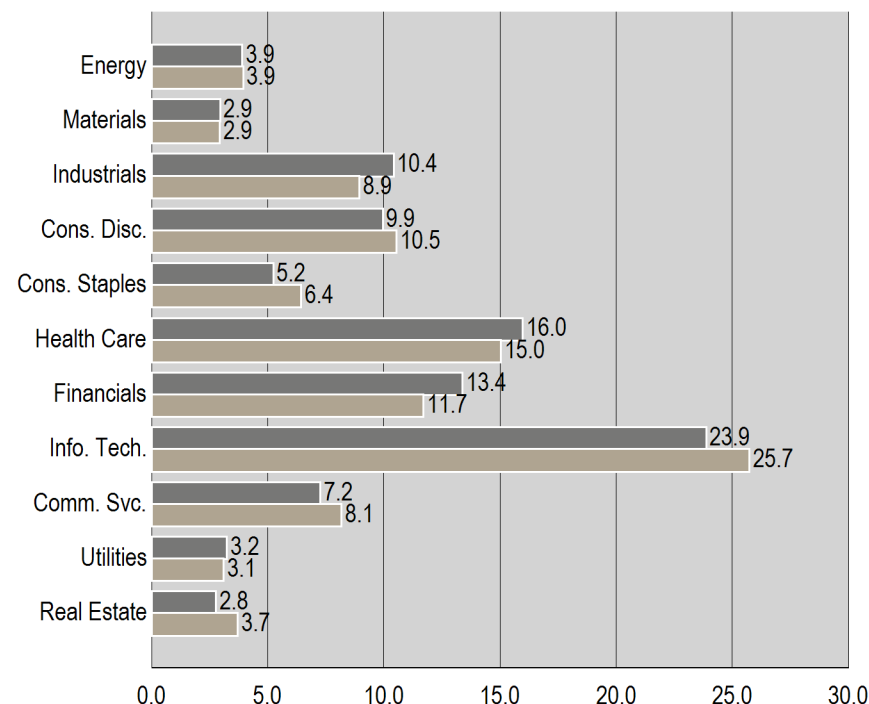
Top Holdings

MICROSOFT CORP	3.8%
APPLE INC	3.4%
AMAZON.COM INC	2.2%
ALPHABET INC	1.4%
ALPHABET INC	1.3%
JOHNSON & JOHNSON	1.3%
META PLATFORMS INC	1.2%
VISA INC	1.2%
UNITEDHEALTH GROUP INC	1.2%
MASTERCARD INC	1.2%
Total	18.3%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
U.S. Equity Composite	11.5%	20.6%	65.8%	2.2%
Russell 3000	5.8%	22.8%	71.4%	0.0%
<i>Weight Over/Under</i>	5.6%	-2.2%	-5.6%	2.2%

Sector Allocation (%) vs Russell 3000



Common Holdings Matrix

	<i>LSV Large Cap Value</i>		<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>Eagle Asset Mgmt</i>		<i>Northern Trust Dow Jones Completion Index</i>		<i>Smith, Graham & Co Small Cap Value</i>		<i>Copeland Small Cap Dividend Growth</i>		<i>Emerald Small Cap Growth</i>	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
LSV Large Cap Value	--	--	1	1	10	1	10	1	0	0	0	0	2	0	1	1	0	0	0	0
MFS Large Cap Value	1	2	--	--	67	19	67	19	2	9	0	0	1	1	0	0	0	0	0	0
Xponance S&P 500	10	47	67	94	--	--	501	100	22	91	0	0	4	0	0	0	0	0	0	0
Northern Trust S&P 500	10	47	67	94	501	99	--	--	22	91	0	0	7	0	0	0	0	0	0	0
Polen Focus Growth	0	0	2	4	22	21	22	22	--	--	0	0	1	0	0	0	0	0	0	0
Eagle Asset Mgmt	0	0	0	0	0	0	0	0	0	0	--	--	0	0	0	0	0	0	0	0
Northern Trust Dow Jones Completion Index	2	6	1	1	4	0	7	0	1	2	0	0	--	--	64	100	54	91	95	86
Smith, Graham & Co Small Cap Value	1	4	0	0	0	0	0	0	0	0	0	0	64	3	--	--	1	2	2	2
Copeland Small Cap Dividend Growth	0	0	0	0	0	0	0	0	0	0	0	0	54	3	1	2	--	--	3	2
Emerald Small Cap Growth	0	0	0	0	0	0	0	0	0	0	0	0	95	4	2	3	3	5	--	--

Characteristics

	Portfolio	MSCI ACWI IMI Net USD
Number of Holdings	2,375	9,006
Weighted Avg. Market Cap. (\$B)	204.5	277.4
Median Market Cap. (\$B)	14.4	1.9
Price To Earnings	17.2	15.2
Price To Book	3.4	3.0
Price To Sales	1.9	1.5
Return on Equity (%)	23.9	19.8
Yield (%)	2.1	2.4

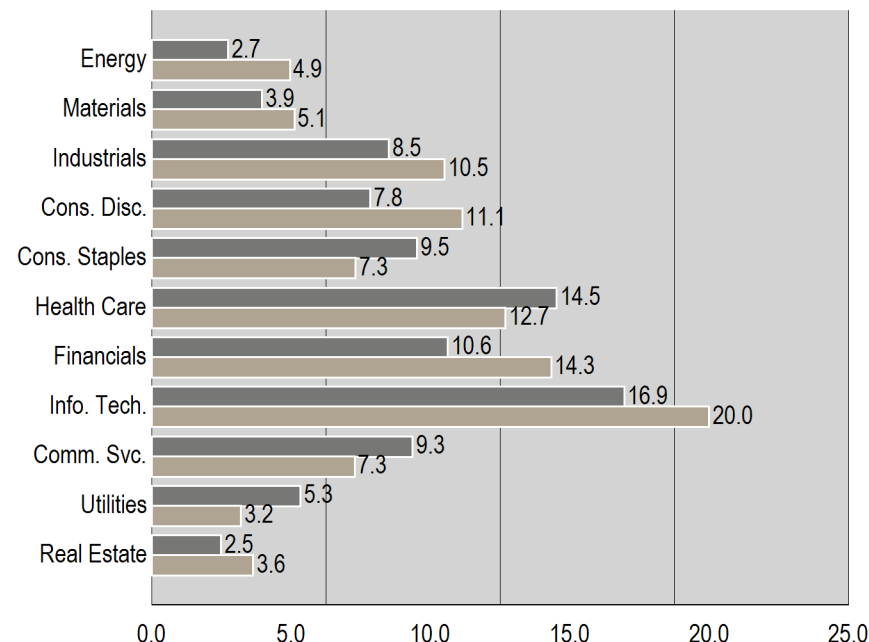
Top Holdings

ISHARES MSCI EMERGING MARKETS MIN VOL FACTOR ETF	6.6%
APPLE INC	2.0%
MICROSOFT CORP	1.8%
JOHNSON & JOHNSON	1.2%
AMAZON.COM INC	1.0%
VERIZON COMMUNICATIONS INC	1.0%
NESTLE SA, CHAM UND VEVEY	0.9%
MERCK & CO INC	0.9%
WASTE MANAGEMENT INC.	0.8%
PEPSICO INC	0.8%
Total	17.0%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
Global Equity Composite	11.9%	17.7%	66.9%	3.4%
MSCI ACWI IMI Net USD	17.8%	16.5%	65.7%	0.0%
<i>Weight Over/Under</i>	-5.9%	1.3%	1.2%	3.4%

Sector Allocation (%) vs MSCI ACWI IMI Net USD



Region Allocation Summary

Region	% of Total	% of Bench	% Diff
North America ex U.S.	2.8%	3.2%	-0.5%
United States	64.4%	59.9%	4.5%
Europe Ex U.K.	11.6%	11.7%	0.0%
United Kingdom	2.1%	4.1%	-2.0%
Pacific Basin Ex Japan	3.5%	3.3%	0.1%
Japan	7.5%	6.0%	1.5%
Emerging Markets	7.5%	11.5%	-4.0%
Other	0.7%	0.4%	0.4%
Total	100.0%	100.0%	0.0%

Common Holdings Matrix

	<i>Rhumbleline Global Min. Volatility</i>		<i>iShares MSCI ACWI</i>	
	#	%	#	%
Rhumbleline Global Min. Volatility	--	--	187	24
iShares MSCI ACWI	187	64	--	--

Characteristics

	Portfolio	MSCI ACWI ex USA IMI
Number of Holdings	2,129	6,420
Weighted Avg. Market Cap. (\$B)	81.6	70.7
Median Market Cap. (\$B)	7.9	1.6
Price To Earnings	13.4	12.1
Price To Book	2.7	2.3
Price To Sales	1.4	1.2
Return on Equity (%)	14.0	14.2
Yield (%)	2.7	3.5

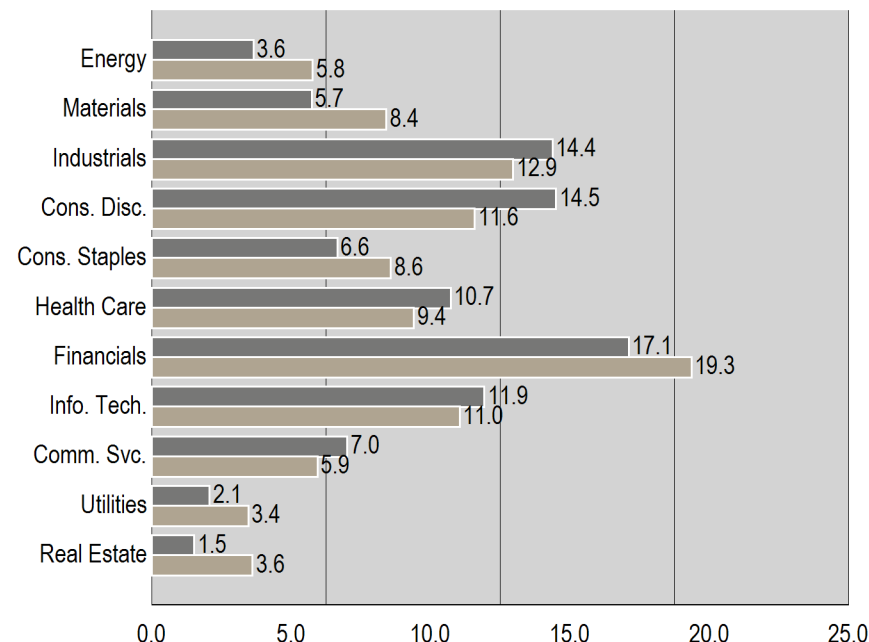
Top Holdings

TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	2.8%
AIA GROUP LTD	2.1%
ASTRAZENECA PLC	1.5%
MEITUAN DIANPING USD0.00001 A B CLASS ISIN KYG596691041	1.4%
BAE SYSTEMS ORD GBP0.025	1.3%
RHEINMETALL	1.3%
TENCENT HOLDINGS LTD	1.3%
PROSUS ORD	1.3%
ASML HOLDING NV	1.2%
THALES	1.2%
Total	15.3%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
Non-U.S Equity Composite	12.1%	26.6%	51.5%	9.9%
MSCI ACWI ex USA IMI	27.4%	23.2%	49.5%	0.0%
<i>Weight Over/Under</i>	-15.3%	3.4%	2.0%	9.9%

Sector Allocation (%) vs MSCI ACWI ex USA IMI



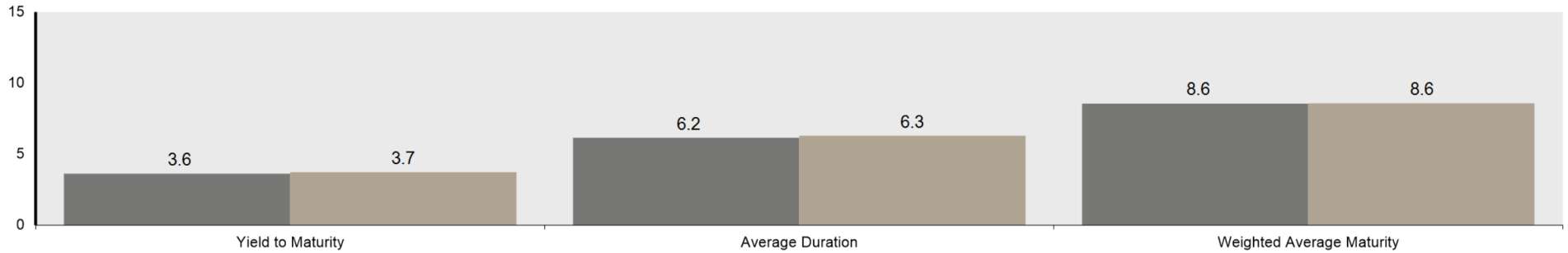
Region Allocation Summary

Region	% of Total	% of Bench	% Diff
North America ex U.S.	5.4%	8.1%	-2.6%
United States	1.7%	0.0%	1.7%
Europe Ex U.K.	32.4%	29.1%	3.4%
United Kingdom	8.9%	10.1%	-1.2%
Pacific Basin Ex Japan	8.7%	8.3%	0.3%
Japan	10.8%	14.9%	-4.1%
Emerging Markets	30.7%	28.6%	2.1%
Other	1.4%	0.9%	0.5%
Total	100.0%	100.0%	0.0%

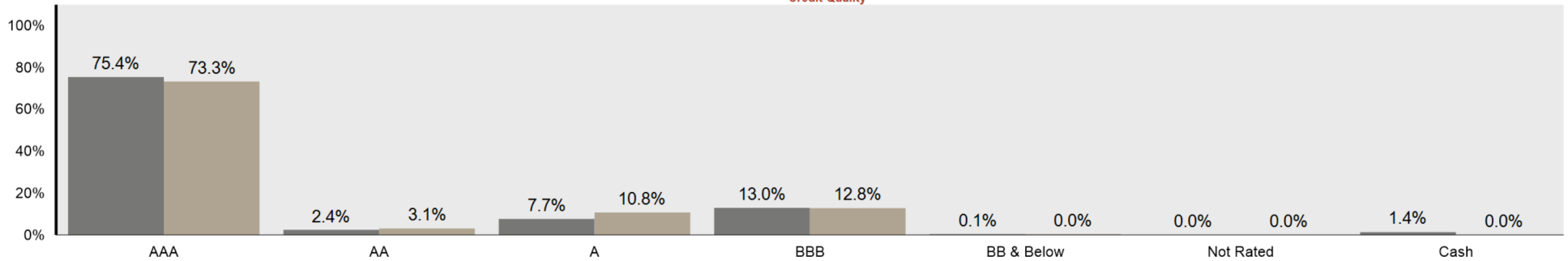
Common Holdings Matrix

	<i>SSGA MSCI World ex US</i>		<i>Hardman Johnston Int'l Equity</i>		<i>HGK Int'l Equity</i>		<i>SSGA MSCI Emerging Markets Index</i>	
	#	%	#	%	#	%	#	%
SSGA MSCI World ex US	--	--	20	82	16	64	943	96
Hardman Johnston Int'l Equity	20	7	--	--	1	4	4	9
HGK Int'l Equity	16	3	1	6	--	--	1	1
SSGA MSCI Emerging Markets Index	943	29	4	16	1	3	--	--

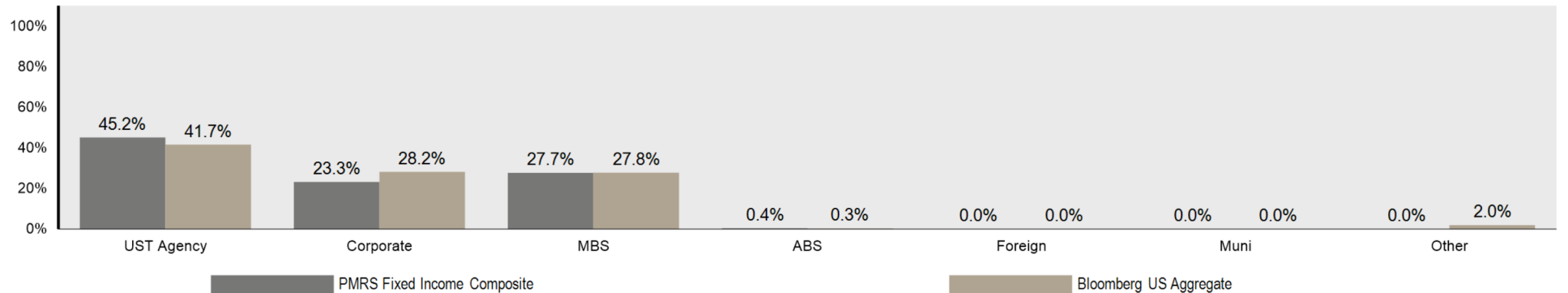
Yield to Maturity



Credit Quality



US Sector



Investment Managers



As of June 30, 2022

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	74	858
Weighted Avg. Market Cap. (\$B)	123.2	145.0
Median Market Cap. (\$B)	67.2	12.0
Price To Earnings	17.6	14.6
Price To Book	3.1	2.4
Price To Sales	2.3	1.8
Return on Equity (%)	27.8	16.9
Yield (%)	2.3	2.3

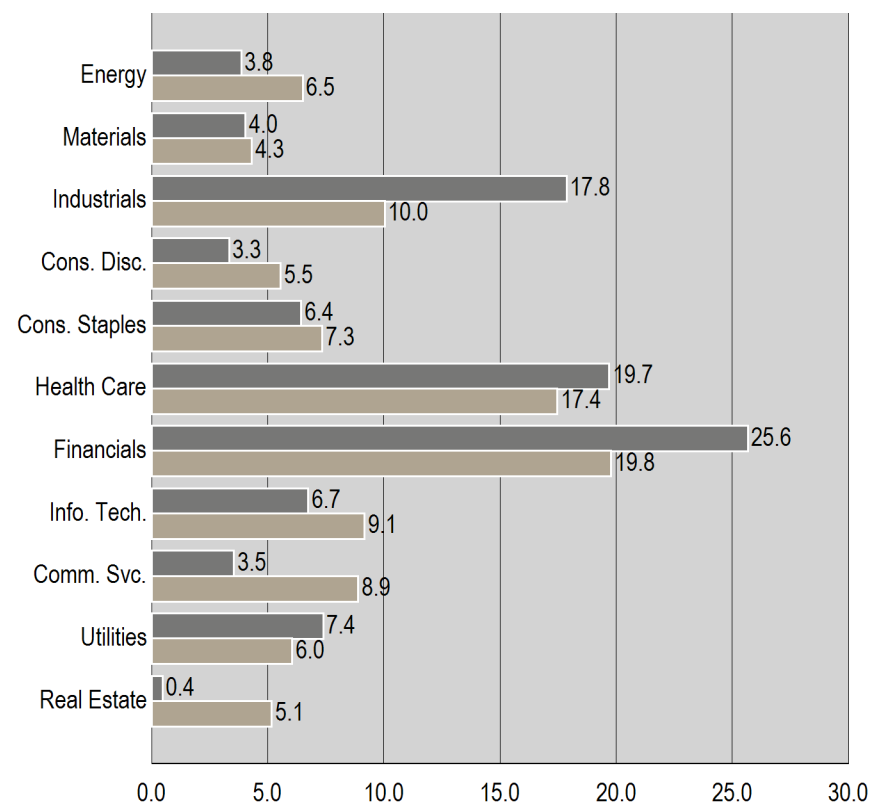
Top Holdings

JOHNSON & JOHNSON	3.7%
JPMORGAN CHASE & CO	3.4%
NORTHROP GRUMMAN CORP	2.9%
PFIZER INC	2.7%
CIGNA CORP	2.6%
AON PLC	2.5%
COMCAST CORP	2.4%
TEXAS INSTRUMENTS INC	2.3%
DUKE ENERGY CORP	2.3%
MARSH & MCLENNAN COMPANIES INC	2.3%
Total	27.1%

Market Capitalization

	Small Cap	Mid Cap	Large Cap
MFS Large Cap Value	0.0%	10.6%	89.4%
Russell 1000 Value	1.5%	30.4%	68.1%
<i>Weight Over/Under</i>	<i>-1.5%</i>	<i>-19.9%</i>	<i>21.3%</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	506	503
Weighted Avg. Market Cap. (\$B)	473.0	480.0
Median Market Cap. (\$B)	27.3	27.8
Price To Earnings	18.5	18.9
Price To Book	3.9	4.0
Price To Sales	2.3	2.3
Return on Equity (%)	33.0	33.2
Yield (%)	1.7	1.7

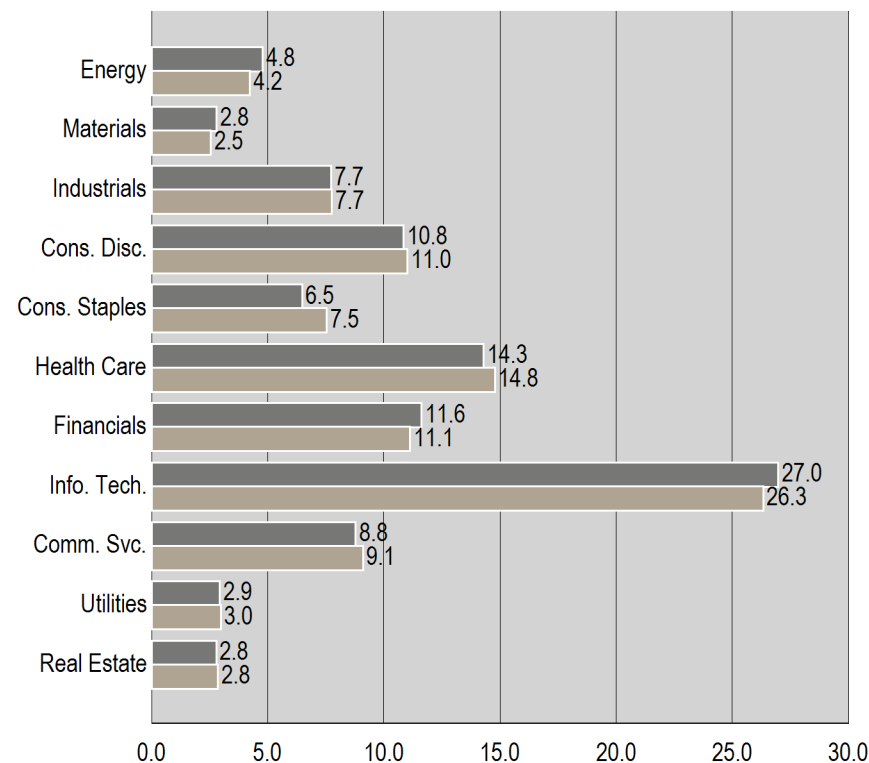
Top Holdings

APPLE INC	6.6%
MICROSOFT CORP	5.8%
AMAZON.COM INC	3.0%
ALPHABET INC	1.9%
TESLA INC	1.8%
ALPHABET INC	1.8%
BERKSHIRE HATHAWAY INC	1.6%
JOHNSON & JOHNSON	1.3%
NVIDIA CORPORATION	1.3%
UNITEDHEALTH GROUP INC	1.3%
Total	26.6%

Market Capitalization

	Small Cap	Mid Cap	Large Cap
Xponance S&P 500	0.0%	16.4%	83.6%
S&P 500	0.1%	16.0%	84.0%
<i>Weight Over/Under</i>	-0.1%	0.4%	-0.3%

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)	478.0	480.0
Median Market Cap. (\$B)	27.3	27.8
Price To Earnings	18.8	18.9
Price To Book	4.0	4.0
Price To Sales	2.3	2.3
Return on Equity (%)	33.1	33.2
Yield (%)	1.7	1.7

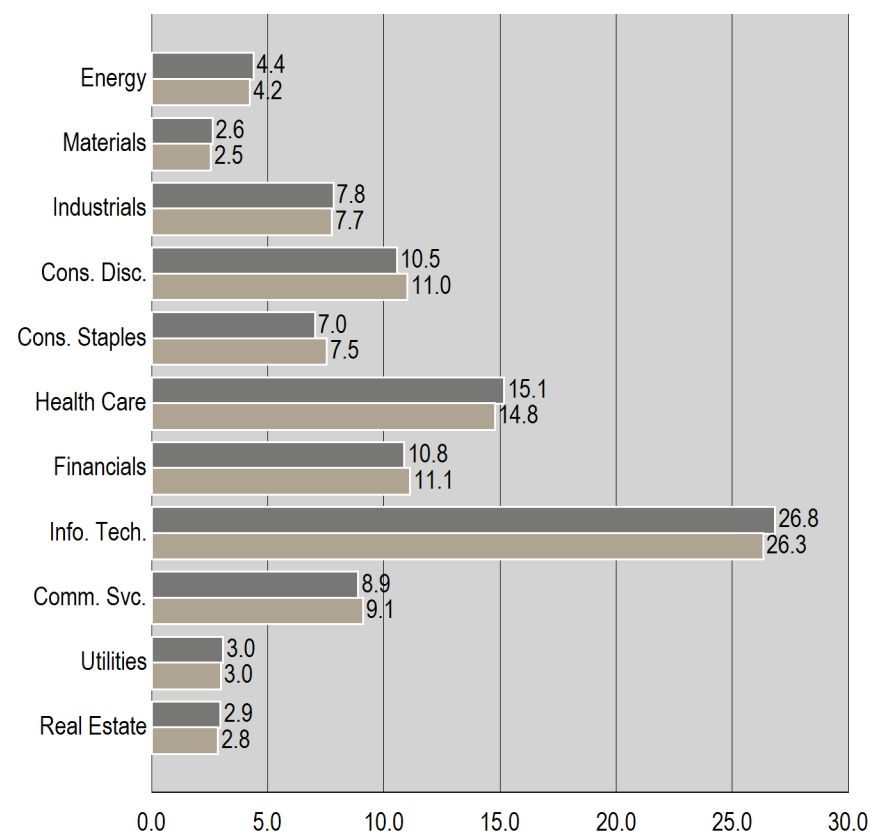
Top Holdings

APPLE INC	6.6%
MICROSOFT CORP	6.0%
AMAZON.COM INC	2.9%
ALPHABET INC	2.1%
ALPHABET INC	1.9%
TESLA INC	1.8%
BERKSHIRE HATHAWAY INC	1.5%
UNITEDHEALTH GROUP INC	1.5%
JOHNSON & JOHNSON	1.5%
NVIDIA CORPORATION	1.2%
Total	26.9%

Market Capitalization

	Small Cap	Mid Cap	Large Cap
Northern Trust S&P 500	0.0%	16.1%	83.9%
S&P 500	0.1%	16.0%	84.0%
<i>Weight Over/Under</i>	<i>-0.1%</i>	<i>0.2%</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	520
Weighted Avg. Market Cap. (\$B)	478.5	729.2
Median Market Cap. (\$B)	164.2	15.1
Price To Earnings	30.4	25.4
Price To Book	7.4	9.0
Price To Sales	4.8	3.0
Return on Equity (%)	65.2	45.9
Yield (%)	0.4	1.0

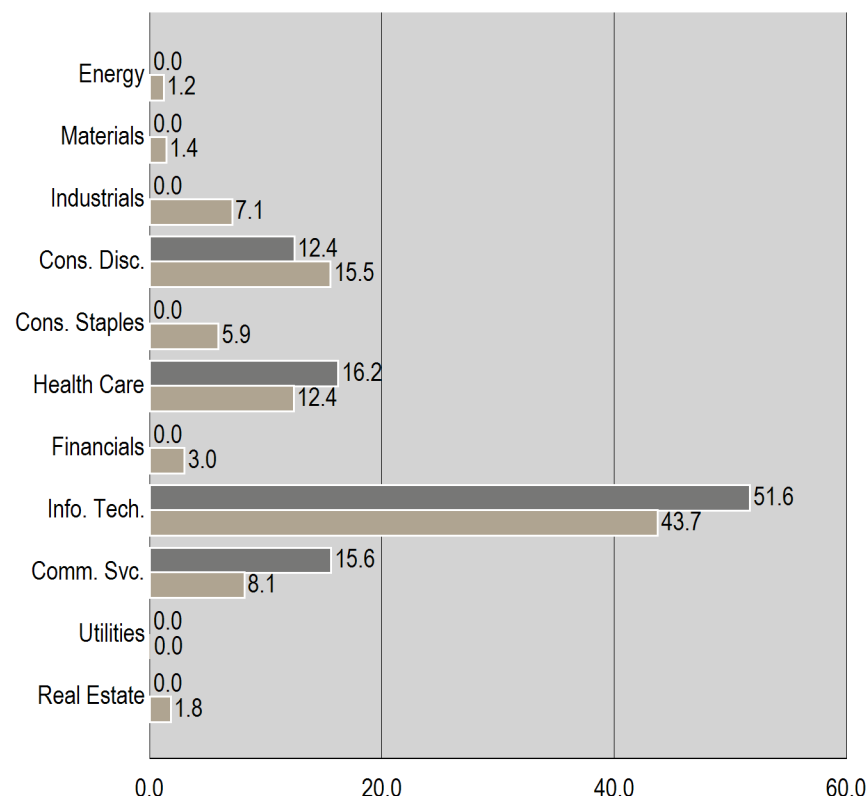
Top Holdings

ADOBE INC	7.3%
MASTERCARD INC	7.3%
MICROSOFT CORP	7.2%
AMAZON.COM INC	7.2%
VISA INC	7.1%
META PLATFORMS INC	6.3%
SALESFORCE INC	5.0%
ABBOTT LABORATORIES	4.7%
SERVICENOW INC	4.6%
UNITEDHEALTH GROUP INC	4.5%
Total	61.3%

Market Capitalization

	Small Cap	Mid Cap	Large Cap
Polen Focus Growth	0.0%	6.8%	93.2%
Russell 1000 Growth	1.3%	14.9%	83.9%
<i>Weight Over/Under</i>	-1.3%	-8.1%	9.4%

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	3,224	3,678
Weighted Avg. Market Cap. (\$B)	9.4	9.3
Median Market Cap. (\$B)	0.7	0.6
Price To Earnings	13.7	13.7
Price To Book	2.6	2.6
Price To Sales	1.5	1.5
Return on Equity (%)	4.2	4.1
Yield (%)	1.5	1.5

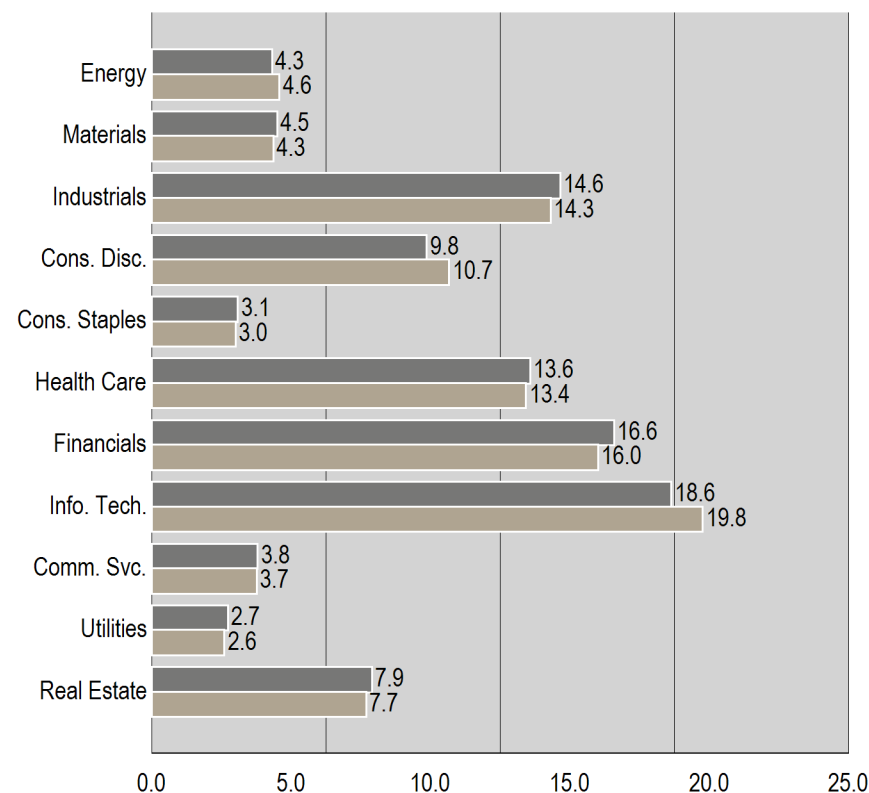
Top Holdings

BLACKSTONE GROUP INC	1.2%
PALO ALTO NETWORKS INC	0.9%
MARVELL TECHNOLOGY INC	0.7%
CROWDSTRIKE HOLDINGS INC	0.7%
UBER TECHNOLOGIES INC	0.6%
LULULEMON ATHLETICA INC	0.6%
CHENIERE ENERGY INC.	0.6%
BLOCK INC	0.6%
WORKDAY INC	0.5%
VEEVA SYSTEMS INC	0.5%
Total	6.8%

Market Capitalization

	Small Cap	Mid Cap	Large Cap
Northern Trust Dow Jones Completion Index	31.1%	64.3%	4.6%
Dow Jones U.S. Completion Total Stock Market	36.3%	59.5%	4.2%
<i>Weight Over/Under</i>	-5.2%	4.8%	0.4%

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	65	1,371
Weighted Avg. Market Cap. (\$B)	2.5	2.3
Median Market Cap. (\$B)	1.7	0.9
Price To Earnings	9.9	10.5
Price To Book	1.8	1.5
Price To Sales	0.6	1.1
Return on Equity (%)	12.6	6.4
Yield (%)	1.5	2.3

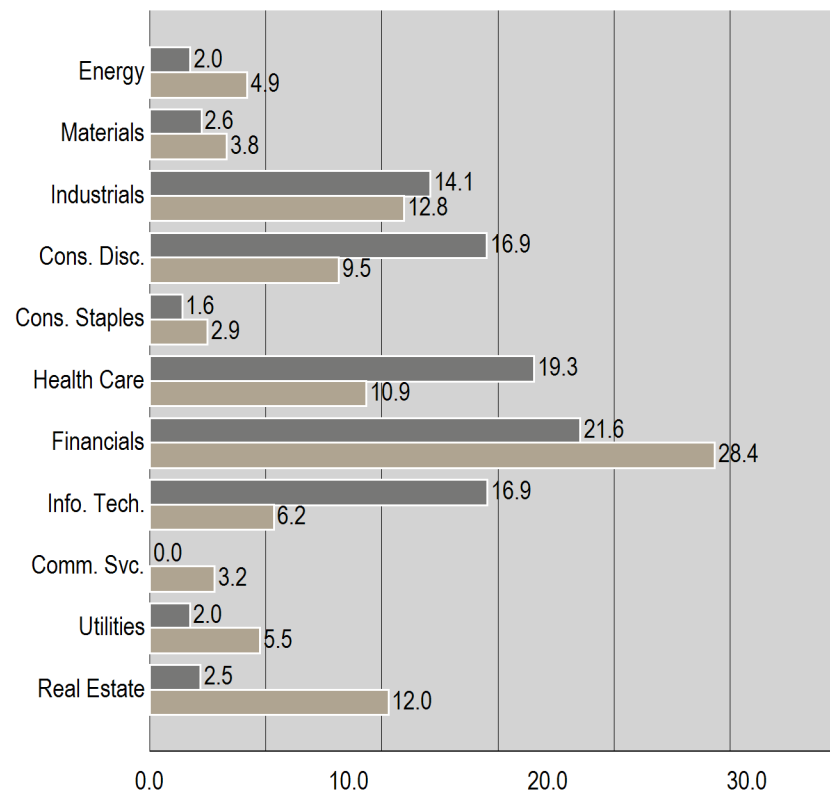
Top Holdings

DYCOM INDUSTRIES INC.	2.9%
GROUP 1 AUTOMOTIVE INC.	2.7%
ENCORE CAPITAL GROUP INC	2.5%
LITHIA MOTORS INC.	2.4%
NEXTGEN HEALTHCARE INC	2.4%
SELECTIVE INSURANCE GROUP INC	2.3%
OWENS & MINOR INC.	2.3%
SELECT MEDICAL HOLDINGS CORP	2.1%
EAGLE PHARMACEUTICALS INC	2.1%
ATLAS AIR WORLDWIDE HOLDINGS INC.	2.1%
Total	23.7%

Market Capitalization

	Small Cap	Mid Cap	Large Cap
Smith, Graham & Co Small Cap Value	82.4%	17.6%	0.0%
Russell 2000 Value	82.0%	18.0%	0.0%
<i>Weight Over/Under</i>	<i>0.5%</i>	<i>-0.5%</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 2000
Number of Holdings	61	1,941
Weighted Avg. Market Cap. (\$B)	3.4	2.6
Median Market Cap. (\$B)	3.0	1.1
Price To Earnings	16.1	12.8
Price To Book	2.7	2.2
Price To Sales	1.5	1.4
Return on Equity (%)	20.3	5.4
Yield (%)	2.2	1.6

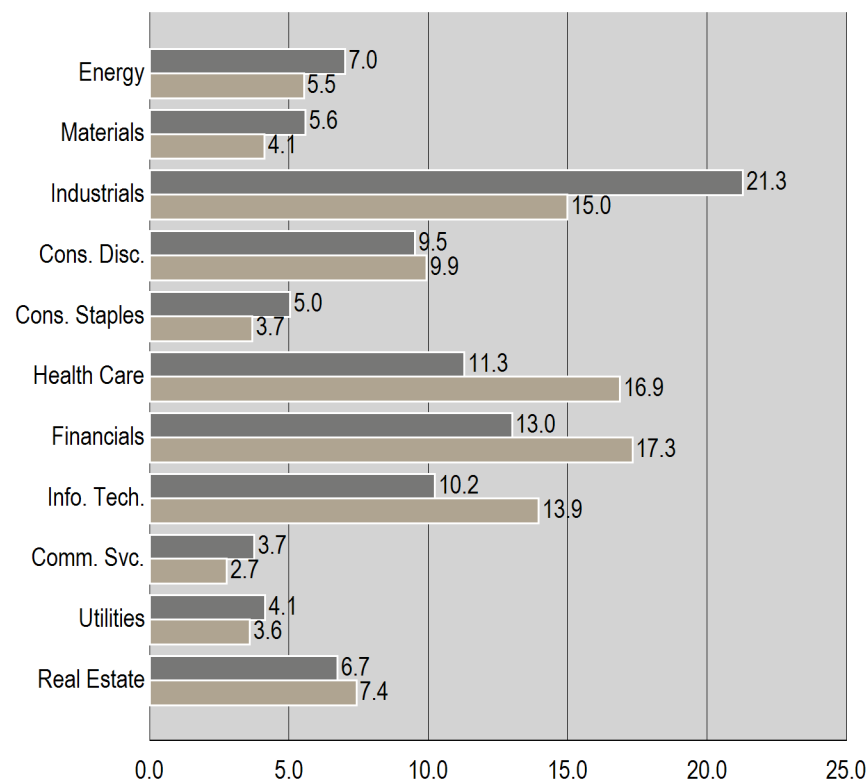
Top Holdings

NORTHERN OIL AND GAS INC	2.7%
ENSIGN GROUP INC (THE)	2.7%
US PHYSICAL THERAPY INC	2.5%
OASIS PETROLEUM INC	2.4%
BANK OZK	2.3%
LEMAITRE VASCULAR INC	2.3%
CHEMED CORP	2.3%
ALGONQUIN POWER & UTILITIES CORP	2.1%
NEXSTAR MEDIA GROUP INC.	2.1%
CHESAPEAKE UTILITIES CORP.	2.1%
Total	23.5%

Market Capitalization

	Small Cap	Mid Cap	Large Cap
Copeland Small Cap Dividend Growth	54.1%	45.9%	0.0%
Russell 2000	75.6%	24.4%	0.0%
<i>Weight Over/Under</i>	<i>-21.5%</i>	<i>21.5%</i>	<i>0.0%</i>

Sector Allocation (%) vs Russell 2000



As of June 30, 2022

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	116	1,102
Weighted Avg. Market Cap. (\$B)	3.2	2.9
Median Market Cap. (\$B)	2.4	1.2
Price To Earnings	20.4	17.1
Price To Book	3.4	3.6
Price To Sales	2.5	1.7
Return on Equity (%)	5.4	3.7
Yield (%)	0.5	0.8

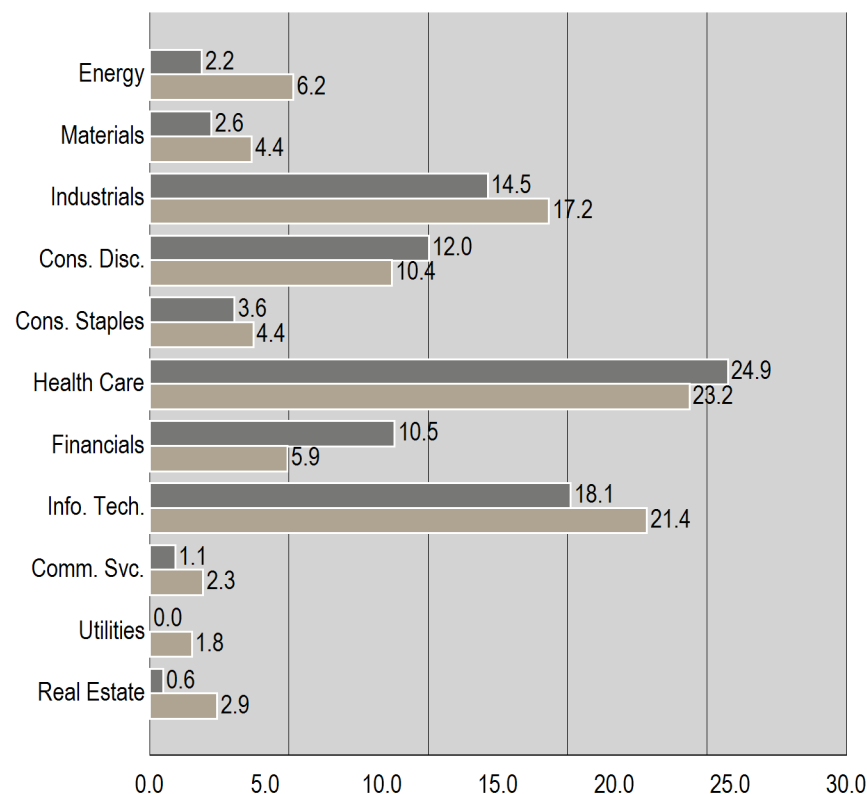
Top Holdings

CHART INDUSTRIES INC	3.0%
SIMPLY GOOD FOODS CO (THE)	2.4%
PERFICIENT INC	2.0%
RAPID7 INC	1.9%
UNITED THERAPEUTICS CORP	1.9%
MACOM TECHNOLOGY SOLUTIONS HOLDINGS INC	1.8%
AVIENT CORP	1.8%
CHURCHILL DOWNS INC	1.8%
PALOMAR HOLDINGS INC	1.8%
ALKERMES PLC	1.7%
Total	20.0%

Market Capitalization

	Small Cap	Mid Cap	Large Cap
Emerald Small Cap Growth	65.8%	34.2%	0.0%
Russell 2000 Growth	69.4%	30.6%	0.0%
<i>Weight Over/Under</i>	<i>-3.6%</i>	<i>3.6%</i>	<i>0.0%</i>

Sector Allocation (%) vs Russell 2000 Growth



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 ACWI
Number of Holdings	2,282	2,795
Weighted Avg. Market Cap. (\$B)	325.2	313.3
Median Market Cap. (\$B)	13.4	11.9
Price To Earnings	16.2	15.8
Price To Book	3.5	3.2
Price To Sales	1.8	1.7
Return on Equity (%)	25.3	22.0
Yield (%)	1.7	2.4

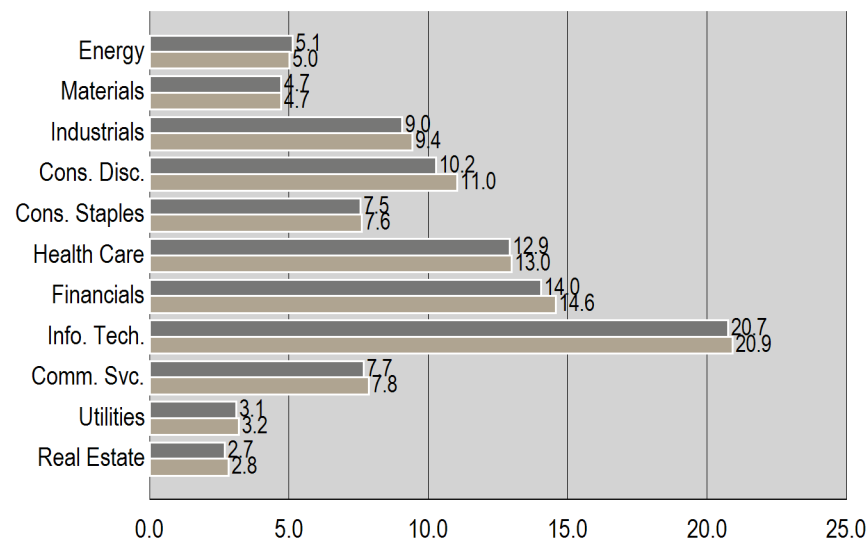
Top Holdings

APPLE INC	4.0%
MICROSOFT CORP	3.3%
AMAZON.COM INC	1.8%
ALPHABET INC	1.2%
ALPHABET INC	1.1%
TESLA INC	1.1%
UNITEDHEALTH GROUP INC	0.9%
JOHNSON & JOHNSON	0.8%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	0.7%
NVIDIA CORPORATION	0.7%
Total	15.6%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
iShares MSCI ACWI	4.7%	16.1%	72.7%	6.6%
MSCI ACWI	7.0%	18.2%	74.8%	0.0%
<i>Weight Over/Under</i>	-2.4%	-2.1%	-2.1%	6.6%

Sector Allocation (%) vs MSCI ACWI



Region Allocation Summary

Region	% of Total	% of Bench	% Diff
North America ex U.S.	2.2%	3.2%	-1.0%
United States	68.3%	60.8%	7.5%
Europe Ex U.K.	10.0%	11.8%	-1.8%
United Kingdom	0.4%	3.9%	-3.5%
Pacific Basin Ex Japan	3.6%	3.1%	0.4%
Japan	9.9%	5.5%	4.4%
Emerging Markets	4.9%	11.4%	-6.5%
Other	0.8%	0.3%	0.6%
Total	100.0%	100.0%	0.0%

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	279	2,795
Weighted Avg. Market Cap. (\$B)	90.4	313.3
Median Market Cap. (\$B)	23.3	11.9
Price To Earnings	18.7	15.8
Price To Book	3.4	3.2
Price To Sales	2.0	1.7
Return on Equity (%)	22.8	22.0
Yield (%)	2.4	2.4

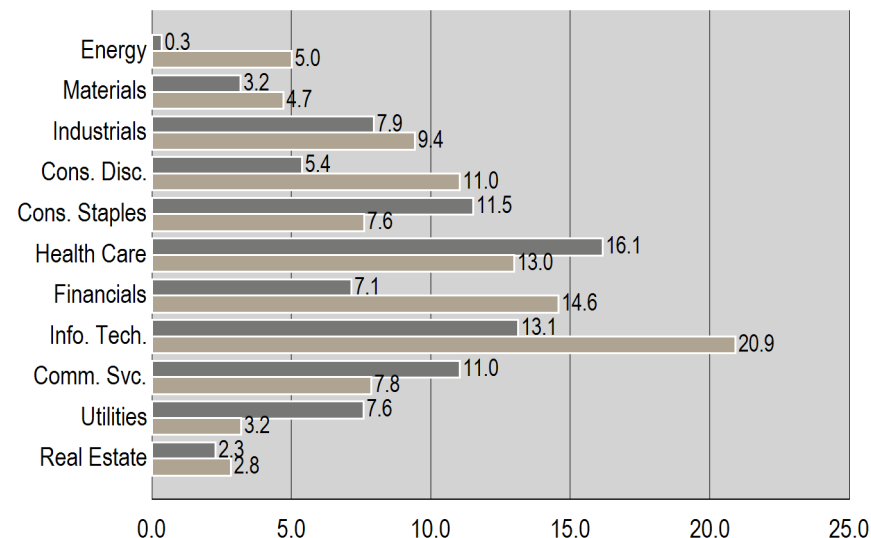
Top Holdings

ISHARES MSCI EMERGING MARKETS MIN VOL FACTOR ETF	13.2%
VERIZON COMMUNICATIONS INC	1.6%
WASTE MANAGEMENT INC.	1.6%
JOHNSON & JOHNSON	1.5%
ROCHE HOLDING AG	1.4%
MERCK & CO INC	1.3%
PEPSICO INC	1.2%
NEWMONT CORPORATION	1.2%
ISHARES MSCI GLOBAL MIN VOL FACTOR ETF	1.2%
NESTLE SA, CHAM UND VEVEY	1.2%
Total	25.3%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
Rhumbline Global Min. Volatility	19.2%	19.4%	61.1%	0.2%
MSCI ACWI	7.0%	18.2%	74.8%	0.0%
<i>Weight Over/Under</i>	<i>12.2%</i>	<i>1.2%</i>	<i>-13.6%</i>	<i>0.2%</i>

Sector Allocation (%) vs MSCI ACWI



Region Allocation Summary

Region	% of Total	% of Bench	% Diff
North America ex U.S.	2.2%	3.2%	-1.0%
United States	68.3%	60.8%	7.5%
Europe Ex U.K.	10.0%	11.8%	-1.8%
United Kingdom	0.4%	3.9%	-3.5%
Pacific Basin Ex Japan	3.6%	3.1%	0.4%
Japan	9.9%	5.5%	4.4%
Emerging Markets	4.9%	11.4%	-6.5%
Other	0.8%	0.3%	0.6%
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	1,848	881
Weighted Avg. Market Cap. (\$B)	82.8	71.1
Median Market Cap. (\$B)	8.9	11.7
Price To Earnings	12.4	13.1
Price To Book	2.4	2.3
Price To Sales	1.3	1.3
Return on Equity (%)	14.9	14.8
Yield (%)	3.4	3.5

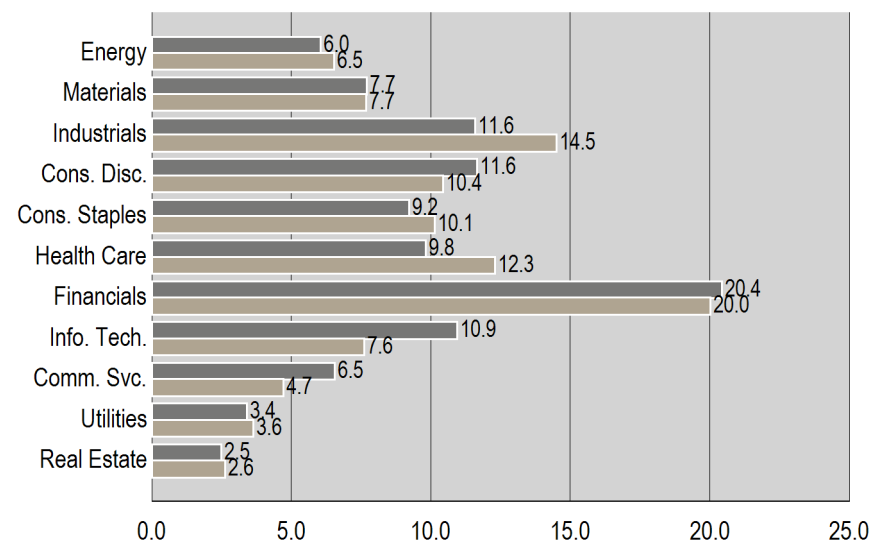
Top Holdings

TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	1.8%
NESTLE SA, CHAM UND VEVEY	1.5%
TENCENT HOLDINGS LTD	1.3%
ROCHE HOLDING AG	1.1%
ALIBABA GROUP HOLDING LTD	1.0%
SAMSUNG ELECTRONICS CO LTD	1.0%
ASTRAZENECA PLC	0.9%
SHELL PLC	0.9%
ASML HOLDING NV	0.9%
NOVO NORDISK 'B'	0.9%
Total	11.2%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
SSGA MSCI World ex US	12.5%	25.6%	56.1%	5.9%
MSCI World ex USA	10.3%	27.4%	62.3%	0.0%
<i>Weight Over/Under</i>	2.2%	-1.9%	-6.2%	5.9%

Sector Allocation (%) vs MSCI World ex USA



Region Allocation Summary

Region	% of Total	% of Bench	% Diff
North America ex U.S.	8.1%	11.6%	-3.5%
United States	0.7%	0.0%	0.7%
Europe Ex U.K.	32.2%	42.5%	-10.3%
United Kingdom	7.7%	14.2%	-6.5%
Pacific Basin Ex Japan	9.7%	11.3%	-1.6%
Japan	13.8%	19.8%	-6.0%
Emerging Markets	26.4%	0.0%	26.4%
Other	1.4%	0.7%	0.7%
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	27	792
Weighted Avg. Market Cap. (\$B)	89.7	73.5
Median Market Cap. (\$B)	40.3	11.7
Price To Earnings	20.3	13.2
Price To Book	3.9	2.4
Price To Sales	2.5	1.3
Return on Equity (%)	-1.6	15.0
Yield (%)	1.0	3.6

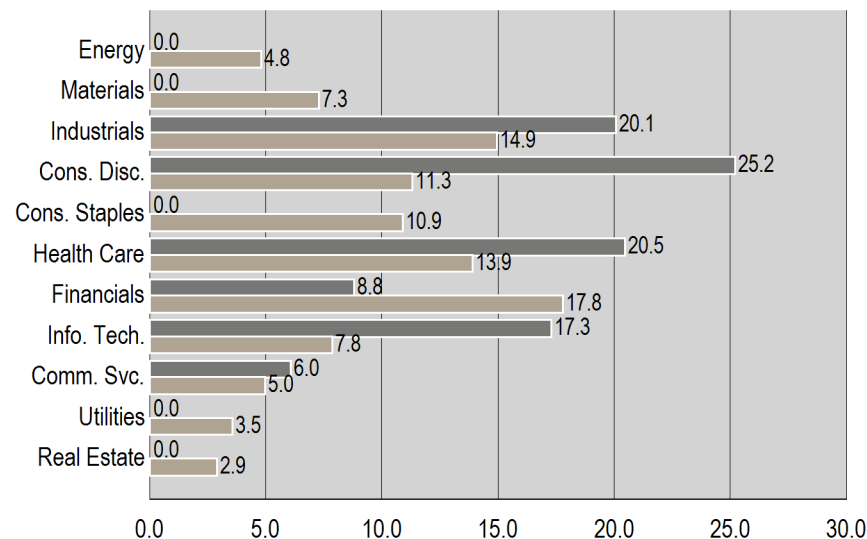
Top Holdings

PROSUS ORD	6.0%
AIA GROUP LTD	6.0%
ASTRAZENECA PLC	5.5%
GENMAB A/S	5.3%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	5.1%
DEUTSCHE TELEKOM AG	5.1%
WUXI BIOLOGICS (CAYMAN) INC	5.0%
SAFRAN SA	4.9%
MEITUAN DIANPING USD0.00001 A B CLASS ISIN KYG596691041	4.8%
AIRBUS SE	4.7%
Total	52.5%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
Hardman Johnston Int'l Equity	14.1%	18.7%	65.0%	2.2%
MSCI EAFE	10.4%	27.8%	61.8%	0.0%
<i>Weight Over/Under</i>	3.7%	-9.1%	3.3%	2.2%

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.	48.6%	48.1%	0.6%
United Kingdom	9.8%	16.0%	-6.3%
Pacific Basin Ex Japan	11.7%	12.8%	-1.1%
Japan	10.4%	22.4%	-12.0%
Emerging Markets	17.9%	0.0%	17.9%
Other	1.6%	0.8%	0.8%
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	24	792
Weighted Avg. Market Cap. (\$B)	37.1	73.5
Median Market Cap. (\$B)	25.2	11.7
Price To Earnings	16.0	13.2
Price To Book	3.3	2.4
Price To Sales	1.9	1.3
Return on Equity (%)	2.6	15.0
Yield (%)	2.0	3.6

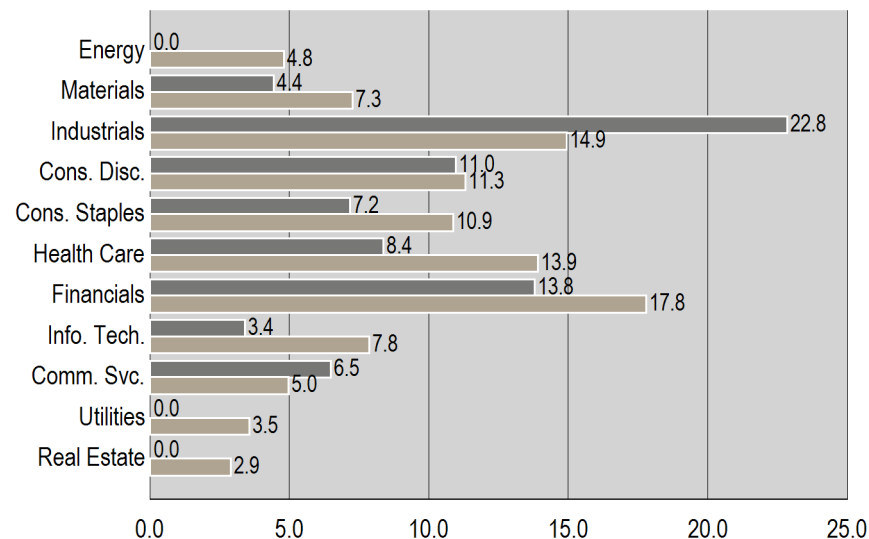
Top Holdings

BAE SYSTEMS ORD GBP0.025	7.9%
RHEINMETALL	7.7%
THALES	7.3%
FRANCO-NEVADA CORP	5.1%
ICON PLC	5.1%
DEUTSCHE BOERSE AG	4.8%
COMPASS GROUP PLC	4.7%
SHIMANO INC	4.5%
SANOFI	4.5%
ESSITY AKTIEBOLAG	4.4%
Total	56.1%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
HGK Int'l Equity	2.3%	39.4%	28.8%	29.4%
MSCI EAFE	10.4%	27.8%	61.8%	0.0%
<i>Weight Over/Under</i>	<i>-8.0%</i>	<i>11.6%</i>	<i>-32.9%</i>	<i>29.4%</i>

Sector Allocation (%) vs MSCI EAFE



Region Allocation Summary

Region	% of Total	% of Bench	% Diff
North America ex U.S.	8.5%	0.0%	8.5%
United States	6.7%	0.0%	6.7%
Europe Ex U.K.	42.9%	48.1%	-5.1%
United Kingdom	19.4%	16.0%	3.4%
Pacific Basin Ex Japan	3.9%	12.8%	-8.9%
Japan	11.5%	22.4%	-10.9%
Emerging Markets	7.0%	0.0%	7.0%
Other	0.0%	0.8%	-0.8%
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	1,229	1,290
Weighted Avg. Market Cap. (\$B)	109.6	110.0
Median Market Cap. (\$B)	6.3	6.3
Price To Earnings	10.9	11.1
Price To Book	2.4	2.5
Price To Sales	1.0	1.1
Return on Equity (%)	14.5	14.5
Yield (%)	3.3	3.3

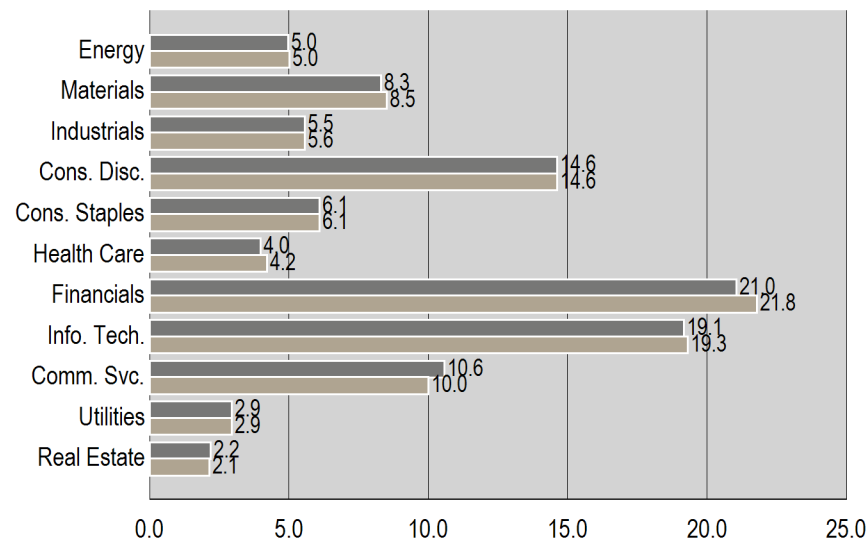
Top Holdings

TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	6.1%
TENCENT HOLDINGS LTD	4.3%
ALIBABA GROUP HOLDING LTD	3.3%
SAMSUNG ELECTRONICS CO LTD	3.2%
MEITUAN DIANPING USD0.00001 A B CLASS ISIN KYG596691041	1.6%
RELIANCE INDUSTRIES LTD	1.5%
JD.COM INC	1.0%
CHINA CONSTRUCTION BANK CORP	1.0%
INFOSYS LTD	1.0%
VALE SA	0.9%
Total	23.9%

Market Capitalization

	Small Cap	Mid Cap	Large Cap	Unclassified
SSGA MSCI Emerging Markets Index	7.5%	21.7%	62.0%	8.7%
MSCI Emerging Markets	16.5%	21.8%	61.8%	0.0%
<i>Weight Over/Under</i>	-8.9%	0.0%	0.2%	8.7%

Sector Allocation (%) vs MSCI Emerging Markets

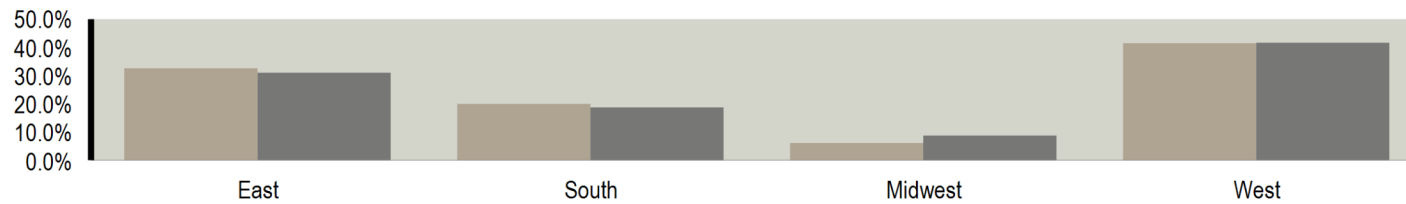


Region Allocation Summary

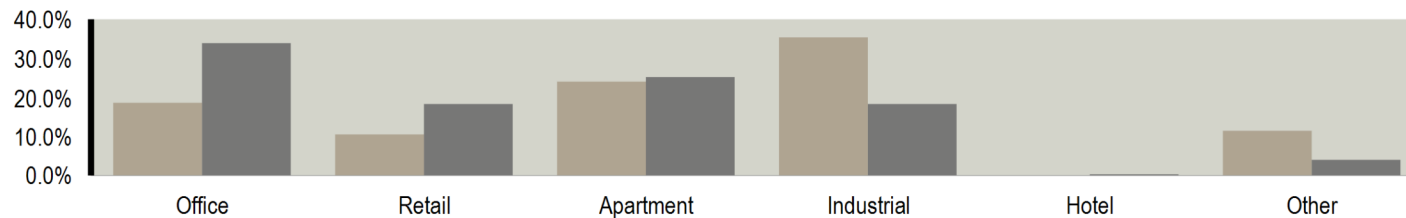
Region	% of Total	% of Bench	% Diff
North America ex U.S.	0.0%	0.0%	0.0%
United States	1.3%	0.0%	1.3%
Europe Ex U.K.	0.3%	0.3%	0.0%
United Kingdom	0.0%	0.0%	0.0%
Pacific Basin Ex Japan	6.9%	0.0%	6.9%
Japan	0.0%	0.0%	0.0%
Emerging Markets	88.8%	98.9%	-10.1%
Other	2.7%	0.8%	1.9%
Total	100.0%	100.0%	0.0%

Characteristics		Strategy Breakdown		Top Five Metro Areas	
Fund GAV (\$MM)	\$36,628.0	Pre-Development	0.7%	Los Angeles-Long Beach, CA	22.6%
Fund NAV (\$MM)	\$29,980.0	Development	4.1%	New York-Newark, NY-NJ-CT-F	14.2%
Cash (% of NAV)	1.6%	Initial Leasing	0.6%	Washington-Baltimore-Arlington	10.5%
# of Investments	293	Operating	94.7%	San Jose-San Francisco-Oakland	6.8%
% in Top 10 by NAV	19.6%	Re-Development		Boston-Worcester-Providence,	5.3%
Leverage %	19.2%	Other			
Occupancy	93.4%				
# of MSAs	45	Queue In:		Queue Out:	
1-Year Dividend Yield	3.3%	Contribution Queue (\$MM)	\$772.30	Redemption Queue (\$MM)	\$258.59
As of Date	30-Jun-22	Anticipated Drawdown (Months)		Anticipated Payout (Months)	

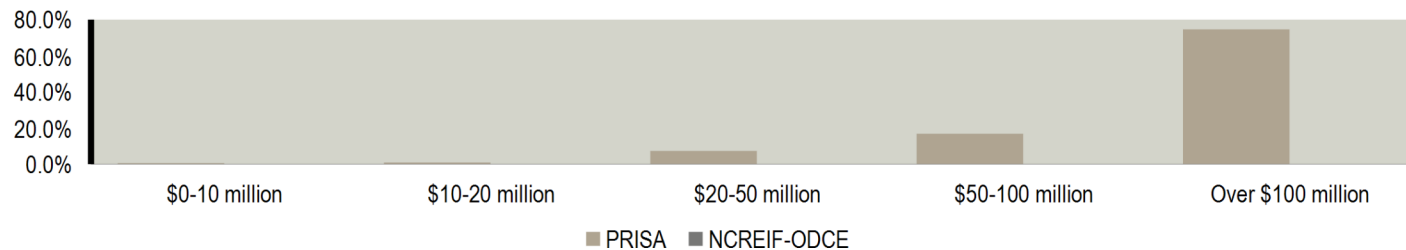
Regional Breakdown by NAV (Excluding Cash & Debt)



Property Type Breakdown by NAV (Excluding Cash & Debt)



Property Size Breakdown by NAV (Excluding Cash & Debt)



■ PRISA ■ NCREIF-ODCE

Characteristics

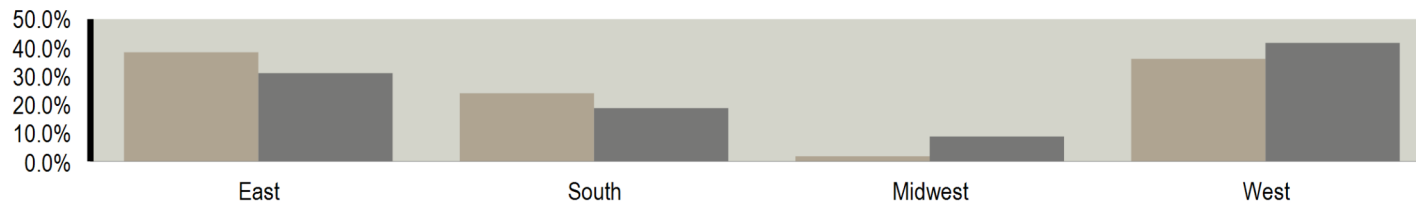
Fund GAV (\$MM)	\$17,890.0
Fund NAV (\$MM)	\$11,288.0
Cash (% of NAV)	2.7%
# of Investments	161
% in Top 10 by NAV	21.5%
Leverage %	32.1%
Occupancy	90.6%
# of MSAs	67
1-Year Dividend Yield	3.1%
As of Date	30-Jun-22

Strategy Breakdown

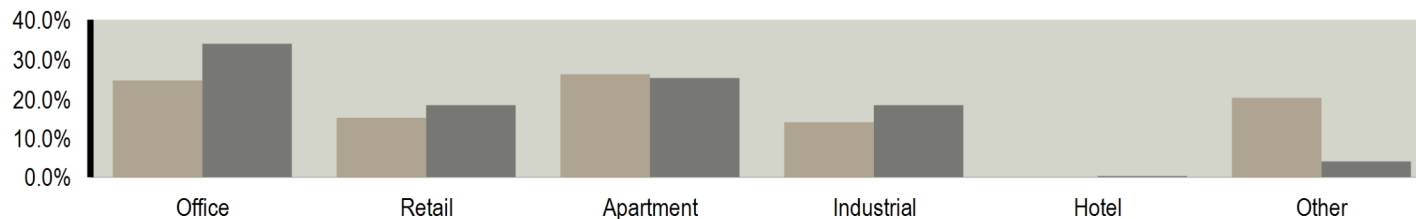
	% of Portfolio
Pre-Development	5.0%
Development	11.0%
Initial Leasing	11.4%
Operating	71.5%
Re-Development	
Other	1.0%
<u>Queue In:</u>	
Contribution Queue (\$MM)	\$0.00
Anticipated Drawdown (Months)	0

Top Five Metro Areas	% of NAV
Northern NJ	8.2%
San Francisco	8.1%
Boston	7.5%
San Jose	5.5%
Fort Lauderdale	4.9%
<u>Queue Out:</u>	
Redemption Queue (\$MM)	\$0.00
Anticipated Payout (Months)	0

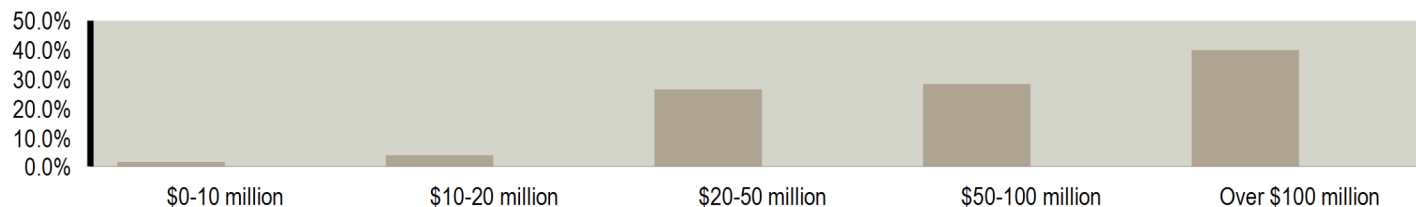
Regional Breakdown by NAV (Excluding Cash & Debt)



Property Type Breakdown by NAV (Excluding Cash & Debt)



Property Size Breakdown by NAV (Excluding Cash & Debt)



■ PRISA II ■ NCREIF-ODCE

Characteristics

Fund GAV (\$MM)	\$279.4
Fund NAV (\$MM)	\$259.7
Cash (% of NAV)	0.0%
# of Investments	8
Occupancy	67.0%
NOI	5.9%
Loan to Value	7.1%
As of Date	6/30/2021

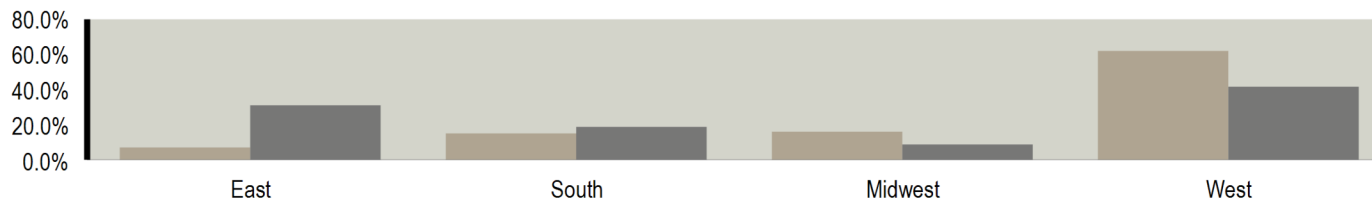
Asset Summary

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

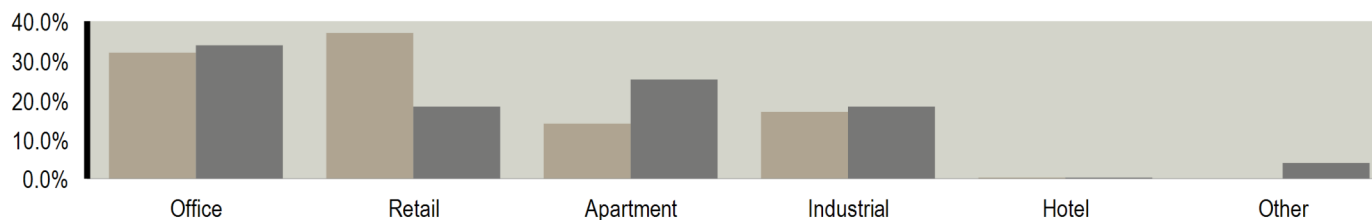
Portfolio Allocation

#	Property	Type	Location	% of Fund NAV
1	Copley Corporate Center	Office	San Diego, CA	18.2%
2	SR Ranch	Retail	San Diego, CA	16.1%
3	Des Peres Corners	Retail	Des Peres, MO	15.8%
4	708 Uptown	Apartment	Seattle, WA	14.6%
5	Fairway Center II	Office	Brea, CA	13.0%
6	Republic Distribution Center	Industrial	Houston, TX	10.3%
7	526 Route 46	Industrial	Teterboro, NJ	6.9%
8	Shoppes at Monarch Lakes	Retail	Miramar, FL	5.0%
Total				100.0%

Regional Breakdown by NAV



Property Type Breakdown by NAV



Net Assets (\$MM) 144.2

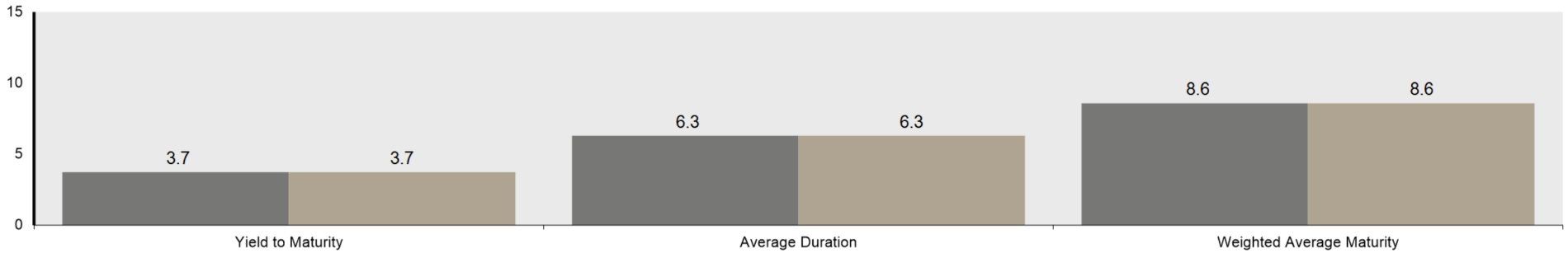
Portfolio Allocation

#	Property	Type	Location	% of Fund NAV
1	Bear Island	Pine	Virginia	5.5%
2	Fitz-Weller	Pine	New York	3.9%
3	Carter Pasture	Douglas Fir/Cedar	Texas	6.4%
4	Dupont	Douglas Fir/Hemlock	Georgia	22.4%
5	Bennetts Creek	Maple/Oak/Cherry	North Carolina	5.9%
6	Black River	Pine	South Carolina	16.1%
7	Coquille	Pine	Oregon	16.3%
8	Bucktails	Pine	Pennsylvania	10.1%
9	North River	Maple/Oak	Washington	13.4%
Total				100.0%

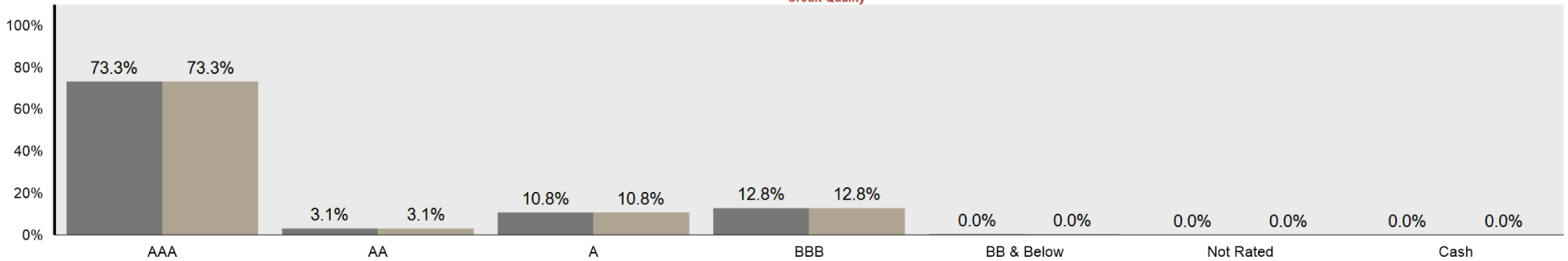
Regional Breakdown by NAV



Yield to Maturity



Credit Quality



US Sector

