2024 ASSET ALLOCATION REVIEW

FIREFIGHTERS' RETIREMENT SYSTEM OF LOUISIANA

MARCH 2024

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ASSET CLASS ASSUMPTIONS

- Capital Markets Overview
- Capital Markets Assumptions Overview
- FRS Asset Allocation Review
- Appendix

CAPITAL MARKETS OVERVIEW

CAPITAL MARKETS OVERVIEW

The U.S. economy experienced a "no landing" in 2023 as inflation pressures declined, while consumption and growth defied expectations

The Federal Reserve raised interest rates more than expected this year; **the "long and variable" lag may be longer and more variable today**

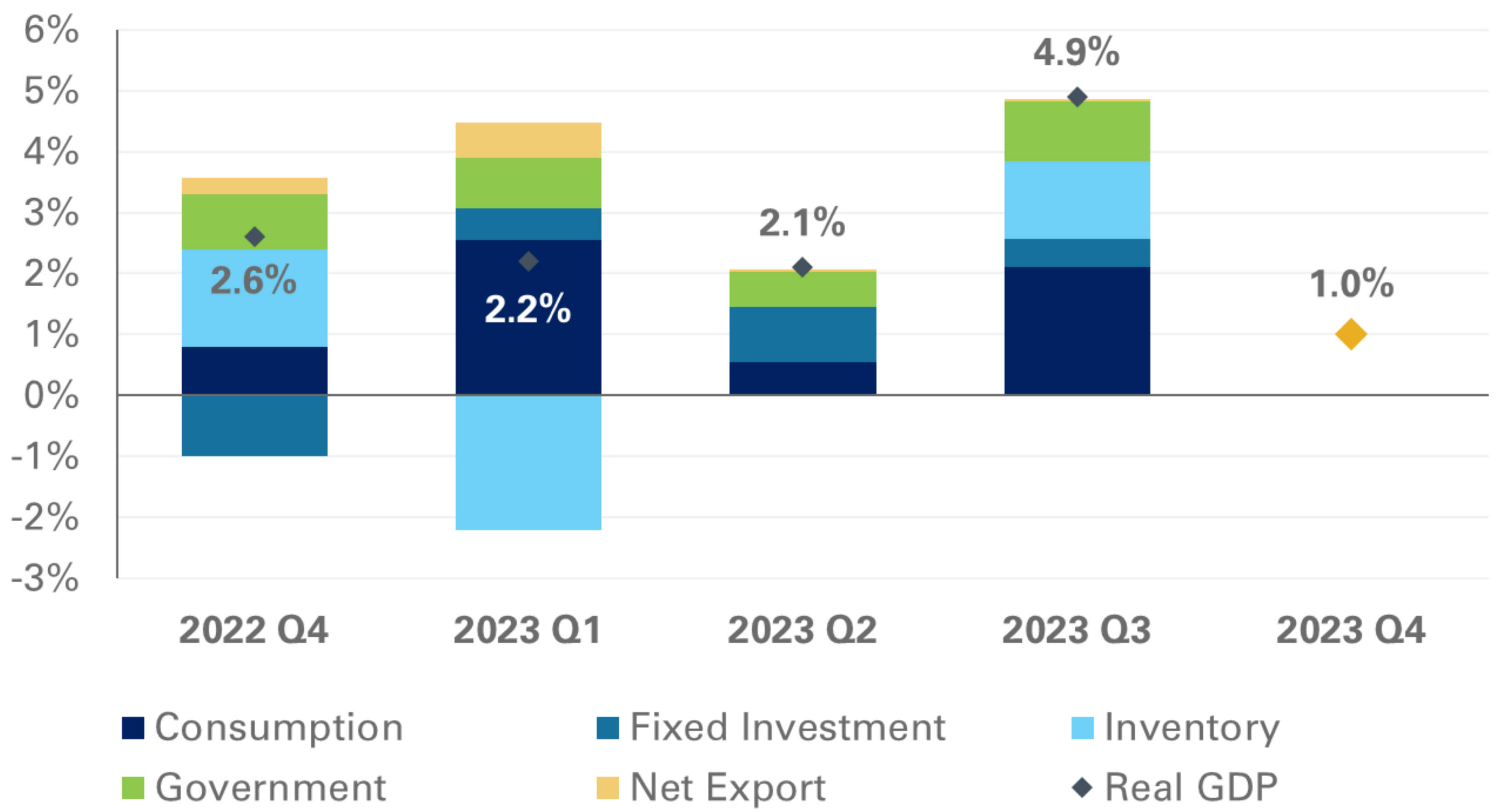
Markets remain anchored to a lower interest rate and inflation environment, pricing in an aggressive cutting path for the Fed in 2024

The Magnificent 7 drove U.S. equity market outperformance in 2023 – surpassing lofty market expectations for revenue and earnings growth

A backdrop of elevated global geopolitical tensions **heightens economic tail risks and introduces uncertainty** for capital markets in 2024

U.S. GROWTH WAS UNEXPECTEDLY ROBUST

U.S. CONTRIBUTION TO REAL GDP



Notes: Q4 2023 dot represents FactSet estimate, *Expectation reflects FactSet consensus estimate as of 12/31/2022
Sources: U.S. Bureau of Economic Analysis, FactSet

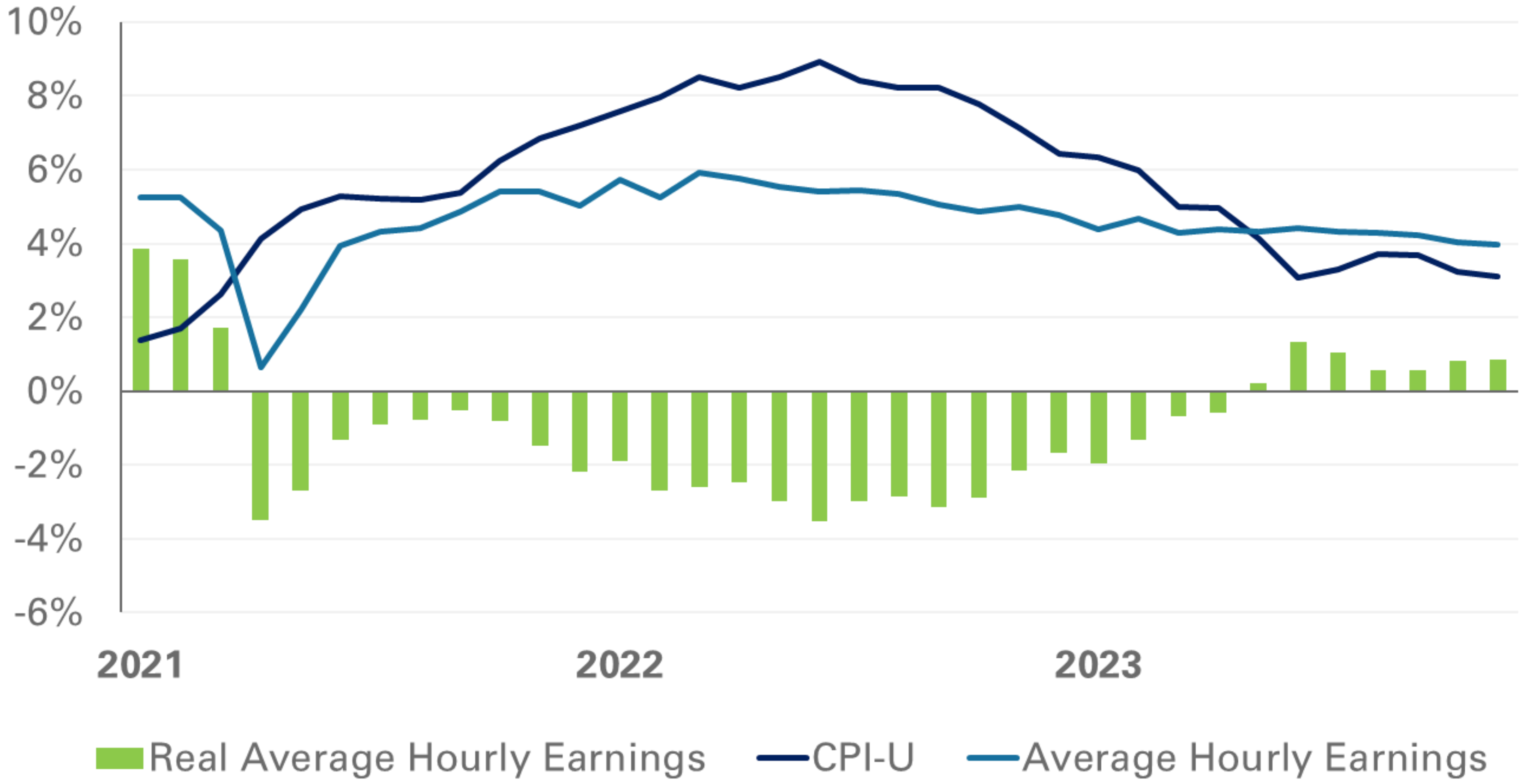
RESILIENCY STEMMED FROM THE LABOR MARKET

UNEMPLOYMENT INSURANCE CLAIMS AS % OF THE LABOR FORCE

Sources: U.S. Department of Labor, FactSet

REAL WAGE GAINS SUPPORTED SPENDING

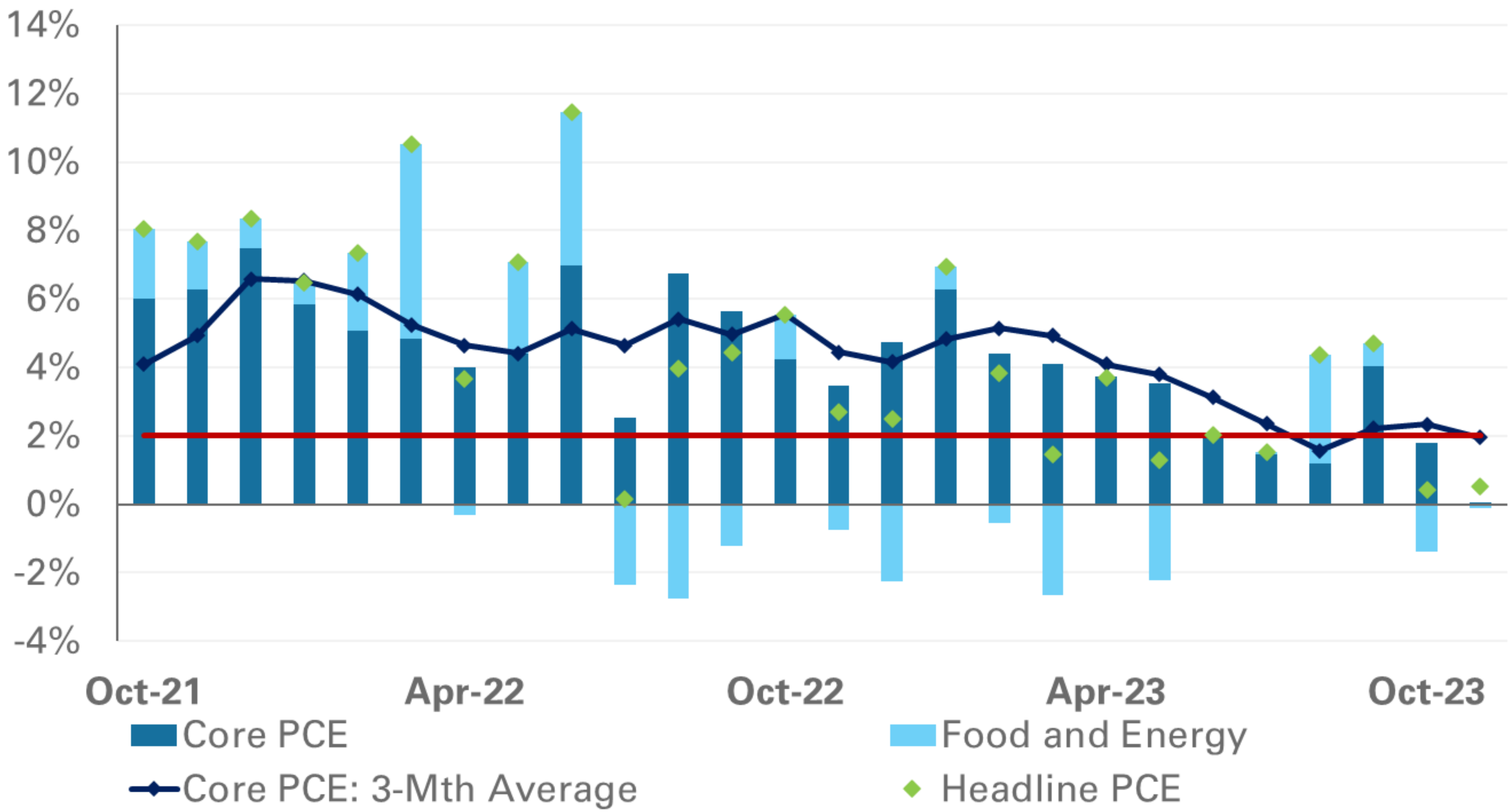
ANNUAL CHANGE IN EARNINGS AND U.S. INFLATION



Sources: U.S. Department of Labor, FactSet

CORE INFLATION TRENDED TO THE FED'S TARGET

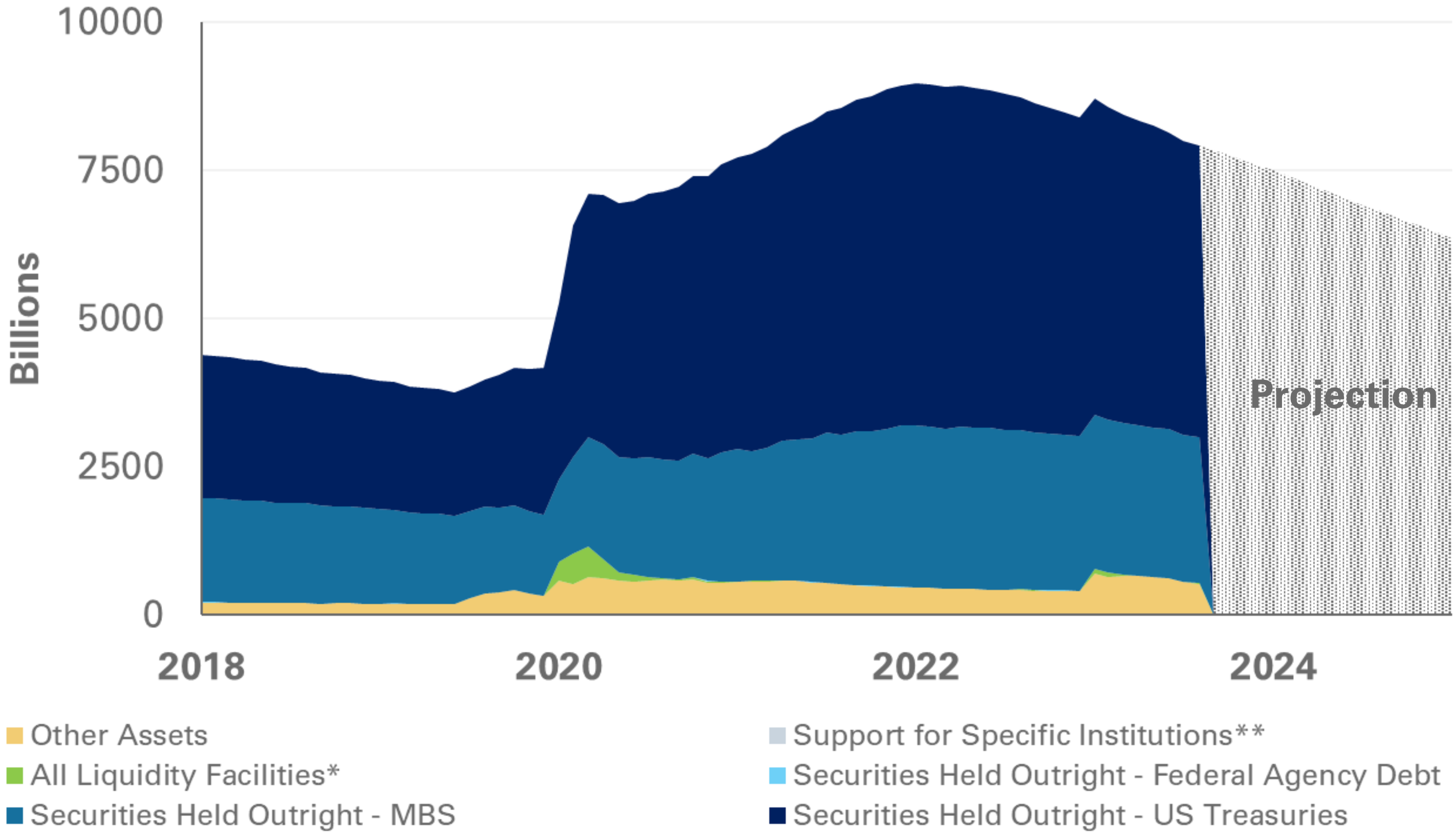
ANNUALIZED MONTHLY U.S. PCE PRICE INDEX CHANGES



Sources: Bureau of Labor Statistics, FactSet

THE FED CONTINUED REDUCING ITS BALANCE SHEET

FEDERAL RESERVE TOTAL ASSETS

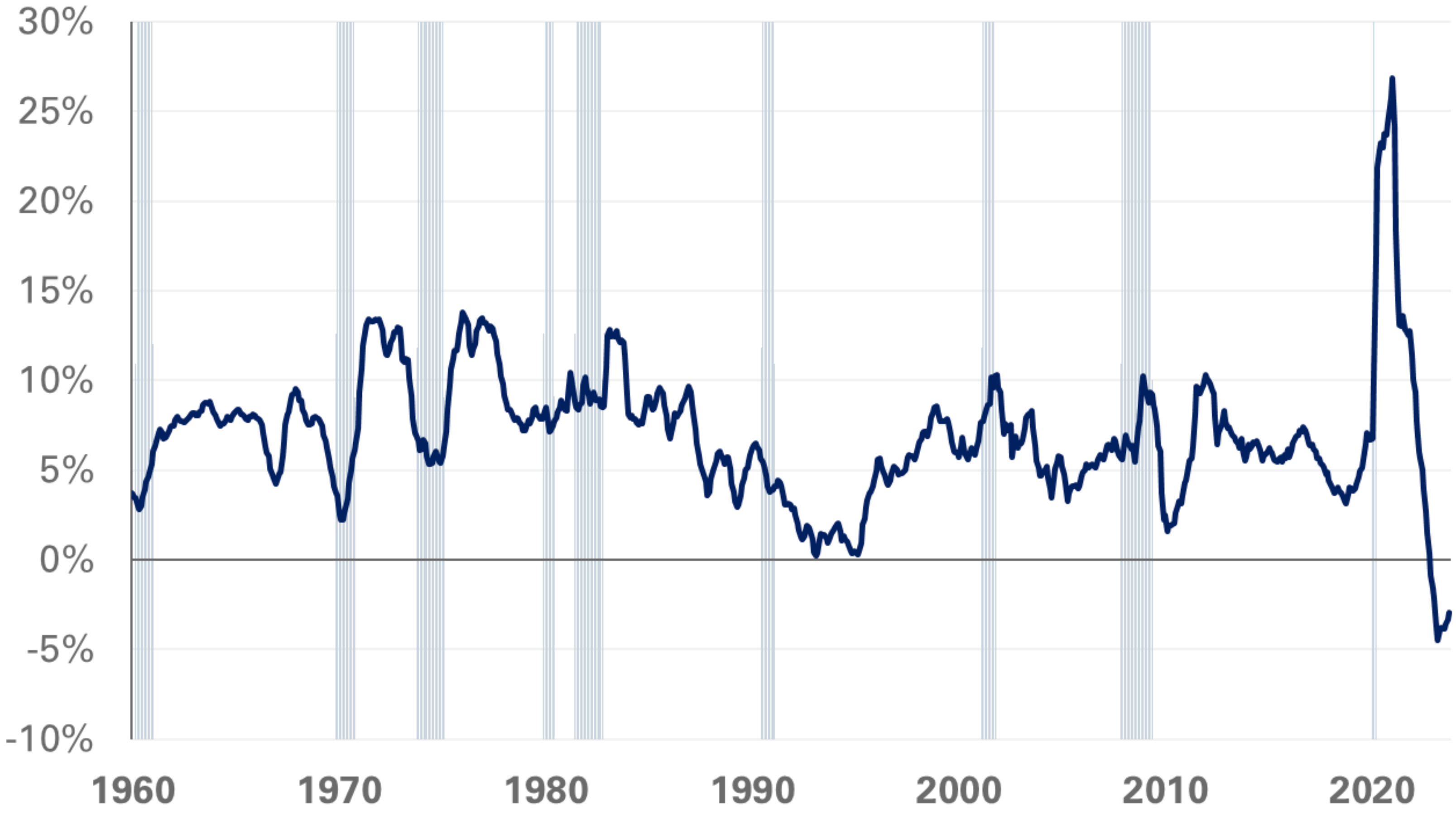


Notes: *All Liquidity Facilities includes term auction credit, primary credit, secondary credit, seasonal credit, Primary Dealer Credit Facility, Asset-Backed Commercial Paper, Money Market Mutual Fund Liquidity Facility, and central bank liquidity swaps

Sources: Federal Reserve, FactSet, NEPC

EXCESS LIQUIDITY IS EVAPORATING

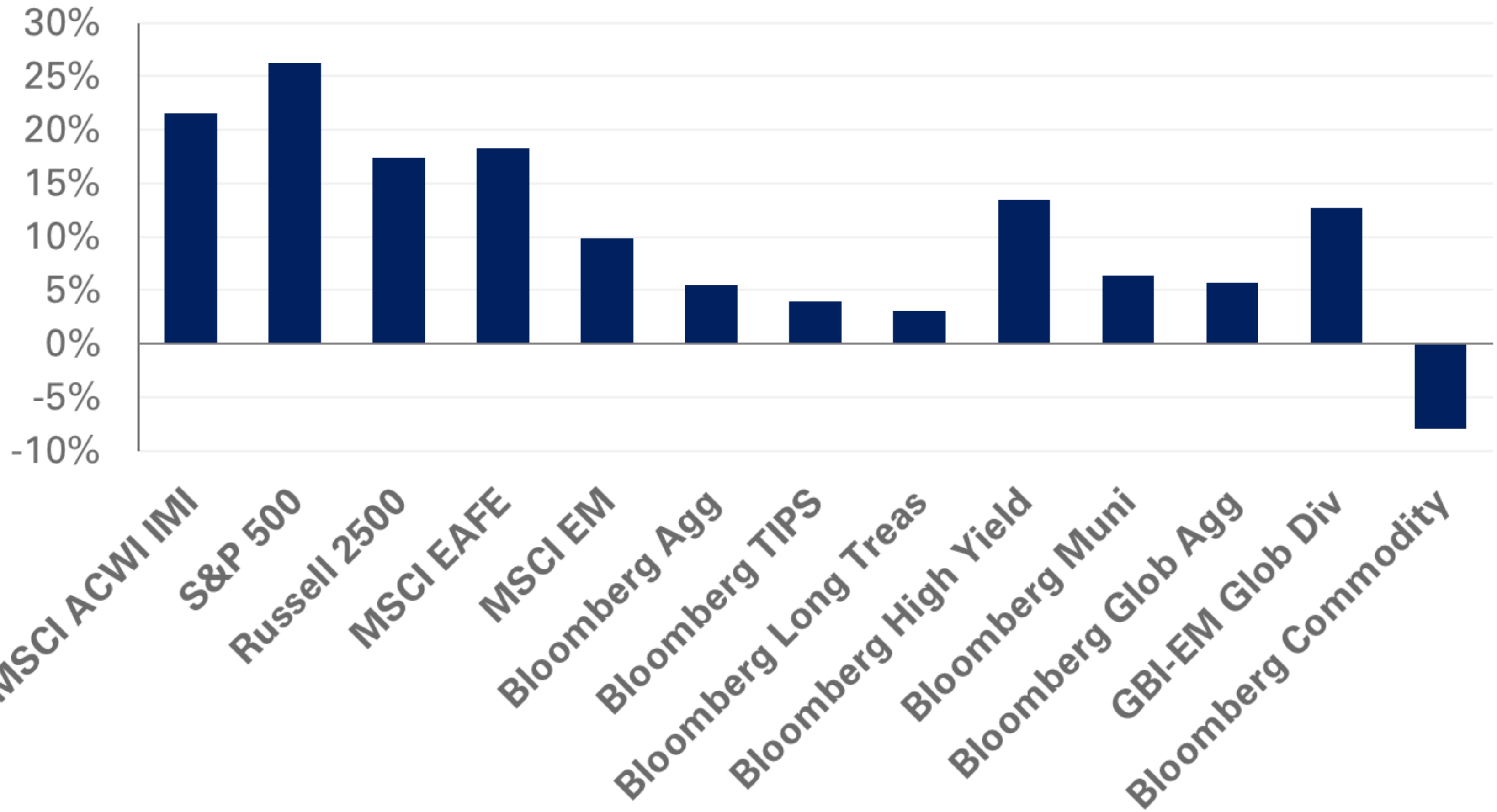
ANNUAL CHANGE IN M2 MONEY SUPPLY



Notes: Gray shading reflects recessions as defined by the NBER
Sources: Federal Reserve System, FactSet

RISK ASSETS RALLIED DESPITE HIGHER RATES

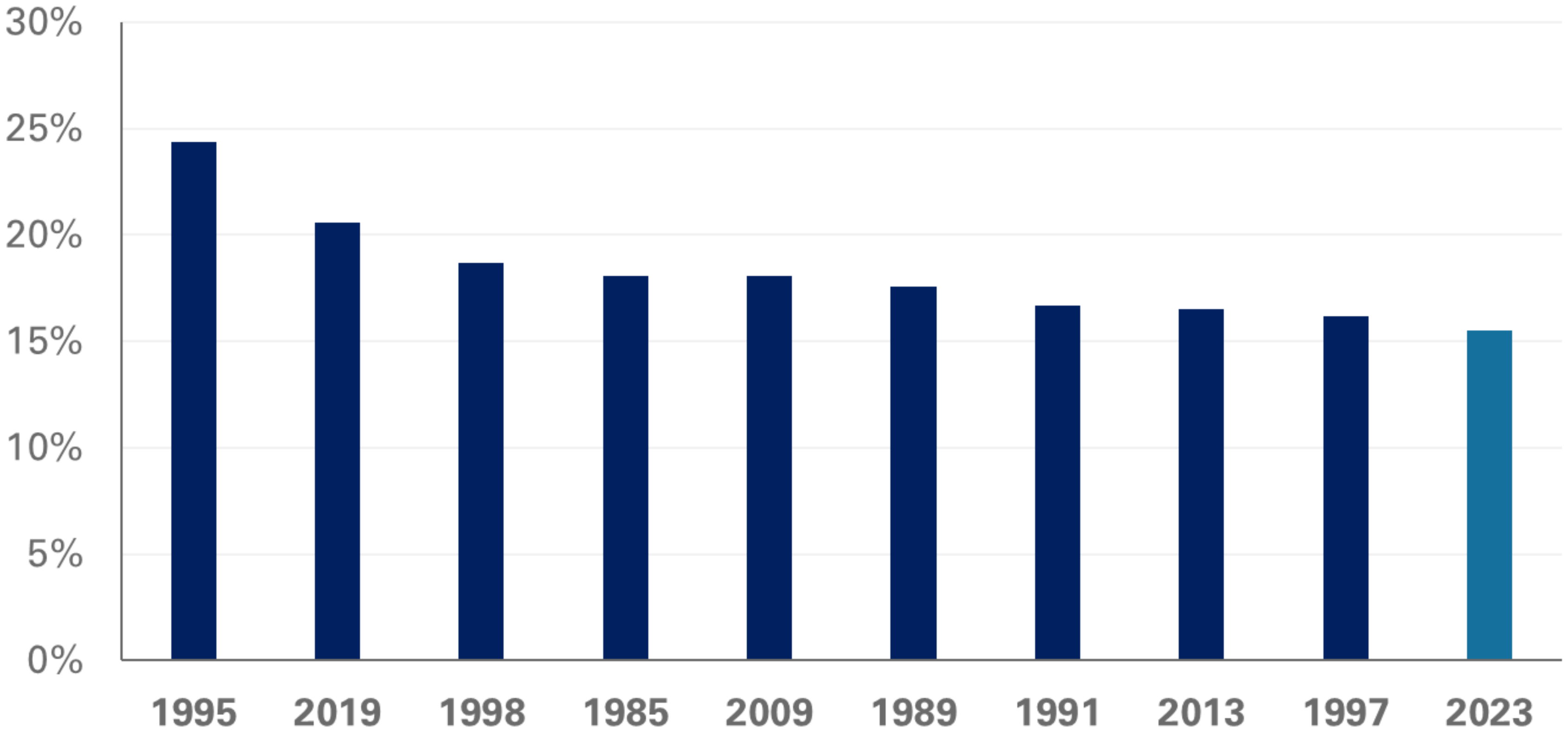
2023 ANNUAL ASSET CLASS RETURNS



Sources: MSCI, S&P, Russell, MSCI, Bloomberg, JPM, FactSet

2023 WAS A STRONG YEAR FOR 60/40 ALLOCATIONS

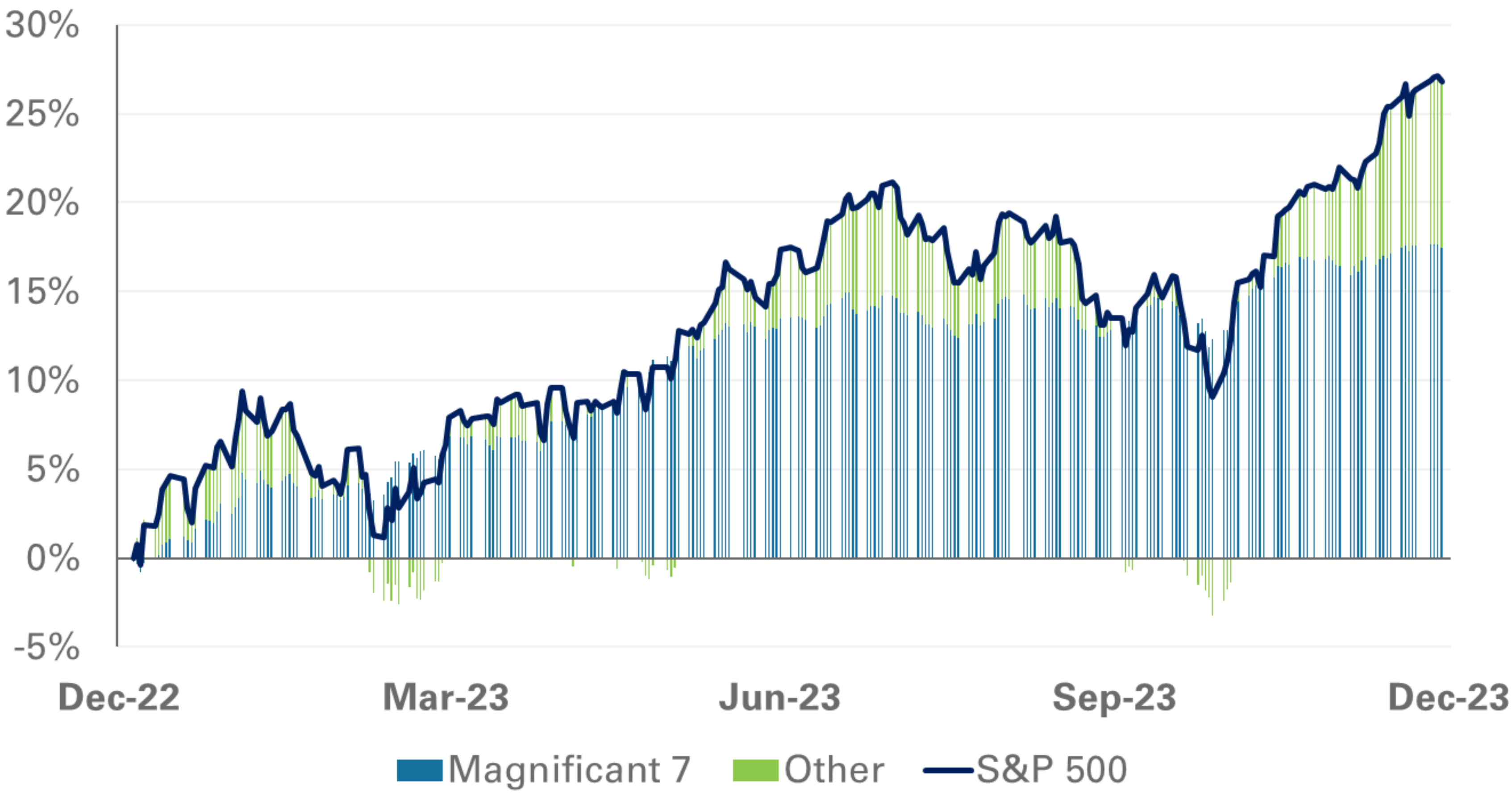
60/40 ANNUAL PORTFOLIO RETURNS



Notes: Chart calculated using annual data 1976 to present. 60% reflects S&P 500 price return, 40% reflects Bloomberg U.S. Aggregate Bond Index returns
Sources: S&P, Bloomberg, FactSet

THE MAGNIFICENT 7 SUPPORTED THE S&P 500

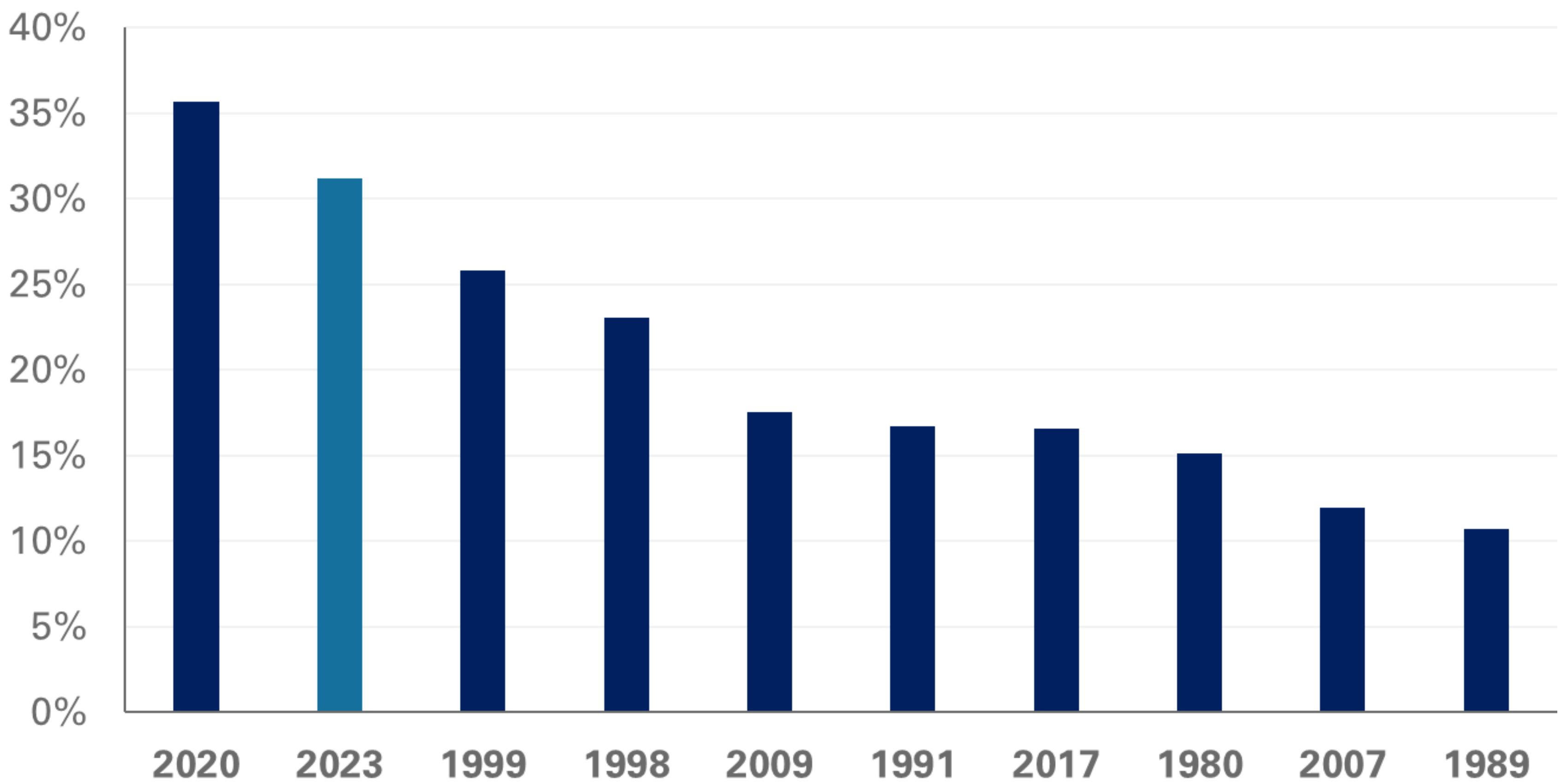
2023 CONTRIBUTION TO TOTAL RETURNS



Source: S&P, FactSet

GROWTH STOCKS OUTPERFORMED

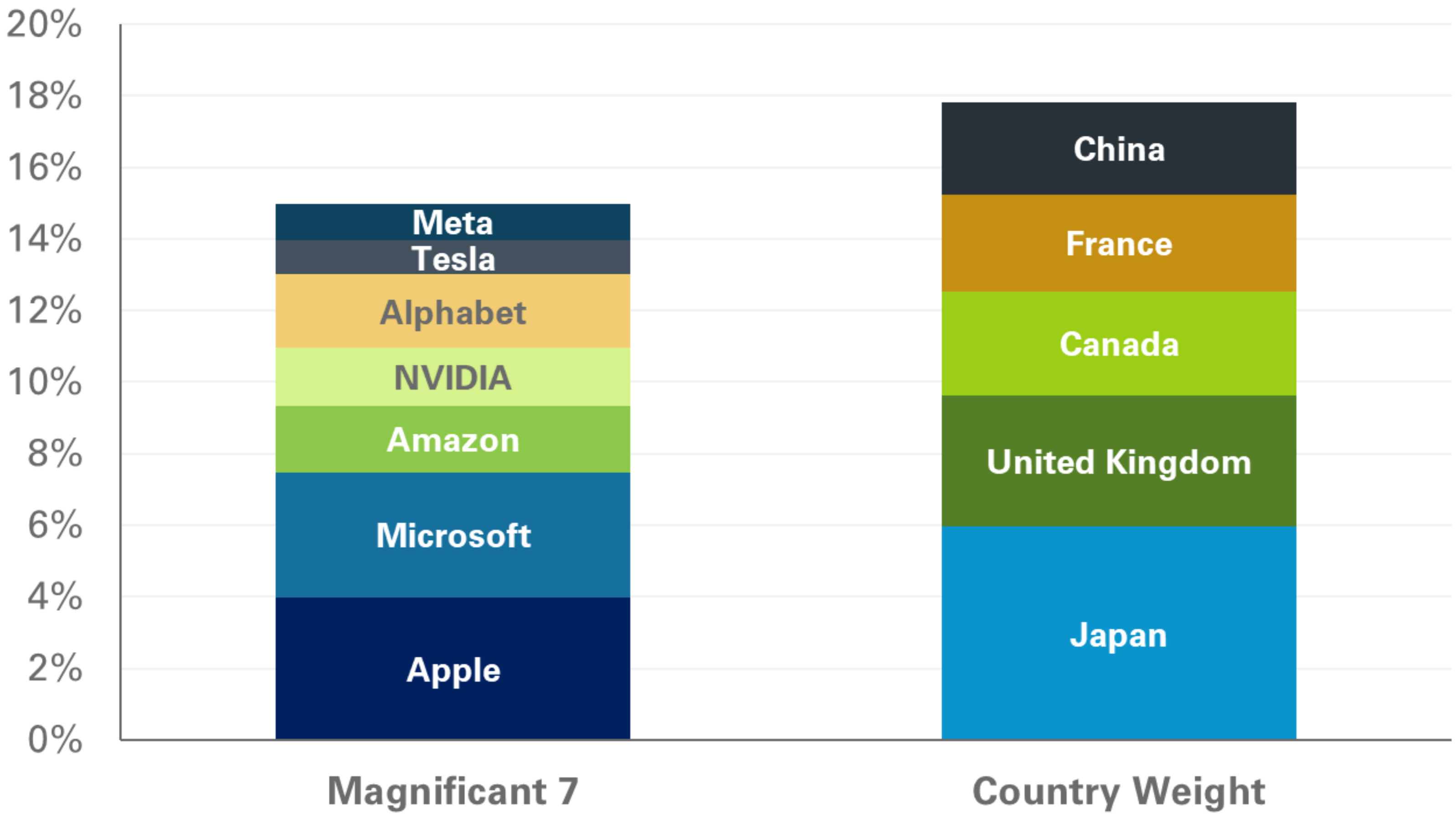
TOP 10 TIMES RUSSELL 1000 GROWTH OUTPERFORMED VALUE



Calculation based on data as of 12/31/1979
Source: Russell, FactSet

INDEX WEIGHTS ARE CONCENTRATED

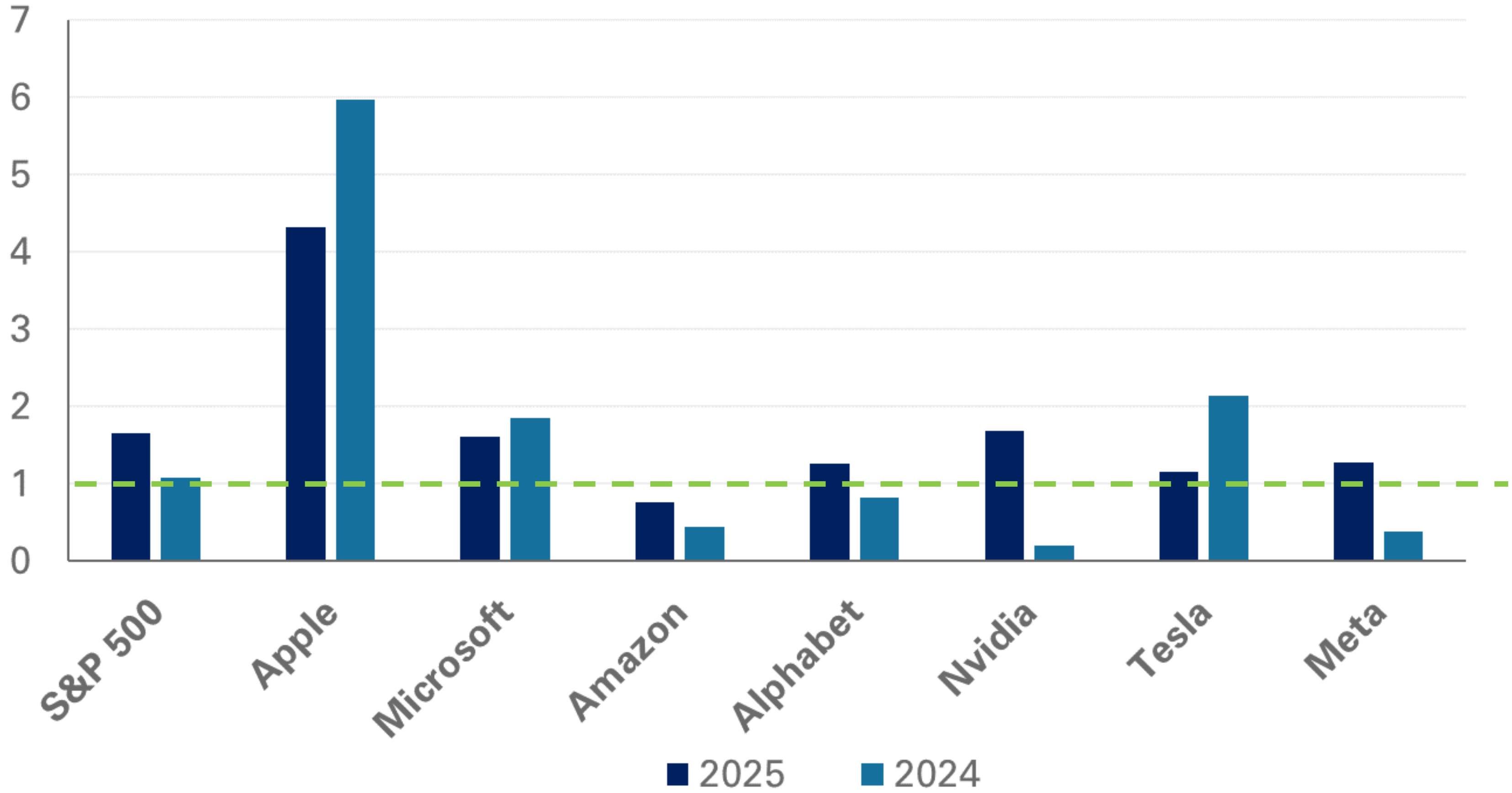
WEIGHT IN MSCI ACWI IMI INDEX



Source: MSCI, FactSet

VALUATIONS ARE ELEVATED

GROWTH-ADJUSTED PRICE-TO-EARNINGS RATIO



Source: S&P, FactSet

HIGHEST U.S. EQUITY WEIGHT SINCE 1972

U.S. EQUITIES AS A PERCENTAGE OF MSCI ACWI INDEX

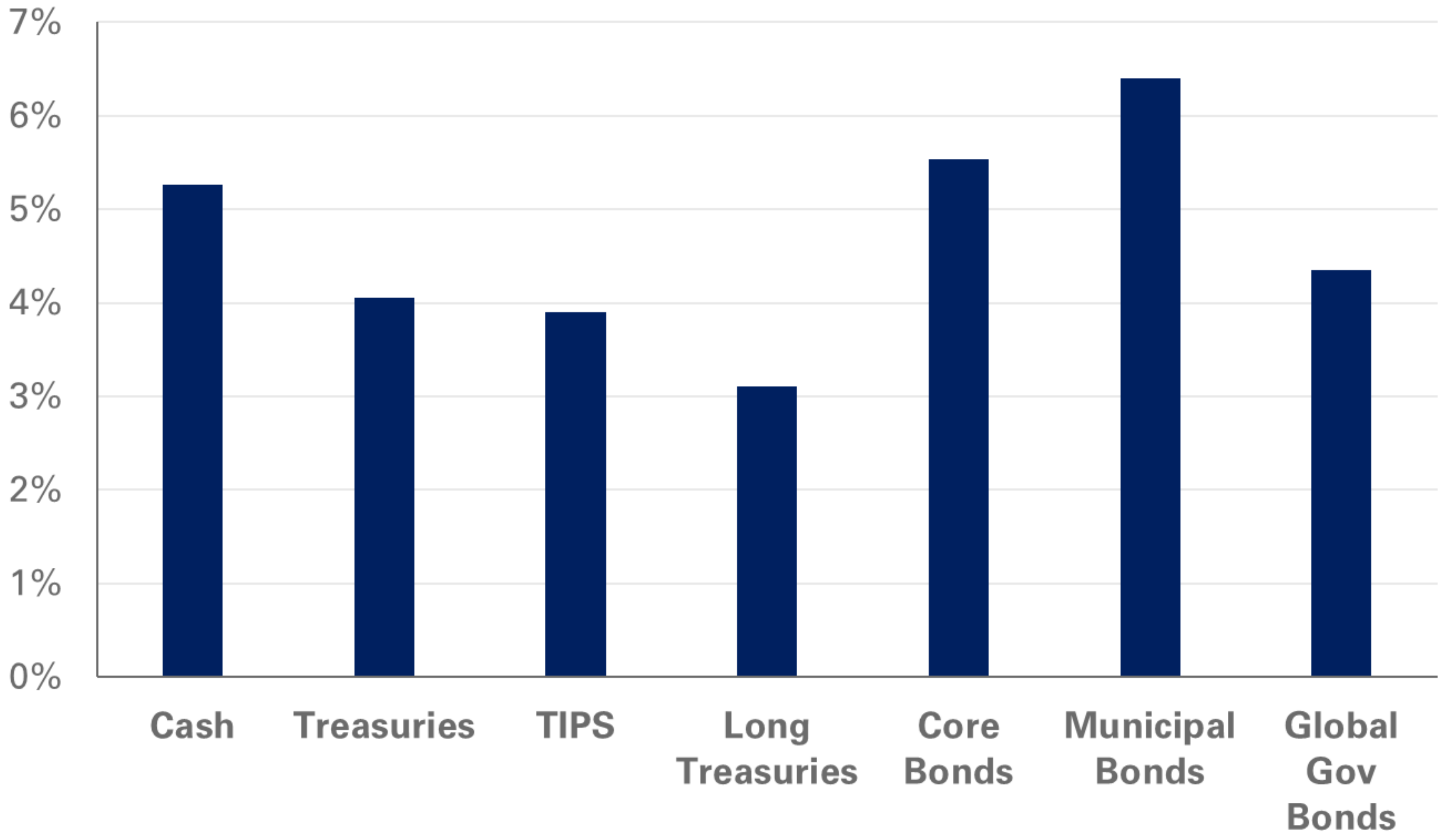
Source: MSCI, FactSet

EQUITY RISK PREMIUMS REMAINED LOW

S&P 500 NTM EARNINGS YIELD – 10-YEAR TREASURY YIELDS

Source: S&P, FactSet

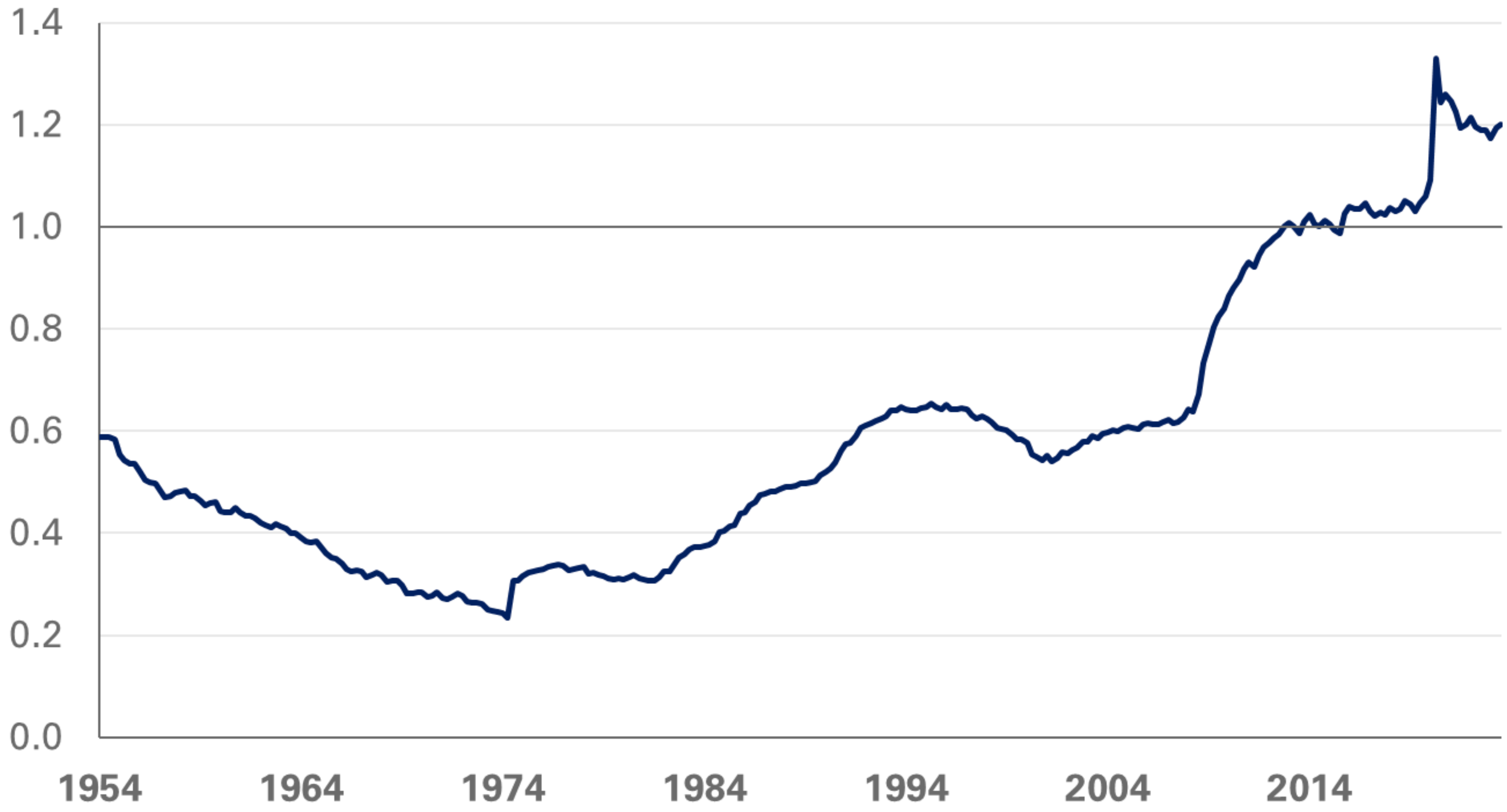
2023 SAFE-HAVEN PERFORMANCE



Sources: Bloomberg, FTSE, FactSet

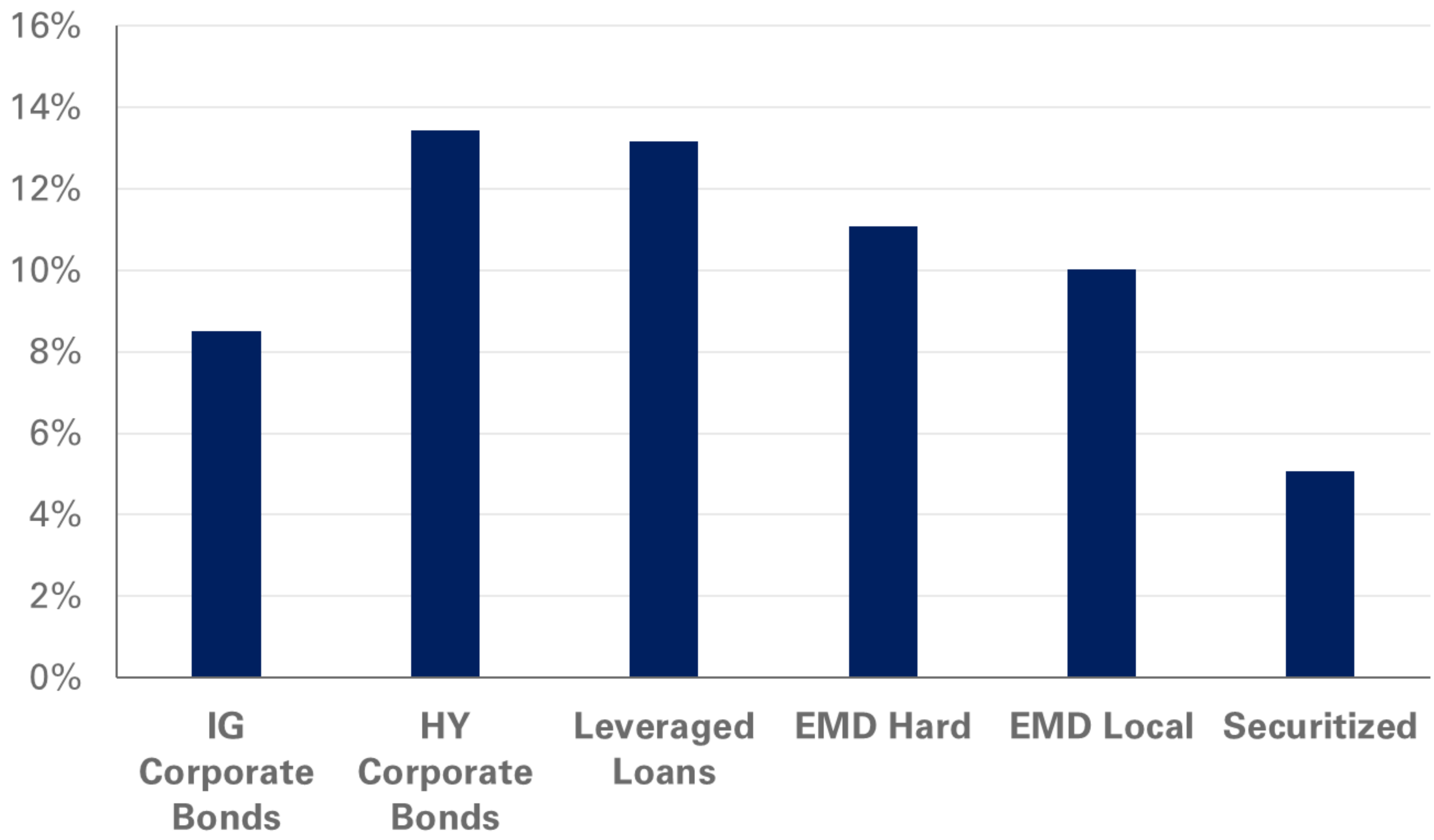
THE U.S. FEDERAL DEBT IS AT HISTORIC LEVELS

U.S. DEBT-TO-GDP RATIO



Source: U.S. Bureau of Economic Analysis, U.S. Department of Treasury, FactSet, NEPC

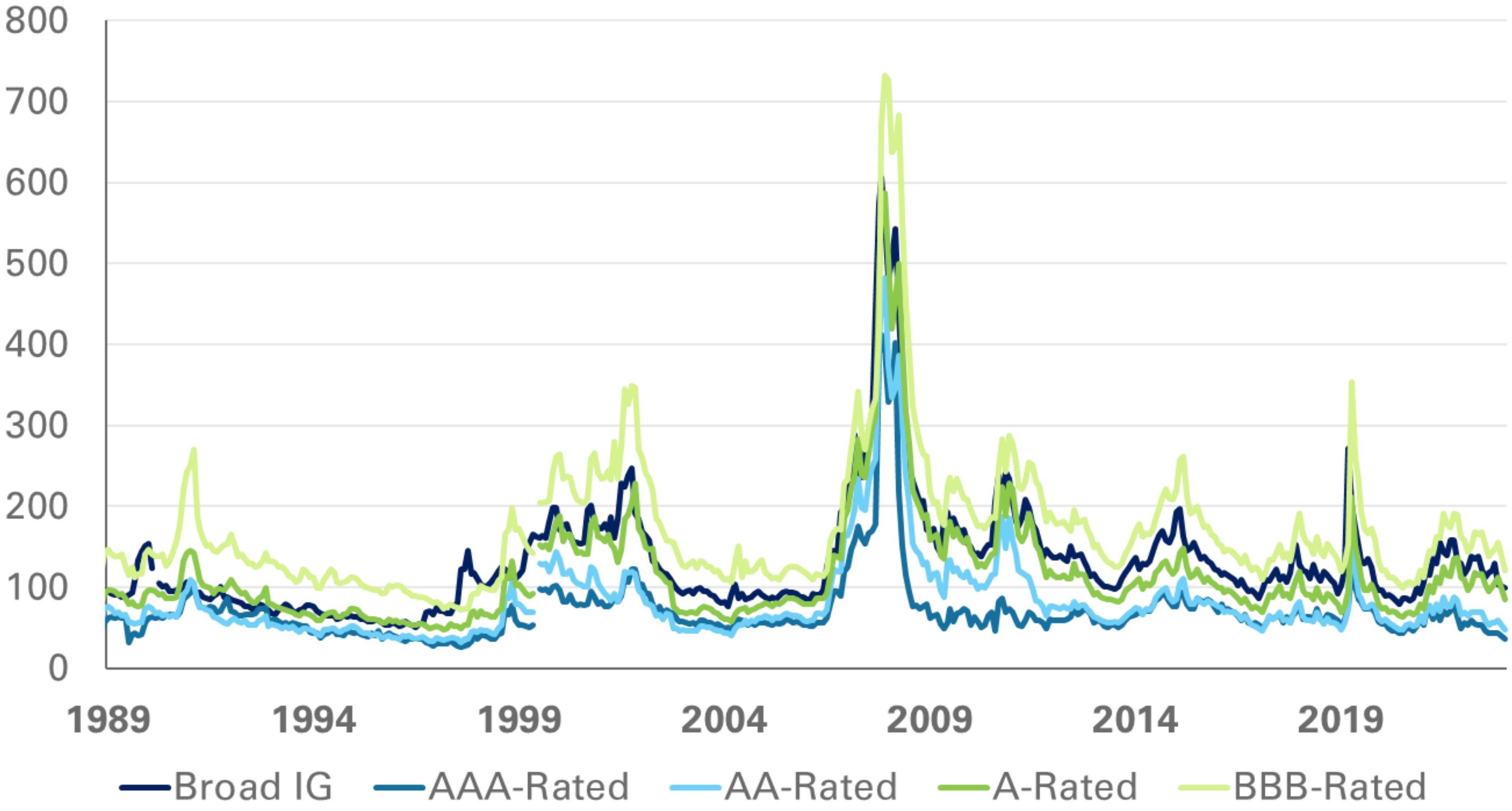
2023 PUBLIC CREDIT PERFORMANCE



Sources: Bloomberg, Morningstar, JP Morgan, FactSet

INVESTMENT GRADE SPREADS COMPRESSED

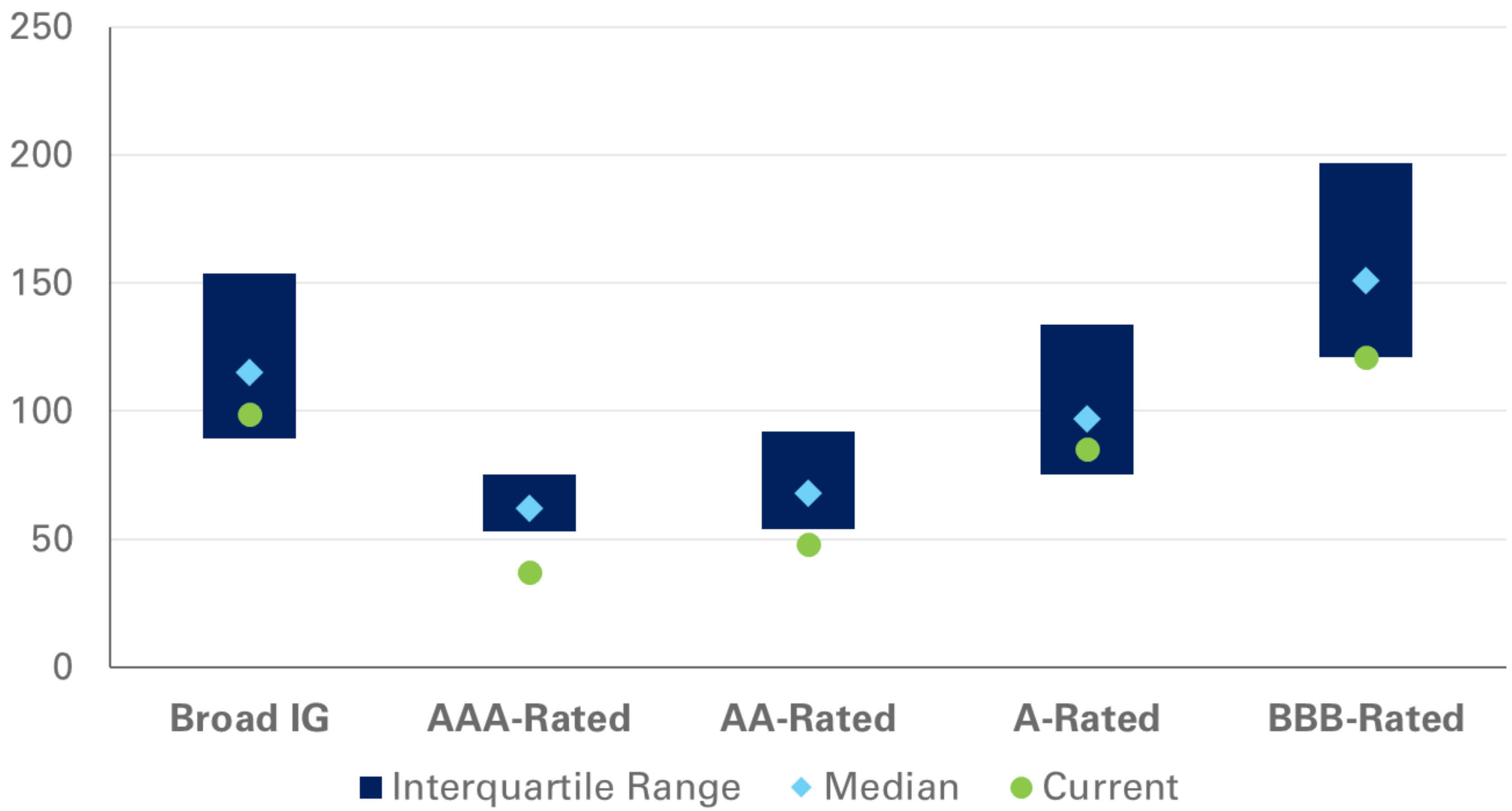
U.S. CORPORATE INVESTMENT GRADE SPREADS



Sources: Bloomberg, FactSet

IG SPREADS ARE BROADLY BELOW MEDIANS

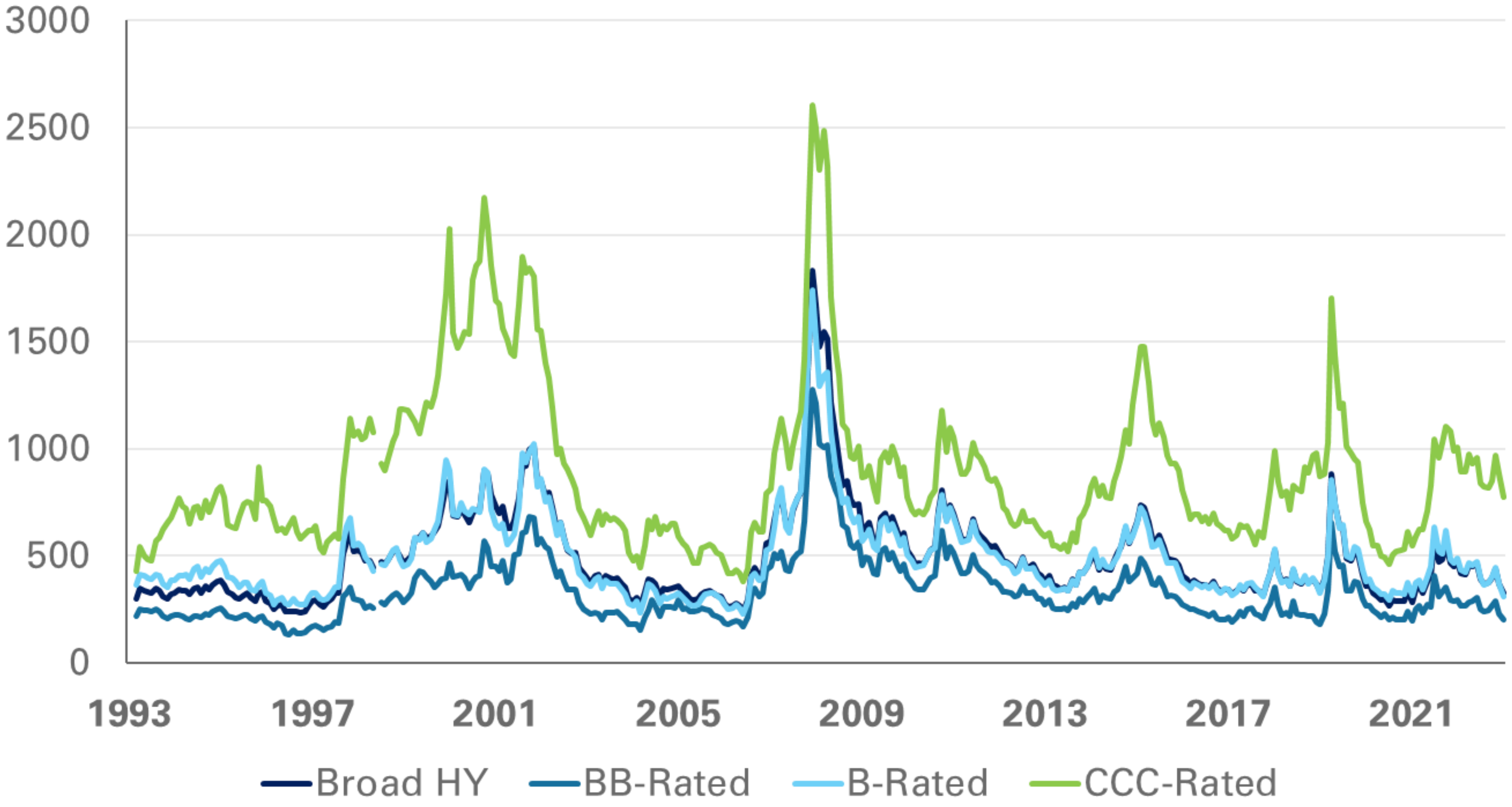
U.S. CORPORATE INVESTMENT GRADE SPREADS



Interquartile Range is defined as the 25th percentile to the 75th percentile
Data from 6/30/1989 thru 12/31/2023
Sources: Bloomberg, FactSet

HIGH YIELD SPREADS ALSO COMPRESSED

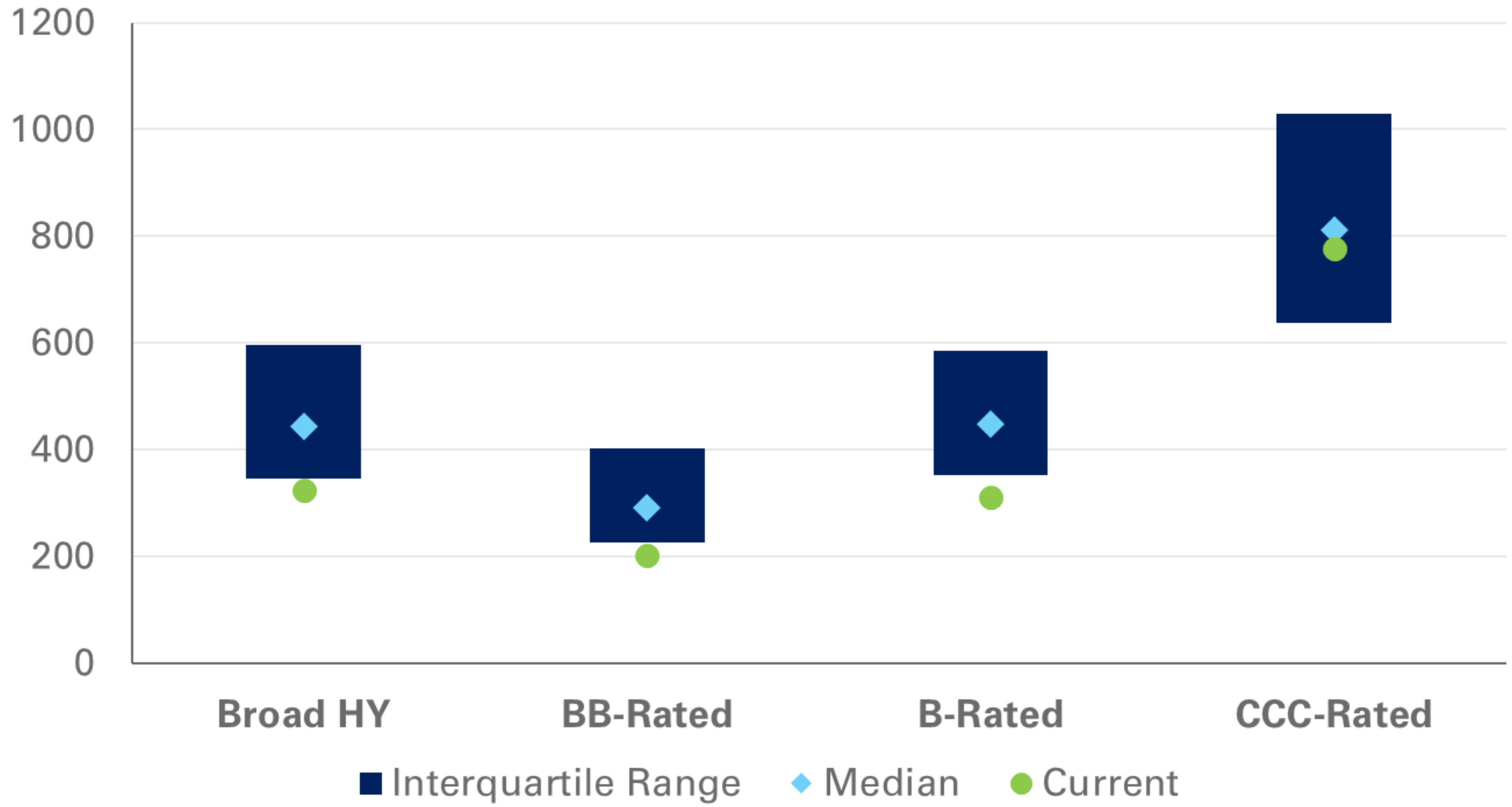
U.S. CORPORATE HIGH YIELD SPREADS



Sources: Bloomberg, FactSet

HY SPREADS REFLECT RISK-ON SENTIMENT

U.S. CORPORATE HIGH YIELD SPREADS



Interquartile Range is defined as the 25th percentile to the 75th percentile
Data from 1/31/1994 thru 12/31/2022
Sources: Bloomberg, FactSet

EMD LOCAL YIELDS ARE SIMILAR TO 2022

Sources: JP Morgan, FactSet

CAPITAL MARKETS ASSUMPTIONS OVERVIEW

ASSET CLASS ASSUMPTIONS

OVERVIEW

- **NEPC's capital market assumptions are available each quarter and reflect December 31, 2023 market data**
- **Valuation expansion weighed on forward-looking return expectations for global equity markets**
- **Interest rate volatility persisted; forward rate and inflation expectations appear suppressed relative to the resilient U.S. economic backdrop**
- **NEPC remains biased to a higher interest rate and stickier inflation environment than current market pricing**
- **We recommend adding strategic U.S. TIPS exposure: the outlook is favorable at current real yields and breakeven inflation levels**
- **Public fixed income expected returns continue to offer an attractive risk-return profile relative to public equities**

ASSET CLASS ASSUMPTIONS

DEVELOPMENT

- **Assumptions are published for over 70 asset classes**
  - NEPC publishes return forecasts for 10-year and 30-year periods
- **Market data as of 12/31/2023**
  - Assumptions are developed with NEPC valuations models and rely on a building block approach
- **The 10-year return outlook is intended to support strategic asset allocation analysis**
- **30-year return assumptions are used for actuarial inputs and long-term planning**

Asset Allocation Process

1. Finalize list of new asset classes
2. Calculate asset class volatility and correlation assumptions
3. Set model terminal values, growth, and inflation inputs
4. Model data updated at quarter-end
5. Review model outputs and produce asset class return assumptions
6. Assumptions released on the 15th calendar day after quarter-end

ASSET CLASS BUILDING BLOCKS

METHODOLOGY

- **Asset models reflect current and forecasted market data to inform expected returns**
- **Systematic inputs are paired with a long-term trend to terminal values**
- **Model inputs are aggregated to capture key return drivers for each asset class**
- **Building block inputs will differ across asset class categories**

CORE ASSET CLASS RETURN ASSUMPTIONS

	Asset Class	12/31/23 10-Year Return	12/31/22 10-Year Return	Delta
	Cash	3.9%	4.0%	-0.1%
	U.S. Inflation	2.6%	2.5%	+0.1%
Equity	U.S. Large-Cap Equity	4.4%	5.4%	-1.0%
Equity	Non-U.S. Developed Equity	4.6%	5.6%	-1.0%
Equity	Emerging Market Equity	8.6%	9.6%	-1.0%
Equity	Global Equity*	5.4%	6.3%	-0.9%
Equity	Private Equity*	9.0%	9.2%	-0.2%
Fixed Income	U.S. Treasury Bond	4.2%	4.2%	-
Fixed Income	U.S. Municipal Bond	3.5%	4.4%	-0.9%
Fixed Income	U.S. Aggregate Bond*	4.6%	4.8%	-0.2%
Fixed Income	U.S. TIPS	4.6%	4.4%	+0.2%
Fixed Income	U.S. High Yield Corporate Bond	6.1%	7.1%	-1.0%
Fixed Income	Global Multi-Sector Fixed Income	5.7%	6.7%	-1.0%
Fixed Income	Private Debt*	8.3%	8.8%	-0.5%
Real Assets	Commodity Futures	4.6%	4.2%	+0.4%
Real Assets	REIT	6.0%	6.2%	-0.2%
Real Assets	Gold	4.9%	5.1%	-0.2%
Real Assets	Real Estate - Core	5.4%	4.0%	+1.4%
Real Assets	Private Real Assets - Infrastructure	6.8%	6.6%	+0.2%
Multi-Asset	60% S&P 500 & 40% U.S. Aggregate	4.8%	5.3%	-0.5%
Multi-Asset	60% MSCI ACWI & 40% U.S. Agg.	5.4%	6.0%	-0.6%
Multi-Asset	Hedge Fund*	6.1%	6.5%	-0.4%

*Calculated as a blend of other asset classes

2024 FRS ASSET ALLOCATION

Asset Class	Current Policy Target	Recommendation	L-T Strategic AA Guidance	10-Year Exp. Return	30-Year Exp. Return	Std. Deviation
Large Cap Equity	22.5%	22.0%	21.5%	4.4%	6.7%	17.2%
Small/Mid Cap Equity	7.0%	6.5%	6.0%	6.0%	7.4%	21.0%
International Equity	11.5%	11.0%	10.5%	4.6%	6.4%	19.7%
Emerging Markets Equity	5.0%	4.5%	4.0%	8.6%	9.2%	28.1%
Global Equity	10.0%	10.0%	10.0%	5.4%	7.3%	18.2%
Total Equities	**56.0%**	**54.0%**	**52.0%**			
Core Bonds	20.0%	22.0%	18.0%	4.6%	4.9%	5.8%
US TIPS	2.0%	2.0%	--	4.6%	4.7%	6.0%
Emerging Market Debt (Blended)	2.0%	2.0%	2.0%	6.7%	6.4%	12.2%
Global Multi-Sector Fixed Income	2.0%	4.0%	6.0%	5.7%	6.1%	8.1%
Total Fixed Income	**26.0%**	**30.0%**	**26.0%**			
Private Equity	7.0%	7.0%	9.0%	9.0%	10.1%	25.9%
Private Debt	2.0%	2.0%	5.0%	8.3%	9.0%	11.8%
Real Estate	6.0%	4.0%	3.0%	5.4%	6.1%	15.0%
Private Real Assets (Infrastructure)	3.0%	3.0%	5.0%	6.8%	7.1%	12.4%
Total Alternative Assets	**18.0%**	**16.0%**	**22.0%**			
10 Year Expected Return	***5.9%***	***5.9%***	***6.1%***			
30 Year Expected Return	***7.2%***	***7.2%***	***7.4%***			
Standard Deviation	***13.3%***	***12.9%***	***13.4%***			

10 Year ER (12.31.2022)	***6.6%***
30 Year ER (12.31.2022)	***7.3%***
Standard Deviation (12.31.2022)	***13.5%***

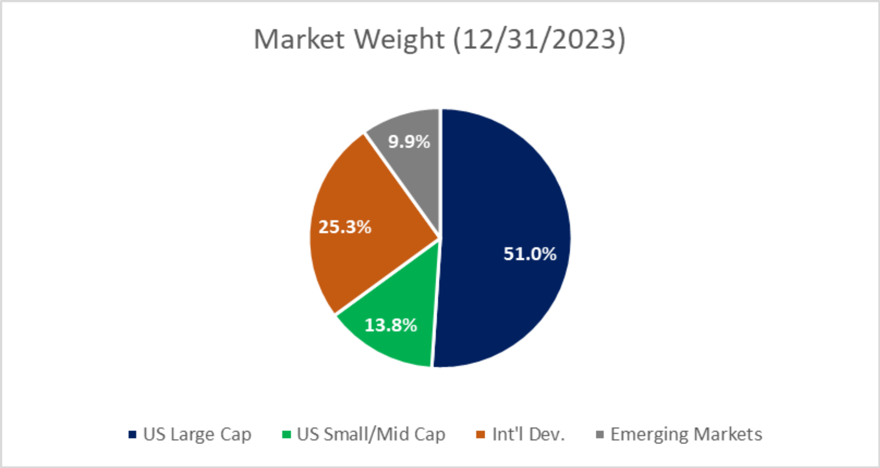
[1]Emerging Market Debt (Blended) is modeled as 1/2 emerging markets debt (local), 1/2 emerging markets debt (external)

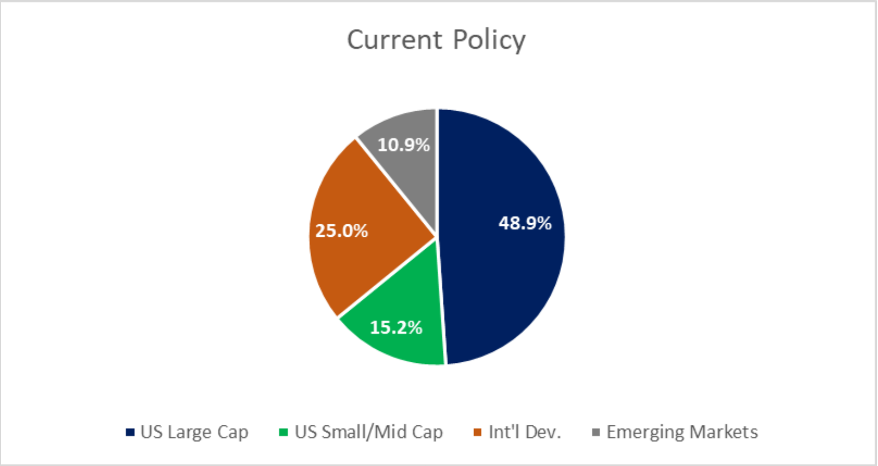
2024 FRS ASSET ALLOCATION

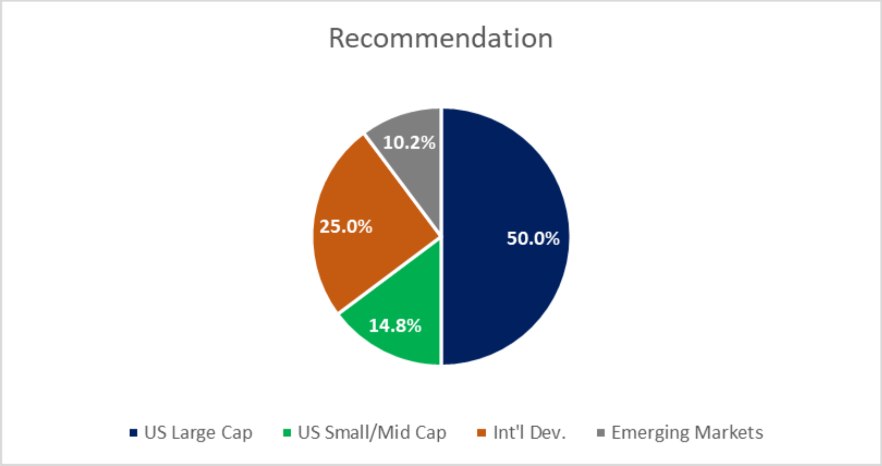
Asset Class	Recommendation	Over/Underweight Recommendation	10-Year Exp. Return	30-Year Exp. Return	Std. Deviation
Large Cap Equity	22.0%	21.0%	4.4%	6.7%	17.2%
Small/Mid Cap Equity	6.5%	7.5%	6.0%	7.4%	21.0%
International Equity	11.0%	11.0%	4.6%	6.4%	19.7%
Emerging Markets Equity	4.5%	4.5%	8.6%	9.2%	28.1%
Global Equity	10.0%	10.0%	5.4%	7.3%	18.2%
Total Equities	**54.0%**	**54.0%**			
Core Bonds	22.0%	22.0%	4.6%	4.9%	5.8%
US TIPS	2.0%	2.0%	4.6%	4.7%	6.0%
Emerging Market Debt (Blended)	2.0%	2.0%	6.7%	6.4%	12.2%
Global Multi-Sector Fixed Income	4.0%	4.0%	5.7%	6.1%	8.1%
Total Fixed Income	**30.0%**	**30.0%**			
Private Equity	7.0%	7.0%	9.0%	10.1%	25.9%
Private Debt	2.0%	2.0%	8.3%	9.0%	11.8%
Core Real Estate	4.0%	4.0%	5.4%	6.1%	15.0%
Private Real Assets (Infrastructure)	3.0%	3.0%	6.8%	7.1%	12.4%
Total Alternative Assets	**16.0%**	**16.0%**			
10 Year Expected Return	***5.9%***	***6.0%***			
Standard Deviation	***13.3%***	***13.1%***			

[1]Emerging Market Debt (Blended) is modeled as 1/2 emerging markets debt (local), 1/2 emerging markets debt (external)

2024 ASSET ALLOCATION – EQUITY ALLOCATION

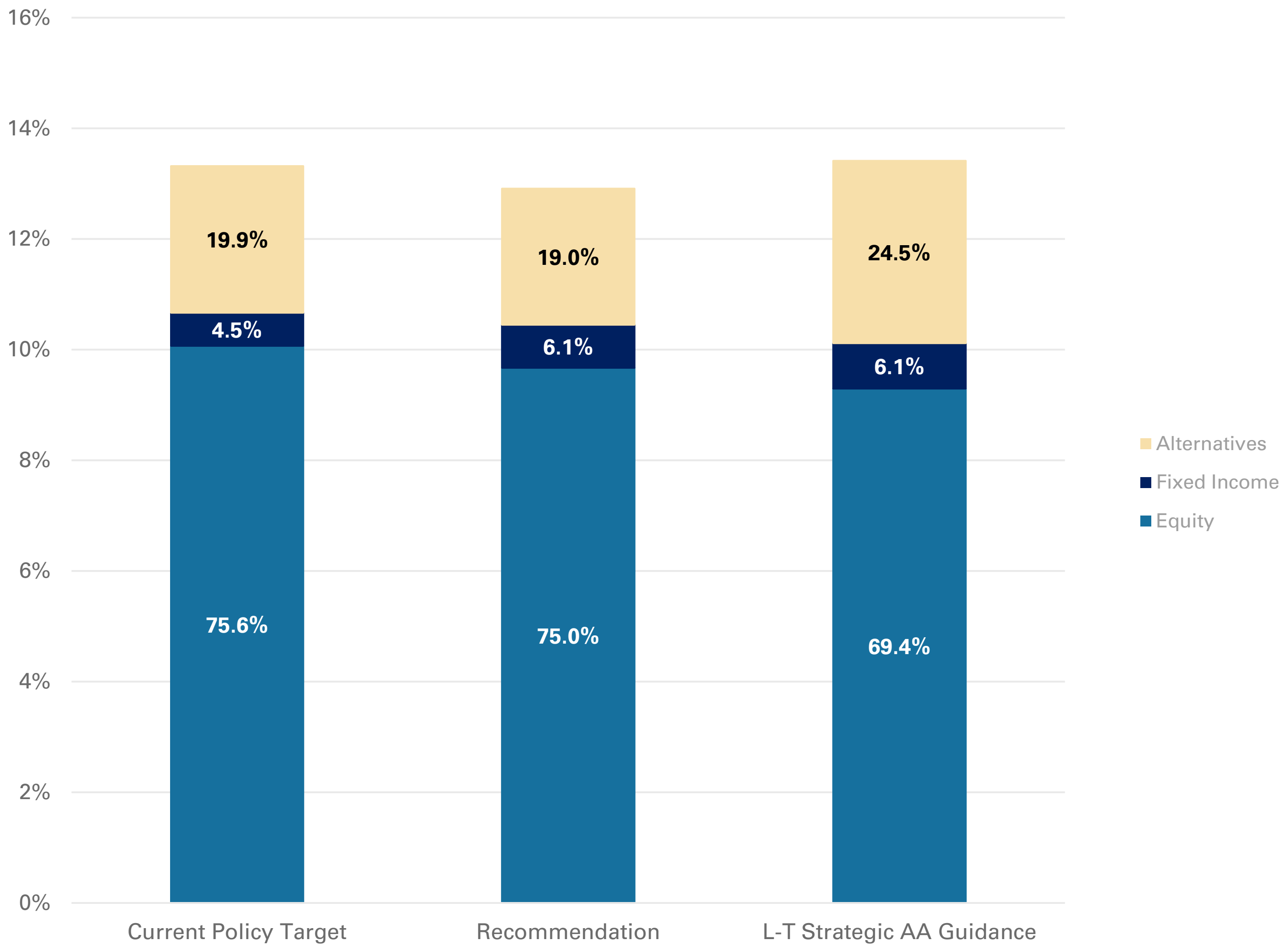






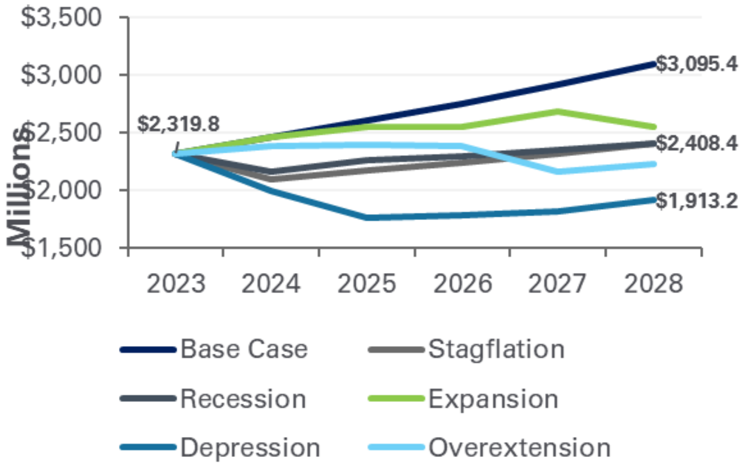
[1]Markets weights determined by MSCI AC World Index as of December 31, 2023.

2024 ASSET ALLOCATION – RISK BUDGETING

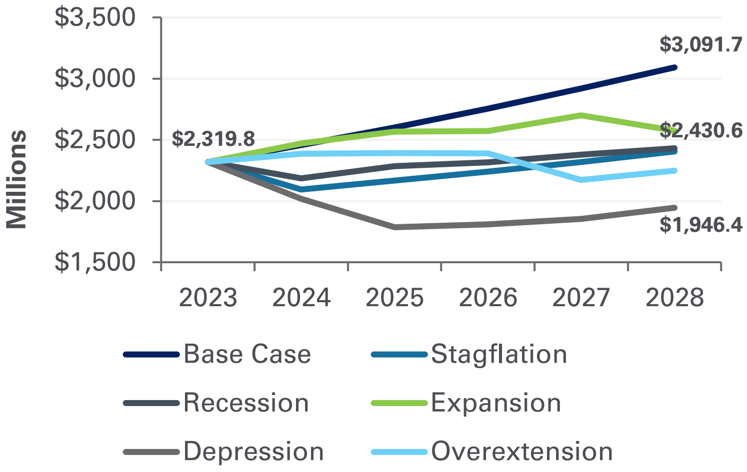


2024 ASSET ALLOCATION – SCENARIO ANALYSIS

Current Policy Target



Recommendation



Scenario analysis are for illustrative purposes and not reflective of actual returns.

SCENARIO ANALYSIS: REGIME DEFINITIONS

- **NEPC scenario analysis highlights the impact of shifting economic and market regimes on the portfolio and potential asset allocation mixes**
  - Risk asset returns are informed by credit returns which are based on changes in real rate, inflation, and credit spreads experienced across market regimes

Expansion	Stagflation
Informed by rising interest rates, moderately rising inflation, elevated positive real rates, spread tightening, and increasing growth	Informed by rising interest rates, rising inflation, depressed negative real rates, spread widening, and slowing growth

Overextension

Informed by rising interest rates, high inflation, negative real rates, spread tightening, and increasing growth

Recession	Depression
Informed by depressed interest rate levels, falling inflation, depressed positive real rates, spread widening and slowing growth	Informed by negative interest rates, deflation, severe credit defaults and downgrades, and negative growth

SCENARIO ANALYSIS: REGIME RETURNS

Expansion Scenario Returns*
- Cash: 2.9%
- Treasuries: 5.3%
- Long Treasuries: 8.1%
- U.S. TIPS: 6.1%
- U.S. IG Credit: 7.3%
- High Yield Bonds: 6.1%
- U.S. Large-Cap Equity: 4.6%
- Emerging Market Equity: 8.8%
- Commodities: -1.9%

Stagflation Scenario Returns*
- Cash: 6.6%
- Treasuries: 2.5%
- Long Treasuries: -1.7%
- U.S. TIPS: 5.8%
- U.S. IG Credit: 2.6%
- High Yield Bonds: 5.1%
- U.S. Large-Cap Equity: -1.7%
- Emerging Market Equity: -1.8%
- Commodities: 7.7%

Overextension Scenario Returns*
- Cash: 5.6%
- Treasuries: 3.9%
- Long Treasuries: 2.5%
- U.S. TIPS: 4.3%
- U.S. IG Credit: 4.3%
- High Yield Bonds: 4.6%
- U.S. Large-Cap Equity: -1.6%
- Emerging Market Equity: -1.5%
- Commodities: 2.8%

Recession Scenario Returns*
- Cash: 1.4%
- Treasuries: 4.9%
- Long Treasuries: 8.1%
- U.S. TIPS: 6.7%
- U.S. IG Credit: 6.6%
- High Yield Bonds: 4.9%
- U.S. Large-Cap Equity: -3.1%
- Emerging Market Equity: -4.2%
- Commodities: -3.0%

Depression Scenario Returns*
- Cash: 0.9%
- Treasuries: 5.3%
- Long Treasuries: 9.5%
- U.S. TIPS: 7.7%
- U.S. IG Credit: 6.4%
- High Yield Bonds: -1.4%
- U.S. Large-Cap Equity: -12.6%
- Emerging Market Equity: -23.0%
- Commodities: -4.3%

Notes: *Scenario returns are 5-year annualized returns, as of 12/31/2023

APPENDIX

MACROECONOMIC

U.S. INFLATION ASSUMPTIONS

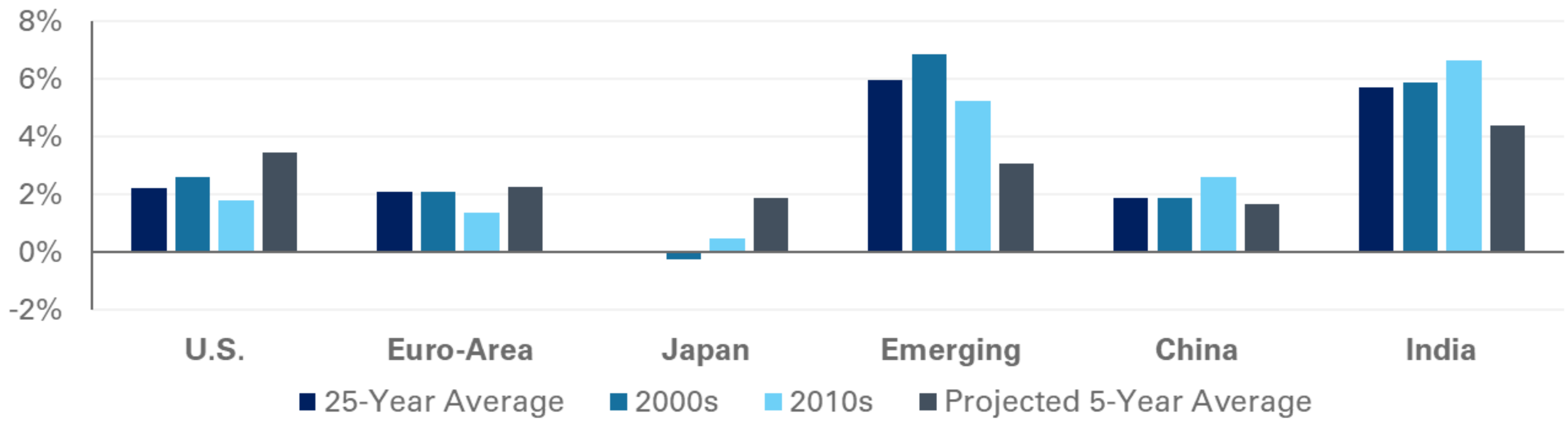
OVERVIEW

- **Inflation is a key building block to develop asset class assumptions**
- **Inflation assumptions are model-driven and informed by multiple inputs for both the U.S. and global assets**
- **NEPC's inflation assumption forecasts near-term paths for major Consumer Price Index (CPI) components including food, energy, core services, and shelter costs**
  - CPI is expected to converge with breakeven inflation rates over the long-term
- **A composite inflation assumption reflects a blend of NEPC's inflation forecast and market-implied breakeven inflation rates**

Region	10-Year Inflation Assumption	12-Month Change	30-Year Inflation Assumption	12-Month Change
United States	2.6%	+0.1%	2.6%	-

GLOBAL INFLATION

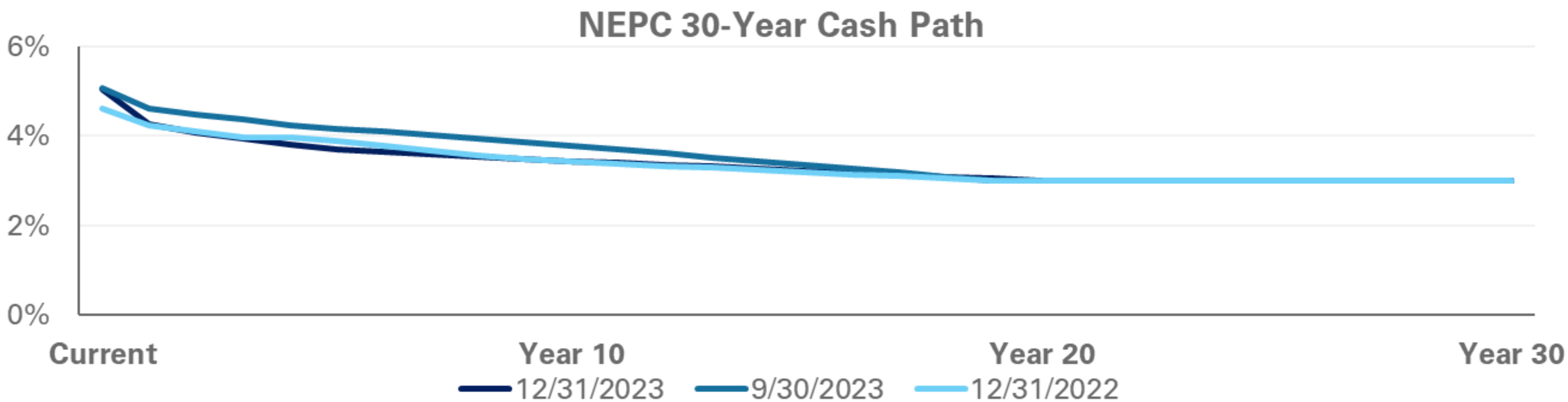
HISTORICAL INFLATION



- **Non-U.S. forecasts are guided by IMF forecasts, local consumer and producer price indices, and global interest rate curves**
- **Near-term inflation levels for developed markets are projected to be higher relative to history**
  - Long-term inflation assumptions reflect NEPC and central bank targets
  - The expected inflation differential between emerging and developed markets has narrowed significantly

Sources: IMF, FactSet, NEPC

U.S. CASH
EXPECTATIONS



- **Cash is a foundational input for all asset class return expectations**
  - Cash + risk premia is an input for long-term asset class return projections
- **Cash assumptions reflect inflation and real interest rates**
- **A composite cash assumption is built from a blend of NEPC's cash forecast and market forward pricing of short-term interest rates**

10-Year Cash Assumption	30-Year Cash Assumption
3.9%	3.4%

Sources: Bloomberg, FactSet, NEPC

GLOBAL INTEREST RATE

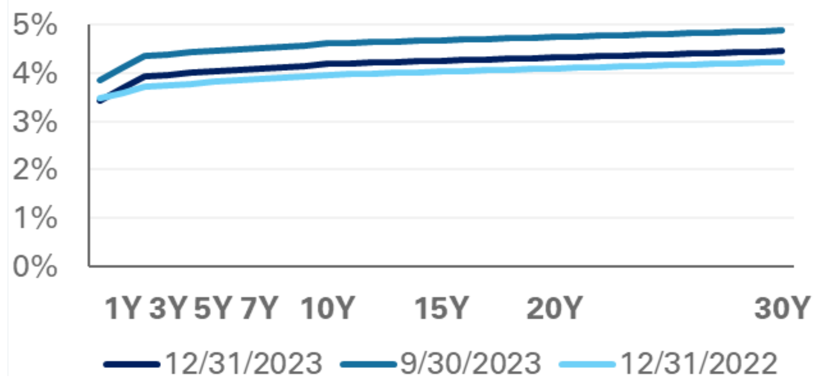
EXPECTATIONS

- **Real yields have normalized, reflecting a tighter monetary policy environment**
  - Attractive real yields should signal a shift in risk posture for investors

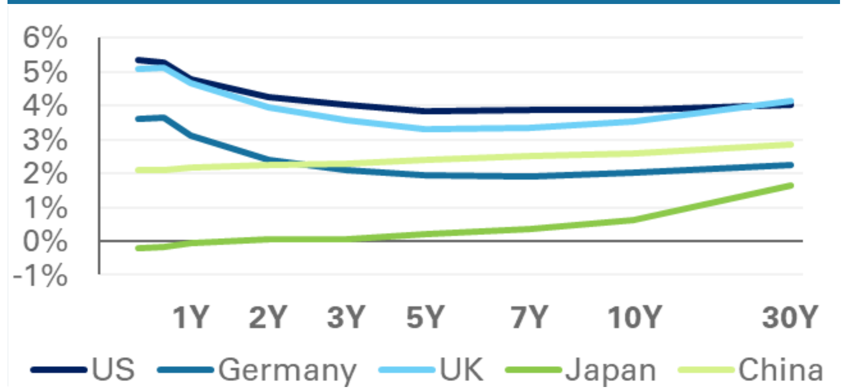
- **Markets remain biased to a lower interest rate environment - diverging from Fed projections in the near-term**

- **The outlook is less attractive for non-U.S. developed markets due to the nominal yield differential relative to the U.S.**

NEPC 10-Year Forward Curve



Global Yield Curves



Sources: FactSet, NEPC

PUBLIC EQUITY

PUBLIC EQUITY ASSUMPTIONS

OVERVIEW

- **Valuation expansion weighed on forward-looking return expectations**
  - U.S. mega-cap outperformance has driven U.S. large-cap index valuations above NEPC's terminal value, detracting from expected returns
- **Long-term valuation inputs are tied to NEPC's path for interest rates and inflation, reflecting valuation sensitivity to the macro environment**
- **Non-U.S. Developed Market assumptions reflect negative real earnings growth as current profit margins remain near cyclical highs**
- **Emerging market assumptions incorporate weaker market expectations for economic growth and earnings, reflecting uncertainty around China**
- **NEPC encourages a strategic bias to small-cap with the use of active management relative to small-cap exposure in the MSCI ACWI IMI**

PUBLIC EQUITY ASSUMPTIONS

BUILDING BLOCKS

Illiquidity Premium	The return expected for assets with illiquidity risk
Valuation	Represents P/E multiple contraction or expansion relative to long-term trend
Inflation	Market-specific inflation based on country-level revenue exposure
Real Earnings Growth	Market-specific real growth based on a weighted-average of country revenue exposure and GDP growth
Dividend Yield	Income distributed to shareholders adjusted to reflect market trends

Asset Class	12/31/23 10-Yr Return	12-Month Change
U.S. Large-Cap Equity	4.4%	-1.0%
U.S. Small/Mid-Cap Equity	6.0%	-0.5%
Non-U.S. Developed Equity	4.6%	-1.0%
Non-U.S. Developed Small-Cap Equity	6.4%	-0.3%
Emerging Market Equity	8.6%	-1.0%
Emerging Market Small-Cap Equity	7.9%	-1.4%
China Equity	9.9%	+1.2%
Hedge Fund - Equity	5.5%	-0.5%
Global Equity*	5.4%	-0.9%
Private Equity*	9.0%	-0.2%

Source: NEPC

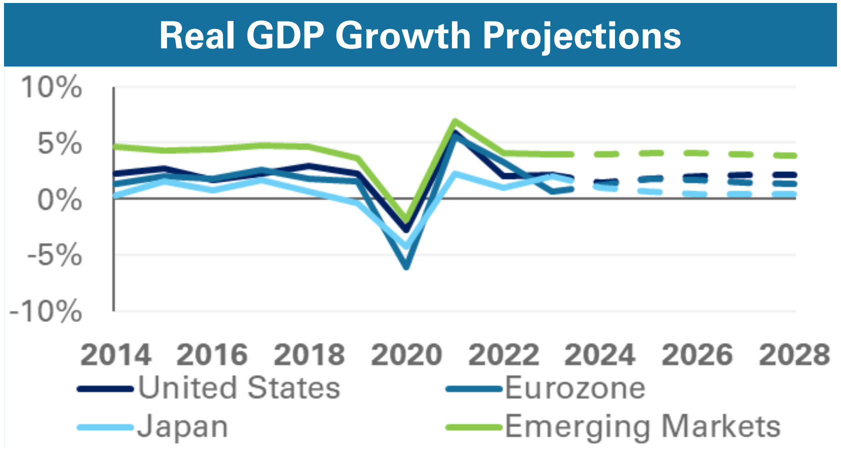
*Calculated as a blend of other asset classes

PUBLIC EQUITY

REAL EARNINGS GROWTH

- **Equities with a greater share of revenue from emerging markets are forecasted to benefit from higher sales growth**
  - Non-U.S. stocks benefit from a greater portion of revenue from EM than U.S. stocks

- **We expect elevated real earnings growth for small-caps over the long-term relative to large-cap**
  - Over the long-term we expect a forward-looking risk premium for small-cap and mid-cap equities relative to large-cap stocks

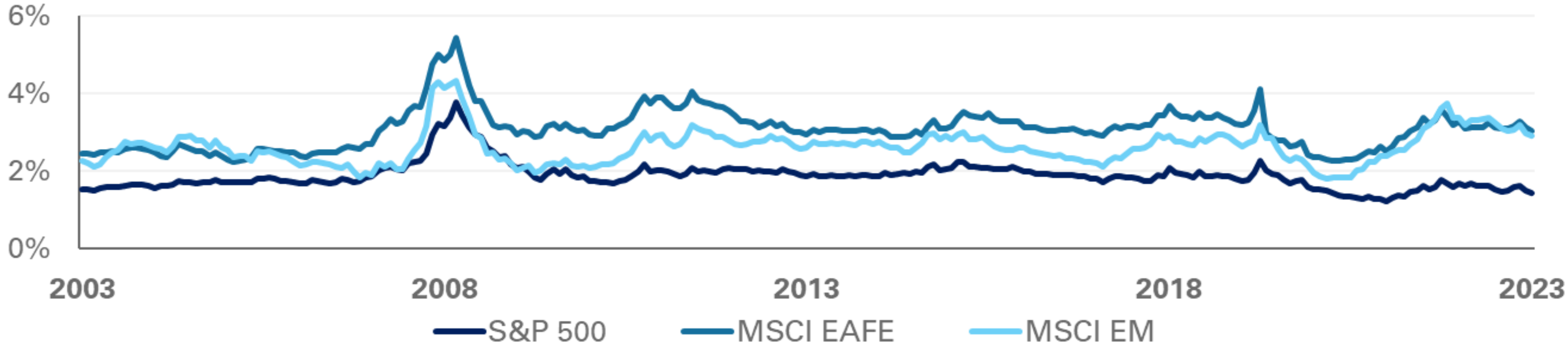


Sources: IMF, MSCI, FactSet, NEPC

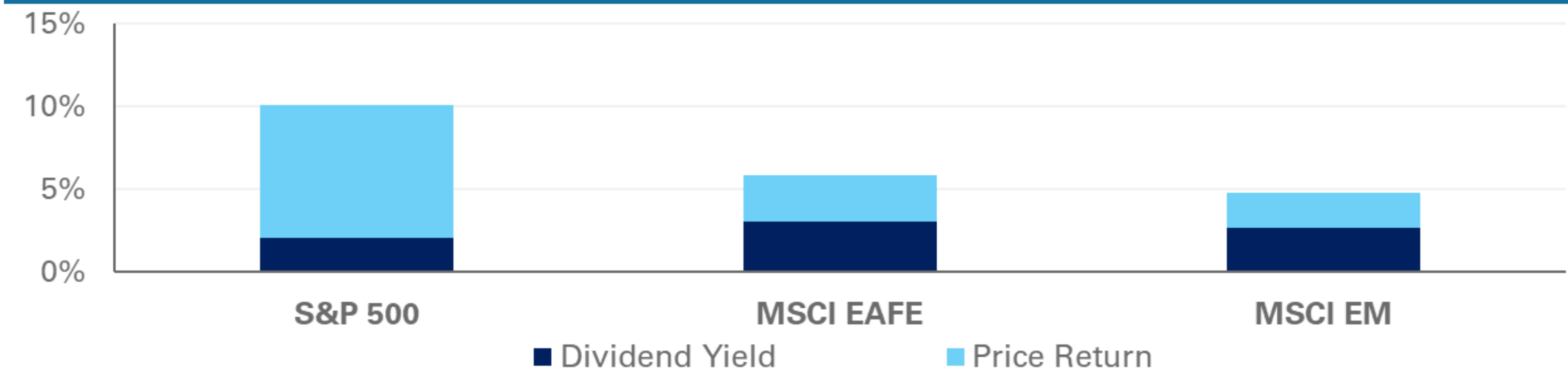
PUBLIC EQUITY DIVIDEND YIELD

NON-U.S. EQUITY OFFERS HIGHER DIVIDEND YIELDS

Dividend Yield



30-Year Annualized Return

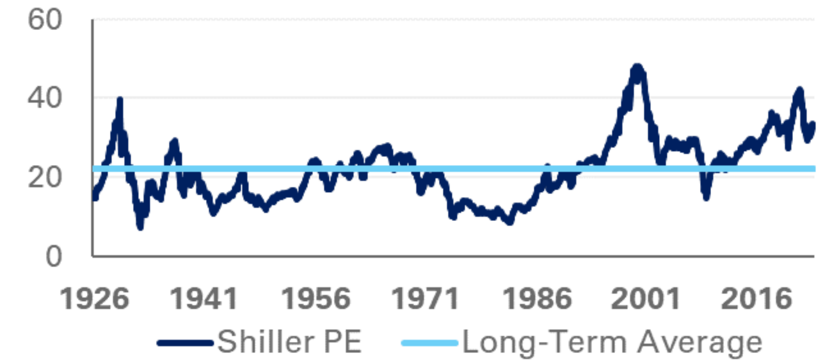


Sources: S&P, MSCI, FactSet

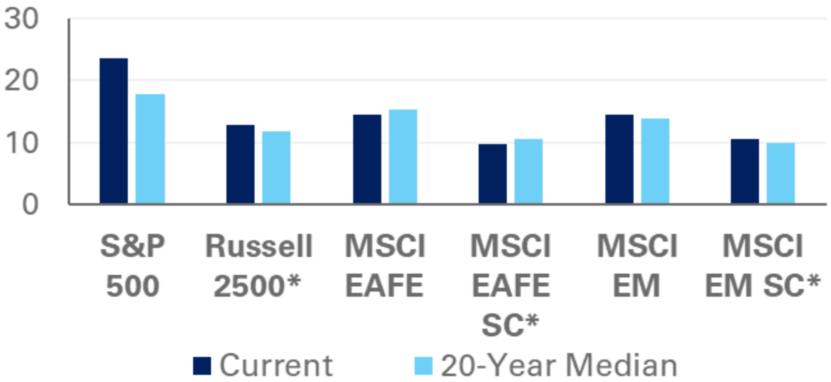
PUBLIC EQUITY
VALUATION

- **Valuations remain elevated relative to long-term averages**
  - U.S. large-cap valuations represent the largest drag on returns across the equity complex
- **EAFE valuation inputs are lower relative to the U.S. and reflect the economic growth profile**
- **Emerging markets offer an elevated total return opportunity relative to developed markets**

S&P 500 Shiller PE Ratio

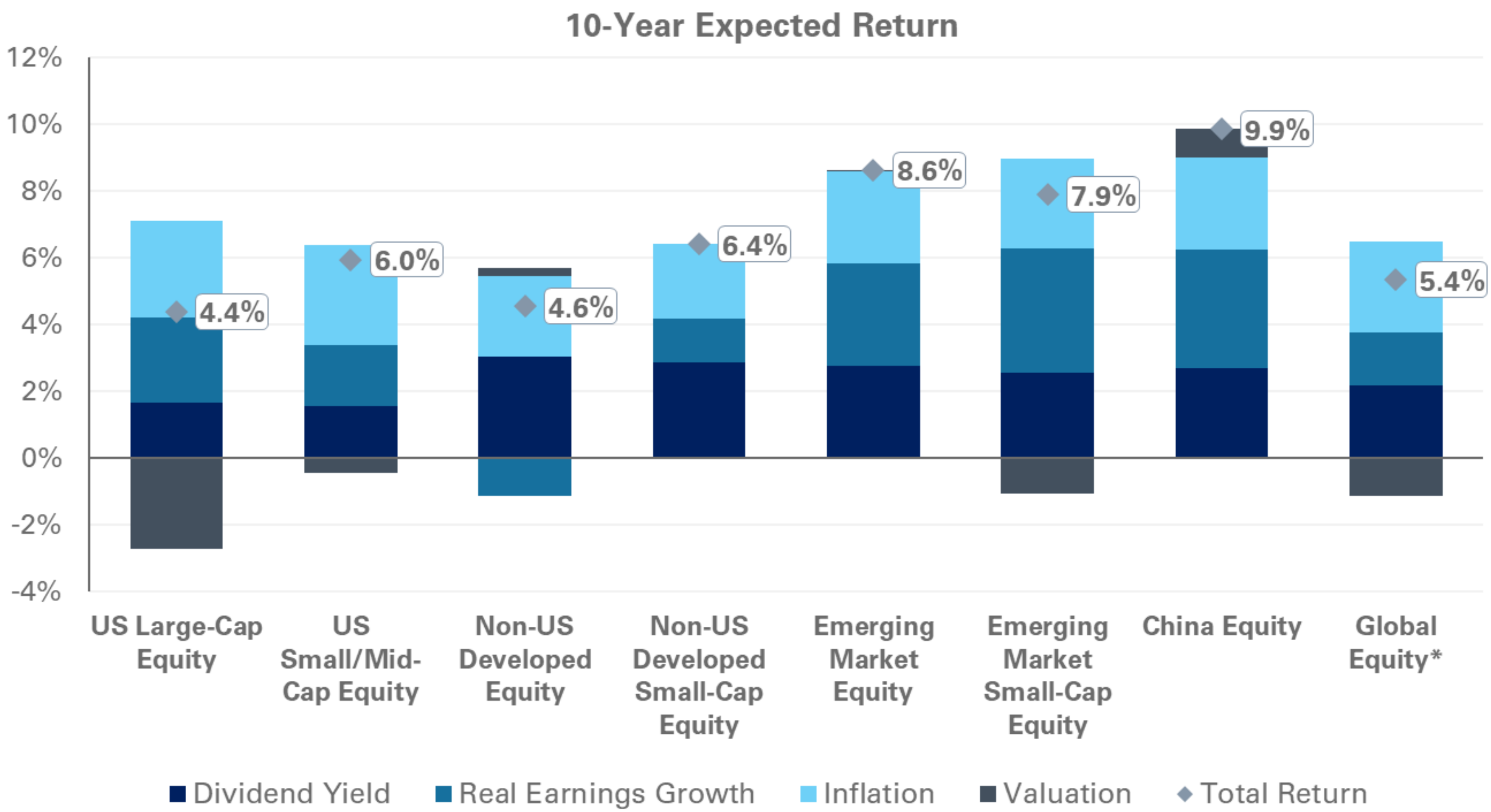


Trailing PE Relative Median



Sources: S&P, Shiller, Russell, MSCI, FactSet, NEPC; Shiller PE long-term average beginning in 1926
Note: *Small cap indices valuations based on EV/EBITDA multiples

PUBLIC EQUITY
BUILDING BLOCKS



Source: NEPC

*Calculated as a blend of other classes

FIXED INCOME

FIXED INCOME ASSUMPTIONS

OVERVIEW

- **Despite elevated interest rate volatility, Treasury assumptions are unchanged year-over-year as yields round-tripped during 2023**
- **Credit spreads tightened to below median levels across investment grade and high yield bonds, leading to lower return expectations**
- **We encourage a dedicated safe-haven fixed income allocation to serve as a critical liquidity source for the portfolio**
  - Sizing of the safe-haven exposure is a strategic exercise and reflects investor return objectives, risk-tolerance, and private market pacing plan needs
- **High-quality fixed income is an asset class group designed to support lower volatility portfolios and larger strategic targets to fixed income**
  - We recommend introducing strategic targets to U.S. TIPS given attractive real yield levels and breakeven inflation rates
- **We encourage the use of return-seeking credit investments, specifically high yield bonds, in a strategic asset allocation policy**

FIXED INCOME ASSUMPTIONS

BUILDING BLOCKS

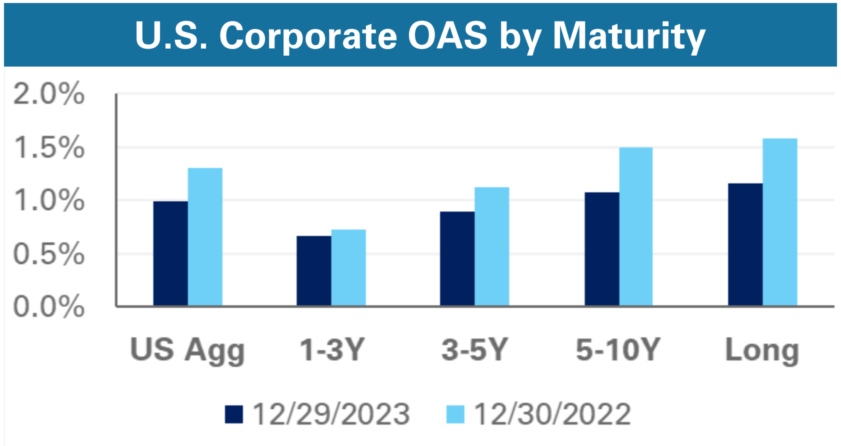
Illiquidity Premium	The return expected for assets with illiquidity risk
Government Rates Price Change	Change due to shifts in current yields relative to forecasted rates
Credit Deterioration	The average loss for credit assets due to defaults and recovery rates
Spread Price Change	Valuation change due to changes in credit spreads relative to long-term targets
Credit Spread	Yield premium provided by securities with credit risk
Government Rates	The yield attributed to sovereign bonds that do not have credit risk

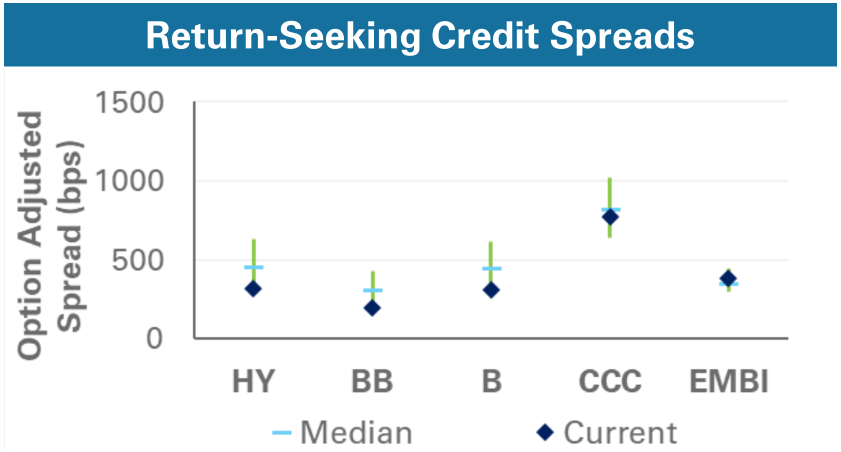
Asset Class	12/31/23 10-Yr Return	12-Month Change
U.S. TIPS	4.6%	+0.2%
U.S. Treasury Bond	4.2%	-
U.S. Corporate Bond	5.3%	-0.6%
U.S. MBS	4.4%	-0.1%
U.S. High Yield Corporate	6.1%	-1.0%
U.S. Leveraged Loan	7.2%	-0.6%
EMD External Debt	7.1%	-
EMD Local Currency Debt	6.1%	-1.1%
Non-U.S. Govt. Bond	2.4%	-0.2%
U.S. Muni Bond (1-10 Year)	2.9%	-0.3%
U.S. High Yield Muni Bond	4.5%	-1.2%
Hedge Fund – Credit	6.6%	-0.5%
U.S. Aggregate Bond*	4.6%	-0.2%
Private Debt*	8.3%	-0.5%

Source: NEPC
*Calculated as a blend of other asset classes

FIXED INCOME
CREDIT SPREADS

- **Credit spreads have tightened and are broadly below median levels**
- **Lower spread levels weigh on future return expectations given less overall carry return**
- **Credit spread assumptions reflect a path towards long term median levels**
- **Default and recovery rate assumptions are informed by long-term history**





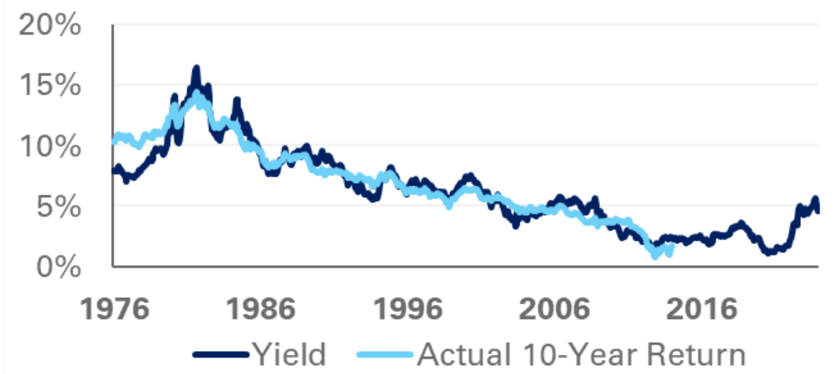
Sources: Barclays, JPM, FactSet, NEPC; Spread medians as of 12/31/2000 and range represents 25th to 75th percentile

FIXED INCOME

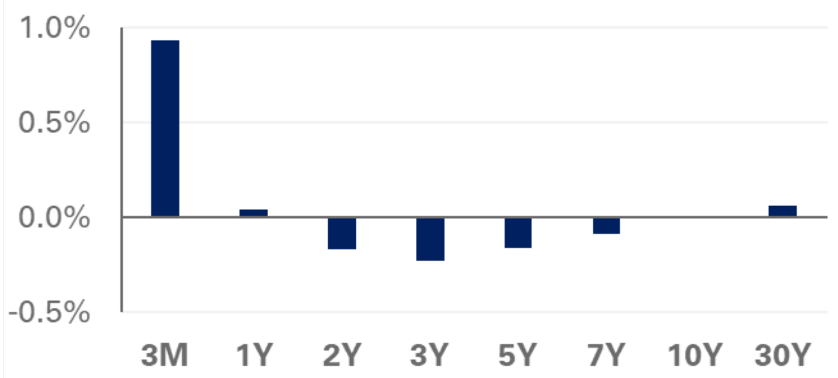
GOVERNMENT RATES

- **Government rates price change reflects shifts in interest rates, the yield curve, and roll down**
  - Roll down refers to the price change due to the aging of a bond along the yield curve
- **Intermediate Treasury yields are near terminal values, even as long yields remain suppressed**
- **A normalization of yield curve steepness is a headwind to long duration fixed income**

Barclays U.S. Aggregate Bond

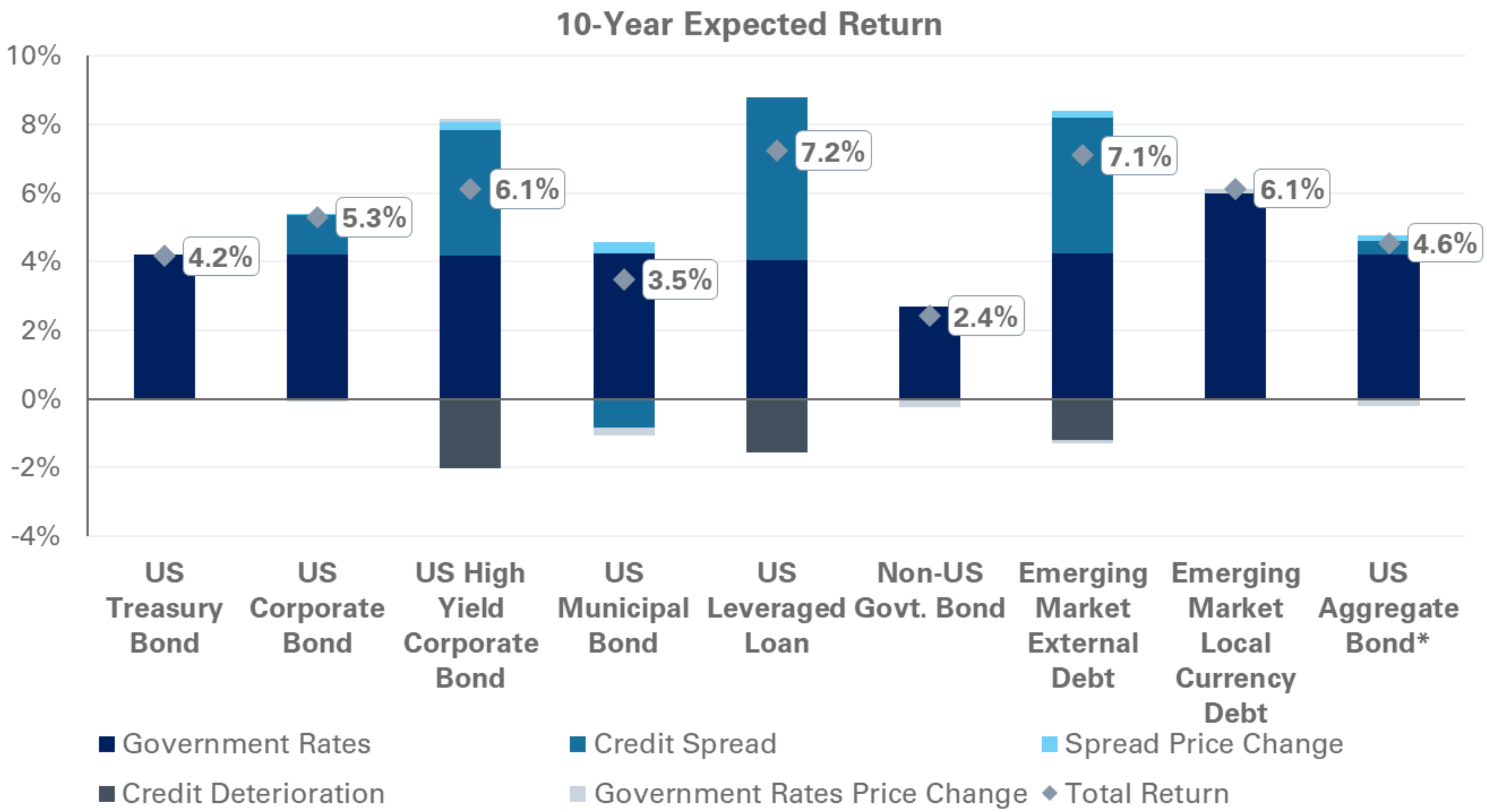


Annual Change in Treasury Yields



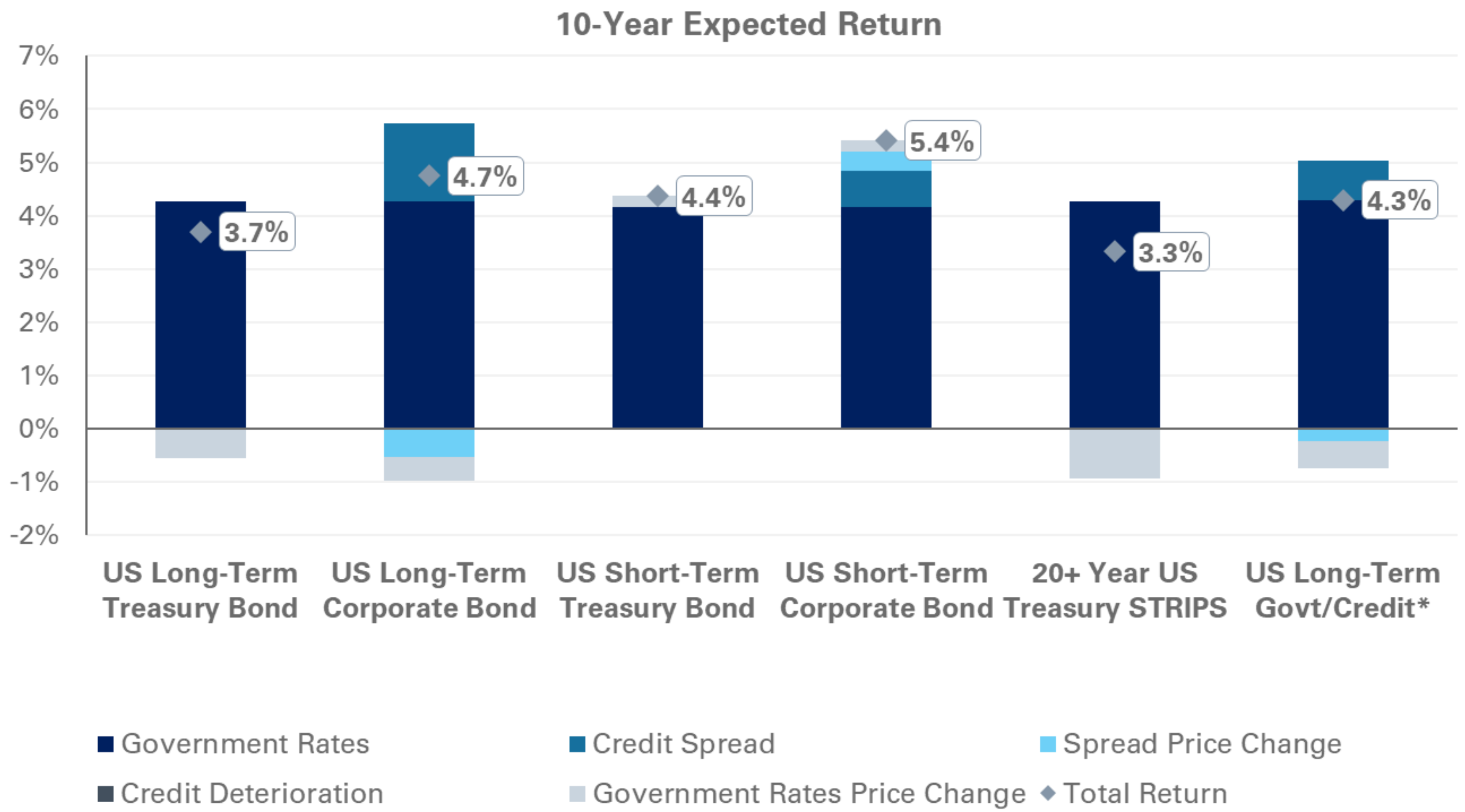
Sources: Barclays, FactSet, NEPC

FIXED INCOME
BUILDING BLOCKS



Source: NEPC
*Calculated as a blend of other classes

FIXED INCOME
BUILDING BLOCKS



Source: NEPC
*Calculated as a blend of other classes

REAL ASSET

REAL ASSET ASSUMPTIONS

OVERVIEW

- **Real asset exposure can enhance risk-adjusted returns as markets undergo a secular shift toward higher interest rates and inflation levels**
  - Lagged real estate valuation data reflects a slow adjustment to these dynamics
- **Real assets provide exposure to inflation-sensitive asset classes and offer diversification benefits to the portfolio**
  - A diversifying blend of real assets provides an elevated beta to inflation relative to public equity and nominal bond exposure
- **We encourage investors to evaluate strategic real asset exposure relative to their long-term investment objectives and spending needs**
  - We believe building portfolio inflation sensitivity is a strategic exercise and public real assets serve as a complement to private market investments
- **NEPC recommends a strategic real assets target comprising an equal-weight blend to commodity futures, natural resource equity, public infrastructure equity, REITs, and gold**

REAL ASSET ASSUMPTIONS

BUILDING BLOCKS

Illiquidity Premium	The return expected for assets with illiquidity risk
Valuation	The change in price of the asset moving to a terminal value or real average level
Inflation	Based on the inflation path as defined by breakeven-inflation rates and NEPC assumptions
Growth	Market-specific real growth based on a weighted-average of country-level revenue exposure and GDP growth
Real Income	The inflation-adjusted income produced by the asset

Asset Class	12/31/23 10-Yr Return	12-Month Change
Commodity Futures	4.6%	+0.4%
Midstream Energy	5.5%	-0.5%
REIT	6.0%	-0.2%
Global Infrastructure Equity	6.6%	+1.0%
Global Natural Resources Equity	6.2%	+0.7%
Gold	4.9%	-0.2%
Real Estate - Core	5.4%	+1.4%
Real Estate – Non-Core	7.1%	+1.8%
Private Debt - Real Estate	6.3%	+0.5%
Private Real Assets - Natural Resources	8.2%	+0.1%
Private Real Assets - Infrastructure	6.8%	+0.2%

Source: NEPC

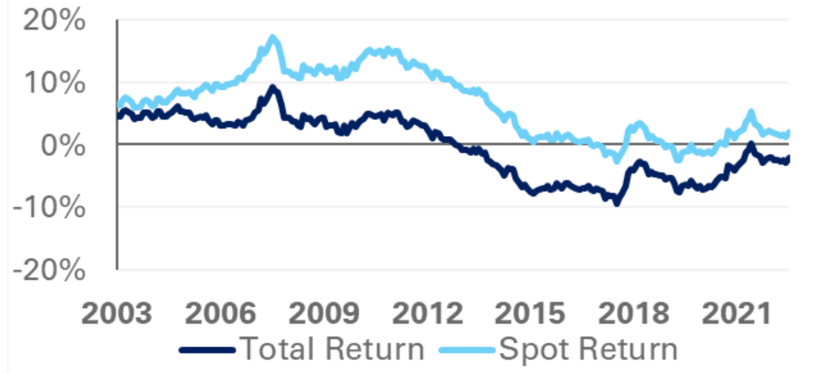
*Calculated as a blend of other asset classes

REAL ASSET

REAL INCOME

- **Equity: Real income is inflation-adjusted dividend yield**
  - Includes public infrastructure, REITS, midstream energy, and natural resource equity
- **Real Estate: Real income is net operating income (NOI)**
  - NOI growth tracks the business cycle and economic regimes
- **Commodity Futures: Real income reflects collateral return and the futures roll yield**
  - Collateral is based on a cash proxy over the time horizon and has increased in-line with cash rates

Commodities Rolling 10-Year Returns



Real Assets Yields

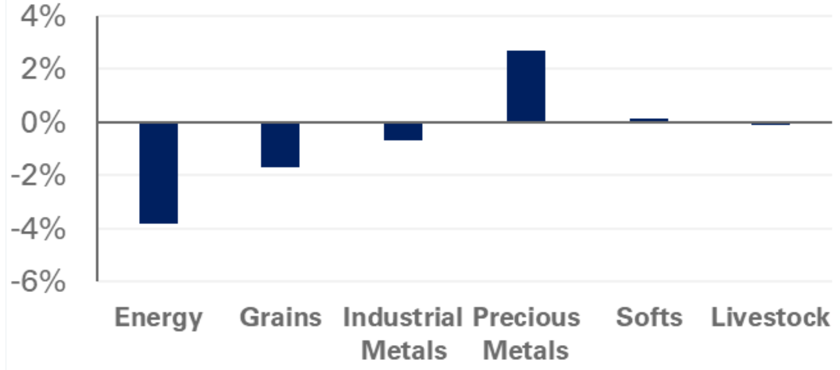
	12/31/23	12/31/22
Midstream Energy	5.6%	5.9%
Real Estate - Core	2.6%	2.6%
U.S. REITs	4.2%	4.4%
Global Infrastructure Equities	3.6%	3.2%
Natural Resource Equities	3.7%	3.8%
U.S. 10-Year Breakeven Inflation	2.2%	2.3%
Commodity Index Roll Yield	-0.9%	5.7%

Sources: Bloomberg, NCREIF, Alerian, NAREIT, S&P, FactSet, NEPC
*Commodity Index Roll Yield represents a proprietary calculation methodology

REAL ASSET
VALUATION

- **Commodity valuation inputs reflect the long-term average of spot prices**
  - Many areas of the commodity index are trading at a premium to long-term real averages
- **Valuation assumptions for other real assets are based on asset-specific valuation inputs**
  - Capitalization rates are used for core real estate, price-to-earnings for global infrastructure and global natural resources equity
  - Gold's valuation incorporates the asset's historical risk premia and the impact of the macroeconomic market regime

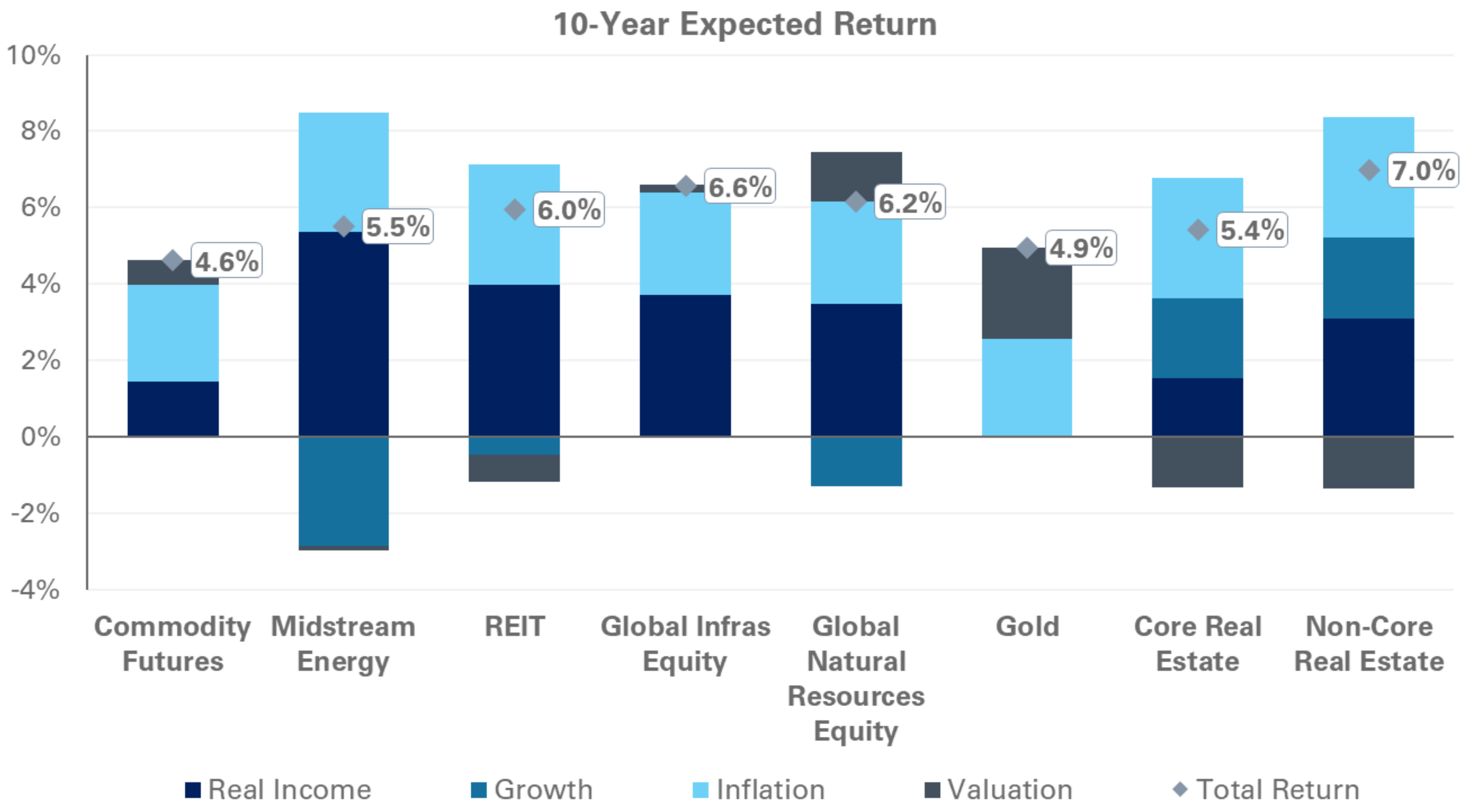
Discount/Premium to 10-Year Real Average



Real Price of Gold

Sources: FactSet, NEPC

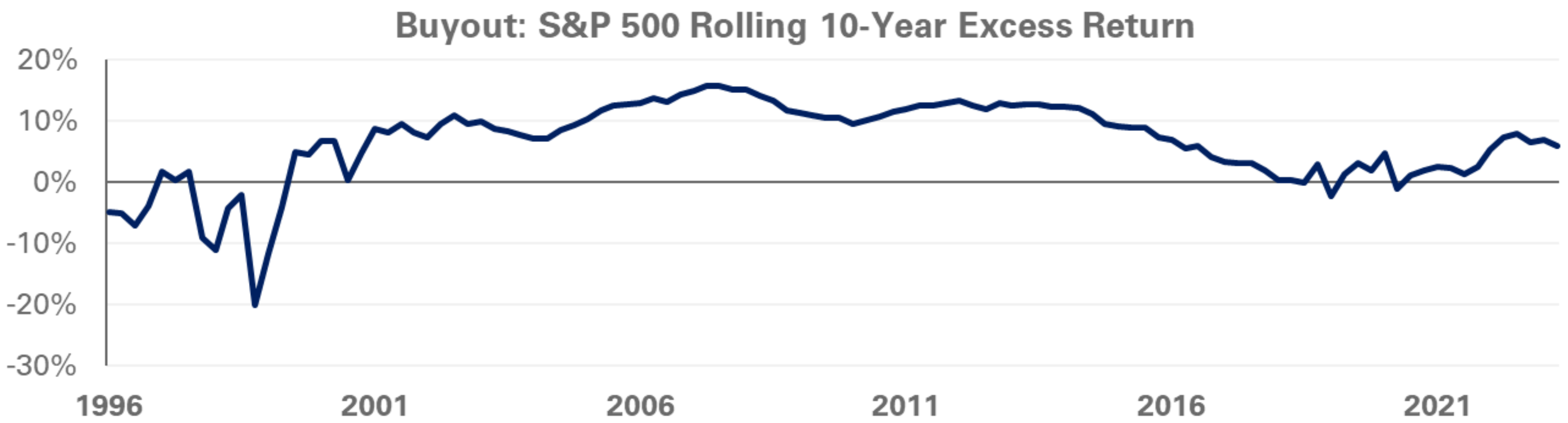
REAL ASSET
BUILDING BLOCKS



Source: NEPC

ALTERNATIVE ASSETS

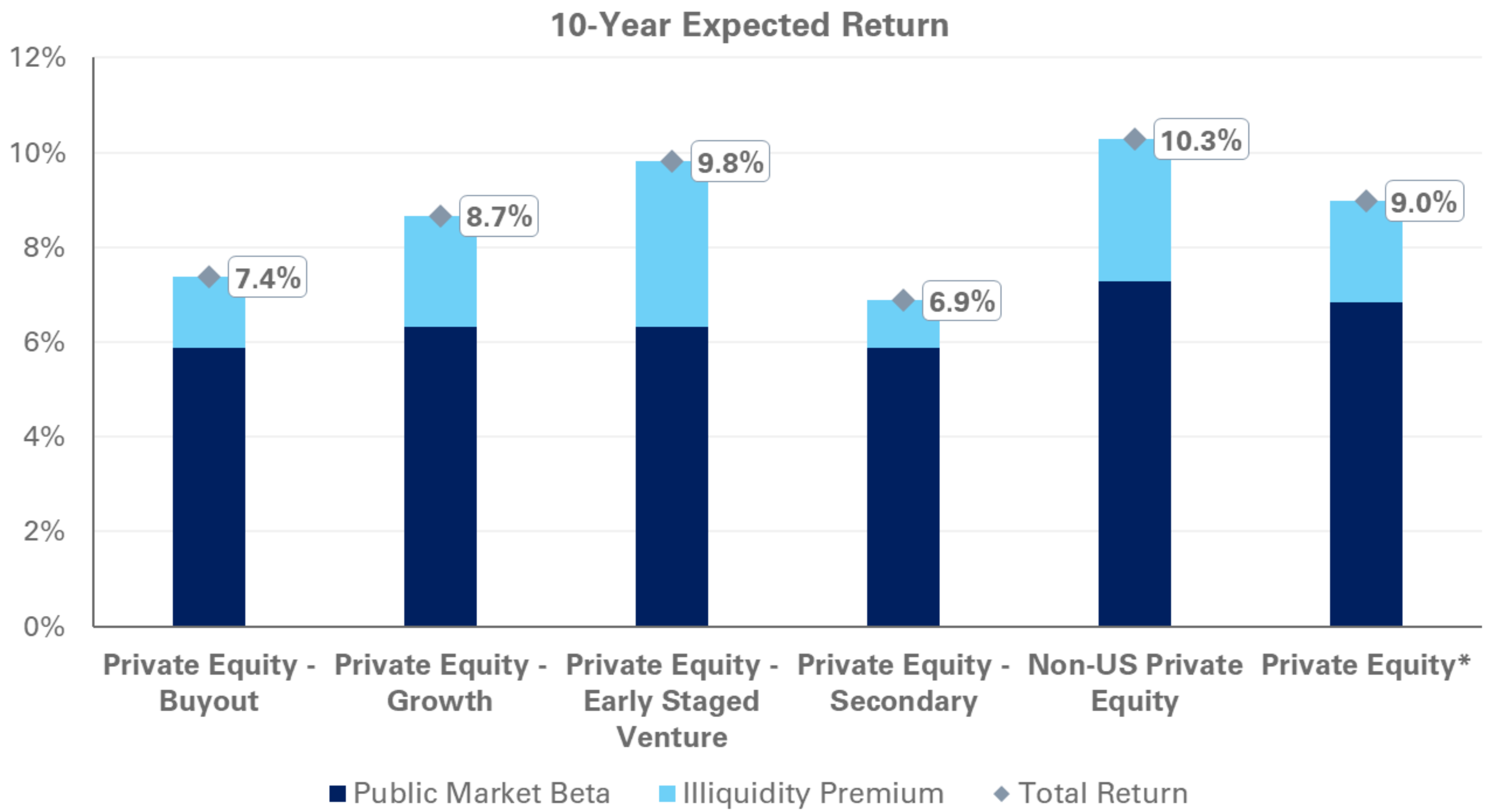
ALTERNATIVE ASSETS
METHODOLOGY



- **Private market assumptions are constructed from public market betas with an added illiquidity premia**
  - Historically, the observed illiquidity premium has been a significant component driving private market returns
- **Hedge fund assumptions are constructed from betas to public markets with an added alpha assumption**

Sources: Thomson One, S&P, FactSet

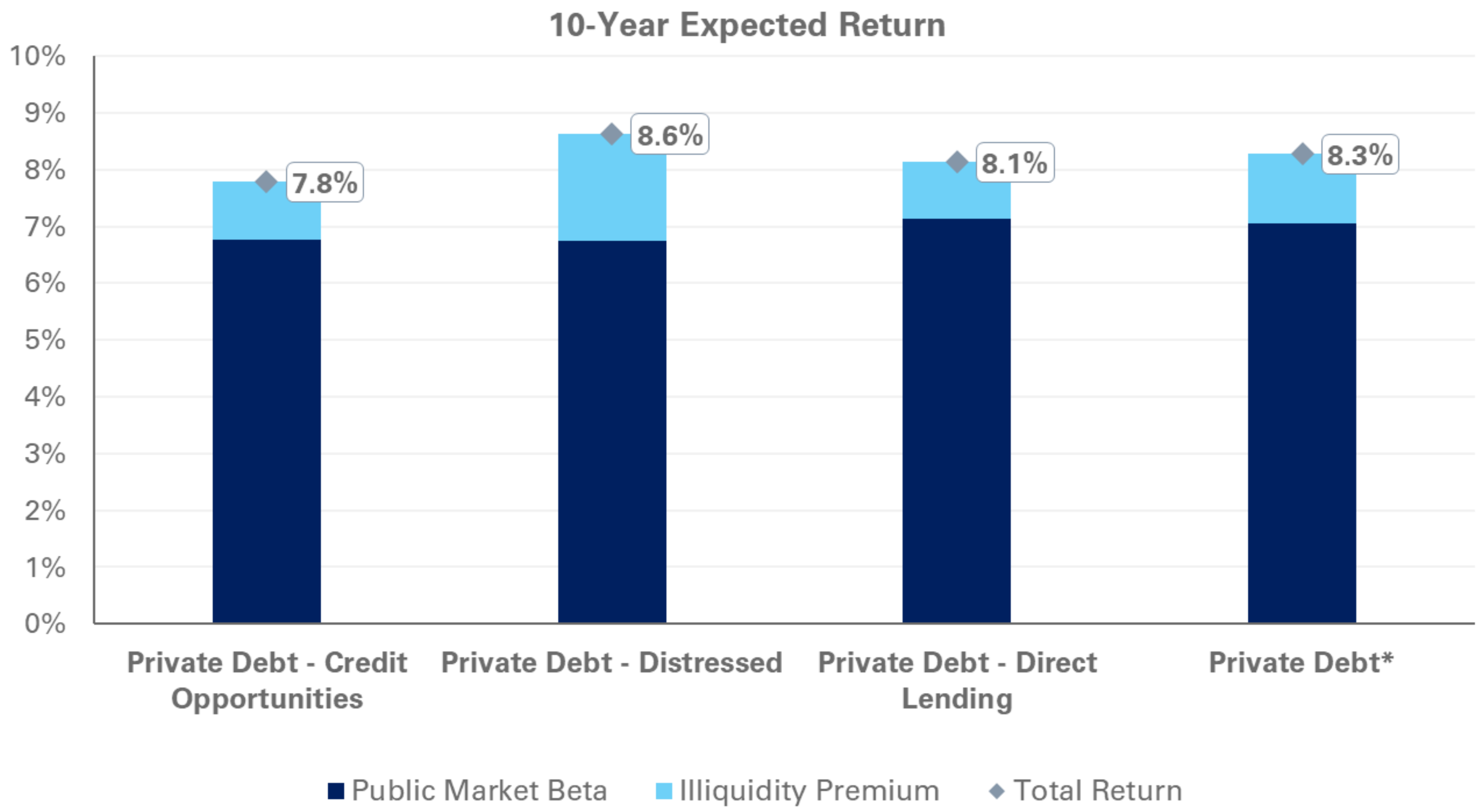
PRIVATE EQUITY
BUILDING BLOCKS



Source: NEPC

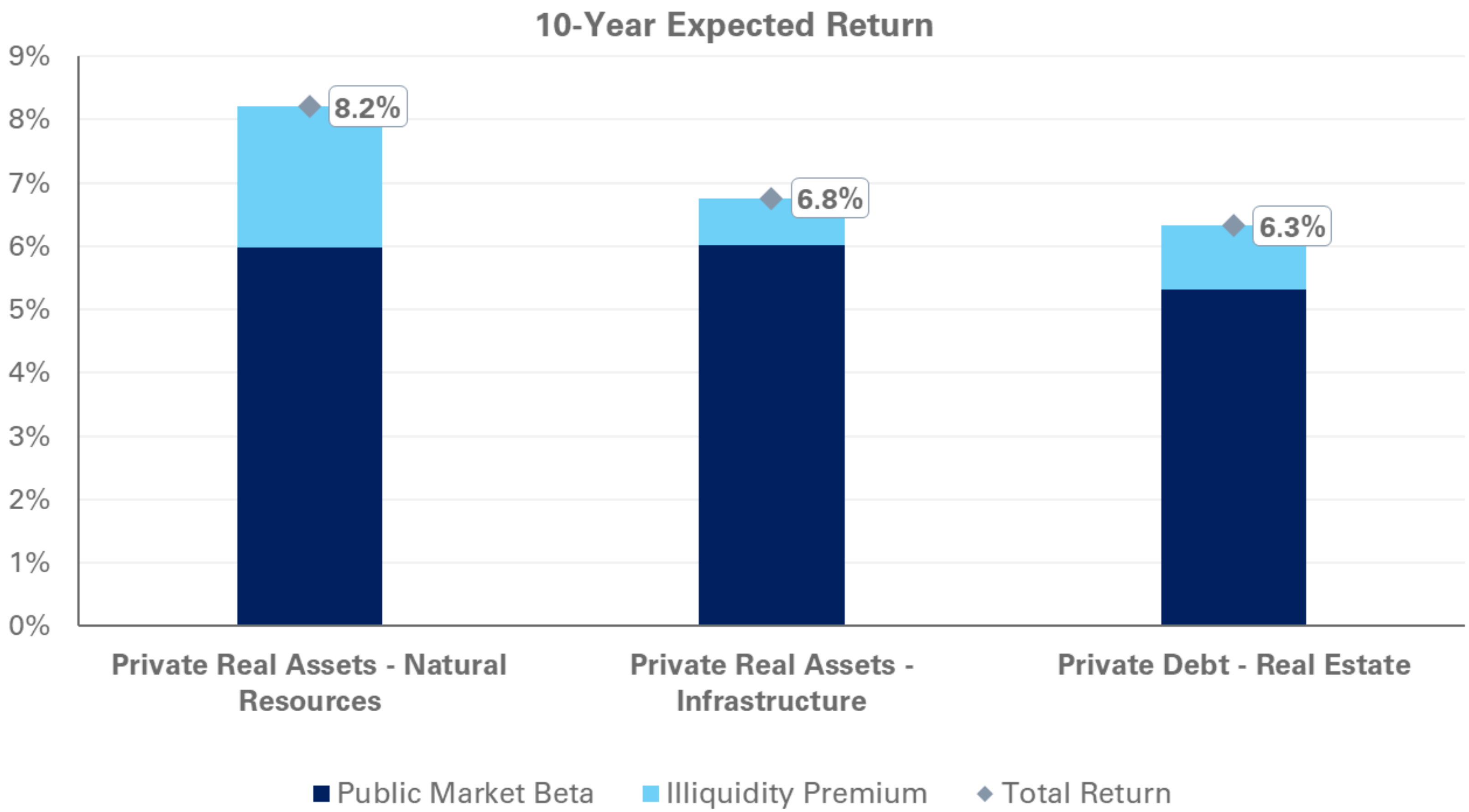
*Private Equity is a derived composite of 34% U.S. Buyout, 34% U.S. Growth, 8.5% U.S. Secondary, 8.5% U.S. Venture, 15% Non-U.S. PE

PRIVATE DEBT
BUILDING BLOCKS



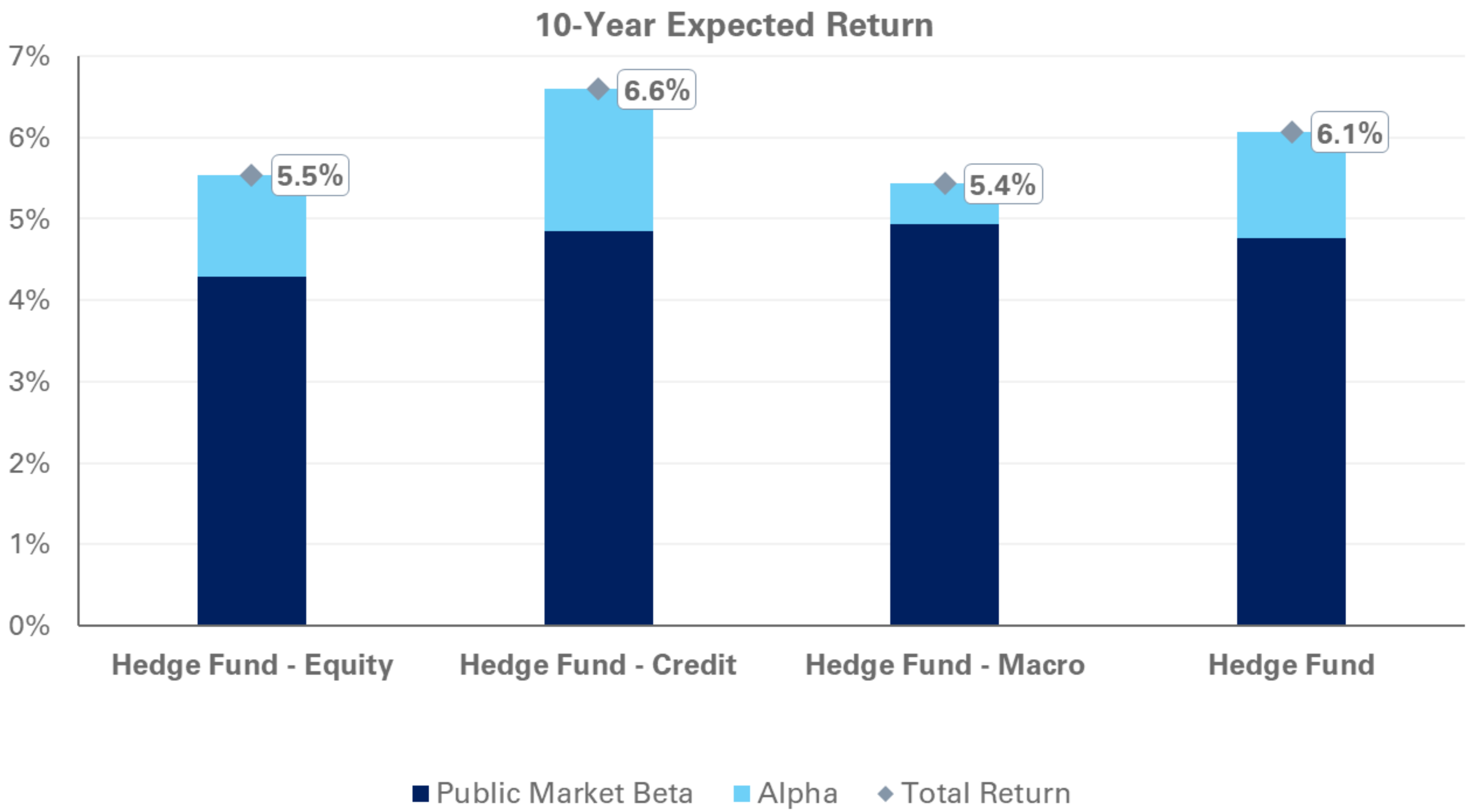
Source: NEPC
*Private Debt is a derived composite of 25% Mezzanine, 25% Distressed, 50% Direct Lending

PRIVATE REAL ASSET
BUILDING BLOCKS



Source: NEPC

HEDGE FUND
BUILDING BLOCKS



Source: NEPC
*Hedge Funds is a derived composite of 40% Long/Short, 40% Credit, 20% Macro

PRIVATE MARKETS COMPOSITES

PUBLIC MARKET BETA INPUTS FOR PRIVATE MARKETS

PRIVATE EQUITY

Buyout: 25% U.S. Large Cap, 75% U.S. Small/Mid Cap

Secondary: 25% U.S. Large Cap, 75% U.S. Small/Mid Cap

Growth: 100% U.S. Small/Mid Cap

Early-Stage Venture: 100% U.S. Small/Mid Cap

Non-U.S.: 70% International Small Cap, 30% Emerging Small Cap

Composite: 34% Buyout, 34% Growth, 15 % Non-U.S., 8.5% Secondary, 8.5% Early Venture

PRIVATE DEBT

Direct Lending: 100% Bank Loans

Distressed: 20% U.S. Small/Mid Cap, 60% U.S. High Yield, 20% Bank Loans

Credit Opportunities: 34% U.S. SMID Cap, 33% U.S. High Yield, 33% Bank Loans

Composite: 50% Direct Lending, 25% Credit Opportunities, 25% Distressed

PRIVATE REAL ASSETS

Energy: 30% Comm., 35% Midstream, 35% Public Resource Equity

Infra/Land: 30% Commodities, 70% Public Infrastructure

Private Real Estate Debt: 50% CMBS, 50% Real Estate - Core

10-YEAR RETURN FORECASTS

EQUITY

Geometric Expected Return			
Asset Class	**12/31/2023**	**12/31/2022**	**Delta**
U.S. Large-Cap Equity	4.4%	5.4%	-1.0%
U.S. Small/Mid-Cap Equity	6.0%	6.5%	-0.5%
Non-U.S. Developed Equity	4.6%	5.6%	-1.0%
Non-U.S. Developed Equity (USD Hedge)	4.8%	5.8%	-1.0%
Non-U.S. Developed Small-Cap Equity	6.4%	6.7%	-0.3%
Emerging Market Equity	8.6%	9.6%	-1.0%
Emerging Market Small-Cap Equity	7.9%	9.3%	-1.4%
Hedge Fund - Equity	5.5%	6.0%	-0.5%
Private Equity - Buyout	7.4%	7.7%	-0.3%
Private Equity - Growth	8.7%	8.8%	-0.1%
Private Equity - Early Stage Venture	9.8%	10.0%	-0.2%
Private Equity - Secondary	6.9%	7.2%	-0.3%
Non-U.S. Private Equity	10.3%	10.4%	-0.1%
China Equity	9.9%	8.7%	+1.2%
Global Equity*	5.4%	6.3%	-0.9%
Private Equity*	9.0%	9.2%	-0.2%

*Calculated as a blend of other asset classes

10-YEAR RETURN FORECASTS

FIXED INCOME

Geometric Expected Return			
Asset Class	**12/31/2023**	**12/31/2022**	**Delta**
Cash	3.9%	4.0%	-0.1%
US TIPS	4.6%	4.4%	+0.2%
US Treasury Bond	4.2%	4.2%	-
US Corporate Bond	5.3%	5.9%	-0.6%
US Corporate Bond - AAA	4.4%	4.9%	-0.5%
US Corporate Bond - AA	4.6%	5.0%	-0.4%
US Corporate Bond - A	5.1%	5.6%	-0.5%
US Corporate Bond - BBB	5.6%	6.2%	-0.6%
US Mortgage-Backed Securities	4.4%	4.5%	-0.1%
US Securitized Bond	5.2%	5.2%	-
US Collateralized Loan Obligation	5.5%	5.8%	-0.3%
US Municipal Bond	3.5%	4.4%	-0.9%
US Municipal Bond (1-10 Year)	2.9%	3.2%	-0.3%
US Taxable Municipal Bond	5.3%	5.5%	-0.2%

10-YEAR RETURN FORECASTS

FIXED INCOME

Geometric Expected Return			
Asset Class	**12/31/2023**	**12/31/2022**	**Delta**
Non-US Government Bond	2.4%	2.6%	+0.4%
Non-US Government Bond (USD Hedge)	2.6%	2.9%	+0.4%
Non-US Inflation-Linked Bond (USD Hedge)	3.2%	3.4%	+0.4%
US Short-Term TIPS (1-3 Year)	4.7%	4.3%	+1.0%
US Short-Term Treasury Bond (1-3 Year)	4.4%	4.2%	+0.6%
US Short-Term Corporate Bond (1-3 Year)	5.4%	5.4%	+0.6%
US Intermediate-Term TIPS (3-10 Year)	4.6%	4.4%	+0.8%
US Intermediate-Term Treasury Bond (3-10 Year)	4.2%	4.2%	+0.7%
US Intermediate-Term Corporate Bond (3-10 Year)	5.6%	6.1%	+0.2%
US Long-Term TIPS (10-30 Year)	4.5%	4.5%	+0.7%
US Long-Term Treasury Bond (10-30 Year)	3.7%	4.0%	+0.7%
US Long-Term Corporate Bond (10-30 Year)	4.7%	5.8%	-0.3%
20+ Year US Treasury STRIPS	3.3%	3.9%	+0.8%
10 Year US Treasury Bond	4.2%	4.3%	+0.6%
10 Year Non-US Government Bond (USD Hedge)	2.1%	2.2%	+0.6%
US Aggregate Bond*	4.6%	4.8%	+0.4%

*Calculated as a blend of other asset classes

10-YEAR RETURN FORECASTS

FIXED INCOME

Geometric Expected Return			
Asset Class	**12/31/2023**	**12/31/2022**	**Delta**
US High Yield Corporate Bond	6.1%	7.1%	-1.0%
US Corporate Bond - BB	6.8%	7.5%	-0.7%
US Corporate Bond - B	6.3%	7.5%	-1.2%
US Corporate Bond - CCC/Below	1.4%	2.9%	-1.5%
US Short-Term High Yield Corporate Bond (1-3 Year)	5.5%	6.2%	-0.7%
US Leveraged Loan	7.2%	7.8%	-0.6%
Emerging Market Investment Grade External Debt	5.0%	-	-
Emerging Market High Yield External Debt	9.0%	-	-
Emerging Market Local Currency Debt	6.1%	7.2%	-1.1%
US High Yield Securitized Bond	8.7%	8.9%	-0.2%
US High Yield Collateralized Loan Obligation	7.8%	8.5%	-0.7%
US High Yield Municipal Bond	4.5%	5.7%	-1.2%
Hedge Fund - Credit	6.6%	7.1%	-0.5%
Private Debt - Credit Opportunities	7.8%	8.2%	-0.4%
Private Debt - Distressed	8.6%	9.0%	-0.4%
Private Debt - Direct Lending	8.1%	8.8%	-0.7%
Private Debt*	8.3%	8.8%	-0.5%

*Calculated as a blend of other asset classes

10-YEAR RETURN FORECASTS

REAL ASSETS

Geometric Expected Return			
Asset Class	**12/31/2023**	**12/31/2022**	**Delta**
Commodity Futures	4.6%	4.2%	+0.4%
Midstream Energy	5.5%	6.0%	-0.5%
REIT	6.0%	6.2%	-0.2%
Global Infrastructure Equity	6.6%	5.6%	+1.0%
Global Natural Resources Equity	6.2%	5.5%	+0.7%
Gold	4.9%	5.1%	-0.2%
Real Estate - Core	5.4%	4.0%	+1.4%
Real Estate – Value-Add	6.6%	5.8%	+0.8%
Real Estate - Opportunistic	7.6%	7.4%	+0.2%
Private Debt - Real Estate	6.3%	5.8%	+0.5%
Private Real Assets - Natural Resources	8.2%	8.1%	+0.1%
Private Real Assets - Infrastructure	6.8%	6.6%	+0.2%

30-YEAR RETURN FORECASTS

EQUITY

Geometric Expected Return			
Asset Class	**12/31/2023**	**12/31/2022**	**Delta**
U.S. Large-Cap Equity	6.7%	6.9%	-0.2%
U.S. Small/Mid-Cap Equity	7.4%	7.4%	-
Non-U.S. Developed Equity	6.4%	6.7%	-0.3%
Non-U.S. Developed Equity (USD Hedge)	6.6%	6.9%	-0.3%
Non-U.S. Developed Small-Cap Equity	7.5%	7.5%	-
Emerging Market Equity	9.2%	9.6%	-0.4%
Emerging Market Small-Cap Equity	9.1%	9.6%	-0.5%
Hedge Fund - Equity	6.0%	6.2%	-0.2%
Private Equity - Buyout	8.8%	8.8%	-
Private Equity - Growth	9.7%	9.8%	-0.1%
Private Equity - Early Stage Venture	10.6%	10.6%	-
Private Equity - Secondary	8.2%	8.2%	-
Non-U.S. Private Equity	10.8%	10.8%	-
China Equity	9.5%	9.1%	+0.4%
Global Equity*	7.3%	7.5%	-0.2%
Private Equity*	10.1%	10.1%	-

*Calculated as a blend of other asset classes

30-YEAR RETURN FORECASTS

FIXED INCOME

Geometric Expected Return			
Asset Class	**12/31/2023**	**12/31/2022**	**Delta**
Cash	3.4%	3.4%	-
US TIPS	4.7%	4.3%	+0.4%
US Treasury Bond	4.3%	4.1%	+0.2%
US Corporate Bond	5.9%	5.9%	-
US Corporate Bond - AAA	5.1%	5.1%	-
US Corporate Bond - AA	5.1%	5.0%	+0.1%
US Corporate Bond - A	5.5%	5.5%	-
US Corporate Bond - BBB	6.1%	6.1%	-
US Mortgage-Backed Securities	4.6%	4.4%	+0.2%
US Securitized Bond	5.4%	5.1%	+0.3%
US Collateralized Loan Obligation	4.9%	5.2%	-0.3%
US Municipal Bond	3.8%	3.9%	-0.1%
US Municipal Bond (1-10 Year)	3.5%	3.4%	+0.1%
US Taxable Municipal Bond	6.0%	5.8%	+0.2%

30-YEAR RETURN FORECASTS

FIXED INCOME

Geometric Expected Return			
Asset Class	**12/31/2023**	**12/31/2022**	**Delta**
Non-US Government Bond	2.9%	3.2%	-0.3%
Non-US Government Bond (USD Hedge)	3.2%	3.4%	-0.2%
Non-US Inflation-Linked Bond (USD Hedge)	3.3%	3.6%	-0.3%
US Short-Term TIPS (1-3 Year)	4.4%	3.9%	+0.5%
US Short-Term Treasury Bond (1-3 Year)	4.2%	3.8%	+0.4%
US Short-Term Corporate Bond (1-3 Year)	5.2%	4.9%	+0.3%
US Intermediate-Term TIPS (3-10 Year)	4.7%	4.4%	+0.3%
US Intermediate-Term Treasury Bond (3-10 Year)	4.4%	4.2%	+0.2%
US Intermediate-Term Corporate Bond (3-10 Year)	6.0%	6.0%	-
US Long-Term TIPS (10-30 Year)	4.8%	4.6%	+0.2%
US Long-Term Treasury Bond (10-30 Year)	4.3%	4.3%	-
US Long-Term Corporate Bond (10-30 Year)	6.0%	6.2%	-0.2%
20+ Year US Treasury STRIPS	4.2%	4.3%	-0.1%
10 Year US Treasury Bond	4.8%	4.7%	+0.1%
10 Year Non-US Government Bond (USD Hedge)	2.8%	3.1%	-0.3%
US Aggregate Bond*	4.9%	4.7%	+0.2%

*Calculated as a blend of other asset classes

30-YEAR RETURN FORECASTS

FIXED INCOME

Geometric Expected Return			
Asset Class	**12/31/2023**	**12/31/2022**	**Delta**
US High Yield Corporate Bond	7.1%	7.3%	-0.2%
US Corporate Bond - BB	7.7%	7.7%	-
US Corporate Bond - B	7.1%	7.2%	-0.1%
US Corporate Bond - CCC/Below	1.9%	2.1%	-0.2%
US Short-Term High Yield Corporate Bond (1-3 Year)	5.6%	5.5%	+0.1%
US Leveraged Loan	6.6%	6.9%	-0.3%
Emerging Market Investment Grade External Debt	5.9%	-	-
Emerging Market High Yield External Debt	8.4%	-	-
Emerging Market Local Currency Debt	5.5%	6.1%	-0.6%
US High Yield Securitized Bond	8.3%	8.1%	+0.2%
US High Yield Collateralized Loan Obligation	7.3%	7.7%	-0.4%
US High Yield Municipal Bond	4.9%	5.7%	-0.8%
Hedge Fund - Credit	7.0%	7.1%	-0.1%
Private Debt - Credit Opportunities	8.4%	8.4%	-
Private Debt - Distressed	9.3%	9.4%	-0.1%
Private Debt - Direct Lending	8.9%	9.1%	-0.2%
Private Debt*	9.0%	9.1%	-0.1%

*Calculated as a blend of other asset classes

30-YEAR RETURN FORECASTS

REAL ASSETS

Geometric Expected Return			
Asset Class	**12/31/2023**	**12/31/2022**	**Delta**
Commodity Futures	3.9%	3.2%	+0.7%
Midstream Energy	6.6%	6.7%	-0.1%
REIT	7.3%	7.3%	-
Global Infrastructure Equity	7.0%	6.7%	+0.3%
Global Natural Resources Equity	7.1%	6.6%	+0.5%
Gold	4.8%	4.8%	-
Real Estate - Core	6.1%	5.1%	+1.0%
Real Estate – Value-Add	7.3%	6.9%	+0.4%
Real Estate - Opportunistic	8.2%	8.6%	-0.4%
Private Debt - Real Estate	6.6%	6.0%	+0.6%
Private Real Assets - Natural Resources	8.7%	8.4%	+0.3%
Private Real Assets - Infrastructure	7.1%	7.0%	+0.1%

VOLATILITY FORECASTS
EQUITY

Volatility			
Asset Class	**12/31/2023**	**12/31/2022**	**Delta**
U.S. Large-Cap Equity	17.2%	16.9%	+0.3%
U.S. Small/Mid-Cap Equity	21.0%	20.8%	+0.2%
Non-U.S. Developed Equity	19.7%	19.6%	+0.1%
Non-U.S. Developed Equity (USD Hedge)	17.7%	17.6%	+0.1%
Non-U.S. Developed Small-Cap Equity	24.2%	24.2%	-
Emerging Market Equity	28.1%	28.6%	-0.5%
Emerging Market Small-Cap Equity	31.4%	31.9%	-0.5%
Hedge Fund - Equity	11.0%	11.1%	-0.1%
Private Equity - Buyout	20.0%	20.0%	-
Private Equity - Growth	31.5%	31.4%	+0.1%
Private Equity - Early Stage Venture	46.5%	45.0%	+1.5%
Private Equity - Secondary	20.4%	21.0%	-0.6%
Non-U.S. Private Equity	32.0%	32.0%	-
China Equity	30.6%	30.7%	-0.1%
Global Equity*	18.2%	18.1%	+0.1%
Private Equity*	25.9%	25.7%	+0.2%

*Calculated as a blend of other asset classes

VOLATILITY FORECASTS
FIXED INCOME

Volatility			
Asset Class	**12/31/2023**	**12/31/2022**	**Delta**
Cash	0.6%	0.6%	-
US TIPS	6.0%	6.1%	-0.1%
US Treasury Bond	5.4%	5.4%	-
US Corporate Bond	7.7%	7.6%	+0.1%
US Corporate Bond - AAA	6.8%	6.5%	+0.3%
US Corporate Bond - AA	6.6%	6.4%	+0.2%
US Corporate Bond - A	7.6%	7.5%	+0.1%
US Corporate Bond - BBB	8.4%	8.4%	-
US Mortgage-Backed Securities	6.5%	6.5%	-
US Securitized Bond	8.0%	8.2%	-0.2%
US Collateralized Loan Obligation	7.7%	7.6%	+0.1%
US Municipal Bond	6.0%	6.0%	-
US Municipal Bond (1-10 Year)	4.5%	4.5%	-
US Taxable Municipal Bond	7.5%	7.5%	-

VOLATILITY FORECASTS

FIXED INCOME

Volatility			
Asset Class	**12/31/2023**	**12/31/2022**	**Delta**
Non-US Government Bond	9.5%	9.5%	-
Non-US Government Bond (USD Hedge)	4.1%	4.1%	-
Non-US Inflation-Linked Bond (USD Hedge)	6.7%	6.6%	+0.1%
US Short-Term TIPS (1-3 Year)	3.3%	3.4%	-0.1%
US Short-Term Treasury Bond (1-3 Year)	2.3%	2.3%	-
US Short-Term Corporate Bond (1-3 Year)	2.8%	2.8%	-
US Intermediate-Term TIPS (3-10 Year)	6.0%	6.0%	-
US Intermediate-Term Treasury Bond (3-10 Year)	5.9%	5.9%	-
US Intermediate-Term Corporate Bond (3-10 Year)	7.1%	7.1%	-
US Long-Term TIPS (10-30 Year)	12.4%	12.4%	-
US Long-Term Treasury Bond (10-30 Year)	11.8%	11.8%	-
US Long-Term Corporate Bond (10-30 Year)	11.9%	12.1%	-0.2%
20+ Year US Treasury STRIPS	20.7%	20.7%	-
10 Year US Treasury Bond	7.5%	7.5%	-
10 Year Non-US Government Bond (USD Hedge)	5.0%	5.1%	-0.1%
US Aggregate Bond*	5.8%	5.8%	-

*Calculated as a blend of other asset classes

VOLATILITY FORECASTS

FIXED INCOME

Volatility			
Asset Class	**12/31/2023**	**12/31/2022**	**Delta**
US High Yield Corporate Bond	11.2%	11.1%	+0.1%
US Corporate Bond - BB	9.7%	9.7%	-
US Corporate Bond - B	11.6%	11.7%	-0.1%
US Corporate Bond - CCC/Below	20.3%	20.3%	-
US Short-Term High Yield Corporate Bond (1-3 Year)	8.2%	8.5%	-0.3%
US Leveraged Loan	9.1%	9.1%	-
Emerging Market Investment Grade External Debt	8.7%	-	-
Emerging Market High Yield External Debt	17.5%	-	-
Emerging Market Local Currency Debt	12.7%	13.0%	-0.3%
US High Yield Securitized Bond	11.2%	11.1%	+0.1%
US High Yield Collateralized Loan Obligation	10.4%	10.4%	-
US High Yield Municipal Bond	12.0%	12.0%	-
Hedge Fund - Credit	9.9%	10.0%	-0.1%
Private Debt - Credit Opportunities	14.5%	14.8%	-0.3%
Private Debt - Distressed	14.4%	14.6%	-0.2%
Private Debt - Direct Lending	11.0%	11.0%	-
Private Debt*	11.8%	11.8%	-

*Calculated as a blend of other asset classes

VOLATILITY FORECASTS

REAL ASSETS

Volatility			
Asset Class	**12/31/2023**	**12/31/2022**	**Delta**
Commodity Futures	18.5%	18.5%	-
Midstream Energy	28.2%	28.8%	-0.6%
REIT	21.8%	21.7%	+0.1%
Global Infrastructure Equity	19.4%	20.6%	-1.2%
Global Natural Resources Equity	23.3%	23.5%	-0.2%
Gold	16.4%	16.3%	+0.1%
Real Estate - Core	15.0%	15.0%	-
Real Estate – Value-Add	23.4%	20.4%	+3.0%
Real Estate - Opportunistic	25.8%	23.3%	+2.5%
Private Debt - Real Estate	11.9%	11.9%	-
Private Real Assets - Natural Resources	32.3%	32.5%	-0.2%
Private Real Assets - Infrastructure	12.4%	12.4%	-

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