MEKETA
INVESTMENT GROUP

Municipal Employees' Retirement System of Louisiana

January 26, 2023

Board Meeting

Agenda

1. Economic and Market Update
2. Performance Report as of December 31, 2022
3. Capital Markets Expectations Review
4. Disclaimer

Economic and Market Update

Data as of December 31, 2022

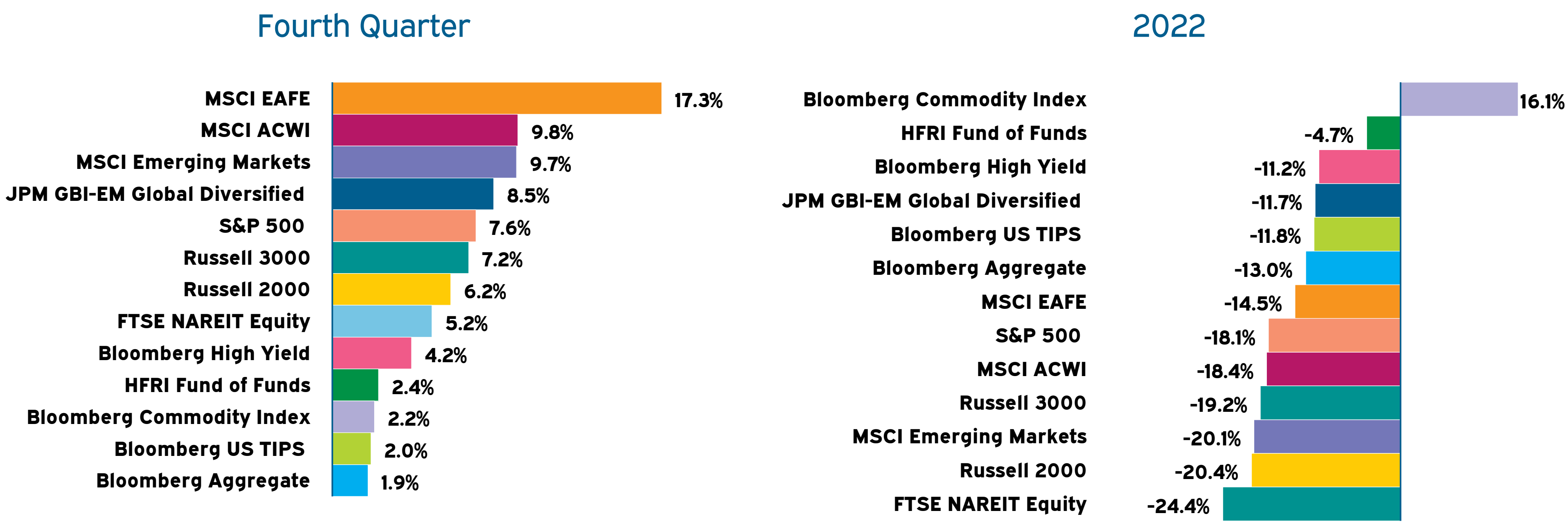
Commentary

→ Ending a very tough year, most asset classes posted gains in the fourth quarter on signs that policy tightening would slow given cooling inflation.

- Chairman Powell's testimony in November reiterated previous messaging on persistent and high inflation and the need for an extended period of monetary tightening weighing on assets in December. Markets remained focused though on signs that inflation is falling and that the size of future Fed rate hikes could be lower.
- US equity markets sold off (-5.9%) in December but returned 7.2% in the fourth quarter as investors balanced the Fed's caution with improving inflation data.
- In developed equity markets outside the US, sentiment deteriorated somewhat in December, but they posted a strong fourth quarter return of 17.3% driven by a falling US dollar and results in Europe where inflation started to slow.
- Emerging market equities declined in December too (-1.4%) but less than the US and also had a strong fourth quarter (+9.7%). A weaker US dollar, declining inflation globally, and signs of China reopening its economy all contributed to the results.
- 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 overall in the fourth quarter though.

→ Looking to 2023, the path of inflation and monetary policy, slowing growth globally, China reopening its economy, and the war in Ukraine will all 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 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 December 31, 2022.

Domestic Equity Returns[1]

Domestic Equity	December (%)	Q4 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	-5.8	7.6	-18.1	7.7	9.4	12.6
Russell 3000	-5.9	7.2	-19.2	7.1	8.8	12.1
Russell 1000	-5.8	7.2	-19.1	7.3	9.1	12.4
Russell 1000 Growth	-7.7	2.2	-29.1	7.8	11.0	14.1
Russell 1000 Value	-4.0	12.4	-7.5	6.0	6.7	10.3
Russell MidCap	-5.4	9.2	-17.3	5.9	7.1	11.0
Russell MidCap Growth	-6.0	6.9	-26.7	3.9	7.6	11.4
Russell MidCap Value	-5.1	10.5	-12.0	5.8	5.7	10.1
Russell 2000	-6.5	6.2	-20.4	3.1	4.1	9.0
Russell 2000 Growth	-6.4	4.1	-26.4	0.6	3.5	9.2
Russell 2000 Value	-6.6	8.4	-14.5	4.7	4.1	8.5

US Equities: Russell 3000 Index declined 5.9% for December but gained 7.2% for the quarter. Historic inflation and rapidly rising interest rates led to significant declines (-19.2%) for the full year.

→ US stocks fell broadly in December on the Federal Reserve signaling its continued resolve to raise rates but gained overall for the quarter on hopes that interest rates could be peaking soon given slowing inflation.

→ All sectors declined during December, led by consumer discretionary and technology with defensive sectors declining less. For the quarter though, most sectors were up led by energy and industrials.

→ In a continuation on the overall trend in 2022 value stocks outperformed growth stocks in the fourth quarter given higher interest rates and slowing growth.

[1] Source: Bloomberg. Data is as of December 31, 2022.

Foreign Equity Returns[1]

Foreign Equity	December (%)	Q4 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	-0.7	14.3	-16.0	0.1	0.9	3.8
MSCI EAFE	0.1	17.3	-14.5	0.9	1.5	4.7
MSCI EAFE (Local Currency)	-3.0	8.7	-7.0	3.6	3.8	7.6
MSCI EAFE Small Cap	1.1	15.8	-21.4	-0.9	0.0	6.2
MSCI Emerging Markets	-1.4	9.7	-20.1	-2.7	-1.4	1.4
MSCI Emerging Markets (Local Currency)	-2.0	6.6	-15.5	0.1	1.3	4.6
MSCI China	5.2	13.5	-21.9	-7.5	-4.5	2.4

Developed international equities (MSCI EAFE) rose 0.1% in December and an impressive 17.3% in the fourth quarter. Emerging markets (MSCI EM) fell -1.4% in December but gained 9.7% for the quarter. Inflation and rising rates also weighed on international equities last year, as well as a strong US dollar for most of the year.

→ International developed market equities, specifically Europe, held up better relative to the rest of the world in December with the MSCI EAFE up 0.1%. In the fourth quarter, they returned a significant 17.3% due in part to the recent weakness in the US dollar (they returned only 8.7% in local terms) leading to lower declines for the year.

→ In December emerging markets outperformed the US but trailed developed market equities as China's rally was not enough to offset weakness elsewhere (e.g., India -5.5%). For the quarter, a weakening US dollar and China reopening led to strong results (+9.7%), but emerging markets remained the weakest for 2022 due to China.

→ Like the US, value outpaced growth globally in 2022.

[1] Source: Bloomberg. Data is as of December 31, 2022.

Fixed Income Returns[1]

Fixed Income	December (%)	Q4 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	-0.3	2.2	-13.0	-2.5	0.2	1.3	5.1	6.2
Bloomberg Aggregate	-0.5	1.9	-13.0	-2.7	0.0	1.1	4.7	6.4
Bloomberg US TIPS	-1.0	2.0	-11.8	1.2	2.1	1.1	4.4	6.7
Bloomberg High Yield	-0.6	4.2	-11.2	0.0	2.3	4.0	9.0	4.4
JPM GBI-EM Global Diversified (USD)	2.2	8.5	-11.7	-6.1	-2.5	-2.0	5.8	4.9

Fixed Income: The Bloomberg Universal fell -0.3% in December but rose 2.2% for the fourth quarter. Last year was one of the worst on record, with the broad bond market declining 13%.

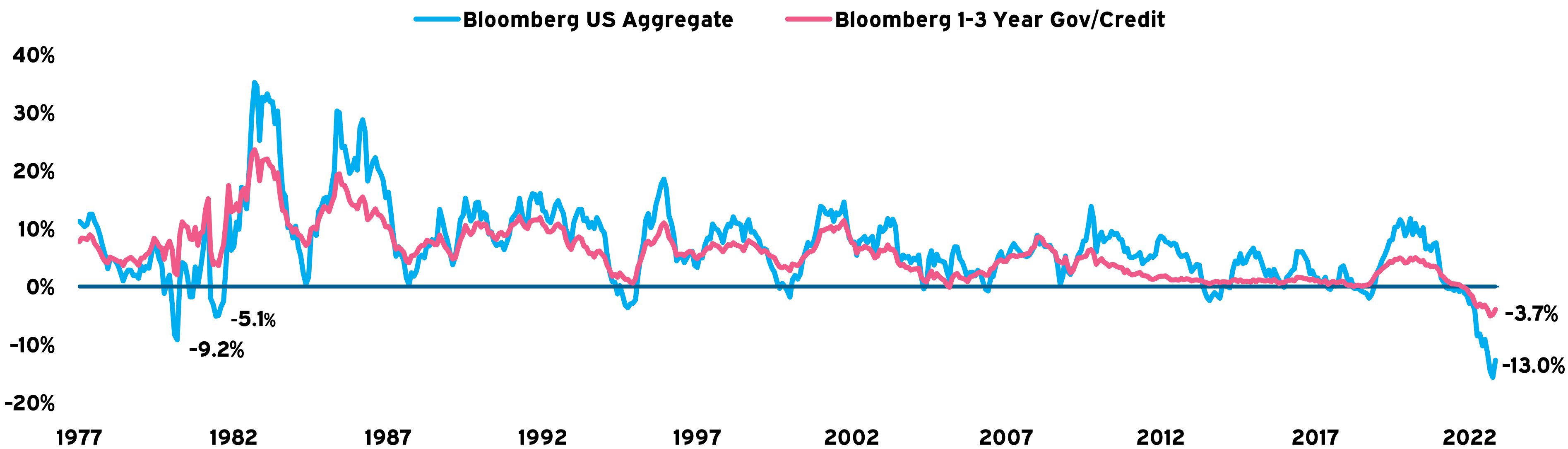
→ The Federal Reserve reconfirming its commitment to tighten policy in the face of high inflation weighed on US fixed income in December. For the quarter though the broad US bond market (Bloomberg Aggregate) was up 1.9% on hopes that inflation would continue to decline and corresponding expectations for the slowing of policy rate hikes.

→ TIPS produced similar results to the broad US bond market for the quarter but outperformed for the year given their inflation adjustment.

→ Riskier bonds outperformed for the quarter due to improving risk sentiment with emerging market bonds performing particularly well.

[1] Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of December 31, 2022. 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]



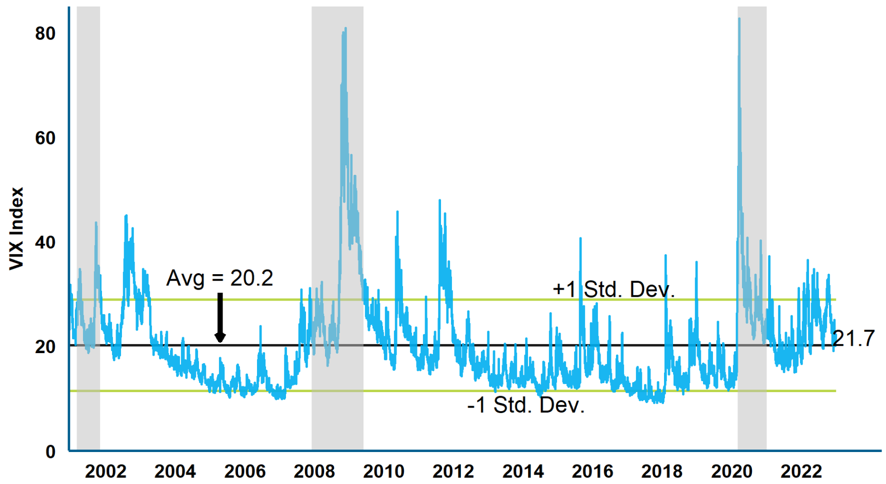
→ Last year was one of the worst return periods for the US bond market given the historic inflation levels and the corresponding rapid rise in interest rates.

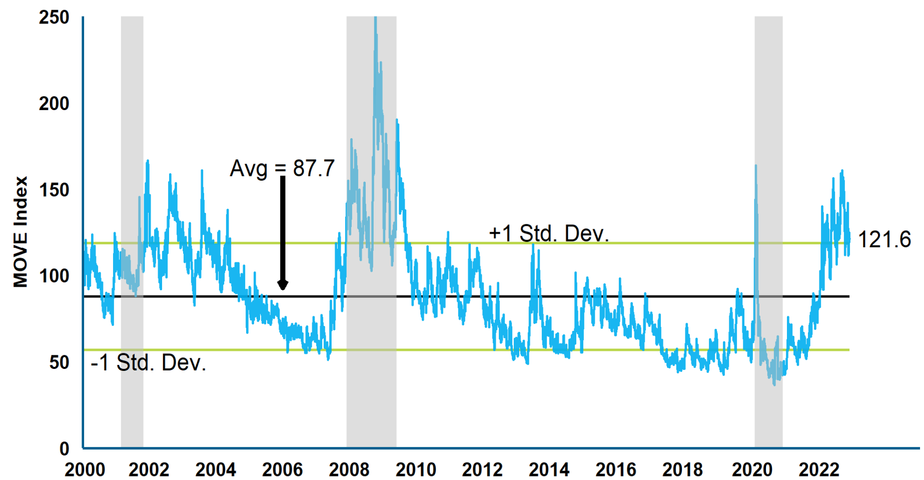
→ The broad bond market (Bloomberg US Aggregate) declined 13% in 2022 making it one of the worst periods on record.

→ Short-term bond declines were far smaller (-3.7%) last year, but also were one of the worst on record.

[1] Source: Bloomberg. Data is as of December 31, 2022.

Equity and Fixed Income Volatility[1]



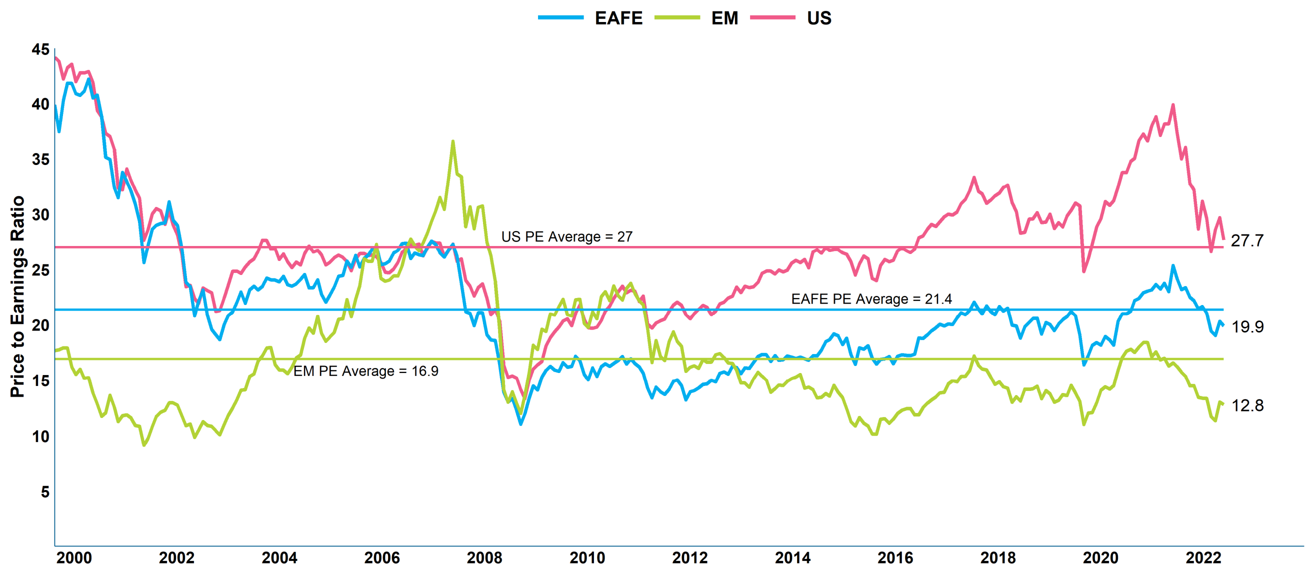


→ Volatility in equities (VIX) finished the year down from its highs and near its long run average as investors anticipated the potential end of Fed rate hikes this year.

→ Fixed income (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.

[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 December 2022. The average line indicated is the average of the VIX and MOVE values between January 2000 and the recent month-end respectively.

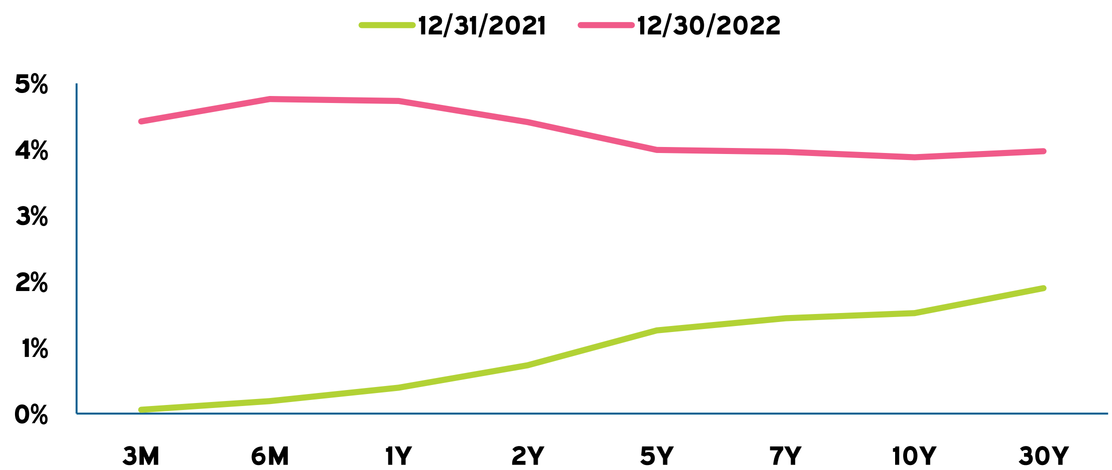
Equity Cyclically Adjusted P/E Ratios[1]



- → After December's sell-off, US equity price-to-earnings ratio finished the year near its long-term (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.
- → Price declines have been the main driver of recent multiple compression as earnings have remained resilient. Concerns remain over whether earnings strength will continue in the face of slowing growth.

[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.

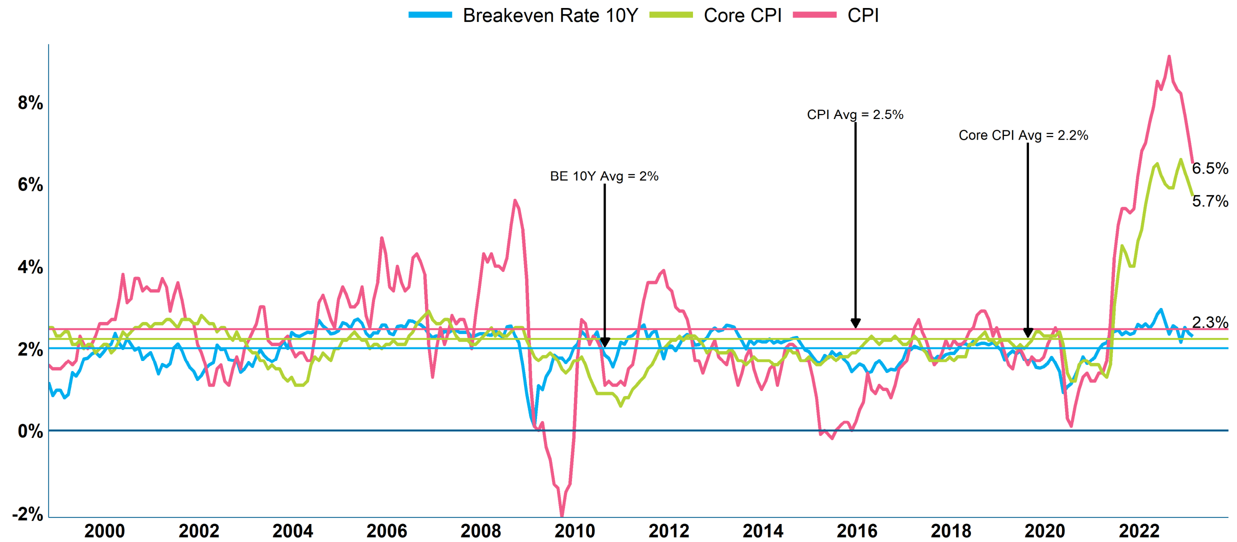
US Yield Curve[1]



- → In December, policy-sensitive interest rates at the front-end of the curve continued to rise with the two-year Treasury yield increasing from 4.3% to 4.4%. Longer dated ten-year Treasury yields also increased (3.6% to 3.9%). For the year, the yield curve rose dramatically across maturities and moved from steep to inverted.
- → The Fed remains strongly committed to fighting inflation, as it increased rates another 50 basis points to a range of 4.0% to 4.5% at its December meeting. This brought the total number of increases for 2022 to seven.
- → The yield spread between two-year and ten-year Treasuries narrowed somewhat to -0.54% after finishing November at -0.70%. The more closely watched measure by the Fed of three-month and ten-year Treasuries also remained inverted. Historically, inversions in the yield curve have often preceded recessions.

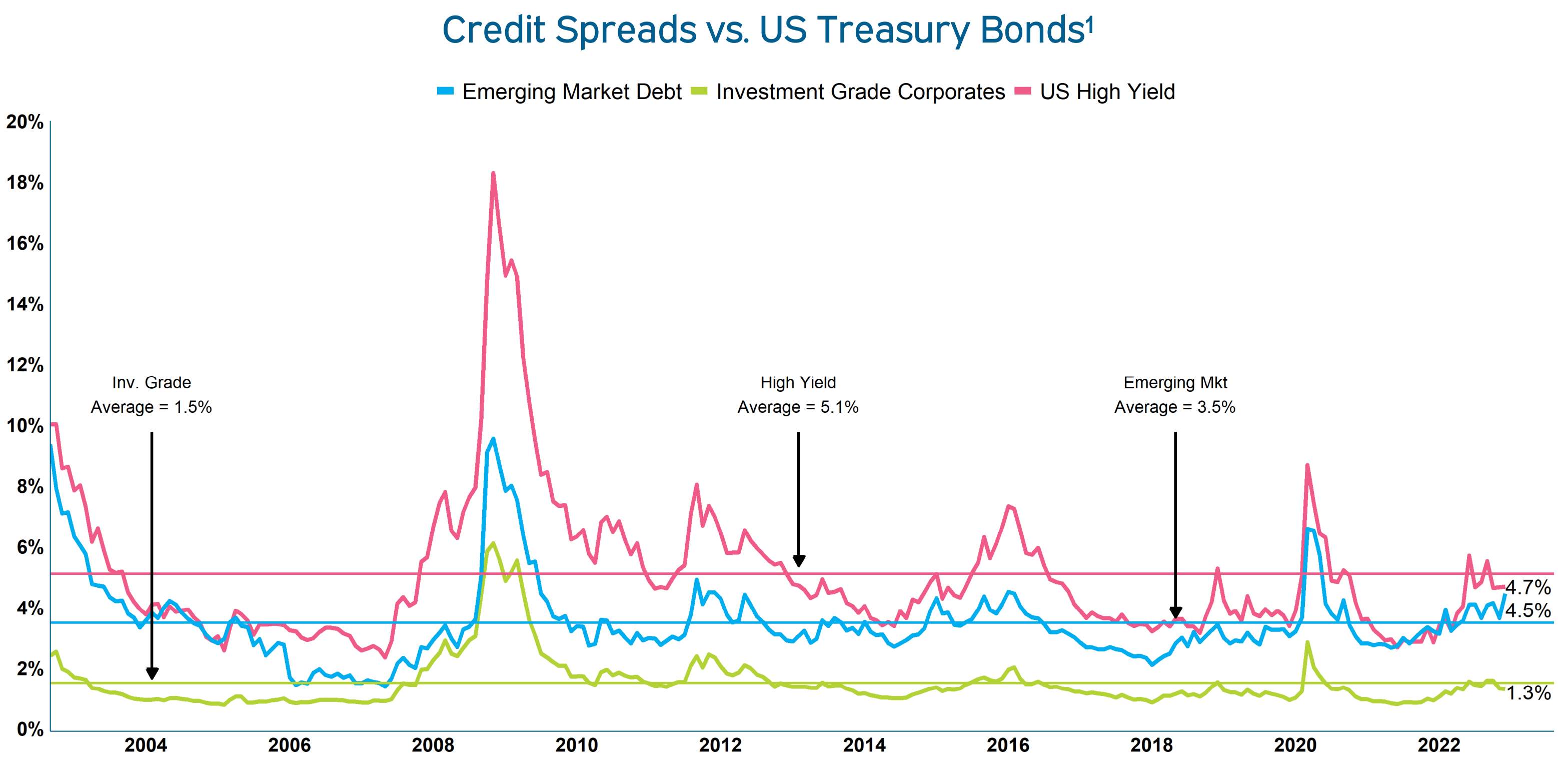
[1] Source: Bloomberg. Data is as of December 31, 2022.

Ten-Year Breakeven Inflation and CPI[1]



- → In December inflation continued to decline (6.5% versus 7.1%) matching expectations and providing support for the Fed to slow the pace of policy tightening. Energy prices fell again for the month but remain up 7.3% from a year prior, while food prices fell slightly, and stickier service prices continued to increase.
- → Core inflation – excluding food and energy – also continued to decline in December (5.7% versus 6.0%) and matched estimates.
- → Inflation expectations (breakevens) declined slightly for the month (2.3% versus 2.4%) and remain well below current inflation levels as investors anticipate a significant moderation in inflation.

[1] Source: Bloomberg. Data is as of December 2022. 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.

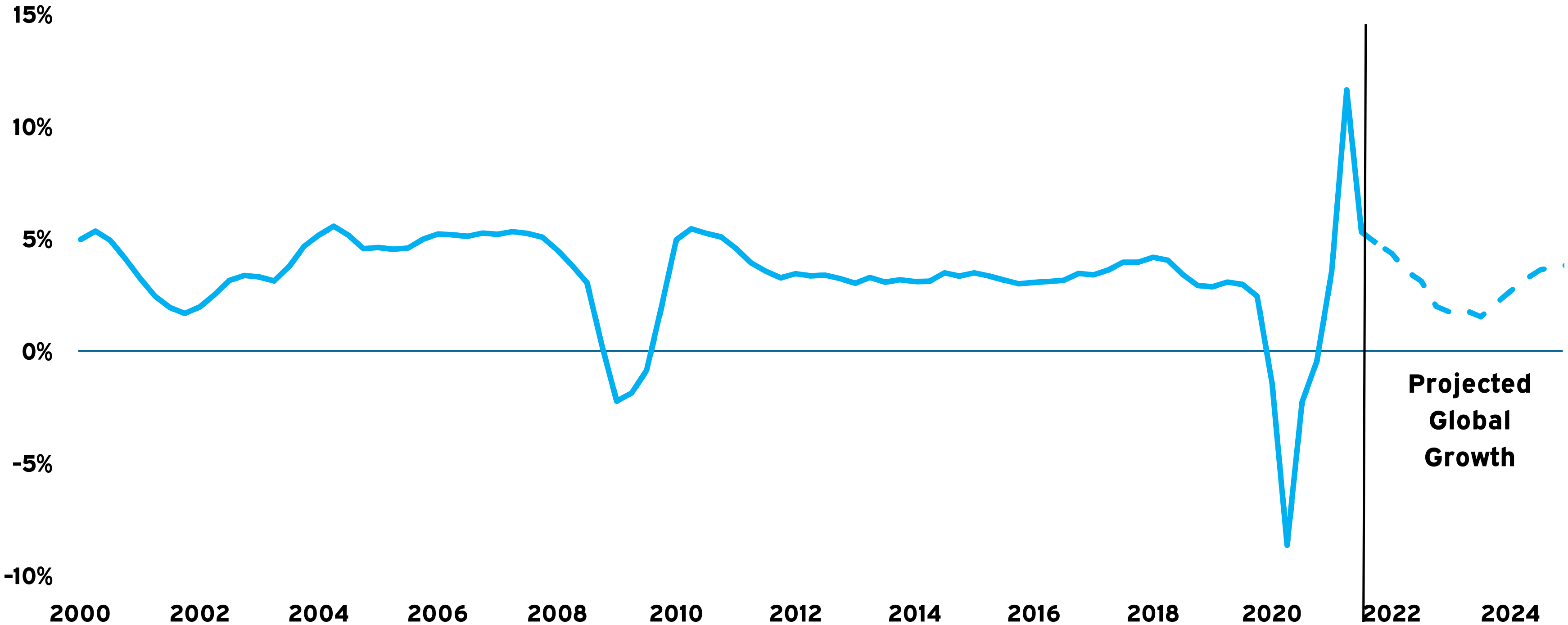


→ High yield spreads (the added yield above a comparable maturity Treasury) finished December at 4.7% (the same as the end of November) remaining below their long-run average.

→ Investment grade spreads also held steady at 1.3% as attractive yields and strong balance sheets continued to attract investors, while emerging market spreads rose (4.5% versus 3.6%) due to concerns regarding slower growth and lower commodity prices.

[1] Sources: Bloomberg. Data is as of December 31, 2022. 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]



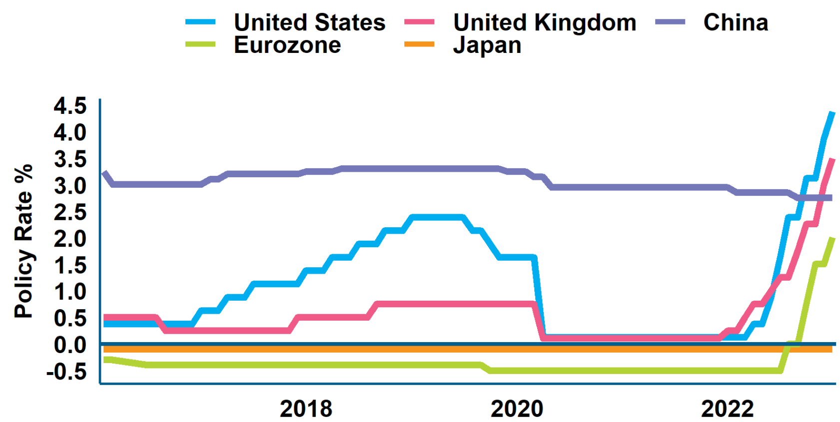
→ Global economies are expected to slow in 2023 compared to 2022, with risks of recession increasing given persistently high inflation and related tighter monetary policy.

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

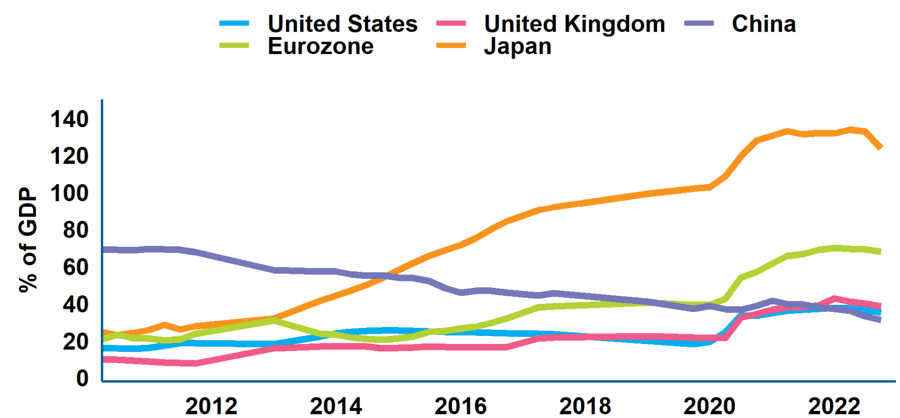
[1] Source: Oxford Economics (World GDP, US$ prices & PPP exchange rate, real, % change YoY). Updated December 2022.

Central Bank Response[1]

Policy Rates



Balance Sheet as % of GDP



→ In 2022 many central banks aggressively reduced pandemic-era policy support in the face of high inflation with the US taking a more aggressive approach.

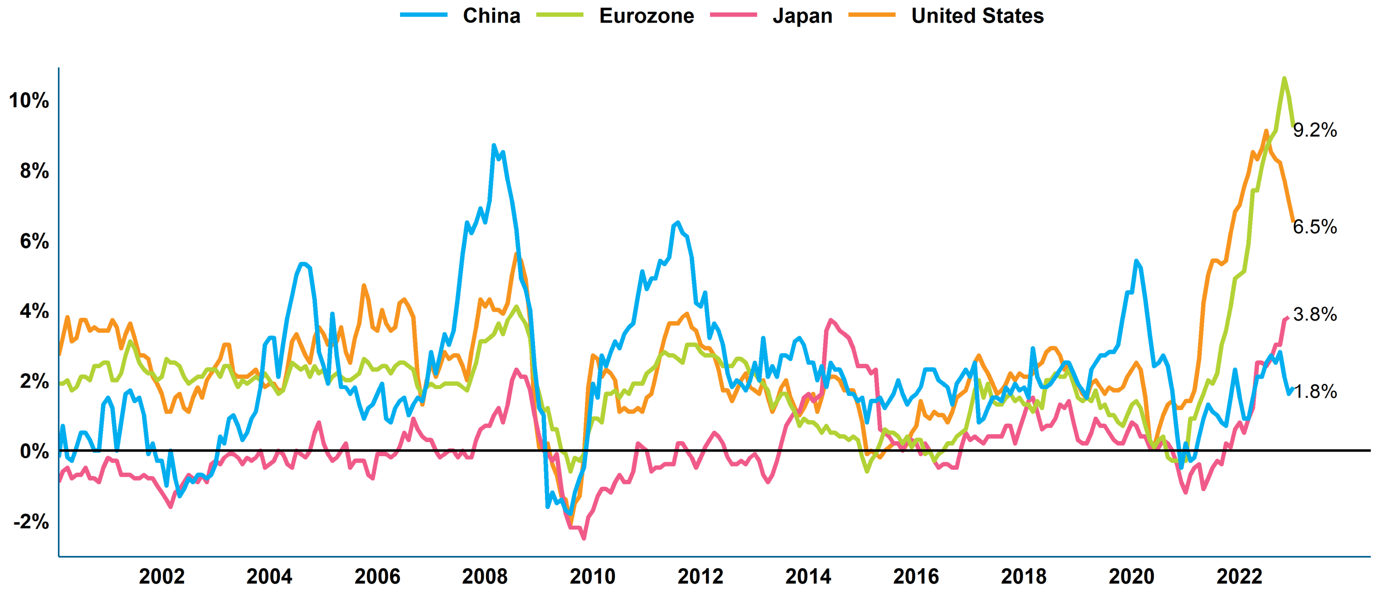
→ In December, the Bank of Japan relaxed its target yield for the 10-year bond which may mark an incremental step toward policy normalization after eight years of quantitative easing.

→ The one notable central bank outlier is China, where the central bank has lowered rates and reserve requirements in response to slowing growth.

→ 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 December 31, 2022. 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]



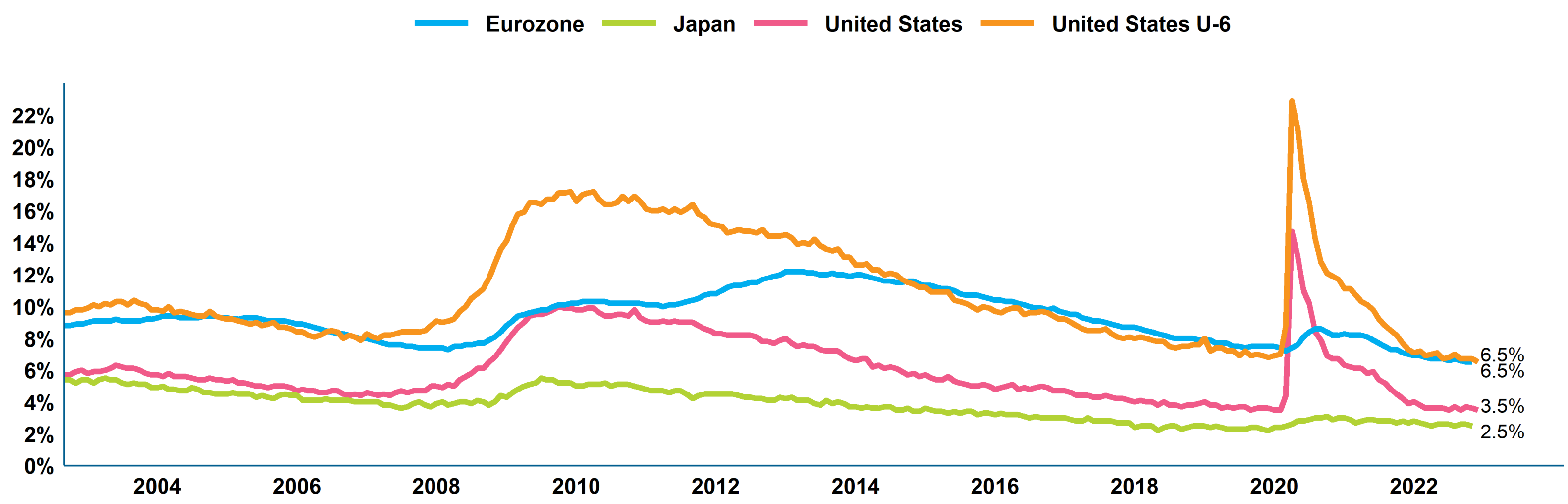
→ Inflation increased dramatically from the lows of the pandemic, particularly in the US and Eurozone where it has reached levels not seen in many decades.

→ Inflation pressures are slowly declining in the US, but they remain elevated, while in Europe they have reached 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 December 2022. The most recent Japanese inflation data is as of November 2022.

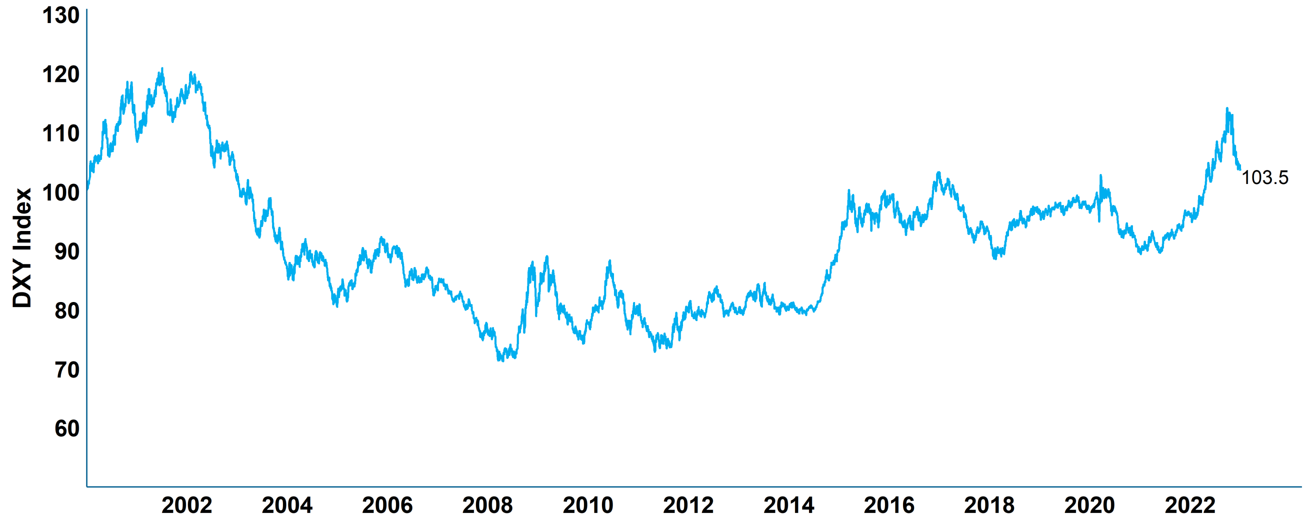
Unemployment[1]



- → 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, has remained in a tight 3.5%-3.7% range for most of the year.
- → 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 December 31, 2022, for the US. The most recent data for Eurozone and Japanese unemployment is as of November 30, 2022.

US Dollar versus Broad Currencies[1]



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

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

→ As we look to 2023, the track of inflation across economies and the corresponding monetary policy will likely be key drivers of currency moves.

[1] Source: Bloomberg. Data as of December 31, 2022.

Summary

Key Trends:

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

→ Monetary policy 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 next 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.

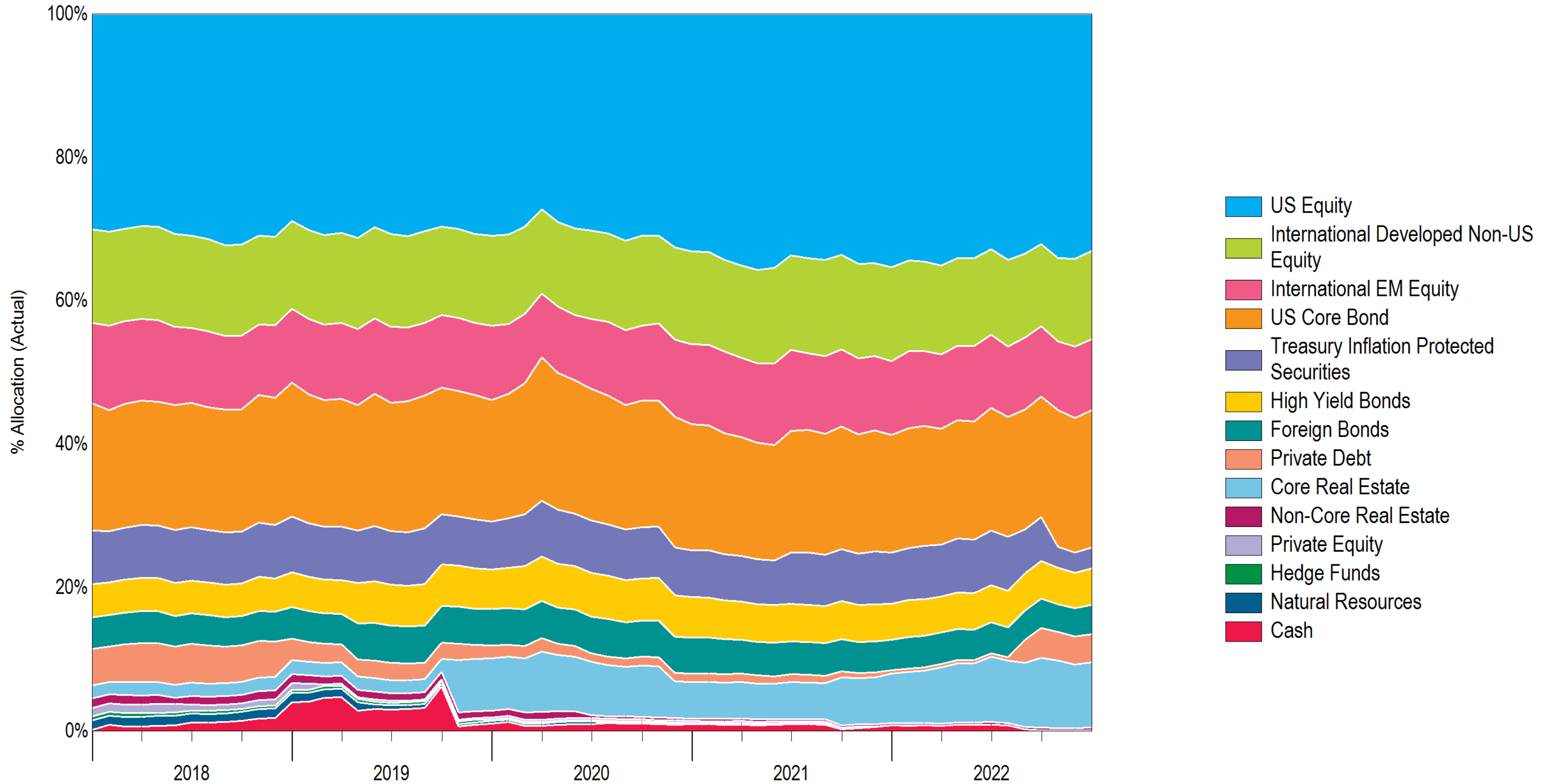
→ Outside the US, equity valuations remain lower in both emerging and developed markets, but risks remain, including potential continued strength in the US dollar, higher inflation particularly weighing on Europe, and China's rushed exit from COVID-19 restrictions and on-going weakness in the real estate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

Performance Report
As of December 31, 2022

Allocation vs. Targets and Policy

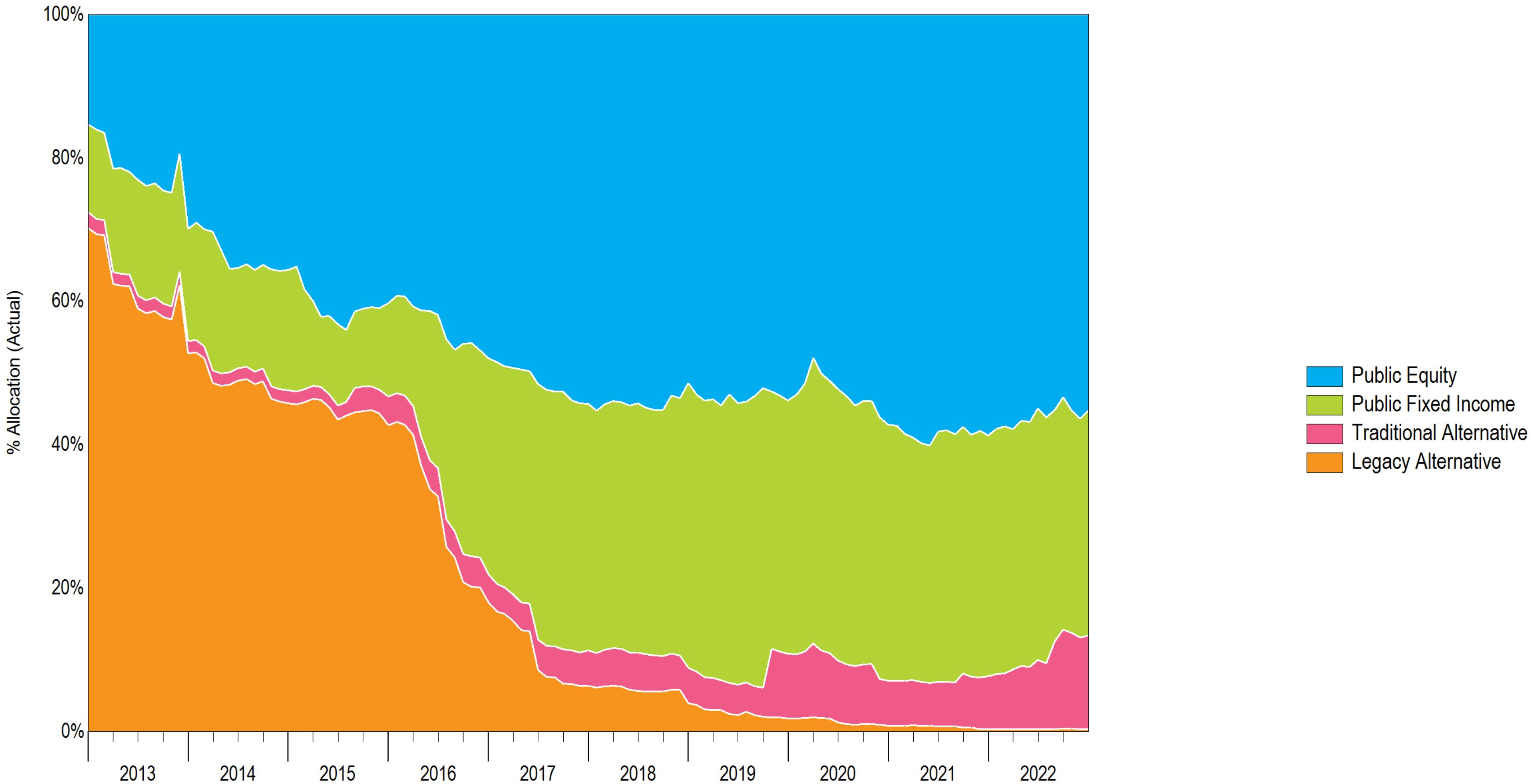
	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
US Equity	$335,555,696	33%	30%	20% - 40%	Yes
International Developed Non-US Equity	$124,917,389	12%	13%	8% - 18%	Yes
International EM Equity	$100,474,637	10%	10%	5% - 15%	Yes
US Core Bond	$194,695,943	19%	20%	10% - 30%	Yes
Treasury Inflation Protected Securities	$28,827,909	3%	7%	2% - 12%	Yes
High Yield Bonds	$51,742,715	5%	6%	0% - 10%	Yes
Foreign Bonds	$41,929,388	4%	5%	0% - 10%	Yes
Private Debt	$39,501,808	4%	3%	0% - 6%	Yes
Core Real Estate	$92,829,868	9%	6%	0% - 10%	Yes
Non-Core Real Estate	$3,569,961	0%	0%	0% - 0%	No
Cash	$1,077,564	0%	0%	0% - 5%	Yes
Total	**$1,015,122,878**	**100%**	**100%**		

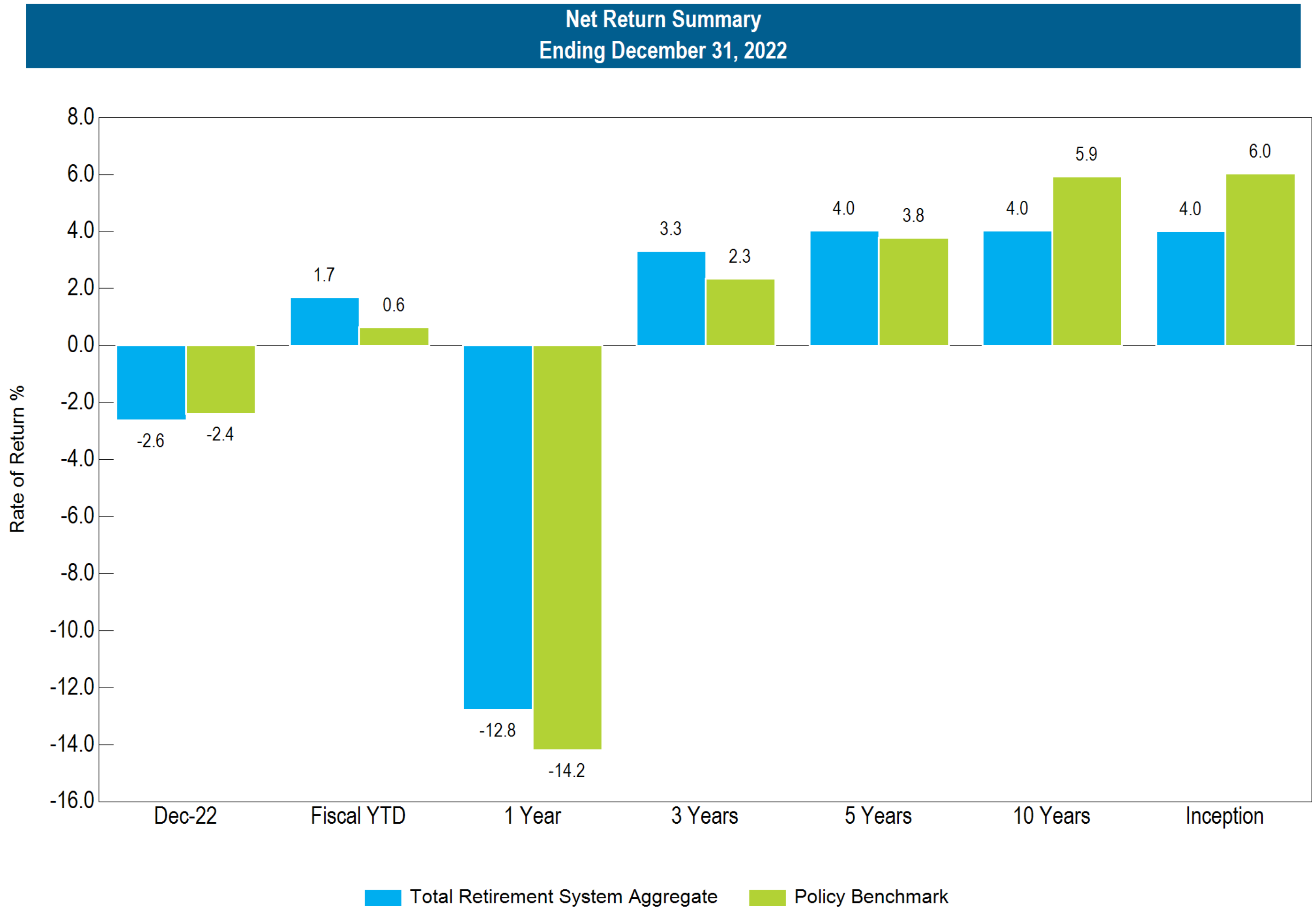
Asset Allocation History
5 Years Ending December 31, 2022



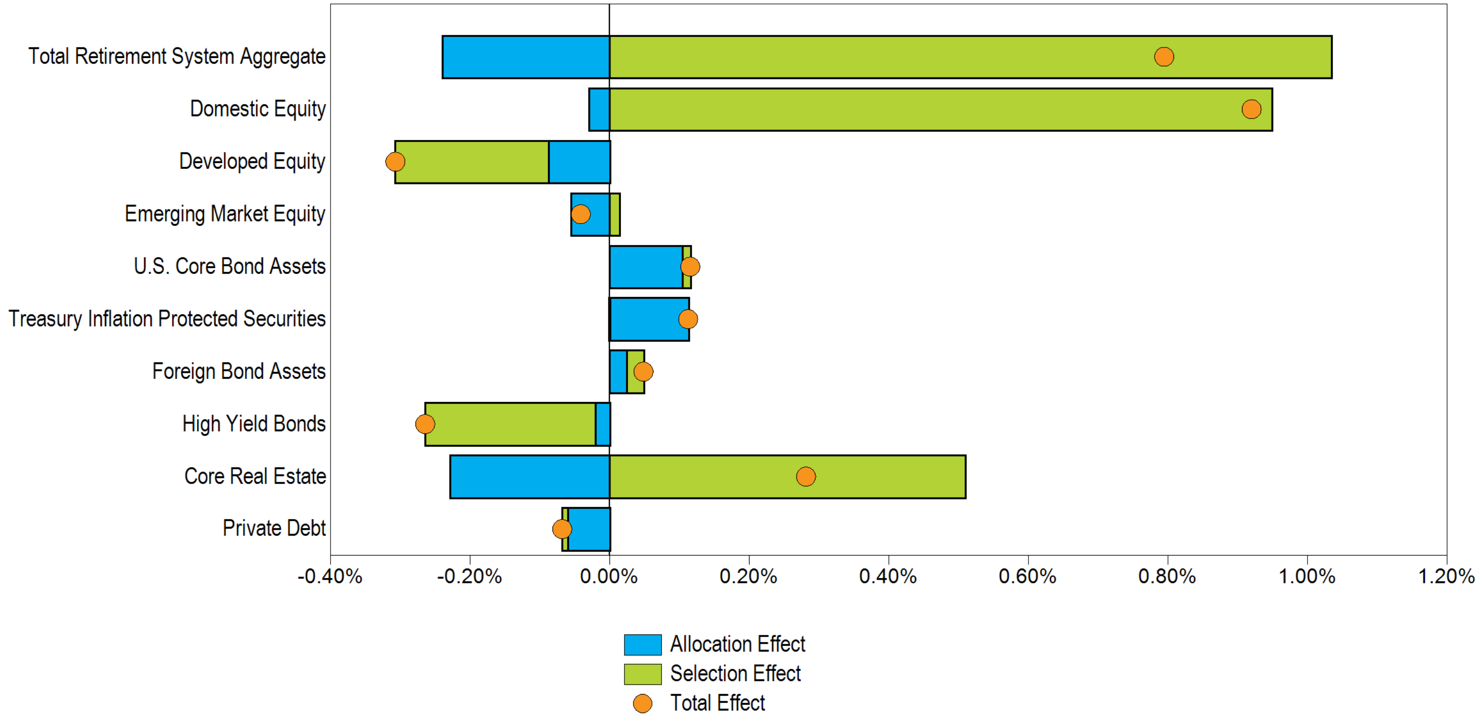
Asset Allocation History

10 Years Ending December 31, 2022




Net Return Summary
Ending December 31, 2022
Rate of Return %
8.0
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-12.0
-14.0
-16.0
-2.6
-2.4
1.7
0.6
-12.8
-14.2
3.3
2.3
4.0
3.8
4.0
5.9
4.0
6.0
Dec-22
Fiscal YTD
1 Year
3 Years
5 Years
10 Years
Inception
Total Retirement System Aggregate
Policy Benchmark

Attribution Effects
6 Months Ending December 31, 2022



Attribution Summary

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total	**1.4%**	**0.6%**	**0.8%**	**1.0%**	**-0.2%**	**0.8%**

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 (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Retirement System Aggregate	**1,015,122,878**	**100.0**	**-2.6**	**1.7**	**-12.8**	**3.3**	**4.0**	**4.0**	**4.0**	**Jan-06**
Policy Benchmark			*-2.4*	*0.6*	*-14.2*	*2.3*	*3.8*	*5.9*	*6.0*	*Jan-06*
60% MSCI ACWI & 40% Barclays Universal			*-2.5*	*0.6*	*-16.0*	*1.7*	*3.5*	*5.5*	*5.3*	*Jan-06*
Domestic Equity	**335,555,696**	**33.1**	**-5.8**	**5.1**	**-16.5**	**7.2**	**7.7**	**10.8**	**8.2**	**Feb-06**
Russell 3000			*-5.9*	*2.4*	*-19.2*	*7.1*	*8.8*	*12.1*	*8.7*	*Feb-06*
Developed Equity	**124,917,389**	**12.3**	**-2.0**	**4.7**	**-17.8**	**2.8**	**4.1**	**--**	**5.0**	**May-14**
MSCI EAFE			*0.1*	*6.4*	*-14.5*	*0.9*	*1.5*	*4.7*	*2.5*	*May-14*
Emerging Market Equity	**100,474,637**	**9.9**	**-3.2**	**-2.1**	**-16.5**	**1.9**	**1.6**	**--**	**4.3**	**Dec-13**
MSCI Emerging Markets			*-1.4*	*-3.0*	*-20.1*	*-2.7*	*-1.4*	*1.4*	*1.9*	*Dec-13*
U.S. Core Bond Assets	**194,695,943**	**19.2**	**-0.5**	**-2.9**	**-12.9**	**-2.7**	**0.0**	**--**	**0.5**	**Apr-13**
Bloomberg US Aggregate TR			*-0.5*	*-3.0*	*-13.0*	*-2.7*	*0.0*	*1.1*	*1.0*	*Apr-13*
Treasury Inflation Protected Securities	**28,827,909**	**2.8**	**-1.0**	**-3.2**	**-11.9**	**1.2**	**2.1**	**--**	**1.7**	**Jul-16**
Bloomberg US TIPS TR			*-1.0*	*-3.2*	*-11.8*	*1.2*	*2.1*	*1.1*	*1.7*	*Jul-16*
Foreign Bond Assets	**41,929,388**	**4.1**	**1.5**	**-2.2**	**-16.2**	**-3.9**	**-1.7**	**--**	**-0.2**	**Apr-13**
Bloomberg Global Aggregate TR			*0.5*	*-2.7*	*-16.2*	*-4.5*	*-1.7*	*-0.4*	*-0.4*	*Apr-13*
High Yield Bonds	**51,742,715**	**5.1**	**-0.2**	**-0.9**	**-12.5**	**0.2**	**1.8**	**--**	**3.3**	**Apr-13**
Bloomberg US High Yield TR			*-0.6*	*3.5*	*-11.2*	*0.0*	*2.3*	*4.0*	*3.7*	*Apr-13*

	Market Value ($)	% of Portfolio	1 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Core Real Estate	**92,829,868**	**9.1**	**0.0**	**1.4**	**15.4**	**16.2**	**12.7**	**12.0**	**8.4**	**Apr-06**
NCREIF ODCE Equal Weighted (Net)			*-5.1*	*-4.3*	*7.6*	*9.7*	*8.3*	*9.5*	*6.3*	*Apr-06*
Private Debt	**39,501,808**	**3.9**	**0.6**	**1.7**	**5.8**	**7.1**	**8.2**	**--**	**7.1**	**Apr-13**
Bloomberg US High Yield+2%			*-0.5*	*4.5*	*-9.4*	*2.1*	*4.4*	*6.1*	*5.7*	*Apr-13*
Non-Core Real Estate	**3,569,961**	**0.4**	**0.0**	**0.0**	**0.0**	**-25.5**	**-11.1**	**-6.0**	**-2.5**	**Feb-06**
NCREIF Property (1 Qtr Lag)			*0.6*	*3.8*	*16.1*	*9.9*	*8.6*	*9.5*	*8.3*	*Feb-06*
Cash	**1,077,564**	**0.1**	**0.2**	**0.6**	**0.7**	**0.6**	**1.3**	**0.7**	**0.9**	**Feb-06**
91 Day T-Bills			*0.4*	*1.3*	*1.5*	*0.6*	*1.2*	*0.7*	*1.1*	*Feb-06*

Trailing Net Performance

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Retirement System Aggregate	**1,015,122,878**	**100.0**	**--**	**-2.6**	**1.7**	**-12.8**	**3.3**	**4.0**	**4.0**	**4.0**	**Jan-06**
Policy Benchmark				*-2.4*	*0.6*	*-14.2*	*2.3*	*3.8*	*5.9*	*6.0*	*Jan-06*
60% MSCI ACWI & 40% Barclays Universal				*-2.5*	*0.6*	*-16.0*	*1.7*	*3.5*	*5.5*	*5.3*	*Jan-06*
Domestic Equity	**335,555,696**	**33.1**	**33.1**	**-5.8**	**5.1**	**-16.5**	**7.2**	**7.7**	**10.8**	**8.2**	**Feb-06**
Russell 3000				*-5.9*	*2.4*	*-19.2*	*7.1*	*8.8*	*12.1*	*8.7*	*Feb-06*
Northern Trust S&P 500 Index	195,031,330	19.2	58.1	-5.8	2.3	-18.1	7.6	9.4	--	10.7	Dec-13
S&P 500				*-5.8*	*2.3*	*-18.1*	*7.7*	*9.4*	*12.6*	*10.8*	*Dec-13*
Large Cap MStar MF Median				*-5.3*	*3.1*	*-18.0*	*6.9*	*8.3*	*11.5*	*9.5*	*Dec-13*
Large Cap MStar MF Rank				*60*	*58*	*51*	*34*	*24*	*--*	*19*	*Dec-13*
Northern Trust S&P 400 MidCap Index	69,145,304	6.8	20.6	-5.5	8.1	-13.1	7.2	6.6	--	8.7	Dec-13
S&P 400 MidCap				*-5.5*	*8.1*	*-13.1*	*7.2*	*6.7*	*10.8*	*8.8*	*Dec-13*
Mid Cap MStar MF Median				*-5.3*	*4.7*	*-17.3*	*5.8*	*6.5*	*10.4*	*8.1*	*Dec-13*
Mid Cap MStar MF Rank				*59*	*11*	*33*	*28*	*49*	*--*	*29*	*Dec-13*
Barrow Hanley Small Cap Value Equity	41,760,496	4.1	12.4	-7.3	11.3	-9.4	11.3	7.3	10.7	9.8	Jan-06
Russell 2000 Value				*-6.6*	*3.4*	*-14.5*	*4.7*	*4.1*	*8.5*	*6.7*	*Jan-06*
Small Value MStar MF Median				*-5.8*	*5.7*	*-10.5*	*7.0*	*5.1*	*9.3*	*7.5*	*Jan-06*
Small Value MStar MF Rank				*96*	*6*	*45*	*12*	*19*	*14*	*1*	*Jan-06*
Loomis Sayles Small Cap Growth	29,618,566	2.9	8.8	-4.5	8.2	-23.0	--	--	--	6.8	Jun-20
Russell 2000 Growth				*-6.4*	*4.4*	*-26.4*	*0.6*	*3.5*	*9.2*	*3.5*	*Jun-20*
Small Growth MStar MF Median				*-5.8*	*3.3*	*-28.1*	*3.2*	*6.6*	*10.2*	*5.2*	*Jun-20*
Small Growth MStar MF Rank				*15*	*5*	*16*	*--*	*--*	*--*	*37*	*Jun-20*

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Developed Equity	**124,917,389**	**12.3**	**12.3**	**-2.1**	**4.4**	**-18.3**	**2.2**	**3.6**	**--**	**4.7**	**May-14**
MSCI EAFE				*0.1*	*6.4*	*-14.5*	*0.9*	*1.5*	*4.7*	*2.5*	*May-14*
First Eagle International Value	38,232,221	3.8	30.6	0.0	2.5	-7.5	1.5	2.1	--	3.0	May-14
MSCI EAFE				*0.1*	*6.4*	*-14.5*	*0.9*	*1.5*	*4.7*	*2.5*	*May-14*
Foreign MStar MF Median				*-1.8*	*4.3*	*-17.3*	*0.7*	*1.2*	*4.6*	*2.7*	*May-14*
Foreign MStar MF Rank				*8*	*78*	*7*	*31*	*29*	*--*	*41*	*May-14*
WCM Focused International Growth Fund	45,307,406	4.5	36.3	-4.1	4.2	-28.7	3.7	6.9	--	7.7	Jun-14
MSCI ACWI ex USA				*-0.7*	*3.0*	*-16.0*	*0.1*	*0.9*	*3.8*	*2.3*	*Jun-14*
Foreign MStar MF Median				*-1.8*	*4.3*	*-17.3*	*0.7*	*1.2*	*4.6*	*2.7*	*Jun-14*
Foreign MStar MF Rank				*91*	*52*	*89*	*9*	*1*	*--*	*1*	*Jun-14*
Northern Trust MSCI EAFE Index	41,377,762	4.1	33.1	-1.7	6.5	-13.8	1.3	2.0	--	5.5	Jan-17
MSCI EAFE				*0.1*	*6.4*	*-14.5*	*0.9*	*1.5*	*4.7*	*5.1*	*Jan-17*
Foreign MStar MF Median				*-1.8*	*4.3*	*-17.3*	*0.7*	*1.2*	*4.6*	*5.1*	*Jan-17*
Foreign MStar MF Rank				*45*	*13*	*28*	*35*	*31*	*--*	*37*	*Jan-17*
Emerging Market Equity	**100,474,637**	**9.9**	**9.9**	**-3.2**	**-2.3**	**-16.8**	**1.5**	**1.2**	**--**	**4.1**	**Dec-13**
MSCI Emerging Markets				*-1.4*	*-3.0*	*-20.1*	*-2.7*	*-1.4*	*1.4*	*1.9*	*Dec-13*
Dimensional Emerging Markets Value	45,647,610	4.5	45.4	-2.2	-0.5	-10.7	1.0	-0.1	--	2.4	Dec-13
MSCI Emerging Markets Value NR USD				*-1.5*	*-2.3*	*-15.8*	*-2.6*	*-1.6*	*0.1*	*0.7*	*Dec-13*
MSCI Emerging Markets				*-1.4*	*-3.0*	*-20.1*	*-2.7*	*-1.4*	*1.4*	*1.9*	*Dec-13*
Diversified Emerging Mkts MStar MF Median				*-2.4*	*-2.0*	*-22.4*	*-3.0*	*-1.5*	*1.6*	*1.8*	*Dec-13*
Diversified Emerging Mkts MStar MF Rank				*42*	*35*	*4*	*19*	*27*	*--*	*34*	*Dec-13*

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
GQG Partners Emerging Markets	54,827,027	5.4	54.6	-4.1	-3.8	-21.3	1.9	--	--	4.7	Sep-18
MSCI Emerging Markets				*-1.4*	*-3.0*	*-20.1*	*-2.7*	*-1.4*	*1.4*	*0.1*	*Sep-18*
Diversified Emerging Mkts MStar MF Median				*-2.4*	*-2.0*	*-22.4*	*-3.0*	*-1.5*	*1.6*	*0.4*	*Sep-18*
Diversified Emerging Mkts MStar MF Rank				*91*	*74*	*41*	*13*	*--*	*--*	*6*	*Sep-18*
U.S. Core Bond Assets	**194,695,943**	**19.2**	**19.2**	**-0.5**	**-2.9**	**-12.9**	**-2.7**	**0.0**	**--**	**0.5**	**Apr-13**
Bloomberg US Aggregate TR				*-0.5*	*-3.0*	*-13.0*	*-2.7*	*0.0*	*1.1*	*1.0*	*Apr-13*
Northern Trust Barclays Aggregate Index	194,695,943	19.2	100.0	-0.5	-2.9	-12.9	-2.7	0.0	--	0.9	Dec-15
Bloomberg US Aggregate TR				*-0.5*	*-3.0*	*-13.0*	*-2.7*	*0.0*	*1.1*	*0.9*	*Dec-15*
Intermediate Core Bond MStar MF Median				*-0.5*	*-3.1*	*-13.3*	*-2.6*	*0.0*	*1.1*	*1.0*	*Dec-15*
Intermediate Core Bond MStar MF Rank				*49*	*33*	*30*	*59*	*55*	*--*	*69*	*Dec-15*
Treasury Inflation Protected Securities	**28,827,909**	**2.8**	**2.8**	**-1.0**	**-3.2**	**-11.9**	**1.2**	**2.1**	**--**	**1.7**	**Jul-16**
Bloomberg US TIPS TR				*-1.0*	*-3.2*	*-11.8*	*1.2*	*2.1*	*1.1*	*1.7*	*Jul-16*
Northern Trust TIPS	28,827,909	2.8	100.0	-1.0	-3.3	-11.9	1.2	2.1	--	1.7	Jul-16
Bloomberg US TIPS TR				*-1.0*	*-3.2*	*-11.8*	*1.2*	*2.1*	*1.1*	*1.7*	*Jul-16*
Inflation-Protected Bond MStar MF Median				*-0.8*	*-2.9*	*-11.5*	*1.4*	*2.1*	*0.9*	*1.7*	*Jul-16*
Inflation-Protected Bond MStar MF Rank				*62*	*70*	*65*	*57*	*50*	*--*	*51*	*Jul-16*
Foreign Bond Assets	**41,929,388**	**4.1**	**4.1**	**1.5**	**-2.2**	**-16.2**	**-3.9**	**-1.7**	**--**	**-0.2**	**Apr-13**
Bloomberg Global Aggregate TR				*0.5*	*-2.7*	*-16.2*	*-4.5*	*-1.7*	*-0.4*	*-0.4*	*Apr-13*
Brandywine Global Opportunistic Fixed Income	41,929,388	4.1	100.0	1.5	-2.2	-16.2	-3.9	-1.7	0.2	3.8	Jan-06
Bloomberg Global Aggregate TR				*0.5*	*-2.7*	*-16.2*	*-4.5*	*-1.7*	*-0.4*	*2.2*	*Jan-06*
Global Bond MStar MF Median				*0.3*	*-2.0*	*-15.7*	*-4.3*	*-1.9*	*-0.3*	*2.7*	*Jan-06*
Global Bond MStar MF Rank				*10*	*59*	*55*	*48*	*49*	*30*	*1*	*Jan-06*

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
High Yield Bonds	**51,742,715**	**5.1**	**5.1**	**-0.2**	**-0.9**	**-12.5**	**0.2**	**1.8**	**--**	**3.3**	**Apr-13**
Bloomberg US High Yield TR				*-0.6*	*3.5*	*-11.2*	*0.0*	*2.3*	*4.0*	*3.7*	*Apr-13*
Loomis Sayles Multisector Full Discretion	51,742,715	5.1	100.0	-0.2	-0.9	-12.5	0.2	1.8	3.2	5.8	Jan-06
Bloomberg US Govt/Credit TR				*-0.5*	*-2.8*	*-13.6*	*-2.6*	*0.2*	*1.2*	*3.1*	*Jan-06*
Bloomberg US High Yield TR				*-0.6*	*3.5*	*-11.2*	*0.0*	*2.3*	*4.0*	*6.2*	*Jan-06*
Multisector Bond MStar MF Median				*0.0*	*0.8*	*-9.7*	*-0.6*	*1.4*	*2.5*	*4.5*	*Jan-06*
Multisector Bond MStar MF Rank				*66*	*82*	*82*	*28*	*25*	*21*	*1*	*Jan-06*
Core Real Estate	**92,829,868**	**9.1**	**9.1**	**0.0**	**1.4**	**15.4**	**16.2**	**12.7**	**12.0**	**8.4**	**Apr-06**
NCREIF ODCE Equal Weighted (Net)				*-5.1*	*-4.3*	*7.6*	*9.7*	*8.3*	*9.5*	*6.3*	*Apr-06*
TA Realty Core Property Fund, L.P.	92,829,868	9.1	100.0	0.0	1.4	15.4	16.4	--	--	15.7	Oct-19
NCREIF ODCE Equal Weighted (Net)				*-5.1*	*-4.3*	*7.6*	*9.7*	*8.3*	*9.5*	*9.4*	*Oct-19*
Private Debt	**39,501,808**	**3.9**	**3.9**	**0.6**	**1.6**	**5.8**	**7.1**	**8.2**	**--**	**7.1**	**Apr-13**
Bloomberg US High Yield+2%				*-0.5*	*4.5*	*-9.4*	*2.1*	*4.4*	*6.1*	*5.7*	*Apr-13*
BlueBay Direct Lending Fund II, L.P.	4,941,762	0.5	12.5	0.0	-0.3	3.7	6.3	6.9	--	7.3	Aug-15
Bloomberg US High Yield+2%				*-0.5*	*4.5*	*-9.4*	*2.1*	*4.4*	*6.1*	*5.9*	*Aug-15*
ArrowMark Global Opportunity Fund IV	34,560,046	3.4	87.5	0.7	--	--	--	--	--	2.2	Sep-22
Bloomberg US High Yield+2%				*-0.5*	*4.5*	*-9.4*	*2.1*	*4.4*	*6.1*	*0.7*	*Sep-22*

TA Realty Core Property Fund and BlueBay Direct Lending Fund II as of 09/30/2022, adjusted for current quarter cash flows

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Non-Core Real Estate	**3,569,961**	**0.4**	**0.4**	**0.0**	**0.0**	**0.0**	**-25.5**	**-11.1**	**-6.0**	**-2.5**	**Feb-06**
NCREIF Property (1 Qtr Lag)				*0.6*	*3.8*	*16.1*	*9.9*	*8.6*	*9.5*	*8.3*	*Feb-06*
Gainesville Vision	3,569,961	0.4	100.0	0.0	0.0	0.0	-25.5	4.8	-0.2	-4.3	Jan-08
NCREIF Property (1 Qtr Lag)				*0.6*	*3.8*	*16.1*	*9.9*	*8.6*	*9.5*	*7.0*	*Jan-08*
Cash	**1,077,564**	**0.1**	**0.1**	**0.2**	**0.6**	**0.7**	**0.6**	**1.3**	**0.7**	**0.9**	**Feb-06**
91 Day T-Bills				*0.4*	*1.3*	*1.5*	*0.6*	*1.2*	*0.7*	*1.1*	*Feb-06*

Cash Flow Summary

	Month Ending December 31, 2022					
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
ArrowMark Global Opportunity Fund IV	$35,344,240	$0	-$1,042,298	-$1,042,298	$258,104	$34,560,046
Barrow Hanley Small Cap Value Equity	$45,045,875	$0	$0	$0	-$3,285,379	$41,760,496
BlueBay Direct Lending Fund II, L.P.	$4,941,762	$0	$0	$0	$0	$4,941,762
Brandywine Global Opportunistic Fixed Income	$41,307,691	$0	$0	$0	$621,696	$41,929,388
Dimensional Emerging Markets Value	$46,680,376	$0	-$181	-$181	-$1,032,586	$45,647,610
Federated Government Obligations	$609,283	$1,042,486	-$575,733	$466,753	$1,529	$1,077,564
First Eagle International Value	$38,235,911	$0	$0	$0	-$3,690	$38,232,221
Gainesville Vision	$3,569,961	$0	$0	$0	$0	$3,569,961
GQG Partners Emerging Markets	$57,162,162	$0	$0	$0	-$2,335,135	$54,827,027
Loomis Sayles Multisector Full Discretion	$51,849,226	$0	$0	$0	-$106,511	$51,742,715
Loomis Sayles Small Cap Growth	$31,020,221	$0	$0	$0	-$1,401,655	$29,618,566
Northern Trust Barclays Aggregate Index	$195,630,836	$0	$0	$0	-$934,893	$194,695,943
Northern Trust MSCI EAFE Index	$42,093,631	$0	$0	$0	-$715,869	$41,377,762
Northern Trust S&P 400 MidCap Index	$73,204,797	$0	$0	$0	-$4,059,493	$69,145,304
Northern Trust S&P 500 Index	$206,957,913	$0	$0	$0	-$11,926,582	$195,031,330
Northern Trust TIPS	$29,628,693	$0	-$500,000	-$500,000	-$300,784	$28,827,909
TA Realty Core Property Fund, L.P.	$92,829,868	$0	$0	$0	$0	$92,829,868
WCM Focused International Growth Fund	$47,219,830	$0	$0	$0	-$1,912,424	$45,307,406
Total	**$1,043,332,277**	**$1,042,486**	**-$2,118,212**	**-$1,075,726**	**-$27,133,673**	**$1,015,122,878**

Investment Expense Analysis
As Of December 31, 2022

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Northern Trust S&P 500 Index	0.01% of Assets	$195,031,330	$14,627	0.01%
Northern Trust S&P 400 MidCap Index	0.02% of Assets	$69,145,304	$10,372	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	$41,760,496	$258,802	0.62%
Loomis Sayles Small Cap Growth	0.75% of Assets	$29,618,566	$222,139	0.75%
First Eagle International Value	0.79% of Assets	$38,232,221	$302,035	0.79%
WCM Focused International Growth Fund	0.85% of Assets	$45,307,406	$385,113	0.85%
Northern Trust MSCI EAFE Index	0.02% of Assets	$41,377,762	$8,276	0.02%
Dimensional Emerging Markets Value	0.45% of Assets	$45,647,610	$205,414	0.45%
GQG Partners Emerging Markets	0.73% of Assets	$54,827,027	$400,237	0.73%
Northern Trust Barclays Aggregate Index	0.02% of Assets	$194,695,943	$34,072	0.02%
Northern Trust TIPS	0.02% of Assets	$28,827,909	$5,045	0.02%
Brandywine Global Opportunistic Fixed Income	0.45% of Assets	$41,929,388	$188,682	0.45%
Loomis Sayles Multisector Full Discretion	0.57% of First 15.0 Mil, 0.45% of Next 15.0 Mil, 0.30% Thereafter	$51,742,715	$218,228	0.42%
TA Realty Core Property Fund, L.P.	0.70% of Assets	$92,829,868	$649,809	0.70%
BlueBay Direct Lending Fund II, L.P.	0.00% of Assets	$4,941,762	$0	0.00%
ArrowMark Global Opportunity Fund IV	0.50% of Assets	$34,560,046	$172,800	0.50%
Gainesville Vision	0.00% of Assets	$3,569,961	$0	0.00%
Federated Government Obligations	0.00% of Assets	$1,077,564	$0	0.00%
Total		**$1,015,122,878**	**$3,075,652**	**0.30%**

Performance Fees not included in fee calculation

Capital Markets Expectations

Setting Capital Market Expectations

→ Capital Markets Expectations are the inputs needed to conduct MVO.

- MVO is the traditional starting point for determining asset allocation.

→ Consultants (including Meketa) generally set them once a year.

- Our results are published in January, based on December 31 data.

→ This involves setting long-term expectations for a variety of asset classes for:

- Returns
- Standard Deviation
- Correlations (i.e., covariance)

→ Our process relies on both quantitative and qualitative methodologies.

Asset Class Definitions

→ We identify asset classes and strategies that are appropriate for long-term allocation of funds, and that also are investable.

→ Several considerations influence this process:

- Unique return behavior,
- Observable historical track record,
- A robust market,
- And client requests.

→ We then make forecasts for each asset class.

- We created inputs for 97 "asset classes" in 2022.

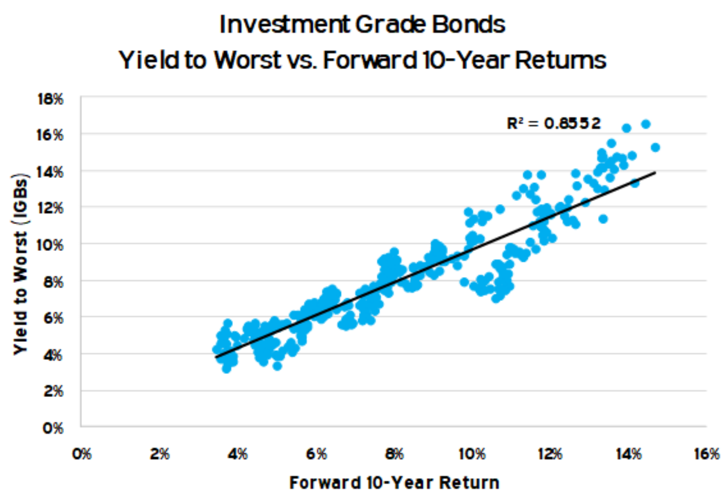
Building 10-year forecasts

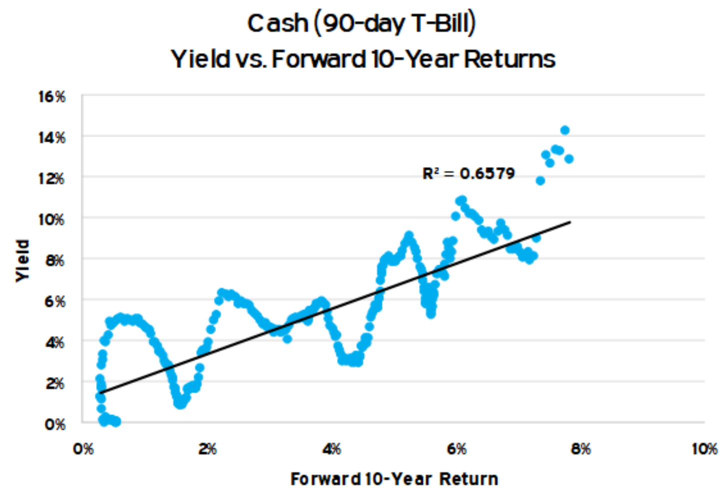
→ Our first step is to develop 10-year forecasts based on fundamental models.

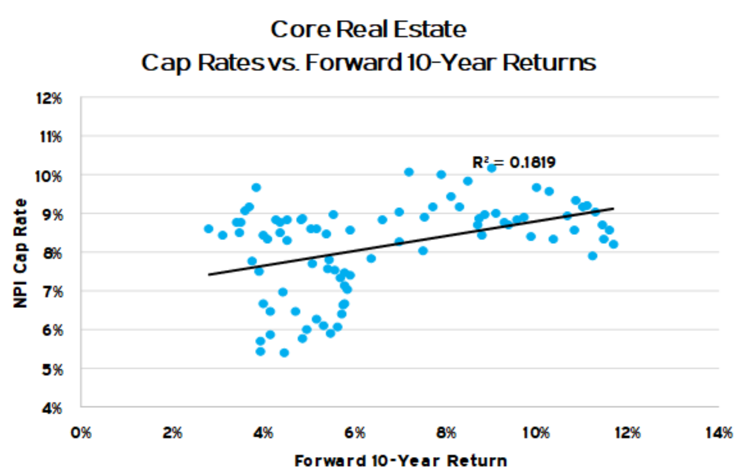
- Each model is based on the most important factors that drive returns for that asset class.
- The common components are income, growth, and valuation.

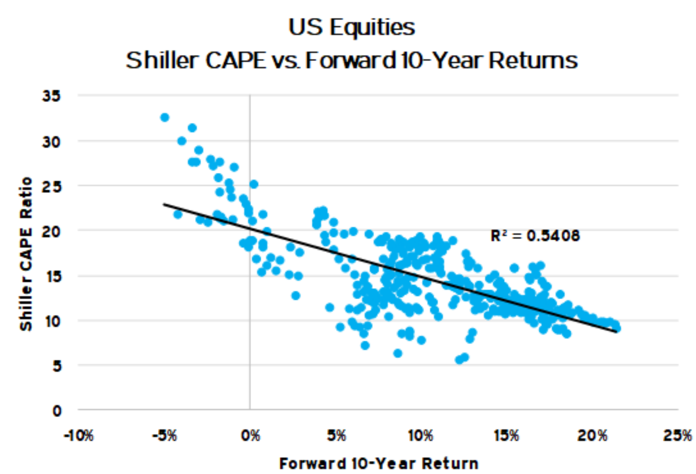
Asset Class Category	Major Factors
Equities	Dividend Yield, GDP Growth, Valuation
Bonds	Yield to Worst, Default Rate, Recovery Rate
Commodities	Collateral Yield, Roll Yield, Inflation
Infrastructure	Public IS Valuation, Income, Growth
Natural Resources	Price per Acre, Income, Public Market Valuation
Real Estate	Cap Rate, Yield, Growth
Private Equity	EBITDA Multiple, Debt Multiple, Public VC Valuation
Hedge Funds and Other	Leverage, Alternative Betas

Some factors are naturally more predictive than others









10-year Model Example: Equities

→ We use a fundamental model for equities that combines income and capital appreciation.

E(R)=Dividend Yield + Expected Earnings Growth + Multiple Effect + Currency Effect

→ Meketa Investment Group evaluates historical data statistically to develop expectations for dividend yield, earnings growth, the multiple effect and currency effect.

→ Our models assume that there is a reversion toward mean pricing over this timeframe.

10-year Model Example: Bonds

→ The short version for investment grade bond models is:

E(R)=Current YTW (yield to worst)

→ Our models assume that there is a reversion to the mean for spreads (though not yields).

→ For TIPS, we add the real yield of the TIPS index to the breakeven inflation rate.

→ As with equities, we make currency adjustments when necessary for foreign bonds.

→ For bonds with credit risk, Meketa Investment Group estimates default rates and loss rates in order to project an expected return:

E(R)= YTW - (Annual Default Rate × Loss Rate)

Moving from 10-year to 20-year Forecasts

→ Our next step is to combine our 10-year forecasts with projections for years 11-20 for each asset class.

→ We use a risk premia approach to forecast 10-year returns in ten years (i.e., years 11-20).

- We start with an assumption (market informed, such as the 10-year forward rate) for what the risk free rate will be in ten years,
- We then add a risk premia for each asset class.
- We use historical risk premia as a guide, but many asset classes will differ from this, especially if they have a shorter history.
- We seek consistency with finance theory (i.e., riskier assets will have a higher risk premia assumption).

→ Essentially, we assume mean-reversion over the first ten years (where appropriate), and consistency with CAPM thereafter.

→ The final step is to make any qualitative adjustments.

- The Investment Policy Committee reviews the output and may make adjustments.

The other inputs: standard deviation and correlation

→ Standard deviation:

- We review the trailing fifteen-year standard deviation, as well as skewness.
- Historical standard deviation serves as the base for our assumptions.
- If there is a negative skew, we increased the volatility assumption based on the size of the historical skewness.

Asset Class	Historical Standard Deviation (%)	Skewness	Assumption (%)
Bank Loans	7.7	-2.7	10.0
FI/L-S Credit	6.8	-2.5	9.0

- We also adjust for private market asset classes with "smoothed" return streams.

→ Correlation:

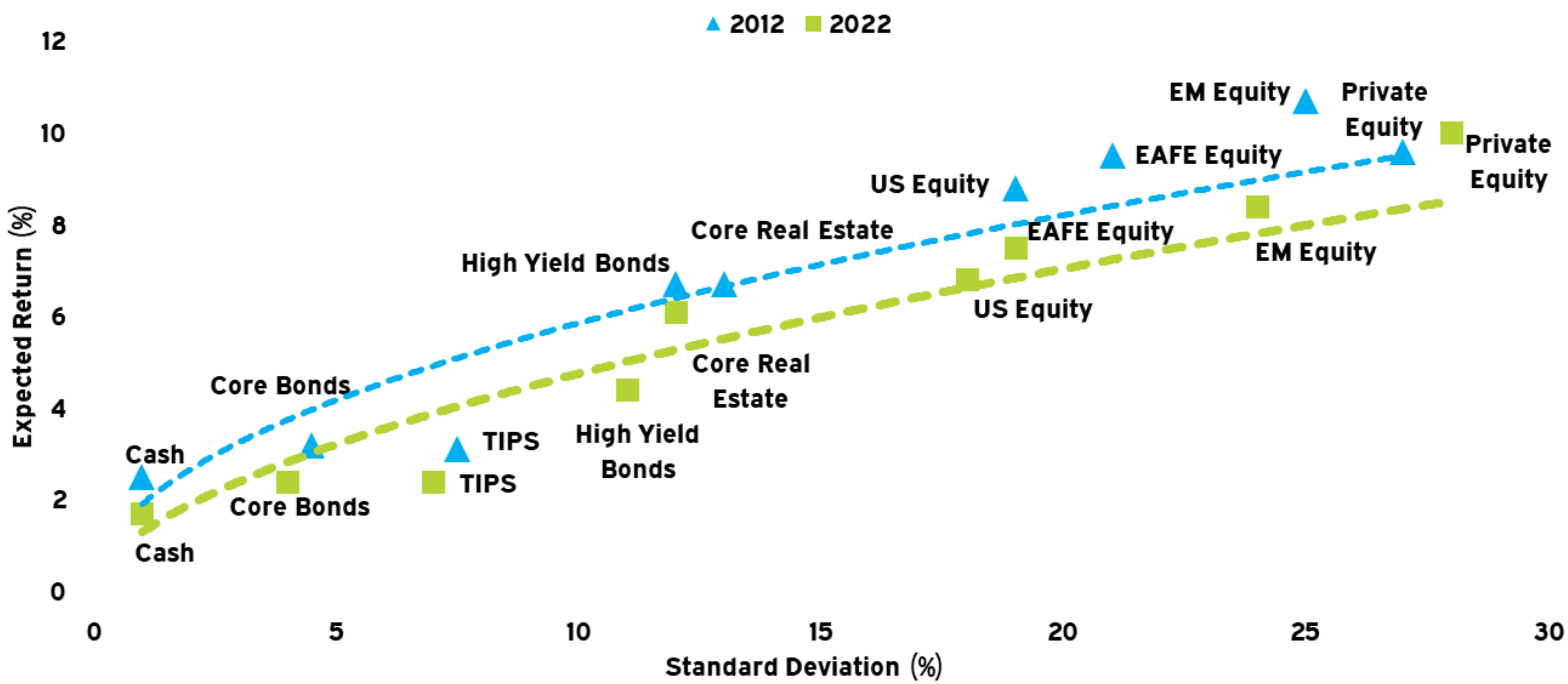
- We use trailing fifteen-year correlations as our guide.
- Again, we make adjustments for "smoothed" return streams.

→ Most of our adjustments are conservative in nature (i.e., they increase the standard deviation and correlation).

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

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

→ We anticipate investors will have to take on greater levels of risk than they have historically if they want to achieve the returns they have in the past.



[1] Expected return and standard deviation are based upon Meketa Investment Group's 2012 and 2022 Capital Markets Expectations.

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