

# Employees' Retirement System of the City of Norfolk

## Third Quarter 2023

### Fund Evaluation Report

## Agenda

1. Economic and Market Update
2. Executive Summary
3. Third Quarter 2023 Fund Evaluation Report
4. Disclaimer, Glossary and Notes

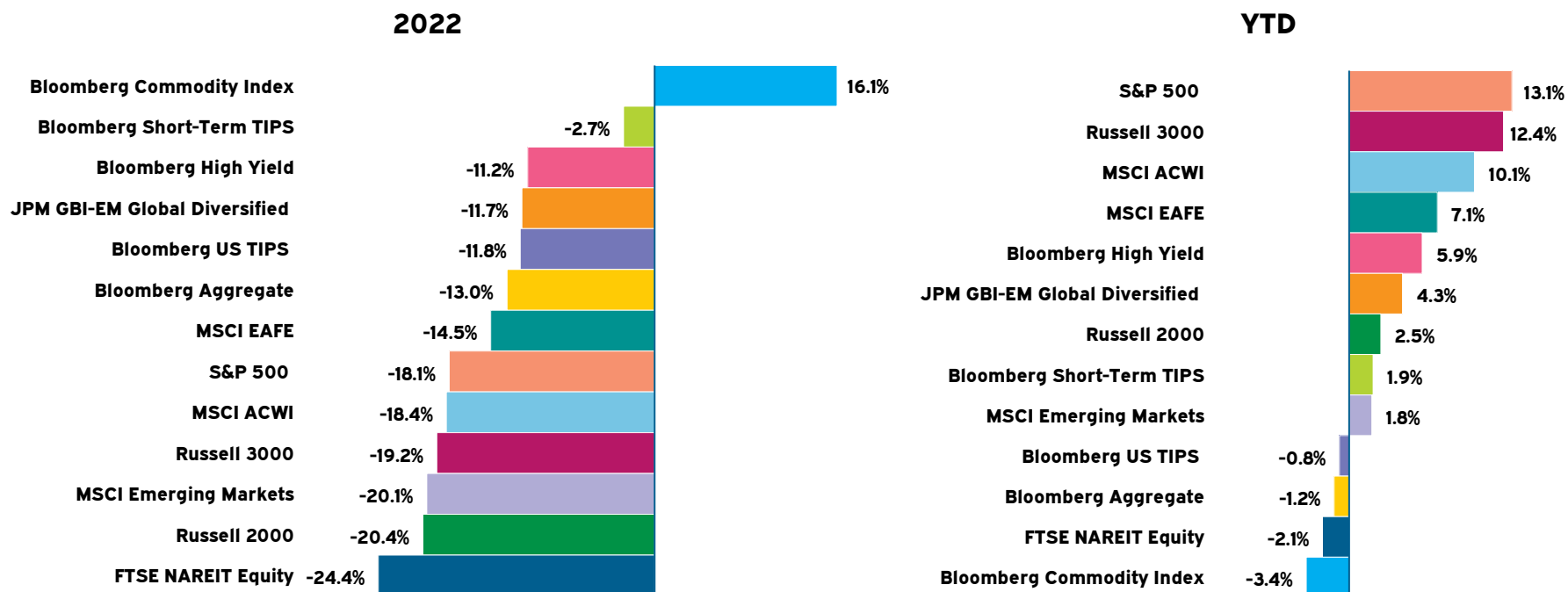
## **Economic and Market Update**

Data as of September 30, 2023

### Commentary

- After a strong July, global assets turned negative in August and September as expectations shifted to the Fed keeping interest rates higher for longer. Weakening economic data from Europe and China, as well as further instability in the Chinese real estate sector and a strong US dollar, weighed on results.
- The Federal Open Markets Committee (FOMC) increased policy rates in July by 0.25% to a range of 5.25% - 5.5% and kept rates at that level at their September meeting. Markets are now largely expecting the FOMC to maintain interest rates at this level through the first half of next year.
  - US equity markets (Russell 3000 index) fell in the third quarter (-3.3%), bringing the year-to-date gains to 12.4%. The technology sector remains the key driver of results this year, helped by artificial intelligence optimism.
  - Non-US developed equity markets declined more than the US in the third quarter (MSCI EAFE -4.1%) with the strength of the US dollar adding 2.8% to the quarterly declines. This widened the gap between US and international developed equities for the year (12.4% versus 7.1%).
  - Emerging market equities experienced the smallest declines in the third quarter (-2.9%). Negative results were driven by China and again the strong US dollar. Emerging markets continue to significantly trail developed market equities year-to-date, returning just 1.8%, again driven by China.
  - Interest rates generally rose over the quarter, particularly for longer-dated maturities. The broad US bond market fell (-3.2%) for the quarter and turned negative (-1.2%) year-to-date, as higher income has offset capital losses from rising rates.
- For the rest of this year, the paths of inflation and monetary policy, slowing global growth, and the wars in Ukraine and Israel will all be key.

### Index Returns<sup>1</sup>



- After a particularly difficult 2022, most public market assets are up thus far in 2023, led by developed market equities.
- While hopes for a soft landing remain in place, the prospect of higher interest rates for longer weighed on market sentiment in August and September.

<sup>1</sup> Source: Bloomberg. Data is as of September 30, 2023.

### Domestic Equity Returns<sup>1</sup>

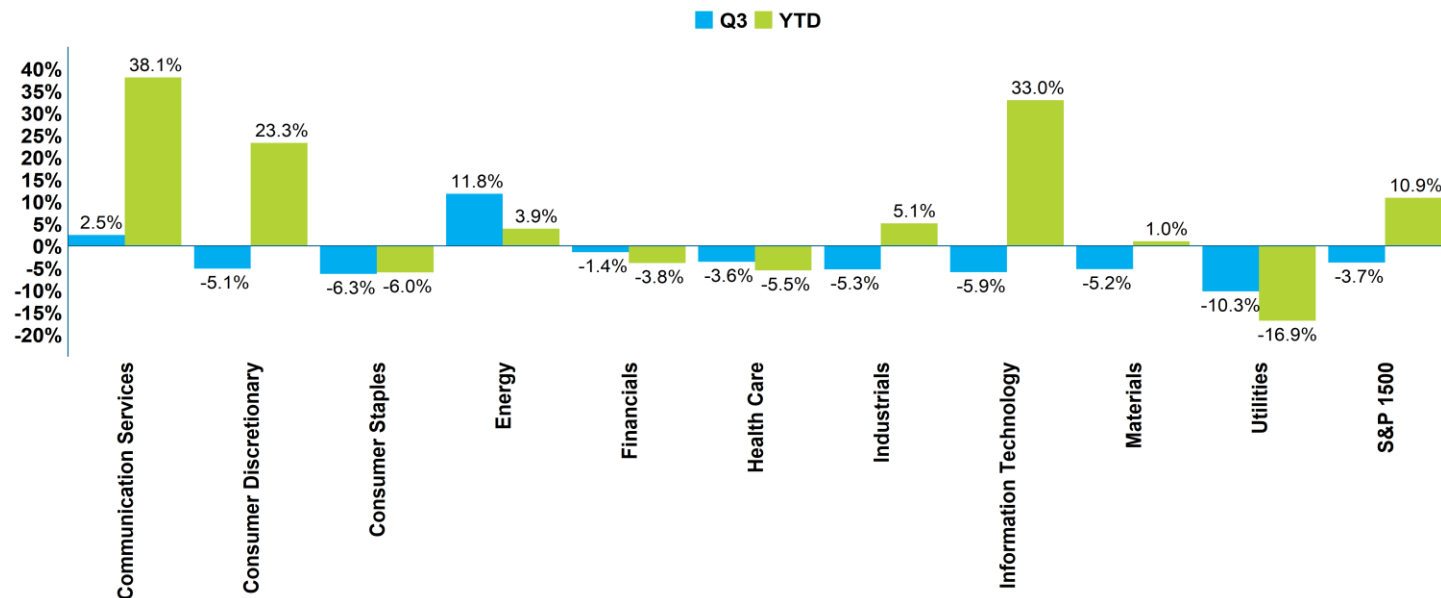
Domestic Equity	September (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	-4.8	-3.3	13.1	21.6	10.2	9.9	11.9
Russell 3000	-4.8	-3.3	12.4	20.5	9.4	9.1	11.3
Russell 1000	-4.7	-3.1	13.0	21.2	9.5	9.6	11.6
Russell 1000 Growth	-5.4	-3.1	25.0	27.7	8.0	12.4	14.5
Russell 1000 Value	-3.9	-3.2	1.8	14.4	11.1	6.2	8.4
Russell MidCap	-5.0	-4.7	3.9	13.4	8.1	6.4	9.0
Russell MidCap Growth	-4.9	-5.2	9.9	17.5	2.6	7.0	9.9
Russell MidCap Value	-5.1	-4.5	0.5	11.0	11.0	5.2	7.9
Russell 2000	-5.9	-5.1	2.5	8.9	7.2	2.4	6.6
Russell 2000 Growth	-6.6	-7.3	5.2	9.6	1.1	1.6	6.7
Russell 2000 Value	-5.2	-3.0	-0.5	7.8	13.3	2.6	6.2

### US Equities: The Russell 3000 Index fell 3.3% in the third quarter but is up 12.4% YTD.

- US stocks fell 3.3% in the third quarter as healthy economic data and comments from the Fed caused investors to expect interest rates to remain higher for longer.
- Large cap stocks outperformed small cap stocks during the quarter, bringing their year-to-date outperformance to over 10%. The so called “Magnificent Seven” within the large cap market drove most of this outperformance despite a weak third quarter.
- Energy strongly led the way during the quarter posting double-digit gains while most other sectors declined. Oil prices rose after Saudi Arabia and Russia extended output cuts.

<sup>1</sup> Source: Bloomberg. Data is as of September 30, 2023.

### S&P 1500 Sector Returns<sup>1</sup>



→ Except for energy, which benefited from rising oil prices, all sectors were down in the third quarter.

→ So far in 2023, the communication services (+38.1%) and technology (+33.0%) sectors had the best results on artificial intelligence optimism. Given the continued strength in the US consumer the consumer discretionary sector followed (+23.3%), while more defensive sectors like utilities (-16.9%) and consumer staples (-6.0%) have trailed.

<sup>1</sup> Source: Bloomberg. Data is as of September 30, 2023.

### Foreign Equity Returns<sup>1</sup>

Foreign Equity	September (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	-3.2	-3.8	5.3	20.4	3.7	2.6	3.3
MSCI EAFE	-3.4	-4.1	7.1	25.6	5.8	3.2	3.8
MSCI EAFE (Local Currency)	-1.1	-1.3	10.7	20.3	10.8	5.7	6.8
MSCI EAFE Small Cap	-4.4	-3.5	1.8	17.9	1.1	0.8	4.3
MSCI Emerging Markets	-2.6	-2.9	1.8	11.7	-1.7	0.6	2.1
MSCI Emerging Markets (Local Currency)	-1.8	-1.4	4.0	10.9	0.6	2.7	4.9
MSCI China	-2.8	-1.9	-7.3	5.2	-14.3	-4.2	1.7

**Foreign Equity: Developed international equities (MSCI EAFE) fell 4.1% in the third quarter bringing the YTD gain to 7.1%. Emerging market equities (MSCI EM) fell 2.9% in the period, rising 1.8% YTD.**

- Outside of the US, equities were also weak during the third quarter with the continued strength of the US dollar being a key driver.
- Eurozone shares felt pressure from slowing GDP growth and an interest rate hike by the ECB, although inflation continued to ease. By contrast, the UK saw modest gains amid promising economic data including slowing inflation and GDP back around pre-pandemic levels. Japan outperformed regional peers for the quarter due in part to strong earnings.
- Emerging market performance, while negative, outpaced developed peers. Chinese markets saw losses in-line with other emerging market countries, driven largely by unease surrounding property company Evergrande and a continued lackluster reopening of the economy.

<sup>1</sup> Source: Bloomberg. Data is as of September 30, 2023.



## Fixed Income Returns<sup>1</sup>

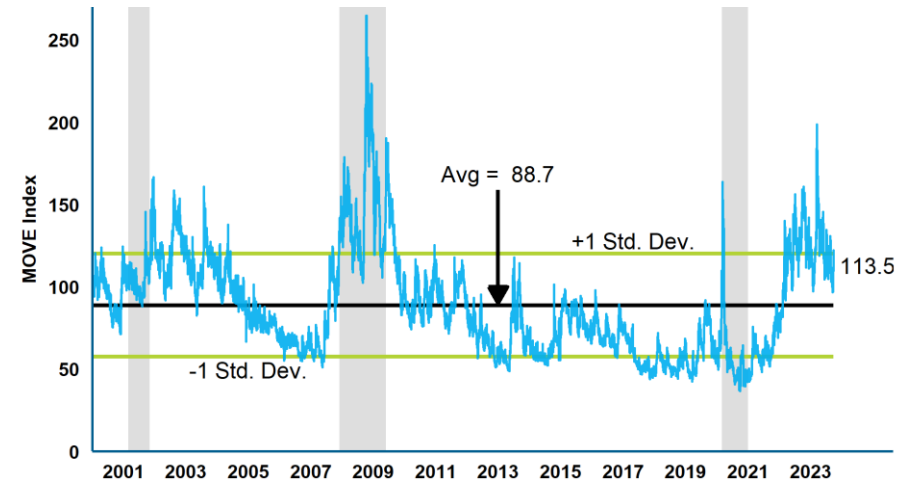
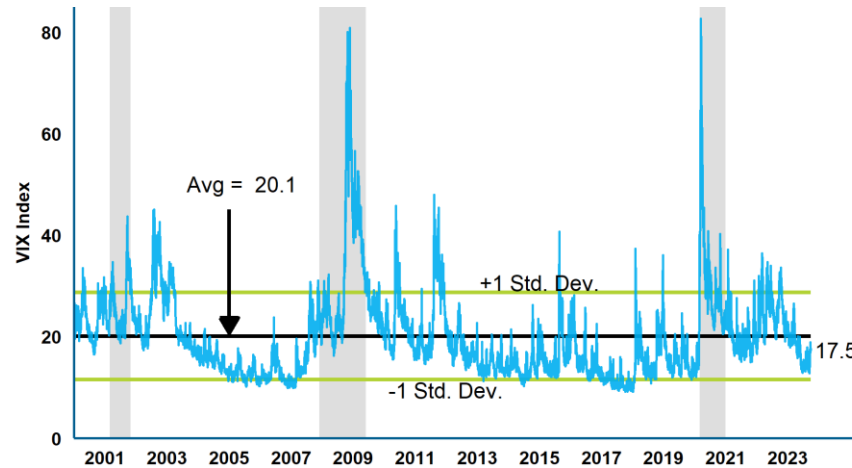
Fixed Income	September (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	-2.4	-2.9	-0.6	1.6	-4.7	0.3	1.4	5.7	6.0
Bloomberg Aggregate	-2.5	-3.2	-1.2	0.6	-5.2	0.1	1.1	5.4	6.2
Bloomberg US TIPS	-1.8	-2.6	-0.8	1.2	-2.0	2.1	1.7	5.0	6.6
Bloomberg Short-term TIPS	-0.2	0.4	1.9	3.2	1.9	2.8	1.7	5.4	2.5
Bloomberg High Yield	-1.2	0.5	5.9	10.3	1.8	3.0	4.2	8.9	4.0
JPM GBI-EM Global Diversified (USD)	-3.4	-3.3	4.3	13.1	-2.7	0.0	-0.8	6.9	4.9

### Fixed Income: The Bloomberg Universal index declined 2.9% in the third quarter and -0.6% YTD.

- The downgrade of US government debt from AAA to AA+ by Fitch combined with expectations for higher borrowing put upward pressure on longer-term rates for the quarter and weighed on overall results. Expectations for policy rates to remain higher for longer than previously expected also contributed to the decline in bonds.
- The broad US bond market (Bloomberg Aggregate) fell 3.2% for the quarter bringing YTD results into negative territory. The broader TIPS index fell by 2.6%, while the less interest-rate-sensitive short-term TIPS index outperformed most sectors, up 0.4%.
- High yield bonds were the strongest quarterly performers, up 0.5%, while emerging market bonds were the weakest performer, falling 3.3%. The two asset classes remain the top performers for the year as risk appetite in credit markets remains robust.

<sup>1</sup> Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of September 30, 2023. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration respectively.

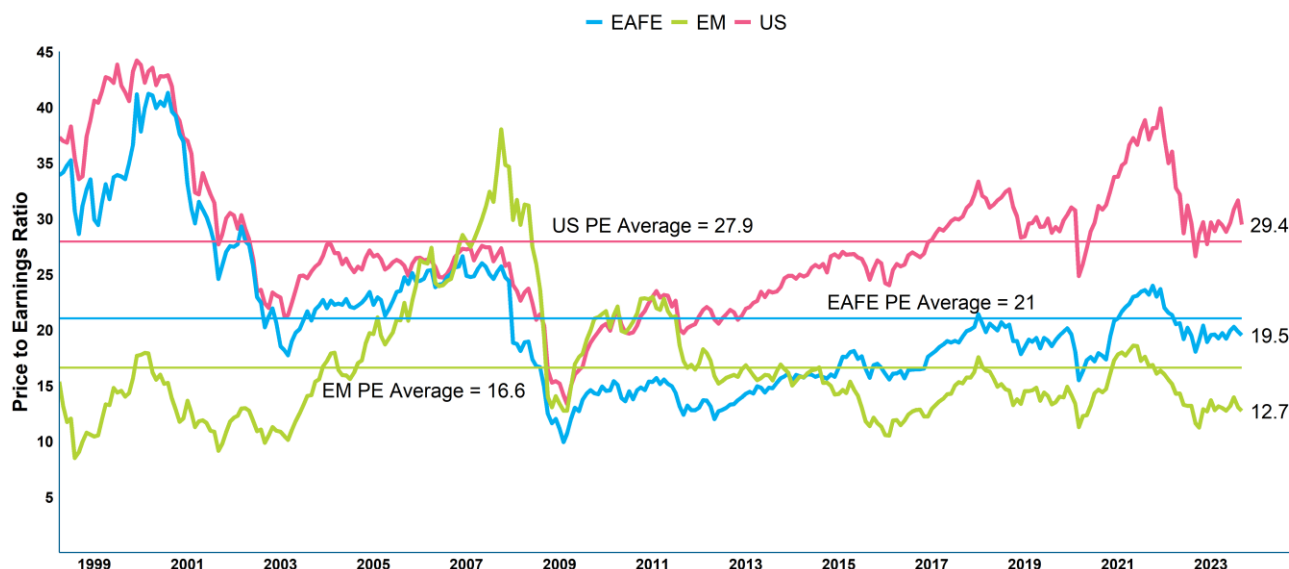
### Equity and Fixed Income Volatility<sup>1</sup>



- Volatility in equities (VIX) increased over the quarter but finished at a level below the long-term average. The recent increase in equity volatility has largely been driven by investors coming to terms that interest rates might remain higher for a longer period.
- In comparison, volatility in the bond market (MOVE) remains well above its long-run average (88.7) after last year's historic losses and due to continued policy uncertainty. Over the quarter, fixed income volatility finished slightly higher compared to where it started, like equities, driven by expectations for rates to stay higher for longer.

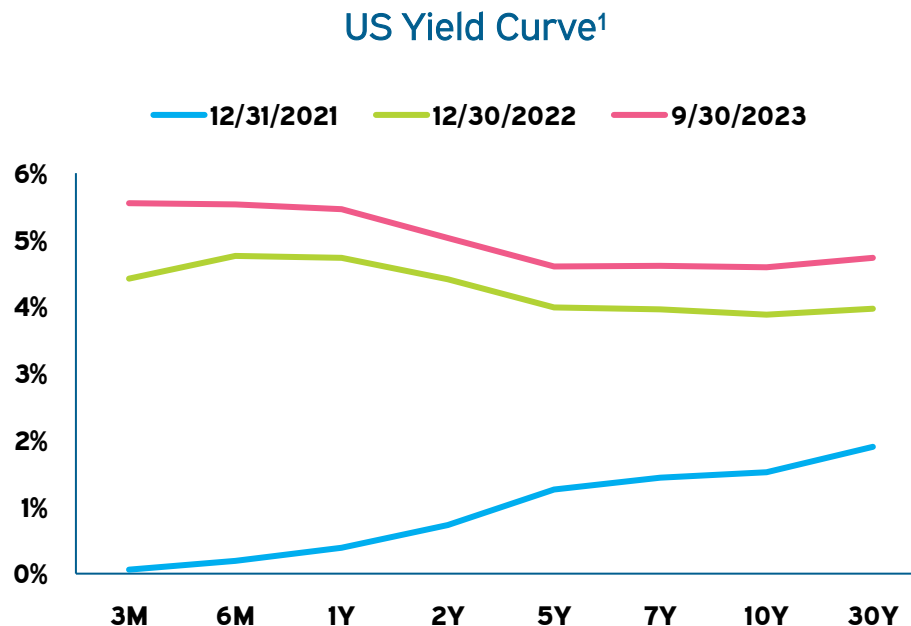
<sup>1</sup> Equity Volatility – Source: FRED. Fixed Income Volatility – Source: Bloomberg. Implied volatility as measured using VIX Index for equity markets and the MOVE Index to measure interest rate volatility for fixed income markets. Data is as of September 2023. The average line indicated is the average of the VIX and MOVE values between January 2000 and September 2023.

### Equity Cyclically Adjusted P/E Ratios<sup>1</sup>



- Given the strong technology-driven rally this year, the US equity price-to-earnings ratio increased above its long-run (21st century) average. With the equity market decline in August and September the P/E ratio fell from its recent peak.
- International developed market valuations are below their own long-term average, with those for emerging markets the lowest and well under the long-term average (close to one standard deviation below).

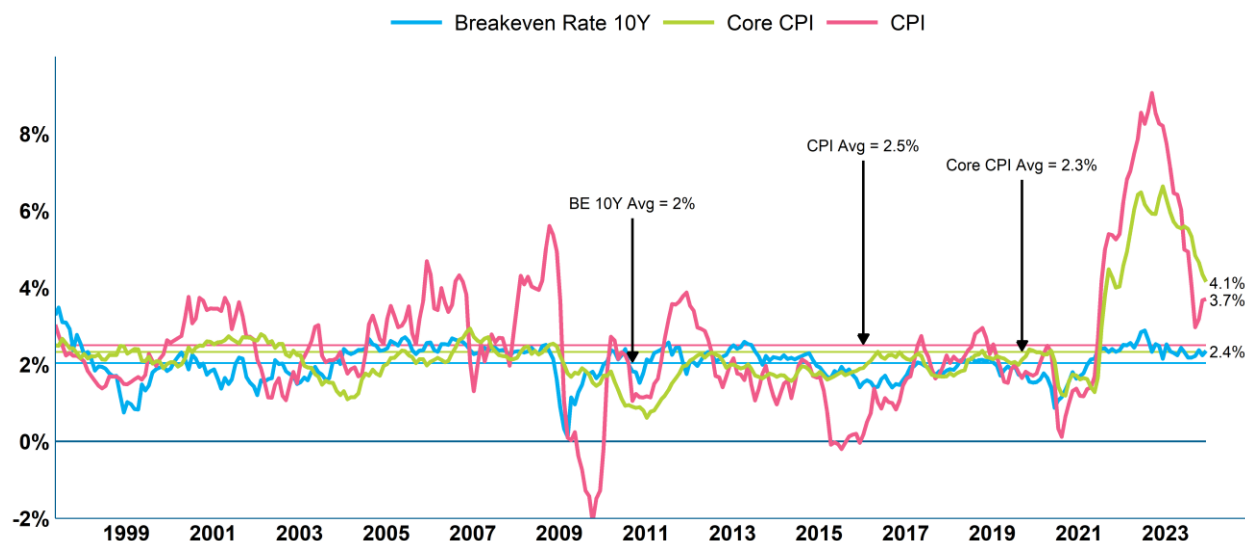
<sup>1</sup> US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years. Data is as of September 2023. The average line is the long-term average of the US, EM, and EAFE PE values from April 1998 to the recent month-end respectively.



- Overall rates have continued to increase this year, particularly at the policy sensitive front-end of the yield curve, but at much slower pace compared to last year.
- Over the quarter, very short-term interest rates (two years or less) increased only slightly as monetary policy has likely reached close to its terminal rate for this cycle. By contrast, longer-term rates rose dramatically as US debt was downgraded and investors came to terms with rates remaining higher for longer. The ten-year Treasury yield increased from 3.8% to 4.6% over the quarter.
- Because of the dynamic above, the yield curve's inversion decreased with the spread between two-year and ten-year Treasuries finishing the quarter at -0.47% (it started the quarter at -1.05%).

<sup>1</sup> Source: Bloomberg. Data is as of September 30, 2023.

### Ten-Year Breakeven Inflation and CPI<sup>1</sup>

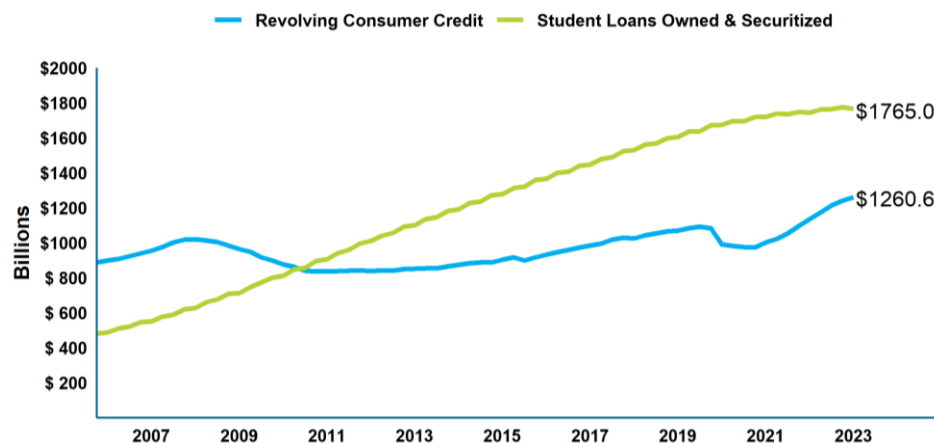


- After the steady decline in inflation from the June 2022 peak, consumer prices recently increased driven by energy prices.
- Year-over-year headline inflation was flat at 3.7% coming in slightly higher than expectations as improvements in energy prices were offset by higher shelter costs.
- Core inflation – excluding food and energy – continued its decline (4.3% to 4.1%) year-over-year. It remains stubbornly high, though, driven by shelter costs (+7.2%), particularly owners' equivalent rent, and transportation services (+9.1%).
- Inflation expectations (breakevens) remain well below current inflation as investors continue to expect inflation to track back toward the Fed's 2% average target.

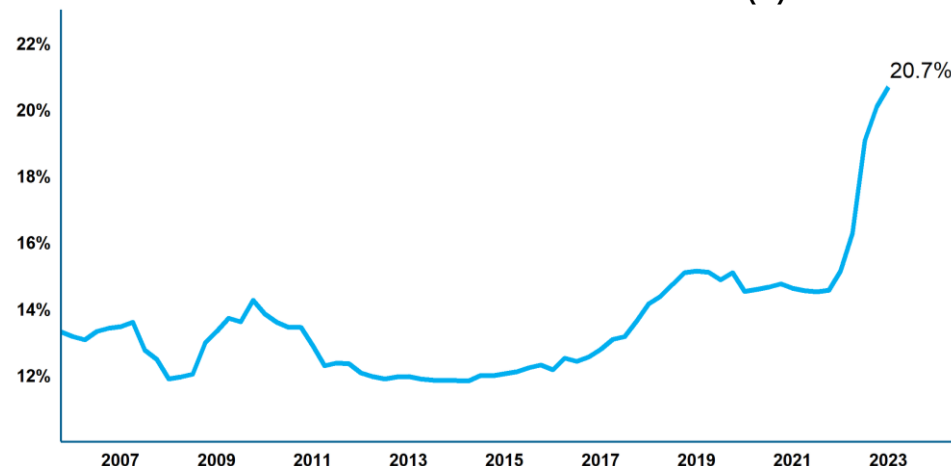
<sup>1</sup> Source: FRED. Data is as September 30, 2023. The CPI and 10 Year Breakeven average lines denote the average values from February 1997 to the present month-end, respectively. Breakeven values represent month-end values for comparative purposes.

### US Consumer Under Stress<sup>1</sup>

#### Revolving Consumer Credit & Student Loans (\$B)



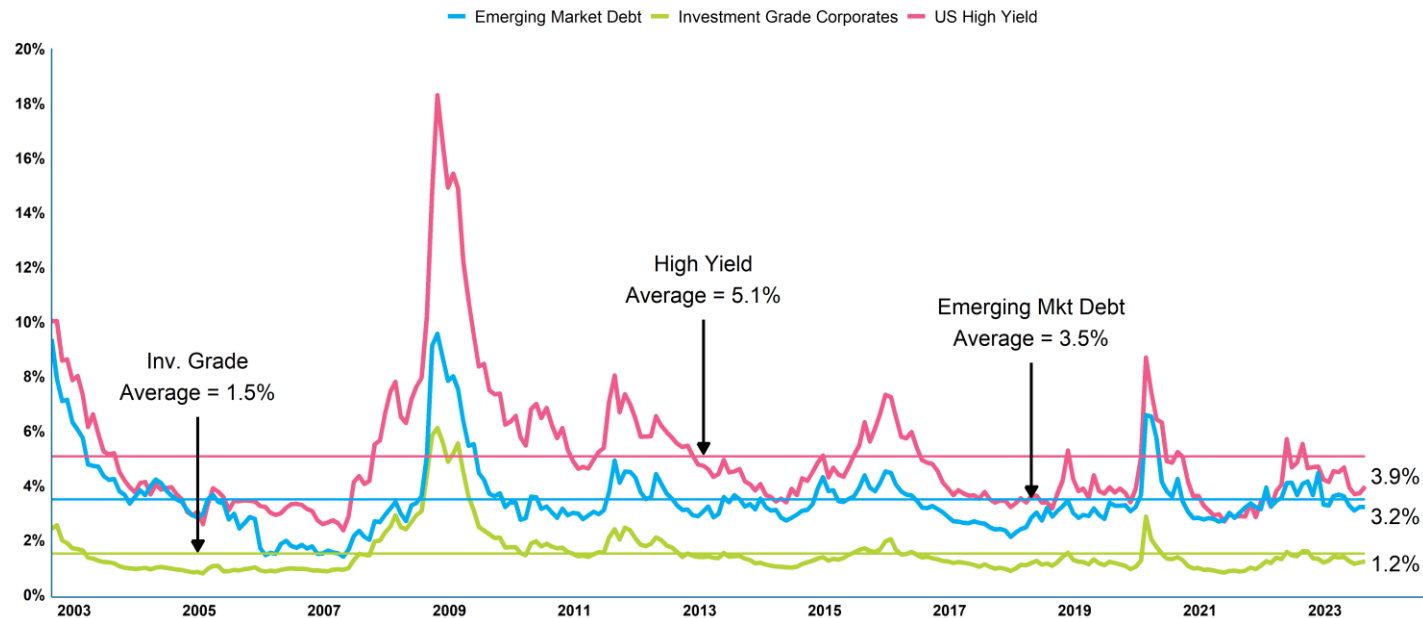
#### Consumer Credit Card Interest Rates (%)



- Despite the strong labor market and higher wages, pressures have started to build on the US consumer. This is an important consideration as consumer spending has been an important driver of economic growth.
- Revolving consumer credit surged to new highs in 2023 even as credit card interest rates hit levels not seen before (the prior peak was around 19% in the 1980s).
- The return of student loan repayments after a three-year pandemic-related reprieve could add to pressures on consumers' budgets. This might be partially balanced by recently initiated repayment and forgiveness programs.
- As we look ahead, the strength of the US consumers will remain key as they make up most of domestic growth (GDP).

<sup>1</sup> Source: FRED. The most recent data is as June 30, 2023. Revolving Consumer Credit data is seasonally adjusted to remove distortions during the holiday season.

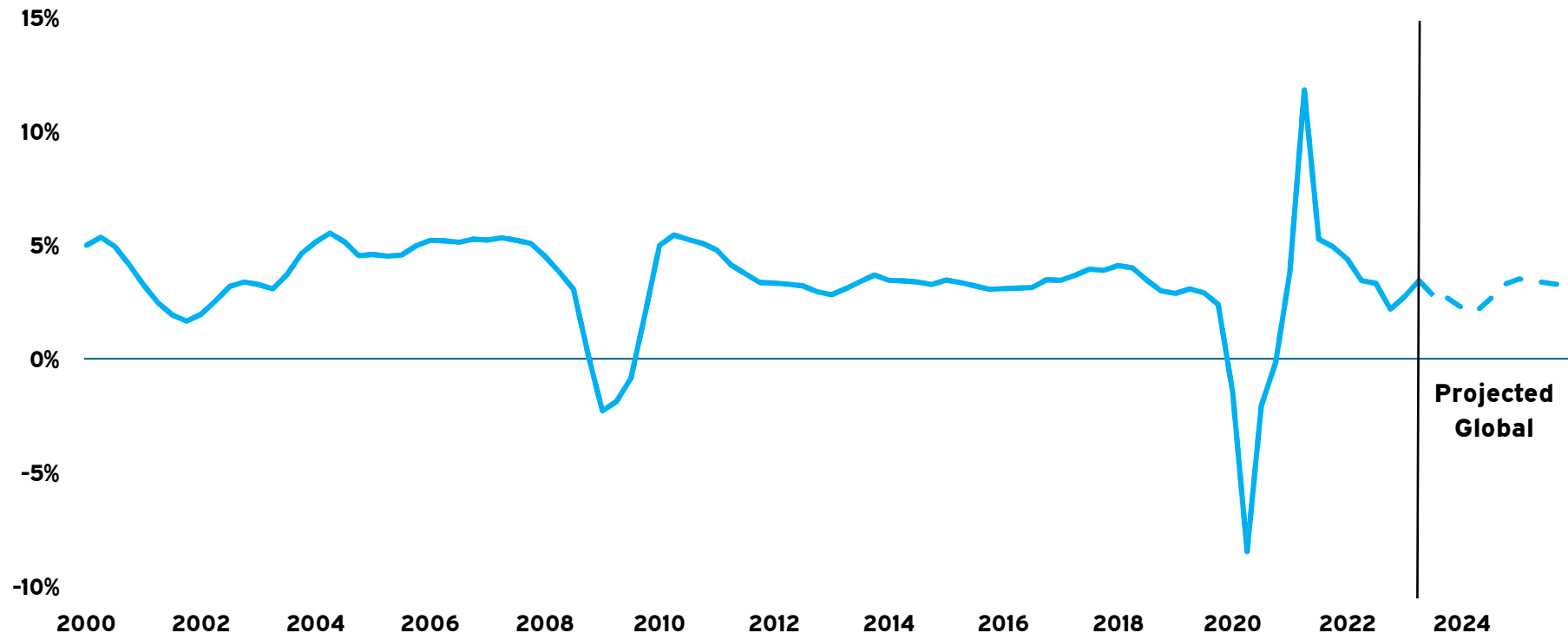
## Credit Spreads vs. US Treasury Bonds<sup>1</sup>



- Credit spreads (the added yield above a comparable maturity Treasury) largely remained unchanged over the quarter.
- High yield spreads remain well below the long-term average given the overall risk appetite this year. Investment grade and emerging market spreads are also below their respective long-term averages, but by smaller margins.

<sup>1</sup> Sources: Bloomberg. Data is as of September 30, 2023. Average lines denote the average of the investment grade, high yield, and emerging market spread values from September 2002 to the recent month-end, respectively.

### Global Real Gross Domestic Product (GDP) Growth<sup>1</sup>



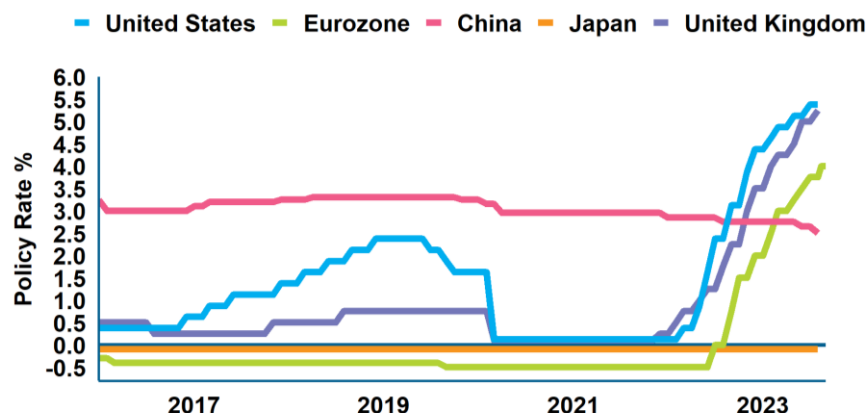
- Global economies are expected to slow this year compared to 2022. The risk of recession remains elevated given policymakers' aggressive tightening, but optimism has started to grow over some central banks potentially navigating a soft landing.
- The delicate balancing act of central banks trying to reduce inflation without dramatically disrupting labor markets and depressing economic growth, will remain key.

<sup>1</sup> Source: Oxford Economics (World GDP, US\$ prices & PPP exchange rate, real, % change YoY). Updated September 2023.

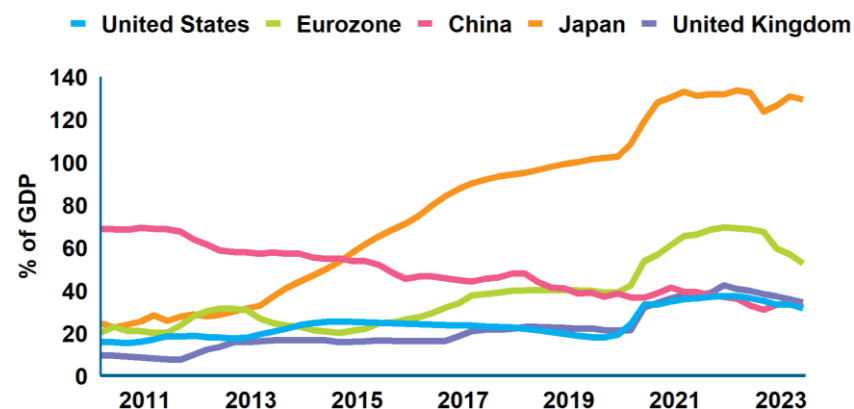


### Central Bank Response<sup>1</sup>

**Policy Rates**



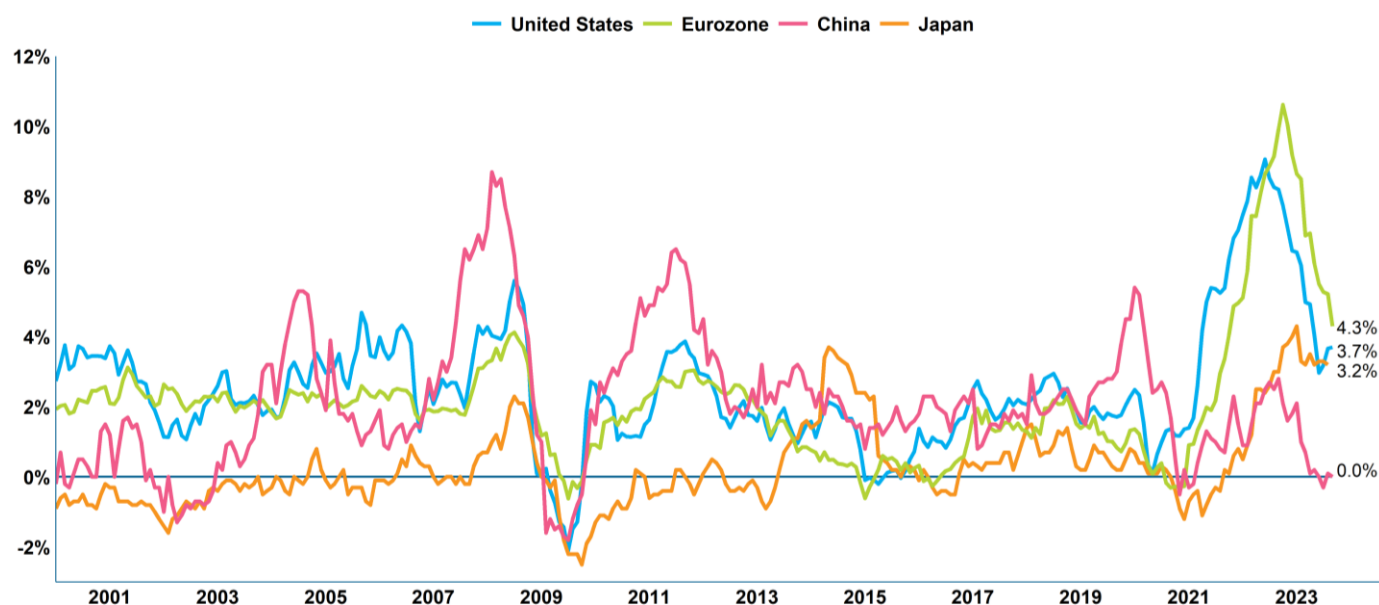
**Balance Sheet as % of GDP**



- Slowing inflation and growth have led to expectations for a reduction in the pace of aggressive policy tightening.
- In July the Fed raised rates another 25 basis points to a range of 5.25% to 5.50% and then kept rates at this level at their September meeting. Markets are expecting at most one more hike later this year.
- The European Central Bank also increased rates in July, with an additional hike in September, but rates remain lower than in the US. In Japan, expectations have increased that the BOJ will end its negative interest rate policy due to rising inflation.
- The central bank in China has continued to cut interest rates and inject liquidity into the banking system, as weaker than expected economic data appears to indicate a widespread slowdown.
- Risks remain for a policy error as central banks attempt to balance bringing down inflation, maintaining financial stability, and supporting growth.

<sup>1</sup> Source: Bloomberg. Policy rate data is as of September 30, 2023. China policy rate is defined as the medium-term lending facility 1 year interest rate. Balance sheet as % of GDP is based on quarterly data and is as of June 30, 2023.

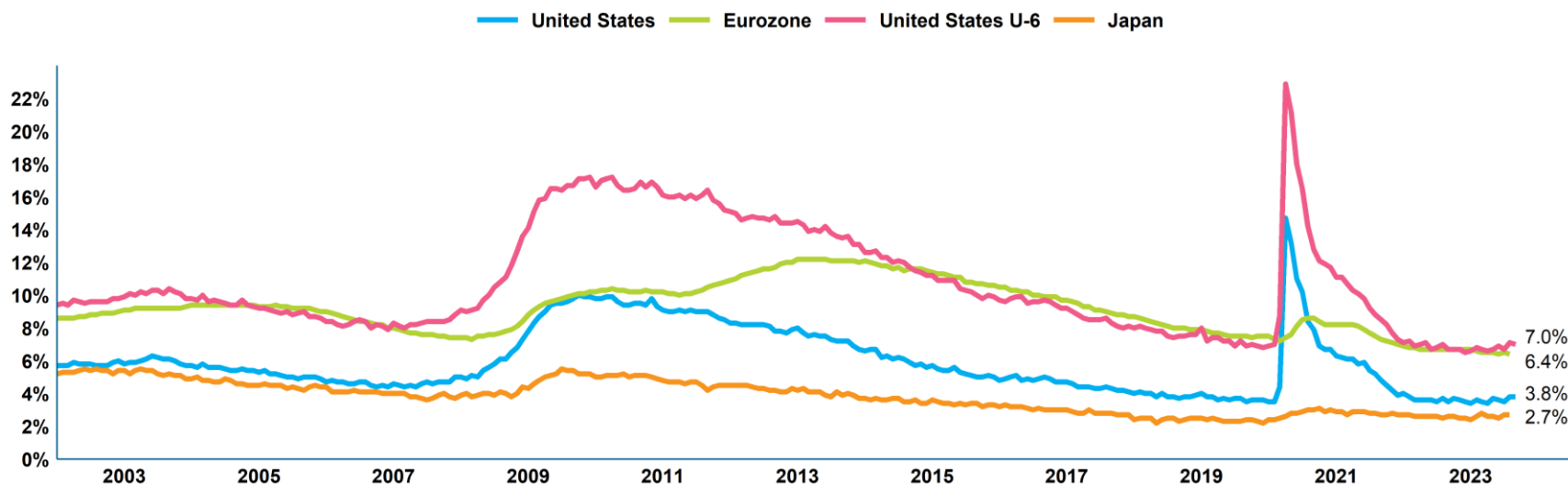
### Inflation (CPI Trailing Twelve Months)<sup>1</sup>



- The inflation picture remains mixed across the major economies.
- In the US, inflation was flat at 3.7%, influenced by rising shelter costs, while eurozone inflation remained higher than the US at 4.3%, a level well off its peak, however. Despite 2023's significant declines in the US and Europe, inflation levels remain elevated compared to central bank targets.
- Inflation in Japan has increased to levels not seen in almost a decade largely driven by food and home related items. In China, deflationary pressures eased but prices were flat from a year prior.

<sup>1</sup> United States CPI and Eurozone CPI – Source: FRED. Japan CPI and China CPI - Source: Bloomberg. Data is as September 30, 2023. The most recent data for Japanese and Eurozone inflation is as of August 2023.

### Unemployment<sup>1</sup>



- Overall, the US labor market remains healthy with the unemployment rate relatively low, wage growth now positive in real terms, and initial claims for unemployment staying subdued. The pace of wage growth has slowed though, and despite remaining elevated, the number of job openings has declined from recent highs.
- In September, unemployment remained at 3.8%, a level only 0.2% higher than the start of the quarter. The labor force participation rate remained at 62.8% well off the lows of the pandemic (60.1%) but not back to pre-pandemic levels (63.3%). Broader measures of unemployment (U-6) finished the quarter at 7.0% up only slightly from the end of June (6.9%).
- Unemployment in Europe has also declined but remains higher than the US, while levels in Japan have been flat through the pandemic given less layoffs.

<sup>1</sup> Eurozone Unemployment - Source: Bloomberg. Japan, United States, United States U-6 Unemployment – Source: FRED. Data is as September 30, 2023, for the US. The most recent data for Eurozone unemployment is as of August 2023 and Japanese unemployment is as of August 2023.

### US Dollar versus Broad Currencies<sup>1</sup>



- After a strong 2022, the US dollar declined late last year and into early this year as weaker economic data and lower inflation led to investors anticipating the end of FOMC tightening.
- Recently though, the dollar reversed course and appreciated against major currencies as relative growth remains strong and investors anticipate the FOMC keeping interest rates higher for longer.
- For the rest of this year, the track of inflation across economies and the corresponding monetary policies will be key drivers of currency moves.

<sup>1</sup> Source: Bloomberg. Data as of September 30, 2023.

## Summary

### Key Trends:

- The impact of inflation still above policy targets will remain key, with bond market volatility likely to stay high.
- Global monetary policies could diverge going forward. The risk of policy errors remains elevated as central banks try to reduce persistent inflation while not tipping their economies into recession.
- Growth is expected to slow globally this year, with many economies forecasted to tip into recession. However, optimism has been building that some economies could experience a soft landing. Inflation, monetary policy, and the war will all be key.
- In the US, consumers could feel pressure as certain components of inflation remain high (e.g., shelter), borrowing costs are elevated, and the job market may weaken.
- The key for US equities going forward will be whether earnings can remain resilient if growth continues to slow. Also, the future paths of the large technology companies that have driven market gains will be important.
- Equity valuations remain lower in emerging and developed markets, but risks remain, including the potential for recent strength in the US dollar to persist, higher inflation weighing particularly on Europe, and China's sluggish economic reopening and on-going weakness in the real estate sector. Japan's recent hint at potentially tightening monetary policy along with changes in corporate governance in the country could influence relative results.
- After month-end, heightened tensions in Israel could add to overall uncertainty and drive safe haven flows.

## **Executive Summary**

→ The month of September saw stocks and bonds both decline as interest rates continued to rise.

→ The below table reflects the latest final valuation data through September 2023.

NERS	September 30, 2023	August 31, 2023	July 31, 2023
Total Fund Balance	\$1.23 Billion	\$1.28 Billion	\$1.31 Billion
Funded Status	80%	83%	85%
NERS Assumed Rate of Return	6.75%	6.75%	6.75%
FYTD Rate of Return	-2.9%	0.2%	2.0%
12 Months Trailing Rate of Return	4.1%	5.7%	4.8%
Monthly Rate of Return	-3.0%	-1.8%	2.0%
Monthly Gains/Losses	-\$38.8 million	-\$24.2 million	\$26.5 million
Monthly Net Cash Flow	-\$7.9 million	-\$7.6 million	\$33.9 million

→ The Actuarial Determined Contribution rates for Fiscal Year 2024 are:

- NERS: 20.96%
- VRS: 12.94%

→ As of September 30, the System was inside of its target asset allocation ranges for all asset classes.

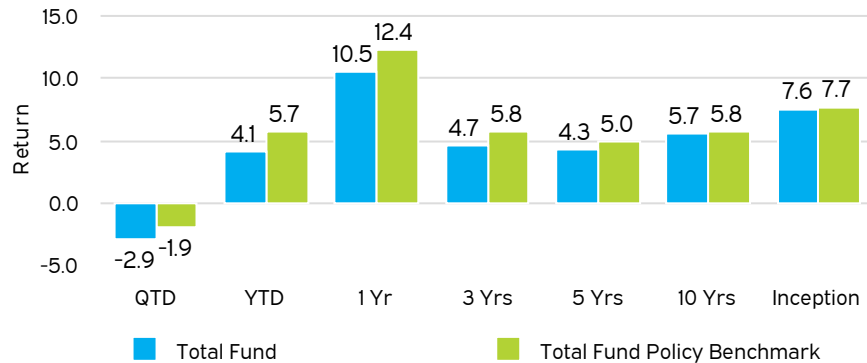
## **Third Quarter 2023 Fund Evaluation Report**



#### Portfolio Objective

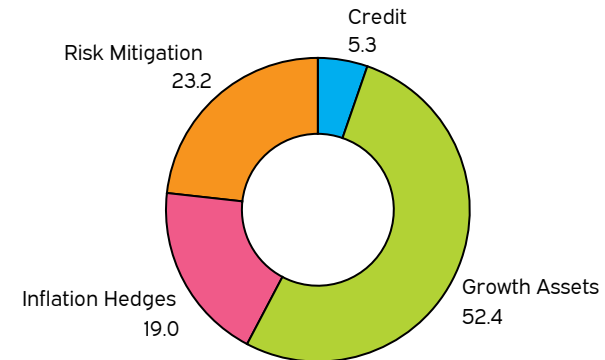
The Employees' Retirement System of the City of Norfolk is a long-term investor whose objective is to enable the System to provide retirement income for plan participants and beneficiaries. The System's strategy is generate a return that meets the long-term return objective, while minimizing volatility.

#### Return Summary



	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Total Fund	-2.9	4.1	10.5	4.7	4.3	5.7	7.6	10/01/1990
Total Fund Policy Benchmark	-1.9	5.7	12.4	5.8	5.0	5.8	7.7	

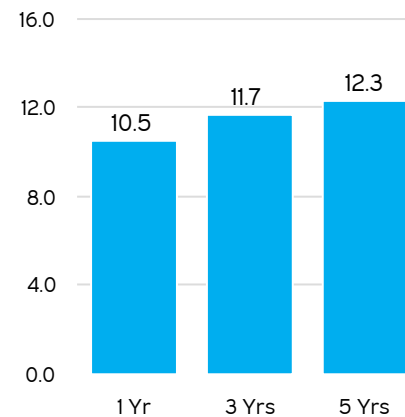
#### Current Allocation



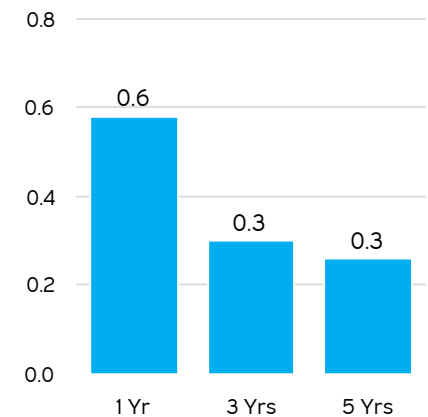
#### Summary of Cash Flows

	Quarter-To-Date	Year-To-Date
<b>Total Fund</b>		
Beginning Market Value	1,249,395,356	1,204,372,398
Net Cash Flow	18,338,550	-27,212,014
Net Investment Change	-36,488,710	54,084,812
Ending Market Value	1,231,245,196	1,231,245,196

#### Annualized Standard Deviation

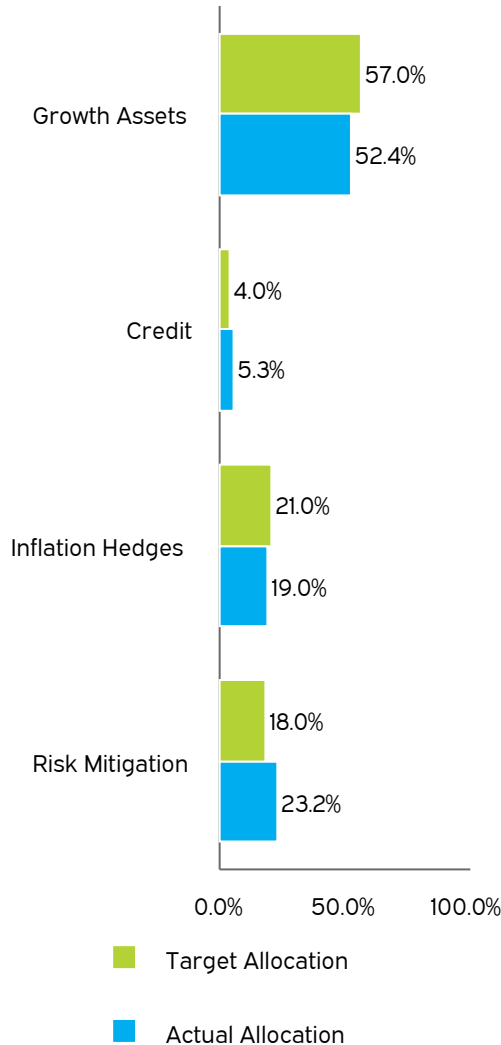


#### Sharpe Ratio



Performance Update | As of September 30, 2023

### Actual vs. Target Allocation

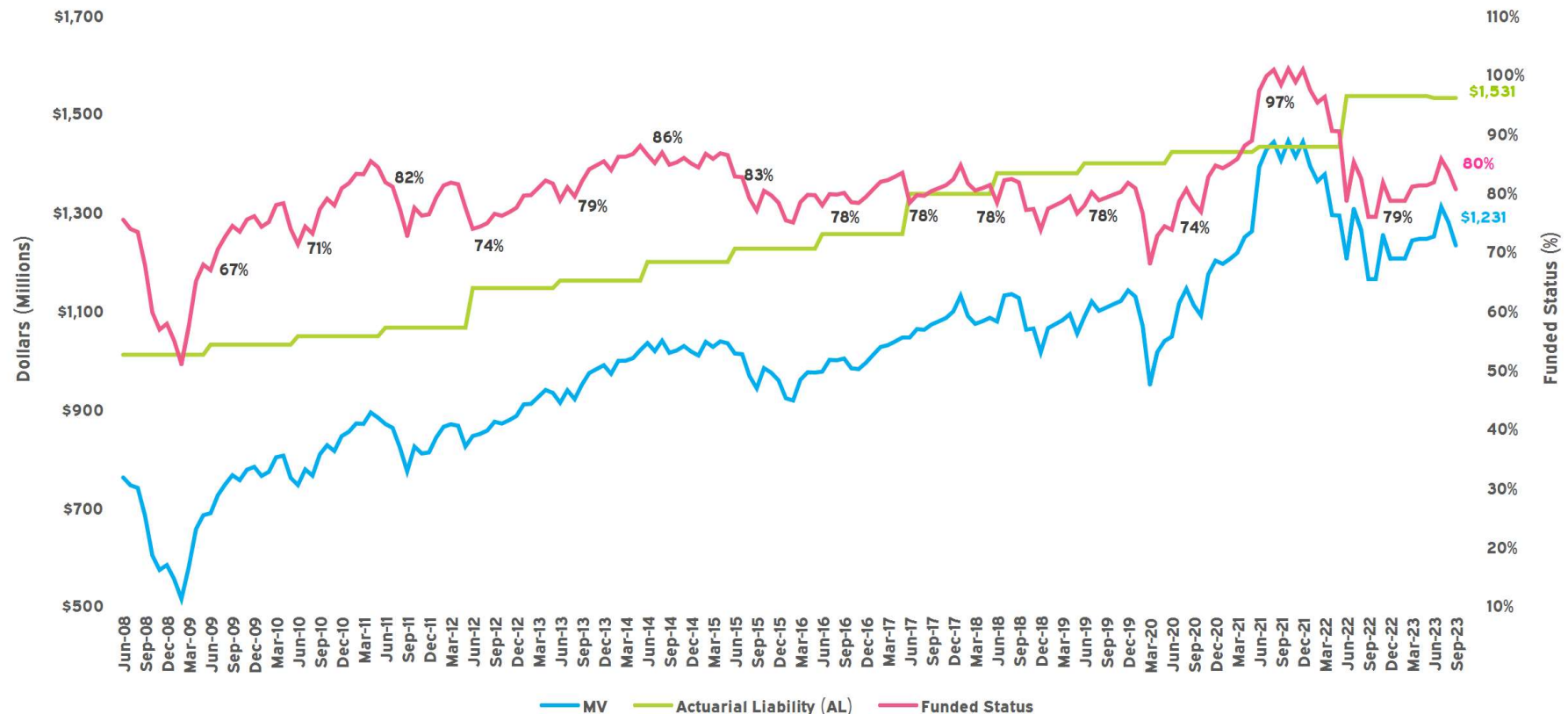


### Allocation vs. Targets and Policy

	Current Balance	Current Allocation (%)	Policy (%)	Policy Range (%)	Within IPS Range?
<b>Growth Assets</b>	<b>\$645,651,405</b>	<b>52.4</b>	<b>57.0</b>	<b>47.0 - 67.0</b>	<b>Yes</b>
Global Equity	\$645,651,405	52.4	52.0	42.0 - 62.0	Yes
Private Equity	\$0	0.0	5.0	0.0 - 10.0	Yes
<b>Credit</b>	<b>\$65,010,520</b>	<b>5.3</b>	<b>4.0</b>	<b>0.0 - 9.0</b>	<b>Yes</b>
High Yield & Bank Loans	\$65,010,520	5.3	4.0	0.0 - 9.0	Yes
<b>Inflation Hedges</b>	<b>\$234,476,137</b>	<b>19.0</b>	<b>21.0</b>	<b>14.0 - 28.0</b>	<b>Yes</b>
Real Estate	\$86,922,456	7.1	8.0	3.0 - 13.0	Yes
Natural Resources & Infrastructure	\$41,125,879	3.3	5.0	0.0 - 10.0	Yes
Gold	\$33,778,551	2.7	3.0	0.0 - 6.0	Yes
Short-Term TIPS	\$72,649,252	5.9	5.0	0.0 - 10.0	Yes
<b>Risk Mitigation</b>	<b>\$286,107,134</b>	<b>23.2</b>	<b>18.0</b>	<b>11.0 - 25.0</b>	<b>Yes</b>
Investment Grade Fixed Income	\$204,540,202	16.6	14.0	7.0 - 21.0	Yes
Hedge Funds	\$64,876,469	5.3	4.0	0.0 - 9.0	Yes
Cash	\$16,690,463	1.4	0.0	0.0 - 3.0	Yes
<b>Total</b>	<b>\$1,231,245,196</b>	<b>100.0</b>	<b>100.0</b>		

\$15mm in cash is to fund the JP Morgan Infrastructure Investments Fund at the beginning of October.

#### Assets, Liabilities and Funded Status Over Time



As of June 30, 2023, Total Plan Actuarial Liability (AL) is \$1.531 billion and the Actuarial Value of assets (AVA) is \$1.294 billion for an Actuarial funded ratio (AVA/AL) of 85%. Using the Market Value of Assets (MVA), the Market Funded Ratio (MV/AL) was approximately 83% in August 2023 and 80% in September 2023.

Asset Class Performance Summary											
	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Fund</b>	<b>1,231,245,196</b>	<b>100.0</b>	<b>-3.0</b>	<b>-2.9</b>	<b>4.1</b>	<b>10.5</b>	<b>4.7</b>	<b>4.3</b>	<b>5.7</b>	<b>7.6</b>	<b>Oct-90</b>
Total Fund Policy Benchmark			-2.5	-1.9	5.7	12.4	5.8	5.0	5.8	7.7	
Total Fund Actual Allocation Benchmark			-2.9	-2.4	5.0	--	--	--	--	--	
Total Fund Public Benchmark			-3.8	-3.3	6.6	13.5	2.7	4.3	5.5	7.7	
<b>Growth Assets</b>	<b>645,651,405</b>	<b>52.4</b>	<b>-4.0</b>	<b>-3.4</b>	<b>8.8</b>	--	--	--	--	<b>4.7</b>	<b>Dec-22</b>
Growth Assets Custom Benchmark			-3.3	-2.5	11.1	--	--	--	--	6.3	
<b>Global Equity</b>	<b>645,651,405</b>	<b>52.4</b>	<b>-4.0</b>	<b>-3.4</b>	<b>8.8</b>	<b>19.6</b>	<b>7.0</b>	<b>6.4</b>	<b>8.0</b>	<b>8.8</b>	<b>Oct-90</b>
Global Equity Policy Benchmark			-4.2	-3.4	9.4	20.2	6.9	6.1	7.7	9.1	
<b>Credit</b>	<b>65,010,520</b>	<b>5.3</b>	<b>-0.2</b>	<b>2.4</b>	--	--	--	--	--	<b>4.4</b>	<b>May-23</b>
Credit Custom Benchmark			-0.2	1.9	7.9	--	--	--	--	3.4	
<b>High Yield &amp; Bank Loans</b>	<b>65,010,520</b>	<b>5.3</b>	<b>-0.2</b>	<b>2.4</b>	--	--	--	--	--	<b>4.4</b>	<b>May-23</b>
High Yield & Bank Loans Custom Benchmark			-0.2	1.9	7.9	11.4	3.9	3.7	4.3	3.4	
<b>Inflation Hedges</b>	<b>234,476,137</b>	<b>19.0</b>	<b>-1.9</b>	<b>-1.5</b>	<b>-4.6</b>	--	--	--	--	<b>-8.7</b>	<b>Dec-22</b>
Inflation Hedges Custom Benchmark			-1.6	-1.0	-3.3	--	--	--	--	-5.7	
<b>Real Estate</b>	<b>86,922,456</b>	<b>7.1</b>	<b>-2.9</b>	<b>-3.5</b>	<b>-9.3</b>	<b>-12.9</b>	<b>1.4</b>	<b>0.8</b>	<b>4.7</b>	<b>6.2</b>	<b>Apr-11</b>
NCREIF ODCE (Net)			-2.1	-2.1	-8.1	-12.9	6.2	4.7	7.2	8.2	
<b>Natural Resources &amp; Infrastructure</b>	<b>41,125,879</b>	<b>3.3</b>	<b>0.6</b>	<b>2.9</b>	--	--	--	--	--	<b>-0.8</b>	<b>Apr-23</b>
S&P Global LargeMidcap Resources & Commodities NR USD			0.6	2.9	-2.4	11.0	19.5	7.7	4.7	-1.0	
<b>Gold</b>	<b>33,778,551</b>	<b>2.7</b>	<b>-6.0</b>	<b>-5.6</b>	--	--	--	--	--	<b>-10.7</b>	<b>Apr-23</b>
60% Gold (Spot)/ 40% FTSE Gold Mines			-6.2	-7.4	-2.7	10.9	--	--	--	-11.1	
<b>Short-Term TIPS</b>	<b>72,649,252</b>	<b>5.9</b>	<b>-0.2</b>	<b>0.4</b>	--	--	--	--	--	<b>0.6</b>	<b>Mar-23</b>
Blmbg. U.S. TIPS 0-5 Year			-0.2	0.4	1.9	3.2	1.9	2.8	1.7	1.6	

See benchmark history page for benchmark detail.

## Performance Update | As of September 30, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Risk Mitigation</b>	<b>286,107,134</b>	<b>23.2</b>	<b>-2.5</b>	<b>-4.0</b>	<b>-0.5</b>	--	--	--	--	<b>-1.0</b>	<b>Dec-22</b>
<i>Risk Mitigation Custom Benchmark</i>			-1.7	-2.2	-0.8	--	--	--	--	-1.1	
<b>Investment Grade Fixed Income</b>	<b>204,540,202</b>	<b>16.6</b>	<b>-3.8</b>	<b>-5.4</b>	<b>-2.6</b>	<b>-0.8</b>	<b>-5.6</b>	<b>-0.2</b>	<b>1.1</b>	<b>5.0</b>	<b>Oct-90</b>
<i>Blmbg. U.S. Aggregate Index</i>			-2.5	-3.2	-1.2	0.6	-5.2	0.1	1.1	4.9	
<b>Intermediate-Term Bonds</b>	<b>159,363,371</b>	<b>12.9</b>	<b>-2.7</b>	<b>-3.5</b>	<b>-0.6</b>	<b>1.2</b>	<b>-5.0</b>	<b>0.2</b>	<b>1.3</b>	<b>5.0</b>	<b>Oct-90</b>
<i>Blmbg. U.S. Aggregate Index</i>			-2.5	-3.2	-1.2	0.6	-5.2	0.1	1.1	4.9	
<b>Long-Term Bonds</b>	<b>45,176,831</b>	<b>3.7</b>	<b>-7.3</b>	<b>-11.8</b>	--	--	--	--	--	<b>-9.8</b>	<b>Mar-23</b>
<i>Blmbg. U.S. Treasury: Long</i>			-7.3	-11.8	-8.6	-9.1	-15.7	-2.8	0.8	-9.8	
<b>Hedge Funds</b>	<b>64,876,469</b>	<b>5.3</b>	<b>1.8</b>	<b>0.7</b>	--	--	--	--	--	<b>4.3</b>	<b>Apr-23</b>
<i>HFRI Macro (Total) Index</i>			1.2	1.3	0.5	-0.9	7.4	5.3	3.4	3.0	
<b>Cash</b>	<b>16,690,463</b>	<b>1.4</b>									

Performance Update | As of September 30, 2023

Trailing Net Performance											
	Market Value (\$)	% of Portfolio	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Fund</b>	<b>1,231,245,196</b>	<b>100.0</b>	<b>-3.0</b>	<b>-2.9</b>	<b>4.1</b>	<b>10.5</b>	<b>4.7</b>	<b>4.3</b>	<b>5.7</b>	<b>7.6</b>	<b>Oct-90</b>
Total Fund Policy Benchmark			-2.5	-1.9	5.7	12.4	5.8	5.0	5.8	7.7	
Total Fund Actual Allocation Benchmark			-2.9	-2.4	5.0	--	--	--	--	--	
Total Fund Public Benchmark			-3.8	-3.3	6.6	13.5	2.7	4.3	5.5	7.7	
<b>Growth Assets</b>	<b>645,651,405</b>	<b>52.4</b>	<b>-4.0</b>	<b>-3.4</b>	<b>8.8</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>4.7</b>	<b>Dec-22</b>
Growth Assets Custom Benchmark			-3.3	-2.5	11.1	--	--	--	--	6.3	
<b>Global Equity</b>	<b>645,651,405</b>	<b>52.4</b>	<b>-4.0</b>	<b>-3.4</b>	<b>8.8</b>	<b>19.6</b>	<b>7.0</b>	<b>6.4</b>	<b>8.0</b>	<b>8.8</b>	<b>Oct-90</b>
Global Equity Policy Benchmark			-4.2	-3.4	9.4	20.2	6.9	6.1	7.7	9.1	
SSgA MSCI ACWI IMI Index Fund	66,051,257	5.4	-4.2	-3.4	9.7	20.5	7.3	6.5	--	9.0	May-16
MSCI AC World IMI (Net)			-4.2	-3.4	9.4	20.2	6.9	6.1	7.4	8.5	
SSgA Russell 1000 Growth Index	28,197,238	2.3	-5.4	-3.1	--	--	--	--	--	16.7	Mar-23
Russell 1000 Growth Index			-5.4	-3.1	25.0	27.7	8.0	12.4	14.5	16.7	
SSgA Russell 1000 Value Index	13,690,412	1.1	-3.9	-3.2	--	--	--	--	--	0.3	Mar-23
Russell 1000 Value Index			-3.9	-3.2	1.8	14.4	11.1	6.2	8.4	0.3	
SSgA Russell 3000 Index	171,125,042	13.9	-4.8	-3.2	--	--	--	--	--	7.7	Mar-23
Russell 3000 Index			-4.8	-3.3	12.4	20.5	9.4	9.1	11.3	7.7	
SSgA MSCI EAFE	93,634,791	7.6	-3.4	-4.1	--	--	--	--	--	1.4	Mar-23
MSCI EAFE (Net)			-3.4	-4.1	7.1	25.6	5.8	3.2	3.8	1.2	
SSgA Emerging Markets Index	37,467,213	3.0	-2.7	-3.3	--	--	--	--	--	0.8	Mar-23
MSCI Emerging Markets (Net)			-2.6	-2.9	1.8	11.7	-1.7	0.6	2.1	0.9	
ABS China Direct	3,186,363	0.3	-2.8	-3.1	--	--	--	--	--	-10.6	Mar-23
MSCI China (Net)			-2.8	-1.9	-7.3	5.2	-14.3	-4.2	1.7	-7.5	

## Performance Update | As of September 30, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
ABS EM ex China Direct	11,799,923	1.0	-2.7	-1.4	--	--	--	--	--	10.4	Mar-23
MSCI EM ex China			-2.6	-3.3	2.9	11.1	4.8	2.4	2.4	4.9	
Kopernik Global All-Cap	29,945,905	2.4	0.6	4.2	--	--	--	--	--	3.8	Apr-23
MSCI AC World Index (Net)			-4.1	-3.4	10.1	20.8	6.9	6.5	7.6	2.6	
First Eagle Global Equity	96,858,259	7.9	-3.8	-3.9	--	--	--	--	--	0.8	Apr-23
MSCI AC World Index (Net)			-4.1	-3.4	10.1	20.8	6.9	6.5	7.6	2.6	
Artisan Global Opportunities	93,695,002	7.6	-5.0	-5.3	--	--	--	--	--	0.5	Apr-23
MSCI AC World Index (Net)			-4.1	-3.4	10.1	20.8	6.9	6.5	7.6	2.6	
<b>Credit</b>	<b>65,010,520</b>	<b>5.3</b>	<b>-0.2</b>	<b>2.4</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>4.4</b>	<b>May-23</b>
Credit Custom Benchmark			-0.2	1.9	7.9	--	--	--	--	3.4	
<b>High Yield &amp; Bank Loans</b>	<b>65,010,520</b>	<b>5.3</b>	<b>-0.2</b>	<b>2.4</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>4.4</b>	<b>May-23</b>
High Yield & Bank Loans Custom Benchmark			-0.2	1.9	7.9	11.4	3.9	3.7	4.3	3.4	
Sculptor Credit Opportunities Overseas Fund	25,731,229	2.1	0.1	1.4	--	--	--	--	--	3.8	May-23
Blmbg. Global High Yield Index			-1.6	-0.2	5.0	13.4	-0.1	1.5	3.2	1.2	
Brigade High Income Fund	39,279,292	3.2	-0.3	3.0	--	--	--	--	--	4.7	May-23
60% Barclays U.S. Corporate High Yield & 40% CS Lev Loans			-0.4	1.6	7.5	11.2	3.4	3.5	4.3	2.9	

## Performance Update | As of September 30, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Inflation Hedges</b>	<b>234,476,137</b>	<b>19.0</b>	<b>-1.9</b>	<b>-1.5</b>	<b>-4.6</b>	--	--	--	--	<b>-8.7</b>	<b>Dec-22</b>
<i>Inflation Hedges Custom Benchmark</i>			-1.6	-1.0	-3.3	--	--	--	--	-5.7	
<b>Real Estate</b>	<b>86,922,456</b>	<b>7.1</b>	<b>-2.9</b>	<b>-3.5</b>	<b>-9.3</b>	<b>-12.9</b>	<b>1.4</b>	<b>0.8</b>	<b>4.7</b>	<b>6.2</b>	<b>Apr-11</b>
<i>NCREIF ODCE (Net)</i>			-2.1	-2.1	-8.1	-12.9	6.2	4.7	7.2	8.2	
JP Morgan Asset Management Strategic Property Fund	49,597,497	4.0	-2.5	-3.3	-8.1	-12.9	5.1	3.9	6.5	7.9	Apr-11
<i>NCREIF ODCE (Net)</i>			-2.1	-2.1	-8.1	-12.9	6.2	4.7	7.2	8.2	
UBS Trumbull Property Fund	24,928,322	2.0	-1.6	-1.6	-12.0	-16.8	1.4	0.0	3.9	4.6	Dec-11
<i>NCREIF ODCE (Net)</i>			-2.1	-2.1	-8.1	-12.9	6.2	4.7	7.2	8.0	
SSgA US REIT	12,396,637	1.0	-7.0	-7.4	--	--	--	--	--	-7.2	Mar-23
<i>Dow Jones U.S. Select RESI</i>			-7.0	-7.3	-2.0	2.7	6.1	1.6	5.3	-7.1	
<b>Natural Resources &amp; Infrastructure</b>	<b>41,125,879</b>	<b>3.3</b>	<b>0.6</b>	<b>2.9</b>	--	--	--	--	--	<b>-0.8</b>	<b>Apr-23</b>
<i>S&amp;P Global LargeMidcap Resources &amp; Commodities Ind</i>			0.6	2.9	-2.4	11.0	19.5	7.7	4.7	-1.0	
SSgA S&P Global LargeMidCap Natural Resources Index	41,125,879	3.3	0.6	2.9	--	--	--	--	--	-0.8	Apr-23
<i>S&amp;P Global LargeMidcap Resources &amp; Commodities Ind</i>			0.6	2.9	-2.4	11.0	19.5	7.7	4.7	-1.0	
<b>Gold</b>	<b>33,778,551</b>	<b>2.7</b>	<b>-6.0</b>	<b>-5.6</b>	--	--	--	--	--	<b>-10.7</b>	<b>Apr-23</b>
<i>60% Gold (Spot)/ 40% FTSE Gold Mines</i>			-6.2	-7.4	-2.7	10.9	--	--	--	-11.1	
First Eagle Institutional Gold Fund, LP	33,778,551	2.7	-6.0	-5.6	--	--	--	--	--	-10.7	Apr-23
<i>60% Gold (Spot)/ 40% FTSE Gold Mines</i>			-6.2	-7.4	-2.7	10.9	--	--	--	-11.1	
<b>Short-Term TIPS</b>	<b>72,649,252</b>	<b>5.9</b>	<b>-0.2</b>	<b>0.4</b>	--	--	--	--	--	<b>0.6</b>	<b>Mar-23</b>
<i>Blmbg. U.S. TIPS 0-5 Year</i>			-0.2	0.4	1.9	3.2	1.9	2.8	1.7	1.6	
Vanguard Short-Term TIPS Index	72,649,252	5.9	-0.2	0.4	--	--	--	--	--	-0.3	Apr-23
<i>Blmbg. U.S. TIPS 0-5 Year</i>			-0.2	0.4	1.9	3.2	1.9	2.8	1.7	-0.3	



## Performance Update | As of September 30, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Risk Mitigation</b>	<b>286,107,134</b>	<b>23.2</b>	<b>-2.5</b>	<b>-4.0</b>	<b>-0.5</b>	--	--	--	--	<b>-1.0</b>	<b>Dec-22</b>
<i>Risk Mitigation Custom Benchmark</i>			-1.7	-2.2	-0.8	--	--	--	--	-1.1	
<b>Investment Grade Fixed Income</b>	<b>204,540,202</b>	<b>16.6</b>	<b>-3.8</b>	<b>-5.4</b>	<b>-2.6</b>	<b>-0.8</b>	<b>-5.6</b>	<b>-0.2</b>	<b>1.1</b>	<b>5.0</b>	<b>Oct-90</b>
<i>Blmbg. U.S. Aggregate Index</i>			-2.5	-3.2	-1.2	0.6	-5.2	0.1	1.1	4.9	
<b>Intermediate-Term Bonds</b>	<b>159,363,371</b>	<b>12.9</b>	<b>-2.7</b>	<b>-3.5</b>	<b>-0.6</b>	<b>1.2</b>	<b>-5.0</b>	<b>0.2</b>	<b>1.3</b>	<b>5.0</b>	<b>Oct-90</b>
<i>Blmbg. U.S. Aggregate Index</i>			-2.5	-3.2	-1.2	0.6	-5.2	0.1	1.1	4.9	
SSgA US Aggregate Bond	61,351,045	5.0	-2.6	-3.3	-1.0	0.6	-5.2	0.1	1.1	2.3	Jan-09
<i>Blmbg. U.S. Aggregate Index</i>			-2.5	-3.2	-1.2	0.6	-5.2	0.1	1.1	2.3	
Wellington Core Bond	78,473,166	6.4	-2.6	-3.2	--	--	--	--	--	-4.3	May-23
<i>Blmbg. U.S. Aggregate Index</i>			-2.5	-3.2	-1.2	0.6	-5.2	0.1	1.1	-4.6	
Brandywine U.S. Fixed Income	19,539,161	1.6	-3.9	-5.5	--	--	--	--	--	-6.2	Jun-23
<i>Blmbg. U.S. Aggregate Index</i>			-2.5	-3.2	-1.2	0.6	-5.2	0.1	1.1	-3.6	
<b>Long-Term Bonds</b>	<b>45,176,831</b>	<b>3.7</b>	<b>-7.3</b>	<b>-11.8</b>	--	--	--	--	--	<b>-9.8</b>	<b>Mar-23</b>
<i>Blmbg. U.S. Treasury: Long</i>			-7.3	-11.8	-8.6	-9.1	-15.7	-2.8	0.8	-9.8	
SSgA Long US Treasury Index	45,176,831	3.7	-7.3	-11.8	--	--	--	--	--	-9.8	Mar-23
<i>Blmbg. U.S. Treasury: Long</i>			-7.3	-11.8	-8.6	-9.1	-15.7	-2.8	0.8	-9.8	

## Performance Update | As of September 30, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Hedge Funds</b>	<b>64,876,469</b>	<b>5.3</b>	<b>1.8</b>	<b>0.7</b>	--	--	--	--	--	<b>4.3</b>	<b>Apr-23</b>
HFRI Macro (Total) Index			1.2	1.3	0.5	-0.9	7.4	5.3	3.4	3.0	
36 South Kohinoor Series (Cayman) Fund	21,939,096	1.8	1.6	2.4	--	--	--	--	--	4.0	Apr-23
CBOE Eurekahedge Long Volatility Hedge Fund Index			0.9	1.7	-2.6	-6.5	-2.8	2.8	-0.8	-1.1	
BH-DG Systematic Trading Master Fund	17,898,072	1.5	3.1	-2.3	--	--	--	--	--	7.2	Apr-23
Barclay CTA Index			1.1	0.9	1.4	-0.7	5.8	4.5	2.8	3.4	
Lombard Odier Bear Convexity	7,969,585	0.6	0.3	-0.2	--	--	--	--	--	-0.4	Apr-23
CBOE Eurekahedge Long Volatility Hedge Fund Index			0.9	1.7	-2.6	-6.5	-2.8	2.8	-0.8	-1.1	
Alpstone Global Macro Fund	17,069,716	1.4	1.6	2.1	--	--	--	--	--	2.2	May-23
HFRI Macro (Total) Index			1.2	1.3	0.5	-0.9	7.4	5.3	3.4	2.2	
<b>Cash</b>	<b>16,690,463</b>	<b>1.4</b>									
Cash	16,690,463	1.4									

Fiscal Year Performance					
	Fiscal Year 2023	Fiscal Year 2022	Fiscal Year 2021	Fiscal Year 2020	Fiscal Year 2019
<b>Total Fund</b>	<b>8.4</b>	<b>-10.0</b>	<b>25.9</b>	<b>0.6</b>	<b>5.3</b>
<i>Total Fund Policy Benchmark</i>	<i>9.5</i>	<i>-10.0</i>	<i>26.5</i>	<i>1.3</i>	<i>5.9</i>
<i>Total Fund Actual Allocation Benchmark</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>
<i>Total Fund Public Benchmark</i>	<i>10.5</i>	<i>-14.1</i>	<i>24.1</i>	<i>4.6</i>	<i>6.2</i>
<b>Growth Assets</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Growth Assets Custom Benchmark</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>
<b>Global Equity</b>	<b>15.8</b>	<b>-16.2</b>	<b>41.6</b>	<b>1.6</b>	<b>5.0</b>
<i>Global Equity Policy Benchmark</i>	<i>16.1</i>	<i>-16.5</i>	<i>40.9</i>	<i>1.2</i>	<i>4.6</i>
SSgA MSCI ACWI IMI Index Fund	16.6	-16.2	41.6	1.6	5.0
<i>MSCI AC World IMI (Net)</i>	<i>16.1</i>	<i>-16.5</i>	<i>40.9</i>	<i>1.2</i>	<i>4.6</i>
SSgA Russell 1000 Growth Index	--	--	--	--	--
<i>Russell 1000 Growth Index</i>	<i>27.1</i>	<i>-18.8</i>	<i>42.5</i>	<i>23.3</i>	<i>11.6</i>
SSgA Russell 1000 Value Index	--	--	--	--	--
<i>Russell 1000 Value Index</i>	<i>11.5</i>	<i>-6.8</i>	<i>43.7</i>	<i>-8.8</i>	<i>8.5</i>
SSgA Russell 3000 Index	--	--	--	--	--
<i>Russell 3000 Index</i>	<i>19.0</i>	<i>-13.9</i>	<i>44.2</i>	<i>6.5</i>	<i>9.0</i>
SSgA MSCI EAFE	--	--	--	--	--
<i>MSCI EAFE (Net)</i>	<i>18.8</i>	<i>-17.8</i>	<i>32.4</i>	<i>-5.1</i>	<i>1.1</i>
SSgA Emerging Markets Index	--	--	--	--	--
<i>MSCI Emerging Markets (Net)</i>	<i>1.7</i>	<i>-25.3</i>	<i>40.9</i>	<i>-3.4</i>	<i>1.2</i>
ABS China Direct	--	--	--	--	--
<i>MSCI China (Net)</i>	<i>-16.8</i>	<i>-31.8</i>	<i>27.4</i>	<i>13.1</i>	<i>-6.7</i>

## Performance Update | As of September 30, 2023

	Fiscal Year 2023	Fiscal Year 2022	Fiscal Year 2021	Fiscal Year 2020	Fiscal Year 2019
ABS EM ex China Direct	--	--	--	--	--
<i>MSCI EM ex China</i>	8.5	-21.5	50.2	-11.8	5.1
Kopernik Global All-Cap	--	--	--	--	--
<i>MSCI AC World Index (Net)</i>	16.5	-15.8	39.3	2.1	5.7
First Eagle Global Equity	--	--	--	--	--
<i>MSCI AC World Index (Net)</i>	16.5	-15.8	39.3	2.1	5.7
Artisan Global Opportunities	--	--	--	--	--
<i>MSCI AC World Index (Net)</i>	16.5	-15.8	39.3	2.1	5.7
<b>Credit</b>	--	--	--	--	--
<i>Credit Custom Benchmark</i>	--	--	--	--	--
<b>High Yield &amp; Bank Loans</b>	--	--	--	--	--
<i>High Yield &amp; Bank Loans Custom Benchmark</i>	9.6	-7.8	13.5	-1.1	5.8
Sculptor Credit Opportunities Overseas Fund	--	--	--	--	--
<i>Blmbg. Global High Yield Index</i>	10.5	-17.8	14.6	-2.0	7.8
Brigade High Income Fund	--	--	--	--	--
<i>60% Barclays U.S. Corporate High Yield &amp; 40% CS Lev Loans</i>	9.5	-8.8	13.9	-0.9	6.1
<b>Inflation Hedges</b>	--	--	--	--	--
<i>Inflation Hedges Custom Benchmark</i>	--	--	--	--	--
<b>Real Estate</b>	-12.1	18.1	3.7	-0.3	1.9
<i>NCREIF ODCE (Net)</i>	-10.7	28.3	7.1	1.3	5.5
JP Morgan Asset Management Strategic Property Fund	-11.3	27.5	6.1	1.2	4.6
<i>NCREIF ODCE (Net)</i>	-10.7	28.3	7.1	1.3	5.5

## Performance Update | As of September 30, 2023

	Fiscal Year 2023	Fiscal Year 2022	Fiscal Year 2021	Fiscal Year 2020	Fiscal Year 2019
UBS Trumbull Property Fund	-15.6	23.5	1.1	-1.9	-0.8
<i>NCREIF ODCE (Net)</i>	<i>-10.7</i>	<i>28.3</i>	<i>7.1</i>	<i>1.3</i>	<i>5.5</i>
SSgA US REIT	--	--	--	--	--
<i>Dow Jones U.S. Select RESI</i>	<i>-0.8</i>	<i>-6.4</i>	<i>40.0</i>	<i>-17.7</i>	<i>9.8</i>
<b>Natural Resources &amp; Infrastructure</b>	--	--	--	--	--
<i>S&amp;P Global LargeMidcap Resources &amp; Commodities Ind</i>	<i>6.2</i>	<i>9.5</i>	<i>46.1</i>	<i>-16.7</i>	<i>0.8</i>
SSgA S&P Global LargeMidCap Natural Resources Index	--	--	--	--	--
<i>S&amp;P Global LargeMidcap Resources &amp; Commodities Ind</i>	<i>6.2</i>	<i>9.5</i>	<i>46.1</i>	<i>-16.7</i>	<i>0.8</i>
<b>Gold</b>	--	--	--	--	--
<i>60% Gold (Spot)/ 40% FTSE Gold Mines</i>	<i>6.6</i>	<i>-6.8</i>	<i>--</i>	<i>--</i>	<i>--</i>
First Eagle Institutional Gold Fund, LP	--	--	--	--	--
<i>60% Gold (Spot)/ 40% FTSE Gold Mines</i>	<i>6.6</i>	<i>-6.8</i>	<i>--</i>	<i>--</i>	<i>--</i>
<b>Short-Term TIPS</b>	--	--	--	--	--
<i>Blmbg. U.S. TIPS 0-5 Year</i>	<i>0.1</i>	<i>1.1</i>	<i>6.0</i>	<i>3.4</i>	<i>3.2</i>
Vanguard Short-Term TIPS Index	--	--	--	--	--
<i>Blmbg. U.S. TIPS 0-5 Year</i>	<i>0.1</i>	<i>1.1</i>	<i>6.0</i>	<i>3.4</i>	<i>3.2</i>
<b>Risk Mitigation</b>	--	--	--	--	--
<i>Risk Mitigation Custom Benchmark</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>
<b>Investment Grade Fixed Income</b>	<b>0.1</b>	<b>-10.5</b>	<b>0.2</b>	<b>8.6</b>	<b>7.6</b>
<i>Blmbg. U.S. Aggregate Index</i>	<i>-0.9</i>	<i>-10.3</i>	<i>-0.3</i>	<i>8.7</i>	<i>7.9</i>
<b>Intermediate-Term Bonds</b>	<b>0.0</b>	<b>-10.5</b>	<b>0.2</b>	<b>8.6</b>	<b>7.6</b>
<i>Blmbg. U.S. Aggregate Index</i>	<i>-0.9</i>	<i>-10.3</i>	<i>-0.3</i>	<i>8.7</i>	<i>7.9</i>

## Performance Update | As of September 30, 2023

	Fiscal Year 2023	Fiscal Year 2022	Fiscal Year 2021	Fiscal Year 2020	Fiscal Year 2019
SSgA US Aggregate Bond	-0.9	-10.3	-0.3	8.8	7.9
<i>Blmbg. U.S. Aggregate Index</i>	<i>-0.9</i>	<i>-10.3</i>	<i>-0.3</i>	<i>8.7</i>	<i>7.9</i>
Wellington Core Bond	--	--	--	--	--
<i>Blmbg. U.S. Aggregate Index</i>	<i>-0.9</i>	<i>-10.3</i>	<i>-0.3</i>	<i>8.7</i>	<i>7.9</i>
Brandywine U.S. Fixed Income	--	--	--	--	--
<i>Blmbg. U.S. Aggregate Index</i>	<i>-0.9</i>	<i>-10.3</i>	<i>-0.3</i>	<i>8.7</i>	<i>7.9</i>
<b>Long-Term Bonds</b>	--	--	--	--	--
<i>Blmbg. U.S. Treasury: Long</i>	<i>-6.8</i>	<i>-18.5</i>	<i>-10.6</i>	<i>25.4</i>	<i>12.3</i>
SSgA Long US Treasury Index	--	--	--	--	--
<i>Blmbg. U.S. Treasury: Long</i>	<i>-6.8</i>	<i>-18.5</i>	<i>-10.6</i>	<i>25.4</i>	<i>12.3</i>
<b>Hedge Funds</b>	--	--	--	--	--
<i>HFRI Macro (Total) Index</i>	<i>-0.4</i>	<i>7.9</i>	<i>15.0</i>	<i>0.8</i>	<i>2.4</i>
36 South Kohinoor Series (Cayman) Fund	--	--	--	--	--
<i>CBOE EurekaHedge Long Volatility Hedge Fund Index</i>	<i>-6.1</i>	<i>6.0</i>	<i>-9.7</i>	<i>25.1</i>	<i>-2.2</i>
BH-DG Systematic Trading Master Fund	--	--	--	--	--
<i>Barclay CTA Index</i>	<i>-0.4</i>	<i>8.9</i>	<i>9.2</i>	<i>1.5</i>	<i>3.2</i>
Lombard Odier Bear Convexity	--	--	--	--	--
<i>CBOE EurekaHedge Long Volatility Hedge Fund Index</i>	<i>-6.1</i>	<i>6.0</i>	<i>-9.7</i>	<i>25.1</i>	<i>-2.2</i>
Alpstone Global Macro Fund	--	--	--	--	--
<i>HFRI Macro (Total) Index</i>	<i>-0.4</i>	<i>7.9</i>	<i>15.0</i>	<i>0.8</i>	<i>2.4</i>
<b>Cash</b>					

	Risk Return Statistics	
	3 Yrs (%)	5 Yrs (%)
	Total Fund	Total Fund
<b>RETURN SUMMARY STATISTICS</b>		
Maximum Return	8.3	8.3
Minimum Return	-7.3	-10.5
Return	4.7	4.3
Excess Return	3.5	3.2
Excess Performance	-1.1	-0.7
<b>RISK SUMMARY STATISTICS</b>		
Beta	1.0	0.9
Up Capture	96.4	95.5
Down Capture	102.7	99.1
<b>RISK/RETURN SUMMARY STATISTICS</b>		
Standard Deviation	11.7	12.3
Sortino Ratio	0.5	0.4
Alpha	-1.0	-0.5
Sharpe Ratio	0.3	0.3
Excess Risk	11.7	12.4
Tracking Error	0.9	1.5
Information Ratio	-1.3	-0.5
<b>CORRELATION STATISTICS</b>		
R-Squared	1.0	1.0
Actual Correlation	1.0	1.0

### Statistics Summary 3 Years Ending September 30, 2023

	Return	Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Total Fund	4.7	11.7	-1.3	1.0	0.3	0.9
Total Fund Policy Benchmark	5.8	11.7	-	1.0	0.4	0.0
Growth Assets	-	-	-	-	-	-
Growth Assets Custom Benchmark	-	-	-	-	-	-
Global Equity	7.0	16.9	0.3	1.0	0.4	0.5
Global Equity Policy Benchmark	6.9	17.0	-	1.0	0.4	0.0
SSgA MSCI ACWI IMI Index Fund	7.3	17.0	4.1	1.0	0.4	0.1
MSCI AC World IMI (Net)	6.9	17.0	-	1.0	0.4	0.0
SSgA Russell 1000 Growth Index	-	-	-	-	-	-
Russell 1000 Growth Index	8.0	20.5	-	1.0	0.4	0.0
SSgA Russell 1000 Value Index	-	-	-	-	-	-
Russell 1000 Value Index	11.1	17.3	-	1.0	0.6	0.0
SSgA Russell 3000 Index	-	-	-	-	-	-
Russell 3000 Index	9.4	17.9	-	1.0	0.5	0.0
SSgA MSCI EAFE	-	-	-	-	-	-
MSCI EAFE (Net)	5.8	18.0	-	1.0	0.3	0.0
SSgA Emerging Markets Index	-	-	-	-	-	-
MSCI Emerging Markets (Net)	-1.7	17.6	-	1.0	-0.1	0.0
ABS China Direct	-	-	-	-	-	-
MSCI China (Net)	-14.3	29.5	-	1.0	-0.4	0.0



Performance Update | As of September 30, 2023

	Return	Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
ABS EM ex China Direct	-	-	-	-	-	-
MSCI EM ex China	4.8	18.3	-	1.0	0.3	0.0
Kopernik Global All-Cap	-	-	-	-	-	-
MSCI AC World Index (Net)	6.9	16.8	-	1.0	0.4	0.0
First Eagle Global Equity	-	-	-	-	-	-
MSCI AC World Index (Net)	6.9	16.8	-	1.0	0.4	0.0
Artisan Global Opportunities	-	-	-	-	-	-
MSCI AC World Index (Net)	6.9	16.8	-	1.0	0.4	0.0
Credit	-	-	-	-	-	-
Credit Custom Benchmark	-	-	-	-	-	-
High Yield & Bank Loans	-	-	-	-	-	-
High Yield & Bank Loans Custom Benchmark	3.9	5.4	-	1.0	0.4	0.0
Sculptor Credit Opportunities Overseas Fund	-	-	-	-	-	-
Blmbg. Global High Yield Index	-0.1	9.1	-	1.0	-0.2	0.0
Brigade High Income Fund	-	-	-	-	-	-
60% Barclays U.S. Corporate High Yield & 40% CS Lev Loans	3.4	5.8	-	1.0	0.3	0.0
Inflation Hedges	-	-	-	-	-	-
Inflation Hedges Custom Benchmark	-	-	-	-	-	-
Real Estate	1.4	6.1	-0.9	0.6	0.0	5.3
NCREIF ODCE (Net)	6.2	8.8	-	1.0	0.5	0.0
JP Morgan Asset Management Strategic Property Fund	5.1	5.3	-0.2	0.4	0.6	6.8
NCREIF ODCE (Net)	6.2	8.8	-	1.0	0.5	0.0

Performance Update | As of September 30, 2023

	Return	Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
UBS Trumbull Property Fund	1.4	8.9	-1.4	0.9	0.0	3.2
NCREIF ODCE (Net)	6.2	8.8	-	1.0	0.5	0.0
SSgA US REIT	-	-	-	-	-	-
Dow Jones U.S. Select RESI	6.1	21.0	-	1.0	0.3	0.0
Natural Resources & Infrastructure	-	-	-	-	-	-
S&P Global LargeMidcap Resources & Commodities Ind	19.5	21.6	-	1.0	0.9	0.0
SSgA S&P Global LargeMidCap Natural Resources Index	-	-	-	-	-	-
S&P Global LargeMidcap Resources & Commodities Ind	19.5	21.6	-	1.0	0.9	0.0
Gold	-	-	-	-	-	-
60% Gold (Spot)/ 40% FTSE Gold Mines	-	-	-	-	-	-
First Eagle Institutional Gold Fund, LP	-	-	-	-	-	-
60% Gold (Spot)/ 40% FTSE Gold Mines	-	-	-	-	-	-
Short-Term TIPS	-	-	-	-	-	-
Blmbg. U.S. TIPS 0-5 Year	1.9	3.1	-	1.0	0.1	0.0
Vanguard Short-Term TIPS Index	-	-	-	-	-	-
Blmbg. U.S. TIPS 0-5 Year	1.9	3.1	-	1.0	0.1	0.0
Risk Mitigation	-	-	-	-	-	-
Risk Mitigation Custom Benchmark	-	-	-	-	-	-
Investment Grade Fixed Income	-5.6	6.5	-0.4	1.1	-1.1	1.0
Blmbg. U.S. Aggregate Index	-5.2	6.1	-	1.0	-1.1	0.0
Intermediate-Term Bonds	-5.0	6.3	0.4	1.0	-1.1	0.5
Blmbg. U.S. Aggregate Index	-5.2	6.1	-	1.0	-1.1	0.0

## Performance Update | As of September 30, 2023

	Return	Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
SSgA US Aggregate Bond	-5.2	6.2	0.1	1.0	-1.1	0.2
Blmbg. U.S. Aggregate Index	-5.2	6.1	-	1.0	-1.1	0.0
Wellington Core Bond	-	-	-	-	-	-
Blmbg. U.S. Aggregate Index	-5.2	6.1	-	1.0	-1.1	0.0
Brandywine U.S. Fixed Income	-	-	-	-	-	-
Blmbg. U.S. Aggregate Index	-5.2	6.1	-	1.0	-1.1	0.0
Long-Term Bonds	-	-	-	-	-	-
Blmbg. U.S. Treasury: Long	-15.7	13.3	-	1.0	-1.3	0.0
SSgA Long US Treasury Index	-	-	-	-	-	-
Blmbg. U.S. Treasury: Long	-15.7	13.3	-	1.0	-1.3	0.0
Hedge Funds	-	-	-	-	-	-
HFRI Macro (Total) Index	7.4	5.3	-	1.0	1.0	0.0
36 South Kohinoor Series (Cayman) Fund	-	-	-	-	-	-
CBOE EurekaHedge Long Volatility Hedge Fund Index	-2.8	6.2	-	1.0	-0.7	0.0
BH-DG Systematic Trading Master Fund	-	-	-	-	-	-
Barclay CTA Index	5.8	4.0	-	1.0	0.9	0.0
Lombard Odier Bear Convexity	-	-	-	-	-	-
CBOE EurekaHedge Long Volatility Hedge Fund Index	-2.8	6.2	-	1.0	-0.7	0.0
Alpstone Global Macro Fund	-	-	-	-	-	-
HFRI Macro (Total) Index	7.4	5.3	-	1.0	1.0	0.0

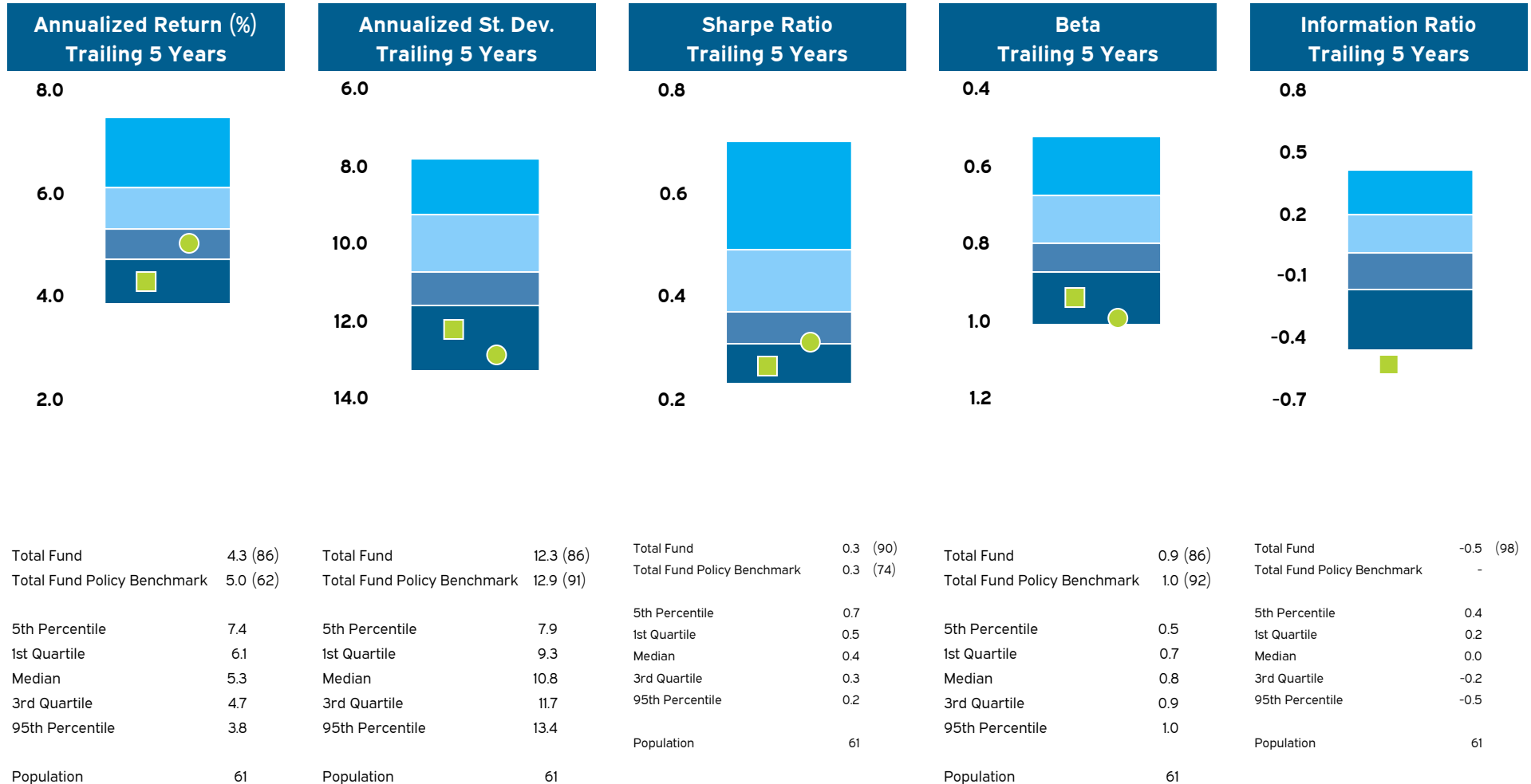
### Cash Flow Summary

	Beginning Market Value	Net Cash Flow	Net Investment Change	Ending Market Value
SSgA MSCI ACWI IMI Index Fund	80,534,783	-12,000,000	-2,483,525	66,051,257
SSgA Russell 1000 Growth Index	29,111,832	-	-914,594	28,197,238
SSgA Russell 1000 Value Index	14,136,906	-	-446,494	13,690,412
SSgA Russell 3000 Index	168,051,190	8,899,724	-5,825,873	171,125,042
SSgA MSCI EAFE	97,633,829	-	-3,999,038	93,634,791
SSgA Emerging Markets Index	38,727,752	-	-1,260,539	37,467,213
ABS China Direct	3,288,722	-	-102,359	3,186,363
ABS EM ex China Direct	11,961,807	-	-161,884	11,799,923
Kopernik Global All-Cap	28,726,467	-	1,219,438	29,945,905
First Eagle Global Equity	100,792,992	-	-3,934,733	96,858,259
Artisan Global Opportunities	98,990,303	-	-5,295,301	93,695,002
Sculptor Credit Opportunities Overseas Fund	25,363,769	-	367,460	25,731,229
Brigade High Income Fund	38,137,500	-	1,141,792	39,279,292
JP Morgan Asset Management Strategic Property Fund	51,308,111	-118,977	-1,591,637	49,597,497
UBS Trumbull Property Fund	25,946,019	-603,193	-414,505	24,928,322
SSgA US REIT	13,389,862	-	-993,225	12,396,637
SSgA S&P Global LargeMidCap Natural Resources Index	31,502,822	8,489,138	1,133,919	41,125,879
First Eagle Institutional Gold Fund, LP	35,778,914	-	-2,000,363	33,778,551
Vanguard Short-Term TIPS Index	76,037,951	-3,800,000	411,301	72,649,252
Harvest MLP	6,145	-6,043	-102	-
Tortoise Capital Advisors	1,180	-1,195	14	-
PIMCO Total Return	2,626,403	-2,679,338	52,935	-
SSgA US Aggregate Bond	67,078,173	-3,501,082	-2,226,046	61,351,045
Wellington Core Bond	74,963,612	6,000,000	-2,490,447	78,473,166
Brandywine U.S. Fixed Income	18,611,560	2,000,000	-1,072,399	19,539,161

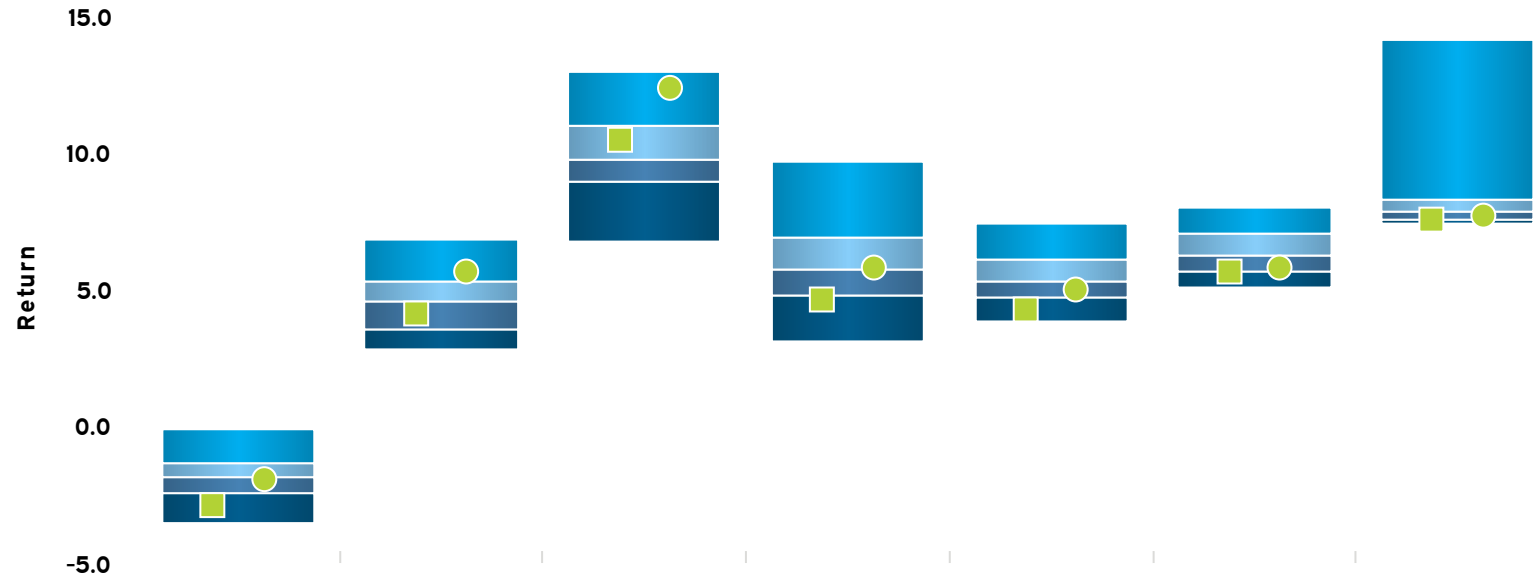
## Performance Update | Quarter To Date

	Beginning Market Value	Net Cash Flow	Net Investment Change	Ending Market Value
SSgA Long US Treasury Index	51,245,601	-	-6,068,771	45,176,831
36 South Kohinoor Series (Cayman) Fund	21,417,297	-	521,799	21,939,096
BH-DG Systematic Trading Master Fund	18,319,779	-	-421,707	17,898,072
Lombard Odier Bear Convexity	7,985,782	-	-16,196	7,969,585
Alpstone Global Macro Fund	16,719,940	-	349,776	17,069,716
Cash	998,353	15,659,516	32,594	16,690,463
<b>Total</b>	<b>1,249,395,356</b>	<b>18,338,550</b>	<b>-36,488,710</b>	<b>1,231,245,196</b>

Performance Update | As of September 30, 2023



### InvMetrics All Public DB Plans > \$1B



	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception
■ Total Fund	-2.9 (83)	4.1 (58)	10.5 (38)	4.7 (82)	4.3 (86)	5.7 (76)	7.6 (72)
● Total Fund Policy Benchmark	-1.9 (52)	5.7 (12)	12.4 (9)	5.8 (50)	5.0 (62)	5.8 (72)	7.7 (66)
5th Percentile	-0.1	6.9	13.0	9.7	7.4	8.0	14.1
1st Quartile	-1.3	5.3	11.0	6.9	6.1	7.0	8.3
Median	-1.9	4.6	9.8	5.7	5.3	6.2	7.9
3rd Quartile	-2.5	3.5	8.9	4.8	4.7	5.7	7.5
95th Percentile	-3.5	2.8	6.7	3.1	3.8	5.1	7.4
Population	79	73	73	63	61	54	12

Parentheses contain percentile rankings.  
Calculation based on monthly periodicity.

Annual Investment Expense Analysis As of September 30, 2023				
	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
<b>Growth Assets</b>		<b>\$645,651,405</b>	<b>\$1,538,949</b>	<b>0.24</b>
<b>Global Equity</b>		<b>\$645,651,405</b>	<b>\$1,538,949</b>	<b>0.24</b>
SSgA MSCI ACWI IMI Index Fund	0.05 % of Assets	\$66,051,257	\$29,723	0.05
SSgA Russell 1000 Growth Index	0.02 % of Assets	\$28,197,238	\$5,639	0.02
SSgA Russell 1000 Value Index	0.02 % of Assets	\$13,690,412	\$2,738	0.02
SSgA Russell 3000 Index	0.02 % of Assets	\$171,125,042	\$34,225	0.02
SSgA MSCI EAFE	0.04 % of Assets	\$93,634,791	\$37,454	0.04
SSgA Emerging Markets Index	0.08 % of Assets	\$37,467,213	\$29,974	0.08
ABS China Direct	0.65 % of Assets	\$3,186,363	\$20,711	0.65
ABS EM ex China Direct	0.50 % of Assets	\$11,799,923	\$59,000	0.50
Kopernik Global All-Cap	0.75 % of Assets	\$29,945,905	\$224,594	0.75
First Eagle Global Equity	0.55 % of Assets	\$96,858,259	\$532,720	0.55
Artisan Global Opportunities	0.60 % of Assets	\$93,695,002	\$562,170	0.60
<b>Credit</b>		<b>\$65,010,520</b>	<b>\$461,565</b>	<b>0.71</b>
<b>High Yield &amp; Bank Loans</b>		<b>\$65,010,520</b>	<b>\$461,565</b>	<b>0.71</b>
Sculptor Credit Opportunities Overseas Fund	Performance Based 1.00 and 20.00	\$25,731,229	\$257,312	1.00
Brigade High Income Fund	0.52 % of Assets	\$39,279,292	\$204,252	0.52
<b>Inflation Hedges</b>		<b>\$234,476,137</b>	<b>\$899,623</b>	<b>0.38</b>
<b>Real Estate</b>		<b>\$86,922,456</b>	<b>\$677,434</b>	<b>0.78</b>
JP Morgan Asset Management Strategic Property Fund	0.91 % of Assets	\$49,597,497	\$451,337	0.91



	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
UBS Trumbull Property Fund	0.96 % of First \$10 M 0.83 % of Next \$15 M 0.81 % of Next \$25 M 0.79 % of Next \$50 M 0.67 % of Next \$150 M 0.60 % of Next \$150 M 0.56 % of Next \$200 M 0.52 % Thereafter	\$24,928,322	\$218,659	0.88
SSgA US REIT	0.06 % of Assets	\$12,396,637	\$7,438	0.06
<b>Natural Resources &amp; Infrastructure</b>		<b>\$41,125,879</b>	<b>\$41,126</b>	<b>0.10</b>
SSgA S&P Global LargeMidCap Natural Resources Index	0.10 % of Assets	\$41,125,879	\$41,126	0.10
<b>Gold</b>		<b>\$33,778,551</b>	<b>\$152,003</b>	<b>0.45</b>
First Eagle Institutional Gold Fund, LP	0.45 % of Assets	\$33,778,551	\$152,003	0.45
<b>Short-Term TIPS</b>		<b>\$72,649,252</b>	<b>\$29,060</b>	<b>0.04</b>
Vanguard Short-Term TIPS Index	0.04 % of Assets	\$72,649,252	\$29,060	0.04
<b>Risk Mitigation</b>		<b>\$286,107,134</b>	<b>\$852,711</b>	<b>0.30</b>
<b>Investment Grade Fixed Income</b>		<b>\$204,540,202</b>	<b>\$176,655</b>	<b>0.09</b>
<b>Intermediate-Term Bonds</b>		<b>\$159,363,371</b>	<b>\$163,102</b>	<b>0.10</b>
SSgA US Aggregate Bond	0.02 % of Assets	\$61,351,045	\$12,270	0.02
Wellington Core Bond	0.12 % of Assets	\$78,473,166	\$94,168	0.12
Brandywine U.S. Fixed Income	0.29 % of Assets	\$19,539,161	\$56,664	0.29

Performance Update | As of September 30, 2023

	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
<b>Long-Term Bonds</b>		<b>\$45,176,831</b>	<b>\$13,553</b>	<b>0.03</b>
SSgA Long US Treasury Index	0.03 % of Assets	\$45,176,831	\$13,553	0.03
<b>Hedge Funds</b>		<b>\$64,876,469</b>	<b>\$676,056</b>	<b>1.04</b>
36 South Kohinoor Series (Cayman) Fund	Performance Based 1.00 and 20.00	\$21,939,096	\$219,391	1.00
BH-DG Systematic Trading Master Fund	0.93 % of Assets	\$17,898,072	\$166,452	0.93
Lombard Odier Bear Convexity	Performance Based 0.75 and 27.50	\$7,969,585	\$59,772	0.75
Alpstone Global Macro Fund	Performance Based 1.35 and 20.00	\$17,069,716	\$230,441	1.35
<b>Cash</b>		<b>\$16,690,463</b>	<b>-</b>	<b>-</b>
Cash		\$16,690,463	-	-
<b>Total Fund</b>		<b>\$1,231,245,196</b>	<b>\$3,752,847</b>	<b>0.30</b>

Fund	2023 Monthly Management Fees Paid (\$)										
	January	Feb	March	April	May	June	July	August	September	FYTD	CYTD
SSgA MSCI ACWI IMI Index Fund	70,976	0	66,626	0	0	41,553	6,297	0	9,472	15,769	194,925
SSgA Russell 1000 Growth Index	0	0	0	0	0	408	0	0	1,231	1,231	1,639
SSgA Russell 1000 Value Index	0	0	0	0	0	395	0	0	686	686	1,082
SSgA Russell 3000 Index	0	0	0	0	0	6,014	0	0	8,195	8,195	14,208
SSgA MSCI EAFE	0	0	0	0	0	5,983	0	0	10,264	10,264	16,247
SSgA Emerging Markets Index	0	0	0	0	0	4,385	0	0	7,599	7,599	11,985
ABS China Direct	0	0	1,930	1,939	1,924	1,748	1,781	1,912	1,775	5,468	13,010
ABS EM ex China Direct	0	0	4,453	4,545	4,597	4,724	4,984	5,247	5,054	15,285	33,604
Kopernik Global All-Cap*	0	0	22,051	21,752	21,891	21,250	22,810	22,757	22,152	67,719	154,664
First Eagle Global Equity	0	0	32,680	45,021	43,463	46,216	47,393	46,153	44,411	137,957	305,336
Artisan Global Opportunities*	0	0	49,734	49,364	50,319	49,495	50,247	49,336	46,848	146,431	345,344
Sculptor Credit Opportunities Overseas Fund	0	0	0	20,604	21,291	20,604	21,522	21,522	20,828	63,871	126,371
Brigade High Income Fund*	0	0	0	16,250	16,266	16,526	16,860	17,080	17,021	50,961	100,003
JP Morgan Strategic Property Fund	136,444	0	0	129,344	0	0	118,977	0	0	118,977	384,766
UBS Trumbull Property Fund	0	0	59,931	0	0	57,107	0	0	54,378	54,378	171,415
SSgA US REIT	0	0	0	0	0	1,098	0	0	2,615	2,615	3,713
SSgA S&P Global LargeMidCap NR Index	0	0	0	0	0	717	0	0	7,848	7,848	8,565
First Eagle Institutional Gold Fund, LP	0	0	3,325	14,434	14,372	13,407	13,950	13,509	12,912	40,371	85,910
Vanguard Short-Term TIPS Index*	0	0	2,115	2,119	2,105	2,535	2,833	2,837	2,422	8,092	16,966
Harvest MLP	0	147,510	0	86,980	0	0	0	0	0	0	234,491
Tortoise Capital Advisors	148,249	92,755	8,814	0	0	0	0	0	0	0	249,819
PIMCO Total Return	0	0	78,555	0	0	0	0	2,987	0	2,987	81,543
SSgA US Aggregate Bond	9,422	0	7,528	0	0	5,717	1,082	0	3,739	4,821	27,488
Wellington Core Bond*	0	0	0	8,843	8,757	8,746	8,745	9,397	9,155	27,298	53,643
Brandywine U.S. Fixed Income	0	0	0	0	0	4,436	0	0	14,166	14,166	18,602
SSgA Long US Treasury Index	0	0	0	0	0	1,601	0	0	3,881	3,881	5,482
36 South Kohinoor Series (Cayman) Fund	0	0	0	7,257	7,314	17,921	17,826	18,105	18,465	54,395	86,887
BH-DG Systematic Trading Master Fund	0	0	0	12,021	14,508	13,747	14,231	13,892	13,220	41,344	81,620
Lombard Odier Bear Convexity	0	0	0	5,025	5,107	4,994	4,920	4,969	4,984	14,873	30,000
Alpstone Global Macro	0	0	0	0	18,446	18,837	18,999	18,957	19,329	57,285	94,568
<b>Total</b>	<b>365,092</b>	<b>240,266</b>	<b>337,742</b>	<b>425,500</b>	<b>230,362</b>	<b>370,164</b>	<b>373,459</b>	<b>248,660</b>	<b>362,649</b>	<b>984,768</b>	<b>2,953,894</b>
<b>Custodial Fee</b>	<b>0</b>	<b>21,413</b>	<b>10,569</b>	<b>10,733</b>	<b>8,683</b>	<b>3,597</b>	<b>2,797</b>	<b>4,248</b>	<b>2,716</b>	<b>9,762</b>	<b>64,757</b>

\*In some instances, NERS is invested in a pooled vehicle so a separate fee isn't charged at the Plan level. The fee is reflected in the NAV. Estimated based on management fee and market value.

### Benchmark History

From Date	To Date	Benchmark
Total Fund		
12/01/2022	Present	14.0% Blmbg. U.S. Aggregate Index, 2.0% Blmbg. U.S. Corp: High Yield Index, 4.0% HFRI Macro (Total) Index, 8.0% NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net), 52.0% MSCI AC World IMI (Net), 5.0% Blmbg. U.S. TIPS 0-5 Year, 5.0% S&P Global LargeMidcap Resources & Commodities Ind, 2.0% Credit Suisse Leveraged Loan Index, 3.0% 60% Gold (Spot)/ 40% FTSE Gold Mines, 5.0% MSCI ACWI + 3% 1Q Lag
05/01/2016	12/01/2022	30.0% Blmbg. U.S. Aggregate Index, 7.5% NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net), 7.5% Alerian MLP Index, 55.0% MSCI AC World IMI (Net)
03/01/2016	05/01/2016	33.0% Russell 3000 Index, 30.0% Blmbg. U.S. Aggregate Index, 7.5% NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net), 22.0% MSCI AC World ex USA (Net), 7.5% Alerian MLP Index
02/01/2013	03/01/2016	33.0% Russell 3000 Index, 35.0% Blmbg. U.S. Aggregate Index, 5.0% NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net), 22.0% MSCI AC World ex USA (Net), 5.0% Alerian MLP Index
03/01/2011	02/01/2013	36.0% Russell 3000 Index, 35.0% Blmbg. U.S. Aggregate Index, 5.0% NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net), 24.0% MSCI AC World ex USA (Net)
09/01/2009	03/01/2011	36.0% Russell 3000 Index, 40.0% Blmbg. U.S. Aggregate Index, 24.0% MSCI AC World ex USA (Net)
06/01/2009	09/01/2009	42.0% Russell 3000 Index, 40.0% Blmbg. U.S. Aggregate Index, 18.0% MSCI AC World ex USA (Net)
06/01/2006	06/01/2009	42.0% Russell 3000 Index, 40.0% Blmbg. U.S. Aggregate Index, 18.0% MSCI EAFE (Net)
07/01/2003	06/01/2006	60.0% S&P 500 Index, 40.0% Blmbg. U.S. Aggregate Index
10/01/2002	07/01/2003	55.0% S&P 500 Index, 45.0% Blmbg. U.S. Aggregate Index
10/01/1990	10/01/2002	50.0% S&P 500 Index, 50.0% Blmbg. U.S. Aggregate Index

Total Fund Public benchmark consists of 74% MSCI ACWI IMI / 26% Bloomberg US Aggregate. Historical Varies.

Total Fund Actual Allocation Benchmark reflects the asset classes set fourth in the Fund's investment policy statement, weighted for the Fund's actual investments and performance of the indexes referenced above.

### Benchmark History

From Date	To Date	Benchmark
Growth Assets		
12/01/2022	Present	91.0% MSCI AC World IMI (Net), 9.0% MSCI ACWI + 3% 1Q Lag
Global Equity		
05/01/2016	Present	100.0% MSCI AC World IMI (Net)
09/01/2009	05/01/2016	60.0% Russell 3000 Index, 40.0% MSCI AC World ex USA (Net)
06/01/2009	09/01/2009	70.0% Russell 3000 Index, 30.0% MSCI AC World ex USA (Net)
01/01/2006	06/01/2009	70.0% Russell 3000 Index, 30.0% MSCI EAFE (Net)
10/01/1990	01/01/2006	100.0% S&P 500 Index
Inflation Hedges		
12/01/2022	Present	38.0% NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net), 24.0% Blmbg. U.S. TIPS 1-5 Year Index, 24.0% S&P Global LargeMidcap Resources & Commodities Ind, 14.0% 60% Gold (Spot)/ 40% FTSE Gold Mines
Risk Mitigation		
12/01/2022	Present	78.0% Blmbg. U.S. Aggregate Index, 22.0% HFRI Macro (Total) Index

## **Disclaimer, Glossary, and Notes**

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INFORMATION USED TO PREPARE THIS REPORT WAS OBTAINED FROM INVESTMENT MANAGERS, CUSTODIANS, AND OTHER EXTERNAL SOURCES. WHILE WE HAVE EXERCISED REASONABLE CARE IN PREPARING THIS REPORT, WE CANNOT GUARANTEE THE ACCURACY OF ALL SOURCE INFORMATION CONTAINED HEREIN.

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PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

**Credit Risk:** Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security.)

**Duration:** Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

**Information Ratio:** This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

**Jensen's Alpha:** A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk.  $\text{Portfolio Return} - [\text{Risk Free Rate} + \text{Beta} \times (\text{market return} - \text{Risk Free Rate})]$ .

**Market Capitalization:** For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

**Market Weighted:** Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

**Maturity:** The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.

**Prepayment Risk:** The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

**Price-Book Value (P/B) Ratio:** The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.



**Price-Earnings (P/E) Ratio:** A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about its future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

**Quality Rating:** The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

**Sharpe Ratio:** A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.

**STIF Account:** Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

**Standard Deviation:** A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

**Style:** The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

**Tracking Error:** A divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark, as defined by the difference in standard deviation.

**Yield to Maturity:** The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a “basis book.” For example, a 5% bond pays \$5 a year interest on each \$100 par value. To figure its current yield, divide \$5 by \$95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay \$100 for the bond that can be bought now for \$95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

$$\frac{5\% \text{ (discount)}}{5 \text{ (yrs. to maturity)}} = 1\% \text{ pro rata, plus } 5.26\% \text{ (current yield)} = 6.26\% \text{ (yield to maturity)}$$

**Yield to Worst:** The lowest potential yield that can be received on a bond without the issuer actually defaulting. The yield to worst is calculated by making worst-case scenario assumptions on the issue by calculating the returns that would be received if provisions, including prepayment, call, or sinking fund, are used by the issuer.

**NCREIF Property Index (NPI):** Measures unleveraged investment performance of a very large pool of individual commercial real estate properties acquired in the private market by tax-exempt institutional investors for investment purposes only. The NPI index is capitalization-weighted for a quarterly time series composite total rate of return.

**NCREIF Fund Index - Open End Diversified Core Equity (NFI-ODCE):** Measures the investment performance of 28 open-end commingled funds pursuing a core investment strategy that reflects funds' leverage and cash positions. The NFI-ODCE index is equal-weighted and is reported gross and net of fees for a quarterly time series composite total rate of return.

Sources: Investment Terminology, International Foundation of Employee Benefit Plans, 1999.

The Handbook of Fixed Income Securities, Fabozzi, Frank J., 1991

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Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.