MEKETA

Employees' Retirement System of the City of Norfolk

May 7, 2025

Investment Committee Meeting

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2. **Executive Summary**

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   - March 31, 2025 Fund Evaluation Report

4. **Private Credit Primer**

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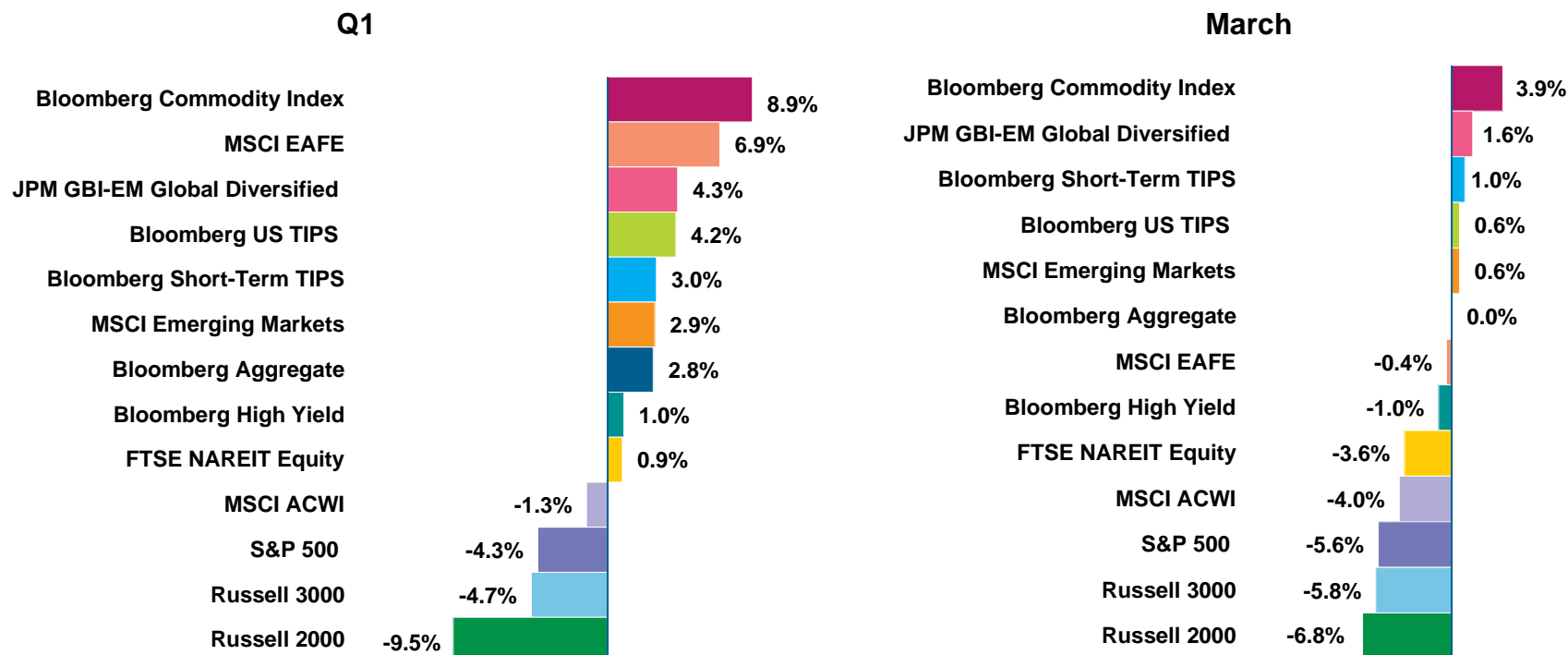# Economic and Market Update
Data as of March 31, 2025

Commentary

In the first quarter of 2025, investment flows rotated out of US stocks to non-US stocks while bond markets rallied on uncertainty related to tariffs and growth.

→ Domestic equities sold off in the first quarter (Russell 3000: -4.7%) with growth underperforming value, small-cap trailing large-cap, and defensive sectors outperforming.

→ Non-US developed market stocks (MSCI EAFE: +6.9%) outperformed US markets at the start of the year, supported by rate cuts from the ECB, EU planned increases in defense spending, and a weakening US dollar.

→ Emerging market equities returned +2.9% in the first quarter, largely supported by a rally in Chinese stocks (they rose an impressive +15.0%) on DeepSeek AI enthusiasm.

→ In February, the Federal Reserve held rates steady with inflation, while improving, remaining above target and with the unemployment rate at near historic lows.

→ Most fixed income markets posted positive returns in the first quarter with the broad bond market (Bloomberg Aggregate) up 2.8%. Long Treasuries (+4.7%) were the best performer in the falling rate environment while high yield bonds (+1.0%) produced the smallest gains given the economic uncertainty in the US.

→ Looking ahead, continued uncertainty related to the US administration's tariff policies and their impact on the economy, inflation, and Fed policy will be key. The path of China's economy and relations with the US, as well as concerns over elevated valuations and technology-driven concentration in the US equity market will also be important focuses of 2025.

Index Returns[1]

Q1

Index	Return
Bloomberg Commodity Index	8.9%
MSCI EAFE	6.9%
JPM GBI-EM Global Diversified	4.3%
Bloomberg US TIPS	4.2%
Bloomberg Short-Term TIPS	3.0%
MSCI Emerging Markets	2.9%
Bloomberg Aggregate	2.8%
Bloomberg High Yield	1.0%
FTSE NAREIT Equity	0.9%
MSCI ACWI	-1.3%
S&P 500	-4.3%
Russell 3000	-4.7%
Russell 2000	-9.5%

March

Index	Return
Bloomberg Commodity Index	3.9%
JPM GBI-EM Global Diversified	1.6%
Bloomberg Short-Term TIPS	1.0%
Bloomberg US TIPS	0.6%
MSCI Emerging Markets	0.6%
Bloomberg Aggregate	0.0%
MSCI EAFE	-0.4%
Bloomberg High Yield	-1.0%
FTSE NAREIT Equity	-3.6%
MSCI ACWI	-4.0%
S&P 500	-5.6%
Russell 3000	-5.8%
Russell 2000	-6.8%

→ At the end of the first quarter, global investors rotated away from the US, with domestic equities in negative territory (particularly small cap), while other asset classes were positive.

→ Commodities led the way during the quarter due to safe havens like gold, while non-US developed markets followed, driven by strong results in Europe.

→ In March, ahead of tariff announcements in the US, riskier assets generally sold off.

[1] Source: Bloomberg. Data is as of March 31, 2025.
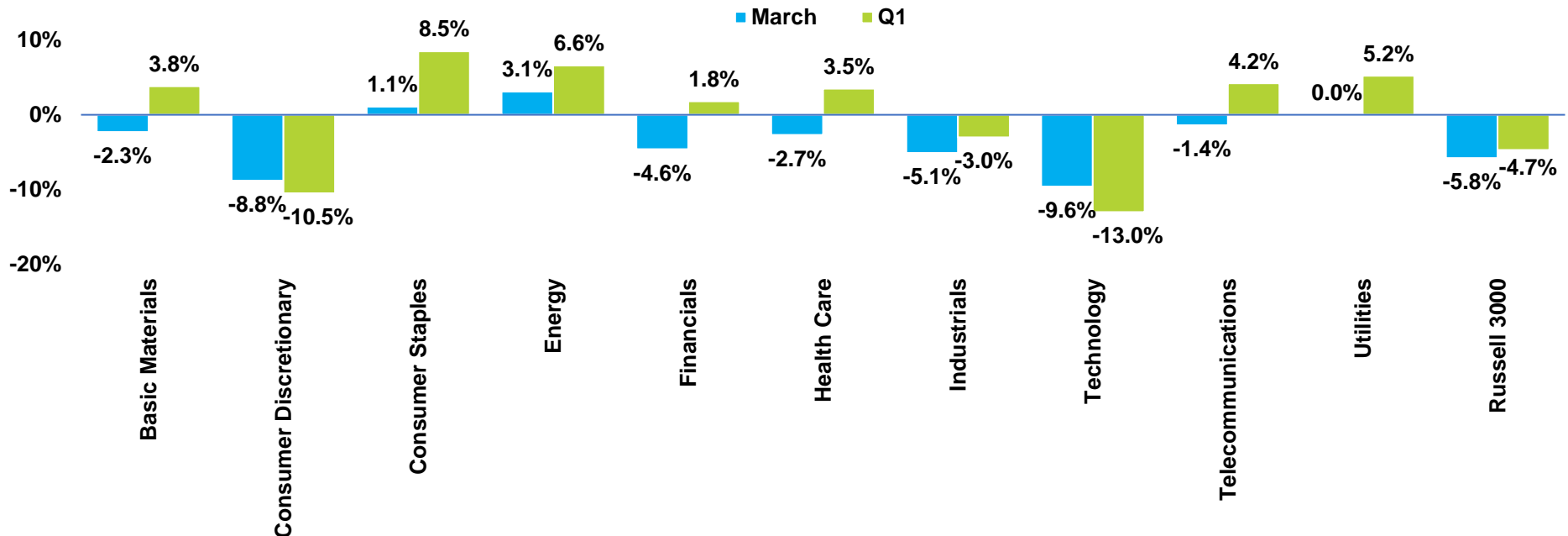
Domestic Equity Returns[1]

Domestic Equity	March (%)	Q1 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	-5.6	-4.3	8.3	9.1	18.6	12.5
Russell 3000	-5.8	-4.7	7.2	8.2	18.2	11.8
Russell 1000	-5.8	-4.5	7.8	8.6	18.4	12.2
Russell 1000 Growth	-8.4	-10.0	7.8	10.1	20.1	15.1
Russell 1000 Value	-2.8	2.1	7.2	6.6	16.1	8.8
Russell MidCap	-4.6	-3.4	2.6	4.6	16.3	8.8
Russell MidCap Growth	-7.4	-7.1	3.6	6.2	14.8	10.1
Russell MidCap Value	-3.7	-2.1	2.3	3.8	16.7	7.6
Russell 2000	-6.8	-9.5	-4.0	0.5	13.3	6.3
Russell 2000 Growth	-7.6	-11.1	-4.9	0.8	10.8	6.1
Russell 2000 Value	-6.0	-7.7	-3.1	0.0	15.3	6.1

US Equities: In the first quarter the Russell 3000 fell -4.7%.

→ After a strong start to the year, US equities ended the quarter lower. In late January China's DeepSeek introduced an AI model comparable to market leaders but at a much lower cost. This took investors by surprise and heavily weighed on technology stocks, particularly the "Magnificent 7". Renewed trade tensions between the US and its trading partners also caused investors to lower expectations.

→ Growth stocks were harder hit than value stocks across the market cap spectrum. In the large cap space, this dynamic was driven by technology stocks (NVIDIA, Broadcom, Microsoft, Apple), along with Tesla. In the small cap space, where the divergence was less pronounced, technology stocks were again the driver, mainly due to software and semiconductor stocks.

→ Small cap stocks (Russell 2000) trailed large cap stocks (Russell 1000) over the quarter as recession fears grew.

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[1] Source: Bloomberg. Data is as of March 31, 2025.

Russell 3000 Sector Returns[1]

■ March ■ Q1

Sector	March	Q1
Basic Materials	-2.3%	3.8%
Consumer Discretionary	-8.8%	-10.5%
Consumer Staples	1.1%	8.5%
Energy	3.1%	6.6%
Financials	-4.6%	1.8%
Health Care	-2.7%	3.5%
Industrials	-5.1%	-3.0%
Technology	-9.6%	-13.0%
Telecommunications	-1.4%	4.2%
Utilities	0.0%	5.2%
Russell 3000	-5.8%	-4.7%

→ There was wide performance dispersion among sectors in the first quarter, from -13.0% (technology) to +8.5% (consumer staples). Overall, the defensive sectors performed better than growth-oriented sectors.

→ The so-called "Magnificent 7" stocks came under pressure weighing on both the technology and consumer discretionary sectors. The announcement of DeepSeek out of China and weak results from Tesla and Amazon drove results.

→ Consumer staples was a bright spot as more defensive, dividend-paying stocks, such as Coca-Cola and Philip Morris International, fared relatively well. Energy and utilities also performed well due to broader growth and inflation concerns.

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[1] Source: Bloomberg. Data is as of March 31, 2025.
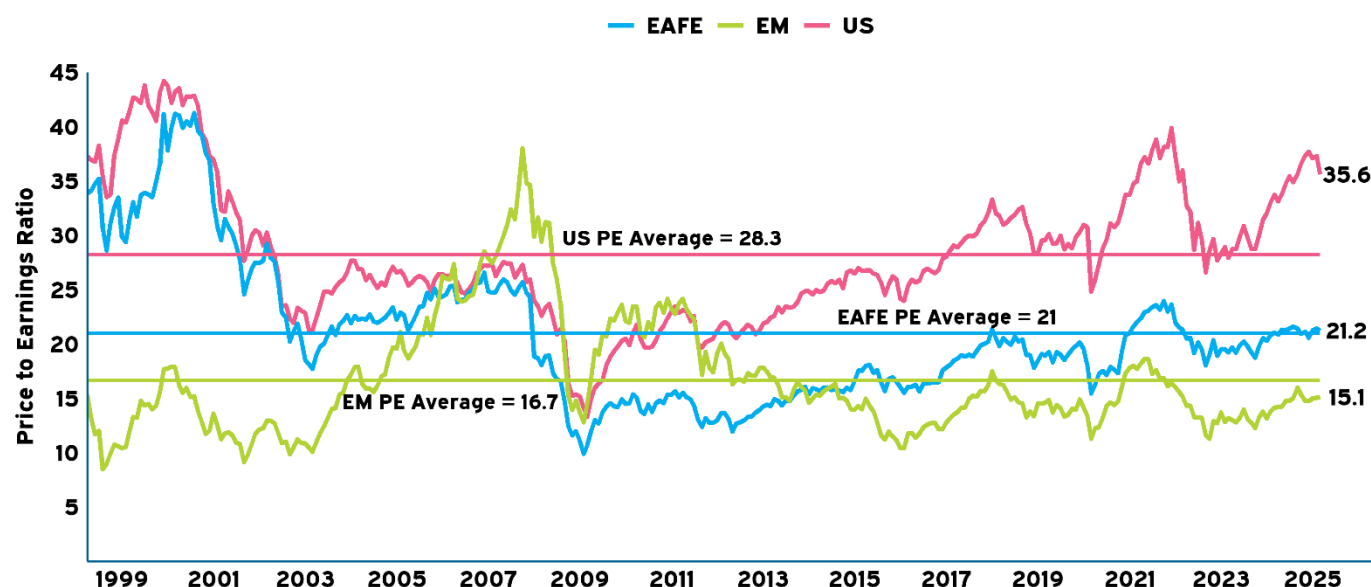
Foreign Equity Returns[1]

Foreign Equity	March (%)	Q1 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI Ex US	-0.2	5.2	6.1	4.5	10.9	5.0
MSCI EAFE	-0.4	6.9	4.9	6.0	11.8	5.4
MSCI EAFE (Local Currency)	-2.8	2.9	4.1	8.7	13.2	6.3
MSCI EAFE Small Cap	0.5	3.7	3.1	0.9	9.9	5.3
MSCI Emerging Markets	0.6	2.9	8.1	1.4	7.9	3.7
MSCI Emerging Markets (Local Currency)	0.3	2.7	11.1	4.7	9.6	5.7
MSCI EM ex China	0.0	-1.7	-2.1	0.7	12.0	4.5
MSCI China	2.0	15.0	40.4	3.5	1.5	2.5

Foreign Equity: Developed international equities (MSCI EAFE) returned 6.9% in the first quarter and emerging market equities (MSCI Emerging Markets) rose 2.9%.

→ By contrast to the US, developed market equities rose in the first quarter benefiting from the rotation away from US technology companies. Eurozone stocks saw the highest returns, driven by plans in Germany to increase defense and infrastructure spending, strong gains in the financial sector (particularly banks), and continued rate cuts from the ECB. The UK followed closely behind, with gains led by returns in large cap energy and financials. Japan saw moderate losses, due to global trade uncertainties hurting exporters.

→ Emerging markets saw modest gains in the first quarter, driven largely by China. China's gains were a combination of improving sentiment towards tech following DeepSeek's promising AI debut and the announcement of additional stimulus measures. Brazil was another strong performer in Q1, benefitting from strong commodity gains and a strengthening currency. India saw declines due to slowing growth and weakening demand for their exports.

[1] Source: Bloomberg. Data is as of March 31, 2025.

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Equity Cyclically Adjusted P/E Ratios[1]

— EAFE — EM — US

US PE Average = 28.3

EAFE PE Average = 21

EM PE Average = 16.7

35.6

21.2

15.1

→ Valuations in US stocks came down over the quarter but remained at a significant premium to non-US developed and emerging market stocks.

→ US equities, priced at 35.6 times earnings, continued to trade well above their long-run P/E average of 28.3.

→ Non-US developed market valuations (21.2 times) increased over the quarter due in part to strong results in Europe and are trading slightly above their long-term average. Emerging market valuations (15.1 times) also increased in Q1 but remain below their long-run average.

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[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: Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years. Data is as of March 2025. 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.

Fixed Income Returns[1]

Fixed Income	March (%)	Q1 (%)	1 Yr (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	0.0	2.7	5.2	1.0	0.3	1.8	4.9	5.9
Bloomberg Aggregate	0.0	2.8	4.9	0.5	-0.4	1.5	4.6	6.1
Bloomberg US TIPS	0.6	4.2	6.2	0.1	2.4	2.5	4.2	6.8
Bloomberg Short-term TIPS	1.0	3.0	7.0	3.2	4.1	2.8	4.1	2.4
Bloomberg US Long Treasury	-0.9	4.7	1.3	-7.2	-7.9	-0.6	4.6	14.9
Bloomberg High Yield	-1.0	1.0	7.7	5.0	7.3	5.0	7.7	3.5
JPM GBI-EM Global Diversified (USD)	1.6	4.3	4.0	2.7	2.3	1.3	--	--

Fixed Income: The Bloomberg Universal index rose 2.7% in the first quarter.

→ Uncertainty related to tariffs and growing worries about economic growth drove investors to high quality bonds over the quarter.

→ The broad US bond market (Bloomberg Aggregate) rose 2.8% with both short- (+3.0%) and longer-dated (+4.2%) TIPS outperforming as inflation risks rose modestly. Long-term Treasuries (+4.7%) particularly benefited in this environment of uncertainty and falling interest rates.

→ High yield bonds (+1.0%) rose the least during the quarter as uncertainty and risk aversion grew ahead of the planned tariff announcement from the US in early April.

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[1] Source: Bloomberg. Data is as of March 31, 2025. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration, respectively. JPM GBI-EM data is from J.P. Morgan. Current yield and duration data is not available.
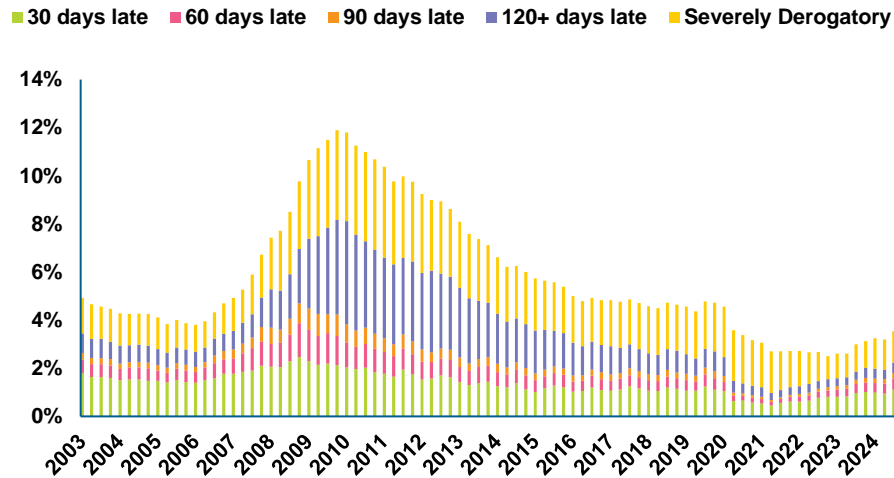
US Yield Curve[1]

— 8/31/2024   — 3/31/2025
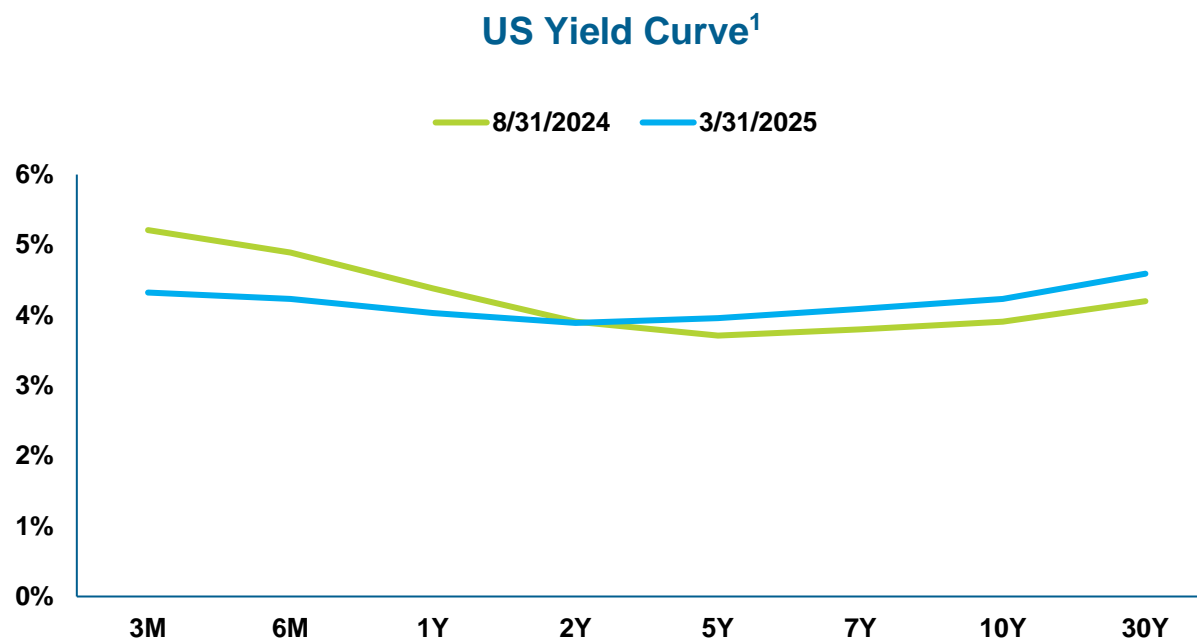
→ US Treasury yields declined significantly over the quarter, as investors expressed concerns about the potential policies of the new US administration, economic data related to consumers weakened, and overall growth expectations fell.

→ The more policy sensitive 2-year Treasury yield fell from 4.24% to 3.89%, while the 10-year Treasury yield declined from 4.57% to 4.21%.

→ After the Fed started reducing interest rates in September 2024, the yield curve stopped being inverted (short-term interest rates higher than long-term interest rates) given expectations for inflation to continue to decline and policy rates to continue lower.
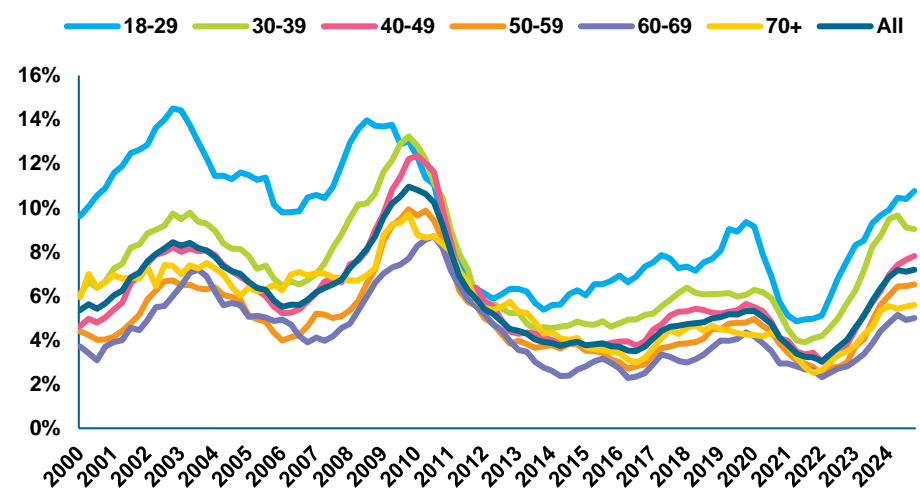
[1] Source: Bloomberg. Data is as of March 31, 2025. The August 2024 Treasury yields are shown as a reference before the first interest rate cut.

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Stress is Building on US Consumers

Total Balance by Delinquency Status[1]

■ 30 days late ■ 60 days late ■ 90 days late ■ 120+ days late ■ Severely Derogatory

Transition into Serious Delinquency for Credit Cards by Age[2]

— 18-29 — 30-39 — 40-49 — 50-59 — 60-69 — 70+ — All

→ Some signs of stress on the US consumer have started to emerge given persistently higher prices and interest rates.

→ After falling to historic lows during the pandemic, loan delinquencies recently started rising.

→ While some segments of the credit market have started to show signs of stress, total delinquencies remain well below pre-pandemic levels.

→ While total delinquency rates are below pre-pandemic levels, the credit card segment is showing more signs of distress where borrowers are subject to variable and higher borrowing costs.

→ Credit card delinquencies are rising rapidly, especially for borrowers under the age of forty.

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[1] Source: New York Federal Reserve, Quarterly Household Debt and Credit Report, February 2025. See also FRED. Data is as of February 28, 2025.
[2] Source: FRED. Data is as of February 28, 2025.

Credit Spreads vs. US Treasury Bonds[1]
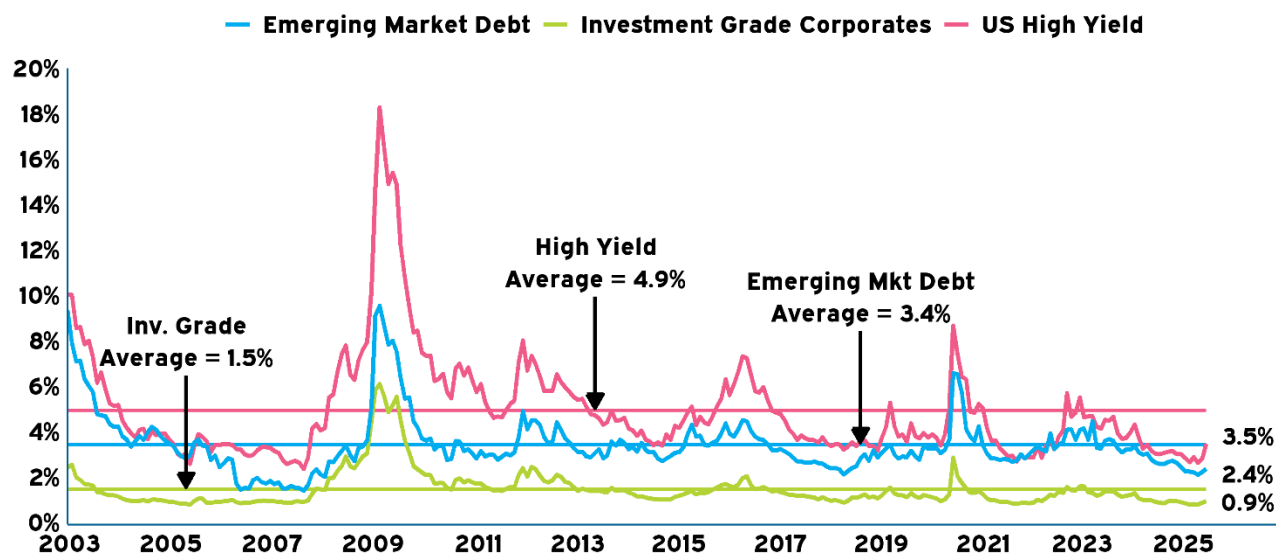
→ Given all the uncertainty, spreads (the yield above a comparable maturity Treasury) widened in the first quarter.

→ High yield spreads moved the most (2.9% to 3.5%) due to the concerns related to the US economy.

→ All yield spreads remained below their respective long-run averages, particularly high yield (3.5% versus 4.9%).

→ Although spreads are tight, absolute bond yields remain at above-average levels compared to the last two decades.

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[1] Source: Bloomberg. Data is as March 31, 2025. 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.

Equity and Fixed Income Volatility[1]
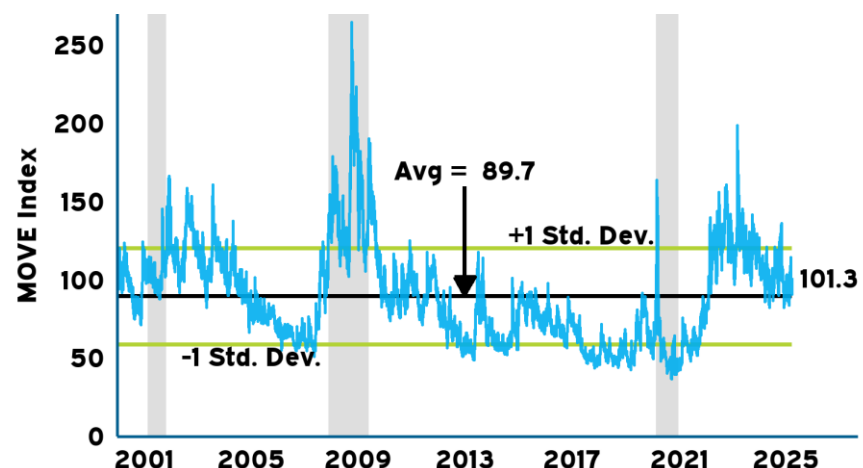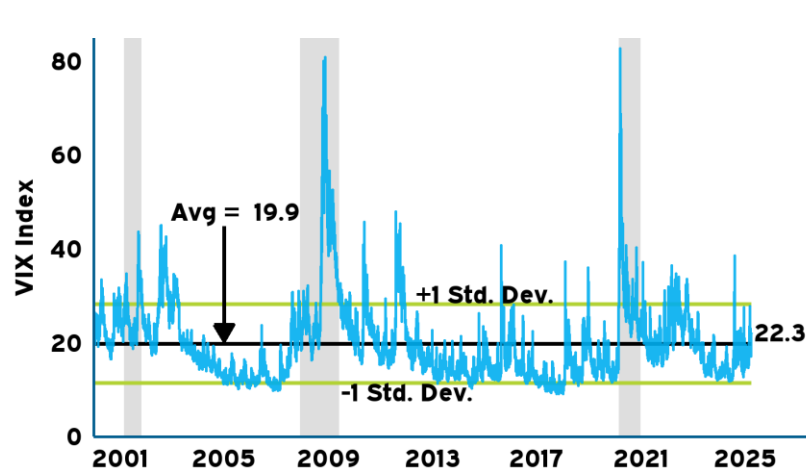
→ Bond and equity volatility rose in the first quarter driven mainly by policy and trade uncertainty.

→ Volatility levels (VIX) in the US stock market and bond market (MOVE) finished the quarter above their respective long-run averages.

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[1] 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 March 31, 2025. The average line indicated is the average of the VIX and MOVE values between January 2000 and March 2025.

US Ten-Year Breakeven Inflation and CPI[1]
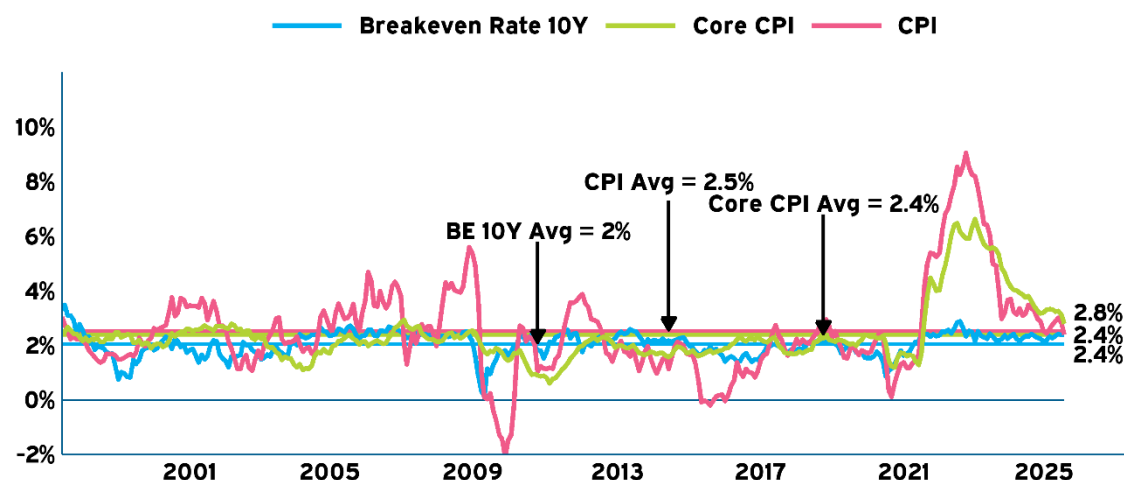
→ While inflation has been slow to return to the Fed's 2% average target, over the quarter the year-over-year rate fell from 2.9% to 2.4%. The month-over-month rate moved into negative territory at quarter-end (-0.1%). A slowing in the rate of increase in the services sector along with a drop in energy prices contributed to the recent decline.

→ Core inflation year-over-year also declined over the quarter (3.2% to 2.8%) with the month-over-month rate slowing to 0.1%. A decline in the pace of shelter price increases drove results.

→ Inflation expectations (breakevens) stayed relatively stable over the quarter as investors continued to evaluate the potential inflationary impacts of the new US administration's policies.

Global Inflation (CPI Trailing Twelve Months)[1]
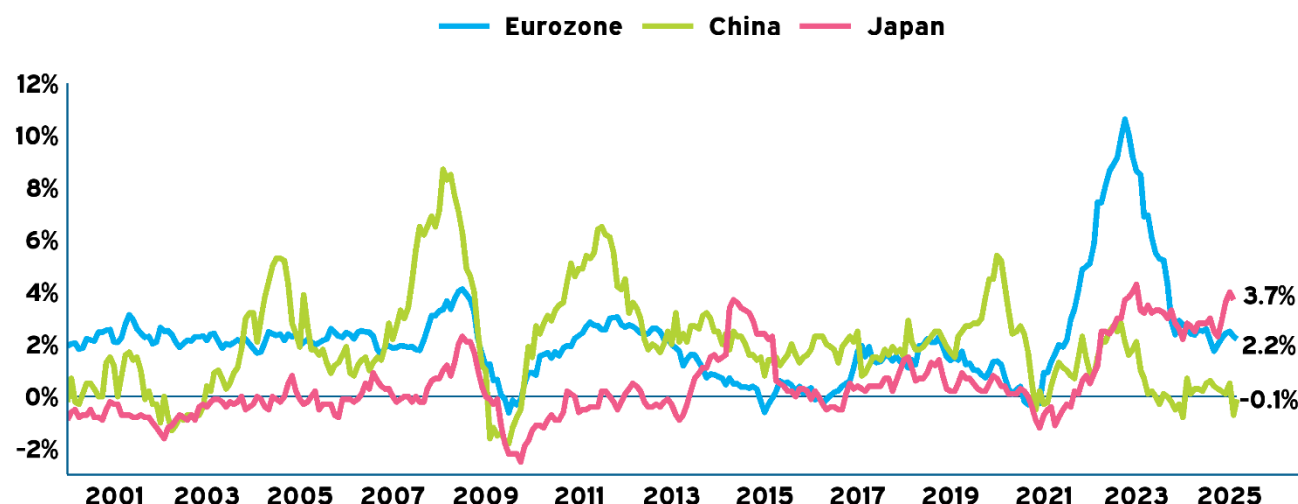
→ Inflation in the eurozone fell over the quarter (2.4% to 2.2%), due largely to declines in energy costs and services. Levels remain slightly below the US.

→ The latest reading of inflation in Japan dropped from 4.0% to 3.7% as energy subsidies were reintroduced.

→ In China, despite record policy stimulus consumer prices moved back into negative territory over the quarter. In March, prices fell by 0.1% compared to a year prior, a lower decline than the February reading of -0.7%. Despite years of policy stimulus to counter the real estate crisis and economy, the Chinese consumer has remained weak.

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[1] Source: Bloomberg. Data is as March 2025, except Japan which is as of February 2025.

US Unemployment[1]
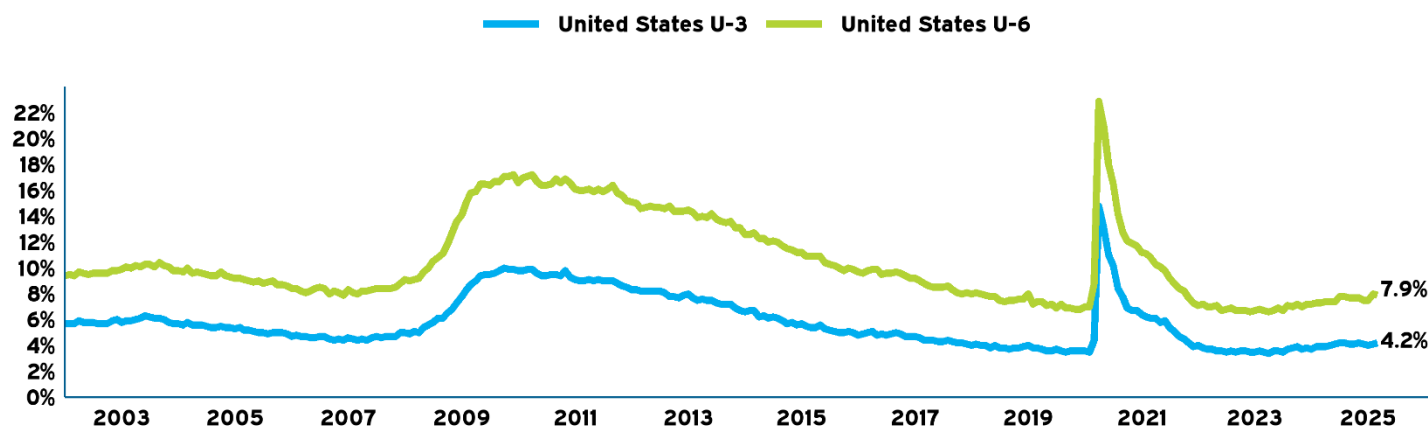
→ In March, the US added 228,000 jobs (above expectations of 140,000). The unemployment rate rose slightly to 4.2% but remained in the tight range of 4.0% to 4.2% it has been in since May of last year. There were 7.1 million jobseekers (little changed from the prior reading) of which 1.5 million have been without work for more than 27 weeks.

→ A broader measure of total unemployed (U-6) that includes those marginally attached to the labor force and employed part-time for economic reasons, fell slightly to 7.9%.

→ Health care (+54k), social assistance (+24k), retail (+24k), and transportation (+23k) added jobs in March while the Federal government lost 4,000 jobs adding to the 11,000 lost in February.

→ The last reading of job opening fell slightly to 7.6 million, a level well below the pandemic highs (>12 million); the number of openings exceeded the number of unemployed workers looking for work (7.1 million).

→ Separations (5.3 million) and hires (5.4 million) remained steady and average hourly wages continued to grow at approximately 4.0% annually.

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[1] Source: FRED and BLS. Data is as of March 31, 2025.

Policy Rates[1]
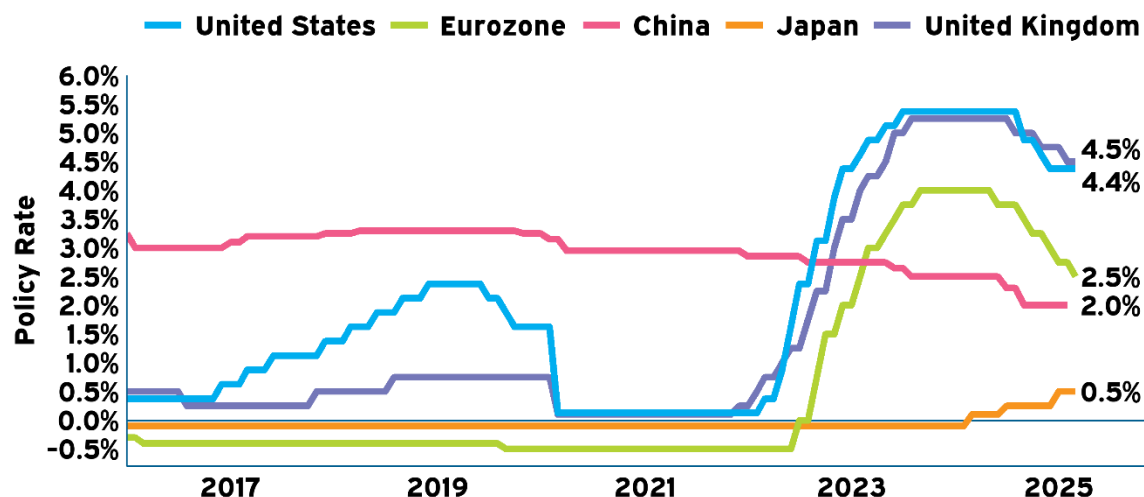
→ The Fed kept US interest rates steady at their March meeting after reducing rates by 0.25% twice over the final quarter of 2024 to a range of 4.25% to 4.50%. Given growing concerns about growth, markets recently increased expectations for the number of rate cuts in 2025 to over three.

→ In February, the Bank of England cut interest rates for the third time by 0.25% to 4.5%, while in March the European Central Bank cut rates by another 0.25% to 2.5%. In addition to cutting interest rates, the People's Bank of China has also reduced reserve requirements, lowered mortgage rates, and supported the stock market.

→ In contrast to many other central banks, the Bank of Japan increased interest rates in January to 0.5%, in the face of persistent inflation. Rate cutting by other major central banks are complicating prospects for further policy rate hikes in Japan.

[1] Source: Bloomberg. Data is as of March 31, 2025. United States rate is the mid-point of the Federal Funds Target Rate range. Eurozone rate is the ECB Deposit Facility Announcement Rate. Japan rate is the Bank of Japan Unsecured Overnight Call Rate Expected. China rate is the China Central Bank 1-Year Medium Term Interest Rate. UK rate is the UK Bank of England Official Bank Rate.

US Dollar vs. Broad Currencies[1]
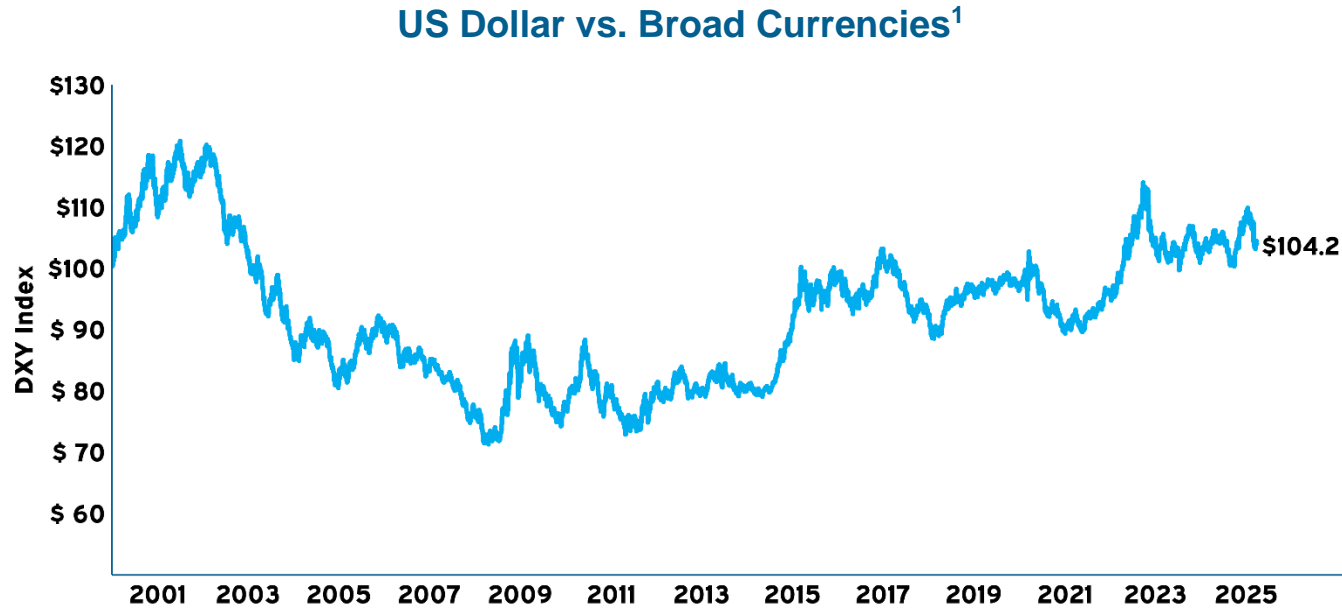
→ After largely strengthening through 2024, the US dollar recently started to weaken.

→ Concerns over changing US administration policies, slower growth, and corresponding lower yields have recently weighed on the value of the dollar.

Summary

Key Trends:

→ According to the International Monetary Fund's (IMF) January report, global growth in 2025 is expected to be slightly higher than 2024 (3.3% versus 3.2%). Growth forecast in the US (+2.7%) and China (+4.6%) are lower for this year compared to last, while growth in the EU (+1.0%) is projected to be slightly higher in 2025.

→ Elevated levels of uncertainty along with higher tariffs could weigh on growth while at the same time fan inflation. Inflation levels will likely lead to a slower pace of interest rate cuts by the Fed. Uncertainty in the US and the potential for slower growth could continue the rotation out of US assets and the pressure on the dollar.

→ Signs of stress have started to emerge on the US consumer with sentiment weakening. Consumers are particularly concerned about losing their jobs and the potential for higher prices. Overall risk to economic growth and to inflation from tariffs, as well as elevated borrowing costs, could put further pressure on consumers and lead to a weaker job market.

→ US equities have recently come under pressure. A focus going forward will be whether earnings can remain resilient if growth slows. Also, the future paths of the large technology companies that have driven market gains will continue to be important.

→ Trade tensions between the US and China will remain a key focus. As tariffs have soared on both sides, China has allowed its currency to weaken against the dollar. Outside of tariffs, China continues to focus on supporting its economy/asset prices with a suite of fiscal and financial policy stimulus measures. Advances in AI technologies have also contributed to some optimism. Despite the policy support, consumer spending is still weak and issues remain in the real estate sector.

Executive Summary

→ In March, US equities underperformed their foreign counterparts on a relative basis as Trump's tariff decisions loomed. Fixed income assets delivered positive returns as the Federal Reserve maintained interest rates, despite rising inflation concerns.

→ The table below reflects the latest estimated valuation data through March 2025.

NERS	March 31, 2025	February 28, 2025	January 31, 2025
Total Fund Balance	$1.35 Billion	$1.38 Billion	$1.38 Billion
Funded Status	87%	89%	89%
NERS Assumed Rate of Return	6.75%	6.75%	6.75%
FYTD Rate of Return	4.5%	5.9%	5.7%
12 Months Trailing Rate of Return	5.9%	10.0%	12.1%
Monthly Rate of Return	-1.3%	0.2%	2.8%
Monthly Gains/Losses	-$17.2 million	$2.8 million	$37.8 million
Monthly Net Cash Flow	-$8.5 million	-$8.2 million	-$8.0 million

→ The Actuarial Determined Contribution rates for Fiscal Year 2025 are:

- NERS: $34.4 million

- VRS: 7.84%

→ As of March 31, the System was inside of its target asset allocation ranges for all asset classes.

Performance 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.

Return Summary
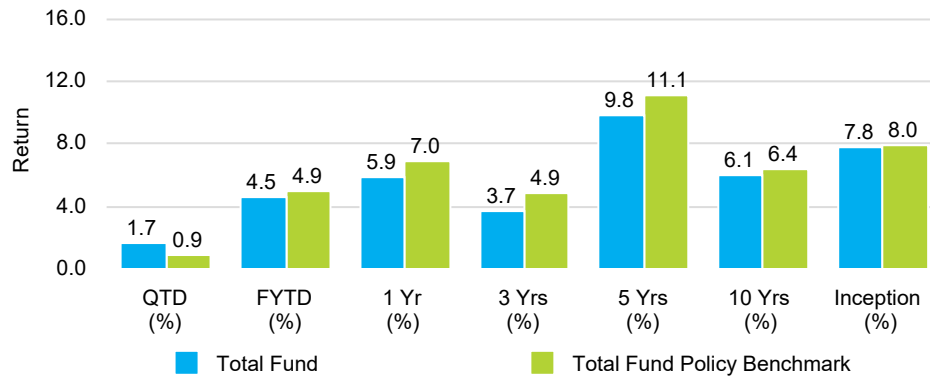
	QTD (%)	FYTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Total Fund	1.7	4.5	5.9	3.7	9.8	6.1	7.8	10/01/1990
Total Fund Policy Benchmark	0.9	4.9	7.0	4.9	11.1	6.4	8.0	

Current Allocation

Credit 4.9%
Risk Mitigation 20.1%
Growth Assets 52.7%
Inflation Hedges 22.4%
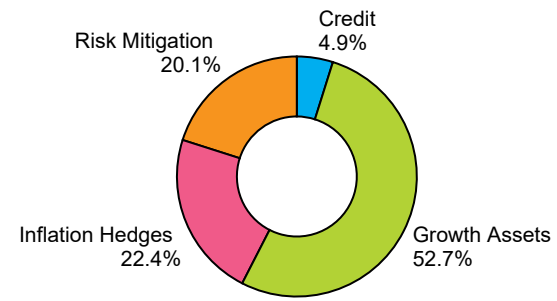
Summary of Cash Flows

	Quarter-To-Date
Total Fund	
Beginning Market Value	1,354,588,745
Net Cash Flow	-24,710,723
Net Investment Change	23,402,726
Ending Market Value	1,353,280,748

Annualized Standard Deviation

1 Yr	3 Yrs	5 Yrs
6.8	11.3	10.8

Sharpe Ratio

1 Yr	3 Yrs	5 Yrs
0.2	0.0	0.7
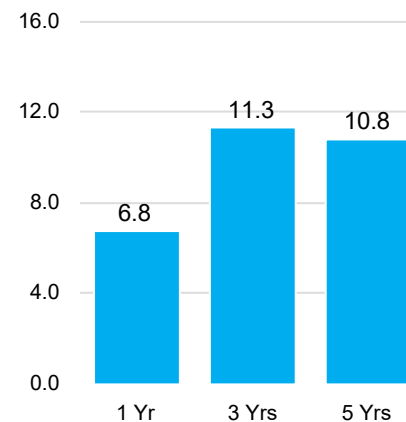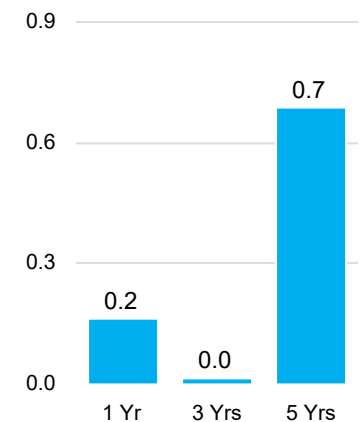
Actual vs. Target Allocation

Growth Assets — 57.0% / 52.7%
Credit — 4.0% / 4.9%
Inflation Hedges — 21.0% / 22.4%
Risk Mitigation — 18.0% / 20.1%

- Target Allocation
- Actual Allocation
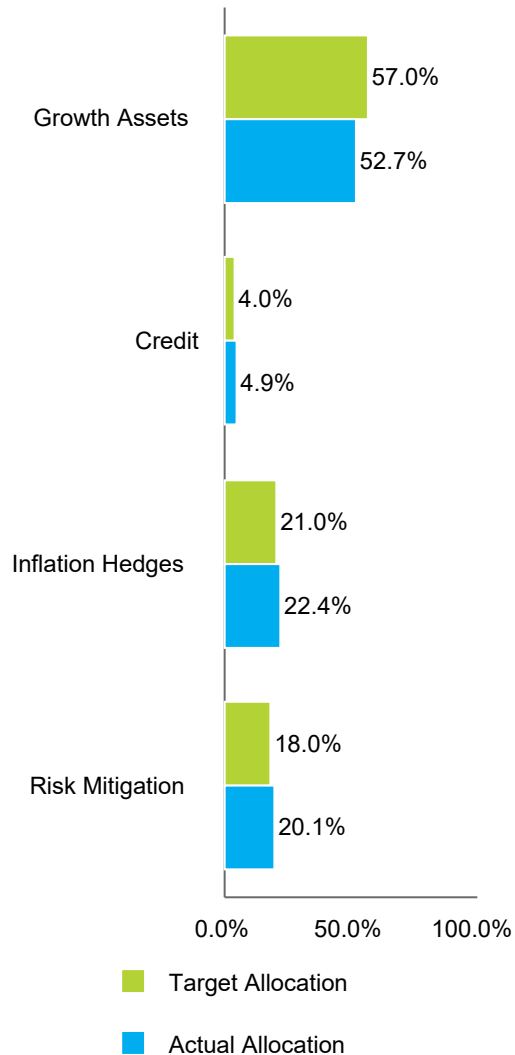
Allocation vs. Targets and Policy

	Current Balance	Current Allocation (%)	Policy (%)	Policy Range (%)	Within IPS Range?
Growth Assets	**$712,823,162**	**52.7**	**57.0**	**47.0 - 67.0**	**Yes**
Global Equity	$706,039,592	52.2	52.0	42.0 - 62.0	Yes
Private Equity	$6,783,570	0.5	5.0	0.0 - 10.0	Yes
Credit	**$65,696,449**	**4.9**	**4.0**	**0.0 - 9.0**	**Yes**
High Yield & Bank Loans	$65,696,449	4.9	4.0	0.0 - 9.0	Yes
Inflation Hedges	**$303,184,160**	**22.4**	**21.0**	**14.0 - 28.0**	**Yes**
Real Estate	$114,696,057	8.5	8.0	3.0 - 13.0	Yes
Natural Resources & Infrastructure	$71,850,723	5.3	5.0	0.0 - 10.0	Yes
Gold	$47,235,793	3.5	3.0	0.0 - 6.0	Yes
Short-Term TIPS	$69,401,587	5.1	5.0	0.0 - 10.0	Yes
Risk Mitigation	**$271,576,978**	**20.1**	**18.0**	**11.0 - 25.0**	**Yes**
Investment Grade Fixed Income	$216,690,344	16.0	14.0	7.0 - 21.0	Yes
Hedge Funds	$52,523,061	3.9	4.0	0.0 - 9.0	Yes
Cash	$2,363,573	0.2	0.0	0.0 - 3.0	Yes
Total	**$1,353,280,748**	**100.0**	**100.0**		

Assets, Liabilities and Funded Status Over Time

As of June 30, 2024, Total Plan Actuarial Liability (AL) is $1.555 billion and the Actuarial Value of Assets (AVA) is $1.324 billion for an Actuarial Funded Ratio (AVA/AL) of 85%. Using the Market Value of Assets (MVA), the Market Funded Ratio (MVA/AL) was approximately 89% in February 2025 and 87% in March 2025.

Asset Class Performance Summary

	Market Value ($)	% of Portfolio	QTD (%)	FYTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fund	1,353,280,748	100.0	1.7	4.5	5.9	3.7	9.8	6.1	7.8	Oct-90
Total Fund Policy Benchmark			0.9	4.9	7.0	4.9	11.1	6.4	8.0	
Total Fund Actual Allocation Benchmark			1.1	4.7	6.4	--	--	--	--	
Total Fund Public Benchmark			-0.5	4.1	6.0	5.1	9.7	6.4	8.0	
Growth Assets	712,823,162	52.7	-0.4	3.2	5.2	--	--	--	12.4	Dec-22
Growth Assets Custom Benchmark			-1.5	4.5	7.6	--	--	--	14.0	
Global Equity	706,039,592	52.2	-0.4	3.2	5.1	5.8	14.8	8.7	9.1	Oct-90
Global Equity Policy Benchmark			-1.6	3.8	6.3	6.3	15.0	8.6	9.4	
Private Equity	6,783,570	0.5								
MSCI ACWI + 3% 1Q Lag			-0.3	11.0	21.0	--	--	--	21.8	
Credit	65,696,449	4.9	2.2	5.9	6.9	--	--	--	9.3	May-23
Credit Custom Benchmark			0.8	5.8	7.4	--	--	--	9.4	
High Yield & Bank Loans	65,696,449	4.9	2.2	5.9	6.9	--	--	--	9.3	May-23
High Yield & Bank Loans Custom Benchmark			0.8	5.8	7.4	--	--	--	9.4	
Inflation Hedges	303,184,160	22.4	5.8	8.6	10.1	--	--	--	1.0	Dec-22
Inflation Hedges Custom Benchmark			6.6	7.1	8.1	--	--	--	1.4	
Real Estate	114,696,057	8.5	0.7	5.3	5.5	-5.1	0.3	3.1	5.5	Apr-11
NCREIF ODCE (Net)			0.8	1.8	1.2	-5.1	2.0	4.7	6.8	
Natural Resources & Infrastructure	71,850,723	5.3	6.2	2.0	2.7	--	--	--	2.4	Apr-23
S&P Global LargeMidcap Resources & Commodities NR USD			8.2	0.9	1.1	--	--	--	1.0	
Gold	47,235,793	3.5	25.5	36.1	43.1	--	--	--	21.9	Apr-23
60% Gold (Spot)/ 40% FTSE Gold Mines			26.0	36.2	44.2	--	--	--	24.1	
Short-Term TIPS	69,401,587	5.1	3.0	5.5	7.0	--	--	--	5.3	Mar-23
Blmbg. U.S. TIPS 0-5 Year			3.0	5.5	7.0	--	--	--	5.8	

See benchmark history page for benchmark detail.

MEKETA

Performance Update | As of March 31, 2025

	Market Value ($)	% of Portfolio	QTD (%)	FYTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Risk Mitigation	271,576,978	20.1	2.7	3.3	2.7	--	--	--	3.0	Dec-22
Risk Mitigation Custom Benchmark			1.9	3.2	3.1	--	--	--	3.3	
Investment Grade Fixed Income	216,690,344	16.0	3.1	4.7	4.3	0.2	-0.4	1.5	5.1	Oct-90
Blmbg. U.S. Aggregate Index			2.8	4.8	4.9	0.5	-0.4	1.5	5.0	
Intermediate-Term Bonds	166,821,839	12.3	2.7	5.2	5.3	1.0	0.1	1.7	5.2	Oct-90
Blmbg. U.S. Aggregate Index			2.8	4.8	4.9	0.5	-0.4	1.5	5.0	
Long-Term Bonds	49,868,504	3.7	4.7	3.1	1.4	--	--	--	-0.2	Mar-23
Blmbg. U.S. Treasury: Long			4.7	3.1	1.3	--	--	--	-0.2	
Hedge Funds	52,523,061	3.9	1.1	-1.9	-3.2	--	--	--	0.2	Apr-23
Hedge Fund Custom Benchmark			-1.3	-2.3	-3.4	--	--	--	2.0	
Cash	2,363,573	0.2								

Trailing Net Performance										
	Market Value ($)	% of Portfolio	QTD (%)	FYTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fund	**1,353,280,748**	**100.0**	**1.7**	**4.5**	**5.9**	**3.7**	**9.8**	**6.1**	**7.8**	**Oct-90**
Total Fund Policy Benchmark			0.9	4.9	7.0	4.9	11.1	6.4	8.0	
Total Fund Actual Allocation Benchmark			1.1	4.7	6.4	--	--	--	--	
Total Fund Public Benchmark			-0.5	4.1	6.0	5.1	9.7	6.4	8.0	
Growth Assets	**712,823,162**	**52.7**	**-0.4**	**3.2**	**5.2**	**--**	**--**	**--**	**12.4**	**Dec-22**
Growth Assets Custom Benchmark			-1.5	4.5	7.6	--	--	--	14.0	
Global Equity	**706,039,592**	**52.2**	**-0.4**	**3.2**	**5.1**	**5.8**	**14.8**	**8.7**	**9.1**	**Oct-90**
Global Equity Policy Benchmark			-1.6	3.8	6.3	6.3	15.0	8.6	9.4	
SSgA Russell 1000 Growth Index	20,880,305	1.5	-10.0	-0.6	7.7	--	--	--	25.3	Mar-23
Russell 1000 Growth Index			-10.0	-0.5	7.8	--	--	--	25.3	
SSgA Russell 1000 Value Index	40,401,296	3.0	2.1	9.5	7.1	--	--	--	12.7	Mar-23
Russell 1000 Value Index			2.1	9.6	7.2	--	--	--	12.7	
DF Dent Small Cap Growth Fund	12,661,719	0.9	-7.5	2.2	--	--	--	--	1.3	Jun-24
Russell 2000 Growth Index			-11.1	-2.0	--	--	--	--	-2.2	
DFA U.S. Small Cap Value Portfolio	4,629,017	0.3	-8.2	--	--	--	--	--	-6.7	Nov-24
Russell 2000 Value Index			-7.7	--	--	--	--	--	-7.3	
SSgA Russell 3000 Index	188,029,697	13.9	-4.7	3.8	7.2	--	--	--	18.4	Mar-23
Russell 3000 Index			-4.7	3.9	7.2	--	--	--	18.5	
SSgA MSCI EAFE	70,429,062	5.2	7.0	5.4	5.1	--	--	--	11.1	Mar-23
MSCI EAFE			6.9	5.3	4.9	--	--	--	10.9	
SSgA Emerging Markets Index	18,207,271	1.3	3.6	3.3	8.2	--	--	--	9.2	Mar-23
MSCI Emerging Markets			2.9	2.9	8.1	--	--	--	9.3	
ABS China Direct	9,677,554	0.7	10.6	19.8	26.5	--	--	--	1.7	Mar-23
MSCI China			15.0	31.1	40.4	--	--	--	9.9	
ABS EM ex China Direct	20,596,482	1.5	-3.3	-9.3	-4.8	--	--	--	9.0	Mar-23
MSCI EM ex China			-1.7	-6.1	-2.1	--	--	--	9.4	
Kopernik Global All-Cap	41,084,996	3.0	14.6	13.1	13.3	--	--	--	12.2	Apr-23
MSCI AC World Index			-1.3	4.2	7.2	--	--	--	14.9	
First Eagle Global Equity	117,422,118	8.7	4.7	8.6	9.2	--	--	--	12.2	Apr-23
MSCI AC World Index			-1.3	4.2	7.2	--	--	--	14.9	
Artisan Global Opportunities	83,440,622	6.2	-4.5	-1.9	-0.5	--	--	--	12.0	Apr-23
MSCI AC World Index			-1.3	4.2	7.2	--	--	--	14.9	
J. Stern & Co. World Stars Global Equity Fund	78,579,456	5.8	-3.3	-2.9	-0.2	--	--	--	8.7	Feb-24
MSCI AC World IMI Index			-1.6	3.8	6.3	--	--	--	12.1	

Employees' Retirement System of the City of Norfolk

Performance Update | As of March 31, 2025

	Market Value ($)	% of Portfolio	QTD (%)	FYTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Private Equity	**6,783,570**	**0.5**								
MSCI ACWI + 3% 1Q Lag			-0.3	11.0	21.0	--	--	--	21.8	
NexPhase Capital Fund V, L.P.	253,913	0.0								
Vitruvian Investment Partnership V	381,249	0.0								
Lexington Capital Partners X, L.P.	5,026,473	0.4								
Flagship Pioneering Fund VIII, L.P.	303,038	0.0								
Gauge Capital IV, L.P.	356,929	0.0								
KPS Special Situations Fund VI, L.P.	367,356	0.0								
Oakley Capital VI	94,613	0.0								
Credit	**65,696,449**	**4.9**	**2.2**	**5.9**	**6.9**	**--**	**--**	**--**	**9.3**	**May-23**
Credit Custom Benchmark			0.8	5.8	7.4	--	--	--	9.4	
High Yield & Bank Loans	**65,696,449**	**4.9**	**2.2**	**5.9**	**6.9**	**--**	**--**	**--**	**9.3**	**May-23**
High Yield & Bank Loans Custom Benchmark			0.8	5.8	7.4	--	--	--	9.4	
Sculptor Credit Opportunities Overseas Fund	26,772,442	2.0	3.5	2.8	4.3	--	--	--	6.0	May-23
Blmbg. Global High Yield Index			1.8	7.8	8.9	--	--	--	11.0	
Brigade High Income Fund	38,924,007	2.9	1.2	8.4	9.2	--	--	--	11.8	May-23
60% Bloomberg U.S. Corporate High Yield & 40% S&P UBS Lev Loans			0.8	5.9	7.4	--	--	--	9.4	
Inflation Hedges	**303,184,160**	**22.4**	**5.8**	**8.6**	**10.1**	**--**	**--**	**--**	**1.0**	**Dec-22**
Inflation Hedges Custom Benchmark			6.6	7.1	8.1	--	--	--	1.4	
Real Estate	**114,696,057**	**8.5**	**0.7**	**5.3**	**5.5**	**-5.1**	**0.3**	**3.1**	**5.5**	**Apr-11**
NCREIF ODCE			0.8	1.8	1.2	-5.1	2.0	4.7	6.8	
JP Morgan Asset Management Strategic Property Fund	44,956,528	3.3	0.8	3.0	4.1	-6.7	0.5	3.8	6.3	Apr-11
NCREIF ODCE			0.8	1.8	1.2	-5.1	2.0	4.7	6.8	
UBS Trumbull Property Fund	19,779,760	1.5	0.0	0.6	-0.6	-6.9	-1.1	1.7	3.6	Dec-11
NCREIF ODCE			0.8	1.8	1.2	-5.1	2.0	4.7	6.5	
Morgan Stanley Prime Property Fund	40,242,208	3.0	1.1	--	--	--	--	--	1.1	Dec-24
NCREIF ODCE			0.8	--	--	--	--	--	1.8	
SSgA US REIT	9,717,561	0.7	1.1	9.8	9.6	--	--	--	8.2	Mar-23
Dow Jones U.S. Select REIT			1.2	9.9	9.7	--	--	--	8.3	

Private Equity asset market values are based on December 31, 2024 fair market values and adjusted for subsequent cash flows. Oakley Capital VI reflects initial cash flow.
Lexington Capital Partners X is an estimated December 31, 2024 market value.
Sculptor Credit Opportunities Overseas Fund is an estimated market value.
UBS Trumbull Property Fund market value is based on December 31, 2024 fair market values and adjusted for subsequent cash flows.

	Market Value ($)	% of Portfolio	QTD (%)	FYTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Natural Resources & Infrastructure	**71,850,723**	**5.3**	**6.2**	**2.0**	**2.7**	**--**	**--**	**--**	**2.4**	**Apr-23**
S&P Global LargeMid Commodity & Resources			*8.2*	*0.9*	*1.1*	*--*	*--*	*--*	*1.0*	
SSgA S&P Global LargeMidCap Natural Resources Index	54,721,590	4.0	8.3	1.0	1.1	--	--	--	1.1	Apr-23
S&P Global LargeMid Commodity & Resources			*8.2*	*0.9*	*1.1*	*--*	*--*	*--*	*1.0*	
JP Morgan Infrastructure Investments Fund	17,129,133	1.3	0.0	5.2	7.7	--	--	--	9.3	Oct-23
Dow Jones Brookfield Global Infrastructure			*7.4*	*19.0*	*18.6*	*--*	*--*	*--*	*20.6*	
Gold	**47,235,793**	**3.5**	**25.5**	**36.1**	**43.1**	**--**	**--**	**--**	**21.9**	**Apr-23**
60% Gold (Spot)/ 40% FTSE Gold Mines			*26.0*	*36.2*	*44.2*	*--*	*--*	*--*	*24.1*	
First Eagle Institutional Gold Fund, LP	47,235,793	3.5	25.5	36.1	43.1	--	--	--	21.9	Apr-23
60% Gold (Spot)/ 40% FTSE Gold Mines			*26.0*	*36.2*	*44.2*	*--*	*--*	*--*	*24.1*	
Short-Term TIPS	**69,401,587**	**5.1**	**3.0**	**5.5**	**7.0**	**--**	**--**	**--**	**5.3**	**Mar-23**
Blmbg. U.S. TIPS 0-5 Year			*3.0*	*5.5*	*7.0*	*--*	*--*	*--*	*5.8*	
Vanguard Short-Term TIPS Index	69,401,587	5.1	3.0	5.5	7.0	--	--	--	5.1	Apr-23
Blmbg. U.S. TIPS 0-5 Year			*3.0*	*5.5*	*7.0*	*--*	*--*	*--*	*5.1*	
Risk Mitigation	**271,576,978**	**20.1**	**2.7**	**3.3**	**2.7**	**--**	**--**	**--**	**3.0**	**Dec-22**
Risk Mitigation Custom Benchmark			*1.9*	*3.2*	*3.1*	*--*	*--*	*--*	*3.3*	
Investment Grade Fixed Income	**216,690,344**	**16.0**	**3.1**	**4.7**	**4.3**	**0.2**	**-0.4**	**1.5**	**5.1**	**Oct-90**
Blmbg. U.S. Aggregate Index			*2.8*	*4.8*	*4.9*	*0.5*	*-0.4*	*1.5*	*5.0*	
Intermediate-Term Bonds	**166,821,839**	**12.3**	**2.7**	**5.2**	**5.3**	**1.0**	**0.1**	**1.7**	**5.2**	**Oct-90**
Blmbg. U.S. Aggregate Index			*2.8*	*4.8*	*4.9*	*0.5*	*-0.4*	*1.5*	*5.0*	
SSgA US Aggregate Bond	41,538,392	3.1	2.8	4.8	5.0	0.5	-0.4	1.5	2.7	Jan-09
Blmbg. U.S. Aggregate Index			*2.8*	*4.8*	*4.9*	*0.5*	*-0.4*	*1.5*	*2.7*	
Wellington Core Bond	92,942,723	6.9	2.7	5.1	5.4	--	--	--	4.1	May-23
Blmbg. U.S. Aggregate Index			*2.8*	*4.8*	*4.9*	*--*	*--*	*--*	*3.1*	
Brandywine U.S. Fixed Income	32,340,725	2.4	2.4	5.9	5.4	--	--	--	3.0	Jun-23
Blmbg. U.S. Aggregate Index			*2.8*	*4.8*	*4.9*	*--*	*--*	*--*	*3.9*	
Long-Term Bonds	**49,868,504**	**3.7**	**4.7**	**3.1**	**1.4**	**--**	**--**	**--**	**-0.2**	**Mar-23**
Blmbg. U.S. Treasury: Long			*4.7*	*3.1*	*1.3*	*--*	*--*	*--*	*-0.2*	
SSgA Long US Treasury Index	49,868,504	3.7	4.7	3.1	1.4	--	--	--	-0.2	Mar-23
Blmbg. U.S. Treasury: Long			*4.7*	*3.1*	*1.3*	*--*	*--*	*--*	*-0.2*	
Hedge Funds	**52,523,061**	**3.9**	**1.1**	**-1.9**	**-3.2**	**--**	**--**	**--**	**0.2**	**Apr-23**
Hedge Fund Custom Benchmark			*-1.3*	*-2.3*	*-3.4*	*--*	*--*	*--*	*2.0*	
36 South Kohinoor Series (Cayman) Fund	13,663,349	1.0	2.3	1.3	2.5	--	--	--	1.7	Apr-23
With Intelligence / EurekaHedge Long Volatility Blended Benchmark			*0.8*	*3.5*	*4.0*	*--*	*--*	*--*	*-1.5*	

JP Morgan Infrastructure Investments Fund market value is based on December 31, 2024 fair market values and adjusted for subsequent cash flows.

MEKETA

Performance Update | As of March 31, 2025

	Market Value ($)	% of Portfolio	QTD (%)	FYTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
BH-DG Systematic Trading Master Fund	14,974,726	1.1	-3.7	-14.2	-17.5	--	--	--	-5.3	Apr-23
SG Trend Index			-4.7	-10.0	-12.9	--	--	--	0.6	
Lombard Odier Bear Convexity	6,051,434	0.4	4.4	5.1	5.5	--	--	--	1.0	Apr-23
With Intelligence / EurekaHedge Long Volatility Blended Benchmark			0.8	3.5	4.0	--	--	--	-1.5	
Alpstone Global Macro Fund	17,833,552	1.3	3.3	5.5	2.9	--	--	--	3.5	May-23
HFRI Macro (Total) Index			-0.1	-0.1	-0.9	--	--	--	3.5	
Cash	**2,363,573**	**0.2**								
Cash	2,363,573	0.2								

Fiscal Year Performance						
	Fiscal Year 2024	Fiscal Year 2023	Fiscal Year 2022	Fiscal Year 2021	Fiscal Year 2020	Fiscal Year 2019
Total Fund	**10.4**	**8.4**	**-10.0**	**25.9**	**0.6**	**5.3**
Total Fund Policy Benchmark	*12.1*	*9.5*	*-10.0*	*26.5*	*1.3*	*5.9*
Total Fund Actual Allocation Benchmark	*11.6*	*--*	*--*	*--*	*--*	*--*
Total Fund Public Benchmark	*14.2*	*10.5*	*-14.1*	*24.1*	*4.6*	*6.2*
Growth Assets	**17.4**	**--**	**--**	**--**	**--**	**--**
Growth Assets Custom Benchmark	*19.3*	*--*	*--*	*--*	*--*	*--*
Global Equity	**17.4**	**15.8**	**-16.2**	**41.6**	**1.6**	**5.0**
Global Equity Policy Benchmark	*18.4*	*16.1*	*-16.5*	*40.9*	*1.2*	*4.6*
SSgA Russell 1000 Growth Index	33.5	--	--	--	--	--
Russell 1000 Growth Index	*33.5*	*--*	*--*	*--*	*--*	*--*
SSgA Russell 1000 Value Index	13.0	--	--	--	--	--
Russell 1000 Value Index	*13.1*	*--*	*--*	*--*	*--*	*--*
SSgA Russell 3000 Index	23.1	--	--	--	--	--
Russell 3000 Index	*23.1*	*--*	*--*	*--*	*--*	*--*
DF Dent Small Cap Growth Fund	--	--	--	--	--	--
Russell 2000 Growth Index	*--*	*--*	*--*	*--*	*--*	*--*
DFA U.S. Small Cap Value Portfolio	--	--	--	--	--	--
Russell 2000 Value Index	*--*	*--*	*--*	*--*	*--*	*--*
SSgA MSCI EAFE	11.7	--	--	--	--	--
MSCI EAFE	*11.5*	*--*	*--*	*--*	*--*	*--*
SSgA Emerging Markets Index	11.6	--	--	--	--	--
MSCI Emerging Markets	*12.5*	*--*	*--*	*--*	*--*	*--*
ABS China Direct	-6.3	--	--	--	--	--
MSCI China	*-1.6*	*--*	*--*	*--*	*--*	*--*
ABS EM ex China Direct	17.8	--	--	--	--	--
MSCI EM ex China	*18.5*	*--*	*--*	*--*	*--*	*--*
Kopernik Global All-Cap	11.8	--	--	--	--	--
MSCI AC World Index	*19.4*	*--*	*--*	*--*	*--*	*--*
First Eagle Global Equity	10.5	--	--	--	--	--
MSCI AC World Index	*19.4*	*--*	*--*	*--*	*--*	*--*
Artisan Global Opportunities	20.5	--	--	--	--	--
MSCI AC World Index	*19.4*	*--*	*--*	*--*	*--*	*--*
J. Stern & Co. World Stars Global Equity Fund	--	--	--	--	--	--
MSCI AC World IMI Index	*--*	*--*	*--*	*--*	*--*	*--*

Performance Update | As of March 31, 2025

	Fiscal Year 2024	Fiscal Year 2023	Fiscal Year 2022	Fiscal Year 2021	Fiscal Year 2020	Fiscal Year 2019
Private Equity						
NexPhase Capital Fund V, L.P.						
Vitruvian Investment Partnership V						
Lexington Capital Partners X, L.P.						
Flagship Pioneering Fund VIII, L.P.						
Gauge Capital IV, L.P.						
KPS Special Situations Fund VI, L.P.						
Oakley Capital VI						
Credit	**9.8**	**--**	**--**	**--**	**--**	**--**
Credit Custom Benchmark	*10.8*	*--*	*--*	*--*	*--*	*--*
High Yield & Bank Loans	**9.8**	**--**	**--**	**--**	**--**	**--**
High Yield & Bank Loans Custom Benchmark	*10.8*	*--*	*--*	*--*	*--*	*--*
Sculptor Credit Opportunities Overseas Fund	6.4	--	--	--	--	--
Blmbg. Global High Yield Index	*11.8*	*--*	*--*	*--*	*--*	*--*
Brigade High Income Fund	12.3	--	--	--	--	--
60% Bloomberg U.S. Corporate High Yield & 40% S&P UBS Lev Loans	*10.7*	*--*	*--*	*--*	*--*	*--*
Inflation Hedges	**1.9**	**--**	**--**	**--**	**--**	**--**
Inflation Hedges Custom Benchmark	*1.2*	*--*	*--*	*--*	*--*	*--*
Real Estate	**-8.4**	**-12.1**	**18.1**	**3.7**	**-0.3**	**1.9**
NCREIF ODCE	*-10.0*	*-10.7*	*28.3*	*7.1*	*1.3*	*5.5*
JP Morgan Asset Management Strategic Property Fund	-14.9	-11.3	27.5	6.1	1.2	4.6
NCREIF ODCE	*-10.0*	*-10.7*	*28.3*	*7.1*	*1.3*	*5.5*
UBS Trumbull Property Fund	-8.6	-15.6	23.5	1.1	-1.9	-0.8
NCREIF ODCE	*-10.0*	*-10.7*	*28.3*	*7.1*	*1.3*	*5.5*
Morgan Stanley Prime Property Fund	--	--	--	--	--	--
NCREIF ODCE	*--*	*--*	*--*	*--*	*--*	*--*
SSgA US REIT	7.0	--	--	--	--	--
Dow Jones U.S. Select RESI	*7.1*	*--*	*--*	*--*	*--*	*--*
Natural Resources & Infrastructure	**6.8**	**--**	**--**	**--**	**--**	**--**
S&P Global LargeMid Commodity & Resources	*5.2*	*--*	*--*	*--*	*--*	*--*
SSgA S&P Global LargeMidCap Natural Resources Index	5.2	--	--	--	--	--
S&P Global LargeMid Commodity & Resources	*5.2*	*--*	*--*	*--*	*--*	*--*
JP Morgan Infrastructure Investments Fund	--	--	--	--	--	--
Dow Jones Brookfield Global Infrastructure	*--*	*--*	*--*	*--*	*--*	*--*

Performance Update | As of March 31, 2025

	Fiscal Year 2024	Fiscal Year 2023	Fiscal Year 2022	Fiscal Year 2021	Fiscal Year 2020	Fiscal Year 2019
Gold	**15.3**	--	--	--	--	--
60% Gold (Spot)/ 40% FTSE Gold Mines	*17.8*	*--*	*--*	*--*	*--*	*--*
First Eagle Institutional Gold Fund, LP	15.3	--	--	--	--	--
60% Gold (Spot)/ 40% FTSE Gold Mines	*17.8*	*--*	*--*	*--*	*--*	*--*
Short-Term TIPS	**5.4**	--	--	--	--	--
Blmbg. U.S. TIPS 0-5 Year	*5.4*	*--*	*--*	*--*	*--*	*--*
Vanguard Short-Term TIPS Index	5.4	--	--	--	--	--
Blmbg. U.S. TIPS 0-5 Year	*5.4*	*--*	*--*	*--*	*--*	*--*
Risk Mitigation	**0.5**	--	--	--	--	--
Risk Mitigation Custom Benchmark	*3.2*	*--*	*--*	*--*	*--*	*--*
Investment Grade Fixed Income	**0.9**	**0.1**	**-10.5**	**0.2**	**8.6**	**7.6**
Blmbg. U.S. Aggregate Index	*2.6*	*-0.9*	*-10.3*	*-0.3*	*8.7*	*7.9*
Intermediate-Term Bonds	**3.1**	**0.0**	**-10.5**	**0.2**	**8.6**	**7.6**
Blmbg. U.S. Aggregate Index	*2.6*	*-0.9*	*-10.3*	*-0.3*	*8.7*	*7.9*
SSgA US Aggregate Bond	2.6	-0.9	-10.3	-0.3	8.8	7.9
Blmbg. U.S. Aggregate Index	*2.6*	*-0.9*	*-10.3*	*-0.3*	*8.7*	*7.9*
Wellington Core Bond	4.0	--	--	--	--	--
Blmbg. U.S. Aggregate Index	*2.6*	*--*	*--*	*--*	*--*	*--*
Brandywine U.S. Fixed Income	0.5	--	--	--	--	--
Blmbg. U.S. Aggregate Index	*2.6*	*--*	*--*	*--*	*--*	*--*
Long-Term Bonds	**-5.7**	--	--	--	--	--
Blmbg. U.S. Treasury: Long	*-5.6*	*--*	*--*	*--*	*--*	*--*
SSgA Long US Treasury Index	-5.7	--	--	--	--	--
Blmbg. U.S. Treasury: Long	*-5.6*	*--*	*--*	*--*	*--*	*--*
Hedge Funds	**-1.2**	--	--	--	--	--
Hedge Fund Custom Benchmark	*4.8*	*--*	*--*	*--*	*--*	*--*
36 South Kohinoor Series (Cayman) Fund	0.6	--	--	--	--	--
With Intelligence / EurekaHedge Long Volatility Blended Benchmark	*-3.7*	*--*	*--*	*--*	*--*	*--*
BH-DG Systematic Trading Master Fund	-4.7	--	--	--	--	--
SG Trend Index	*4.1*	*--*	*--*	*--*	*--*	*--*
Lombard Odier Bear Convexity	-2.9	--	--	--	--	--
With Intelligence / EurekaHedge Long Volatility Blended Benchmark	*-3.7*	*--*	*--*	*--*	*--*	*--*
Alpstone Global Macro Fund	1.1	--	--	--	--	--
HFRI Macro (Total) Index	*5.9*	*--*	*--*	*--*	*--*	*--*
Cash						

Risk Return Statistics		
	3 Yrs (%) Total Fund	5 Yrs (%) Total Fund
RETURN SUMMARY STATISTICS		
Maximum Return	5.8	8.3
Minimum Return	-7.3	-7.3
Return	3.7	9.8
Excess Return	0.2	7.5
Excess Performance	-1.2	-1.3
RISK SUMMARY STATISTICS		
Beta	1.0	1.0
Up Capture	98.4	96.4
Down Capture	105.7	104.1
RISK/RETURN SUMMARY STATISTICS		
Standard Deviation	11.3	10.8
Sortino Ratio	0.0	1.1
Alpha	-1.2	-0.8
Sharpe Ratio	0.0	0.7
Excess Risk	11.2	10.8
Tracking Error	1.1	1.5
Information Ratio	-1.0	-0.8
CORRELATION STATISTICS		
R-Squared	1.0	1.0
Actual Correlation	1.0	1.0

Employees' Retirement System of the City of Norfolk

Performance Update | As of March 31, 2025

Statistics Summary 3 Years Ending March 31, 2025	Return	Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Total Fund	3.7	11.3	-1.0	1.0	0.0	1.1
Total Fund Policy Benchmark	4.9	11.1	-	1.0	0.1	0.0
Growth Assets	-	-	-	-	-	-
Growth Assets Custom Benchmark	-	-	-	-	-	-
Global Equity	5.8	15.9	-0.5	1.0	0.2	1.2
Global Equity Policy Benchmark	6.3	16.2	-	1.0	0.2	0.0
SSgA Russell 1000 Growth Index	-	-	-	-	-	-
Russell 1000 Growth Index	10.1	20.2	-	1.0	0.4	0.0
SSgA Russell 1000 Value Index	-	-	-	-	-	-
Russell 1000 Value Index	6.6	16.8	-	1.0	0.2	0.0
DF Dent Small Cap Growth Fund	-	-	-	-	-	-
Russell 2000 Growth Index	0.8	23.5	-	1.0	0.0	0.0
DFA U.S. Small Cap Value Portfolio	-	-	-	-	-	-
Russell 2000 Value Index	0.0	23.6	-	1.0	-0.1	0.0
SSgA Russell 3000 Index	-	-	-	-	-	-
Russell 3000 Index	8.2	17.5	-	1.0	0.3	0.0
SSgA MSCI EAFE	-	-	-	-	-	-
MSCI EAFE	6.1	16.5	-	1.0	0.2	0.0
SSgA Emerging Markets Index	-	-	-	-	-	-
MSCI Emerging Markets	1.4	17.3	-	1.0	-0.1	0.0
ABS China Direct	-	-	-	-	-	-
MSCI China	3.5	32.5	-	1.0	0.1	0.0
ABS EM ex China Direct	-	-	-	-	-	-
MSCI EM ex China	-0.3	17.2	-	1.0	-0.2	0.0
Kopernik Global All-Cap	-	-	-	-	-	-
MSCI AC World Index	6.9	16.1	-	1.0	0.2	0.0
First Eagle Global Equity	-	-	-	-	-	-
MSCI AC World Index	6.9	16.1	-	1.0	0.2	0.0
Artisan Global Opportunities	-	-	-	-	-	-
MSCI AC World Index	6.9	16.1	-	1.0	0.2	0.0

Employees' Retirement System of the City of Norfolk

Performance Update | As of March 31, 2025

	Return	Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Credit	-	-	-	-	-	-
Credit Custom Benchmark	-	-	-	-	-	-
High Yield & Bank Loans	-	-	-	-	-	-
High Yield & Bank Loans Custom Benchmark	6.1	5.4	-	1.0	0.4	0.0
Sculptor Credit Opportunities Overseas Fund	-	-	-	-	-	-
Blmbg. Global High Yield Index	5.5	9.1	-	1.0	0.2	0.0
Brigade High Income Fund	-	-	-	-	-	-
60% Bloomberg U.S. Corporate High Yield & 40% S&P UBS Lev Loans	5.9	5.9	-	1.0	0.3	0.0
Inflation Hedges	-	-	-	-	-	-
Inflation Hedges Custom Benchmark	-	-	-	-	-	-
Real Estate	-5.1	5.2	0.0	0.4	-1.7	5.9
NCREIF ODCE	-5.1	5.7	-	1.0	-1.5	0.0
JP Morgan Asset Management Strategic Property Fund	-6.7	4.8	-0.4	0.5	-2.2	4.5
NCREIF ODCE	-5.1	5.7	-	1.0	-1.5	0.0
UBS Trumbull Property Fund	-6.9	6.4	-0.8	1.0	-1.7	2.4
NCREIF ODCE	-5.1	5.7	-	1.0	-1.5	0.0
SSgA US REIT	-	-	-	-	-	-
Dow Jones U.S. Select RESI	-1.5	20.6	-	1.0	-0.2	0.0
Morgan Stanley Prime Property Fund	-	-	-	-	-	-
NCREIF ODCE	-5.1	5.7	-	1.0	-1.5	0.0
Natural Resources & Infrastructure	-	-	-	-	-	-
S&P Global LargeMid Commodity & Resources	-1.5	19.2	-	1.0	-0.2	0.0
SSgA S&P Global LargeMidCap Natural Resources Index	-	-	-	-	-	-
S&P Global LargeMid Commodity & Resources	-1.5	19.2	-	1.0	-0.2	0.0
JP Morgan Infrastructure Investments Fund	-	-	-	-	-	-
Dow Jones Brookfield Global Infrastructure	3.8	16.8	-	1.0	0.1	0.0
Gold	-	-	-	-	-	-
60% Gold (Spot)/ 40% FTSE Gold Mines	12.8	21.4	-	1.0	0.5	0.0
First Eagle Institutional Gold Fund, LP	-	-	-	-	-	-
60% Gold (Spot)/ 40% FTSE Gold Mines	12.8	21.4	-	1.0	0.5	0.0
Short-Term TIPS	-	-	-	-	-	-
Blmbg. U.S. TIPS 0-5 Year	3.2	3.2	-	1.0	-0.3	0.0
Vanguard Short-Term TIPS Index	-	-	-	-	-	-
Blmbg. U.S. TIPS 0-5 Year	3.2	3.2	-	1.0	-0.3	0.0

Employees' Retirement System of the City of Norfolk

Performance Update | As of March 31, 2025

	Return	Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Risk Mitigation	-	-	-	-	-	-
Risk Mitigation Custom Benchmark	-	-	-	-	-	-
Investment Grade Fixed Income	0.2	8.9	-0.1	1.2	-0.4	1.9
Blmbg. U.S. Aggregate Index	0.5	7.6	-	1.0	-0.5	0.0
Intermediate-Term Bonds	1.0	7.9	1.0	1.0	-0.4	0.5
Blmbg. U.S. Aggregate Index	0.5	7.6	-	1.0	-0.5	0.0
SSgA US Aggregate Bond	0.5	7.6	0.0	1.0	-0.4	0.2
Blmbg. U.S. Aggregate Index	0.5	7.6	-	1.0	-0.5	0.0
Wellington Core Bond	-	-	-	-	-	-
Blmbg. U.S. Aggregate Index	0.5	7.6	-	1.0	-0.5	0.0
Brandywine U.S. Fixed Income	-	-	-	-	-	-
Blmbg. U.S. Aggregate Index	0.5	7.6	-	1.0	-0.5	0.0
Long-Term Bonds	-	-	-	-	-	-
Blmbg. U.S. Treasury: Long	-7.2	15.9	-	1.0	-0.7	0.0
SSgA Long US Treasury Index	-	-	-	-	-	-
Blmbg. U.S. Treasury: Long	-7.2	15.9	-	1.0	-0.7	0.0
Hedge Funds	-	-	-	-	-	-
Hedge Fund Custom Benchmark	-	-	-	-	-	-
36 South Kohinoor Series (Cayman) Fund	-	-	-	-	-	-
With Intelligence / EurekaHedge Long Volatility Blended Benchmark	-0.2	5.9	-	1.0	-0.7	0.0
BH-DG Systematic Trading Master Fund	-	-	-	-	-	-
SG Trend Index	0.5	12.0	-	1.0	-0.2	0.0
Lombard Odier Bear Convexity	-	-	-	-	-	-
With Intelligence / EurekaHedge Long Volatility Blended Benchmark	-0.2	5.9	-	1.0	-0.7	0.0
Alpstone Global Macro Fund	-	-	-	-	-	-
HFRI Macro (Total) Index	2.4	4.6	-	1.0	-0.4	0.0

Private Market Investments Overview

Asset Sleeve	Vintage Year	Commitment	Unfunded	Total Contributions	Total Distributions	Unrealized Value	Last Reported Date
Falfurrias Capital Partners Fund VI	2024	$ 2,000,000	$ 2,000,000	$ -	$ -	$ -	2024-12-31
Flagship Pioneering Fund VIII, L.P.	2023	$ 3,000,000	$ 2,745,000	$ 255,000	$ -	$ 213,442	2024-12-31
Gauge Capital Fund IV	2024	$ 2,000,000	$ 1,796,564	$ 203,436	$ -	$ 140,311	2024-12-31
KPS Special Situations Fund VI	2023	$ 3,000,000	$ 2,623,715	$ 376,285	$ 331	$ 367,356	2024-12-31
Lexington Capital Partners X, L.P.	2022	$ 8,500,000	$ 4,615,648	$ 4,125,650	$ 244,265	$ 4,713,389	2024-12-31
Linden Capital Partners VI, L.P.	2024	$ 3,000,000	$ 3,000,000	$ -	$ -	$ -	2024-12-31
Mountaingate Capital Fund III	2024	$ 2,800,000	$ 2,800,000	$ -	$ -	$ -	2024-12-31
NexPhase Capital Fund V	2022	$ 3,000,000	$ 2,632,964	$ 367,036	$ -	$ 253,913	2024-12-31
Sterling Group Partners VI, L.P.	2024	$ 2,200,000	$ 2,200,000	$ -	$ -	$ -	2024-12-31
Vitruvian Investment Partnership V, L.P.	2023	$ 2,913,314	$ 2,449,183	$ 467,817	$ 3,685	$ 381,249	2024-12-31
Total Private Equity		$ 32,413,314	$ 26,863,074	$ 5,795,224	$ 248,281	$ 6,069,660	2024-12-31
Grand Total		$ 32,413,314	$ 26,863,074	$ 5,795,224	$ 248,281	$ 6,069,660	2024-12-31

Cash Flow Summary			
	Beginning Market Value ($)	Net Cash Flow	Net Investment Change	Ending Market Value ($)
SSgA Russell 1000 Growth Index	23,194,227	-	-2,313,922	20,880,305
SSgA Russell 1000 Value Index	39,569,139	-	832,157	40,401,296
DF Dent Small Cap Growth Fund	16,109,162	-2,500,000	-947,444	12,661,719
DFA U.S. Small Cap Value Portfolio	5,042,100	-	-413,083	4,629,017
SSgA Russell 3000 Index	180,661,853	17,100,000	-9,732,155	188,029,697
SSgA MSCI EAFE	101,746,045	-37,500,000	6,183,017	70,429,062
SSgA Emerging Markets Index	37,412,443	-20,000,000	794,828	18,207,271
ABS China Direct	8,750,883	-	926,671	9,677,554
ABS EM ex China Direct	21,309,494	-	-713,012	20,596,482
Kopernik Global All-Cap	27,158,576	9,000,000	4,926,420	41,084,996
First Eagle Global Equity	112,178,537	-	5,243,581	117,422,118
Artisan Global Opportunities	95,141,803	-8,200,000	-3,501,182	83,440,622
J. Stern & Co. World Stars Global Equity Fund	57,120,024	25,000,000	-3,540,569	78,579,456
NexPhase Capital Fund V, L.P.	252,183	-	1,730	253,913
Vitruvian Investment Partnership V	347,073	-	34,175	381,249
Lexington Capital Partners X, L.P.	4,626,232	313,084	87,157	5,026,473
Flagship Pioneering Fund VIII, L.P.	222,850	89,596	-9,408	303,038
Gauge Capital IV, L.P.	153,598	216,618	-13,287	356,929
KPS Special Situations Fund VI, L.P.	375,954	-	-8,598	367,356
Oakley Capital VI	-	94,613	-	94,613
Sculptor Credit Opportunities Overseas Fund	25,854,838	-	917,604	26,772,442
Brigade High Income Fund	29,602,897	9,000,000	321,110	38,924,007
JP Morgan Asset Management Strategic Property Fund	44,597,273	-101,951	461,206	44,956,528
UBS Trumbull Property Fund	20,622,545	-842,785	-	19,779,760
Morgan Stanley Prime Property Fund	20,000,001	20,000,000	242,207	40,242,208
SSgA US REIT	22,869,439	-13,500,000	348,122	9,717,561
SSgA S&P Global LargeMidCap Natural Resources Index	50,510,884	-	4,210,706	54,721,590
JP Morgan Infrastructure Investments Fund	17,129,133	-	-	17,129,133
First Eagle Institutional Gold Fund, LP	50,632,234	-13,000,000	9,603,559	47,235,793

Performance Update | Quarter To Date

	Beginning Market Value ($)	Net Cash Flow	Net Investment Change	Ending Market Value ($)
Vanguard Short-Term TIPS Index	68,797,121	-1,500,000	2,104,465	69,401,587
SSgA US Aggregate Bond	43,351,568	-3,000,000	1,186,823	41,538,392
Wellington Core Bond	95,880,831	-5,500,000	2,561,892	92,942,723
Brandywine U.S. Fixed Income	31,582,956	-	757,769	32,340,725
SSgA Long US Treasury Index	47,619,894	-	2,248,611	49,868,504
36 South Kohinoor Series (Cayman) Fund	13,360,769	-	302,580	13,663,349
BH-DG Systematic Trading Master Fund	15,545,953	-	-571,227	14,974,726
Lombard Odier Bear Convexity	5,794,411	-	257,022	6,051,434
Alpstone Global Macro Fund	17,263,013	-	570,540	17,833,552
Cash	2,200,808	120,103	42,662	2,363,573
Total	1,354,588,745	-24,710,723	23,402,726	1,353,280,748
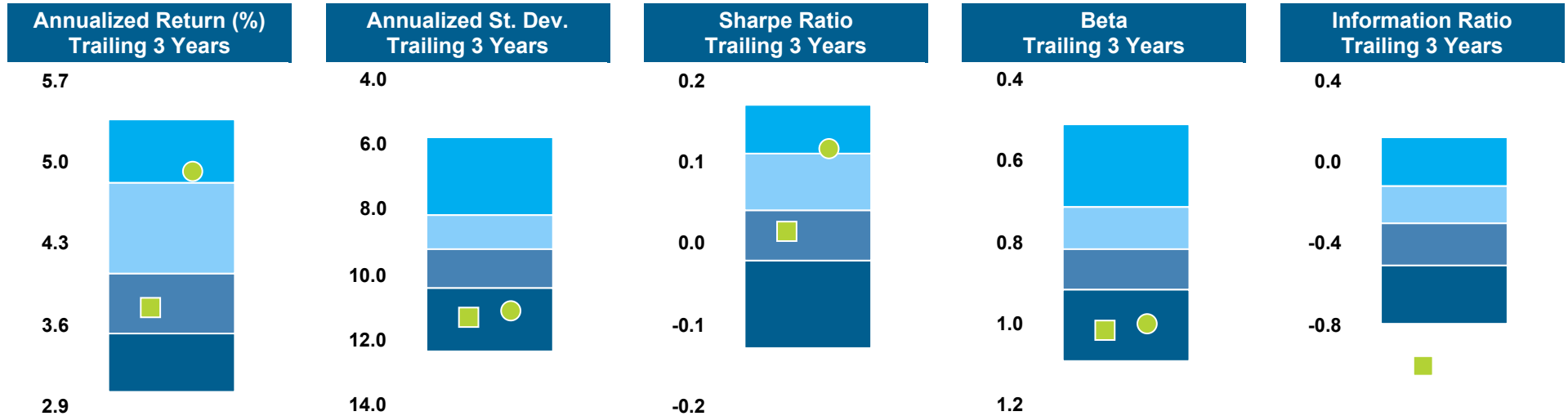
Annualized Return (%) Trailing 3 Years		Annualized St. Dev. Trailing 3 Years		Sharpe Ratio Trailing 3 Years		Beta Trailing 3 Years		Information Ratio Trailing 3 Years	
Total Fund	3.7 (68)	Total Fund	11.3 (87)	Total Fund	0.0 (58)	Total Fund	1.0 (88)	Total Fund	-1.0 (100)
Total Fund Policy Benchmark	4.9 (22)	Total Fund Policy Benchmark	11.1 (83)	Total Fund Policy Benchmark	0.1 (24)	Total Fund Policy Benchmark	1.0 (87)	Total Fund Policy Benchmark	-
5th Percentile	5.4	5th Percentile	5.8	5th Percentile	0.2	5th Percentile	0.5	5th Percentile	0.1
1st Quartile	4.8	1st Quartile	8.2	1st Quartile	0.1	1st Quartile	0.7	1st Quartile	-0.1
Median	4.0	Median	9.2	Median	0.0	Median	0.8	Median	-0.3
3rd Quartile	3.5	3rd Quartile	10.4	3rd Quartile	0.0	3rd Quartile	0.9	3rd Quartile	-0.5
95th Percentile	3.0	95th Percentile	12.4	95th Percentile	-0.1	95th Percentile	1.1	95th Percentile	-0.8
Population	63	Population	63	Population	63	Population	63	Population	63

InvMetrics All Public DB Plans > $1B

MEKETA

InvMetrics All Public DB Plans > $1B
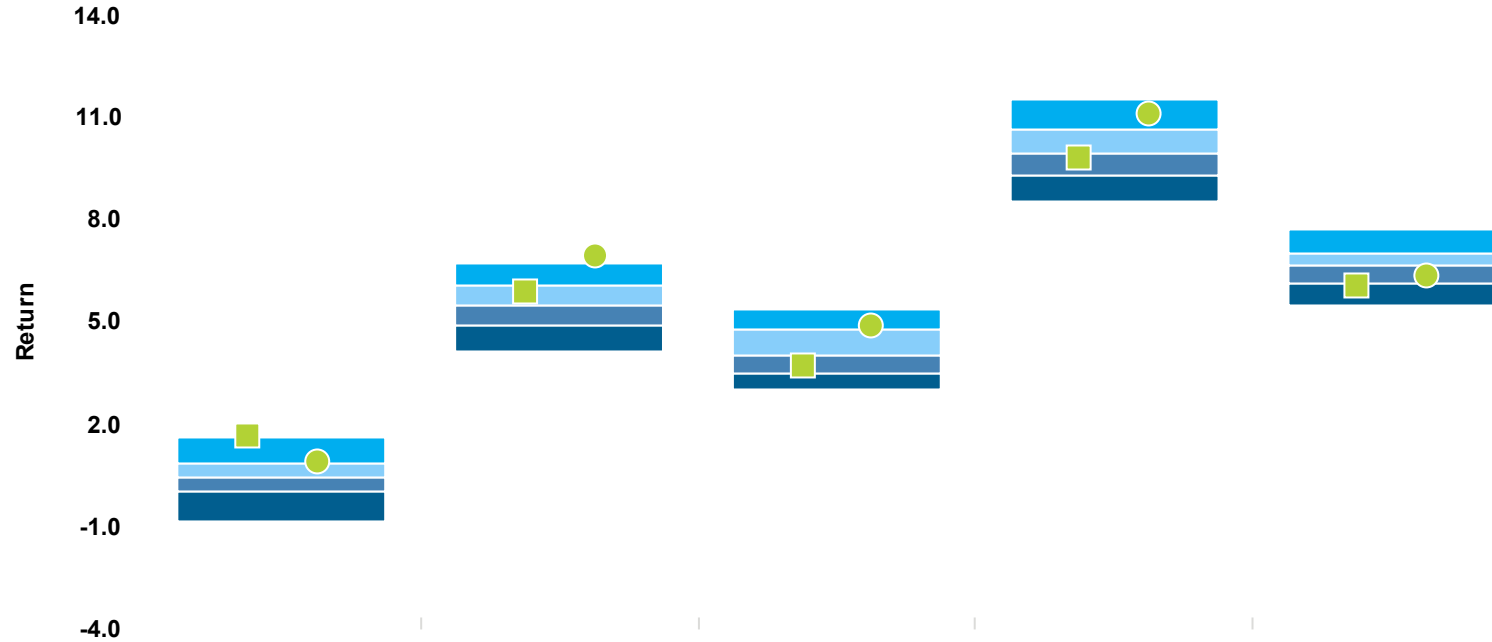
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
■ Total Fund	1.7 (4)	5.9 (34)	3.7 (68)	9.8 (57)	6.1 (80)
● Total Fund Policy Benchmark	0.9 (25)	7.0 (3)	4.9 (22)	11.1 (12)	6.4 (64)
5th Percentile	1.6	6.7	5.4	11.5	7.7
1st Quartile	0.9	6.1	4.8	10.7	7.0
Median	0.5	5.5	4.0	10.0	6.7
3rd Quartile	0.1	4.9	3.5	9.3	6.2
95th Percentile	-0.8	4.1	3.0	8.5	5.5
Population	65	65	63	61	60

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Annual Investment Expense Analysis As of March 31, 2025				
	Fee Schedule	**Market Value**	**Estimated Fee Value**	**Estimated Fee**
Growth Assets		**$712,823,162**	**$2,233,338**	**0.31**
Global Equity		**$706,039,592**	**$2,201,333**	**0.31**
SSgA Russell 1000 Growth Index	0.02 % of Assets	$20,880,305	$4,176	0.02
SSgA Russell 1000 Value Index	0.02 % of Assets	$40,401,296	$8,080	0.02
DF Dent Small Cap Growth Fund	0.95 % of Assets	$12,661,719	$120,286	0.95
DFA U.S. Small Cap Value Portfolio	0.31 % of Assets	$4,629,017	$14,350	0.31
SSgA Russell 3000 Index	0.02 % of Assets	$188,029,697	$37,606	0.02
SSgA MSCI EAFE	0.04 % of Assets	$70,429,062	$28,172	0.04
SSgA Emerging Markets Index	0.08 % of Assets	$18,207,271	$14,566	0.08
ABS China Direct	0.65 % of Assets	$9,677,554	$62,904	0.65
ABS EM ex China Direct	0.50 % of Assets	$20,596,482	$102,982	0.50
Kopernik Global All-Cap	0.75 % of Assets	$41,084,996	$308,137	0.75
First Eagle Global Equity	0.55 % of Assets	$117,422,118	$645,822	0.55
Artisan Global Opportunities	0.60 % of Assets	$83,440,622	$500,644	0.60
J. Stern & Co. World Stars Global Equity Fund	0.45 % of Assets	$78,579,456	$353,608	0.45
Private Equity		**$6,783,570**	**$32,006**	**0.47**
NexPhase Capital Fund V, L.P.	2.00 % of Assets	$253,913	$5,078	2.00
Vitruvian Investment Partnership V	1.90 % of Assets	$381,249	$7,244	1.90
Lexington Capital Partners X, L.P.	1.00% on committed capital.	$5,026,473	-	-
Flagship Pioneering Fund VIII, L.P.	2.00 % of Assets	$303,038	$6,061	2.00
Gauge Capital IV, L.P.	2.00 % of Assets	$356,929	$7,139	2.00
KPS Special Situations Fund VI, L.P.	1.25 % of Assets	$367,356	$4,592	1.25
Oakley Capital VI	2.00 % of Assets	$94,613	$1,892	2.00

Performance Update | As of March 31, 2025

	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Credit		**$65,696,449**	**$470,129**	**0.72**
High Yield & Bank Loans		**$65,696,449**	**$470,129**	**0.72**
Sculptor Credit Opportunities Overseas Fund	Performance Based 1.00 % and 20.00 %	$26,772,442	$267,724	1.00
Brigade High Income Fund	0.52 % of Assets	$38,924,007	$202,405	0.52
Inflation Hedges		**$303,184,160**	**$1,379,982**	**0.46**
Real Estate		**$114,696,057**	**$929,153**	**0.81**
JP Morgan Asset Management Strategic Property Fund	0.91 % of Assets	$44,956,528	$409,104	0.91
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	$19,779,760	$176,183	0.89
Morgan Stanley Prime Property Fund	0.84 % of Assets	$40,242,208	$338,035	0.84
SSgA US REIT	0.06 % of Assets	$9,717,561	$5,831	0.06
Natural Resources & Infrastructure		**$71,850,723**	**$217,448**	**0.30**
SSgA S&P Global LargeMidCap Natural Resources Index	0.10 % of Assets	$54,721,590	$54,722	0.10
JP Morgan Infrastructure Investments Fund	0.95 % of Assets	$17,129,133	$162,727	0.95
Gold		**$47,235,793**	**$212,561**	**0.45**
First Eagle Institutional Gold Fund, LP	0.45 % of Assets	$47,235,793	$212,561	0.45
Short-Term TIPS		**$69,401,587**	**$20,820**	**0.03**
Vanguard Short-Term TIPS Index	0.03 % of Assets	$69,401,587	$20,820	0.03

Performance Update | As of March 31, 2025

	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Risk Mitigation		**$271,576,978**	**$790,625**	**0.29**
Investment Grade Fixed Income		**$216,690,344**	**$228,588**	**0.11**
Intermediate-Term Bonds		**$166,821,839**	**$213,627**	**0.13**
SSgA US Aggregate Bond	0.02 % of Assets	$41,538,392	$8,308	0.02
Wellington Core Bond	0.12 % of Assets	$92,942,723	$111,531	0.12
Brandywine U.S. Fixed Income	0.29 % of Assets	$32,340,725	$93,788	0.29
Long-Term Bonds		**$49,868,504**	**$14,961**	**0.03**
SSgA Long US Treasury Index	0.03 % of Assets	$49,868,504	$14,961	0.03
Hedge Funds		**$52,523,061**	**$562,037**	**1.07**
36 South Kohinoor Series (Cayman) Fund	Performance Based 1.00 % and 20.00 %	$13,663,349	$136,633	1.00
BH-DG Systematic Trading Master Fund	0.93 % of Assets	$14,974,726	$139,265	0.93
Lombard Odier Bear Convexity	Performance Based 0.75 % and 27.50 %	$6,051,434	$45,386	0.75
Alpstone Global Macro Fund	Performance Based 1.35 % and 20.00 %	$17,833,552	$240,753	1.35
Cash		**$2,363,573**	**-**	**-**
Cash		$2,363,573	-	-
Total Fund		**$1,353,280,748**	**$4,874,075**	**0.36**

Fund	Monthly Management Fees Paid ($)					
	July '24 - Dec '24	Jan	Feb	Mar	CYTD	FYTD
SSgA Russell 1000 Growth Index	2,999	-	1,130	-	1,130	4,129
SSgA Russell 1000 Value Index	3,652	-	2,033	-	2,033	5,685
SSgA Russell 3000 Index	18,740	-	9,030	-	9,030	27,771
SSgA MSCI EAFE	17,690	-	10,353	-	10,353	28,042
SSgA Emerging Markets Index	15,061	-	4,993	2,577	7,571	22,632
DF Dent Small Cap Growth Fund	77,651	11,091	10,579	10,024	31,694	109,345
DFA U.S. Small Cap Growth Fund	3,998	1,341	1,270	1,196	3,807	7,805
ABS China Direct	27,445	4,740	4,728	5,112	14,580	42,025
ABS EM ex China Direct	56,352	8,879	8,948	8,617	26,443	82,795
Kopernik Global All-Cap*	140,018	28,769	26,175	31,405	86,349	226,367
First Eagle Global Equity	341,848	54,096	54,096	54,096	162,287	504,135
Artisan Global Opportunities*	302,498	49,953	44,290	41,720	135,964	438,462
J. Stern & Co. World Stars Global Equity	129,504	22,940	31,217	29,378	83,535	213,038
NexPhase Capital Fund V	-	-	-	-	-	-
Vitruvian Investment Partnership V	50,046	-	-	-	-	50,046
Lexington Capital Partners X	-	-	-	21,250	21,250	21,250
Flagship Pioneering Fund VIII, L.P.	-	13,247	-	-	13,247	13,247
Gauge Capital IV, L.P.	33,045	-	-	27,371	27,371	60,416
KPS Special Situations Fund VI, L.P.	-	-	-	-	-	-
Oakley Capital VI	-	-	-	-	-	-
Sculptor Credit Opportunities Overseas Fund	130,762	22,264	20,109		42,373	173,135
Brigade High Income Fund*	82,124	16,892	16,977	16,867	50,737	132,861
JP Morgan Strategic Property Fund	201,788	101,951	-	-	101,951	303,739
UBS Trumbull Property Fund	91,640	43,195	-	-	43,195	134,835
Morgan Stanley Prime Property Fund	-	-	-	7,141	7,141	7,141
SSgA US REIT	12,076	-	3,457	2,213	5,670	17,746
SSgA S&P Global LargeMidCap NR Index	26,133	-	8,713	4,547	13,260	39,394
JP Morgan Infrastructure Investments Fund	68,600	-	-		-	68,600
First Eagle Institutional Gold Fund, LP	118,128	15,281	14,977	17,484	47,742	165,870
Vanguard Short-Term TIPS Index*	13,836	2,265	2,291	2,313	6,870	20,706
SSgA US Aggregate Bond	3,829	-	2,184	-	2,184	6,013
Wellington Core Bond*	66,245	11,238	11,497	10,843	33,579	99,824
Brandywine U.S. Fixed Income	26,894	-	17,129	-	17,129	44,024
SSgA Long US Treasury Index	7,388	-	2,450	1,236	3,685	11,073
36 South Kohinoor Series (Cayman) Fund	67,712	11,303	10,354	11,679	33,335	101,047
BH-DG Systematic Trading Master Fund	75,557	12,420	11,265	12,092	35,776	111,333
Lombard Odier Bear Convexity	21,793	3,593	3,699	3,785	11,076	32,869
Alpstone Global Macro	115,381	19,932	20,313	20,246	60,490	175,871
Total	**2,350,433**	**455,390**	**354,258**	**343,189**	**1,152,837**	**3,503,270**
Custodial Fee	18,701	2,589	4,220	2,632	**6,809**	**25,509**

*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.

In some instances, additional expenses are charged but the above table only reflects management fees.

Sculptor Credit Opportunities and JP Morgan Infrastructure March fees will be included upon their availability.

Benchmark History		
From Date	**To Date**	**Benchmark**
Total Fund		
01/01/2024	Present	14.0% Blmbg. U.S. Aggregate Index, 2.0% Blmbg. U.S. Corp: High Yield Index, 4.0% Hedge Fund Custom Benchmark, 8.0% NCREIF Fund Index-Open End Diversified Core Equity (VW) (Net), 52.0% MSCI AC World IMI Index (Net), 5.0% Blmbg. U.S. TIPS 0-5 Year, 5.0% S&P Global LargeMid Commodity & Resources (Net), 2.0% S&P UBS Leveraged Loan Index, 3.0% 60% Gold (Spot)/ 40% FTSE Gold Mines, 5.0% MSCI ACWI + 3% 1Q Lag
12/01/2022	01/01/2024	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 Index (Net), 5.0% Blmbg. U.S. TIPS 0-5 Year, 5.0% S&P Global LargeMid Commodity & Resources (Net), 2.0% S&P UBS 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 Index (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 Index (Net), 9.0% MSCI ACWI + 3% 1Q Lag
Global Equity		
05/01/2016	Present	100.0% MSCI AC World IMI Index (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
Credit		
12/01/2022	Present	50.0% Blmbg. U.S. Corp: High Yield Index, 50.0% S&P UBS Leveraged Loan Index
High Yield & Bank Loans		
12/31/1992	Present	50.0% Blmbg. U.S. Corp: High Yield Index, 50.0% S&P UBS Leveraged Loan 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 LargeMid Commodity & Resources (Net), 14.0% 60% Gold (Spot)/ 40% FTSE Gold Mines
Risk Mitigation		
01/01/2024	Present	78.0% Blmbg. U.S. Aggregate Index, 22.0% Hedge Fund Custom Benchmark
12/01/2022	01/01/2024	78.0% Blmbg. U.S. Aggregate Index, 22.0% HFRI Macro (Total) Index
Hedge Funds		
01/01/2025	Present	33.3% HFRI Macro (Total) Index, 33.3% SG Trend Index, 33.3% With Intelligence / EurekaHedge Long Volatility Blended Benchmark
01/01/2024	01/01/2025	33.3% HFRI Macro (Total) Index, 33.3% SG Trend Index, 33.3% CBOE Eurekahedge Long Volatility Hedge Fund Index
03/01/2023	01/01/2024	100.0% HFRI Macro (Total) Index

Private Credit Primer

Background

→ One of the asset allocation policy options we are considering today includes an allocation to private credit.

→ The following presentation provides an overview of the asset class.

What is Private Credit?

→ Private credit (also known as private debt) is a loan or other form of debt financing originated by a non-bank lender that is subject to privately negotiated terms.

- Non-bank lenders are not subject to the oversight by the federal banking system.

- Examples of non-bank lenders include asset managers, pension funds, and insurance companies.

→ A wide range of collateral may be used, including corporate cash flows, consumer and small business receivables, financial assets, or hard assets.

→ Interest rates for borrowing in private markets are often higher than for public markets.

- However, there are compelling reasons why borrowers would choose private financing, such as:

  – The borrower may be too small or lack the credit history or worthiness to raise capital in public markets

  – Speed and certainty in execution

  – A flexible and tailored structure

  – Confidentiality

The Evolution of Private Credit

→ Prior to the Global Financial Crisis (GFC), the private credit universe was composed primarily of mezzanine and distressed debt.

- The GFC had a meaningful impact on lending.
  - Private credit's aggregate capital raised did not return to its 2008 level until 2015.
- However, it has more than doubled since 2008, peaking at approximately $250 billion in 2021.

→ Post GFC, fundraising and investment has centered on direct lending, the current largest strategy.

Aggregate Capital Raised in Private Credit by Strategy ($B)

Legend:
- Direct lending
- Distressed debt
- Mezzanine
- Special situations
- Venture debt
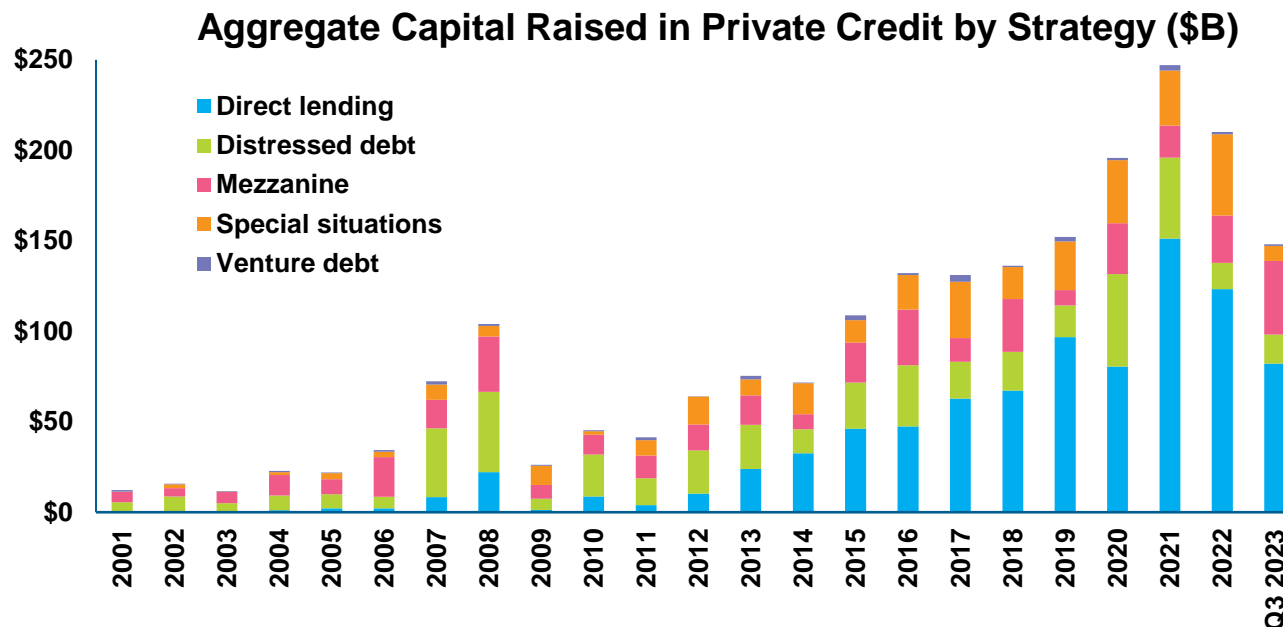
Source: Preqin, 2024 Global Private Debt Report published in December 2023. Note private debt fund-of-funds were excluded from this chart.

The Private Credit Universe

→ Since 2010, private credit's global aggregate capital raised has quadrupled in size.

- The number of funds closed has increased by roughly 2.5x over the same period.

→ Private credit recently surpassed real estate to become the second largest private markets asset class, behind private equity.

Global Private Credit Fundraising
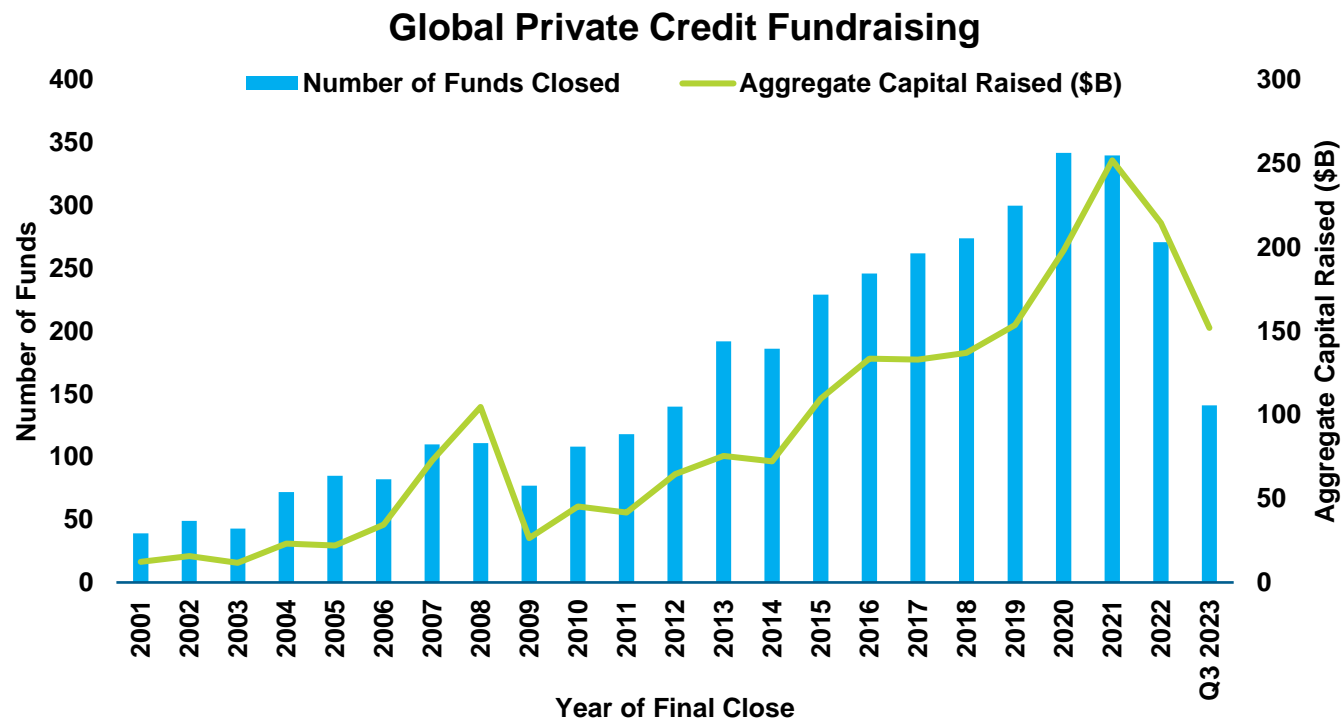
Source: Preqin, as of June 2023. Private Credit became the second largest asset class in private markets as measured by total assets under management for the year 2023, as of June 2023. Assets under management refers to both dry powder and unrealized value. Private market asset classes include private equity, private credit, natural resources, real estate, and infrastructure.
Source: Preqin, 2024 Global Private Debt Report published in December 2023

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Private Credit Strategies

→ There is no universally agreed upon system for categorizing private credit strategies.

→ Meketa categorizes the private credit universe into four broad groups.

- Within each category, strategies can vary across multiple dimensions.

Meketa's Classification of Private Credit Strategies

Direct Lending	Asset-Based Lending	Special Situations	Diversifying
Capital Structure - First Lien - Unitranche - Second Lien - Mezzanine/Junior Debt	**Consumer** - Credit Cards - Student Loans - Auto Loans - Consumer Installment	**Distressed** - Corporate - Mortgage - Commercial Real Estate	- Royalties - Infrastructure - Secondaries - Regulatory Capital Relief
Geography - US - Europe - Asia/Emerging Markets - Global	**Commercial** - Accounts Receivable - Trade Finance - Small Balance	**Capital Solutions** - Rescue Financing - Growth Financing	
Industry - Healthcare - Franchise - Technology	**Hard Assets** - Equipment Leasing - Mortgage Credit - Solar/Renewable Energy - Transportation	**Non-Performing Loans** - Commercial Real Estate - Residential Real Estate - Consumer - Small Medium Enterprises	
	Soft Assets - Intellectual Property - Fund Finance		

Source: Meketa Investment Group, 2024.

Different Strategies Target Different Returns

→ At a high level, the primary drivers of private credit returns are income and capital appreciation.

- However, the variety of implementation approaches leads to a range of outcomes.

→ Some variables that may impact expected returns include seniority in the capital structure, use of fund level leverage, borrower/collateral quality, structural protections, workout capabilities, and GP experience.

Targeted Net Unlevered IRRs by Strategy
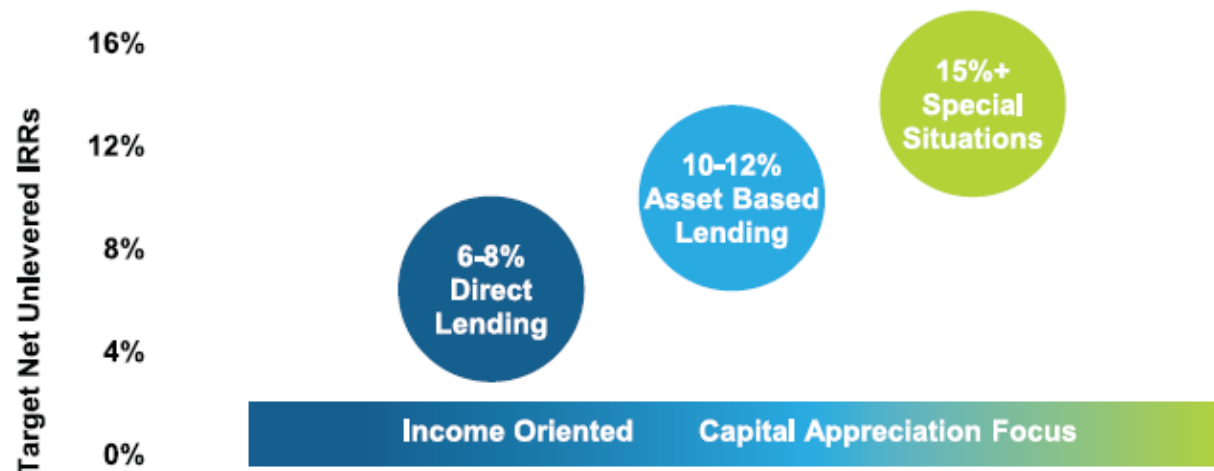
Source: Meketa Investment Group, 2024.

Private Credit Performance

→ Evaluating performance for the broad private credit asset class is challenging due to the diversity of strategies and a lack of robust performance data for many of the sub-strategies.

- The evolution of the asset class further complicates things as the composition of the private credit market is quite different today than it was just 10-15 years ago.*

  - Thus, it is difficult to extrapolate past performance onto the current opportunity set.

→ Our analysis compares two different proxies for private credit performance:

- Cambridge Associates' US Private Credit Composite, which is a composite of private credit funds where returns are IRRs *net* of fees.

- The Cliffwater Direct Lending Index ("CDLI"), which measures the unlevered, *gross* of fee performance of US middle market corporate loans.

*Mezzanine and distressed debt strategies represented the majority of the private credit universe from 2001 through the early 2010's. However, since 2014, direct lending has taken over as the single largest strategy, comprising around half of aggregate capital raised in each year of final close.

Historical Returns

→ Since 2005, the CDLI had an annualized *gross* return of 9.4%, followed by US equity's 9.3%, Cambridge's US Private Credit's 9.1% *net* return, corporate high yield bonds' 6.1%, and bank loans' 4.5%.

→ When looking at their trailing 10-year returns, all had slightly lower returns and remained in the same order, with the exception of US equity whose returns increased, outperforming the other assets.
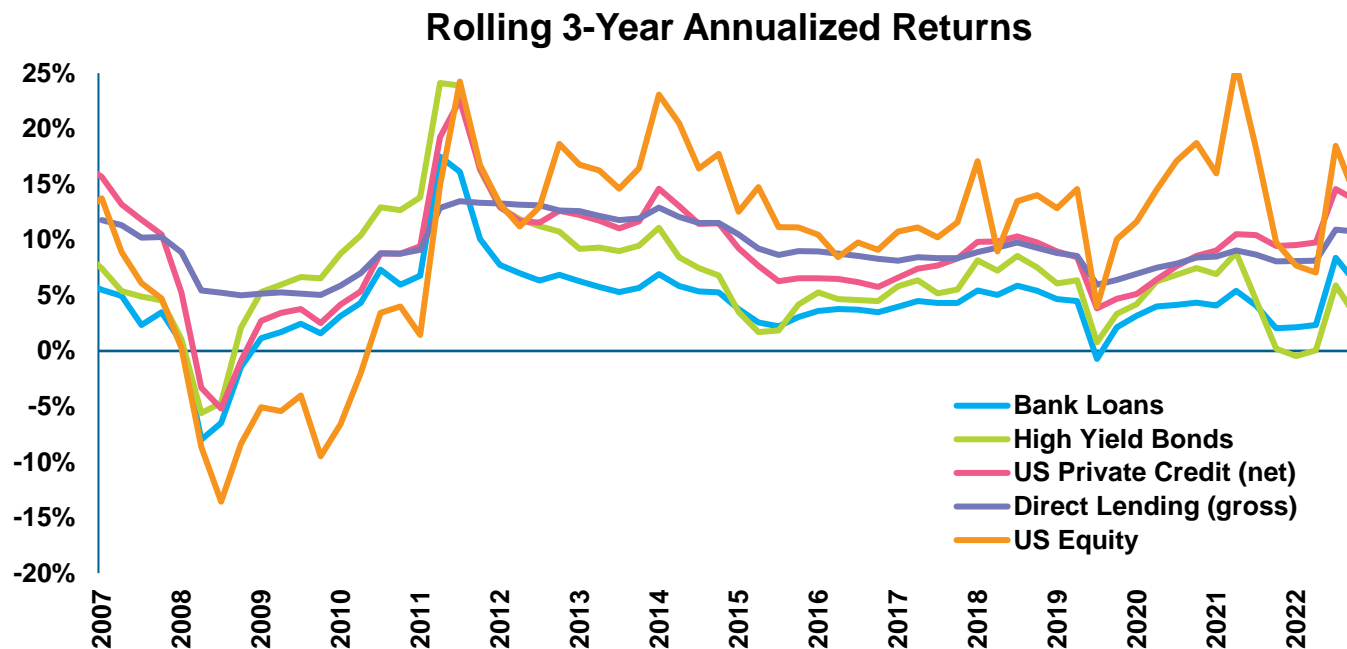
Rolling 3-Year Annualized Returns

Source: Cambridge Associates via IHS Markit, annualized quarterly Pooled IRR as of June 2023 (pulled in January 2024). Monthly returns sourced from Bloomberg as of June 2023 and converted to quarterly. Indices: Cambridge US Private Credit Composite, Cliffwater Direct Lending index, Credit Suisse Leveraged Loan, Bloomberg US Corporate High Yield Bond Index, Russell 3000. CDLI returns are gross of fees, all other returns are net of fees.

Note: For purposes of return comparison, throughout this document we linked quarterly IRRs of Cambridge's US Private Credit Composite as reported by Cambridge Associates. This is because time-weighted returns for these series were not available, and the quarterly IRRs used should not differ materially from time-weighted quarterly returns. Note that the trailing returns we present by linking the quarterly IRRs are different from the trailing IRRs, as the trailing IRRs are running the calculation over a longer period in which the weighting of cash flows has a more substantial impact.

Historical Volatility

→ Since 2005, US equity had the highest annualized standard deviation at 16.9%, followed by high yield bonds' 10.7%, bank loans' 9.3%, Cambridge's US private credit's 9.2%, and the CDLI's 3.5%.

- However, the methodology in the CDLI may artificially smooth the volatility of returns, particularly during periods of market stress.

- Cambridge's US private credit volatility may also be smoothed and lagged when compared to public market credit indices due to the inherent nature of private markets valuations and reporting.

Rolling 3-Year Annualized Volatility
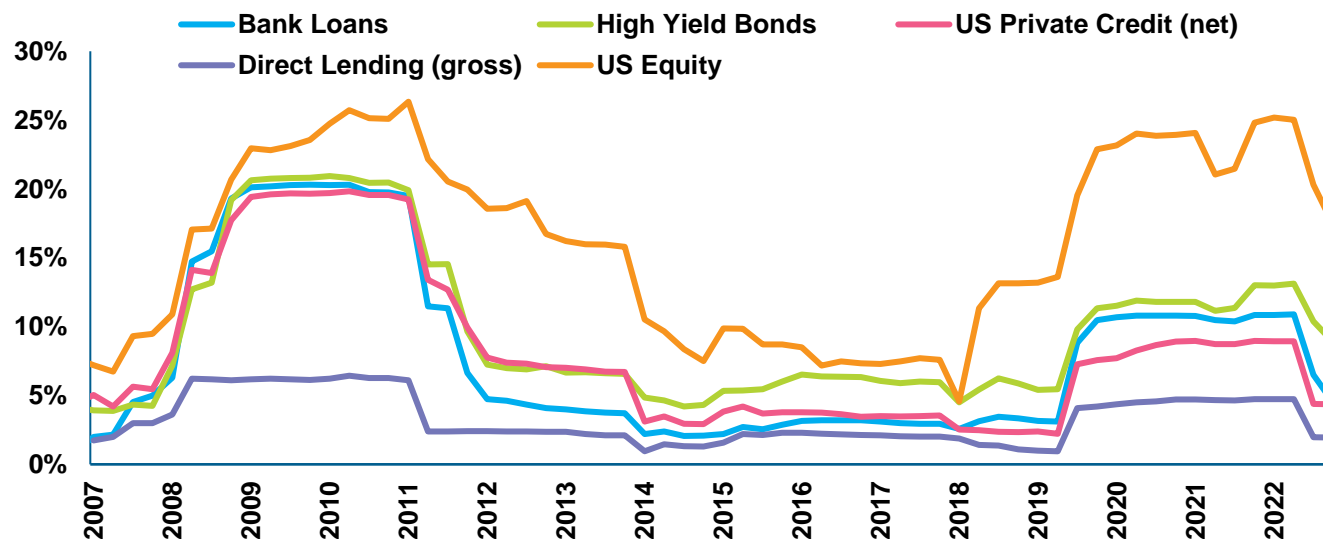
Source: Cambridge Associates via IHS Markit, annualized quarterly Pooled IRR as of June 2023 (pulled in January 2024). Monthly returns sourced from Bloomberg as of June 2023 and converted to quarterly. Indices: Cambridge US Private Credit Composite, Cliffwater Direct Lending index, Credit Suisse Leveraged Loan, Bloomberg US Corporate High Yield Bond Index, Russell 3000.

Diversification Potential

→ Cambridge's US private credit composite and the CDLI may offer limited diversification benefits relative to their public market counterparts.

→ Since 2005, both private credit proxies had average correlations of 0.70 and higher with US equity, 0.79 and higher with US private equity, and no correlation with US investment grade bonds.

- Thus, US private credit may offer diversification benefits from the interest rate-sensitive portion of the US bond market, though not substantial diversification from US equity and private equity.

Rolling 3-Year Correlation to Direct Lending*
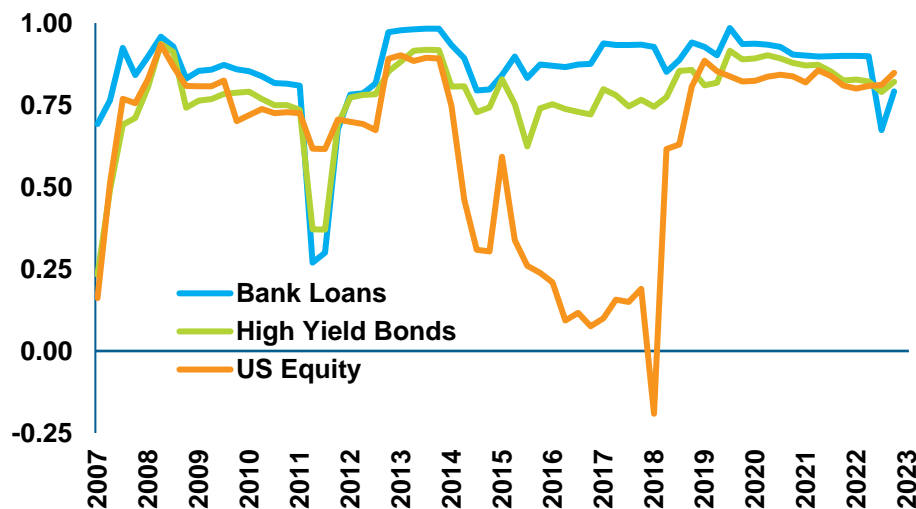
Rolling 3-Year Correlation to US Private Credit**
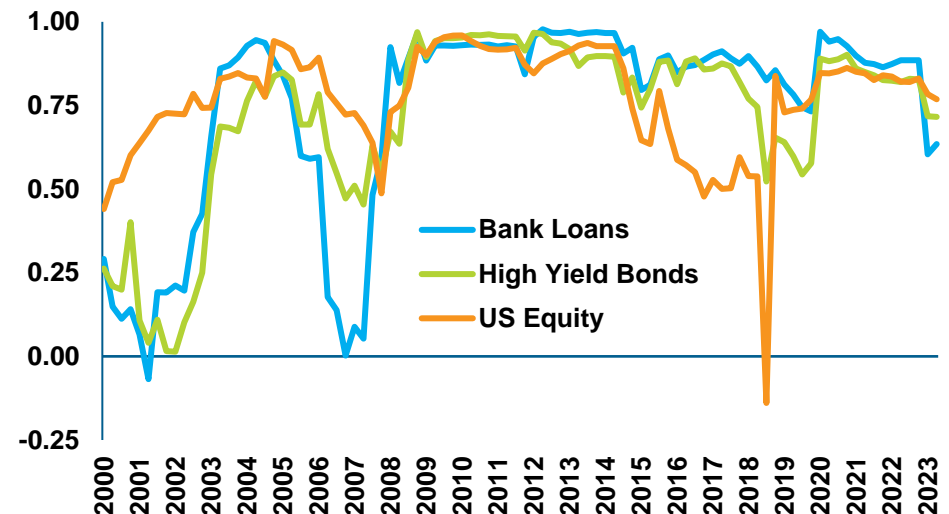
*Source: Monthly returns sourced from Bloomberg as of June 2023 and converted to quarterly. Indices: Cliffwater Direct Lending index, Credit Suisse Leveraged Loan, Bloomberg US Corporate High Yield Bond Index, Russell 3000.

**Source: Cambridge Associates via IHS Markit, annualized quarterly Pooled IRR as of June 2023 (pulled in January 2024). Monthly returns sourced from Bloomberg as of June 2023 and converted to quarterly. Indices: Cambridge US Private Credit Composite, Credit Suisse Leveraged Loan, Bloomberg US Corporate High Yield Bond Index, Russell 3000.

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Downside Protection

→ Private credit may offer downside protection benefits to a portfolio for a number of reasons, for example:

- Funds generally produce steady income for a portfolio.

- Most private credit instruments are floating rate, which reduces interest rate sensitivity.

- There may also be seniority in the capital structure, better control over loan documentation, and access to borrower performance metrics.

→ Private credit strategies have fared better than US equity during the major market downturns over the last twenty years.

Returns during Historical Market Downturns

Legend:
- Bank Loans
- High Yield Bonds
- US Private Credit (net)
- Direct Lending (gross)
- US Equity

Categories: Post-COVID Rate Hikes, COVID-19 Market Shock, Global Financial Crisis
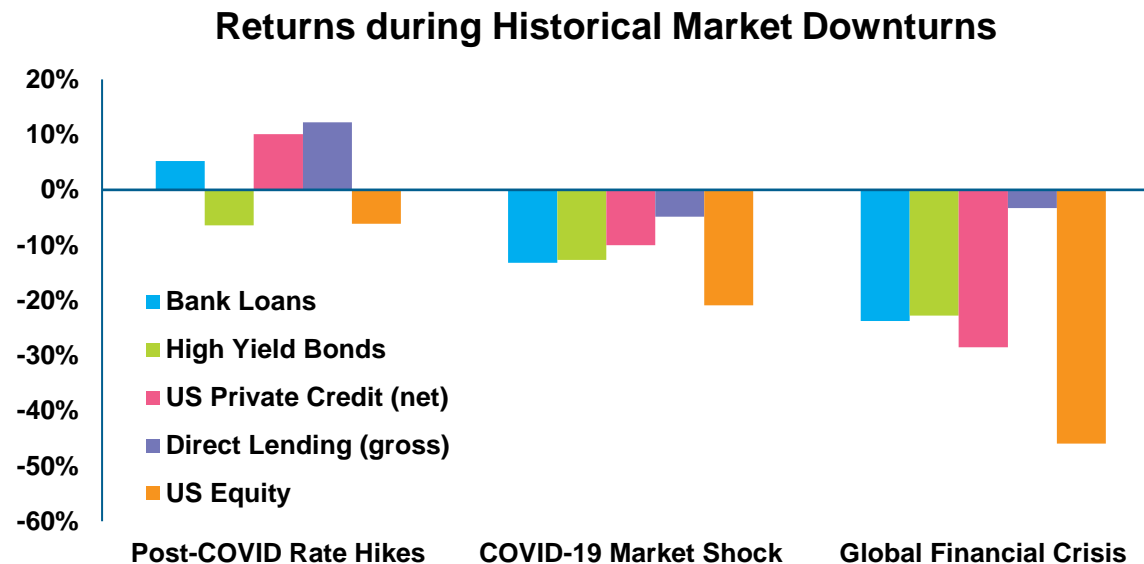
Source: Cambridge Associates via IHS Markit, annualized quarterly IRR as of June 2023 (pulled in January 2024). Monthly returns sourced from Bloomberg as of June 2023 and converted to quarterly. Indices: Cambridge US Private Credit Composite, Cliffwater Direct Lending index, Credit Suisse Leveraged Loan, Bloomberg US Corporate High Yield Bond Index, Russell 3000. Returns are cumulative for the time period over which the scenario occurred. Dates for the three events in order are: Oct 2007 – Mar 2009, Feb 2020 - Mar 2020, Jan 2022 – June 2023.

Implementation Considerations

→ While most private credit funds have traditionally been closed-end partnerships, there are an increasing number of open-end offerings.

→ While there is a J-curve effect in private credit, it is typically shallower than for most other private market categories.

→ As with other private markets, achieving full liquidity for an investor's position in a fund would likely require a sale in the secondary market.

→ Vintage year diversification is just as important for private credit portfolios as for other asset classes.

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Fees

→ Fee structures in private credit vary widely depending on fund structure and sub-strategy.

- The emergence of open-end funds has led to an even wider variety of fee structures.

→ Direct lending generally has lower fees, carry, and hurdle rates than special situations.

- Primary drivers for the variance between fees include open vs closed-end structure, complexity and competition, and leverage, among others.

→ Investors making large commitments may receive lower fee rates at one or more break levels.

Mean Private Credit Management Fee of the past 10 Vintage Years

Private Credit Sub-Strategy	Management Fee (%)
Direct Lending	1.56%
Mezzanine	1.76%
Special Situations	1.76%
Distressed	1.85%

Source: Preqin, 2023 Private Capital Fund Terms Advisor, October 2023. Figures are the average of the mean management fee for the past 10 vintage years.

Summary

→ Private credit is a form of financing originated by non-bank lenders under privately negotiated terms.

→ The private credit market has evolved and grown considerably, particularly since the GFC.

→ Meketa has identified four main strategies within private credit: direct lending, asset-based lending, special situations, and diversifying.

→ Private credit offers the opportunity to access potentially higher yield and return than those available in public market fixed income assets.

→ Benefits for institutional portfolios include the potential for volatility dampening, downside protection, and alpha via the selection of skilled managers.

- Diversification benefits may be limited to the interest rate-sensitive portion of the US bond market as it exhibits relatively high correlations with public credit and equities.

→ Investors should consider the diligence requirements, illiquidity, and higher fees common to private markets as well as the breadth of the asset class as they seek to build a strategic allocation consistent with their objectives and constraints.

Asset Allocation Review

Disclosure

You understand and agree that this document is partly based on analysis conducted using Meketa's Asset Allocation Tool ("AAT"), an interactive tool created by Meketa Investment Group, Inc. ("Meketa") for informational purposes only and is not intended to provide, and should not be relied on for, accounting, legal, tax, or investment advice. The tool generates outcomes that are hypothetical in nature and should not be considered as providing advice on which investments to buy or sell. Results may vary with each use and overtime. Specifically, the results may vary if the user modifies the inputs or there are changes to the capital markets assumptions. The information contained herein is subject to change at any time without notice.

The majority of the underlying data is updated annually, with a significant portion based on our capital markets expectations ("CMEs"). CMEs include forecasts for each asset class over a 10-year and 20-year horizon for expected return, standard deviation, and covariance. These forecasts do not represent predictions for any fund or strategy. These forecasts are forward-looking projections based upon the reasonable beliefs of Meketa and are not a guarantee of future performance. Forward-looking projections relate only to the date they are made, and Meketa assumes no duty to and does not generally undertake to update forward-looking statements outside of our standard annual CME update. Further, forward-looking projections are subject to numerous assumptions, risks, and uncertainties, which change over time. Actual results may differ materially from those anticipated in forward-looking projections.

Historical data published herein may be simulated or backdated using reasonable beliefs of available historical data and, in such instances, no allowance has necessarily been made for trading costs, management fees, implementation shortfalls or other costs, are not indicative of any specific investment, are unmanaged and cannot be invested in directly. Note there are specific modules and information in the tool that provide modeling analysis that includes reasonable assumptions, management fees, active management, etc. Past performance, including simulated or backdated performance, is no guarantee of future performance, and actual investment results will likely differ. Any information and data pertaining to an index contained in this document relates only to the index itself and not to any asset management product based on the index. All information and data are generally based on information and data from third party sources. Hypothetical or simulated performance results have certain inherent limitations. Unlike an actual performance record, hypothetical results do not represent actual trading but are based on the historical returns of the selected investments, indices or investment classes and various assumptions of past and future events.

Disclosure (cont.)

All projections provided are estimates and are in US dollar terms, unless otherwise specified, and are based on data as of the dates indicated. Given the complex risk-reward trade-offs involved, one should always rely on judgment in addition to any analysis in setting strategic allocations to any or all of the asset classes specified. All the information shown is based on both quantitative and qualitative analysis developed by Meketa. The asset class and strategy assumptions contained herein are primarily passive — they do not consider the impact of active management, though a specific model in the tool is designed to contemplate the use of active management. References to future returns are not promises of actual returns a client portfolio may achieve. Assumptions, opinions, and estimates are provided for illustrative purposes only. Forecasts of financial market trends that are based on current market conditions or historical data constitute a judgment and are subject to change without notice. We do not warrant their accuracy or completeness. There is no assurance that any of the market values displayed will be attained.

The return characteristics and behavior of asset classes are represented by broad-based indices that have been selected because they are well known and are easily recognizable by investors. The AAT does not favor certain asset classes. The AAT is intended to illustrate the possible trade-offs between portfolios composed of various assets. The behavior modeled for an asset class may differ from an actual portfolio. For example, investments made for a portfolio may differ significantly in terms of security holdings, industry weightings, and asset allocation, from those of the asset class. Further, other asset classes not considered may have characteristics similar or superior to those being analyzed by the AAT.

No investment process is risk free and there is no guarantee of profitability; investors may lose some or all of their investments. No investment strategy or risk management technique can guarantee returns or eliminate risk in any market environment. Diversification does not guarantee a profit or protect against loss. Asset classes vary significantly in projected returns and volatility.

Our models and assumptions utilize data from various vendors, including MSCI, S&P, Russell, FTSE, NCREIF, Bloomberg, Oxford Economics, FRED, etc. No model or assumptions are sponsored, endorsed, or promoted by any vendor, and vendors bear no liability.

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Contact meketaadv@meketa.com for a copy of the Meketa current Form ADV Part 2A or Part 2B. Meketa's Form ADV Part 1A is available through the SEC's public website.

Introduction

Introduction

→ This document evaluates the current asset allocation policy and presents alternative asset allocation options for the System.

→ The last asset allocation review was conducted in 2022, after Meketa was hired.

→ We thought it prudent to conduct a strategic asset allocation review again due to several factors:

- Meaningful changes in our capital markets assumptions.

- Changes in the interest rate environment.

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Asset Allocation Overview

Asset Allocation

What is Asset Allocation?

→ Asset allocation refers to the distribution of assets across a number of asset classes that exhibit different correlations with each other. Each asset class exhibits a unique combination of risk and reward. The expected and realized long-term returns vary by asset class, as does the interim volatility of those returns. Some asset classes, like equities, exhibit high degrees of volatility, but also offer high returns over time. Other asset classes, like cash, experience very little volatility, but offer limited return potential.

Why is Asset Allocation important?

→ The distribution of assets across various asset classes <u>exerts a major influence</u> on the return behavior of the aggregate pool over short and long time periods.

How does Asset Allocation affect aggregate performance?

→ In addition to exhibiting unique characteristics, each asset class interacts differently with other asset classes. Because of low correlations, the likelihood that any two asset classes will move together in the same direction is limited, with the movement of one asset class often offsetting another's. Combining asset classes allows investors to control more fully the aggregate risk and return of their portfolios, and to benefit from the reduction in volatility that stems from diversification.

Asset Allocation Review Process

→ Review the asset allocation options.

→ Choose a portfolio with expected returns and risk that are appropriate for the financial position of the System.

→ Accept equity risk as means of achieving an acceptable long-term return or consider lower returns and higher contributions that come with less equity risk.

→ Understand the risks in a portfolio predominantly invested in equities and equity-like assets.

The Big Picture: Higher Return for the ~ Same Risk[1]

→ The relationship between long-term return expectations and the level of risk accepted is not static.

→ The higher interest rates compared to a decade ago mean that many investors have greater flexibility in how they structure a portfolio to achieve their target returns.
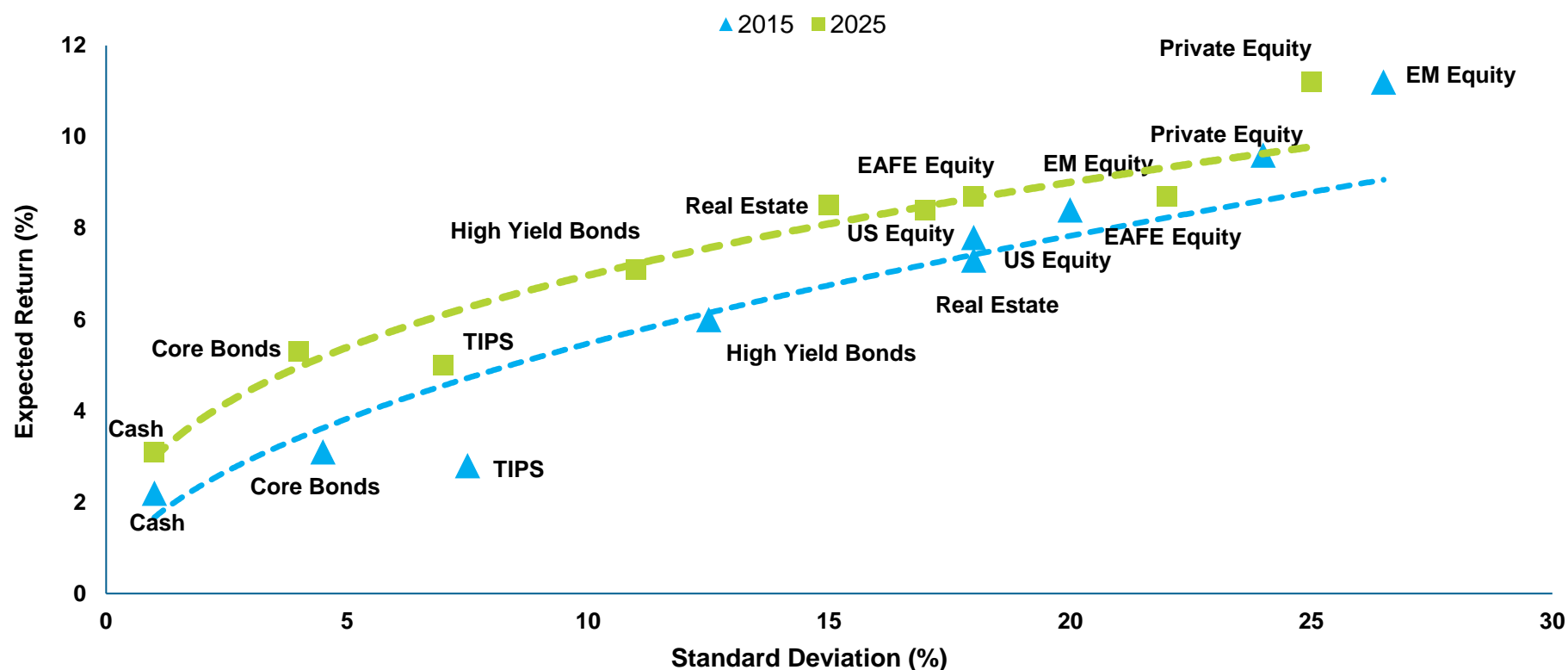
[1] Expected return and standard deviation are based upon Meketa Investment Group's 2014 and 2024 20-year capital market expectations.

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Asset-Liability Study – Deterministic

Expected Plan Inflows & Outflows ($M)

Legend: ■ Inflows - EE & ER Contributions; Section 115   ■ Outflows - Benefit Pmts. & Admin. Expenses
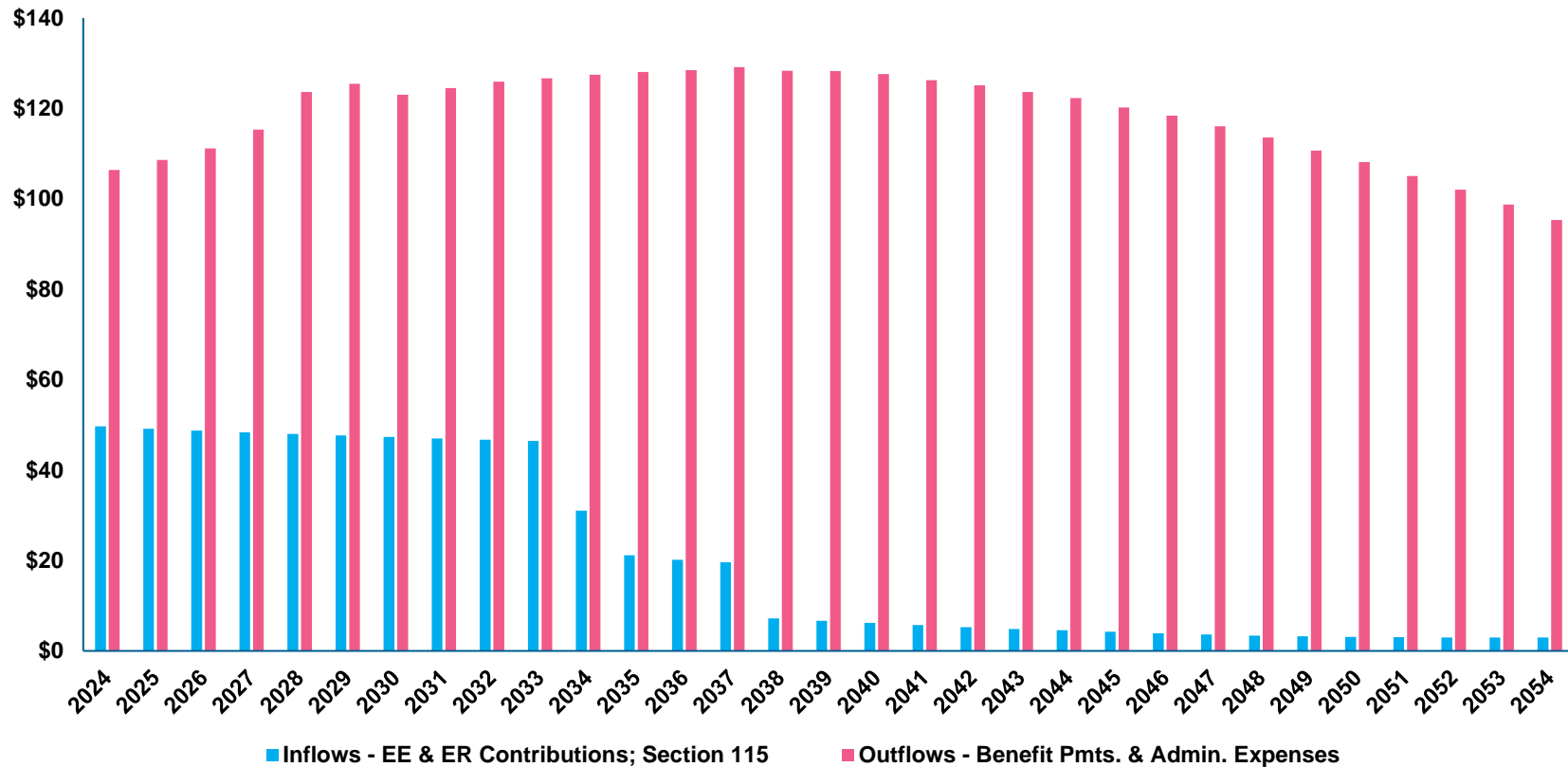
→ A deterministic asset-liability study is one in which **all assumptions are assumed to be met** every single year of the projection.

→ The following expected benefit payments are what the actuary forecasts using census data as of June 30, 2024.

Net Cash Flows as a % of Assets

Negative cash flow expected to remain relatively constant and then become further negative
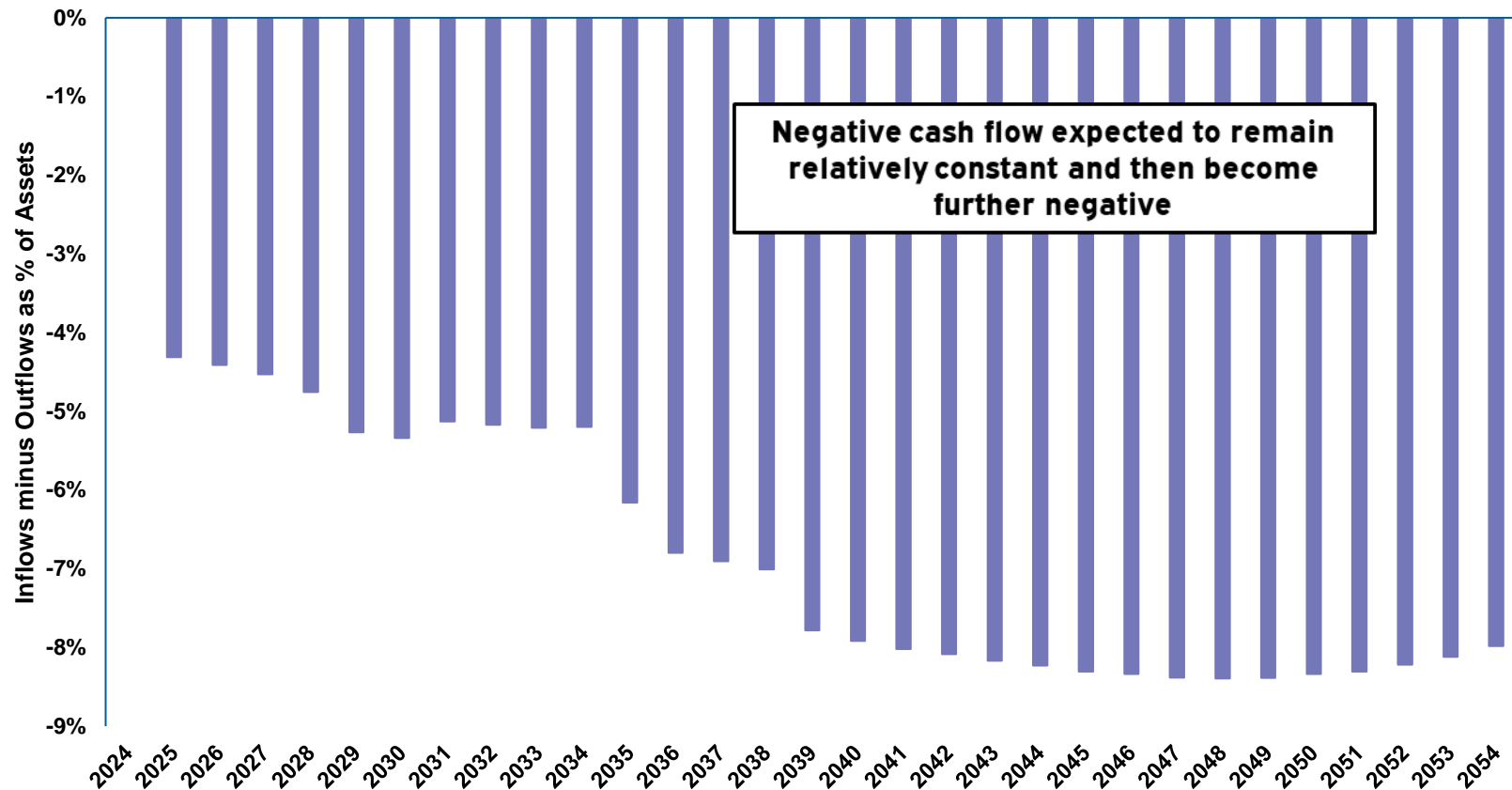
→ A negative cash flow is typical for a mature pension plan – the System is expecting to pay out more than it is expected to receive.

→ Asset volatility is a high concern when a plan is mature.

Sequence of Returns – Does Not Matter with No Cash Flows

→ This analysis reviews three scenarios that achieve the same twenty-year annualized return of 6.75% but that take very different paths to arrive at this destination.[1]

→ The "Strong Early Returns" and "Strong Late Returns" scenarios produce the same returns but the order in which the returns are generated is reversed. The third scenario assumes 6.75% is earned every year.

→ If net cash flow is $0, the ending value is the same for all three scenarios.

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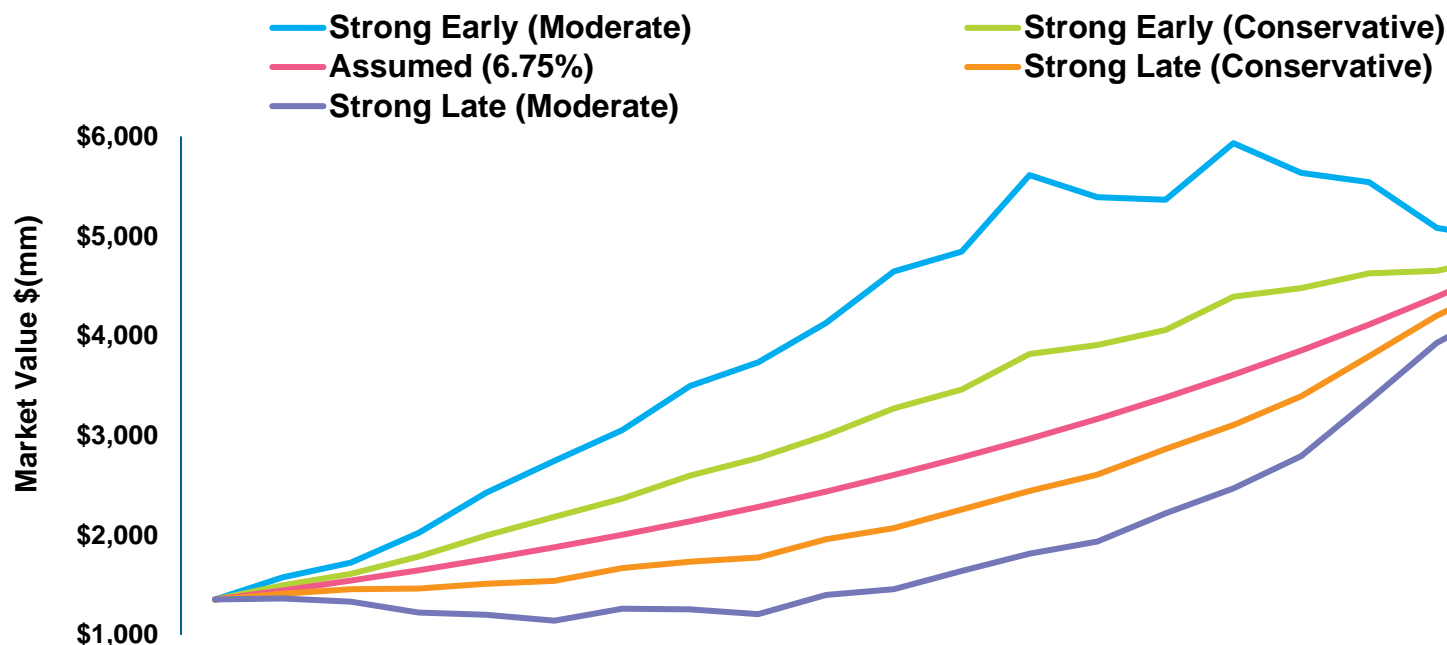
[1] Note: Assumes $0 cash flow over the 20-year period. Modeled for Norfolk ERS only.

Sequence of Returns – Significant Impact with Negative Cash Flows

→ Negative cash flows make it much harder for a System to recover after a market downturn; the larger the cash outflows are, the more severe the impact.

→ Inserting Norfolk ERS' projected cash flows, the ending market value (year 20) would be $2.5 billion higher if strong returns are experienced in the first ten years as opposed to years eleven through twenty.
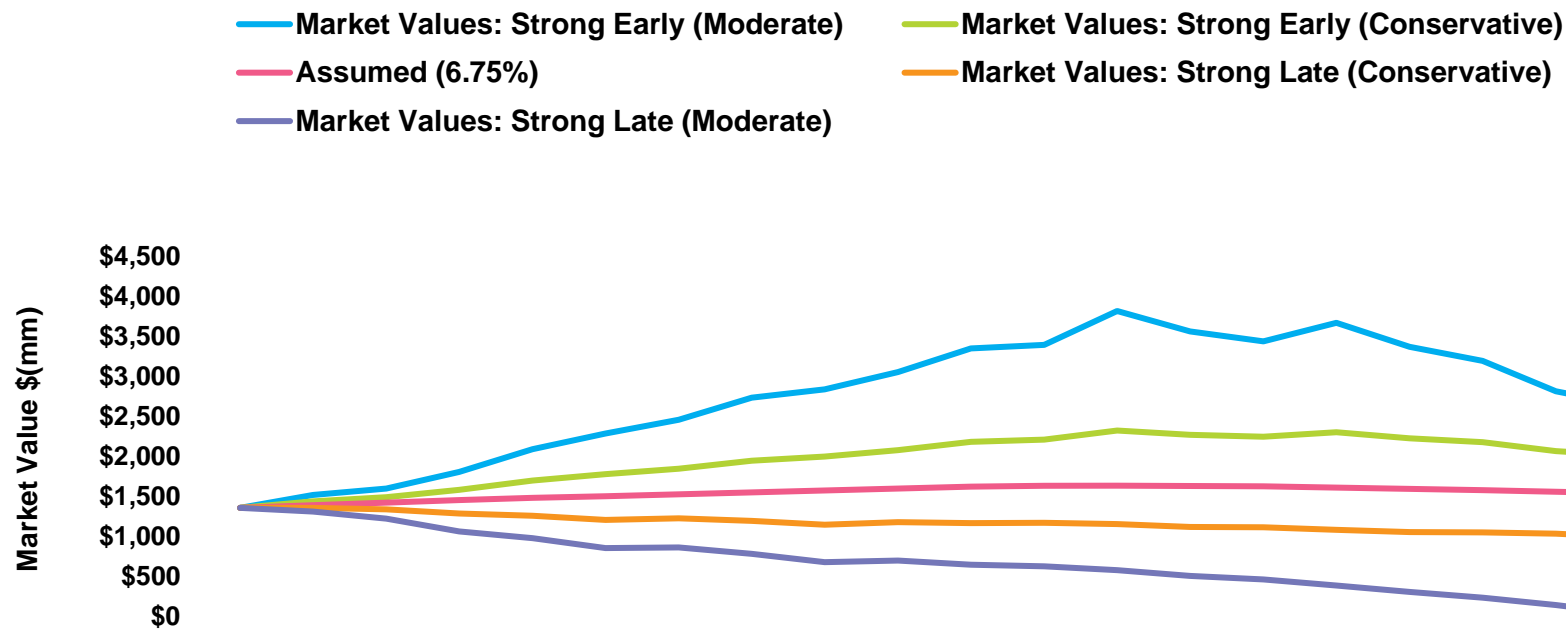
Asset-Liability Study - Stochastic

Simulations to Percentiles: Funded Status

Individual Simulations
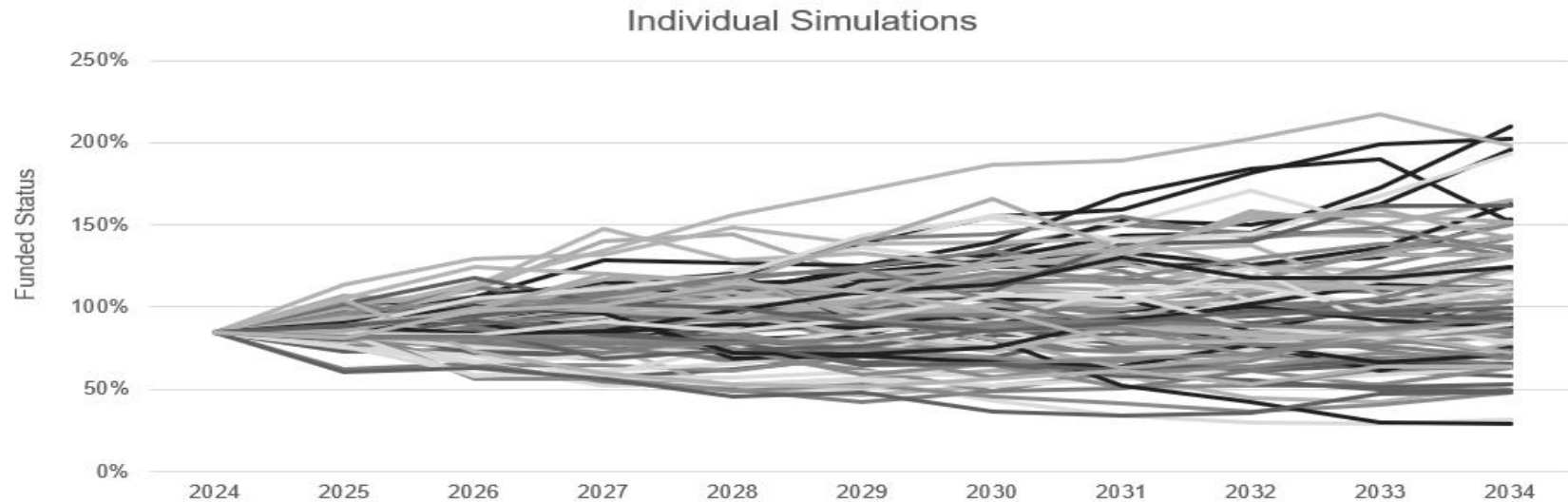
→ Funded status (assets divided by liabilities) is simulated in a variety of market environments.

→ Analysis reflects the current

- Asset Allocation
- Projected benefit payments
- Funding policy
- Plan provisions
- Actuarial assumptions
- Meketa 2025 Capital Market Assumptions

## Simulations to Percentiles: Funded Status (cont.)
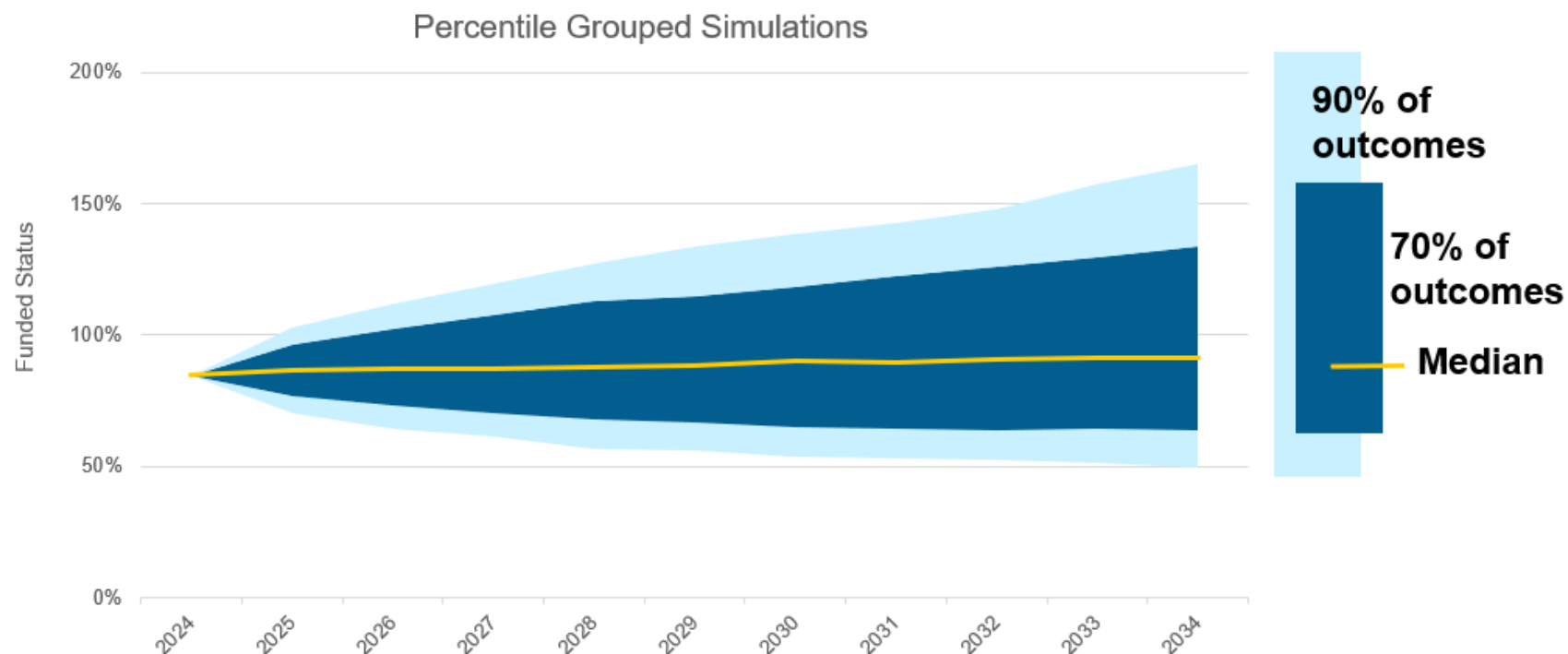
- → Simulations are summarized into percentiles, providing a quantitative analysis of the funded status, given the current asset allocation.

- → As an example, the median (50th Percentile) funded status in 2034 is 92% => there is a 50% probability the funded status will be greater than 92% and 50% probability it will be less than 92%.

Asset-Liability Study – Percentile Analysis

→ Key observations are analyzed in a "Expectation/Risk Measure" framework.

- Expectation – Outcome where all the underlying assumptions prove to be accurate over the long-term (Example: 50th percentile over a 10-year time horizon).

- Risk Measure – Outcome with a lower probability (Ex: 85th percentile) and detrimental impact, especially when that outcome occurs in the short-term (Ex: 1-year time horizon).

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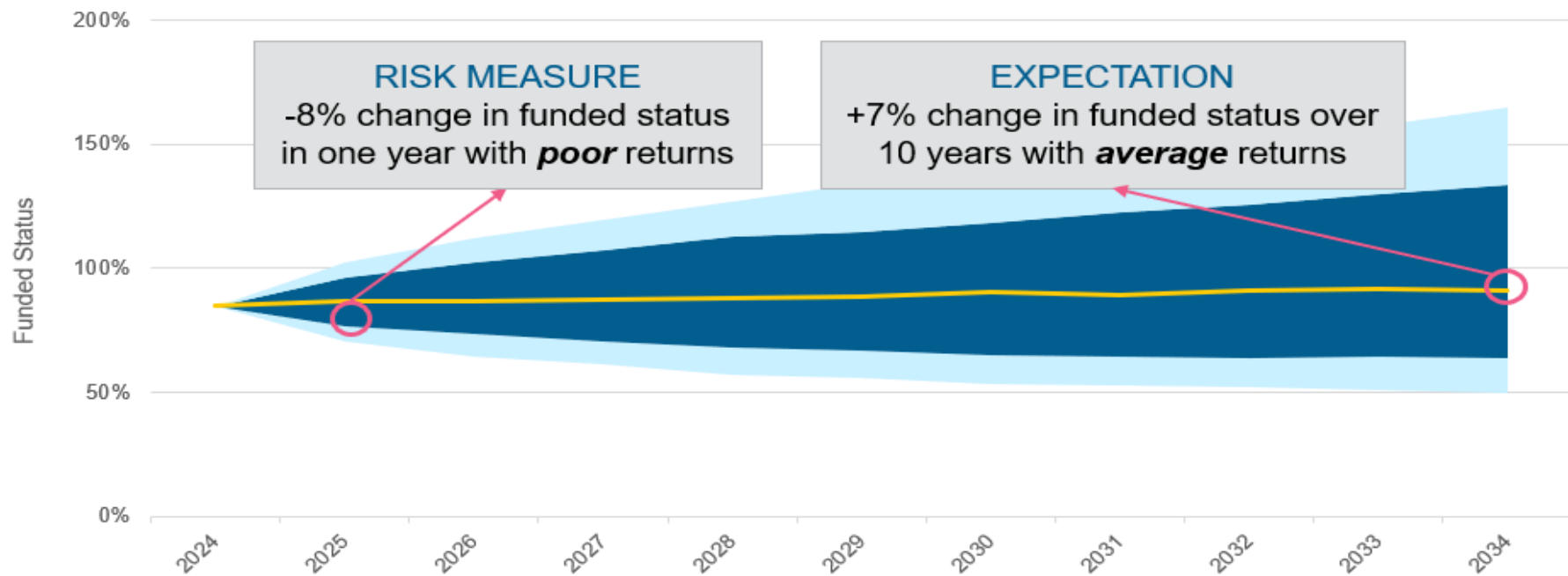
Proposed Policy Options

Asset Allocation Policy Options[1]

	Current (%)	Policy A (%)	Policy B (%)	Policy C (%)
Growth Assets	**57**	**51**	**45**	**45**
Global Equity	52	46	40	40
Private Equity	5	5	5	**5**
Credit	**4**	**6**	**8**	**11**
High Yield Bonds & Bank Loans	4	6	8	6
Private Credit	0	0	0	5
Inflation Hedges	**21**	**21**	**22**	**23**
Short-term TIPS	5	5	6	5
Real Estate	8	8	8	8
Natural Resources	2	2	2	2
Gold[2]	3	3	3	3
Infrastructure	3	3	3	5
Risk Mitigation	**18**	**22**	**25**	**21**
Investment Grade Bonds	10	14	16	13
Long-term Government Bonds	4	4	5	4
RMS Hedge Funds[3]	4	4	4	4
Expected Return (20 years)	8.12	7.97	7.82	8.04
Expected Return (20 years) Adjusted[4]	7.80	7.70	7.58	7.80
Standard Deviation	12.0	11.2	10.4	10.9
Probability of Achieving 6.75% over 20 Years	69.3	68.6	67.6	70.0

[1] Expected return and standard deviation are based upon Meketa's Annual Capital Markets Expectations. Throughout this document, returns for periods longer than one year are annualized. Green/red are relative to the Current Policy.
[2] Gold allocation is 1/3 Miners and 2/3 Gold Bullion
[3] RMS Hedge Funds consists of Trend Following, Long Volatility, and Global Macro.
[4] Modified US Equity expected return.
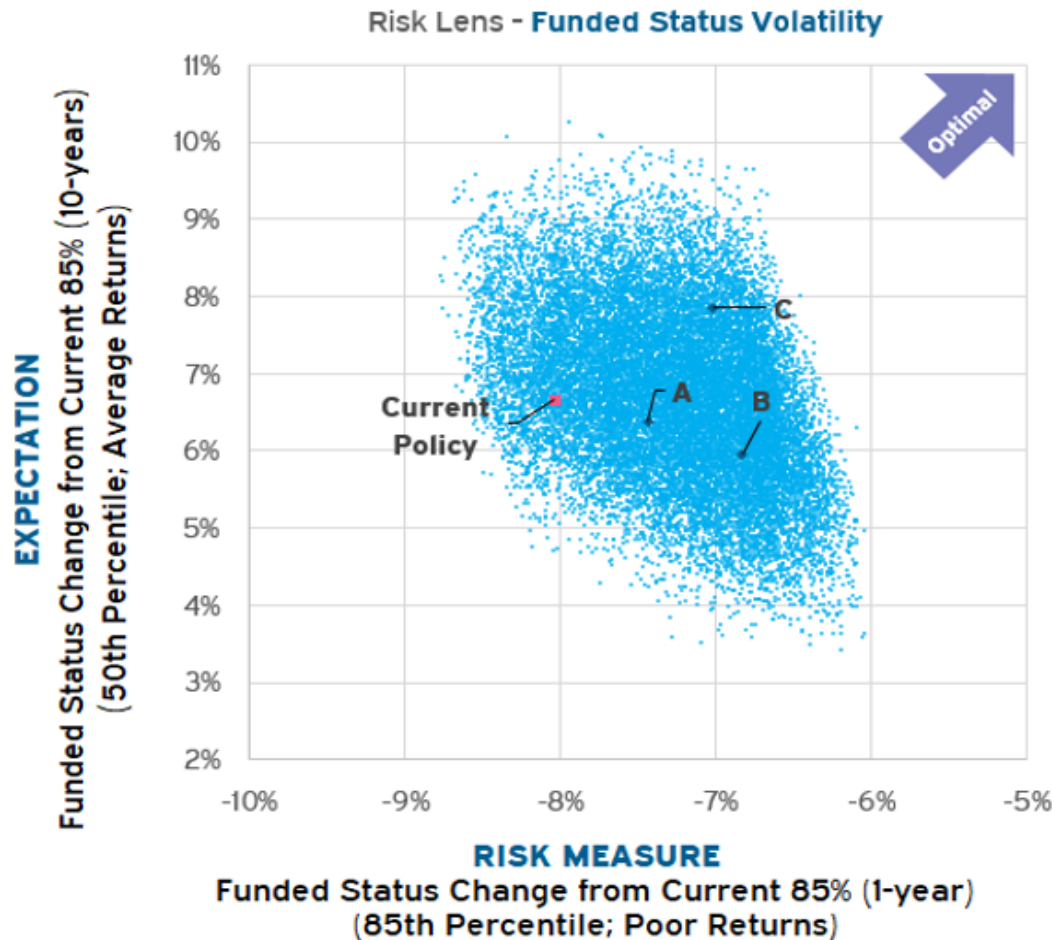
Review of Proposed Asset Allocation Policies

→ The Current Policy meets the return objectives of the System. As a result, we are not looking to dramatically change the asset allocation but rather make enhancements on the margins.

→ The most significant change is a reduction in global equity and increases in credit and risk mitigating strategies given then overall capital markets outlook which has higher projected expected returns.

- This largely represents the changes in Policy A and B.

→ Policy C adds exposure to private credit as an alternative option to maintain a similar return and reduce risk.

→ The policy options also break out the natural resources and infrastructure targets to their own dedicated asset classes.

Proposed Changes

→ Policy A has a similar return with slightly less risk as compared to the Current Policy.

- Policy A considers a decline in the target to global equities by 6%, as reducing equity risk is the primary tool for decreasing overall risk in the System.

    - Both high yield bonds & bank loans and investment grade bonds would increase in target as a result.

    - This increased allocation to fixed income considers the increase in interest rates as an opportunity to earn a more attractive return.

→ Policy B has a lower return and lower risk as compared to the Current Policy.

- Policy B considers a decline in the target to global equities by 12%.

    - High yield bonds & bank loans, short-term TIPS, investment grade bonds and long-term government bonds would increase in target as a result.

    - This allocation is less risky in nature but as a result would experience the lowest return of the four options.

→ Policy C has a similar return with less risk as compared to the Current Policy.

- Policy C considers a decline in the target to global equities by 12%.

    - Investment grade bonds and infrastructure would increase in target as a result.

    - Private credit is added as an asset class.

    - This allocation decreases relative risk.

Asset-Liability Study - Proposed Policy Options

Funded Status Scatter Plot

Risk Lens - **Funded Status Volatility**

EXPECTATION
Funded Status Change from Current 85% (10-years)
(50th Percentile; Average Returns)

RISK MEASURE
Funded Status Change from Current 85% (1-year)
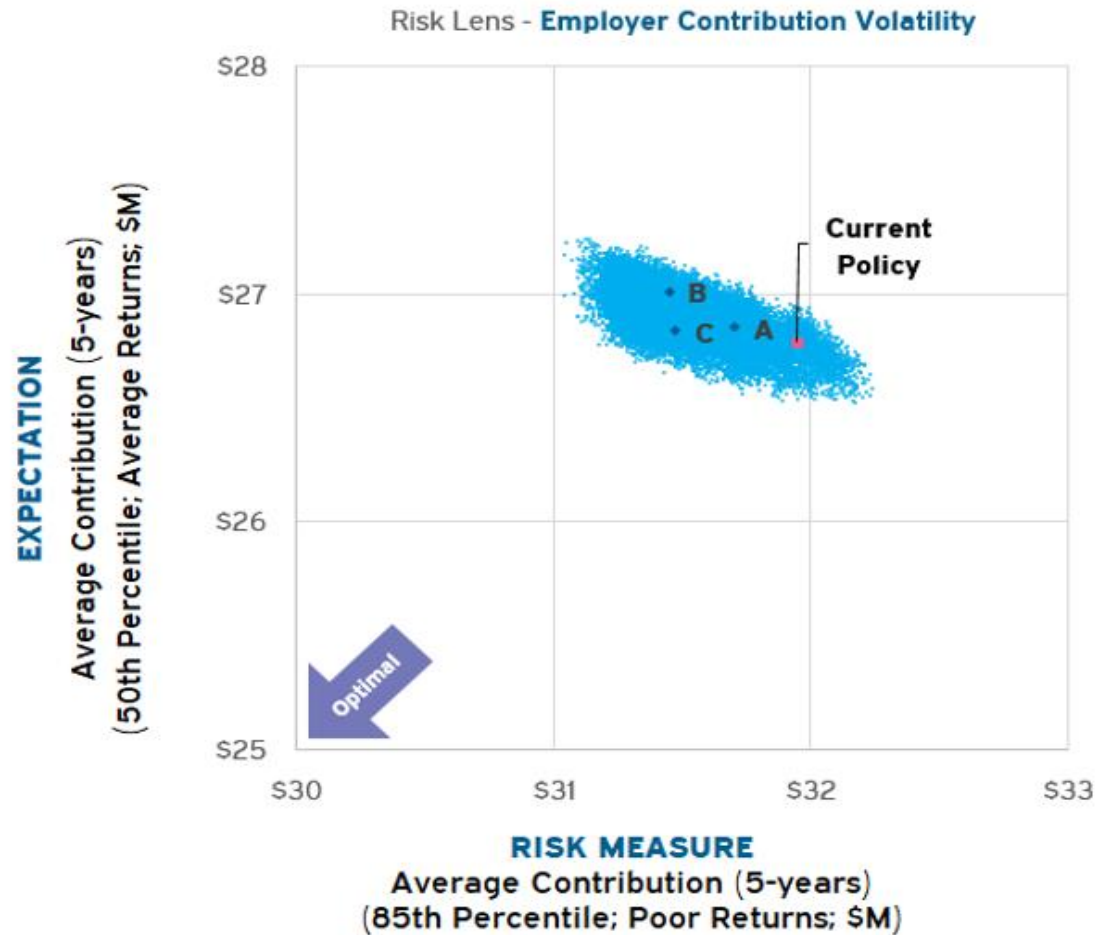(85th Percentile; Poor Returns)

Notes

- Samples are selected spanning the spectrum of expectation/risk measure.

- Sample A and B are examples of lower funded status volatility relative to Current Policy.

- Sample C is higher expectation and lower funded status volatility with increased illiquidity.

- No outcome is "better" than another given each have beneficial quantitative outcomes.

Contribution Expectation Scatter Plot

Notes

- The employer contribution expectation is another important measure for the System.

- The funded status measures health, the contribution measures the cost.

Risk Lens - **Employer Contribution Volatility**

EXPECTATION
Average Contribution (5-years)
(50th Percentile; Average Returns; $M)

Current Policy

RISK MEASURE
Average Contribution (5-years)
(85th Percentile; Poor Returns; $M)

Diversification and Risk Analysis

Diversification

→ The primary motive for diversifying a portfolio is to reduce risk.

→ Diversification is the sole "free lunch" available to investors. That is, it represents the only way to reduce risk without reducing expected returns.

→ Therefore, investments should be allocated across multiple classes of assets, based in part on the expected correlation of their returns.

→ Within each asset type, investments should be distributed across strategies and risk factors to further reduce volatility.

Types of Risk Analysis Addressed

→ Risk budgeting[1]

- Attributes overall portfolio risks to specific asset classes
- Highlights the source and scale of portfolio-level risk

→ MPT-based risk analytics

- Includes worst case return expectations
- Relies on assumptions underlying Modern Portfolio Theory ("MPT")

→ Scenario analysis

- Stress tests policy portfolios using actual historical examples
- Stress tests policy portfolios under specific hypothetical scenarios

---

[1] Risk budgeting seeks to decompose the aggregate risk of a portfolio into different sources (in this case, by asset class), with risk defined as standard deviation.

Risk Budgeting Analysis[1]
(Capital Allocation vs. Risk Allocation)

■ **Growth Assets**   ■ **Credit**   ■ **Inflation Hedges**   ■ **Risk Mitigation**
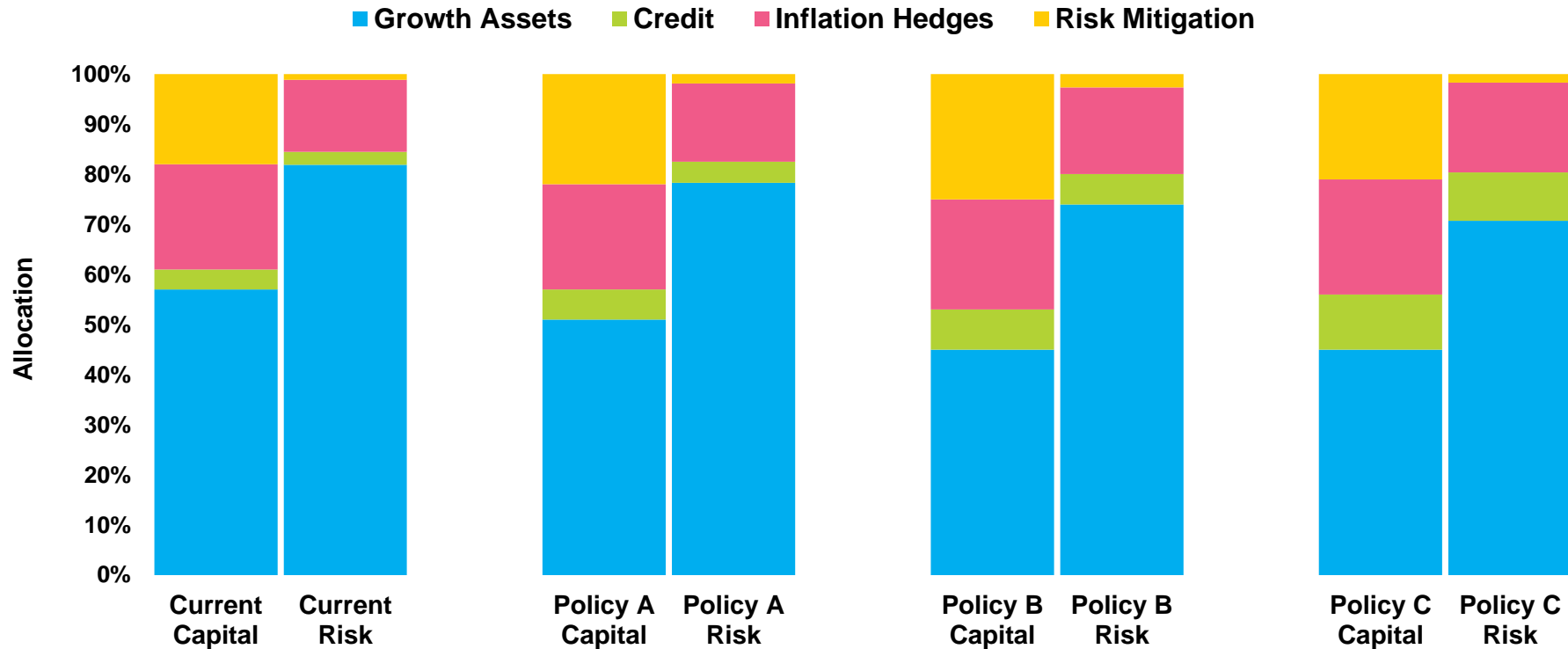
→ Assets with low relative volatility, such as rate sensitive fixed income, contribute less to risk than their asset weighting implies.

Risk Budgeting Analysis[1]
(Absolute Contribution to Risk)

■ Growth Assets　■ Credit　■ Inflation Hedges　■ Risk Mitigation
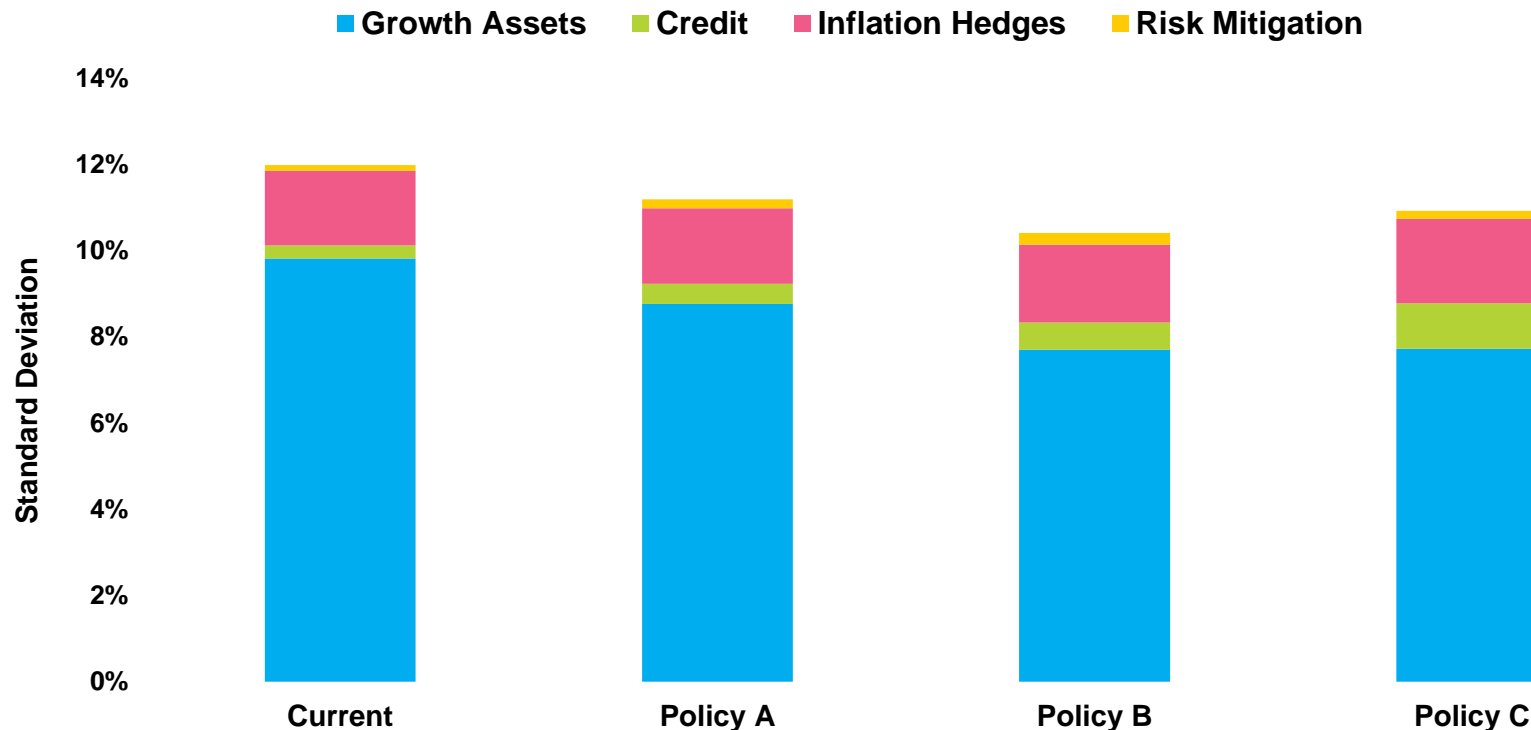
→ In each policy option, equity risk dominates the risk profile of the portfolio. The alternative policy options all have lower volatility projections vs. the Current Policy.

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[1] Contribution to risk is calculated by multiplying the weight of the asset class by its standard deviation and its correlation with the total portfolio.

MPT-Based Risk Analysis

Scenario	Current (%)	Policy A (%)	Policy B (%)	Policy C (%)
Worst Case Returns[1]				
One Year (annualized)	-16.3	-15.0	-13.8	-14.5
Three Years (annualized)	-6.8	-6.0	-5.2	-5.6
Five Years (annualized)	-3.6	-3.0	-2.4	-2.7
Ten Years (annualized)	-0.3	0.1	0.5	0.3
Twenty Years (annualized)	2.1	2.3	2.6	2.5
Probability of Experiencing Negative Returns				
One Year	24.0	22.9	21.7	22.1
Three Years	11.0	9.9	8.8	9.2
Five Years	5.7	4.8	4.0	4.3
Ten Years	1.3	0.9	0.7	0.8
Twenty Years	0.1	0.0	0.0	0.0
Probability of Achieving at least a 6.75% Return				
One Year	54.5	54.3	54.1	54.7
Three Years	57.7	57.4	57.0	58.0
Five Years	60.0	59.6	59.0	60.3
Ten Years	63.9	63.4	62.6	64.5
Twenty Years	69.3	68.6	67.6	70.0

→ Policy B is structured to be the most defensive portfolio. However, it is the least likely to reach the target return over the long term.

---

[1] "Worst Case Returns" refers to the 99.7th percentile return.

Historical Negative Scenario Analysis[1]
(*Cumulative* Return)

Scenario	Current (%)	Policy A (%)	Policy B (%)	Policy C (%)
Post-COVID Rate Hikes (Jan 2022-Oct 2023)	-9.0	-8.8	-8.8	-7.0
COVID-19 Market Shock (Feb 2020-Mar 2020)	-19.8	-18.2	-16.5	-16.7
Taper Tantrum (May - Aug 2013)	-1.2	-1.4	-1.5	-1.0
Global Financial Crisis (Oct 2007 - Mar 2009)	-26.9	-24.0	-21.1	-22.3
Popping of the TMT Bubble (Apr 2000 - Sep 2002)	-16.1	-12.1	-8.1	-9.2
LTCM (Jul - Aug 1998)	-7.8	-6.9	-6.0	-6.2
Asian Financial Crisis (Aug 97 - Jan 98)	0.8	1.3	1.7	1.9
Rate spike (1994 Calendar Year)	2.9	2.6	2.2	2.4
Early 1990s Recession (Jun - Oct 1990)	-5.1	-4.5	-3.9	-3.9
Crash of 1987 (Sep - Nov 1987)	-10.4	-9.1	-7.9	-8.0
Strong dollar (Jan 1981 - Sep 1982)	0.3	2.3	4.0	2.8
Volcker Recession (Jan - Mar 1980)	-4.1	-4.2	-4.3	-3.8
Stagflation (Jan 1973 - Sep 1974)	-18.6	-16.1	-13.7	-14.1

→ Policy B would have performed the best in environments of declining equity markets, due to its more conservative positioning.

→ The Current Policy would have fared the worst in declining equity markets.

---

[1] In periods where the ideal benchmark was not yet available, we used the next closest benchmark(s) as a proxy.

Historical Positive Scenario Analysis[1]
(*Cumulative* Return)

Scenario	Current (%)	Policy A (%)	Policy B (%)	Policy C (%)
Covid Recovery (Apr 2020-Dec 2021)	51.6	47.7	43.8	45.9
Global Financial Crisis Recovery (Mar 2009 - Nov 2009)	37.5	35.1	32.6	33.0
Real Estate and Buyout Boom (Oct 2004-Sept 2007)	59.3	55.9	52.5	56.0
Best of Great Moderation (Apr 2003 - Feb 2004)	30.1	27.8	25.5	26.2
Peak of the TMT Bubble (Oct 1998 - Mar 2000)	36.6	33.5	30.4	31.9
Short Rate Decrease Cycle (Jan 1995-Dec 1995)	17.3	17.2	17.1	16.5
Recession Recovery (Nov 1990-March 1992)	11.8	12.7	13.6	12.4
Plummeting Dollar (Jan 1986 - Aug 1987)	61.7	56.7	51.6	51.0
Long Rate Decrease Cycle (June 1984-August 1986)	92.2	87.5	82.9	79.8
Volcker Recovery (Aug 1982 - Apr 1983)	32.7	31.3	29.8	28.7
Bretton Wood Recovery (Oct 1974 - Jun 1975)	27.6	25.6	23.6	23.3

→ The Current Policy would have been the best option for capturing most of the upside in strongly positive markets given the higher public equity allocation.

---

[1] In periods where the ideal benchmark was not yet available, we used the next closest benchmark(s) as a proxy.

Stress Testing: Impact of Negative Market Movements
(Expected Return under Negative Conditions)[1]

Scenario	Current (%)	Policy A (%)	Policy B (%)	Policy C (%)
10-year Treasury Bond rates rise 100 bps	3.8	3.2	2.6	3.0
10-year Treasury Bond rates rise 200 bps	-1.8	-2.1	-2.5	-2.1
10-year Treasury Bond rates rise 300 bps	-2.7	-3.2	-3.7	-3.5
Baa Spreads widen by 50 bps, High Yield by 200 bps	0.7	0.9	1.0	0.8
Baa Spreads widen by 300 bps, High Yield by 1000 bps	-20.9	-19.4	-17.8	-18.2
Trade Weighted Dollar gains 10%	-4.9	-4.5	-4.0	-4.1
Trade Weighted Dollar gains 20%	-1.7	-1.2	-0.7	-1.1
U.S. Equities decline 10%	-5.2	-4.7	-4.1	-4.3
U.S. Equities decline 25%	-15.6	-14.4	-13.3	-13.7
U.S. Equities decline 40%	-25.4	-23.5	-21.6	-22.1
Bull Steepener	1.7	1.9	2.1	1.8

→ Each policy portfolio has a different sensitivity to four major risk factors: interest rates, credit spreads, currency fluctuations, and equity values.

→ The System's primary risk factors would continue to be an equity market decline and a widening of credit spreads, no matter the policy.

---

[1] Assumes that assets not directly exposed to the factor are affected, nonetheless.

Stress Testing: Impact of Positive Market Movements
(Expected Return under Positive Conditions)[1]

Scenario	Current (%)	Policy A (%)	Policy B (%)	Policy C (%)
10-year Treasury Bond rates drop 100 bps	1.9	2.0	2.2	2.0
10-year Treasury Bond rates drop 200 bps	11.0	10.6	10.3	9.6
10-year Treasury Bond rates drop 300 bps	14.2	13.8	13.6	12.6
Baa Spreads narrow by 30bps, High Yield by 100 bps	6.4	5.9	5.5	5.8
Baa Spreads narrow by 100bps, High Yield by 300 bps	13.0	12.4	11.8	11.9
Trade Weighted Dollar drops 10%	8.0	7.6	7.1	7.2
Trade Weighted Dollar drops 20%	23.3	21.7	20.1	19.7
U.S. Equities rise 10%	6.0	5.7	5.3	5.4
U.S. Equities rise 30%	15.4	14.2	13.0	13.1
Bear Steepener	4.6	4.0	3.4	3.6

→ The portfolio with the least downside risk is likewise the portfolio that participates least in upside scenarios.

---

[1] Assumes that assets not directly exposed to the factor are affected, nonetheless.

Inflation Stress Testing: Negative Scenarios
(Expected Return under Negative Inflationary Conditions)[1]

Scenario	Current (%)	Policy A (%)	Policy B (%)	Policy C (%)
Inflation slightly higher than expected	-0.3	-0.3	-0.3	-0.2
Inflation meaningfully higher than expected	-5.5	-5.1	-4.8	-4.5
Low Growth and Low Inflation	-7.8	-7.3	-6.8	-6.5
Low Growth and High Inflation	-12.2	-11.4	-10.6	-10.1
Brief, moderate inflation spike	-3.3	-3.1	-3.0	-2.8
Extended, moderate inflation spike	-5.7	-5.3	-4.9	-4.7
Brief, extreme inflation spike	-7.2	-6.6	-6.1	-6.0
Extended, extreme inflation spike	-9.1	-8.3	-7.6	-7.5

→ Each of the alternative policies performs better than the Current Policy in the scenarios where inflation does the most harm.

---

[1] See the Appendix for further details.

Inflation Stress Testing: Positive Scenarios
(Expected Return under Positive Inflationary Conditions)[1]

Scenario	Current (%)	Policy A (%)	Policy B (%)	Policy C (%)
High Growth and Low Inflation	10.4	9.4	8.4	8.5
High Growth and Moderate Inflation	7.6	6.8	6.0	6.3
High Growth and High Inflation	4.7	4.2	3.6	3.9

→ The Current Policy performs better than each of the alternative policies in positive inflationary conditions.

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[1] See the Appendix for further details.

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Appendices

Appendices – Assumptions and Methods

→ Capital Market Assumptions: Meketa January 2025 Capital Market Expectations – 10 & 20-year assumptions.

→ Assets: Market value of $1,355M as of December 31, 2024.

→ Asset Rebalancing: Annual

→ Liabilities and normal cost: The liabilities, normal cost, expected benefit payments and projected payroll used in this study are based on cash flows received from Cheiron on 3/12/2025. All liability projections assume a 6.75% long-term rate of return regardless of the asset allocation being tested.

→ Funding policy: Detailed in the June 30, 2024, actuarial valuation report provided by Cheiron.

→ Plan Provisions and Assumptions: Additional details regarding provisions and assumptions are documented in the June 30, 2024, actuarial valuation report provided by Cheiron.

→ Section 115 Trust: Market value of $70.7M as of June 30, 2024. Assumed that $8.7M would be deducted from the Trust annually and transferred to the NERS. The market value of the remaining assets will increase/decrease based on simulated market returns based on the Trust's investment policy.

Annualized Risk and Return Expectations for Major Asset Classes

Asset Class	10-Year Expected Return (%)	20-Year Expected Return (%)	Standard Deviation (%)
Cash Equivalents	2.8	3.1	1.0
Investment Grade Bonds	4.9	5.3	4.0
Long-term Government Bonds	5.0	5.7	12.0
TIPS	4.3	5.0	7.0
High Yield Bonds	6.3	7.1	11.0
Bank Loans	6.3	6.8	10.0
Emerging Market Debt	6.3	6.8	11.0
Private Credit	8.7	9.1	15.0
US Equity	6.4	8.4	17.0
Developed Non-US Equity	7.2	8.7	18.0
Emerging Non-US Equity	7.1	8.7	22.0
Global Equity	6.7	8.5	17.0
Private Equity	9.8	11.2	25.0
Real Estate	6.9	8.5	15.0
Infrastructure	7.2	9.2	18.0
Commodities	5.5	5.9	17.0
Hedge Funds	4.2	6.0	7.0
Inflation	2.3	2.7	NA

Correlation Data

	Inv. Grade Bonds	Long-Term Gov't Bonds	TIPS	High Yield Bonds	US Equity	Dev. Non-US Equity	Em. Market Equity	Private Equity	Real Estate	Commod.	Infra.	Hedge Funds
Investment Grade Bonds	1.00											
Long-Term Gov't Bonds	0.86	1.00										
TIPS	0.77	0.61	1.00									
High Yield Bonds	0.35	-0.03	0.47	1.00								
US Equity	0.18	-0.13	0.25	0.74	1.00							
Developed Non-US Equity	0.28	-0.07	0.34	0.77	0.87	1.00						
Emerging Market Equity	0.26	-0.06	0.35	0.72	0.71	0.85	1.00					
Private Equity	0.00	-0.10	0.03	0.66	0.90	0.83	0.79	1.00				
Real Estate	0.26	0.07	0.16	0.56	0.53	0.49	0.42	0.48	1.00			
Commodities	-0.01	-0.24	0.27	0.48	0.48	0.55	0.59	0.23	0.15	1.00		
Infrastructure	0.31	0.14	0.32	0.65	0.64	0.68	0.59	0.51	0.61	0.41	1.00	
Hedge Funds	0.15	-0.17	0.30	0.78	0.79	0.83	0.80	0.53	0.47	0.64	0.61	1.00

[1] Risk Premia are calculated relative to the market's projection for the yield on the 10-year Treasury in ten years..

2024 Peer Survey[1]

→ Annually, Horizon Actuarial Services, LLC publishes a survey of capital market assumptions that they collect from various investment advisors.[1]

→ The Horizon survey is a useful tool to determine whether a consultant's expectations for returns (and risk) are reasonable.

Asset Class	Horizon 10-Year Average (%)	Meketa 10-Year (%)	Horizon 20-Year Average (%)	Meketa 20-Year (%)
Cash Equivalents	3.7	2.4	3.4	2.5
TIPS	4.4	4.3	4.3	4.7
US Core Bonds	4.9	4.6	4.9	4.8
US High Yield Bonds	6.1	6.5	6.4	6.8
Emerging Market Debt	6.2	6.3	6.3	6.2
Private Credit	8.3	9.2	8.4	9.2
US Equity (large cap)	6.5	6.9	7.0	8.5
Developed Non-US Equity	7.1	7.7	7.5	8.9
Emerging Non-US Equity	7.7	7.6	8.2	8.9
Private Equity	9.1	9.9	9.7	11.2
Real Estate	6.1	6.3	6.2	8.0
Infrastructure	7.3	7.4	7.4	9.0
Commodities	4.9	4.9	5.0	5.3
Hedge Funds	5.9	4.5	6.2	5.8
Inflation	2.4	2.4	2.4	2.8

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1 The 10-year horizon included all 41 respondents to the survey, and the 20-year horizon included 26 respondents. Figures are based on Meketa's 2024 CMEs. The survey is typically published in August. Figures are based on Meketa's 2024 CMEs.

Corresponding Data – Sequence of Returns with No Cash Flows

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Market Values ($mm)																					
Strong Early Returns (Moderate)	1,355	1,579	1,725	2,023	2,427	2,747	3,054	3,497	3,734	4,128	4,644	4,843	5,611	5,392	5,366	5,932	5,634	5,542	5,082	4,970	5,004
Strong Early Returns (Conservative)	1,355	1,497	1,613	1,787	1,998	2,183	2,368	2,599	2,774	3,003	3,273	3,462	3,817	3,909	4,059	4,393	4,478	4,628	4,652	4,797	5,004
Assumed (6.75%)	1,355	1,446	1,544	1,648	1,760	1,878	2,005	2,140	2,285	2,439	2,604	2,780	2,967	3,168	3,381	3,610	3,853	4,113	4,391	4,687	5,004
Strong Late Returns (Conservative)	1,355	1,413	1,457	1,465	1,514	1,543	1,671	1,735	1,776	1,958	2,071	2,258	2,444	2,609	2,863	3,106	3,393	3,794	4,202	4,528	5,004
Strong Late Returns (Moderate)	1,355	1,364	1,334	1,223	1,203	1,143	1,264	1,257	1,208	1,400	1,460	1,643	1,816	1,939	2,220	2,469	2,794	3,352	3,929	4,294	5,004
Cash Flows ($mm)																					
Net Cash Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Returns (%)																					
Strong Early Returns (Moderate)	0.0	16.5	9.3	17.2	20.0	13.2	11.2	14.5	6.8	10.6	12.5	4.3	15.9	-3.9	-0.5	10.6	-5.0	-1.6	-8.3	-2.2	0.7
Strong Early Returns (Conservative)	0.0	10.5	7.7	10.8	11.8	9.2	8.5	9.8	6.8	8.2	9.0	5.8	10.3	2.4	3.8	8.2	1.9	3.4	0.5	3.1	4.3
Strong Late Returns (Conservative)	0.0	4.3	3.1	0.5	3.4	1.9	8.2	3.8	2.4	10.3	5.8	9.0	8.2	6.8	9.8	8.5	9.2	11.8	10.8	7.7	10.5
Strong Late Returns (Moderate)	0.0	0.7	-2.2	-8.3	-1.6	-5.0	10.6	-0.5	-3.9	15.9	4.3	12.5	10.6	6.8	14.5	11.2	13.2	20.0	17.2	9.3	16.5

→ The market values all end up at the exact value at the end of twenty years if there are no cash flows into or out of the System.

Corresponding Data – Sequence of Returns with Estimated Cash Flows[1]
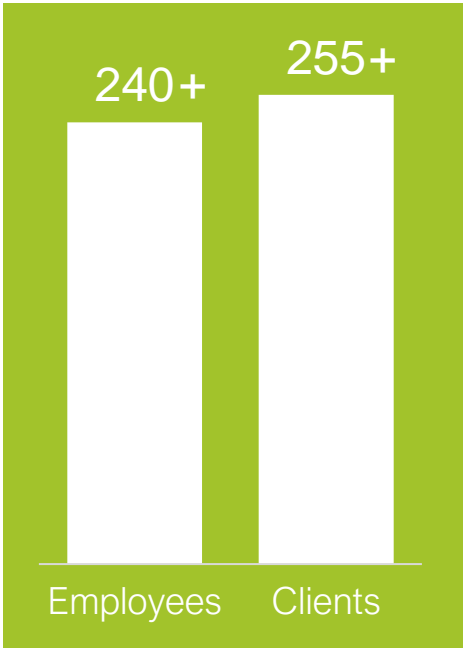
Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Market Values ($mm)																					
Strong Early Returns (Moderate)	1,355	1,517	1,596	1,804	2,091	2,285	2,459	2,734	2,839	3,056	3,353	3,399	3,822	3,567	3,440	3,675	3,372	3,196	2,815	2,634	2,533
Strong Early Returns (Conservative)	1,355	1,437	1,487	1,582	1,698	1,776	1,845	1,945	1,997	2,079	2,183	2,210	2,324	2,271	2,245	2,304	2,226	2,177	2,067	2,010	1,975
Assumed (6.75%)	1,355	1,388	1,420	1,452	1,481	1,502	1,523	1,547	1,572	1,596	1,621	1,632	1,631	1,630	1,626	1,611	1,593	1,576	1,557	1,538	1,519
Strong Late Returns (Conservative)	1,355	1,355	1,337	1,282	1,257	1,205	1,223	1,192	1,143	1,177	1,163	1,167	1,152	1,118	1,111	1,080	1,052	1,048	1,033	988	967
Strong Late Returns (Moderate)	1,355	1,307	1,220	1,059	975	852	860	780	674	696	644	622	576	503	458	381	301	229	137	24	0
Cash Flows ($mm)																					
Net Cash Flow	0	-57	-59	-62	-67	-76	-78	-76	-77	-79	-80	-96	-107	-108	-110	-121	-122	-121	-121	-120	-119
Returns (%)																					
Strong Early Returns (Moderate)	0.0	16.5	9.3	17.2	20.0	13.2	11.2	14.5	6.8	10.6	12.5	4.3	15.9	-3.9	-0.5	10.6	-5.0	-1.6	-8.3	-2.2	0.7
Strong Early Returns (Conservative)	0.0	10.5	7.7	10.8	11.8	9.2	8.5	9.8	6.8	8.2	9.0	5.8	10.3	2.4	3.8	8.2	1.9	3.4	0.5	3.1	4.3
Strong Late Returns (Conservative)	0.0	4.3	3.1	0.5	3.4	1.9	8.2	3.8	2.4	10.3	5.8	9.0	8.2	6.8	9.8	8.5	9.2	11.8	10.8	7.7	10.5
Strong Late Returns (Moderate)	0.0	0.7	-2.2	-8.3	-1.6	-5.0	10.6	-0.5	-3.9	15.9	4.3	12.5	10.6	6.8	14.5	11.2	13.2	20.0	17.2	9.3	16.5

→ "Strong Early Returns" (inclusive of estimated negative cash flows) results in an estimated ending market value of $2.5 billion.

→ "Strong Late Returns" (inclusive of estimated negative cash flows) results in an estimated ending market value of $0 million.

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[1] Contributions, Benefit payments, and actuarial liability figures were provided by the actuary, Cheiron.

Appendices

Corporate Update

MEKETA

6
Offices

240+
Employees

255+
Clients

98%
Client Retention Rate

5:1
Client | Consultant Ratio

$2.3T
Assets Under Advisement

$380B
Assets in Alternative Investments

Meketa Investment Group is proud to work for over 25 million American families everyday!

UPCOMING EVENTS
Q1 Investment Perspectives Webcast
April 2025

Client and employee counts as of December 31, 2024; assets under advisement as of June 30, 2024; assets in alternative investments as of December 31, 2024.

Client retention rate is one minus the number of clients lost divided by the number of clients at prior year-end. Average over the previous five years.

THOUGHT LEADERSHIP

Can US Listed Companies Sustain Earnings Growth?

With prices for the US equity market approaching all-time highs, the market is discounting significant earnings growth to justify higher valuations. The earnings growth rates US stocks have achieved in the post-GFC period could support these valuations if these growth rates are sustainable.

This paper provides an overview of some variables historically associated with earnings growth to help predict future earnings growth for the broad equity market. It also addresses differences in these factors between the US and other markets that may be driving disparities in earnings growth and valuations relative to non-US markets.

Read more here:

https://meketa.com/leadership/can-listed-us-companies-sustain-earnings-growth/

Re-underwriting a Portfolio: A Strategic Discipline for Institutional Investors and Why it Matters

Re-underwriting a portfolio isn't about short-term market timing; it's about thinking through portfolio construction and raising the possibilities of achieving the institution's financial goals.

With inflation, interest rates, liquidity constraints, and geopolitical risks reshaping the investment environment, a disciplined reassessment of the portfolio, its underlying asset classes, and the managers that fill those asset classes is critical for risk management and value creation. Peter Woolley, Co-CEO, answers six questions that investment decision-makers should consider when re-underwriting their portfolio.

Read more here:

https://meketa.com/news/meketa-connectives-re-underwriting-a-portfolio-a-strategic-discipline-for-institutional-investors-and-why-it-matters/

The Next AI Powerhouse: India's Bold Bet on AI Dominance

The race for artificial intelligence (AI) leadership is a global endeavor with economic and investment implications.

While the US and China have grabbed most of the headlines, India also seeks to be a serious contender. India recently announced the "AI for India 2030" initiative, which is intended to drive AI adoption and to help India along its path of economic development.

Read more here:

https://meketa.com/news/meketa-connectives-the-next-ai-powerhouse-indias-bold-bet-on-ai-dominance/

ANNOUNCING OUR NEWEST SHAREHOLDERS 2025

Laura Morgan
Managing Principal /
Director of Human Resources

Erika Olson
Managing Principal / Director of
Public Markets Manager Research

Jared Pratt
Managing Principal / Consultant

HONORS AND AWARDS FOR MEKETA'S DECORATED LEADERS

Congratulations to Meketa's **Christy Fields** on being selected to Kayo Conference Series' Top 25 in '25: Trailblazing Institutional Investors in Real Estate list! This well-earned recognition highlights Christy's leadership and deep expertise in the dynamic real estate sector. We're grateful for Christy's many contributions to Meketa and proud to have her on our team.
View the full list here:
https://kayoconferenceseries.com/top-25-in-25-trailblazing-institutional-investors-in-real-estate/

Our own **Hannah Schriner, CAIA** and **Lauren Giordano** enjoyed attending last week's Defined Contribution Institutional Investment Association (DCIIA) Leader and Rising Star Awards celebration. We're proud to see Hannah and Lauren receive these well deserved honors and are grateful for their contributions to our firm.
View the full list of DCIIA's Leader and Rising Stars here:
https://dciia.org/page/2024RisingStarsLeaders

Congratulations to our own **Judy Chambers** on being selected as one of Institutional Investor's Women in Investment Management 2025 leaders! This honor recognizes allocators who have demonstrated excellence and innovation in the alternatives and private markets arena. The honorees were celebrated at the AlphaEdge North America conference, where Judy also moderated a panel on alternatives.

A GATEWAY TO SMARTER, MORE INFORMED DECISION MAKING

MEKETA essentials is our proprietary digital platform that puts powerful tools and insights at your fingertips. Designed exclusively for Meketa clients, it integrates four decades of institutional investment expertise into a single resource to support asset allocation, portfolio construction, manager due diligence, and performance analysis.

Whether you're analyzing portfolio risk, evaluating public or private market managers, or accessing our latest thought leadership, MEKETA essentials offers a comprehensive suite of tools to help you.

New this quarter we have released a **helpful brochure** to assist in navigating our MEKETA essentials toolkit with ease.

Manage Portfolios
Asset Allocation | Using our extensive, annually updated Capital Market Expectations, MEKETA essentials Asset Allocation is an advanced risk management tool designed to provide a comprehensive perspective on diversification and its potential benefits.

Portfolio Builder | With more than 6,000 investment products accessible, Portfolio Builder allows you to quantitatively analyze and compare portfolio construction options.

Research Investment Managers
Public and Private Markets Research Meketa's Public and Private Markets research includes current and historical notes and due diligence reports as well as performance and benchmark data.

Review Portfolio Dashboard
For clients that use Meketa for private markets reporting, MEKETA essentials provides a single point of access for manager performance reporting as well as essential access to manager documents.
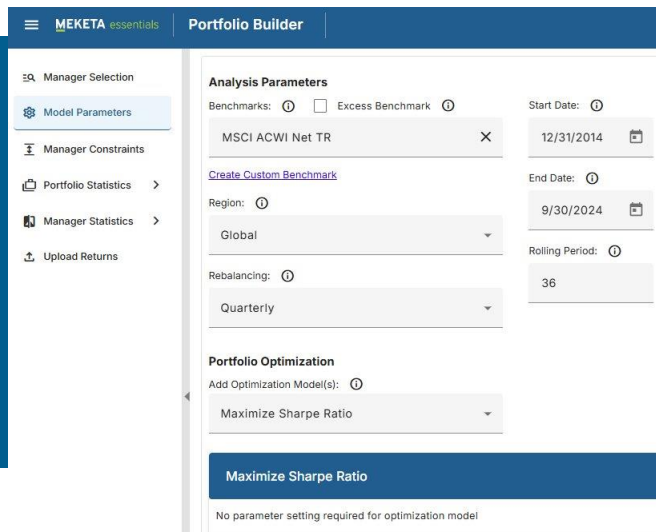
Access Thought Leadership
Provides users current and historical access to Meketa's wide array of thought leadership, including our annual capital market expectations, research primers, asset class innovations and a wide variety of global macro thematic content.

MEKETA ESSENTIALS PORTFOLIO BUILDER

With Portfolio Builder, users are able to quantitatively analyze and compare different portfolio construction options from approximately 6,000 products while understanding the impact of each underlying manager. The tool includes a broad array of public markets and liquid alternatives managers, as well as provides the ability for a user to upload managers. It allows for analysis and optimization of portfolios as well as screening by factors such as asset class, strategy, and Meketa rating.

The Portfolio Builder tool can assist in answering questions such as…

What is the information ratio of my current global equity allocation?

What changes to my portfolio would optimize that information ratio?

If I were to change the allocations to the managers in my US equity allocation, how would that impact my factor exposures?

What impact would a change to my fixed income portfolio have had during the recent increase in interest rates?

How would introducing a new manager affect the tracking error versus my benchmark and my overall risk exposure?

" Combining both the art and science of portfolio construction, Portfolio Builder provides clients the ability to understand how changing managers and adjusting investments can impact portfolio risk and performance."

Stella Mach
Quantitative Analyst /Team Leader

MEKETA

MEKETA IN THE COMMUNITY

LA Wildfires

In early 2025, Los Angeles County, California suffered from a series of devastating wildfires causing loss of life, homes, businesses, and historical landmarks.

To show our support for the region, Meketa donated $5,000 and encouraged employees to donate to several foundations listed here.

Cycle for Survival

On February 8th Team Meketa was excited to return for our 6th year of continued success to participate in Cycle for Survival, a national campaign to raise money for Sloan Kettering Cancer Center research for rare cancers. The event is a high energy Spin Class for all levels of participation and **100% of the proceeds go to directly to cancer research.**

9 Employees Participated

MEKETA

MEKETA IN THE NEWS

WSJ PRO PRIVATE EQUITY

Private Credit's Consolidation Is More Complicated Than You Think
By Jennifer Rossa | February 24, 2025

"I think two of the biggest drivers of our industry now tie to the insurance market and to the mass affluent retail market," said Mary Bates, managing principal at Meketa.

FUNDfire

Inst'l Investors Give Securitized Fixed Income Another Look
By Justin Mitchell & Bridget Hickey | January 31, 2025

Mark McKeown, managing principal and head of fixed income research at Meketa, said he's observed a "much stronger" level of interest in securitized products in recent months than over the past five years. But investors are still a bit skittish about these products following the 2008 global financial crisis, which was famously triggered by speculation around securitized mortgage products, he added.

"There is a hangover and there's hesitancy from certain types of investors from the [global financial crisis] experience," Mark McKeown, Meketa.

However, the market has changed since the crisis, Kerschner said. Securitized debt products were a new asset class that exploded in size, and ratings agencies have since changed their approach. New regulations following the crisis also aim to ensure these products will not trigger another collapse. "[T]he market learned their lesson that ... having a new asset class grow that quickly was not smart," he said. "We can walk institutional investors through that, and if we're allowed to do that, I think a lot of them can get comfortable that what happened then won't happen again."

Part of why there is opportunity in this asset class stems from the number of investors who still do not feel comfortable because of the financial crisis, but that is changing, due to the favorable spread between corporate bonds and securitized products and minimal interest rate risk, as well as the simple passage of time, McKeown said. "I think that's fading, but it definitely still exists," he said. These days, most of the attention in the securitized space is focused on collateralized debt obligations, or CLOs, auto loans, and credit cards, he added.

fin|news

Infrastructure Trends Promise Consistent Long-Term Returns For E&Fs
By Justin Slaughter | March 19, 2025

That mammoth deal, which cost the BlackRock consortium $22.8 billion, is just one indication of the growing opportunity set across the international private infrastructure space, driven by strong and steady demand, expanding diversity of the asset class and the physical and mandated revenue structures of infrastructure projects generally, according to Meketa Managing Principal and Infrastructure Program Lead Lisa Bacon. Bacon finds the confluence of factors is building a promising opportunity set for endowments and foundations seeking reliable strong returns over the long term. Ports are only one segment of the asset class as a large and growing swath of the opportunity set is related to electricity, demand for which will likely continue to expand, boosting the need for private dollars to build more infrastructure to produce, transport or store energy, Bacon said.

While demand has been building, the global opportunity set has evolved from being dominated by traditional energy power generation, transportation and utility infrastructure to encompass a broader range of assets, including "lower carbon businesses and assets, such as electric vehicle charging networks" as well as renewable energy, which is increasingly cheaper than traditional sources of energy like fossil fuels, according to Bacon. "The demand for energy and electricity isn't going away, it has been growing overall and changing its footprint. In many situations, one or more renewable power sources are the cheapest source of energy, even unsubsidized, and so are an attractive option to meet some of those demands, recognizing, at least today, they cannot satisfy the full demand," she said. Though public policies around renewable energy sources in the U.S. may be in flux today, "there are a lot of dynamics at play with this," according to Bacon, who finds that "with the exception of recent executive orders, a lot of those factors were pushing in the same direction, pushing the demand and supply for those investments with some velocity."

"I'm not trying to say infrastructure is everything to everybody, but there is a lot of flexibility," Bacon said.

Disclaimer, Glossary, and Notes

THIS REPORT (THE "REPORT") HAS BEEN PREPARED FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT (THE "RECIPIENT").

SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT, AND IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. THE INFORMATION CONTAINED HEREIN, INCLUDING ANY OPINIONS OR RECOMMENDATIONS, REPRESENTS OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND IS SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK, AND THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

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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 REPORT 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 REPORT.

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%.

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

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

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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.