MEKETA
INVESTMENT GROUP

Municipal Employees' Retirement System of Louisiana

March 16, 2023

Board Meeting

Agenda

Economic and Market Update

Data as of January 31, 2023

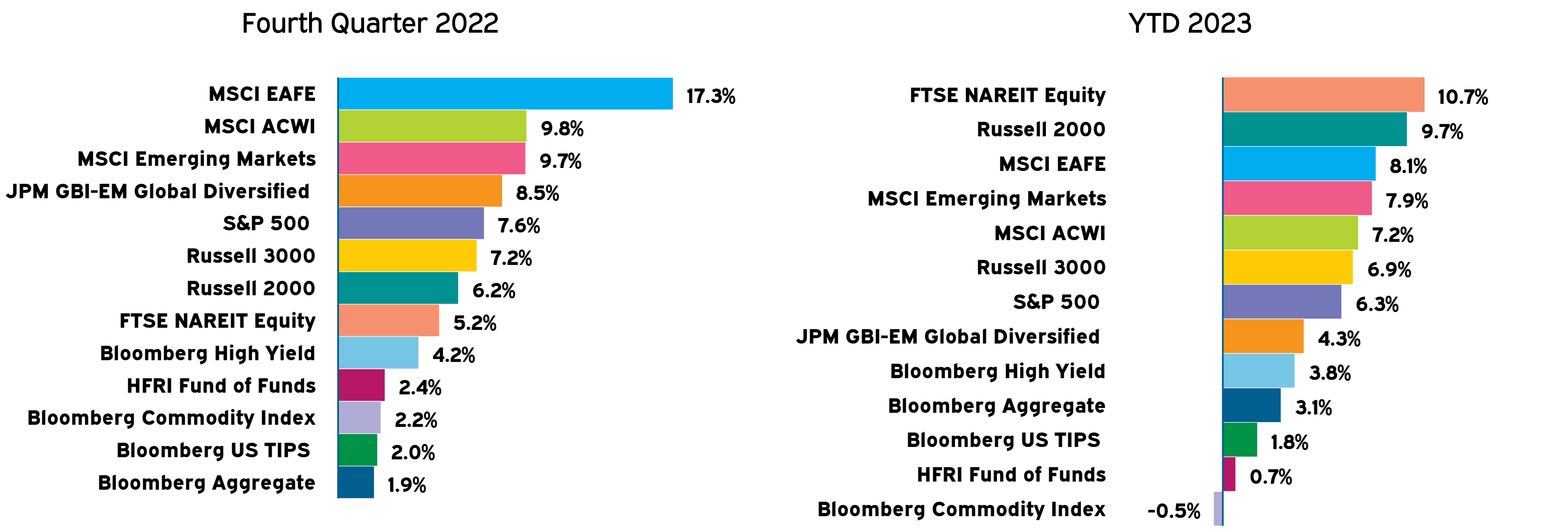
Commentary

→ After a very tough first three quarters of 2022, most asset classes posted gains in the fourth quarter and in January of 2023 on signs that policy tightening would slow, given cooling inflation.

- Chairman Powell's February press conference reiterated previous messaging on high and persistent inflation and the need for an extended period of high interest rates. However, he acknowledged that disinflationary forces were visible in some sectors of the economy but said they were not yet broad-based. Markets focused though on signs that inflation is falling and that the size of future Fed rate hikes could be lower.
- US equity markets rallied in January 2023 with the Russell 3000 index up 6.9% and growth-oriented areas performing best.
- Developed equity markets outside the US also had a strong January (+8.1%), as investor sentiment turned bullish. The weakening US dollar, falling inflation, and an improved economic outlook have all been supportive. In February the ECB signaled further rate hikes, but headline inflation has fallen more quickly than expected as energy costs and mild weather helped lift investor sentiment.
- Emerging market equities enjoyed a very strong start to the year, returning 7.9% and outperforming the US. A weaker US dollar, declining inflation globally, and signs of China reopening its economy all contributed to the positive results.
- In 2022, bonds experienced one of the worst years on record given inflation levels and the rapid rise in interest rates. Optimism over declining inflation and a slower pace of policy tightening benefited bonds in the fourth quarter, though, and supported positive fixed income returns in January 2023.

→ This year, the path of inflation and monetary policy, slowing global growth, China reopening its economy, and the war in Ukraine will be key.

Index Returns[1]



→ After broad declines in Q3 driven by expectations for further policy tightening, most major asset classes were up in the fourth quarter, a trend that has continued into 2023, on hopes of inflation and policy tightening peaking.

→ Outside of commodities, all other public market asset classes declined in 2022. It was the first time since the 1960s that both stocks and bonds declined together in a calendar year.

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

Domestic Equity Returns[1]

Domestic Equity	January (%)	Q4 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	6.3	7.6	-8.2	9.9	9.5	12.7
Russell 3000	6.9	7.2	-8.2	9.5	9.1	12.3
Russell 1000	6.7	7.2	-8.5	9.6	9.4	12.5
Russell 1000 Growth	8.3	2.2	-16.0	9.9	11.2	14.5
Russell 1000 Value	5.2	12.4	-0.4	8.5	6.9	10.1
Russell MidCap	8.3	9.2	-3.3	9.0	8.0	11.1
Russell MidCap Growth	8.7	6.9	-8.5	6.5	8.3	11.7
Russell MidCap Value	8.1	10.5	-0.7	9.3	6.9	10.2
Russell 2000	9.7	6.2	-3.4	7.5	5.5	9.4
Russell 2000 Growth	9.9	4.1	-6.5	4.3	4.7	9.5
Russell 2000 Value	9.5	8.4	-0.5	9.9	5.8	8.8

US Equities: Russell 3000 Index rose 6.9% in January after gaining 7.2% for the fourth quarter. Historic inflation and rapidly rising interest rates led to significant declines (-19.2%) in 2022.

→ US stocks rose sharply in January as investors expressed optimism that the Federal Reserve will moderate its rate hike schedule as inflation continues to decrease.

→ Small cap stocks outperformed large cap stocks in January while growth stocks outperformed value stocks across the market capitalization spectrum.

→ Consumer discretionary and communication services were the leading sectors in the Russell 3000 in January. Their resurgence marks a reversal from 2022 when they were the largest detractors amid fears of inflation and a potential recession.

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

Foreign Equity Returns[1]

Foreign Equity	January (%)	Q4 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	8.1	14.3	-5.7	3.6	1.4	4.2
MSCI EAFE	8.1	17.3	-2.8	4.2	2.1	4.9
MSCI EAFE (Local Currency)	6.3	8.7	2.6	6.2	4.8	7.6
MSCI EAFE Small Cap	7.5	15.8	-8.9	2.5	0.4	6.4
MSCI Emerging Markets	7.9	9.7	-12.1	1.4	-1.5	2.1
MSCI Emerging Markets (Local Currency)	6.5	6.6	-8.4	3.4	1.2	5.1
MSCI China	11.8	13.5	-10.1	-2.4	-4.7	3.2

Developed international equities (MSCI EAFE) rose 8.1% in January after an impressive 17.3% gain in the fourth quarter. Emerging markets (MSCI EM) rallied 7.9% in January after returning 9.7% for the fourth quarter in 2022.

→ International developed market equities had a solid start to the year, continuing their strong performance in Q4 helped by declining inflation, hope of avoiding a recession, and a weaker US dollar. Economically sensitive sectors like information technology and consumer discretionary helped growth outperform value stocks. China's reopening boosted the consumer discretionary sector (luxury goods, travel, and leisure).

→ Emerging market equities started strongly, this year, too with optimism over developments in China, falling inflation, and a weaker dollar all contributing.

→ In China, the ending of their zero COVID policy, continued monetary policy support, as well as support for the real estate sector, were all key.

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

Fixed Income Returns[1]

Fixed Income	January (%)	Q4 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	3.1	2.2	-8.3	-2.1	1.0	1.7	4.7	6.3
Bloomberg Aggregate	3.1	1.9	-8.4	-2.3	0.9	1.4	4.3	6.5
Bloomberg US TIPS	1.8	2.0	-8.4	1.1	2.7	1.4	4.0	7.0
Bloomberg High Yield	3.8	4.2	-5.2	1.3	3.0	4.3	8.1	4.4
JPM GBI-EM Global Diversified (USD)	4.3	8.5	-7.9	-4.4	-2.5	-1.7	7.0	5.0

Fixed Income: The Bloomberg Universal rose 3.1% in January 2023 after posting a 2.2% gain for the fourth quarter of 2022. Last year was one of the worst on record, with the broad bond market declining 13%.

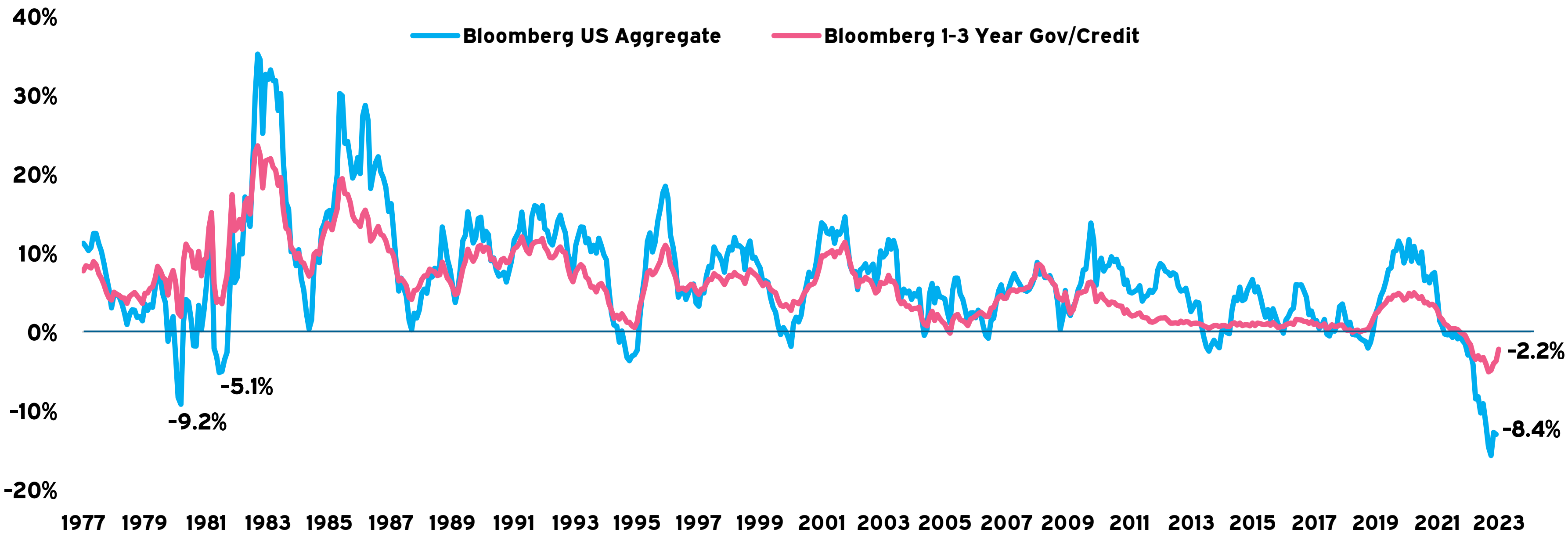
→ Improvements in global inflation risks and generally positive economic updates drove rates lower on the expectation that policy might be easing later in the year and recession risks could be less then feared.

→ TIPS trailed the broad US bond market (Bloomberg Aggregate) for the month on declining inflation fears.

→ Riskier high yield bonds outperformed in January due to improving risk sentiment.

[1] Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of January 31, 2023. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration respectively.

Fixed Income
Rolling One-year Returns[1]



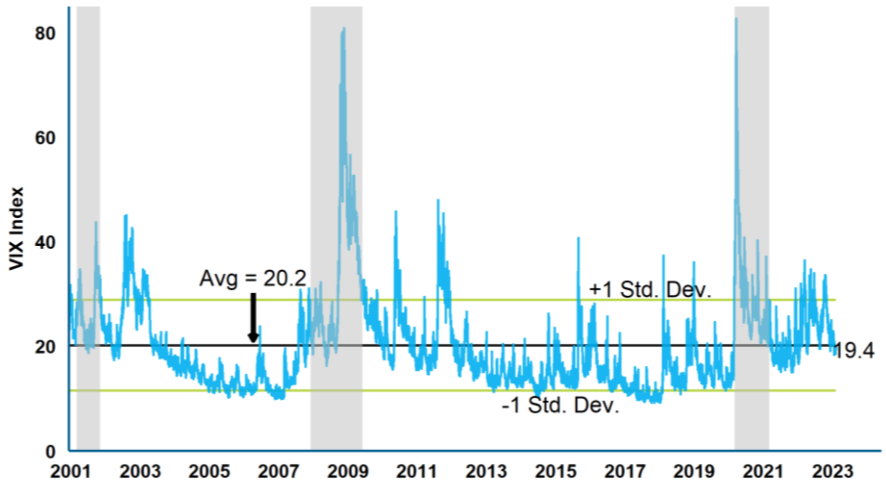
→ Last year was one of the worst return periods for the US bond market given the historic inflation levels and the corresponding rapid rise in interest rates.

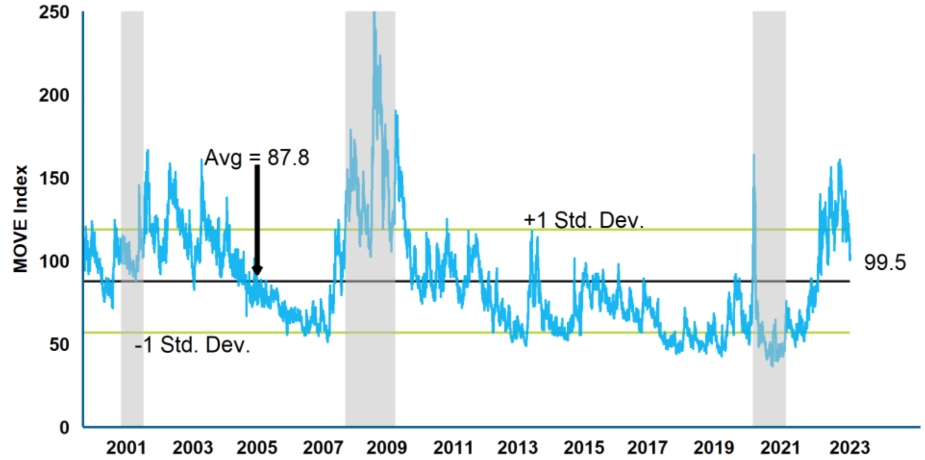
→ The broad bond market (Bloomberg US Aggregate) declined 13% in 2022 making it one of the worst periods on record. Short-term bonds declined less (-3.7%) but also experienced one of the worst years on record.

→ With global inflation falling and the economic outlook improving, fixed income returns turned positive at the end of 2022 and in January 2023.

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

Equity and Fixed Income Volatility[1]

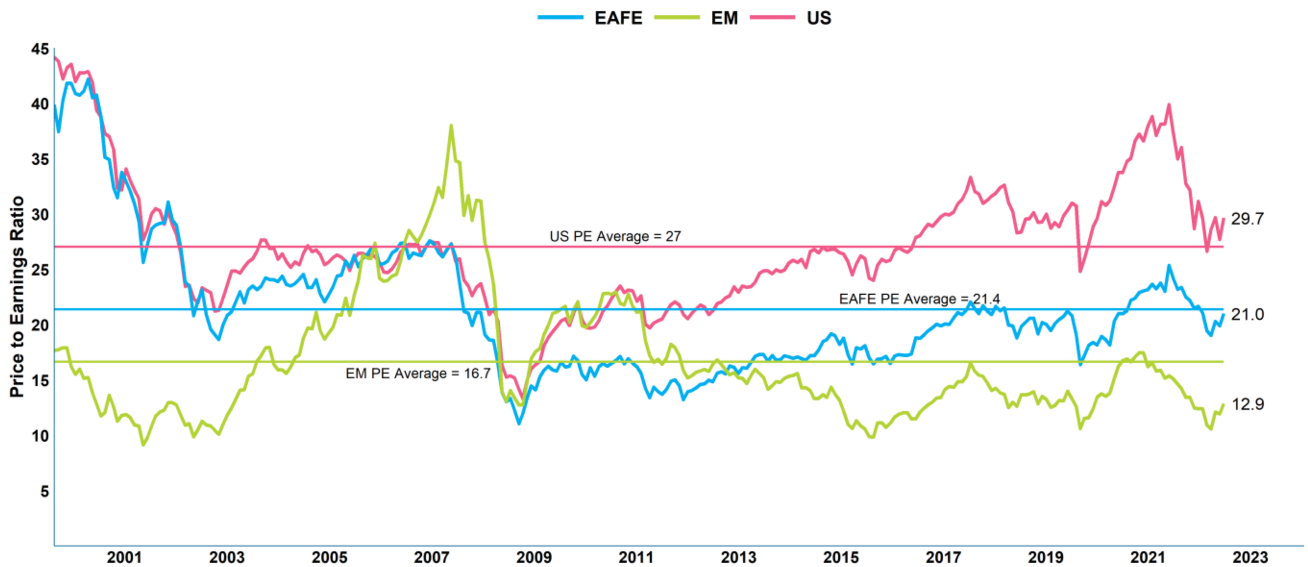




- → Volatility in equities (VIX) finished the year down from its highs and continued to decline in January to below the long run average as investors anticipated the potential end of Fed rate hikes this year.
- → Fixed income volatility (MOVE) remained elevated and well above its long-run average at year-end due to the uncertain path of US interest rates as the Federal Reserve continues its hawkish stance on inflation. In January, implied rate volatility eased with a softening of that rate uncertainty.

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

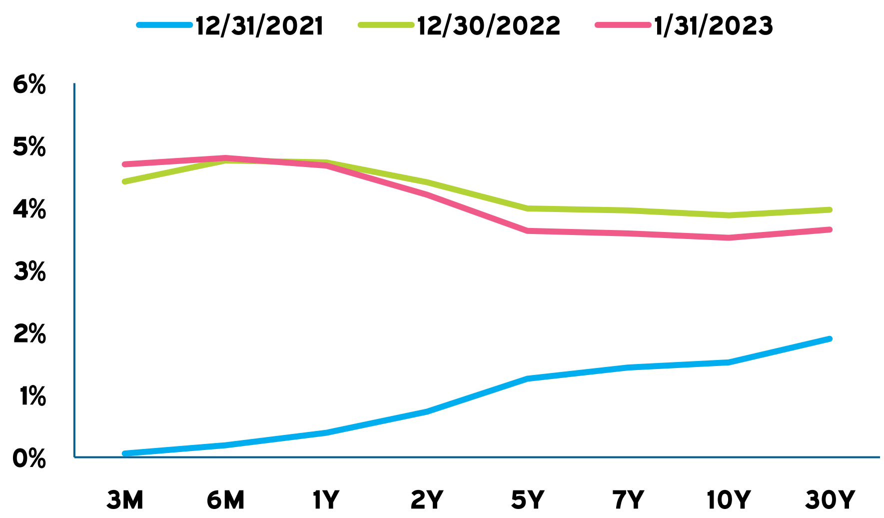
Equity Cyclically Adjusted P/E Ratios[1]



- → With January's strong recovery, the US equity price-to-earnings ratio is slighly above its long-run (21st century) average.
- → International developed market valuations rose but remain below their own long-term average, with those for emerging markets the lowest and well under the long-term average.

[1] US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years. Data is as of December 2022. The average line is the long-term average of the US, EM, and EAFE PE values from December 1999 to the recent month-end respectively.

US Yield Curve[1]



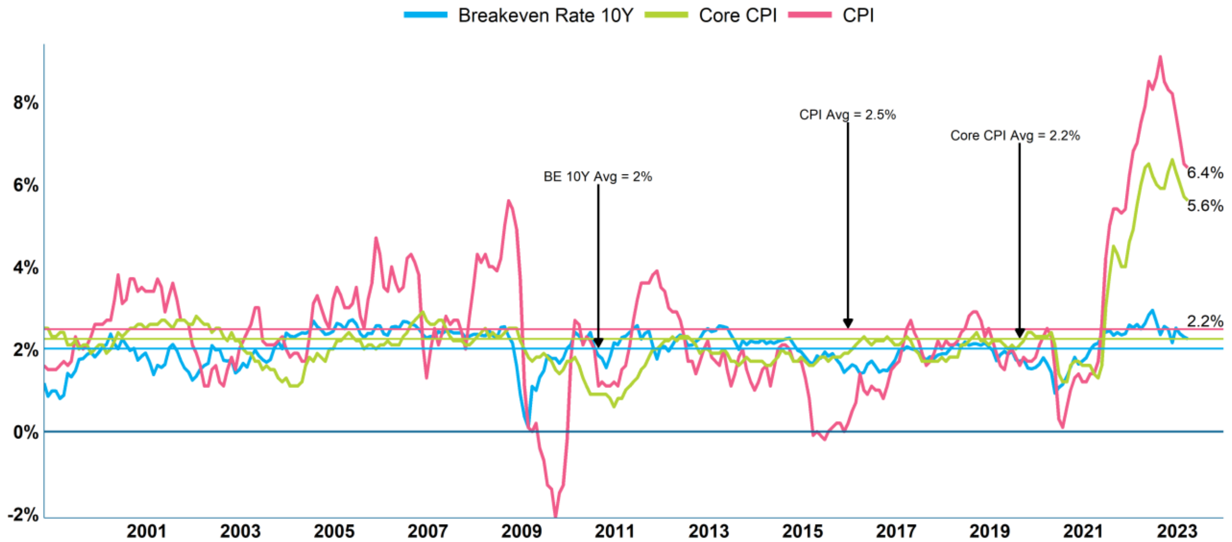
→ In January, policy-sensitive interest rates at the front-end of the curve continued to decline, with the two-year Treasury yield falling from 4.4% to 4.2%. Longer dated ten-year Treasury yields also fell (3.9% to 3.5%). In 2022, the yield curve rose dramatically across maturities and moved from steep to inverted.

→ The Fed remains committed to fighting inflation, as it increased rates another 25 basis points to a range of 4.5% to 4.75% at its February meeting.

→ The yield spread between two-year and ten-year Treasuries widened to -0.69% in January 2023 after finishing December 2022 at -0.55%. The more closely watched measure by the Fed of three-month and ten-year Treasuries also remained inverted. Inversions in the yield curve have often preceded recessions.

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

Ten-Year Breakeven Inflation and CPI[1]



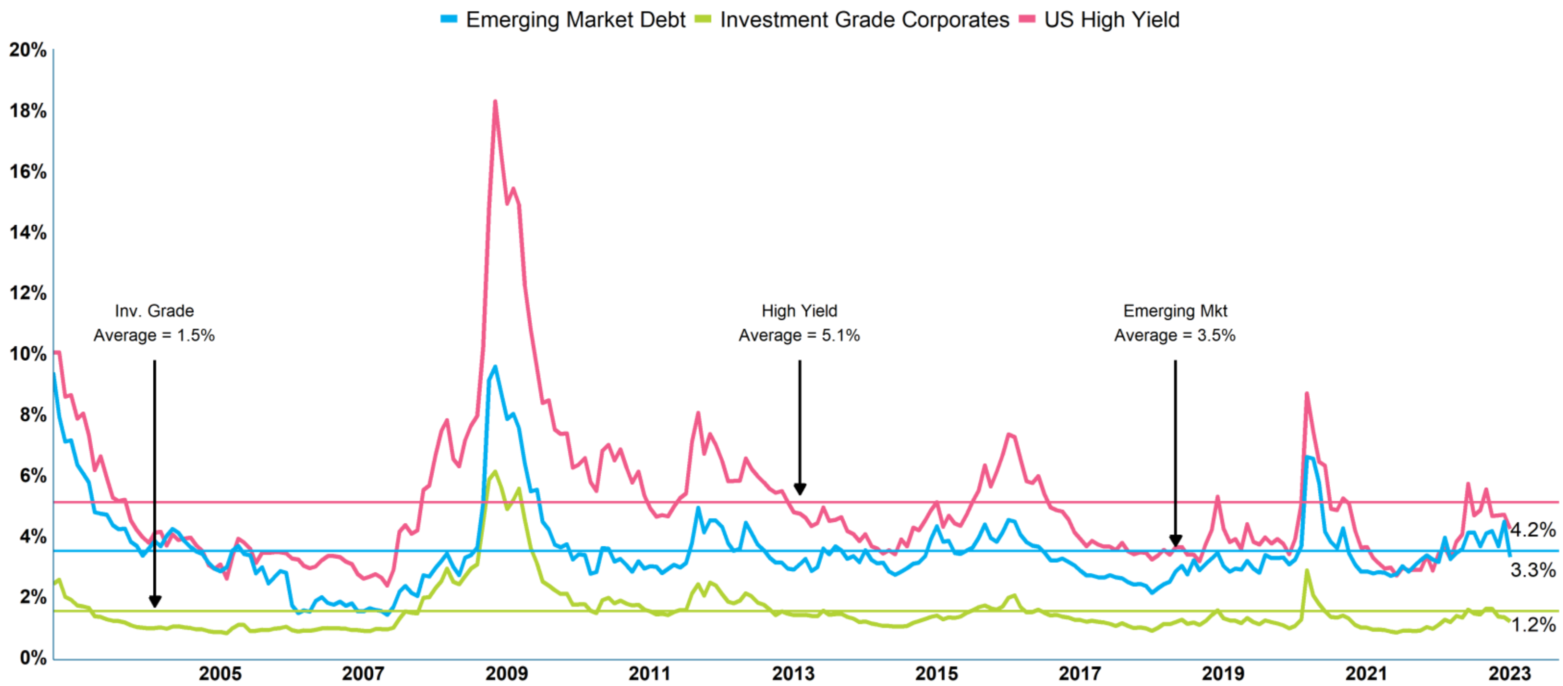
→ The January reading of year over year inflation fell slightly (6.4% versus 6.5%) but came in above expectations, supporting further tightening by the Fed. Prices increased 0.5% from a month prior with shelter being the largest contributor. Energy and food prices rose too.

→ Core inflation – excluding food and energy – also continued to decline year over year (5.6% versus 5.7%) but also came in above estimates.

→ Inflation expectations (breakevens) largely were unchanged from the prior month and remain well below current inflation levels as investors anticipate a significant moderation in inflation.

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

Credit Spreads vs. US Treasury Bonds[1]

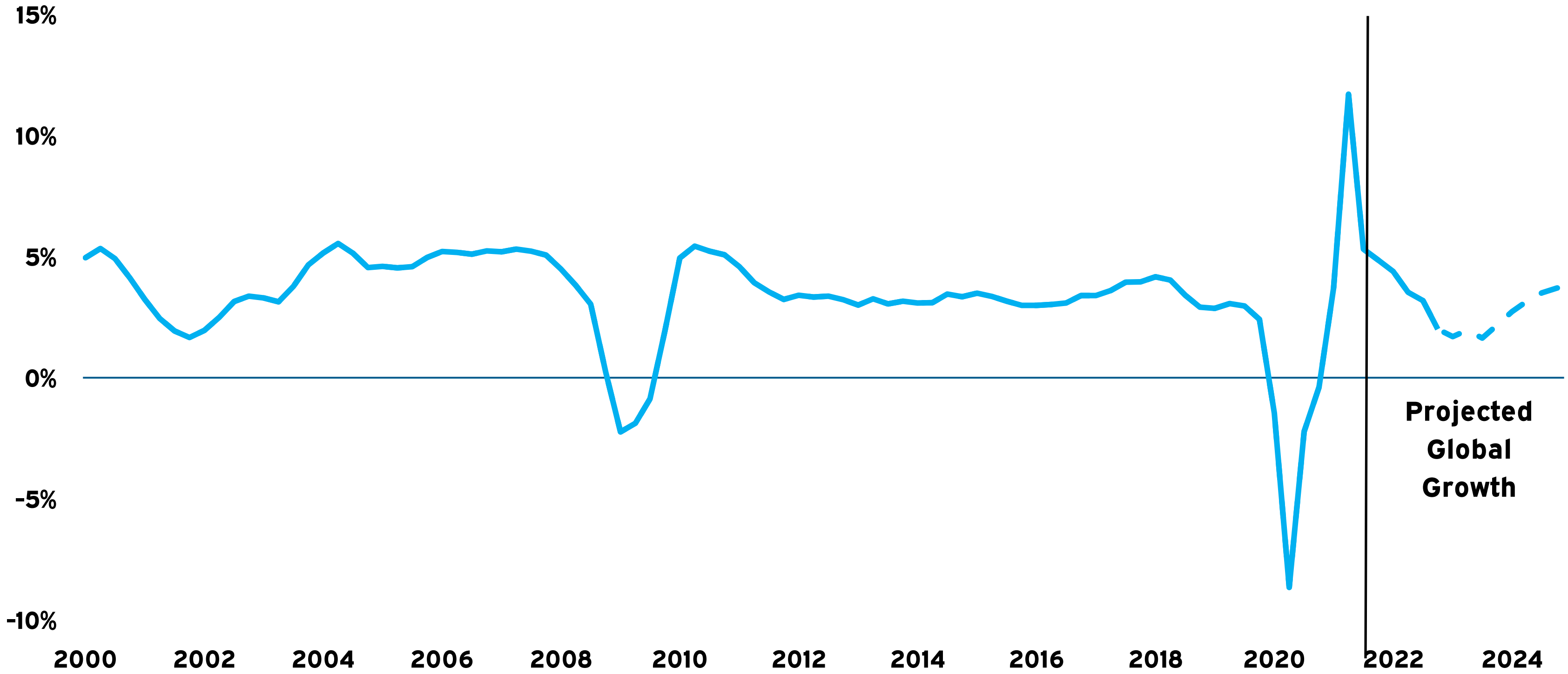


→ Spreads (the added yield above a comparable maturity Treasury) largely fell in January as credit markets outperformed government bonds on improved risk sentiment given signs of slowing inflation.

→ High yield spreads fell from 4.7% to 4.2% in January while investment grade spreads declined to 1.2% from 1.3%. Emerging market spreads fell the most (3.3% versus 4.5%) due to China's reopening and falling inflation.

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

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

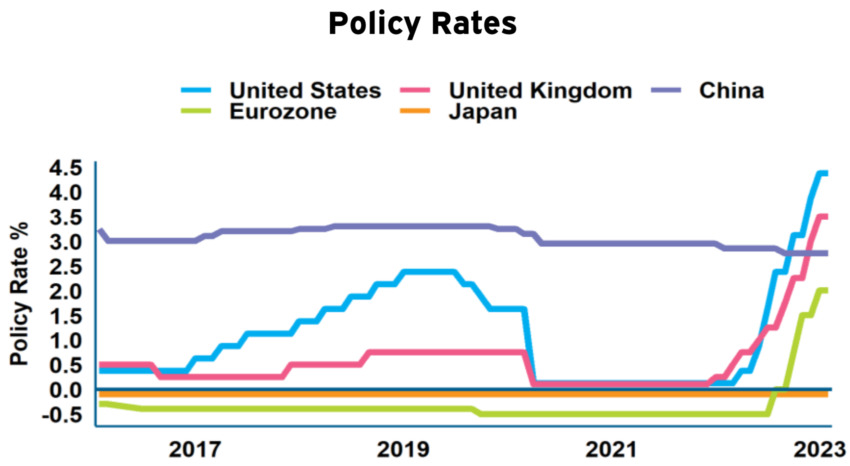


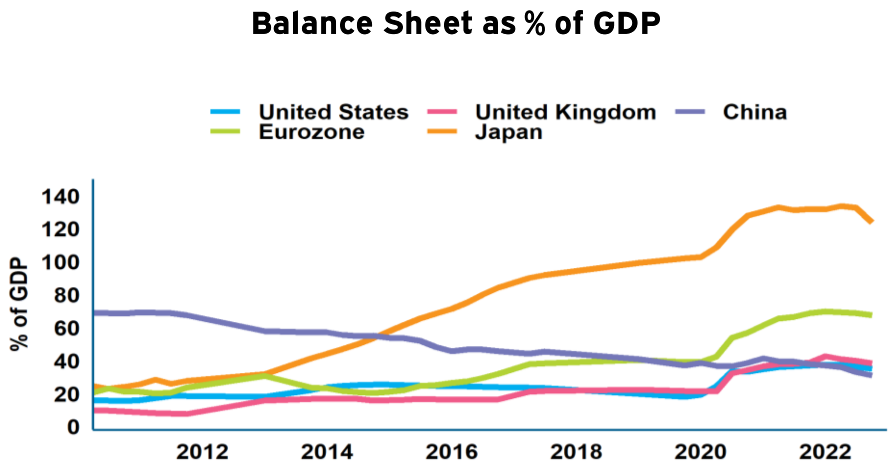
→ Global economies are expected to slow in 2023 compared to 2022, with risks of recession increasing given persistently high inflation and related tighter monetary policy.

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

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

Central Bank Response[1]

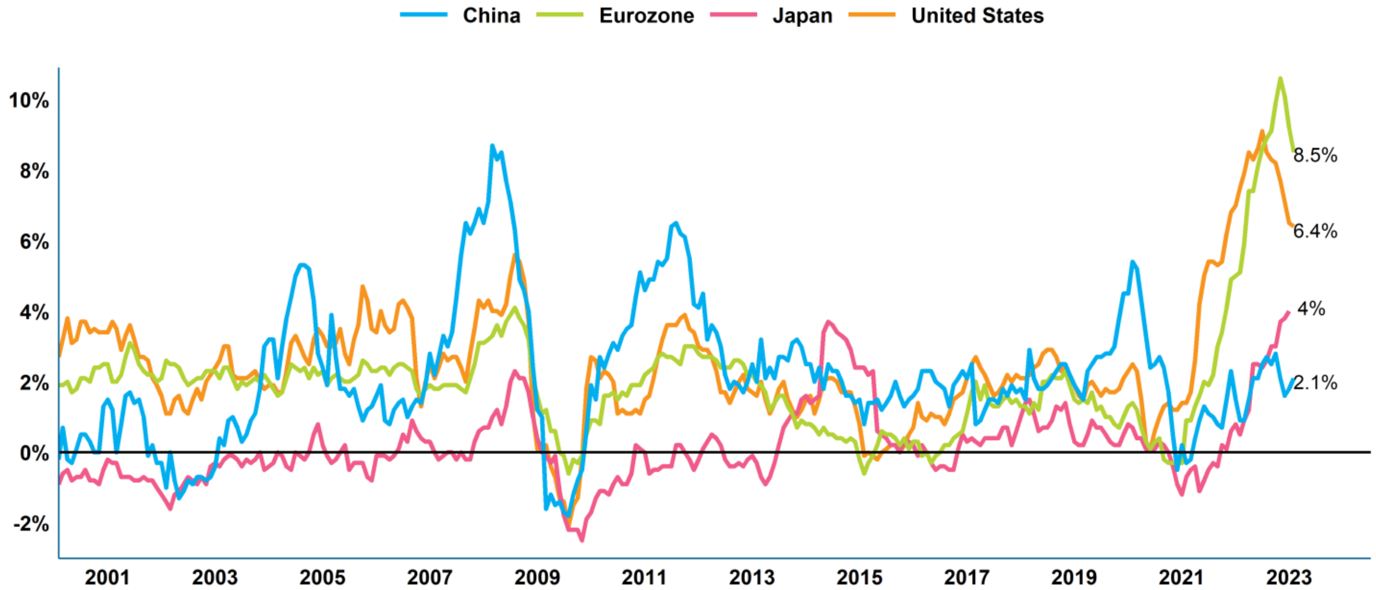




- → In 2022 many central banks aggressively reduced pandemic-era policy support in the face of high inflation with the US taking the most aggressive approach. However, global inflation has begun to moderate, and markets anticipate a slowing in the rate of policy tightening in the future.
- → In December, the Bank of Japan relaxed its target yield for the 10-year bond which may mark an incremental step toward policy normalization after eight years of quantitative easing.
- → China's central bank is expected to maintain its accommodative monetary stance to support consumer demand and investment as well as offer liquidity to the troubled real estate sector.
- → The risk remains for a policy error, particularly overtightening, as record inflation and aggressive tightening to date could heavily weigh on global growth. The Federal Reserve's policy rate path could diverge from others this year given their strong early start to tightening.

[1] Source: Bloomberg. Policy rate data is as of January 31, 2023. China policy rate is defined as the medium-term lending facility 1 year interest rate. Balance sheet as % of GDP is based on quarterly data and is as of December 31, 2022.

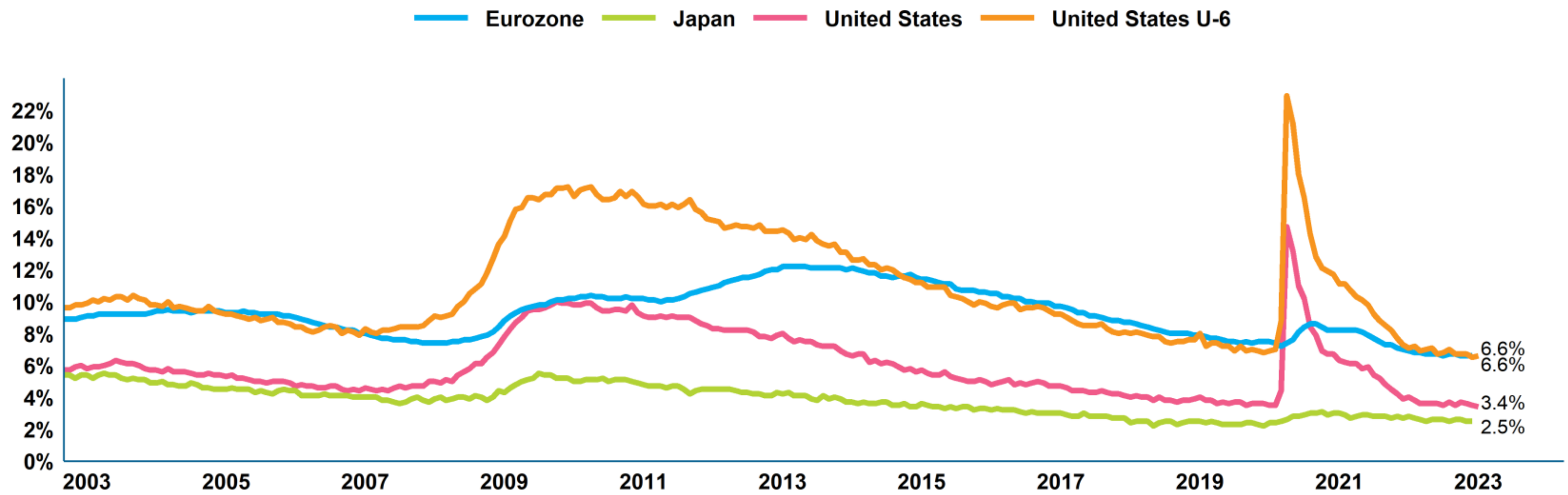
Inflation (CPI Trailing Twelve Months)[1]



- → Inflation increased dramatically from the lows of the pandemic, particularly in the US and Eurozone where it has reached levels not seen in many decades.
- → Inflation pressures are slowly declining in the US as supply issues ease, but they remain elevated, while in Europe they have also started to fall but remain at historic levels due to skyrocketing energy prices and a weak euro.
- → Supply issues related to the pandemic, record monetary and fiscal stimulus, strict COVID-19 restrictions in China, and higher commodity prices driven by the war in Ukraine have been key global drivers of inflation.

[1] Source: Bloomberg. Data is as of January 2023. The most recent Japanese inflation data is as of December 2022.

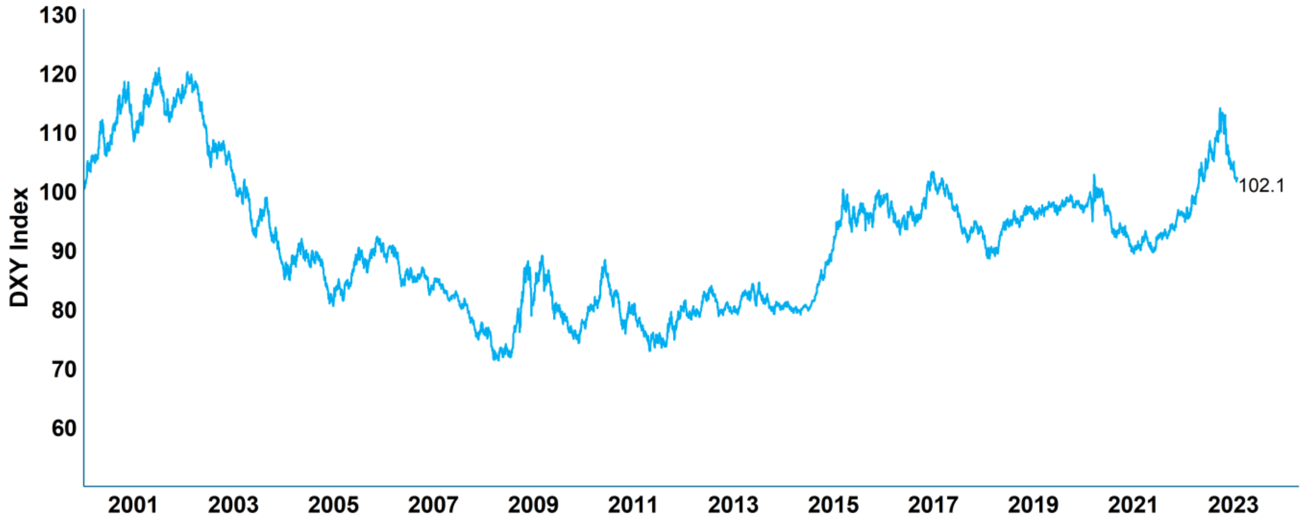
Unemployment[1]



- → As economies have largely reopened, helped by vaccines for the virus, improvements have been seen in the labor market.
- → Despite slowing growth and high inflation, the US labor market remains a bright spot. Unemployment in the US, which experienced the steepest rise from the pandemic, recently reached 3.4%, a level not seen in over 50 years.
- → The strong labor market and higher wages, although beneficial for workers, motivates the Fed's efforts to fight inflation, likely leading to higher unemployment.

[1] Source: Bloomberg. Data is as January 31, 2022, for the US. The most recent data for Eurozone and Japanese unemployment is as of December 31, 2022.

US Dollar versus Broad Currencies[1]



→ Overall, the US dollar continued to weaken in January from its recent peak as declining inflation supported the case for the Federal Reserve to slow its tightening.

→ The dollar finished the year much higher than it started, due to the increased pace of policy tightening, stronger relative growth, and safe-haven flows.

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

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

Summary

Key Trends:

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

→ Global monetary policies could diverge in 2023 with the Fed pausing and others continuing to tighten. The risk of policy errors in both directions remains.

→ Growth will continue to slow globally this year, with many economies likely falling into recessions. Inflation, monetary policy, and the war will all be key.

→ In the US the end of many fiscal programs is expected to put the burden of continued growth on consumers. Higher energy and food prices could weigh on consumer spending.

→ Valuations have significantly declined in the US to around long-term averages, largely driven by price declines. The key going forward will be whether earnings can remain resilient if growth continues to slow.

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

WCM Portfolio Manager Retirement Memo

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MEMORANDUM

TO: Trustees, Municipal Employees' Retirement System of Louisiana

FROM: Aaron Lally, Shawn Bowen, Henry Jaung, Sabina Panthi, Meketa Investment Group

DATE: February 8, 2023

RE: WCM Portfolio Manager Retirement Update

Investment Overview

As of December 31, 2022, the Retirement System had $45.3 million, or 4.5% of the total System invested in the WCM Focused International Growth Fund strategy. Despite challenges in 2022, the strategy has generated a positive return of **7.7%** since its inception in June 2014, outperforming its benchmark by 5.4%, annualized, over the past eight years.   Trailing period performance is detailed below:

	Fiscal YTD (%)	1YR (%)	3YR (%)	5YR (%)	Since Inception (%)
WCM Focused International Growth Fund (net)	4.2	-28.7	3.7	6.9	7.7
MSCI ACWI ex USA	3.0	-16.0	0.1	0.9	2.3

Executive Summary

Portfolio manager Peter Hunkel will be retiring due to health reasons effective March 31st, 2023. Following Mr. Hunkel's departure, the strategy will be managed by the remaining four portfolio managers: Paul Black, Michael Trigg, John Triangle, and Sanjay Ayer. Paul Black is the CEO of WCM and has been with the firm since 1989. Messrs. Trigg and Ayer joined in 2006 and 2007, respectively. Mr. Tringale joined in 2015. None of the PMs have veto power; decisions are made collaboratively via a voting system.

Opinion

Mr. Hunkel worked at WCM for over 20 years and was undoubtedly a valuable member of the team who brought a wealth of institutional knowledge. However, **the multi-PM structure and efforts to automate portfolio construction create solid continuity. We retain our high conviction in the strategy**. We sympathize with Mr. Hunkel's decision; we hope his good health is restored and wish him well in his retirement.

ADDITIONAL DETAILS

Mr. Hunkel is in his early 50s and has been suffering from migraines for years. The decision to retire was made in consultation with his doctors. He began his career at WCM in 2001. Mr. Hunkel will retain his 6.6% ownership stake in WCM and continue to receive quarterly dividends for the next 7 years, at which point his shares will be retired to the Treasury. The shares will then likely be allocated pro rata to existing shareholders.

The portfolio management teams will decrease from 5 to 4 members; Mr. Hunkel's position will not be replaced. Mr. Hunkel's role on the team was more focused on portfolio construction and risk management, rather than picking stocks. Mr. Hunkel had some stock coverage that has been decreasing over the years. He hasn't added any new names in the 3 last years. All stocks are covered by at least 2 people, ensuring continuity.

The team has been working to technologize and automate their Portfolio Construction work with the help of Miles Bredenoord, who joined the firm in 2019 and previously worked at Factset. Michael Trigg and Sanjay Ayer lead the team's risk management efforts. The absence of an independent risk management team creates some concerns, but we are glad to see the firm invest in additional resources by hiring Mr. Bredenoord.

If you have any additional questions, please don't hesitate to contact us at (305) 341-2900.

AL/SB/HJ/SP/nd

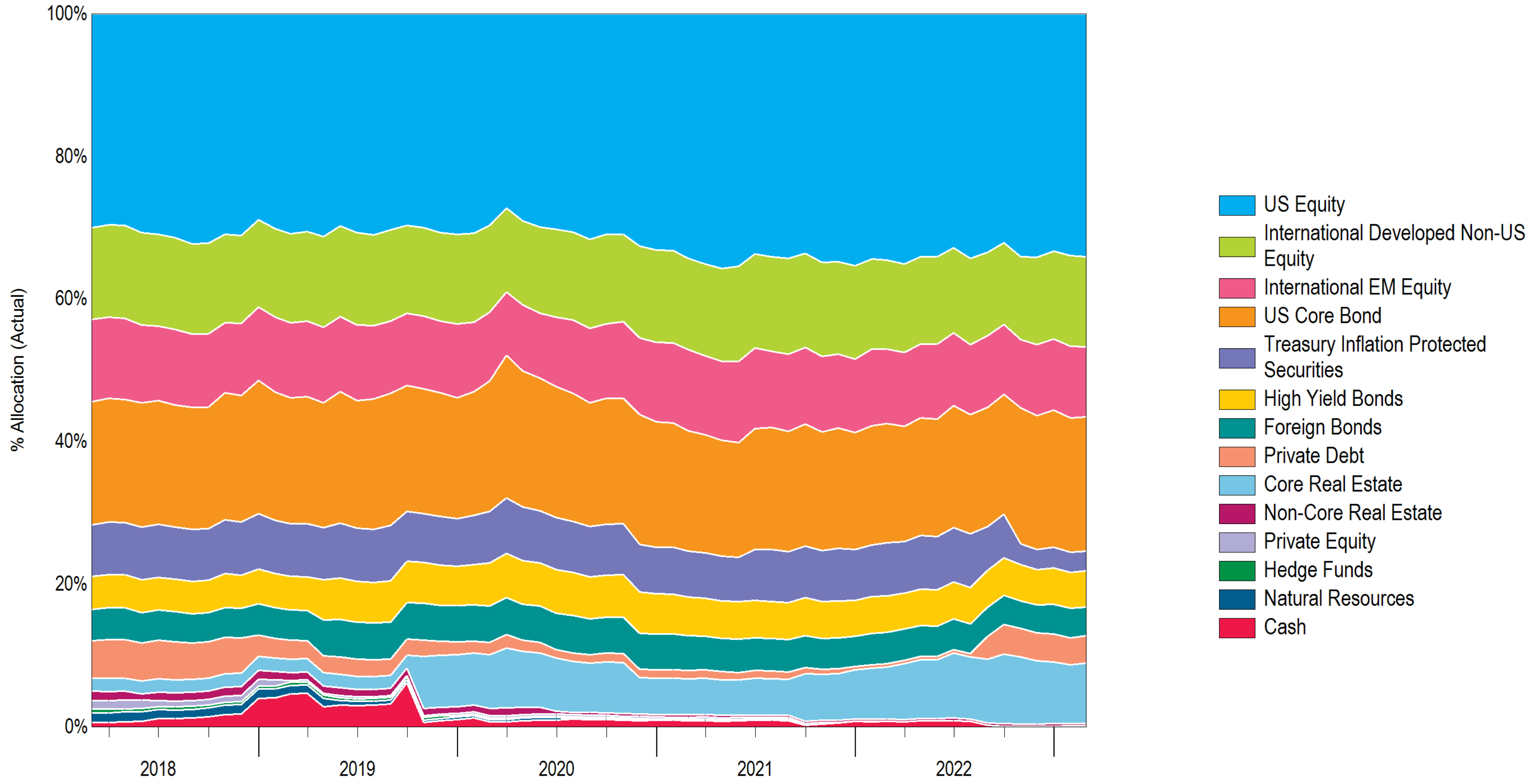
Performance Report
As of February 28, 2023

Allocation vs. Targets and Policy

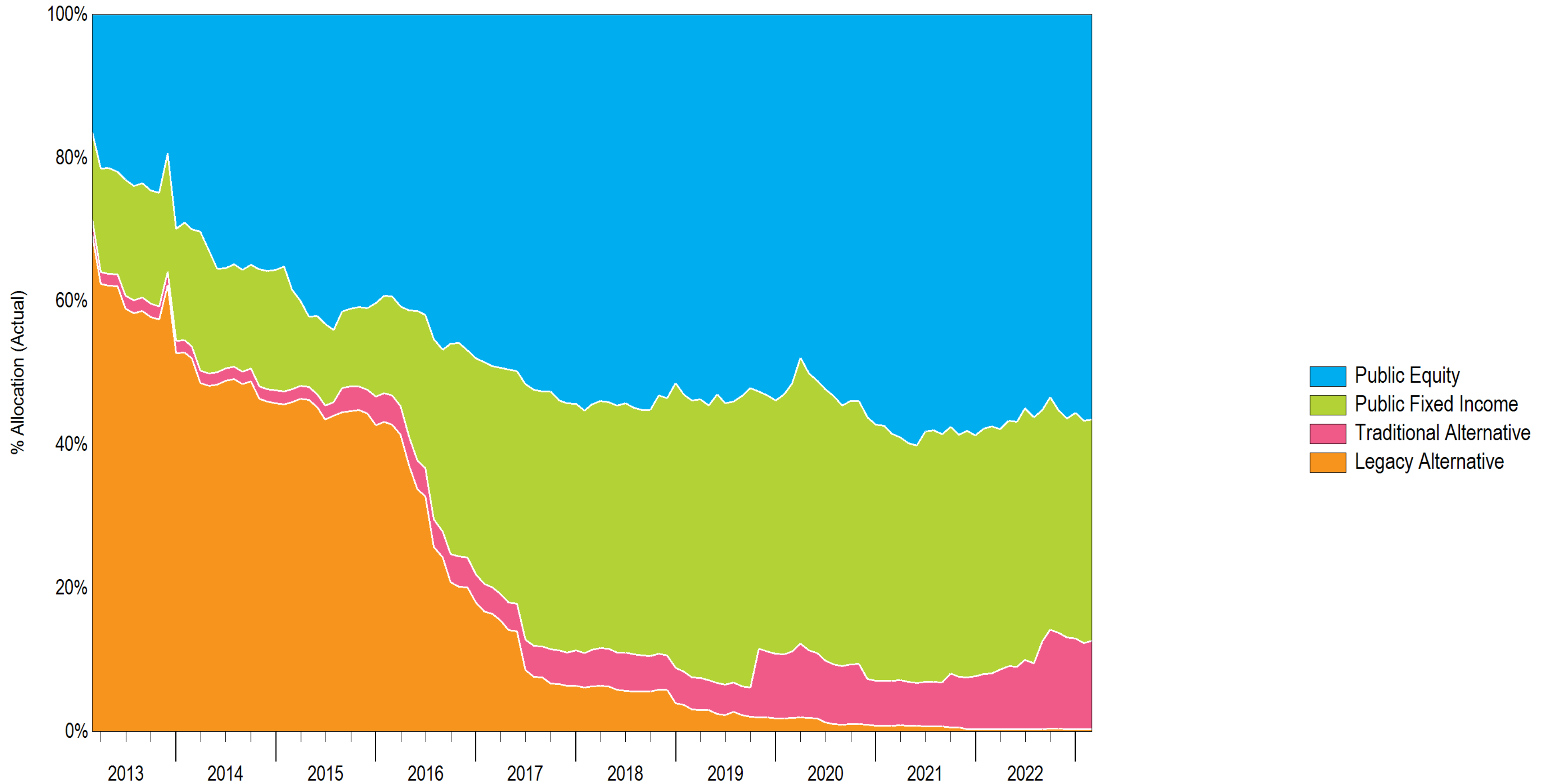
	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
US Equity	$353,826,079	34%	33%	25% - 35%	Yes
International Developed Non-US Equity	$130,845,466	13%	13%	8% - 18%	Yes
International EM Equity	$101,723,604	10%	10%	7% - 13%	Yes
US Core Bond	$195,471,403	19%	20%	15% - 25%	Yes
Treasury Inflation Protected Securities	$28,961,839	3%	3%	0% - 10%	Yes
High Yield Bonds	$52,413,540	5%	3%	0% - 10%	Yes
Foreign Bonds	$41,783,385	4%	3%	0% - 10%	Yes
Private Debt	$40,170,967	4%	3%	0% - 6%	Yes
Core Real Estate	$87,642,893	8%	12%	5% - 15%	Yes
Non-Core Real Estate	$3,569,961	0%	0%	0% - 0%	No
Cash	$1,499,458	0%	0%	0% - 5%	Yes
Total	**$1,037,908,595**	**100%**	**100%**		

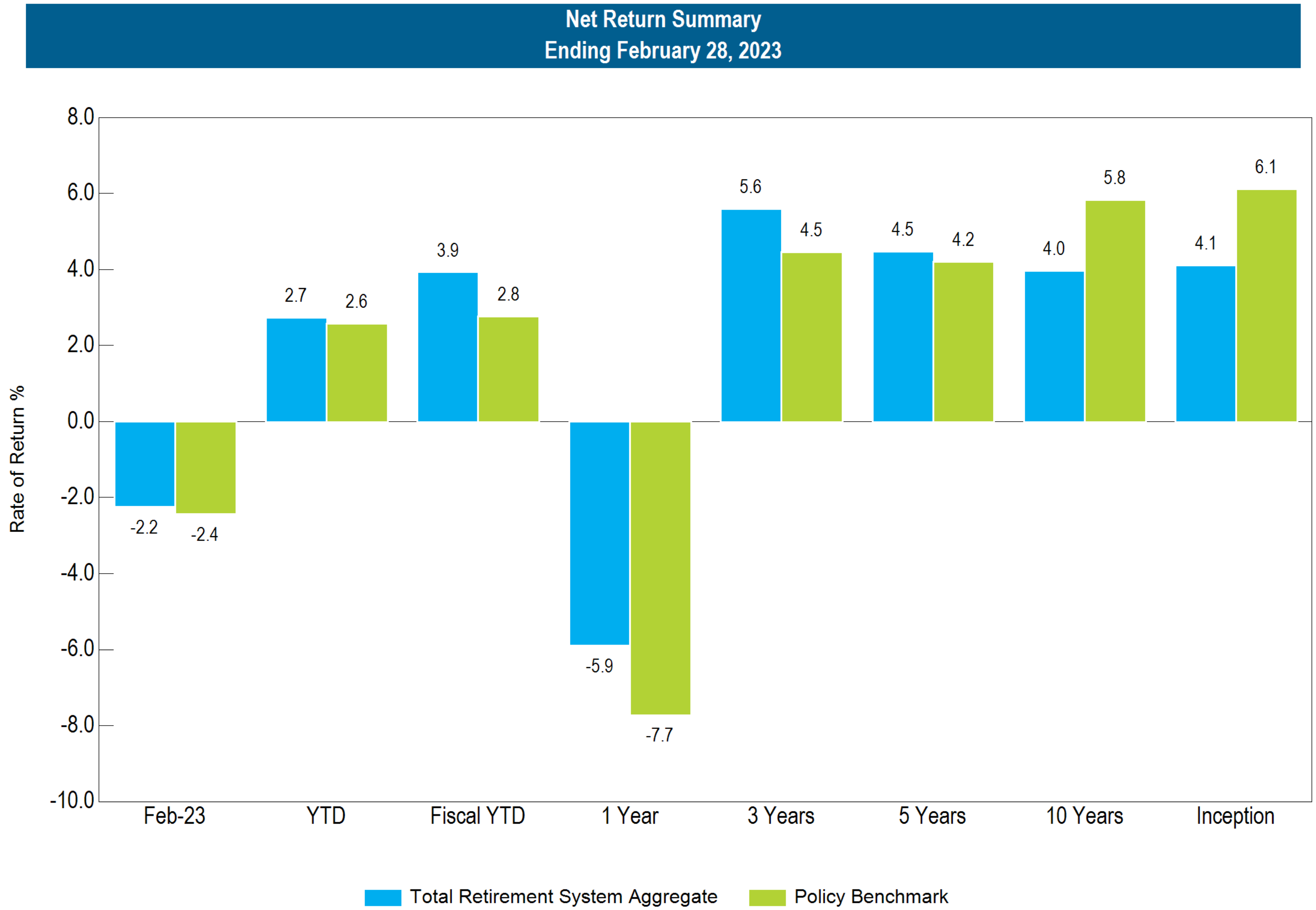
Asset Allocation History

5 Years Ending February 28, 2023

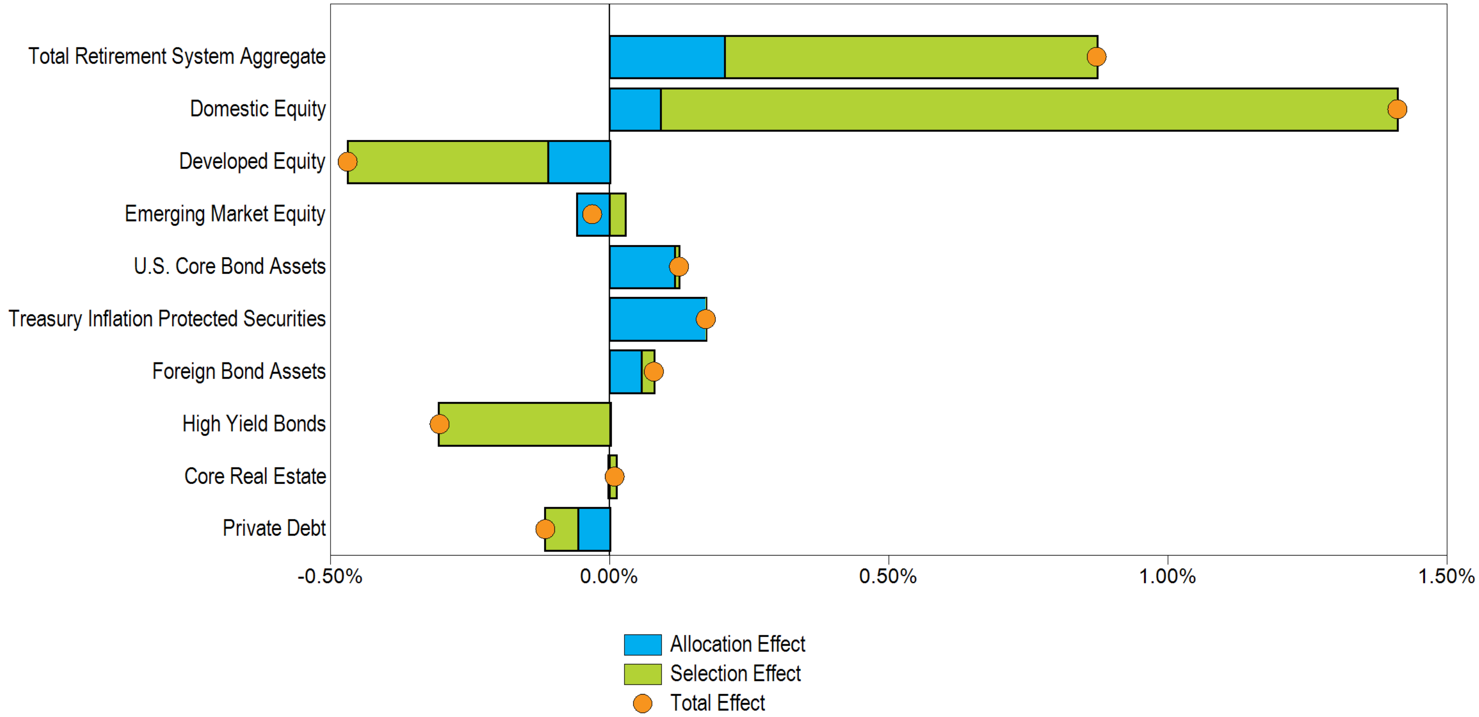


Asset Allocation History
10 Years Ending February 28, 2023




Net Return Summary
Ending February 28, 2023
Rate of Return %
8.0
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-2.2
-2.4
2.7
2.6
3.9
2.8
-5.9
-7.7
5.6
4.5
4.5
4.2
4.0
5.8
4.1
6.1
Feb-23
YTD
Fiscal YTD
1 Year
3 Years
5 Years
10 Years
Inception
Total Retirement System Aggregate
Policy Benchmark

Attribution Effects
8 Months Ending February 28, 2023



Attribution Summary

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total	**3.7%**	**2.7%**	**0.9%**	**0.7%**	**0.2%**	**0.9%**

The performance calculation methodology in attribution tables is different from the standard time weighted returns (geometric linkage of monthly returns) found throughout the rest of the report. In attribution tables, the average weight of each asset class (over the specified time period) is multiplied by the time period performance of that asset class and summed. Values may not sum due to rounding.

Asset Class Net Performance Summary

	Market Value ($)	% of Portfolio	1 Mo (%)	YTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Retirement System Aggregate	**1,037,908,595**	**100.0**	**-2.2**	**2.7**	**3.9**	**-5.9**	**5.6**	**4.5**	**4.0**	**4.1**	**Jan-06**
Policy Benchmark			*-2.4*	*2.6*	*2.8*	*-7.7*	*4.5*	*4.2*	*5.8*	*6.1*	*Jan-06*
60% MSCI ACWI & 40% Barclays Universal			*-2.7*	*2.7*	*3.3*	*-8.4*	*4.1*	*4.0*	*5.5*	*5.4*	*Jan-06*
Domestic Equity	**353,826,079**	**34.1**	**-1.8**	**5.4**	**10.8**	**-4.8**	**12.9**	**8.7**	**10.7**	**8.4**	**Feb-06**
Russell 3000			*-2.3*	*4.4*	*6.9*	*-8.1*	*11.8*	*9.4*	*11.9*	*8.9*	*Feb-06*
Developed Equity	**130,845,466**	**12.6**	**-2.9**	**4.8**	**9.8**	**-4.8**	**7.3**	**5.1**	--	**5.5**	**May-14**
MSCI EAFE			*-2.1*	*5.8*	*12.6*	*-3.1*	*6.8*	*2.6*	*4.8*	*3.1*	*May-14*
Emerging Market Equity	**101,723,604**	**9.8**	**-4.3**	**1.3**	**-0.8**	**-11.4**	**6.2**	**1.2**	--	**4.4**	**Dec-13**
MSCI Emerging Markets			*-6.5*	*0.9*	*-2.1*	*-15.3*	*1.0*	*-1.9*	*1.5*	*2.0*	*Dec-13*
U.S. Core Bond Assets	**195,471,403**	**18.8**	**-2.6**	**0.4**	**-2.5**	**-9.6**	**-3.8**	**0.5**	--	**0.6**	**Apr-13**
Bloomberg US Aggregate TR			*-2.6*	*0.4*	*-2.6*	*-9.7*	*-3.8*	*0.5*	*1.1*	*1.0*	*Apr-13*
Treasury Inflation Protected Securities	**28,961,839**	**2.8**	**-1.4**	**0.5**	**-2.8**	**-10.4**	**0.2**	**2.6**	--	**1.8**	**Jul-16**
Bloomberg US TIPS TR			*-1.4*	*0.4*	*-2.8*	*-10.4*	*0.2*	*2.6*	*1.2*	*1.8*	*Jul-16*
Foreign Bond Assets	**41,783,385**	**4.0**	**-5.1**	**-0.3**	**-2.5**	**-14.6**	**-2.8**	**-2.2**	--	**-0.2**	**Apr-13**
Bloomberg Global Aggregate TR			*-3.3*	*-0.2*	*-2.9*	*-13.6*	*-5.1*	*-1.7*	*-0.3*	*-0.4*	*Apr-13*
High Yield Bonds	**52,413,540**	**5.0**	**-2.6**	**1.3**	**0.5**	**-7.8**	**-0.5**	**2.2**	--	**3.4**	**Apr-13**
Bloomberg US High Yield TR			*-1.3*	*2.5*	*6.1*	*-5.5*	*1.3*	*2.9*	*4.1*	*3.9*	*Apr-13*

	Market Value ($)	% of Portfolio	1 Mo (%)	YTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Core Real Estate	**87,642,893**	**8.4**	**0.0**	**0.0**	**-4.3**	**8.9**	**14.0**	**11.4**	**11.3**	**8.0**	**Apr-06**
NCREIF ODCE Equal Weighted (Net)			*0.0*	*0.0*	*-4.3*	*7.6*	*9.7*	*8.3*	*9.5*	*6.3*	*Apr-06*
Private Debt	**40,170,967**	**3.9**	**0.9**	**1.9**	**3.4**	**7.6**	**7.7**	**8.3**	**--**	**7.1**	**Apr-13**
Bloomberg US High Yield+2%			*-1.1*	*2.8*	*7.5*	*-3.6*	*3.4*	*4.9*	*6.2*	*5.9*	*Apr-13*
Non-Core Real Estate	**3,569,961**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**-25.5**	**-11.1**	**-6.1**	**-2.5**	**Feb-06**
NCREIF Property (1 Qtr Lag)			*0.0*	*0.0*	*3.8*	*16.1*	*9.9*	*8.6*	*9.5*	*8.2*	*Feb-06*
Cash	**1,499,458**	**0.1**	**0.1**	**0.3**	**0.9**	**0.9**	**0.6**	**1.3**	**0.8**	**0.9**	**Feb-06**
91 Day T-Bills			*0.3*	*0.6*	*2.0*	*2.1*	*0.8*	*1.3*	*0.8*	*1.1*	*Feb-06*

Trailing Net Performance	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Retirement System Aggregate	**1,037,908,595**	**100.0**	**--**	**-2.2**	**2.7**	**3.9**	**-5.9**	**5.6**	**4.5**	**4.0**	**4.1**	**Jan-06**
Policy Benchmark				*-2.4*	*2.6*	*2.8*	*-7.7*	*4.5*	*4.2*	*5.8*	*6.1*	*Jan-06*
60% MSCI ACWI & 40% Barclays Universal				*-2.7*	*2.7*	*3.3*	*-8.4*	*4.1*	*4.0*	*5.5*	*5.4*	*Jan-06*
Domestic Equity	**353,826,079**	**34.1**	**34.1**	**-1.8**	**5.4**	**10.8**	**-4.8**	**12.9**	**8.7**	**10.7**	**8.4**	**Feb-06**
Russell 3000				*-2.3*	*4.4*	*6.9*	*-8.1*	*11.8*	*9.4*	*11.9*	*8.9*	*Feb-06*
Northern Trust S&P 500 Index	202,228,621	19.5	57.2	-2.4	3.7	6.1	-7.7	12.1	9.8	--	10.9	Dec-13
S&P 500				*-2.4*	*3.7*	*6.1*	*-7.7*	*12.1*	*9.8*	*12.3*	*11.0*	*Dec-13*
Large Cap MStar MF Median				*-2.6*	*3.7*	*6.6*	*-7.2*	*11.7*	*8.7*	*11.3*	*9.8*	*Dec-13*
Large Cap MStar MF Rank				*40*	*48*	*56*	*54*	*36*	*22*	*--*	*19*	*Dec-13*
Northern Trust S&P 400 MidCap Index	74,158,928	7.1	21.0	-1.8	7.3	15.9	-0.6	14.4	8.5	--	9.4	Dec-13
S&P 400 MidCap				*-1.8*	*7.2*	*15.9*	*-0.6*	*14.5*	*8.6*	*10.7*	*9.4*	*Dec-13*
Mid Cap MStar MF Median				*-2.0*	*6.2*	*11.1*	*-5.2*	*11.4*	*7.9*	*10.2*	*8.6*	*Dec-13*
Mid Cap MStar MF Rank				*43*	*33*	*8*	*18*	*19*	*35*	*--*	*29*	*Dec-13*
Barrow Hanley Small Cap Value Equity	45,660,037	4.4	12.9	0.6	9.2	21.6	1.3	19.7	9.4	10.4	10.3	Jan-06
Russell 2000 Value				*-2.3*	*7.0*	*10.7*	*-4.4*	*12.9*	*6.4*	*8.5*	*7.0*	*Jan-06*
Small Value MStar MF Median				*-1.4*	*7.7*	*13.7*	*-0.6*	*15.4*	*7.4*	*9.3*	*7.9*	*Jan-06*
Small Value MStar MF Rank				*6*	*20*	*5*	*31*	*15*	*15*	*18*	*1*	*Jan-06*
Loomis Sayles Small Cap Growth	31,778,493	3.1	9.0	-0.5	7.3	16.1	-5.0	--	--	--	9.1	Jun-20
Russell 2000 Growth				*-1.1*	*8.8*	*13.5*	*-7.9*	*6.5*	*5.1*	*9.3*	*6.5*	*Jun-20*
Small Growth MStar MF Median				*-1.3*	*8.4*	*11.4*	*-10.1*	*8.7*	*8.0*	*10.3*	*8.0*	*Jun-20*
Small Growth MStar MF Rank				*28*	*72*	*9*	*12*	*--*	*--*	*--*	*40*	*Jun-20*

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Developed Equity	**130,845,466**	**12.6**	**12.6**	**-2.9**	**4.7**	**9.4**	**-5.3**	**6.7**	**4.6**	**--**	**5.2**	**May-14**
MSCI EAFE				*-2.1*	*5.8*	*12.6*	*-3.1*	*6.8*	*2.6*	*4.8*	*3.1*	*May-14*
First Eagle International Value	39,218,093	3.8	30.0	-3.6	2.6	5.2	-4.0	5.3	2.8	--	3.2	May-14
MSCI EAFE				*-2.1*	*5.8*	*12.6*	*-3.1*	*6.8*	*2.6*	*4.8*	*3.1*	*May-14*
Foreign MStar MF Median				*-2.9*	*5.3*	*9.9*	*-6.4*	*5.9*	*2.3*	*4.9*	*3.3*	*May-14*
Foreign MStar MF Rank				*74*	*95*	*94*	*31*	*65*	*34*	*--*	*53*	*May-14*
WCM Focused International Growth Fund	48,091,146	4.6	36.8	-2.5	6.1	10.6	-8.2	7.8	8.0	--	8.3	Jun-14
MSCI ACWI ex USA				*-3.5*	*4.3*	*7.4*	*-7.2*	*5.3*	*1.6*	*3.9*	*2.7*	*Jun-14*
Foreign MStar MF Median				*-2.9*	*5.3*	*9.9*	*-6.4*	*5.9*	*2.3*	*4.9*	*3.3*	*Jun-14*
Foreign MStar MF Rank				*36*	*31*	*39*	*67*	*20*	*1*	*--*	*1*	*Jun-14*
Northern Trust MSCI EAFE Index	43,536,227	4.2	33.3	-2.8	5.2	12.1	-3.1	6.8	3.0	--	6.2	Jan-17
MSCI EAFE				*-2.1*	*5.8*	*12.6*	*-3.1*	*6.8*	*2.6*	*4.8*	*6.0*	*Jan-17*
Foreign MStar MF Median				*-2.9*	*5.3*	*9.9*	*-6.4*	*5.9*	*2.3*	*4.9*	*5.8*	*Jan-17*
Foreign MStar MF Rank				*46*	*55*	*23*	*23*	*37*	*28*	*--*	*38*	*Jan-17*
Emerging Market Equity	**101,723,604**	**9.8**	**9.8**	**-4.3**	**1.2**	**-1.1**	**-11.8**	**5.8**	**0.9**	**--**	**4.2**	**Dec-13**
MSCI Emerging Markets				*-6.5*	*0.9*	*-2.1*	*-15.3*	*1.0*	*-1.9*	*1.5*	*2.0*	*Dec-13*
Dimensional Emerging Markets Value	46,458,739	4.5	45.7	-4.6	1.8	1.2	-9.8	6.7	-0.5	--	2.6	Dec-13
MSCI Emerging Markets Value NR USD				*-5.4*	*1.4*	*-0.9*	*-12.6*	*2.4*	*-2.0*	*0.3*	*0.8*	*Dec-13*
MSCI Emerging Markets				*-6.5*	*0.9*	*-2.1*	*-15.3*	*1.0*	*-1.9*	*1.5*	*2.0*	*Dec-13*
Diversified Emerging Mkts MStar MF Median				*-6.0*	*2.3*	*0.6*	*-13.6*	*0.9*	*-1.6*	*1.6*	*1.9*	*Dec-13*
Diversified Emerging Mkts MStar MF Rank				*24*	*65*	*41*	*21*	*11*	*30*	*--*	*37*	*Dec-13*

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
GQG Partners Emerging Markets	55,264,865	5.3	54.3	-4.1	0.8	-3.0	-13.3	5.0	--	--	4.7	Sep-18
MSCI Emerging Markets				*-6.5*	*0.9*	*-2.1*	*-15.3*	*1.0*	*-1.9*	*1.5*	*0.3*	*Sep-18*
Diversified Emerging Mkts MStar MF Median				*-6.0*	*2.3*	*0.6*	*-13.6*	*0.9*	*-1.6*	*1.6*	*1.0*	*Sep-18*
Diversified Emerging Mkts MStar MF Rank				*16*	*88*	*83*	*47*	*18*	*--*	*--*	*9*	*Sep-18*
U.S. Core Bond Assets	**195,471,403**	**18.8**	**18.8**	**-2.6**	**0.4**	**-2.5**	**-9.6**	**-3.8**	**0.5**	**--**	**0.6**	**Apr-13**
Bloomberg US Aggregate TR				*-2.6*	*0.4*	*-2.6*	*-9.7*	*-3.8*	*0.5*	*1.1*	*1.0*	*Apr-13*
Northern Trust Barclays Aggregate Index	195,471,403	18.8	100.0	-2.6	0.4	-2.5	-9.6	-3.8	0.5	--	0.9	Dec-15
Bloomberg US Aggregate TR				*-2.6*	*0.4*	*-2.6*	*-9.7*	*-3.8*	*0.5*	*1.1*	*0.9*	*Dec-15*
Intermediate Core Bond MStar MF Median				*-2.5*	*0.8*	*-2.4*	*-9.7*	*-3.5*	*0.6*	*1.2*	*1.1*	*Dec-15*
Intermediate Core Bond MStar MF Rank				*64*	*90*	*66*	*42*	*75*	*64*	*--*	*77*	*Dec-15*
Treasury Inflation Protected Securities	**28,961,839**	**2.8**	**2.8**	**-1.4**	**0.5**	**-2.8**	**-10.4**	**0.2**	**2.6**	**--**	**1.8**	**Jul-16**
Bloomberg US TIPS TR				*-1.4*	*0.4*	*-2.8*	*-10.4*	*0.2*	*2.6*	*1.2*	*1.8*	*Jul-16*
Northern Trust TIPS	28,961,839	2.8	100.0	-1.4	0.5	-2.9	-10.4	0.2	2.5	--	1.8	Jul-16
Bloomberg US TIPS TR				*-1.4*	*0.4*	*-2.8*	*-10.4*	*0.2*	*2.6*	*1.2*	*1.8*	*Jul-16*
Inflation-Protected Bond MStar MF Median				*-1.4*	*0.6*	*-2.5*	*-9.4*	*0.5*	*2.5*	*1.1*	*1.8*	*Jul-16*
Inflation-Protected Bond MStar MF Rank				*58*	*61*	*74*	*71*	*71*	*38*	*--*	*51*	*Jul-16*
Foreign Bond Assets	**41,783,385**	**4.0**	**4.0**	**-5.1**	**-0.3**	**-2.5**	**-14.6**	**-2.8**	**-2.2**	**--**	**-0.2**	**Apr-13**
Bloomberg Global Aggregate TR				*-3.3*	*-0.2*	*-2.9*	*-13.6*	*-5.1*	*-1.7*	*-0.3*	*-0.4*	*Apr-13*
Brandywine Global Opportunistic Fixed Income	41,783,385	4.0	100.0	-5.1	-0.3	-2.5	-14.6	-2.8	-2.2	0.3	3.7	Jan-06
Bloomberg Global Aggregate TR				*-3.3*	*-0.2*	*-2.9*	*-13.6*	*-5.1*	*-1.7*	*-0.3*	*2.2*	*Jan-06*
Global Bond MStar MF Median				*-3.4*	*0.0*	*-2.1*	*-13.7*	*-4.3*	*-2.0*	*-0.2*	*2.7*	*Jan-06*
Global Bond MStar MF Rank				*96*	*61*	*58*	*67*	*30*	*57*	*29*	*1*	*Jan-06*

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
High Yield Bonds	**52,413,540**	**5.0**	**5.0**	**-2.6**	**1.3**	**0.5**	**-7.8**	**-0.5**	**2.2**	**--**	**3.4**	**Apr-13**
Bloomberg US High Yield TR				*-1.3*	*2.5*	*6.1*	*-5.5*	*1.3*	*2.9*	*4.1*	*3.9*	*Apr-13*
Loomis Sayles Multisector Full Discretion	52,413,540	5.0	100.0	-2.6	1.3	0.5	-7.8	-0.5	2.2	3.2	5.8	Jan-06
Bloomberg US Govt/Credit TR				*-2.6*	*0.3*	*-2.5*	*-10.1*	*-3.9*	*0.7*	*1.2*	*3.1*	*Jan-06*
Bloomberg US High Yield TR				*-1.3*	*2.5*	*6.1*	*-5.5*	*1.3*	*2.9*	*4.1*	*6.3*	*Jan-06*
Multisector Bond MStar MF Median				*-1.6*	*1.7*	*2.4*	*-5.3*	*-0.2*	*1.8*	*2.6*	*4.6*	*Jan-06*
Multisector Bond MStar MF Rank				*99*	*79*	*79*	*87*	*60*	*28*	*26*	*1*	*Jan-06*
Core Real Estate	**87,642,893**	**8.4**	**8.4**	**0.0**	**0.0**	**-4.3**	**8.9**	**14.0**	**11.4**	**11.3**	**8.0**	**Apr-06**
NCREIF ODCE Equal Weighted (Net)				*0.0*	*0.0*	*-4.3*	*7.6*	*9.7*	*8.3*	*9.5*	*6.3*	*Apr-06*
TA Realty Core Property Fund, L.P.	87,642,893	8.4	100.0	0.0	0.0	-4.3	8.9	14.1	--	--	13.0	Oct-19
NCREIF ODCE Equal Weighted (Net)				*0.0*	*0.0*	*-4.3*	*7.6*	*9.7*	*8.3*	*9.5*	*8.9*	*Oct-19*
Private Debt	**40,170,967**	**3.9**	**3.9**	**0.9**	**1.9**	**3.4**	**7.6**	**7.7**	**8.3**	**--**	**7.1**	**Apr-13**
Bloomberg US High Yield+2%				*-1.1*	*2.8*	*7.5*	*-3.6*	*3.4*	*4.9*	*6.2*	*5.9*	*Apr-13*
BlueBay Direct Lending Fund II, L.P.	4,875,169	0.5	12.1	0.0	0.0	-1.7	2.3	5.9	6.6	--	7.0	Aug-15
Bloomberg US High Yield+2%				*-1.1*	*2.8*	*7.5*	*-3.6*	*3.4*	*4.9*	*6.2*	*6.2*	*Aug-15*
ArrowMark Global Opportunity Fund IV	35,295,798	3.4	87.9	1.1	2.1	--	--	--	--	--	4.4	Sep-22
Bloomberg US High Yield+2%				*-1.1*	*2.8*	*7.5*	*-3.6*	*3.4*	*4.9*	*6.2*	*3.5*	*Sep-22*

T.A. Realty Core Property Fund L.P. and BlueBay Direct Lending Fund II as of 12/31/2022, adjusted for current quarter cash flows

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Non-Core Real Estate	**3,569,961**	**0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**-25.5**	**-11.1**	**-6.1**	**-2.5**	**Feb-06**
NCREIF Property (1 Qtr Lag)				*0.0*	*0.0*	*3.8*	*16.1*	*9.9*	*8.6*	*9.5*	*8.2*	*Feb-06*
Gainesville Vision	3,569,961	0.3	100.0	0.0	0.0	0.0	0.0	-25.5	4.8	-0.2	-4.2	Jan-08
NCREIF Property (1 Qtr Lag)				*0.0*	*0.0*	*3.8*	*16.1*	*9.9*	*8.6*	*9.5*	*6.9*	*Jan-08*
Cash	**1,499,458**	**0.1**	**0.1**	**0.1**	**0.3**	**0.9**	**0.9**	**0.6**	**1.3**	**0.8**	**0.9**	**Feb-06**
91 Day T-Bills				*0.3*	*0.6*	*2.0*	*2.1*	*0.8*	*1.3*	*0.8*	*1.1*	*Feb-06*

Cash Flow Summary						
	Month Ending February 28, 2023					
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
ArrowMark Global Opportunity Fund IV	$34,927,301	$0	$0	$0	$368,497	$35,295,798
Barrow Hanley Small Cap Value Equity	$45,379,332	$0	-$181	-$181	$280,886	$45,660,037
BlueBay Direct Lending Fund II, L.P.	$4,875,169	$0	$0	$0	$0	$4,875,169
Brandywine Global Opportunistic Fixed Income	$44,062,321	$0	-$47,171	-$47,171	-$2,231,766	$41,783,385
Dimensional Emerging Markets Value	$48,719,547	$0	$0	$0	-$2,260,808	$46,458,739
Federated Government Obligations	$1,493,671	$4,244	-$38	$4,206	$1,580	$1,499,458
First Eagle International Value	$40,670,712	$0	$0	$0	-$1,452,618	$39,218,093
Gainesville Vision	$3,569,961	$0	$0	$0	$0	$3,569,961
GQG Partners Emerging Markets	$57,600,000	$0	$0	$0	-$2,335,135	$55,264,865
Loomis Sayles Multisector Full Discretion	$53,818,045	$0	$0	$0	-$1,404,505	$52,413,540
Loomis Sayles Small Cap Growth	$31,939,338	$0	$0	$0	-$160,845	$31,778,493
Northern Trust Barclays Aggregate Index	$200,594,981	$0	$0	$0	-$5,123,577	$195,471,403
Northern Trust MSCI EAFE Index	$44,800,078	$0	$0	$0	-$1,263,851	$43,536,227
Northern Trust S&P 400 MidCap Index	$75,525,177	$0	$0	$0	-$1,366,249	$74,158,928
Northern Trust S&P 500 Index	$207,284,159	$0	$0	$0	-$5,055,538	$202,228,621
Northern Trust TIPS	$29,370,966	$0	$0	$0	-$409,128	$28,961,839
TA Realty Core Property Fund, L.P.	$87,642,893	$0	$0	$0	$0	$87,642,893
WCM Focused International Growth Fund	$49,307,815	$0	$0	$0	-$1,216,670	$48,091,146
Total	**$1,061,581,467**	**$4,244**	**-$47,390**	**-$43,145**	**-$23,629,726**	**$1,037,908,595**

Investment Expense Analysis

As Of February 28, 2023

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Northern Trust S&P 500 Index	0.01% of Assets	$202,228,621	$15,167	0.01%
Northern Trust S&P 400 MidCap Index	0.02% of Assets	$74,158,928	$11,124	0.02%
Barrow Hanley Small Cap Value Equity	1.00% of First 10.0 Mil, 0.50% of Next 190.0 Mil, 0.40% of Next 200.0 Mil, 0.30% Thereafter	$45,660,037	$278,300	0.61%
Loomis Sayles Small Cap Growth	0.75% of Assets	$31,778,493	$238,339	0.75%
First Eagle International Value	0.79% of Assets	$39,218,093	$309,823	0.79%
WCM Focused International Growth Fund	0.85% of Assets	$48,091,146	$408,775	0.85%
Northern Trust MSCI EAFE Index	0.02% of Assets	$43,536,227	$8,707	0.02%
Dimensional Emerging Markets Value	0.45% of Assets	$46,458,739	$209,064	0.45%
GQG Partners Emerging Markets	0.73% of Assets	$55,264,865	$403,434	0.73%
Northern Trust Barclays Aggregate Index	0.02% of Assets	$195,471,403	$34,207	0.02%
Northern Trust TIPS	0.02% of Assets	$28,961,839	$5,068	0.02%
Brandywine Global Opportunistic Fixed Income	0.45% of Assets	$41,783,385	$188,025	0.45%
Loomis Sayles Multisector Full Discretion	0.57% of First 15.0 Mil, 0.45% of Next 15.0 Mil, 0.30% Thereafter	$52,413,540	$220,241	0.42%
TA Realty Core Property Fund, L.P.	0.70% of Assets	$87,642,893	$613,500	0.70%
BlueBay Direct Lending Fund II, L.P.	0.00% of Assets	$4,875,169	$0	0.00%
ArrowMark Global Opportunity Fund IV	0.50% of Assets	$35,295,798	$176,479	0.50%
Gainesville Vision	0.00% of Assets	$3,569,961	$0	0.00%
Federated Government Obligations	0.00% of Assets	$1,499,458	$0	0.00%
Total		**$1,037,908,595**	**$3,120,254**	**0.30%**

Performance Fees not included in fee calculation

Asset Study 2023 Review:
2023 Projections vs. 2022 Interim Projections

Asset Allocation Review Introduction

→ The purpose of this review is to ensure MERS' asset allocation targets are still appropriate moving forward.

→ The backbone of the analysis is based on a modeling technique called Mean Variance Optimization (MVO).

→ MVO analysis seeks to predict what the long term expected return will be based on a selected asset mix.

→ The correlation (i.e., degree to which assets move together or inversely) of returns across asset classes is an important driver behind the benefits of diversification in asset allocation.

→ In the first quarter of each year, Meketa Investment Group typically prepares its capital market assumptions which serve as the backbone of the MVO analysis.

→ **The capital market assumptions seek to predict individual asset class returns, correlations and volatility over the next twenty-year period.**

→ **They do not predict returns, correlation or volatility in any given single year.**

Building our forecasts

→ Each return assumption is based on the most important factors that drive returns for that asset class.

→ The common components are income, growth, and valuation.

Asset Class Category	Major Factors
Equities	Dividend Yield, GDP Growth, Valuation
Bonds	Yield to Worst, Default Rate, Recovery Rate
Real Estate	Cap Rate, Income Yield, Growth

Current Asset Allocation Policy

	Target (%)	Ranges (%)
US Equity	33	23-43
International Developed Non-U.S. Equity	13	8-18
Emerging Markets Equity	10	5-15
Investment Grade Bonds	20	10-30
TIPS	3	0-6
High Yield Bonds	3	0-6
Foreign Bonds/EM Debt	3	0-6
Private Debt	3	0-6
Core Real Estate	12	7-17
Total	**100**	

Annual Asset Study

→ The following table illustrates the changes in expected return for each sub asset class that MERS is invested in.

Expected Return[1] Assumptions

	Interim 2022 Study Return Assumptions (%)	2023 Study Return Assumptions (%)	Return Difference (%)	Notes
US Equity	8.0	8.7	+0.7	Lower valuations
International Developed Non-U.S. Equity	9.0	9.8	+0.8	Lower valuations
Emerging Markets Equity	9.3	10.0	+0.7	Lower valuations
Investment Grade Bonds	3.9	4.7	+0.8	Higher yields
TIPS	3.3	4.5	+1.2	Higher yields
High Yield Bonds	7.1	7.3	+0.2	Higher yields
Foreign Bonds/EM Debt	5.6	6.2	+0.6	Higher yields
Private Debt	8.6	9.0	+0.4	Higher yields
Core Real Estate	6.4	6.5	+0.1	Higher borrowing costs and risk-free rate
Retirement System's Expected Return[1]	7.5%	8.1%	+0.6%	

[1] Twenty-year annualized return assumptions.

Expected Risk Assumptions

→ Emerging market equity and private debt annualized 20-year expected risk decreased by 1%.

→ Our expectations are based on historical 15-year averages, with subjective adjustments.

Expected Risk Assumptions[1]

	2022 Interim Study Risk Assumptions (%)	2023 Study Risk Assumptions (%)	Risk Difference (%)
Public Domestic Equity	18.0	18.0	-
International Developed Non-U.S. Equity	19.0	19.0	-
Emerging Markets Equity	24.0	23.0	-1.0
Investment Grade Bonds	4.0	4.0	-
TIPS	7.0	7.0	-
High Yield Bonds	11.0	11.0	-
Foreign Bonds/EM Debt	12.0	12.0	-
Private Debt	16.0	15.0	-1.0
Core Real Estate	12.0	12.0	-
Retirement System's Expected Risk[1]	**12.0%**	**11.9%**	**-0.1%**

[1] Twenty-year annualized assumptions

Summary

→ Return expectations for nearly all assets increased, because:

- Higher yields in fixed income result in higher forward looking return expectations.
- Lower valuations for equities more than offset the lower earnings growth expectations and result in higher forward looking return expectations.

→ Risk expectations decreased for a few asset classes.

Interim 2022 vs. 2023 Asset Study[1] Comparison

	Expectations based on Interim 2022 Asset Study (%)	Expectations based on 2023 Asset Study (%)	Difference (%)
Expected Return	7.5%	8.1%	+0.6%
Expected Standard Deviation	12.0%	11.9%	-0.1%
Sharpe Ratio	0.42	0.43	+0.1

[1] Twenty-year annualized assumptions.

Disclaimer

Disclaimer

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