MEKETA | 45 YEARS
CELEBRATING A MILESTONE

Employees' Retirement System of the City of Norfolk

Meeting Materials
May 3, 2023

Fund Evaluation Report

Agenda

Economic and Market Update

Data as of March 31, 2023

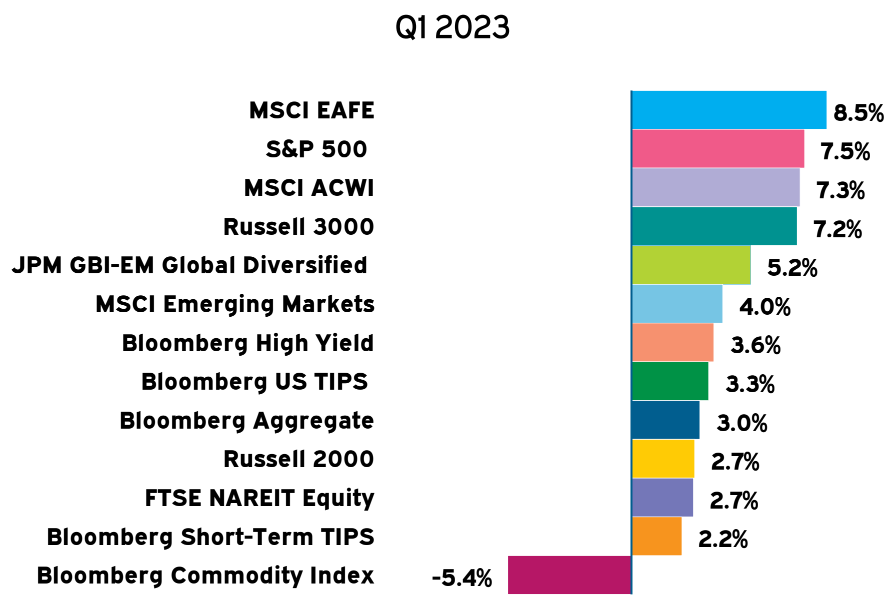
Commentary

→ It was a volatile quarter for most asset classes driven by evolving monetary policy expectations and high-profile bank failures. Ultimately, investors remained focused on slowing inflation and potentially peaking rate hikes leading to positive results across most asset classes for the quarter.

- The Fed's, and others', quick responses to pressures in the banking sector brought confidence back to the markets in March with the crisis driving the terminal policy rate expectations lower.
- US equity markets (Russell 3000) rallied in March (+2.7%) finishing the first quarter in strongly positive territory (+7.2%). Growth significantly outperformed value for the quarter, driven by the technology sector.
- Non-US developed equity markets (MSCI EAFE +2.5%) also posted positive returns in March. They returned 8.5% for the quarter, finishing ahead of US equities.
- Emerging market equities had positive returns for the month (+3.0%) supported by Chinese equities (+4.5%) and a weaker US dollar. They trailed developed market equities for the quarter partly due to higher US-China tensions.
- On expectations for lower inflation and concerns over the banking sector, bonds rallied in March, with the broad US bond market (Bloomberg Aggregate) rising 2.5%. For the quarter, the broad US bond market was up 3.0%.

→ This year, the path of inflation and monetary policy, slowing global growth, and the war in Ukraine, as well as recent pressures in small- and medium-sized regional banks in the US, will all be key.

Index Returns[1]



→ Despite volatility during the quarter, public markets, except commodities, finished the first quarter of 2023 in positive territory adding to the strong gains from the fourth quarter of last year.

[1] Source: Bloomberg and FactSet. Data is as of March 31, 2023.

Domestic Equity Returns[1]

Domestic Equity	March (%)	Q1 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	3.7	7.5	-7.7	18.6	11.2	12.2
Russell 3000	2.7	7.2	-8.6	18.5	10.4	11.7
Russell 1000	3.2	7.5	-8.4	18.6	10.9	12.0
Russell 1000 Growth	6.8	14.4	-10.9	18.6	13.6	14.6
Russell 1000 Value	-0.5	1.0	-5.9	17.9	7.5	9.1
Russell MidCap	-1.5	4.1	-8.8	19.2	8.0	10.0
Russell MidCap Growth	1.4	9.1	-8.5	15.2	9.1	11.2
Russell MidCap Value	-3.1	1.3	-9.2	20.7	6.5	8.8
Russell 2000	-4.8	2.7	-11.6	17.5	4.7	8.0
Russell 2000 Growth	-2.5	6.1	-10.6	13.4	4.3	8.5
Russell 2000 Value	-7.2	-0.7	-13.0	21.0	4.5	7.2

US Equities: Russell 3000 Index rose 2.7% in March and 7.2% in Q1.

→ US stocks rose in aggregate for the month and quarter as investors were optimistic that the Federal Reserve may end its policy tightening earlier than expected. However, turmoil in the regional banking industry weighed on segments of the market.

→ The small cap and value indices were more exposed to the banking turmoil and underperformed their broad market indices by significant margins.

→ Large cap stocks were driven higher by the continued strength of the technology and communication services sectors. This same dynamic contributed to the continued outperformance of growth stocks against their value counterparts across the capitalization spectrum.

[1] Source: Bloomberg. Data is as of March 31, 2023.

Foreign Equity Returns[1]

Foreign Equity	March (%)	Q1 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	2.4	6.9	-5.1	11.8	2.5	4.2
MSCI EAFE	2.5	8.5	-1.4	13.0	3.6	5.0
MSCI EAFE (Local Currency)	0.5	7.5	3.8	14.6	6.3	7.3
MSCI EAFE Small Cap	-0.2	4.9	-9.8	12.1	0.9	5.8
MSCI Emerging Markets	3.0	4.0	-10.7	7.8	-0.9	2.0
MSCI Emerging Markets (Local Currency)	2.2	3.8	-6.6	8.8	1.9	5.0
MSCI China	4.5	4.7	-4.7	-2.6	-4.0	3.4

Foreign Equity: Developed international equities (MSCI EAFE) rose 2.5% in March and 8.5% for the quarter. Emerging market equities (MSCI EM) rose 3.0%. for the month and 4.0% in the first quarter.

- → Non-US equities also recovered in March with developed markets (MSCI EAFE) outpacing US equities (8.5% versus 7.2%) for the quarter and emerging markets (MSCI Emerging Markets) trailing (4.0% versus 7.2%).
- → Developed market equities also benefited from expectations that monetary policy may be peaking on declining inflation. The continued weakness in the US dollar also added to the quarterly results (+1%) for US investors.
- → Emerging market equities started the year with optimism over the reopening of China's economy, but the escalation of US-China tensions and the broader banking crisis led to weaker relative results compared to developed markets.

[1] Source: Bloomberg. Data is as of March 31, 2023.

Fixed Income Returns[1]

Fixed Income	March (%)	Q1 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Barclays Universal	2.3	2.9	-4.6	-2.0	1.0	1.6	4.8	6.3
Bloomberg Barclays Aggregate	2.5	3.0	-4.8	-2.8	0.9	1.4	4.4	6.5
Bloomberg Barclays US TIPS	2.9	3.3	-6.1	1.8	2.9	1.5	4.1	7.0
Bloomberg Short-term TIPS	1.9	2.2	-0.3	3.5	3.0	1.5	4.6	2.5
Bloomberg Barclays High Yield	1.1	3.6	-3.3	5.9	3.2	4.1	8.5	4.2
JPM GBI-EM Global Diversified (USD)	4.1	5.2	-0.7	0.9	-2.4	-1.5	7.1	5.1

Fixed Income: The Bloomberg Universal rose 2.3% in March and 2.9% in Q1 as global sovereign debt yields fell on monetary policy expectations.

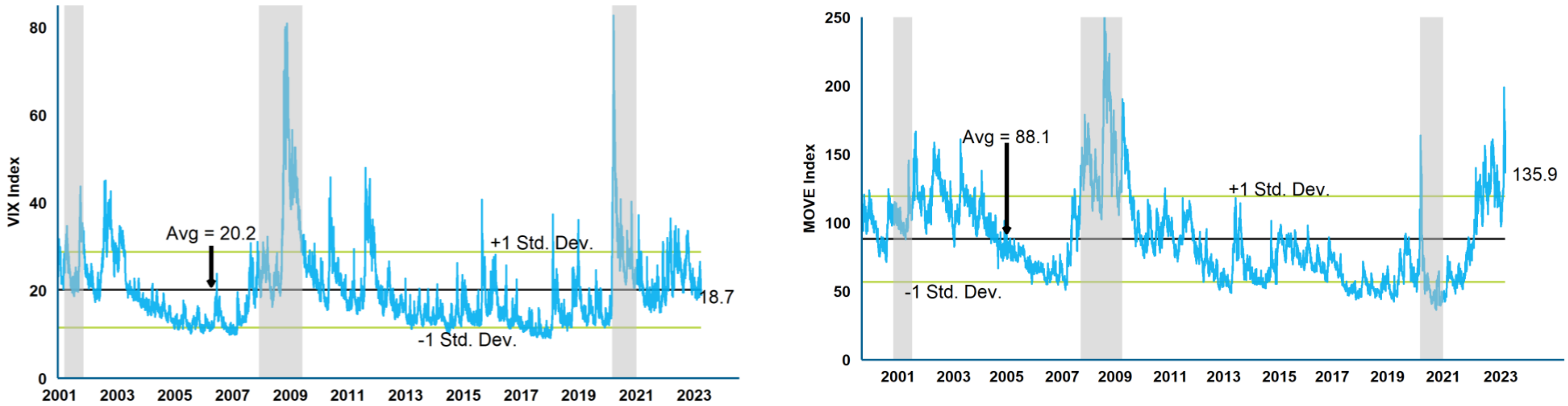
→ Anecdotal reports suggest bouts of flight-to-quality flows during the peak of interest rate volatility connected to the banking sector pushed sovereign debt yields lower. These concerns largely outweighed continued inflation concerns and caused investors to adjust their policy expectations.

→ The broad TIPS index outperformed the broad US bond market (Bloomberg Aggregate) in March and for the quarter.

→ High yield bonds had the weakest results in March driven by banking sector weakness but outperformed the broad US bond market for the quarter.

[1] Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of March 31, 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[1]

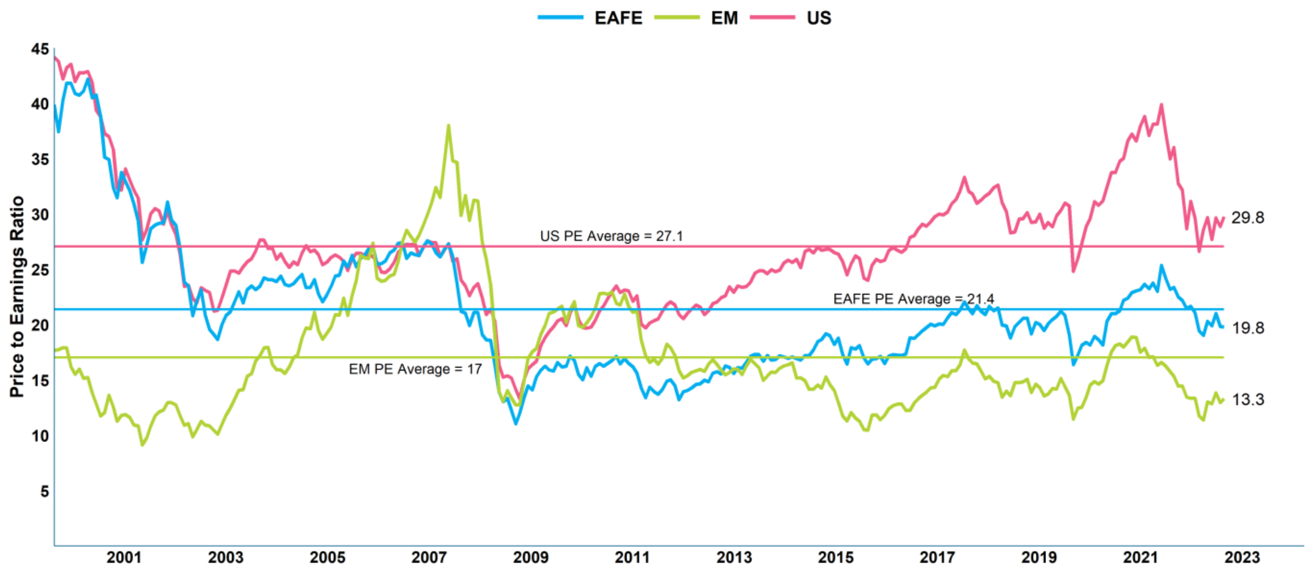


→ Volatility in equities (VIX) remained subdued through the end of March as investors continued to anticipate the end of the Fed's policy tightening.

→ In comparison, the bond market remains on edge with the more policy sensitive MOVE (fixed income volatility) remaining well above its long-run average. During the quarter it hit the highest level since the Global Financial Crisis as the banking sector issues created uncertainty over how the Fed would balance fighting inflation and maintaining financial stability.

[1] Equity and 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 March 2023. The average line indicated is the average of the VIX and MOVE values between January 2000 and March 2023.

Equity Cyclically Adjusted P/E Ratios[1]

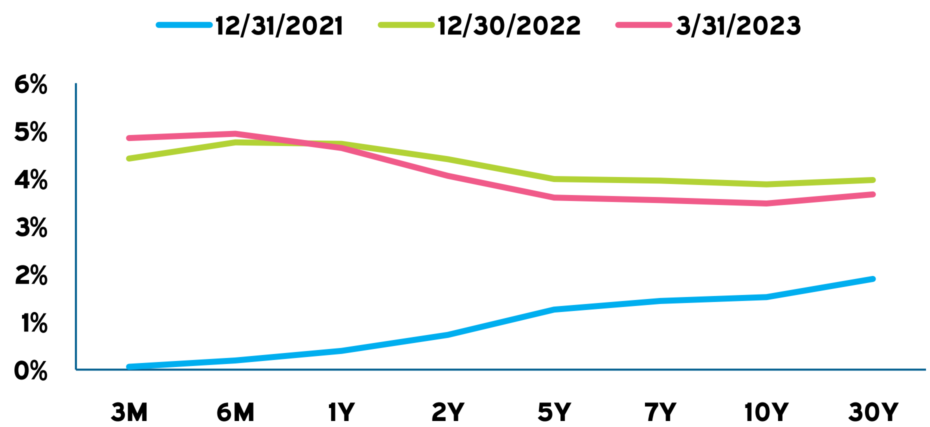


→ After its dramatic decline last year the US equity price-to-earnings ratio remains above its long-run (21st century) average.

→ International developed market valuations are slightly below their own long-term average, with those for emerging markets the lowest and well under the long-term average.

[1] 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: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years. Data is as of March 2023. The average line is the long-term average of the US, EM, and EAFE PE values from December 1999 to the recent month-end respectively.

US Yield Curve[1]



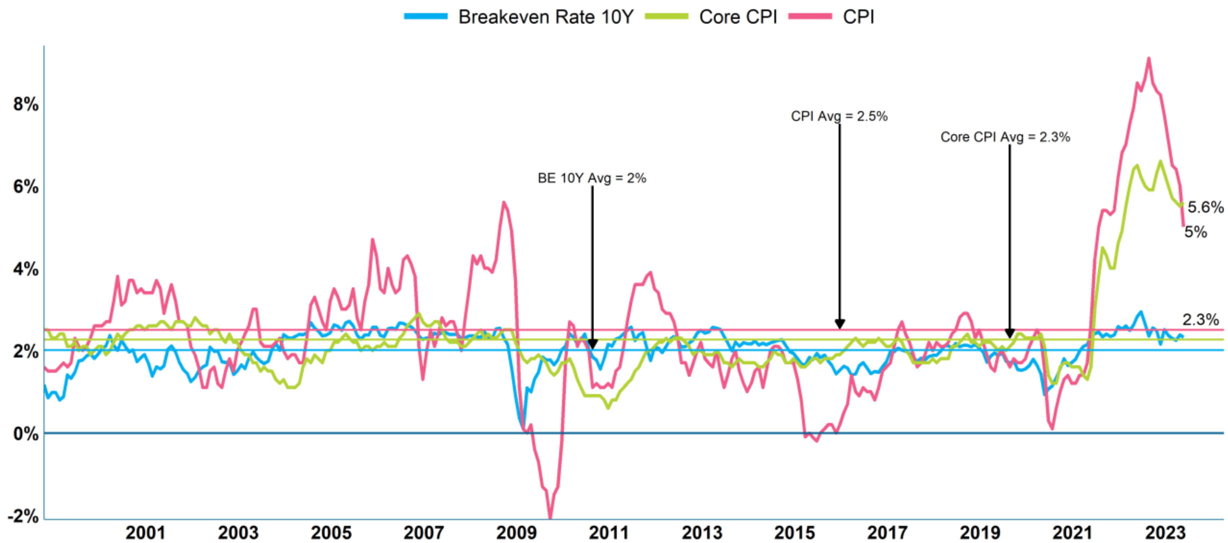
→ It was a volatile quarter for interest rates, particularly shorter-dated maturities. Except for the shortest maturities, rates largely declined across the yield curve in the first quarter on expectations of peaking policy.

→ After hitting -1.07% in early March, the yield spread between two-year and ten-year Treasuries finished the quarter at -0.55% as policy-sensitive rates at the front-end of the curve declined faster than longer maturities. The more closely watched measure by the Fed of three-month and ten-year Treasuries also remained inverted. Inversions in the yield curve have often preceded recessions.

→ The Fed remained committed to fighting inflation, despite pressures in the banking sector, raising rates another 25 basis points to a range of 4.75% to 5.0% at its March meeting.

[1] Source: Bloomberg. Data is as of March 31, 2023.

Ten-Year Breakeven Inflation and CPI[1]



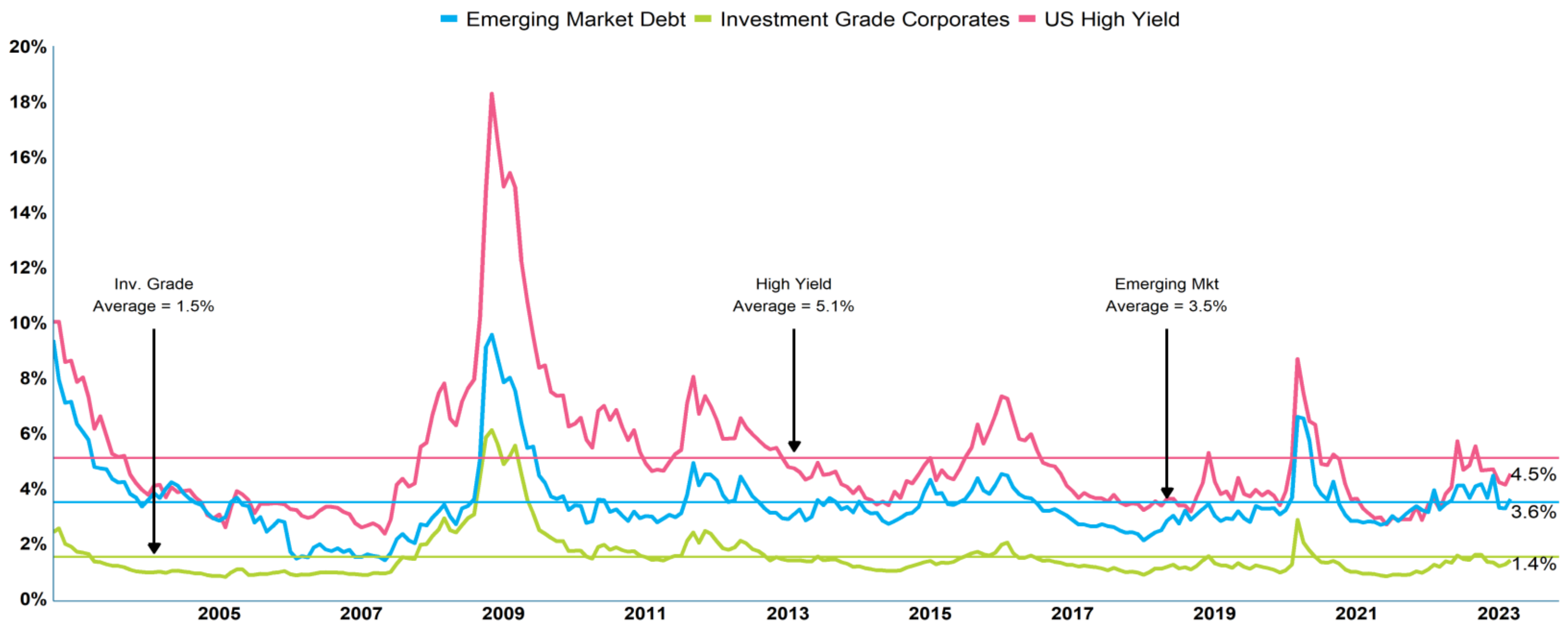
→ Inflation continued to decline in March with the year-over-year reading falling from 6.0% to 5.0% and coming in slightly below the 5.1% expectations. The rate of price increases also slowed on a month-over-month basis (0.1% versus 0.4%), with food prices only slightly higher and energy prices declining.

→ Core inflation – excluding food and energy - rose (5.6% versus 5.5%) mostly driven by transportation and housing.

→ Inflation expectations (breakevens) were volatile over the month and declined on net, but nonetheless ended the month at 2.3% (roughly where it started the quarter).

[1] Source: Bloomberg. Data is as of March 31, 2023. The CPI and 10 Year Breakeven average lines denote the average values from August 1998 to the present month-end, respectively. Breakeven values represent month-end values for comparative purposes.

Credit Spreads vs. US Treasury Bonds[1]

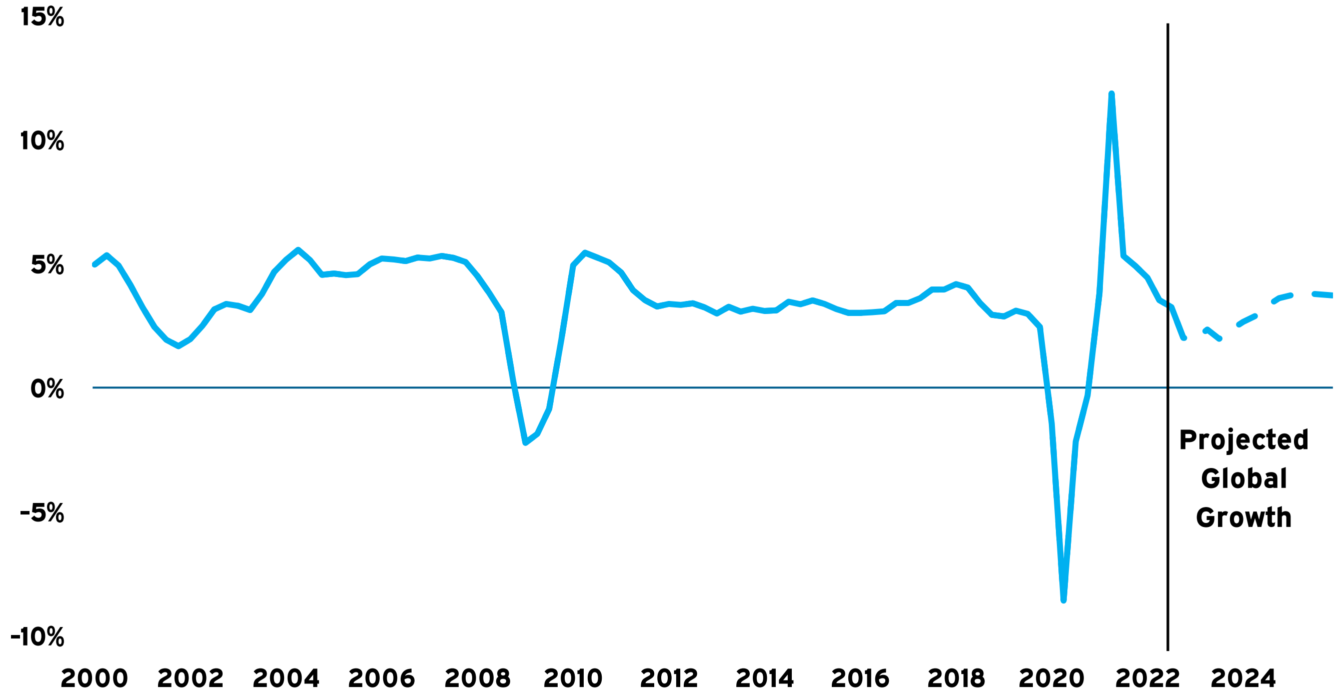


→ Spreads (the added yield above a comparable maturity Treasury) experienced a significant spike in March during the banking crisis but subsequently declined as the Fed and others stepped in to provide support.

→ High yield spreads rose from 4.1% to a peak of 5.2% in March before finishing the quarter at 4.5% (lower than the start of the quarter by 0.2%). Investment grade spreads also spiked in March (1.2% to 1.6%) but also fell from their peak to 1.4%. Emerging market spreads finished the quarter at 3.6% experiencing the largest decline (-0.9%).

[1] Sources: Bloomberg. Data is as of March 31, 2023. Average lines denote the average of the investment grade, high yield, and emerging market spread values from August 2000 to the recent month-end, respectively.

Global Real Gross Domestic Product (GDP) Growth[1]



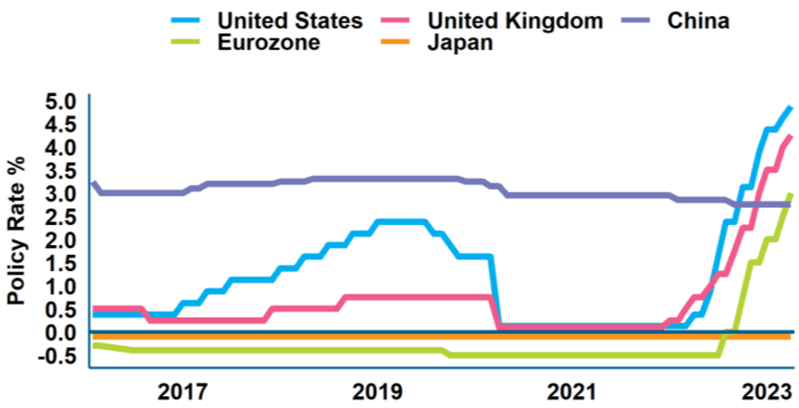
→ Global economies are expected to slow in 2023 compared to 2022, with risks of recession increasing given persistently high inflation and related tighter monetary policy.

→ The delicate balancing act of central banks trying to reduce inflation without dramatically impacting growth will remain key.

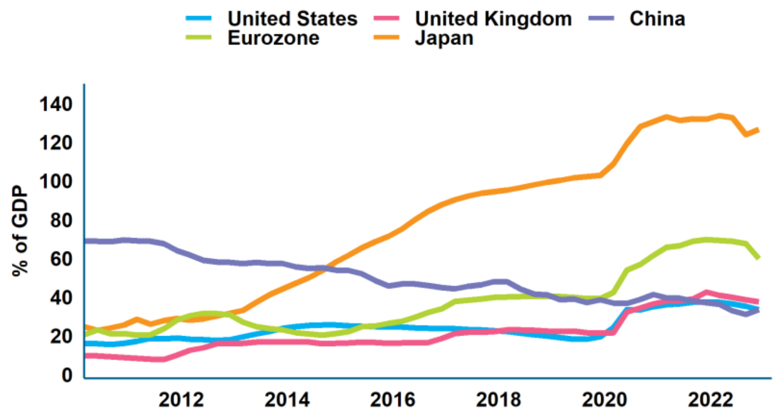
[1] Source: Oxford Economics (World GDP, US$ prices & PPP exchange rate, real, % change YoY). Updated March 2023.

Central Bank Response[1]

Policy Rates



Balance Sheet as % of GDP



→ In 2022, many central banks aggressively reduced pandemic-era policy support in the face of high inflation with the US taking the most aggressive approach. Slowing inflation and recent signs of instability in the banking sector have led to expectations for the slowing of policy tightening going forward.

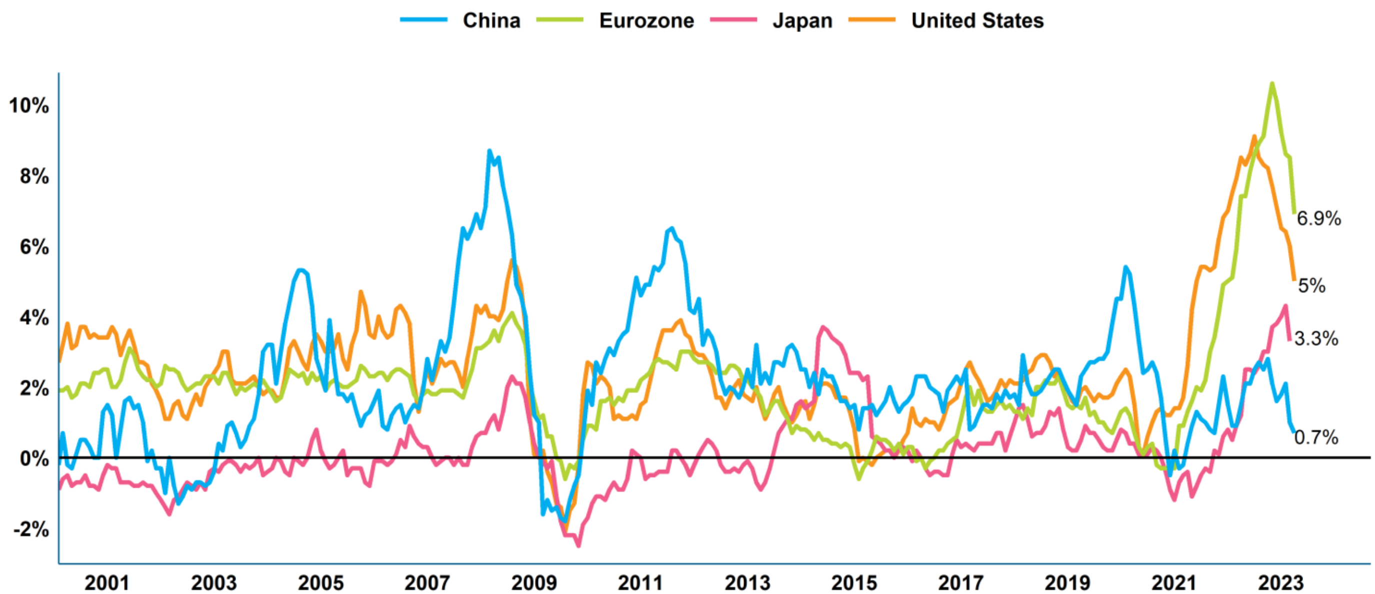
→ In March, the Fed, FDIC, and Treasury provided deposit guarantees after high profile bank failures revealed bank capital losses on US Treasurys related to higher interest rates and lax risk management.

→ China's central bank is one notable exception. They are expected to maintain an accommodative monetary stance to support the economy. They cut bank reserves requirements to improve bank liquidity and banks have also securitized over $390 billion in non-performing loans to improve loan quality ratios.

→ Looking ahead the risk remains for a policy error as central banks attempt to balance bringing down inflation, maintaining financial stability, and growth.

[1] Source: Bloomberg. Policy rate data is as of March 31, 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 December 31, 2022.

Inflation (CPI Trailing Twelve Months)[1]



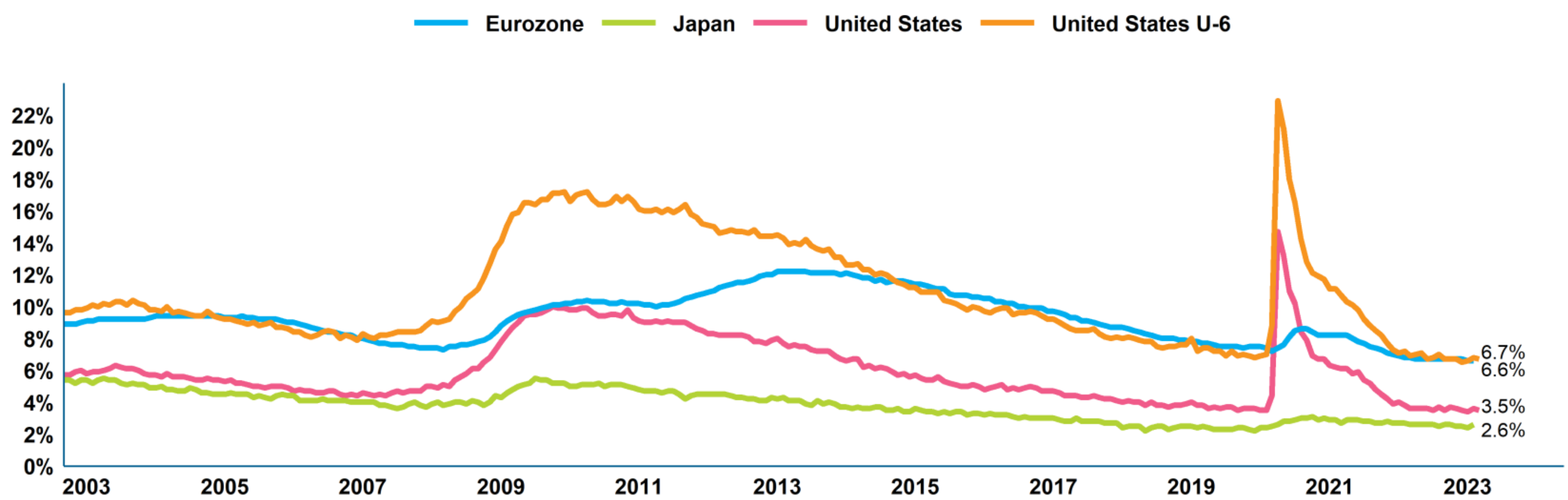
→ Inflation increased dramatically from the lows of the pandemic, particularly in the US and Eurozone where it reached levels not seen in many decades.

→ Inflation pressures are slowly declining in the US as supply issues ease, but they remain elevated, while in Europe they have also started to fall as energy prices have eased.

→ Lingering supply issues related to the pandemic, record monetary and fiscal stimulus, strict COVID-19 restrictions in China, and higher commodity prices driven by the war in Ukraine have been key global drivers of inflation.

[1] Source: Bloomberg. Data is as March 31, 2023. The most recent Japanese inflation data is as of February 2023.

Unemployment[1]



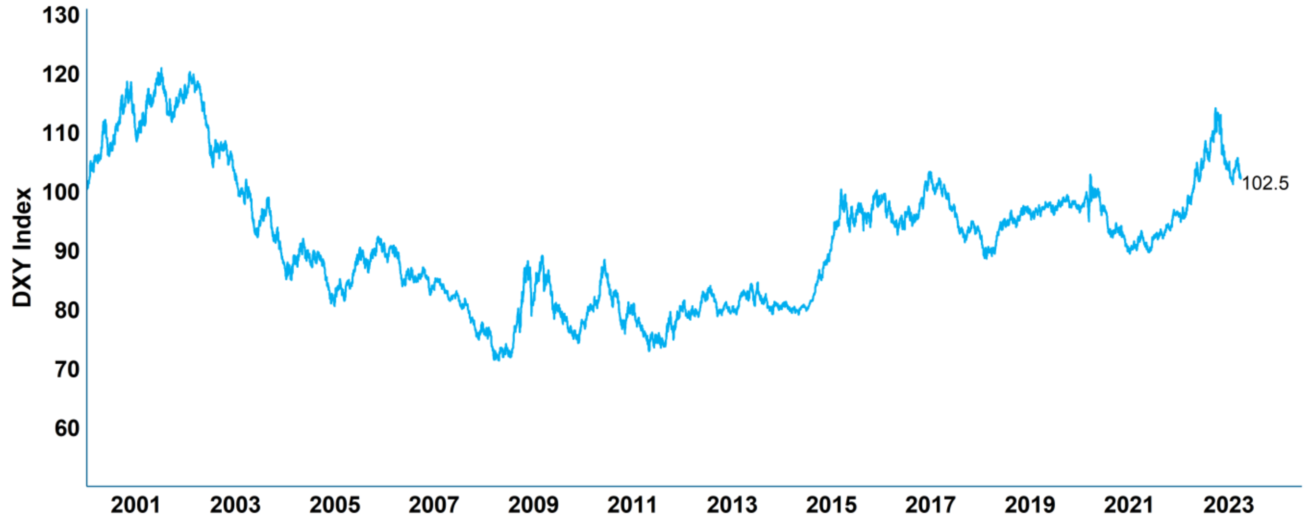
→ Labor markets have significantly improved from the pandemic as economies have largely reopened.

→ Despite slowing growth and high inflation, the US labor market remains a particular bright spot. Unemployment in the US, which experienced the steepest rise, recently has returned to pre-pandemic levels. Broader measures of unemployment (U-6) remain higher at 6.7% but have also declined dramatically from their peak.

→ The strong labor market and higher wages, although beneficial for workers, motivates the Fed's efforts to fight inflation, likely leading to higher unemployment.

[1] Source: Bloomberg. Data is as March 31, 2023, for the US. The most recent data for Eurozone and Japanese unemployment is as of February 2023.

US Dollar versus Broad Currencies[1]



→ The dollar finished 2022 much higher than it started, due to the increased pace of policy tightening, stronger relative growth, and safe-haven flows. Late last year and into early this year, the dollar experienced some weakness though as investors anticipated the end of Fed tightening.

→ Overall, the US dollar depreciated in March and finished the quarter slightly lower than where it started as weaker economic data and bank turmoil drove interest rates lower in the US.

→ This year, the track of inflation across economies and the corresponding monetary policies will likely be key drivers of currency moves.

[1] Source: Bloomberg. Data as of March 31, 2023.

Summary

Key Trends:

→ The impacts of record high inflation will remain key, with market volatility likely to stay high.

→ Recent issues related to the banking sector have created a delicate balance for central banks to continue to fight inflation but also try to maintain financial stability.

→ Global monetary policies could diverge in 2023 with the Fed pausing and others continuing to tighten. The risk of policy errors remains elevated given persistent inflation pressures and a strong US labor market.

→ Growth is expected to slow globally this year, with many economies forecast to tip into recession. Inflation, monetary policy, and the war will all be key.

→ In the US, the end of many fiscal programs is expected to put the burden of continued growth on consumers. Costs for shelter, medical care, and education could continue to rise, keeping 'sticky price' inflation at elevated levels.

→ The key for US equities going forward will be whether earnings can remain resilient if growth continues to slow.

→ Outside the US, equity valuations remain lower in both emerging and developed markets, but risks remain, including potential continued strength in the US dollar, higher inflation particularly weighing on Europe, and China's rushed exit from COVID-19 restrictions and on-going weakness in the real estate sector.

Executive Summary

→ The Retirement System was valued at $1.2 billion as of the end of the first quarter, an increase of $37 million from the previous quarter end.

- The increase was a result of strong investment performance as there were net cash outflows during the period.

→ The first quarter was very volatile for most asset classes given everchanging monetary policy expectations and the high-profile bank failures that occurred in March.

→ Inflation continued to decline in the quarter, but sticky services inflation, along with strong employment data has caused the Federal Reserve to continue to hike interest rates.

- The stock and bond markets both experienced strong quarters. Growth stocks led the US stock market, and bonds performed well, particularly in March due to concerns over the banking sector.

→ The System returned +4.4% for the quarter and –5.7% for the trailing one-year period.

- Risk assets, specifically public equities, were up almost 6.7% for the quarter, but remain down 7.6% for the trailing year.
- Fixed income also had modest positive returns with investment grade bonds returning 4.1%. For the trailing year, investment grade bonds remain down by just under 4%.
- Private real estate had another poor quarter, down 3.4% as write-downs, particularly in the office and retail spaces, along with redemption queues hurt the market as a whole. For the trailing one-year period, MLPs were the best performing asset class up 5.5%.

→ As of March 31, the System was inside of its target asset allocation ranges for all asset classes. Meketa has completed the transition towards the new policy targets and manager roster during the first four months of 2023.

Plan **Summary**

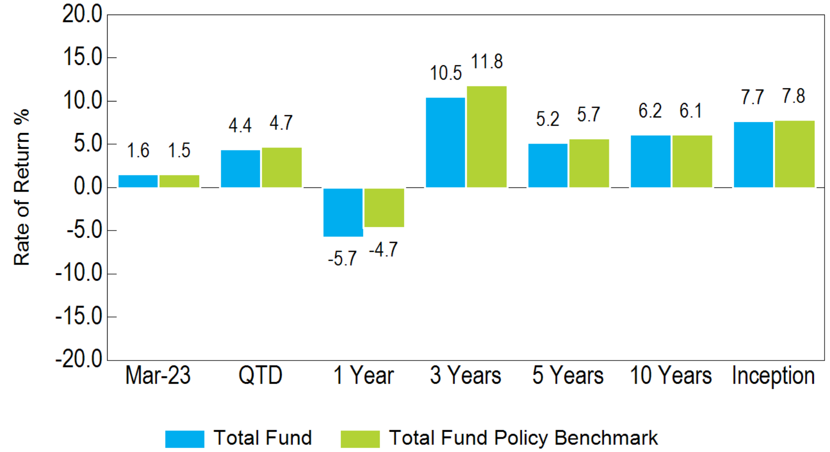
Portfolio Objective

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.

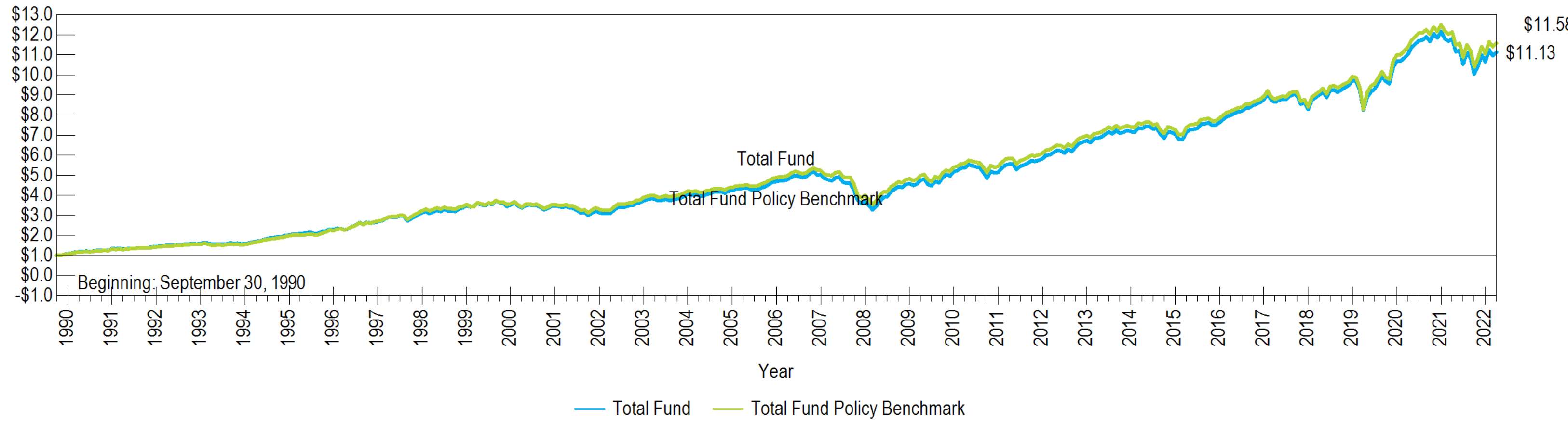
Summary of Cash Flows

	Last Month	Quarter-To-Date	One Year
Beginning Market Value	**$1,228,654,144**	**$1,204,369,491**	**$1,375,560,022**
Net Cash Flow	-$8,927,080	-$20,702,705	-$61,466,116
Net Investment Change	$21,527,525	$57,587,803	-$72,839,316
Ending Market Value	**$1,241,254,589**	**$1,241,254,589**	**$1,241,254,589**

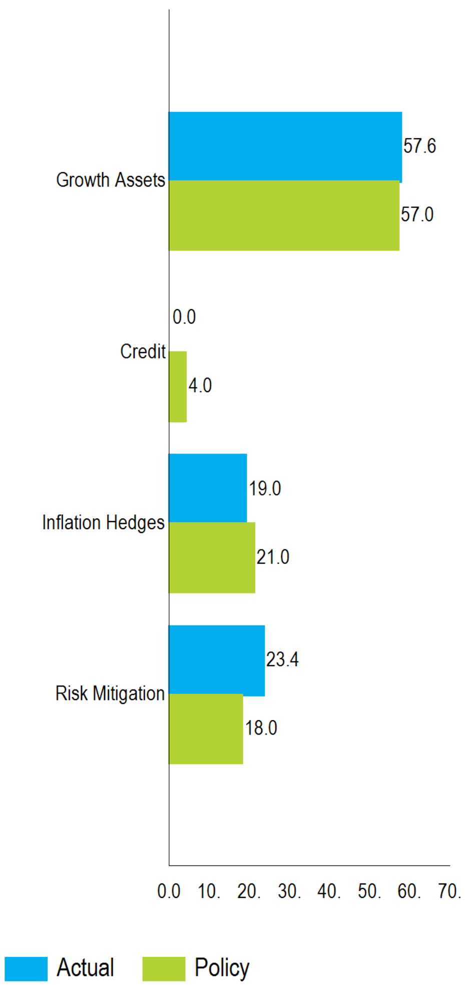
Return Summary
Ending March 31, 2023



Growth of a Dollar
Since Inception



Actual vs Target Allocation (%)

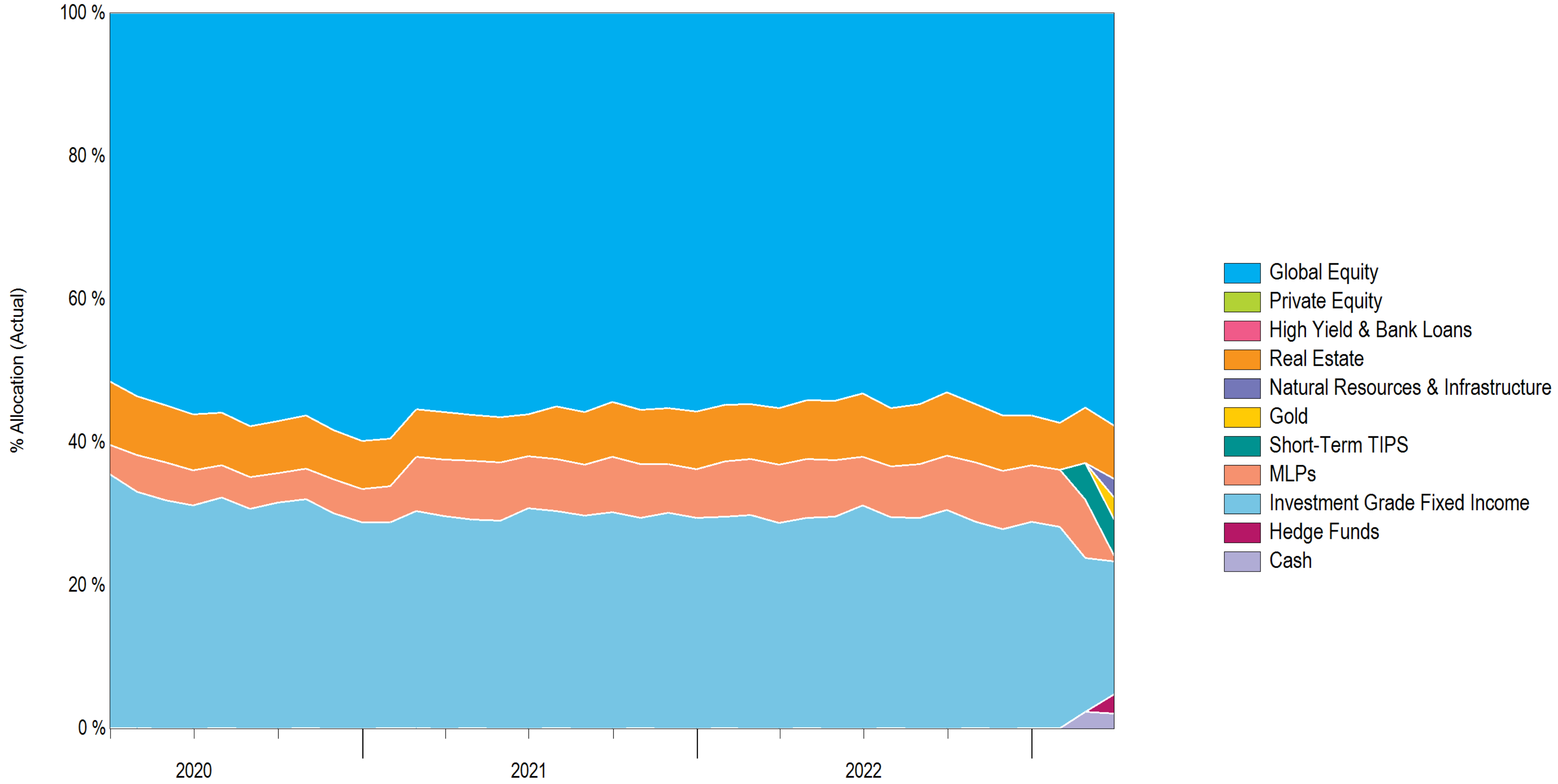


Allocation vs. Targets and Policy

	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
Growth Assets	**$715,424,552**	**57.6%**	**57.0%**	**47.0% - 67.0%**	**Yes**
Global Equity	$715,424,552	57.6%	52.0%	42.0% - 62.0%	Yes
Private Equity	$0	0.0%	5.0%	0.0% - 10.0%	Yes
Credit	**$0**	**0.0%**	**4.0%**	**0.0% - 9.0%**	**Yes**
High Yield & Bank Loans	$0	0.0%	4.0%	0.0% - 9.0%	Yes
Inflation Hedges	**$235,482,170**	**19.0%**	**21.0%**	**14.0% - 28.0%**	**Yes**
Real Estate	$92,353,639	7.4%	8.0%	3.0% - 13.0%	Yes
Natural Resources & Infrastructure	$32,701,029	2.6%	5.0%	0.0% - 10.0%	Yes
Gold	$37,809,325	3.0%	3.0%	0.0% - 6.0%	Yes
Short-Term TIPS	$63,444,222	5.1%	5.0%	0.0% - 10.0%	Yes
MLPs	$9,173,955	0.7%	0.0%	0.0% - 5.0%	Yes
Risk Mitigation	**$290,347,868**	**23.4%**	**18.0%**	**11.0% - 25.0%**	**Yes**
Investment Grade Fixed Income	$231,212,610	18.6%	14.0%	7.0% - 21.0%	Yes
Hedge Funds	$33,391,951	2.7%	4.0%	0.0% - 9.0%	Yes
Cash	$25,743,307	2.1%	0.0%	0.0% - 3.0%	Yes
Total	**$1,241,254,589**	**100.0%**	**100.0%**		

The policy targets reflected above were adopted in November 2022. Meketa is currently rebalancing towards the targets as part of the transition of liquid assets.

Asset Allocation History
3 Years Ending March 31, 2023



Asset Class Performance Summary

	Market Value ($)	% of Portfolio	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fund	1,241,254,589	100.0	1.6	4.4	-5.7	10.5	5.2	6.2	7.7	Oct-90
Total Fund Policy Benchmark			1.5	4.7	-4.7	11.8	5.7	6.1	7.8	Oct-90
Total Fund Actual Allocation Benchmark			1.7	4.7	--	--	--	--	--	Oct-90
Total Fund Public Benchmark			2.5	5.9	-6.3	8.7	4.8	5.8	7.7	Oct-90
Growth Assets	715,424,552	57.6	2.6	6.7	--	--	--	--	2.6	Dec-22
Growth Assets Custom Benchmark			1.9	7.3	--	--	--	--	2.7	Dec-22
Global Equity	715,424,552	57.6	2.6	6.7	-7.6	16.0	6.9	8.6	8.8	Oct-90
Global Equity Policy Benchmark			2.5	6.9	-7.7	15.6	6.6	8.3	9.1	Oct-90
Inflation Hedges	235,482,170	19.0	-2.4	-0.7	--	--	--	--	-5.0	Dec-22
Inflation Hedges Custom Benchmark			0.8	0.4	--	--	--	--	-2.1	Dec-22
Real Estate	92,353,639	7.4	-3.4	-4.5	-10.0	2.2	2.5	5.9	6.9	Apr-11
NCREIF ODCE (net)			-3.3	-3.3	-3.9	7.5	6.6	8.5	9.0	Apr-11
Natural Resources & Infrastructure	32,701,029	2.6								
Gold	37,809,325	3.0								
Short-Term TIPS	63,444,222	5.1	1.6	--	--	--	--	--	1.6	Mar-23
Bloomberg US Treasury TIPS 0-5 Yr TR			1.9	2.2	-0.3	3.5	3.0	1.5	1.9	Mar-23
MLPs	9,173,955	0.7								
Risk Mitigation	290,347,868	23.4	2.8	3.7	--	--	--	--	3.2	Dec-22
Risk Mitigation Custom Benchmark			1.4	1.8	--	--	--	--	1.5	Dec-22
Investment Grade Fixed Income	231,212,610	18.6	3.2	4.1	-3.9	-2.1	1.2	1.5	5.3	Oct-90
Bloomberg US Aggregate TR			2.5	3.0	-4.8	-2.8	0.9	1.4	5.2	Oct-90
Intermediate-Term Bonds	178,755,534	14.4	2.7	3.5	-4.4	-2.3	1.0	1.5	5.2	Oct-90
Bloomberg US Aggregate TR			2.5	3.0	-4.8	-2.8	0.9	1.4	5.2	Oct-90
Long-Term Bonds	52,457,076	4.2	4.7	--	--	--	--	--	4.7	Mar-23
Bloomberg US Treasury Long TR			4.7	6.2	-16.0	-11.3	-0.4	1.5	4.7	Mar-23
Hedge Funds	33,391,951	2.7								
Cash	25,743,307	2.1								

See benchmark history page for benchmark detail.

Trailing Net Performance

	Market Value ($)	% of Portfolio	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fund	**1,241,254,589**	**100.0**	**1.6**	**4.4**	**-5.7**	**10.5**	**5.2**	**6.2**	**7.7**	**Oct-90**
Total Fund Policy Benchmark			*1.5*	*4.7*	*-4.7*	*11.8*	*5.7*	*6.1*	*7.8*	*Oct-90*
Total Fund Actual Allocation Benchmark			*1.7*	*4.7*	*--*	*--*	*--*	*--*	*--*	*Oct-90*
Total Fund Public Benchmark			*2.5*	*5.9*	*-6.3*	*8.7*	*4.8*	*5.8*	*7.7*	*Oct-90*
Growth Assets	**715,424,552**	**57.6**	**2.6**	**6.7**	**--**	**--**	**--**	**--**	**2.6**	**Dec-22**
Growth Assets Custom Benchmark			*1.9*	*7.3*	*--*	*--*	*--*	*--*	*2.7*	*Dec-22*
Global Equity	**715,424,552**	**57.6**	**2.6**	**6.7**	**-7.6**	**16.0**	**6.9**	**8.6**	**8.8**	**Oct-90**
Global Equity Policy Benchmark			*2.5*	*6.9*	*-7.7*	*15.6*	*6.6*	*8.3*	*9.1*	*Oct-90*
SSgA MSCI ACWI IMI Index Fund	95,959,793	7.7	2.5	7.1	-7.3	16.1	7.0	--	9.3	May-16
MSCI ACWI IMI Net USD			*2.5*	*6.9*	*-7.7*	*15.6*	*6.6*	*7.9*	*8.8*	*May-16*
SSgA Russell 1000 Growth Index	14,512,913	1.2	6.8	--	--	--	--	--	6.8	Mar-23
Russell 1000 Growth			*6.8*	*14.4*	*-10.9*	*18.6*	*13.7*	*14.6*	*6.8*	*Mar-23*
SSgA Russell 1000 Value Index	13,581,236	1.1	-0.5	--	--	--	--	--	-0.5	Mar-23
Russell 1000 Value			*-0.5*	*1.0*	*-5.9*	*17.9*	*7.5*	*9.1*	*-0.5*	*Mar-23*
SSgA Russell 3000 Index	209,825,162	16.9	2.7	--	--	--	--	--	2.7	Mar-23
Russell 3000			*2.7*	*7.2*	*-8.6*	*18.5*	*10.4*	*11.7*	*2.7*	*Mar-23*
SSgA MSCI EAFE	104,305,571	8.4	2.5	--	--	--	--	--	2.5	Mar-23
MSCI EAFE			*2.5*	*8.5*	*-1.4*	*13.0*	*3.5*	*5.0*	*2.5*	*Mar-23*
SSgA Emerging Markets Index	38,361,390	3.1	3.3	--	--	--	--	--	3.3	Mar-23
MSCI Emerging Markets			*3.0*	*4.0*	*-10.7*	*7.8*	*-0.9*	*2.0*	*3.0*	*Mar-23*
ABS China Direct	3,580,519	0.3	0.5	--	--	--	--	--	0.5	Mar-23
MSCI China NR USD			*4.5*	*4.7*	*-4.7*	*-2.6*	*-4.0*	*3.4*	*4.5*	*Mar-23*
ABS EM ex China Direct	10,908,731	0.9	2.1	--	--	--	--	--	2.1	Mar-23
MSCI EM ex China			*2.3*	*0.3*	*-16.0*	*13.1*	*0.2*	*1.7*	*2.3*	*Mar-23*

ABS EM ex China Direct's market value is estimated based on preliminary manager performance.

	Market Value ($)	% of Portfolio	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Kopernik Global All-Cap	28,848,411	2.3								
First Eagle Global Equity	96,072,776	7.7								
Artisan Global Opportunities	99,468,051	8.0								
Inflation Hedges	**235,482,170**	**19.0**	**-2.4**	**-0.7**	--	--	--	--	**-5.0**	**Dec-22**
Inflation Hedges Custom Benchmark			*0.8*	*0.4*	--	--	--	--	*-2.1*	*Dec-22*
Real Estate	**92,353,639**	**7.4**	**-3.4**	**-4.5**	**-10.0**	**2.2**	**2.5**	**5.9**	**6.9**	**Apr-11**
NCREIF ODCE (net)			*-3.3*	*-3.3*	*-3.9*	*7.5*	*6.6*	*8.5*	*9.0*	*Apr-11*
JP Morgan Asset Management Strategic Property Fund	52,257,021	4.2	-1.4	-3.2	-5.7	6.1	5.6	7.9	8.7	Apr-11
NCREIF ODCE (net)			*-3.3*	*-3.3*	*-3.9*	*7.5*	*6.6*	*8.5*	*9.0*	*Apr-11*
UBS Trumbull Property Fund	27,086,192	2.2	-7.2	-7.2	-9.1	2.1	1.6	5.0	5.3	Dec-11
NCREIF ODCE (net)			*-3.3*	*-3.3*	*-3.9*	*7.5*	*6.6*	*8.5*	*8.8*	*Dec-11*
SSgA US REIT	13,010,426	1.0	-2.6	--	--	--	--	--	-2.6	Mar-23
DJ US Select REIT TR USD			*-2.6*	*2.8*	*-21.0*	*11.3*	*4.7*	*5.3*	*-2.6*	*Mar-23*
Natural Resources & Infrastructure	**32,701,029**	**2.6**								
SSgA S&P Global LargeMidCap Natural Resources Index	32,701,029	2.6								
Gold	**37,809,325**	**3.0**								
First Eagle Institutional Gold Fund, LP	37,809,325	3.0								
Short-Term TIPS	**63,444,222**	**5.1**	**1.6**	--	--	--	--	--	**1.6**	**Mar-23**
Bloomberg US Treasury TIPS 0-5 Yr TR			*1.9*	*2.2*	*-0.3*	*3.5*	*3.0*	*1.5*	*1.9*	*Mar-23*
Vanguard Short-Term TIPS Index	63,444,222	5.1								
MLPs	**9,173,955**	**0.7**								
Harvest MLP	6,054,776	0.5								
Tortoise Capital Advisors	3,119,179	0.3								

Kopernik, First Eagle Global Equity, Artisan, SSgA S&P Global LargeMidCap Natural Resources, First Eagle Institutional Gold, and Vanguard Short-Term TIPS were funded mid-March. Performance start date is April 1st to reflect first full month of performance.

	Market Value ($)	% of Portfolio	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Risk Mitigation	**290,347,868**	**23.4**	**2.8**	**3.7**	--	--	--	--	**3.2**	**Dec-22**
Risk Mitigation Custom Benchmark			*1.4*	*1.8*	--	--	--	--	*1.5*	*Dec-22*
Investment Grade Fixed Income	**231,212,610**	**18.6**	**3.2**	**4.1**	**-3.9**	**-2.1**	**1.2**	**1.5**	**5.3**	**Oct-90**
Bloomberg US Aggregate TR			*2.5*	*3.0*	*-4.8*	*-2.8*	*0.9*	*1.4*	*5.2*	*Oct-90*
Intermediate-Term Bonds	**178,755,534**	**14.4**	**2.7**	**3.5**	**-4.4**	**-2.3**	**1.0**	**1.5**	**5.2**	**Oct-90**
Bloomberg US Aggregate TR			*2.5*	*3.0*	*-4.8*	*-2.8*	*0.9*	*1.4*	*5.2*	*Oct-90*
PIMCO Total Return	44,381,415	3.6								
SSgA US Aggregate Bond	134,374,118	10.8	2.5	3.2	-4.8	-2.7	0.9	1.4	2.7	Jan-09
Bloomberg US Aggregate TR			*2.5*	*3.0*	*-4.8*	*-2.8*	*0.9*	*1.4*	*2.6*	*Jan-09*
Long-Term Bonds	**52,457,076**	**4.2**	**4.7**	--	--	--	--	--	**4.7**	**Mar-23**
Bloomberg US Treasury Long TR			*4.7*	*6.2*	*-16.0*	*-11.3*	*-0.4*	*1.5*	*4.7*	*Mar-23*
SSgA Long US Treasury Index	52,457,076	4.2	4.7	--	--	--	--	--	4.7	Mar-23
Bloomberg US Treasury Long TR			*4.7*	*6.2*	*-16.0*	*-11.3*	*-0.4*	*1.5*	*4.7*	*Mar-23*
Hedge Funds	**33,391,951**	**2.7**								
36 South Kohinoor Series (Cayman) Fund	8,691,951	0.7								
BH-DG Systematic Trading Master Fund	16,700,000	1.3								
Lombard Odier Bear Convexity	8,000,000	0.6								
Cash	**25,743,307**	**2.1**								

36 South, BH-DG, and Lombard were funded at the end of March. Performance start date is April 1st to reflect first full month of performance.

Annual Investment Expense Analysis

As Of March 31, 2023

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Growth Assets		**$715,424,552**	**$1,582,566**	**0.22%**
Global Equity		**$715,424,552**	**$1,582,566**	**0.22%**
SSgA MSCI ACWI IMI Index Fund	0.05% of Assets	$95,959,793	$43,182	0.05%
SSgA Russell 1000 Growth Index	0.02% of Assets	$14,512,913	$2,903	0.02%
SSgA Russell 1000 Value Index	0.02% of Assets	$13,581,236	$2,716	0.02%
SSgA Russell 3000 Index	0.02% of Assets	$209,825,162	$41,965	0.02%
SSgA MSCI EAFE	0.04% of Assets	$104,305,571	$41,722	0.04%
SSgA Emerging Markets Index	0.08% of Assets	$38,361,390	$30,689	0.08%
ABS China Direct	0.65% of Assets	$3,580,519	$23,273	0.65%
ABS EM ex China Direct	0.50% of Assets	$10,908,731	$54,544	0.50%
Kopernik Global All-Cap	0.75% of Assets	$28,848,411	$216,363	0.75%
First Eagle Global Equity	0.55% of Assets	$96,072,776	$528,400	0.55%
Artisan Global Opportunities	0.60% of Assets	$99,468,051	$596,808	0.60%
Inflation Hedges		**$235,482,170**	**$1,014,338**	**0.43%**
Real Estate		**$92,353,639**	**$721,991**	**0.78%**
JP Morgan Asset Management Strategic Property Fund	0.91% of Assets	$52,257,021	$475,539	0.91%
UBS Trumbull Property Fund	0.96% of First 10.0 Mil, 0.83% of Next 15.0 Mil, 0.81% of Next 25.0 Mil, 0.79% of Next 50.0 Mil, 0.67% of Next 150.0 Mil, 0.60% of Next 150.0 Mil, 0.56% of Next 200.0 Mil, 0.52% Thereafter	$27,086,192	$236,044	0.87%
SSgA US REIT	0.08% of Assets	$13,010,426	$10,408	0.08%

Tortoise Capital Advisors has an additional 2.5% performance fee and an 8% hard hurdle.

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Natural Resources & Infrastructure		**$32,701,029**	**$32,701**	**0.10%**
SSgA S&P Global LargeMidCap Natural Resources Index	0.10% of Assets	$32,701,029	$32,701	0.10%
Gold		**$37,809,325**	**$170,142**	**0.45%**
First Eagle Institutional Gold Fund, LP	0.45% of Assets	$37,809,325	$170,142	0.45%
Short-Term TIPS		**$63,444,222**	**$25,378**	**0.04%**
Vanguard Short-Term TIPS Index	0.04% of Assets	$63,444,222	$25,378	0.04%
MLPs		**$9,173,955**	**$64,126**	**0.70%**
Harvest MLP	0.75% of Assets	$6,054,776	$45,411	0.75%
Tortoise Capital Advisors	0.60% of Assets	$3,119,179	$18,715	0.60%
Risk Mitigation		**$290,347,868**	**$264,494**	**0.09%**
Investment Grade Fixed Income		**$231,212,610**	**$109,184**	**0.05%**
Intermediate-Term Bonds		**$178,755,534**	**$93,447**	**0.05%**
PIMCO Total Return	0.15% of Assets	$44,381,415	$66,572	0.15%
SSgA US Aggregate Bond	0.02% of Assets	$134,374,118	$26,875	0.02%
Long-Term Bonds		**$52,457,076**	**$15,737**	**0.03%**
SSgA Long US Treasury Index	0.03% of Assets	$52,457,076	$15,737	0.03%
Hedge Funds		**$33,391,951**	**$155,310**	**0.47%**
36 South Kohinoor Series (Cayman) Fund	Performance-based 1.00 and 20.00	$8,691,951		
BH-DG Systematic Trading Master Fund	0.93% of Assets	$16,700,000	$155,310	0.93%
Lombard Odier Bear Convexity	Performance-based 0.75 and 27.50	$8,000,000		
Cash		**$25,743,307**	**$0**	**0.00%**
Cash		$25,743,307		
Total		**$1,241,254,589**	**$2,861,398**	**0.23%**

PIMCO Total Return has an additional 15% performance fee on excess performance over the benchmark.

Benchmark History
As of March 31, 2023

Total Fund		
12/1/2022	Present	52% MSCI ACWI IMI Net USD / 5% MSCI ACWI + 3% 1Q Lag / 2% Credit Suisse Leveraged Loans / 2% Bloomberg US High Yield TR / 5% Bloomberg US Treasury TIPS 0-5 Yr TR / 3% 60% Gold (Spot)/ 40% FTSE Gold Mines / 5% S&P Global LargeMidCap Commodity and Resources NR USD / 8% NCREIF ODCE (net) / 14% Bloomberg US Aggregate TR / 4% HFRI Macro (Total) Index
5/1/2016	11/30/2022	55% MSCI ACWI IMI Net USD / 30% Bloomberg US Aggregate TR / 7.5% NCREIF ODCE (net) / 7.5% Alerian MLP TR USD
3/1/2016	4/30/2016	33% Russell 3000 / 30% Bloomberg US Aggregate TR / 22% MSCI ACWI ex USA / 7.5% NCREIF ODCE (net) / 7.5% Alerian MLP TR USD
2/1/2013	2/29/2016	33% Russell 3000 / 35% Bloomberg US Aggregate TR / 22% MSCI ACWI ex USA / 5% NCREIF ODCE (net) / 5% Alerian MLP TR USD
3/1/2011	1/31/2013	36% Russell 3000 / 35% Bloomberg US Aggregate TR / 24% MSCI ACWI ex USA / 5% NCREIF ODCE (net)
9/1/2009	2/28/2011	36% Russell 3000 / 40% Bloomberg US Aggregate TR / 24% MSCI ACWI ex USA
6/1/2009	8/31/2009	42% Russell 3000 / 40% Bloomberg US Aggregate TR / 18% MSCI ACWI ex USA
6/1/2006	5/31/2009	42% Russell 3000 / 40% Bloomberg US Aggregate TR / 18% MSCI EAFE
7/1/2003	5/31/2006	60% S&P 500 / 40% Bloomberg US Aggregate TR
10/1/2002	6/30/2003	55% S&P 500 / 45% Bloomberg US Aggregate TR
10/1/1990	9/30/2002	50% S&P 500 / 50% Bloomberg US Aggregate TR

Benchmark History
As of March 31, 2023

Growth Assets		
12/1/2022	Present	91% MSCI ACWI IMI Net USD / 9% MSCI ACWI + 3% 1Q Lag

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 reflected in the Fund's investment policy statement, weighted for the Fund's actual investments and performance of the indexes referenced above.

Benchmark History
As of March 31, 2023

Global Equity		
5/1/2016	Present	MSCI ACWI IMI Net USD
9/1/2009	4/30/2016	60% Russell 3000 / 40% MSCI ACWI ex USA
6/1/2009	8/31/2009	70% Russell 3000 / 30% MSCI ACWI ex USA
1/1/2006	5/31/2009	70% Russell 3000 / 30% MSCI EAFE
10/1/1990	12/31/2005	S&P 500

Benchmark History
As of March 31, 2023

Inflation Hedges		
12/1/2022	Present	24% Bloomberg US TIPS 1-5 Yr TR / 14% 60% Gold (Spot)/ 40% FTSE Gold Mines / 24% S&P Global LargeMidCap Commodity and Resources NR USD / 38% NCREIF ODCE (net)

Benchmark History
As of March 31, 2023

Risk Mitigation		
12/1/2022	Present	78% Bloomberg US Aggregate TR / 22% HFRI Macro (Total) Index

Portfolio Transition Update

Background

→ At the January meeting, Meketa presented a transition plan to move the portfolio from the legacy roster to the new manager line up.

→ Meketa worked closely with the investment managers to move the assets as efficiently as possible while maintaining market exposure.

→ The transition was completed as planned. At this time, there are only a couple minor items to still be completed.

- For example, there is one manager that is in late-stage due diligence that we expect to be finalized and funded soon.

Estimated Current Allocation Snapshot

→ The below table represents an estimated snapshot of the overall allocation of the Retirement System and its new manager lineup at the end of April.

Growth Assets (55.2% of Retirement System)	Strategy Type	Amount ($ mil)
SSgA MSCI ACWI IMI Index	Passive Broad Market Global Equity Index	77.0
SSgA Russell 3000 Index	Passive Broad Market US Equity Index	168.3
SSgA Russell 1000 Growth Index	Passive US Large Cap Growth Index	28.5
SSgA Russell 1000 Value Index	Passive US Large Cap Value Index	13.8
SSgA MSCI EAFE Index	Passive Broad Developed Market Index	107.8
SSgA MSCI Emerging Markets Index	Passive Broad Emerging Market Index	37.9
Artisan Global Opportunities	Global Growth Fund	98.8
First Eagle Global Equity	Global Value Fund	97.7
Kopernik Global All Cap	Diversified Global All Cap Fund	29.1
ABS China Direct	China Equity Fund	3.4
ABS Emerging Markets ex China Direct	Diversified Emerging Markets ex China Fund	11.0
Credit Assets (5.1% of Retirement System)	**Strategy Type**	**Amount ($ mil)**
Sculptor Credit Opportunities Master Fund	Multi Strategy Credit Hedge Fund	25.0
Brigade High Income Fund	High Yield Bond and Bank Loan manager	37.5

Inflation Hedges (18.7% of Retirement System)	Strategy Type	Amount ($ mil)
JP Morgan Strategic Property Fund	Core Real Estate Fund	52.3
UBS Trumbull Property Fund	Core Real Estate Fund	27.1
SSgA US REIT Index	Passive US REIT Index	12.9
SSgA Global LargeMidCap Natural Resources Index	Passive Natural Resources Index	33.3
First Eagle Institutional Gold	Gold and Gold Miners Equity Fund	38.8
Vanguard Short-Term TIPS Index	Passive Short-Term TIPS Index	63.5

Risk Mitigation (20.9% of Retirement System)	Strategy Type	Amount ($ mil)
PIMCO Total Return (liquidating)	Investment Grade Bond	2.0
SSgA US Aggregate Bond	Passive Investment Grade Bond Index	94.0
Wellington Core Fixed Income	Investment Grade Bond	75.0
SSgA Long US Government Bond Index	Long-Term Government Bond Index	52.2
36 South Kohinoor Series (Cayman)	Long Volatility Tail Risk Hedge Fund	8.7
Vanguard Short-Term TIPS Index	Long Volatility Tail Risk Hedge Fund	8.0
BH-DG Systematic Trading Master Fund	CTA Trend Following Hedge Fund	16.7

	Actions	Comments
January	→ Tranche 1 from SSgA MSCI ACWI	
February	→ Tranche 2 from SSgA MSCI ACWI, full liquidation → Funding active Global Equity mandates → Part 1 of funding Inflation Hedges and RMS strategies (Tranche 3)	Completed the Global Equity transition and took the initial steps for funding RMS and inflation hedges with the rebalance of the SSgA ACWI and SSgA BAGG, respectively.
March	→ Begin PIMCO SMA trading → Begin MLP liquidation (Harvest and Tortoise) → Fund remaining RMS and Inflation Hedges strategies	Risk Mitigating Assets were the first focus in March, with liquidation of the PIMCO portfolio and funding of the RMS hedge funds. The remaining inflation hedges funding were the second area of focus.
April	→ Fund Active Core Fixed Income Mandate → Fund Credit mandates → Full liquidation of MLP managers → Post-Transition trading to ensure target allocations are correct after market effects and trade execution.	A rebalancing directive was made in late April to move equity allocations closer to target.

→ The table above outlines the original transition plan that was followed.

Recap on Portfolio Transition

→ Meketa has completed the first four tranches in transitioning the NERS portfolio to the target allocations.

→ In the first tranche, we worked directly with SSgA to find the most cost-effective way to rebalance the ACWI holdings to other accounts at SSgA.

- Their portfolio management team was able to complete the transfer activity at a total cost **$5,654.23** or 7/100th of 1 basis point, which represents a substantial cost savings compared to the use of a transition manager.

→ Meketa finalized Tranche 2 in March, liquidating the remaining holdings in the SSgA ACWI to the roster of monthly global equity managers- with a small portion remaining as one manager requires additional due diligence.

→ Tranche 3 was completed as well with assets being transferred from the SSgA Bond Aggregate to the new passive target allocations in risk mitigating strategies and inflation hedges.

→ Tranche 4 was completed in April using redemptions from the PIMCO, Harvest, and Tortoise separately managed accounts.

Details for Tranche 1 (Global Equity)

→ Below is a table that details the actual cash movements for Tranche 1 for the transition.

Transaction	Amount ($ mil)	Manager
Sell	384.8	SSgA MSCI ACWI
Buy	213.8	SSgA Russell 3000
Buy	103.3	SSgA MSCI EAFE
Buy	39.2	SSgA Emerging Markets
Buy	14.3	SSgA Russell 1000 Value
Buy	14.3	SSgA Russell 1000 Growth

Details for Tranche 2 (Global Equity)

→ Below is a table that details the cash movements for Tranche 2 of the transition. Any remaining holdings were transferred to the SSgA Russell 3000.

Transaction	Amount ($ mil)	Manager
Sell	232.8	SSgA MSCI ACWI
Buy	95.0	Artisan Global
Buy	95.0	First Eagle Global Equity
Buy	28.5	Kopernik Global
Buy	10.7	ABS Emerging Markets (ex. China) Direct
Buy	3.6	ABS China Direct

Details for Tranche 3 (Rebalancing of SSgA Bloomberg Barclays Aggregate)

→ Below is a table that detailed the cash movements for the Tranche 3 of the transition.

Transaction	Amount ($ mil)	Manager
Sell	126.0	SSgA U.S. Aggregate Bond
Buy	62.5	Vanguard Short-Term TIPS
Buy	50.0	SSgA Long US Treasury
Buy	13.5	SSgA US REIT

Details for Tranche 4 (Active Risk Mitigation and Additional Inflation Hedges)

→ Below is a table that details the cash movements for the Tranche 4 of the transition. Sales for PIMCO, Harvest and Tortoise came in multiple stages as the positions wound down.

→ The SSgA U.S. Aggregate Bond was used as a holding vehicle as redemptions came in prior to funding new managers.

Transaction	Amount ($ mil)	Manager
Sell	175.8	PIMCO Total Return Bond
Sell	48.0	Tortoise Capital Advisors
Sell	47.7	Harvest MLP
Buy	31.3	SSgA Global LargeMidCap Nat Resources
Buy	37.5	First Eagle Institutional Gold
Buy	8.8	36 South Kohinoor Series Cayman
Buy	16.7	BH-DG Systematic Trading Fund
Buy	8.0	Lombard Odier 1798 Bear Convexity Fund
Buy	25.0	Sculptor Credit Opportunities Fund
Buy	75.0	Wellington Core Fixed Income
Buy	37.5	Brigade High Income Fund
Buy	31.8	SSgA U.S. Aggregate Bond

Appendices

Risk Mitigating Strategies Overview

Background

→ Previously, the Investment Committee asked for information on the hedge fund strategies that will be added to the NERS portfolio.

→ The following document provides an overview of the strategies as well as a refresher on the role of Risk Mitigating Strategies or "RMS" within the asset allocation framework.

Risk Mitigating Strategies – Defensive Spectrum

→ Portfolio of strategies that attempt to provide diversification to an overall institutional portfolio and protection against equity market downturns.

Asset Allocation Role

More Defensive | **More Directional**

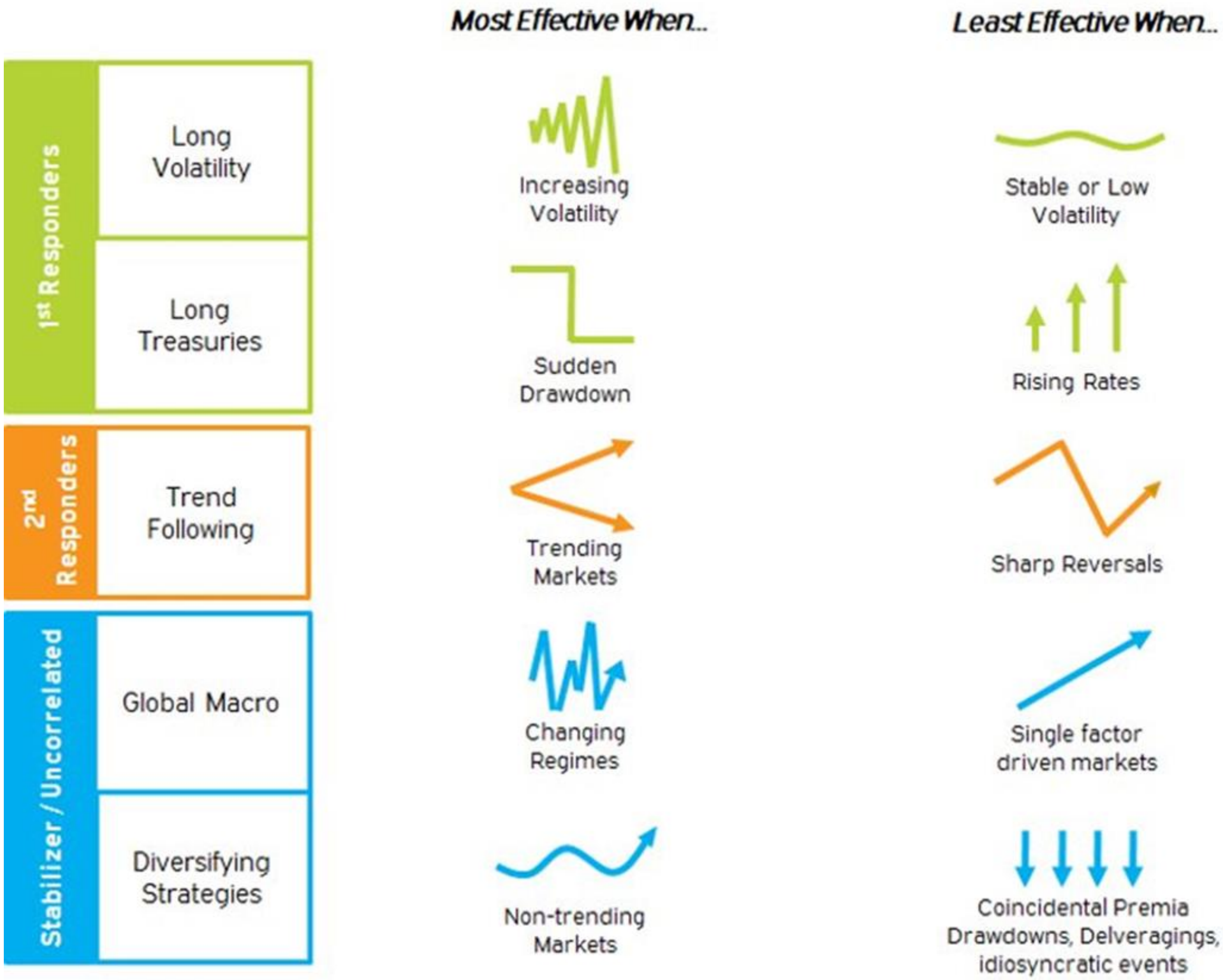
Defensive Strategies Spectrum

Tail Risk Hedging	CTA/Managed Futures	Macro (Quant and Fundamental)	Long-Term Treasuries
• Highest convexity • Explicit hedge to equities drawdowns through long volatility/long gamma positioning • Expected negative to neutral carry during calm times.	• No explicit bias to be long equities may allow them to capture negative equity trends. • Highly liquid • Implicit long volatility bias • Diversified exposure to equities, fixed income, currencies and commodities • Can have positive beta to equities at times • Suffers from trend reversal or sideways markets	• Have historically benefitted from large market disruptions. • Expected to benefit from higher rates environments (large cash allocations) • More directional/more concentrated bets than managed futures • Highest manager selection risk • May struggle during times of muted volatility	• Traditional defensive asset. • Has historically provided positive convexity to equity drawdowns. • Lowest fees (passive implementation) • High volatility • May not be as effective in rising yield environments

Return Expectations

Carry

Negative (Theta) | **Positive (Trend)**


Most Effective When...
Least Effective When...
1st Responders
Long Volatility
Increasing Volatility
Stable or Low Volatility
Long Treasuries
Sudden Drawdown
Rising Rates
2nd Responders
Trend Following
Trending Markets
Sharp Reversals
Stabilizer / Uncorrelated
Global Macro
Changing Regimes
Single factor driven markets
Diversifying Strategies
Non-trending Markets
Coincidental Premia Drawdowns, Delveragings, idiosyncratic events

Risk Mitigating Strategies – Basic Definitions

1st Responders

Long Volatility

- The most direct form of equity drawdown protection.
- Most basic implementation consists of buying equity put options.
- Due to inherent leverage in derivatives, positive payoffs can be substantial (i.e., convex) during market crisis situations.

Long Treasuries

- Investments in long-term (20+ year) US Treasury Bonds.
- While void of Economic Growth Risk, long-term US Treasury Bonds have material Interest Rate Risk.
  - Implementations currently have durations of 18+ years.

2nd Responders

Trend Following

- Strategies that follow pre-defined rules (i.e., systematic implementations) for trading (long and short) liquid futures and forwards contracts.
- Trade futures/forwards across global equity indices, interest rates/bonds, currencies, and commodities.
- Simplistic explanation: strategies that buy an asset when it has a positive return over recent history and sell an asset when it has a negative return over recent history.

Risk Mitigating Strategies – Basic Definitions (con't)

- → Broad, unconstrained strategies that seek to predict major market moves.
- → Typically focused on macroeconomic events and broad asset classes.
- → Depending on the manager, may also have more micro-oriented strategies (e.g., relative value/market neutral trades).
- → Similar to Global Tactical Asset Allocation (GTAA) strategies but with increased flexibility, latitude, and leverage.
- → Systematic and discretionary approaches.

- → Strategies that typically harvest alternative risk premia or alpha.
  - – Alternative Risk Premia Strategies
    - ▪ Harvest alternatives risk premiums such as Value, Carry, and Momentum, in a long/short construct (i.e., market neutral)
  - – Insurance Linked Strategies
    - ▪ Harvest an insurance risk premium typically linked to property damage insurance contracts related to natural catastrophes (e.g., earthquakes, hurricanes, etc.)
    - ▪ Involves taking modest illiquidity risk.
  - – Alpha Strategies
    - ▪ Strategies that seek to generate excess returns through idiosyncratic risk exposures
    - ▪ Includes multi-strategy, relative value, arbitrage, market neutral, etc.

Manager Summaries

36 South Capital Advisors

36 South Kohinoor Series Three Fund

Overview and Terms

Firm Location	London, United Kingdom	Strategy Type	Global Macro – Tail Risk
Firm Inception	March 2001	Strategy Inception	March 2011
Assets Managed (as of 12/31/2021)	$1.4 billion	Strategy Assets	$1.1 billion
Portfolio Manager	Richard "Jerry" Haworth Richard Hollington	Fee Schedule/Performance Fee	1.0%/20%
Vehicle Type	Commingled Fund	Liquidity Constraints	Monthly with 30 days' notice
Role within the Program	Risk Mitigation	Expected Return and Volatility	5-8% and 15%

→ 36 South Capital Advisors was co-founded by Richard "Jerry" Haworth and Richard Hollington in 2001. The firm is 100% employee owned.

→ The firm has been headquartered in London since 2009 and features two main investment strategies: Kohinoor Core and Kohinoor Series Three.

- Kohinoor Core will invest up to 95% of its portfolio made up of options. Goal of the strategy is to make at least 100% when equity markets are down 30%
- Kohinoor Series Three is a lower octane version of Core, where 30% of assets will be invested into the Core Fund, and the remaining 70% will be invested in cash and treasuries. For this presentation, we will focus on the Series Three fund.

Investment Team

Name	Role	Years at Firm	Total Years' Experience
Richard "Jerry" Haworth	Principal, CIO	21	35
Richard Hollington	Portfolio Manager	21	34
Neale Jackson	Portfolio Manager	9	20
Rich Haworth	Portfolio Manager	9	10
Jack de la Fargue	Portfolio Manager	5	5

- Richard "Jerry" Haworth has 35 years of experience in the financial markets. Mr. Haworth was instrumental in the establishment of the futures and options market in South Africa. He served as an Executive Member of the South African Futures Exchange. He also traded government bonds for a large discount house before being appointed Head of Equity Derivatives for one of South Africa's largest and most successful merchant banks, Investec Ltd. In March 2001, Mr. Haworth co-founded 36 South Investment Managers.
- Richard Hollington has 34 years of experience in the financial markets and established the foreign exchange options desk at First National Bank in South Africa. There, he became the country's first market maker in rand/dollar options. For the bank, Mr. Hollington established long dated currency options for corporate hedging and interest rate and commodity desks. In 1999, he relocated to New Zealand where he began trading for his own account with Mr. Haworth and co-founded 36 South Investment Managers in 2001.

Investment Philosophy and Process

→ 36 South's philosophy is based on the belief that volatility is cyclical and mean reverting. Volatility is unusual because it cannot be directly observed (like asset prices can) and as such may be counterintuitive for many market participants that end up selling at the bottom (high volatility) and buying at the top (lower volatility).

→ The firm applies a long-term, deep value approach to volatility. They will only purchase an option when volatility deviates significantly from its long-term average.

→ 36 South invests across several asset classes: equities, interest rates, commodities, and currencies. They combine their own thematic views with their view on volatility cycles to assemble a portfolio exclusively of cheap options.

→ 36 South prefers the options they invest in to be long dated (far out into the future), out of the money, pan- asset class and the strategy is designed to perform during periods where equities fall significantly. During flat and/or calm equity markets, the strategy will experience what is referred to as negative carry.

- Negative carry means that the options 36 South will likely be worthless when equity markets do not fall significantly. Think of this as paying an insurance premium. Negative carry causes a drag on performance during these calm periods, meaning that the expected performance during these periods is negative. The strategy is predicated on the idea that an investor should be willing to accept this negative carry for the protection the strategy will provide when equity markets experience severe negative performance.

36 South Series Three (Cayman) Fund

Trailing Period Returns (as of December 31, 2022)

	1 YR	3 YR	5 YR	SI (November 2014)
36 South Series Three (Cayman)	12.4	9.9	5.5	0.9
EurekaHedge CBOE Long Volatility	7.5	6.8	1.8	-0.4
MSCI ACWI	-18.4	4.0	5.2	6.6

Calendar Year Returns

	2022	2021	2020	2019	2018	2017	2016	2015
36 South Series Three (Cayman)	12.4	-9.2	29.9	-9.8	0.7	-10.5	-6.4	-5.7
EurekaHedge CBOE Long Volatility	7.5	-8.5	25.7	-10.9	0.8	-10.9	-2.8	-1.1
MSCI ACWI	-18.4	18.5	16.8	27.3	-8.9	24.6	8.5	-1.8

→ 36 South also has an Irish domiciled vehicle for Series Three, which launched in 2002. During the Global Financial Crisis (September 2007 – March 2009), the strategy returned +39% while the MSCI ACWI lost 32%.

→ During the COVID market shock (February – March 2020), the strategy returned 36%, while the MSCI ACWI lost 20%.

Lombard Odier 1798 Bear Convexity Fund

Lombard Odier 1798 Bear Convexity Fund

Overview and Terms

Firm Location	Geneva, Switzerland	Strategy Type	Global Macro – Tail Risk
Firm Inception	1798	Strategy Inception	September 2011
Assets Managed (as of 12/31/2021)	$71 billion	Strategy Assets	$1.1 billion
Portfolio Manager	Arnaud Saint-Sauveur	Fee Schedule/Performance Fee	0.75%/27.5%
Vehicle Type	Commingled Fund	Liquidity Constraints	Monthly with 28 days’ notice
Role within the Program	Risk Mitigation	Expected Return and Volatility	8-12% and 15-20%

→ The Lombard Odier Group is an independent family company owned by seven Managing Partners, who represent up to the seventh generation of bankers running the firm. Lombard Odier was founded in 1796 and is the oldest private bank in Geneva as well as one of the largest in Europe. Lombard Odier Investment Managers (LOIM) is the institutional asset management business of the Lombard Odier Group. LOIM manages $71B via 161 investment professionals supported by another 242 staff members with offices around the globe.

Overview and Terms (cont'd)

→ The 1798 Bear Convexity strategy is managed by Arnaud Saint-Sauveur. He is supported by Sonam Pokwal, Director of Research, and Peyman Nayebvali, Senior Risk Manager. Prior to Lombard Odier, Mr. Saint-Sauveur was a portfolio manager in the Credit Relative Value and Volatility team at Visium Asset Management where he managed about $275 million in equity capital. Before Visium, he spent 8 ½ years at Citigroup where he was a prop trader in the Credit Relative Value group for 5+ years and previously a part of the Strategy group. He studied math and physics at Lycee Sainte-Genevieve (1995) and holds a Master's degree in applied mathematics and economics from Ecole Polytechnique (1998) as well as an MBA from Harvard (2003). He is also a CFA charter holder.

→ Mr. Pokwal is responsible for developing models and running portfolio analytics while Mr. Saint-Sauveur focuses on trade structuring and trading. Mr. Pokwal began as an analyst on the team and was promoted to Director of Research in January 2019. Mr. Pokwal graduated from Cornell University with an undergraduate degree in Mechanical and Aerospace Engineering (2007) and a Masters in Operations Research and Information Engineering (2008). He is also a CFA charter holder

Investment Philosophy and Process

The Lombard Odier 1798 Bear Convexity strategy is a compelling credit-based complement to a dynamic RMS portfolio.

→ The team seeks to build a long put, short credit, and long volatility portfolio profile without incurring the negative carry that is typically associated with such positioning.

→ We believe their process is well structured and disciplined. The team goes through a four-step process to build the portfolio:

- Trade Consideration: trades will be evaluated based on payout, liquidity, cost, and downside risk. Trades that are long investment grade bonds and short high yield bonds are looked at through the downside risk of historical tight or max tight spreads to determine max drawdown.
- Trade Selection: Selection is determined by evaluating trades across different market scenarios such as: slow bleed (markets slowly grind higher), unchanged levels (markets are relatively static), short term reversals (markets sell off and quickly revert back to previous levels), and reversals to historical tights (markets move relatively quickly to historical higher levels).
- Optimization: the most attractive trades will be sized upon constraints such as diversification, liquidity, cash usage, overall cost, and max loss scenarios through the combination of a systematic screening and optimization process and discretionary implementation.

Investment Philosophy and Process (cont'd)

→ Portfolio Management: trades are placed in four buckets:

- Credit tail hedges –a vast majority and the long-term focus of the portfolio's risk profile
- Equity tail hedges – used opportunistically to enhance convexity depending upon mispricing/cheapness. An example is S&P 500 bear put spreads.
- Long Volatility – similar to equity tail hedges but using the Chicago Board Options Exchange Volatility Index (VIX)
- Overlay – credit or volatility trades used to help the portfolio performance in the least favorable scenarios to help improve carry and enter bearish trades at levels that are attractive. These trades are typically structured with limited downside to avoid compromising the fund's performance in a selloff.

→ Notable portfolio construction and risk guidelines are a 10% carry limit, a -15% NAV loss, and a 20% minimum unencumbered cash hard limit.

Performance

Trailing Period Returns (as of December 31, 2022)

	1 YR (%)	3 YR (%)	5 YR (%)	7 YR (%)	SI (9/2011) (%)
LO 1798 Bear Convexity[1]	7.2	18.8	15.3	12.1	10.7
CBOE Eurekahedge Long Volatility[2]	*7.5*	*6.8*	*3.0*	*-0.8*	*-0.5*

Calendar Year Returns

	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)
LO 1798 Bear Convexity[1]	7.2	4.7	47.4	12.1	7.3	2.9	5.4	16.5	7.9	1.7	4.7
CBOE Eurekahedge Long Volatility[2]	*7.5*	*-9.5*	*25.7*	*-10.9*	*0.8*	*-10.9*	*-2.8*	*-1.1*	*1.6*	*-4.4*	*0.3*

[1] Performance figures prior to January 2020 were achieved using a back-tested systematic portfolio using the greater of a 1% or 30% fee structure modeling 18 instruments. Key assumptions include no transactions costs, no financing costs, rebalancing once per month at the start of the month and assuming sufficient liquidity to rotate the portfolio completely. (Source: Lombard Odier Investment Management).

[2] Eurekahedge Long Volatility Index - The CBOE Eurekahedge Long Volatility Index is an equally weighted index of 10 constituent funds. The index is designed to provide a broad measure of the performance of underlying hedge fund managers who take a net long view on implied volatility with a goal of positive absolute return.

BH-DG Systematic Trading

BH-DG Systematic Trading Fund
Overview and Terms

Firm Location	London, United Kingdom
Firm Inception	March 2010
Assets Managed (as of 12/31/2020)	$2,032 mm
Portfolio Manager	David Gorton
Vehicle Type	Commingled Fund
Role within the Program	Risk Mitigation

Strategy Type	Global Macro – Trend Following
Strategy Inception	March 2010
Strategy Assets	$710 mm
Fee Schedule/Performance Fee	0.93%
Liquidity Constraints	Daily with 1 days' notice
Expected Return and Volatility	5-8% and 15%

→ BH-DG believes in the existence of a Momentum Style Premium, expressed as the inertia of market sentiment that is quantifiable by medium-term trend following measures. In order to capture this Premium, BH-DG aims to build a highly diversified portfolio that is continuously invested, focused on highly liquid markets, and allocated with the vast majority of its risk to trend following signals.

→ BH-DG's investment process is comprised of two sets of models, Core Trend and Conviction Trend.

- Core Trend Model: A traditional trend following model. Their statistical test selects the most stable and robust combination of seven lookback signals out of a group of 10, ranging from 1 day to 3.5 years, in order to establish exposures in each instrument. The final signal also incorporates two forecasts: a volatility forecast based on short horizon and long horizon exponentially weighted moving average, and a normalizing factor based on the trading characteristics of each market (slow, mid, and fast).
- Conviction Trend Model: This model requires complete consensus from five different lookback periods that range from weekly to yearly in order to establish a position. By requiring a complete consensus, the model will end up being slower to enter trades but provides a higher expectation of avoiding sideways markets. Positions are exited after a majority consensus is lost.

Summary

→ Meketa Investment Group believes that the BH-DG team continues to be capable of executing their Systematic Trading strategy.

- Through recent volatility, we have learned that BH-DG will opt to reduce risk and scale its positions back as much as 50%, which is what the team did at the end of March in the midst of the Coronavirus pandemic. They have since brought risk back to normal levels. The team described the following situations as reasons for the de-risking:
  - Increasing severity of both government and corporate containment measures, including financial market participants
  - The associated increased risk of a further deterioration in market liquidity, including sharply wider bid/ask spreads and/or the risk of widespread market closures.
  - Potential gap risk on the reopening of markets should they be closed for a period of time.
- A discretionary intervention to reduce risk is something MALTs normally does not want to see from systematic strategies. However, in March, we were living through perhaps unprecedented times in terms of market volatility and liquidity to an extent, so reducing risk in their models is a sensible and conservative approach to preserve capital and navigate a systematic strategy through uncertainty. Unsurprisingly, a reduction in risk means that investors in the strategy should expect lower magnitude returns relative to periods where the strategy is risk-on.
- This investment may suffer during sharp reversals and volatile, yet trendless, markets. However, this manager should help provide DERP with the diversification benefits of a trend following manager.

BH-DG Systematic Trading Fund

Trailing Period Returns (As of December 31, 2022)

	1 Yr	3 Yr	5 Yr	7 Yr	10 Yr	SI[1] (May 2006)
BH-DG	32.9	17.3	12.9	10.6	8.8	9.5
Barclay CTA Index	*7.3*	*5.9*	*3.9*	*2.7*	*2.3*	*2.7*
MSCI ACWI	*-18.4*	*4.0*	*5.2*	*5.6*	*8.0*	*8.1*
Bloomberg Global Aggregate	*-13.0*	*-2.7*	*0.0*	*0.9*	*1.1*	*3.1*

Calendar Year Returns

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
BH-DG	32.9	9.1	16.2	3.9	0.2	6.9	3.0	-2.2	14.1	2.8	-4.1	2.6	19.7	0.0	51.1
Barclay CTA Index	*7.3*	*5.1*	*5.4*	*5.2*	*-3.2*	*0.7*	*-1.2*	*-1.5*	*7.6*	*-1.4*	*-1.7*	*-3.1*	*7.0*	*-0.1*	*14.1*
MSCI ACWI	*-18.4*	*18.5*	*16.3*	*27.3*	*-8.9*	*24.6*	*8.5*	*-1.8*	*4.7*	*23.4*	*16.8*	*-6.9*	*13.2*	*35.4*	*-41.8*
Bloomberg Global Agg	*-13.0*	*-4.7*	*9.2*	*6.8*	*-1.2*	*7.4*	*2.1*	*-3.2*	*0.6*	*-2.6*	*4.3*	*5.6*	*5.5*	*6.9*	*4.8*

[1] From BH-DG: The Strategy has traded under the supervision of David Gorton since its inception on 10 May 2006, first within portfolios managed by DG Partners and since 1 March 2010, within the Systematic Master Fund.

Glossary

→ Jensen's Alpha: a risk-adjusted performance measure that represents the average return on a portfolio or investment, above or below that predicted by the capital asset pricing model (CAPM), given the portfolio's or investment's beta and the average market return. This metric is also commonly referred to as simply alpha.

Jensen's Alpha = R(i) - (R(f) + B x (R(m) - R(f))), where:

R(i) = the realized return of the portfolio or investment; R(m) = the realized return of the appropriate market index; R(f) = the risk-free rate of return for the time period; B = the beta of the portfolio of investment with respect to the chosen market index

→ HFRI Fund of Funds Conservative Index: Fund of Funds classified as "Conservative" exhibit one or more of the following characteristics: seeks consistent returns by primarily investing in funds that generally engage in more 'conservative' strategies such as Equity Market Neutral, Fixed Income Arbitrage, and Convertible Arbitrage; exhibits a lower historical annual standard deviation than the HFRI Fund of Funds Composite Index. A fund in the HFRI FOF Conservative Index shows generally consistent performance regardless of market conditions.

→ HFRI Fund of Funds Market Defense Index: Fund of Funds classified as "Market Defensive" exhibit one or more of the following characteristics: invests in funds that generally engage in short-biased strategies such as short selling and managed futures; shows a negative correlation to the general market benchmarks (S&P). A fund in the FOF Market Defensive Index exhibits higher returns during down markets than during up markets.

Brigade High Income Fund

Brigade High Income Fund

Overview and Terms

Firm Location	New York, NY	Strategy Type	High Yield and Bank Loans
Firm Inception	2006	Strategy Inception	April, 2023
Assets Managed (as of 12/31/2022)	$24.9 billion[1]	Strategy Assets[2]	$ -
Portfolio Manager	Don Morgan and Doug Pardon	Fee Schedule	0.52% (Founders fee-BHIMX)
Vehicle Type	Mutual Fund - BHIMX	Liquidity	Daily
Role within the Credit	Core	Expected Excess Return Expected Tracking Error	1.0% - 1.5%[3] 2.0% - 3.0%

Organization

→ Brigade Capital Management (Brigade) is a credit specialist asset manager based in New York City. Brigade was founded in 2006 by Donald E. Morgan III, who serves as Chief Investment Officer and Managing Partner. Mr. Morgan previously headed the High Yield division at MacKay Shields from 2000 to 2006. The firm is 75-90% employee owned, with Asset Management Finance holding a passive minority stake in Brigade (10-25%).

[1] Source: eVestemnt
[2] Source: eVestment Strategy assets focused on Traditional High Yield and Leveraged Capital Structures are approximated at $8.5 B ($6.6 B and $1.2 B respectively). Meketa is serving as a founder to this new mutual fund vehicle.
[3] Expectations are relative to the preferred benchmark of 60% Barclays US High Yield and 40% CS Leveraged Loans index.

Investment Team

Name	Role	Years at Firm	Total Years' Experience
Don Morgan	Co-CIO, Portfolio Manager	14	29
Doug Pardon	Co-CIO, Portfolio Manager	14	21
Greg Soeder	Head of Portfolio Strategy	12	5
Steven Bleier	Co-Head of Trading & Head of Structured Credit	14	24

→ The investment team is led by firm founder Don Morgan, who also chairs the Investment Committee. The Investment Committee consists of the co-CIOs listed above as well as Greg Soeder, Steven Bleier, Andrew Petitjean, Tom O'Shea and Raymond Garrison.

→ The team has deep sector expertise and experience across multiple credit cycles in the leveraged finance market. Additionally, the Investment Team has extensive experience in capital restructurings and bankruptcy reorganizations.

- Over the past five years (2018 to 2022) there have been more than 25 departures of investment professionals including several analyst departures. While the turnover figures are elevated, the majority of departures from the investment team have been junior team members.

Investment Philosophy and Process

→ The Brigade strategy is focused predominantly on liquid securities. Brigade believes it is vitally important to maintain a liquid portfolio in order to effectively execute its credit rotation process, whereby the investment allocation (e.g. mix of High Yield bonds and Bank Loans) of the portfolio changes depending on the market environment.

→ Brigade's high yield strategy is typically unconstrained and may take exposure to non-high yield and non-bank loan allocations (structured credit, distressed, investment grade bonds, Municipal securities, and convertibles). The portfolio's yield tends exceed the index and seeks to outperform during all phases of the credit cycle.

- This positioning has historically led to more volatility and downside capture over shorter-term periods of market volatility, but Meketa is comfortable with this return profile as they do not try to time the market and tend to outperform over a cycle.

→ Brigade follows a six-step investment process that involves (1) idea generation, (2) research/screening, (3) relative value analysis, (4) strategy selection, (5) execution, and (6) monitoring.

→ Brigade's Investment Committee process is very fluid and less formal than other firms. Credit ideas that will be core positions do not need to pass through a full vote to be added to the portfolios but will be discussed by all IC members present. Any position that is likely to grow will be fully vetted by the IC.

→ The firm believes the ability to trade a High Yield bond or a Bank Loan is more important than any yield premium that may be attributable to size or liquidity as it allows them to efficiently rotate credit exposure the keep the portfolios optimized.

Performance Summary

Trailing Period Returns (as of December 31, 2022)

	1 YR	3 YR	5 YR	SI (March 2009)
Brigade High Income Fund	-10.3	2.7	3.5	8.2
50-50 ICE US HY/LSTA	-6.0	1.2	2.8	7.7

Calendar Year Returns

	2022	2021	2020	2019	2018	2017	2016	2015
Brigade High Income Fund	-10.3	14.3	5.6	10.7	-0.5	7.7	23.6	-9.0
50-50 ICE US HY/LSTA	-6.0	5.3	4.7	11.5	-0.9	5.8	13.8	-2.7

Fee Structure and Liquidity

Management Fee (Mutual Fund):	0.50%
Operating Costs:	Capped at 0.02% with various rebates for the founders share class, BHIMX
Total Operating Expenses	0.52% BHIMX
Liquidity	Daily, subject to a 60 day holding period

→ The team at Brigade offered the use of a mutual fund vehicle for the investment mandate. The daily liquidity and the beneficial "founders" fees offered to Meketa clients were strong contributors to the decision to engage Brigade.

→ The peer ranking[1] of the fee for the Brigade product is noted below. We are unable to combine eVestment universes manually, but we can imply the fee for a mutual fund ranks the offering in the top 20% (e.g. closer to 1% ranking the lower the fee) of fees for the combined universe of High Yield and Bank Loan mutual funds.

- High yield universe fee rank – 21st percentile
- Bank loan universe Fee rank – 6th percentile

[1] Source: eVestment

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CERTAIN INFORMATION CONTAINED IN THIS REPORT MAY CONSTITUTE "FORWARD - LOOKING STATEMENTS," WHICH CAN BE IDENTIFIED BY THE USE OF TERMINOLOGY SUCH AS "MAY," "WILL," "SHOULD," "EXPECT," "AIM", "ANTICIPATE," "TARGET," "PROJECT," "ESTIMATE," "INTEND," "CONTINUE" OR "BELIEVE," OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. ANY FORWARD-LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT ASSUMPTIONS. CHANGES TO ANY ASSUMPTIONS MAY HAVE A MATERIAL IMPACT ON FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS. ACTUAL RESULTS MAY THEREFORE BE MATERIALLY DIFFERENT FROM ANY FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION.

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. Portfolio Return- [Risk Free Rate+Beta*(market return-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 is 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%.

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

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

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.