



# NEPC 2025 INVESTMENT OUTLOOK

ASSET CLASS ASSUMPTIONS AND  
RETURN EXPECTATIONS

MARCH 13, 2025

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# TODAY'S AGENDA

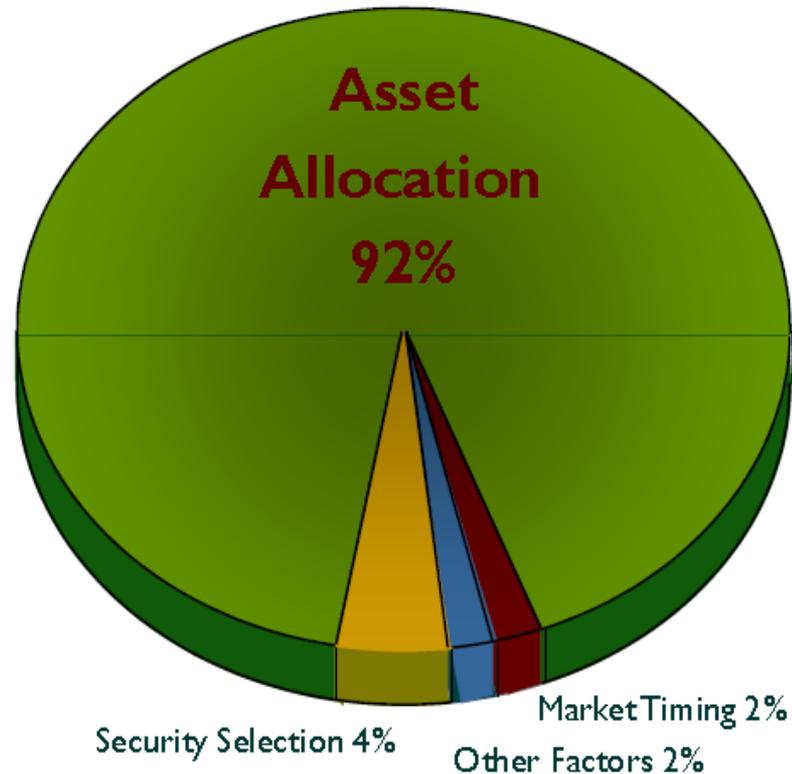
- **Review of NEPC's asset class forecasting process and SBCERA return expectations**
- **Discussion of the Key Investment Themes that NEPC expects to impact capital markets**

# INTRODUCTION



# ASSET ALLOCATION: THE KEY INVESTMENT DECISION

## Determinants of Portfolio Performance



Source: *Determinants of Portfolio Performance II: An Update*, Brinson, et al, *Financial Analysts Journal*, May/June 1991, pp 40-48.

# ASSET CLASS ASSUMPTIONS

## OVERVIEW

- **NEPC's capital market assumptions are available each quarter with this release reflecting December 31, 2024 market data**
- **We adjusted our equity assumption methodology to better reflect the pathway for valuation multiples, profit margins, and share buybacks**
- **Fixed income returns moved higher, reflecting market expectations of fewer rate cuts priced-in to forward base rates**
- **We encourage a dedicated safe-haven fixed income allocation to serve as a critical liquidity source for the portfolio**
- **We see a favorable environment for diversified real assets exposure given the inflation backdrop and ongoing geopolitical risks**

# CAPITAL MARKET ASSUMPTION PRINCIPLES

## HOW SHOULD RETURN ASSUMPTIONS BE INTERPRETED

- **NEPC return assumptions are meant to reflect a nominal return expectation for a buy-and-hold investor, net of fees, over a 10-year and 30-year investment horizon**
- **With this in mind, NEPC asset class return assumptions look to include all sources of return that flow to an asset class over time**
  - Each major contributing source of return is a building block in our models
- **NEPC's asset class models are designed to be forward-looking and not to replicate the past, which requires both model scrutiny and iteration**
- **Forecasting asset class returns, requires forward-looking assumptions about building block contributors and how they evolve over time**
- **Developing market trends require scrutiny and time to analyze data and research market shifts to understand whether they are cyclical or structural inputs contributing to an asset class's building blocks**

# RECOGNIZING ASSET CLASS EVOLUTIONS

## CHANGES TO PUBLIC EQUITY BUILDING BLOCKS

- **Public market equity asset classes were adjusted to better align the underlying assumption building blocks with long-term return drivers**
  - NEPC public equity models assume that core building blocks will revert to long-term terminal levels over the 10-year and 30-year investment horizon
- **The building blocks for U.S. Large Cap Equity were revised to reflect an updated pathway for valuations, profit margins and share buybacks**
  - As a result, terminal value assumptions for valuations (P/E ratio) and profit margins were adjusted higher over the long-term investment horizon
  - With higher profit margins, we increased the input related to a sustainable long-term share buyback and revised the Shareholder Yield building block
- **The building blocks for Non-U.S. Developed Equity were adjusted to reflect a marginally higher terminal value for profit margins**
  - As a result, long-term earnings growth expectations have increased but remain well below historical averages
  - Ultimately no adjustments were made to emerging market equity and each of the small-cap equity assumptions

# RECOGNIZING ASSET CLASS EVOLUTIONS

## ADJUSTMENTS TO PRIVATE DEBT BUILDING BLOCKS

- **Private Debt – Credit Opportunities was adjusted to better align the underlying public market buildup with the investment opportunity**
  - U.S. high yield securitized was added to public market beta and the contribution from U.S. small-cap equity was reduced
- **NEPC private market assumptions rely on a buildup of public market asset classes that represent the underlying beta exposure of a private asset class plus an illiquidity premium**
- **The investment opportunity has evolved over time for Private Credit – Credit Opportunities and the inclusion of some equity beta was not representative of the long-term return expectations**

# ASSET CLASS ASSUMPTIONS

## DEVELOPMENT

- **Capital market assumptions are published for over 70 core asset classes and over 30 composites**
- **Market data as of 12/31/2024**
- **NEPC proprietary models used to develop return forecasts based 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 15<sup>th</sup> 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**



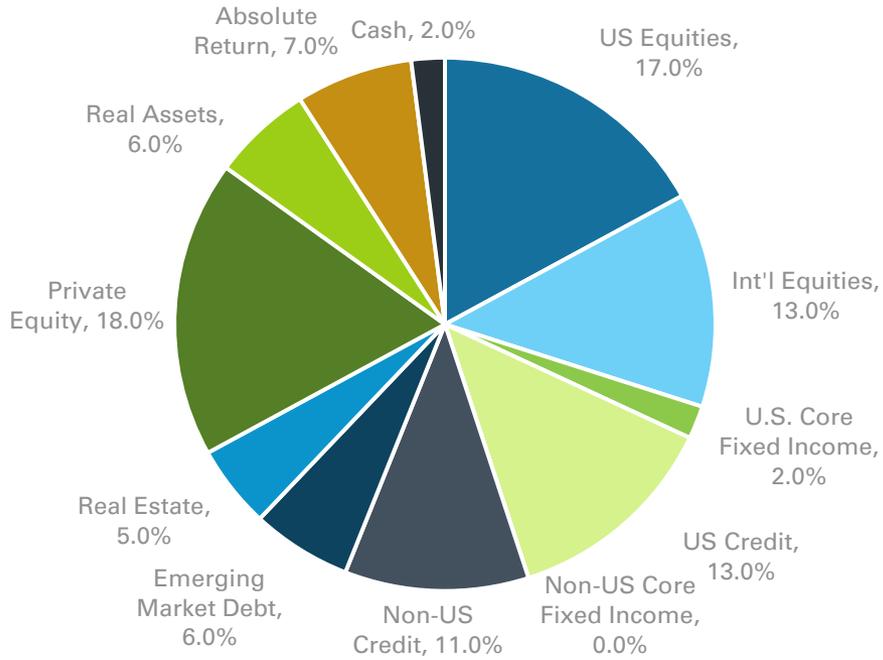
# CORE ASSET CLASS RETURN ASSUMPTIONS

	Asset Class	12/31/2024 10-Year Return	12/31/2023 10-Year Return	Delta
	Cash	4.1%	3.9%	+0.2%
	U.S. Inflation	2.6%	2.6%	-
Equity	U.S. Large-Cap Equity	5.6%	4.4%	+1.2%
	Non-U.S. Developed Equity	5.3%	4.6%	+0.7%
	Emerging Market Equity	8.0%	8.6%	-0.6%
	Global Equity*	6.1%	5.4%	+0.7%
	Private Equity*	8.5%	9.0%	-0.5%
Fixed Income	U.S. Treasury Bond	4.7%	4.2%	+0.5%
	U.S. Municipal Bond	3.8%	3.5%	+0.3%
	U.S. Aggregate Bond*	5.0%	4.6%	+0.4%
	U.S. TIPS	4.9%	4.6%	+0.3%
	U.S. High Yield Corporate Bond	6.3%	6.1%	+0.2%
	Private Debt*	8.3%	8.3%	-
Real Assets	Commodity Futures	4.4%	4.6%	-0.2%
	REIT	5.3%	6.0%	-0.7%
	Gold	4.7%	4.9%	-0.2%
	Real Estate - Core	5.9%	5.4%	+0.5%
	Private Real Assets - Infrastructure	6.0%	6.8%	-0.8%
Multi-Asset	60% S&P 500 & 40% U.S. Aggregate	5.7%	4.8%	+0.9%
	60% MSCI ACWI & 40% U.S. Agg.	6.0%	5.4%	+0.6%
	Hedge Fund*	6.4%	6.1%	+0.3%

\*Calculated as a blend of other asset classes. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

# SBCERA RETURN AND RISK EXPECTATIONS

## USING DECEMBER 31, 2024 CAPITAL MARKET ASSUMPTIONS



	10 Year		30 Year	
	2025	2024	2025	2024
<b>Expected Return</b>	7.9%	7.8%	9.1%	8.9%
<b>Expected Volatility</b>	10.7%	10.8%	10.7%	10.8%
<b>Sharpe Ratio</b>	0.35	0.36	0.52	0.51

Probabilities using 12/31/24 Assumptions	
Probability of 1-Year Return Under 0.00%	23.1%
Probability of 10 Year Return Under 0.00%	1.0%
Probability of 10 Year Return Under 7.25%	42.3%
Probability of 30-Year Return Under 7.25%	17.2%

Note:

Return and risk expectations are based on NEPC capital market assumptions as of 12/31/24 and 12/31/23. Expected volatility assumptions are based on smoothed volatilities in private markets asset classes.



# KEY INVESTMENT THEMES



# 2025 MARKET THEMES

## NEPC MARKET OUTLOOK

- **At the start of each year, we identify the Market Themes that we believe will impact the investment landscape over the next 12 months**
- **Market Themes represent essential factors for investors and are likely to exert significant influence on market pricing and investor sentiment**
- **Disruptions in these factors will reveal new investment opportunities and likely alter our understanding of market dynamics**



# POCKETS OF EUPHORIA

## 2025 MARKET THEMES



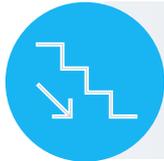
**Magnificent 7 & AI**

**Concentration is high but financial profile is far from extreme dot-com valuations**



**Cryptocurrency**

**Mirrors the mania of past bubbles but link to broader financial system is not clear**



**Credit Spreads**

**Spreads near historic lows and risk-aversion priced away but debt and maturity profile is quite healthy**



**M&A Activity**

**Deal volume is low but regulatory shift and lower Fed Funds can spur activity**



**Debt Expansion**

**Fed policy has slowed consumer and corporate debt expansion, federal debt issuance is the exception**

# ARTIFICIAL INTELLIGENCE SPENDING

## 2025 MARKET THEMES



### Faith in AI Adoption

AI adoption across economy and jobs must be widespread to support current and expected AI spending



### AI as a Tool

AI need to deliver sizable productivity gains to capture ROI from vast spending



### Financing AI

AI leverage is not in the system and spend is partially sourced from free cash flow



### Data Centers

Data centers are the engines for AI and capex is driving rapid expansion and excess demand for power consumption



### Data is a Commodity

Is data, chips, or electricity the key AI commodity? Accessibility of data needs to be unfettered to support AI growth

# TARIFFS EXPLAINED

## 2025 MARKET THEMES



### Separate Fact and Fiction

What tariff proposals have economic rationale vs. what is a negotiating tool?



### Mechanics Matter

How tariffs are implemented will dictate timeline and scope of potential actions



### Speculation is Dangerous

Tariffs don't exist in a vacuum; scope, exemptions, potential retaliations are key



### Economic Implications

Tariffs likely to have a muted economic impact, but escalation restricting the flow of goods poses a broader risk



### Market Sensitivity is High

Tariff threats likely fuel volatility given the market's binary expectations for negative growth-inflation consequences

# WORLD AFFAIRS

## 2025 MARKET THEMES



### Geopolitical Tensions

Potentially exposes economic tail risks and increases market volatility



### Post-Election Dust Settling

Policy uncertainty is high as new governments take office following the global election “supercycle” in 2024



### Protectionist Policy Push

Global shift to protectionist policies can aggravate inflation and growth pressures



### Fiscal Spending

Bloated debt levels and elevated rates may challenge the ability for governments to leverage fiscal policy



### Market Sensitivity Often Short-Lived

Markets generally look past geopolitical headlines – look to rebalance amid market drawdowns and volatility

# MACROECONOMIC



# U.S. INFLATION ASSUMPTIONS

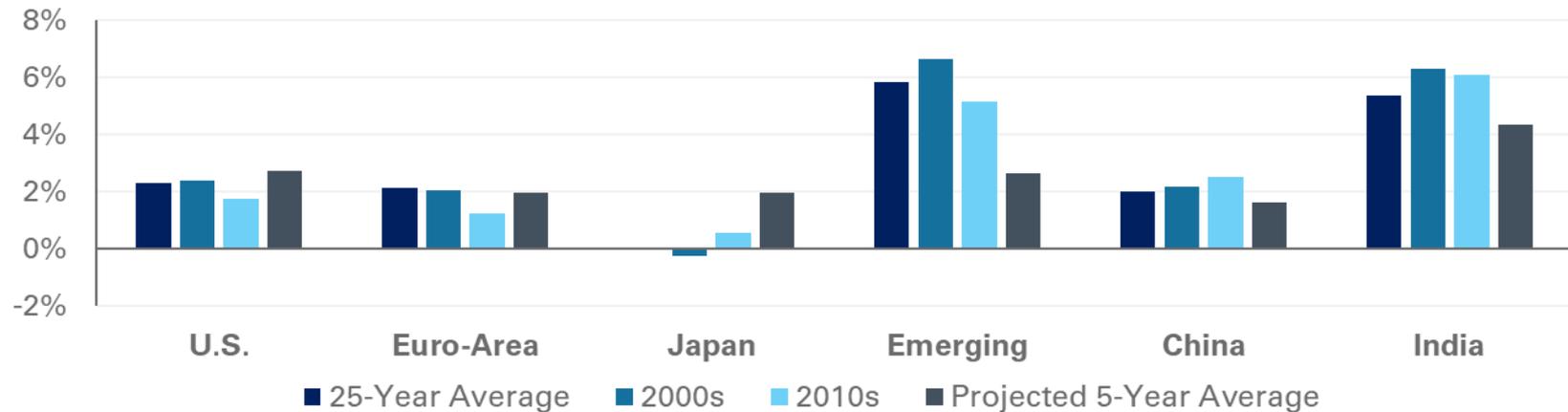
## OVERVIEW

- 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 forecast over the long-term
- The composite inflation assumption reflects a blend of NEPC's inflation forecast and market-implied breakeven inflation rates

U.S. Inflation Assumption		
Time Horizon	Current	12-Month Change
10-Year	2.6%	—
30-Year	2.7%	+0.1%

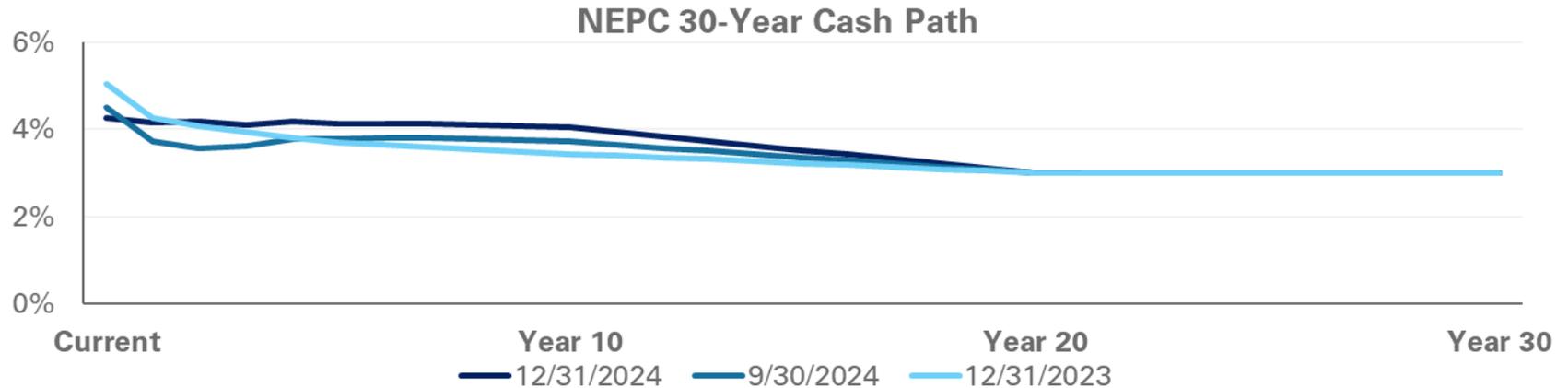
# GLOBAL INFLATION

## 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’s path and central bank targets
  - The expected inflation differential between emerging and developed markets has narrowed significantly

# U.S. CASH EXPECTATIONS



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

Time Horizon	Current	12-Month Change
10-Year	4.1%	+0.2%
30-Year	3.6%	+0.2%

Sources: Bloomberg, FactSet, NEPC.

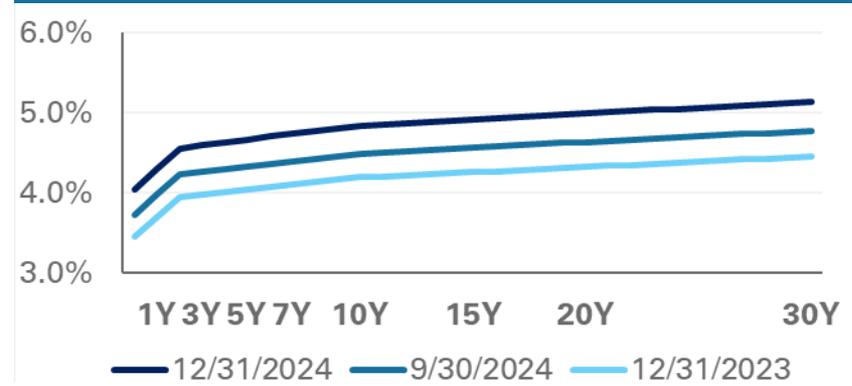


# GLOBAL INTEREST RATES

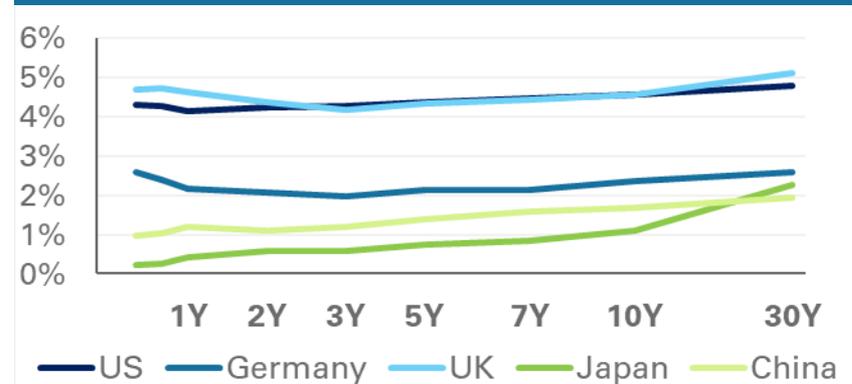
## EXPECTATIONS

- **NEPC’s outlook on forward U.S. interest rates has remained consistent over the past few years, generally higher than market expectations**
- **Market expectations shifted substantially higher in Q4 2024, contributing to a higher return outlook for fixed income**
- **The outlook is less attractive for non-U.S. developed markets due to the nominal yield differential relative to the U.S.**
  - Differing regional growth and inflation conditions have led to diverging central bank actions

**NEPC 10-Year Forward U.S. Treasury Curve**



**Global Yield Curves**



Sources: FactSet, NEPC



# PUBLIC EQUITY



# PUBLIC EQUITY ASSUMPTIONS

## OVERVIEW

- **As part of our ongoing process enhancements, we adjusted the public equity methodology in recognition of structural market changes**
  - Mean reversion remains a driver of our modeling, but we adjusted the pathway of share buybacks, profit margins, and valuations into long-term targets
- **These enhancements increased developed market equity forecasts, with the largest impact flowing through U.S. large-cap return expectations**
  - U.S. large-caps continue to reflect a valuation headwind, but benefit from a higher shareholder yield and profit margins, which we expect to persist
  - Non-U.S. developed market forecasts also benefitted with an adjustment to long-term margins, but were tempered by muted expected earnings growth
- **Emerging market forecasts moved lower, reflecting the impact of depressed valuations and muted growth expectations from China**
- **NEPC's strategic recommendation for public equity reflects benchmark-neutral regional weights relative to the MSCI ACWI IMI**

# PUBLIC EQUITY ASSUMPTIONS

## BUILDING BLOCKS

<b>Illiquidity Premium</b>	The return expected for assets with illiquidity risk		
<b>Valuation</b>	Represents P/E multiple contraction or expansion relative to long-term trend		
<b>Inflation</b>	Market-specific inflation based on country-level revenue exposure		
<b>Real Earnings Growth</b>	Market-specific real growth based on a weighted-average of country revenue exposure and GDP growth		
<b>Shareholder Yield</b>	Income distributed to shareholders via dividend distributions and net share repurchases		
		<b>Asset Class</b>	<b>12/31/24 10-Yr Return</b>
		U.S. Large-Cap Equity	5.6%
		U.S. Small/Mid-Cap Equity	5.8%
		Non-U.S. Developed Equity	5.3%
		Non-U.S. Developed Small-Cap Equity	6.7%
		Emerging Market Equity	8.0%
		Emerging Market Small-Cap Equity	7.1%
		Hedge Fund - Equity	5.8%
		Global Equity*	6.1%
		Private Equity*	8.5%
			<b>12-Month Change</b>
			+1.2%
			-0.2%
			+0.7%
			+0.3%
			-0.6%
			-0.8%
			+0.3%
			+0.7%
			-0.5%

Note: \*Calculated as a blend of other asset classes. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

Source: NEPC

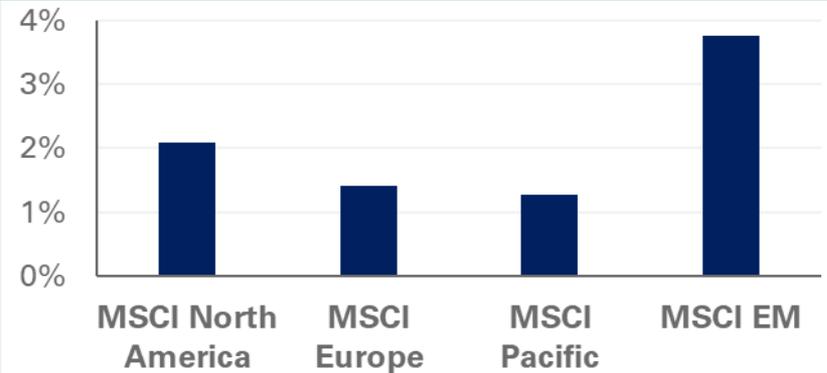


# PUBLIC EQUITY

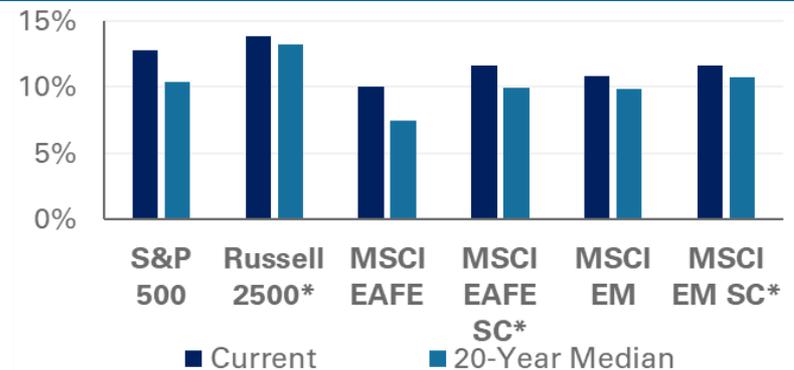
## REAL EARNINGS GROWTH

- **U.S. equities benefit from higher sales growth forecasts, reflecting the resiliency and consistency of the U.S. consumer**
  - Relative to other markets, U.S. large cap companies have global revenue exposure that benefits from global growth rates
  
- **Cyclically-high profit margin levels temper real earnings growth forecasts given expectations for normalization**
  - Profit margin assumptions reflect a path towards long-term targets that consider the shift in index composition through time

**Expected 5-Year Real Growth**



**Profit Margins Relative Median**



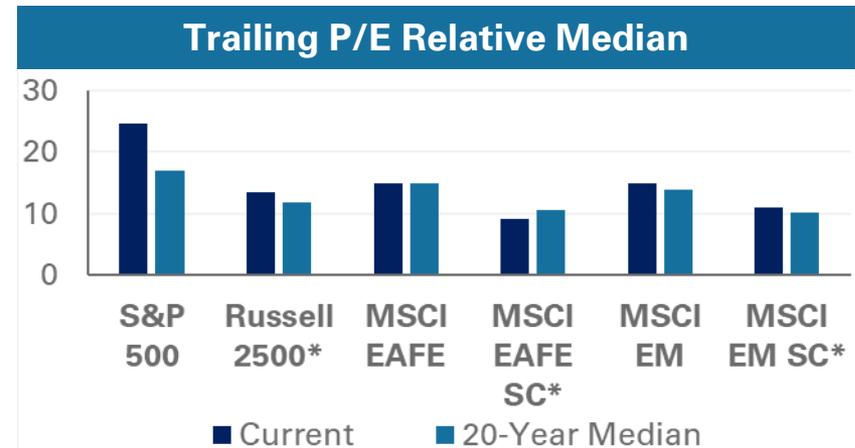
Note: \*Small cap indices margins based on EBITDA margins  
Sources: S&P, Russell, MSCI, FactSet, NEPC



# PUBLIC EQUITY

## VALUATION

- **Valuations have a large influence on short- to medium-term returns, but earnings growth is the driver of long-term returns**
- **U.S. large-cap valuations are elevated relative to long-term target levels**
  - U.S. large-cap valuations represent the largest drag on returns across the equity complex
- **Non-U.S. Developed valuations remain close to fair value**
  - Lower long-term valuation targets reflect expectations of a more challenged economic profile



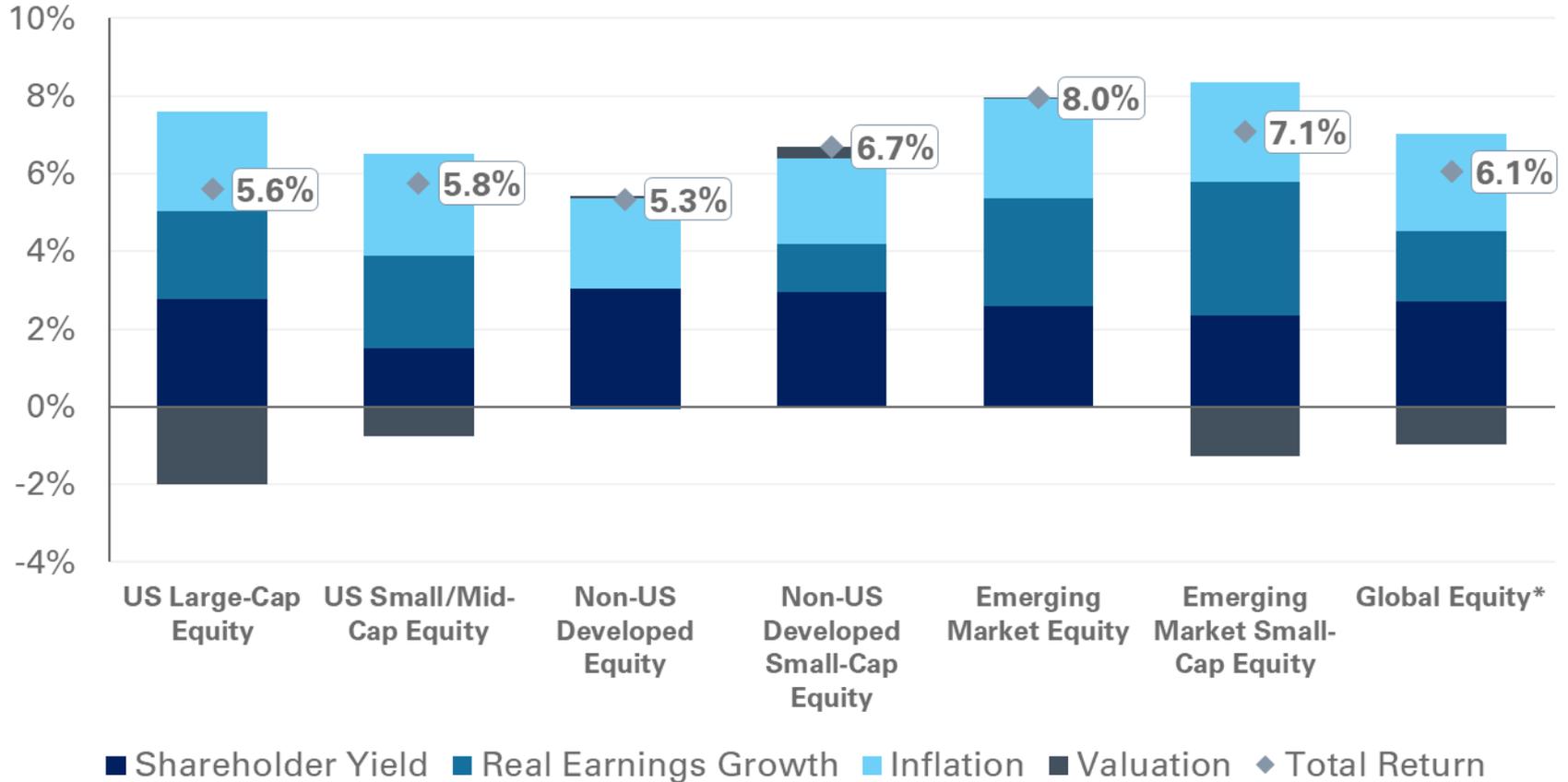
Note: \*Small cap indices valuations based on EV/EBITDA multiples

Sources: S&P, Shiller, Russell, MSCI, FactSet, NEPC; Shiller PE long-term average beginning in 1924



# PUBLIC EQUITY

## BUILDING BLOCKS: 10-YEAR EXPECTED RETURN



Note: \*Calculated as a blend of other asset classes. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

Source: NEPC



# FIXED INCOME



# FIXED INCOME ASSUMPTIONS

## OVERVIEW

- **Expected returns have improved as market rate expectations rose, reflecting a resilient economic backdrop and lingering inflation**
- **Credit spreads remain tight at below-median levels across the credit complex, limiting return expectations**
- **We encourage a dedicated safe-haven fixed income allocation to serve as a critical liquidity source for the portfolio**
  - We believe safe-haven assets are reasonably attractive today and encourage duration-neutral positioning relative to strategic targets
- **High-quality fixed income is an asset class group designed to support lower volatility portfolios and larger strategic targets to fixed income**

# FIXED INCOME ASSUMPTIONS

## BUILDING BLOCKS

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

Asset Class	12/31/24 10-Yr Return	12-Month Change
U.S. TIPS	4.9%	+0.3%
U.S. Treasury Bond	4.7%	+0.5%
U.S. Corporate Bond	5.7%	+0.4%
U.S. MBS	4.9%	+0.5%
U.S. High Yield Corporate	6.3%	+0.2%
U.S. Leveraged Loan	7.3%	+0.1%
EMD External Debt*	6.9%	-0.2%
EMD Local Currency Debt	6.7%	+0.6%
Non-U.S. Govt. Bond	2.5%	+0.1%
U.S. Muni Bond (1-10 Year)	3.4%	+0.5%
U.S. High Yield Muni Bond	4.3%	-0.2%
Hedge Fund – Credit	6.9%	+0.3%
U.S. Aggregate Bond*	5.0%	+0.4%
Private Debt*	8.3%	-

Note: \*Calculated as a blend of other asset classes. NEPC’s capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor’s realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

Source: NEPC

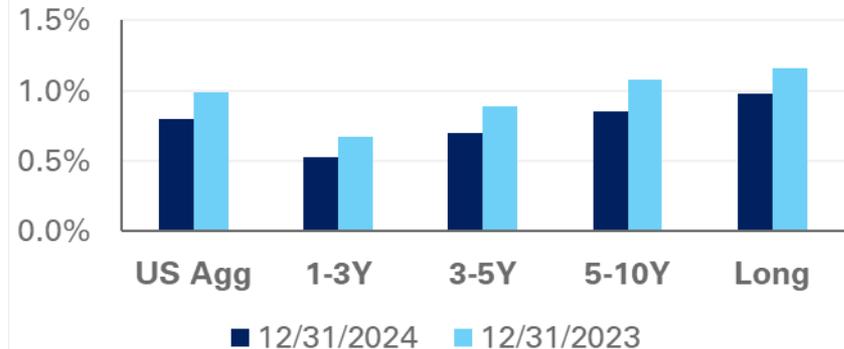


# FIXED INCOME

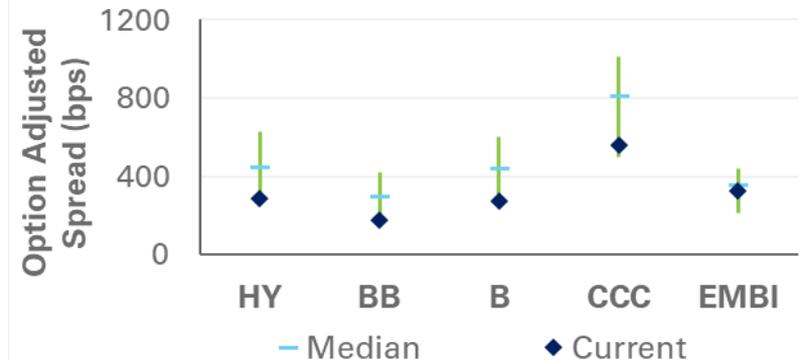
## CREDIT SPREADS

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

U.S. Corporate OAS by Maturity



Return-Seeking Credit Spreads



Sources: Bloomberg, JPM, FactSet, NEPC; Spread medians as of 12/31/2000 and range represents 5<sup>th</sup> to 75<sup>th</sup> percentile

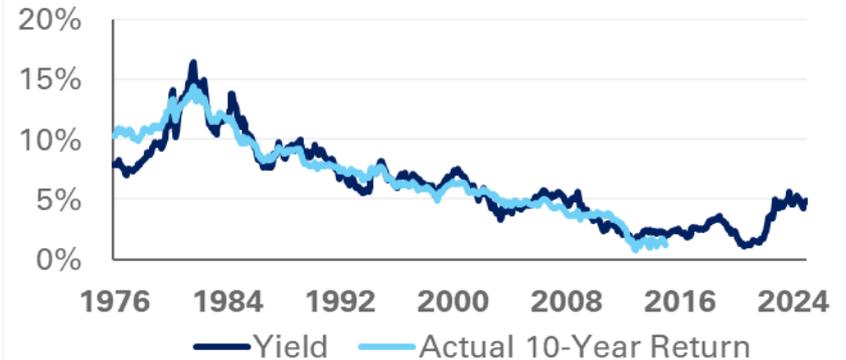


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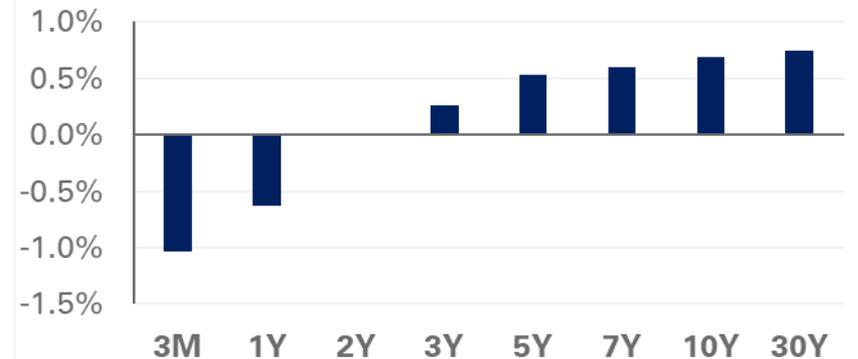
## GOVERNMENT RATES

- **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
- **U.S. Treasury yield curve has steepened substantially over the past 12 months - closer to what we would consider a normal, upward-sloping yield curve**
- **A normal, upward-sloping yield curve provides optimal return potential for fixed income**

**Barclays U.S. Aggregate Bond**

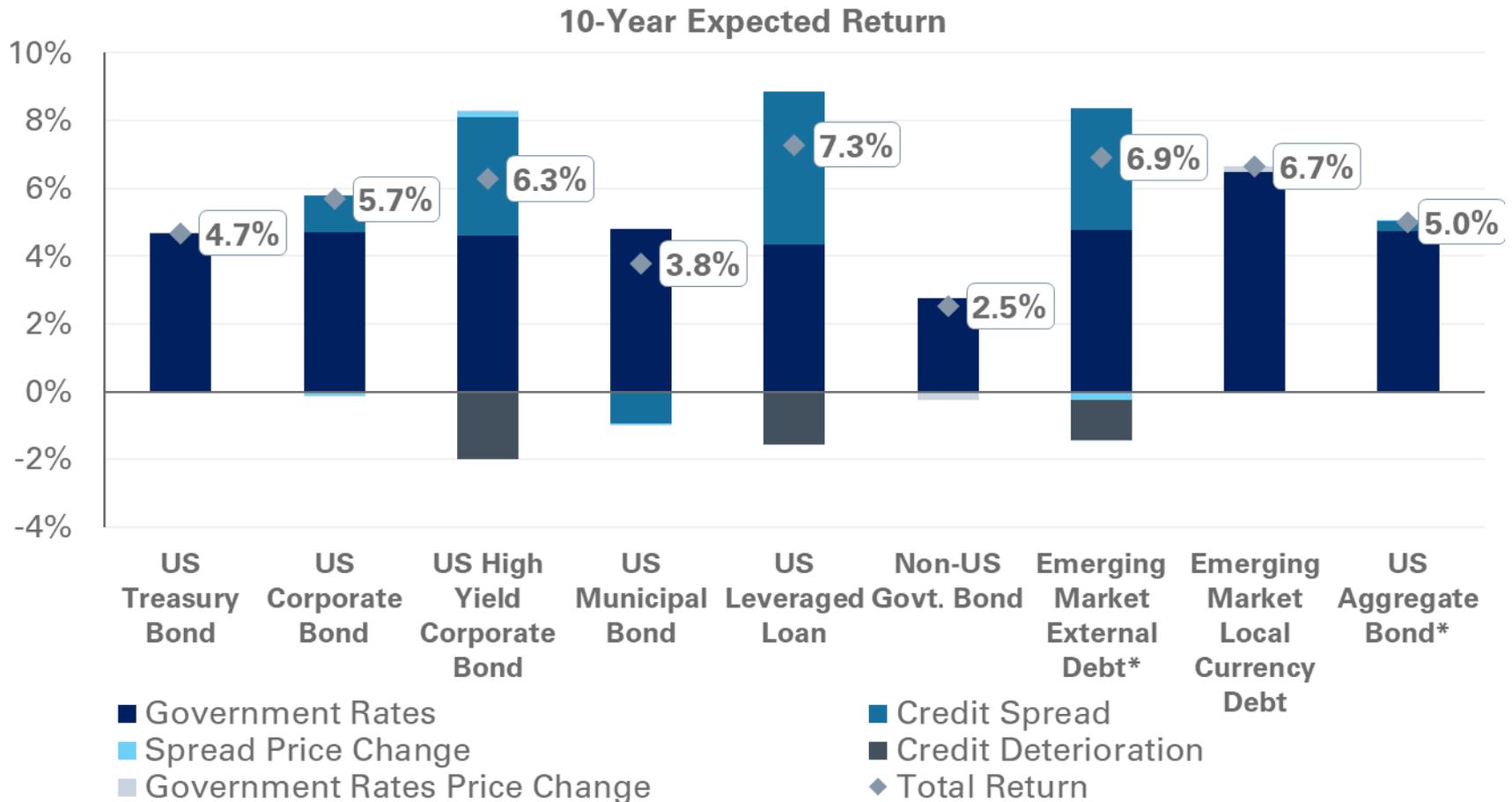


**Annual Change in Treasury Yields**



# FIXED INCOME

## BUILDING BLOCKS: 10-YEAR EXPECTED RETURN



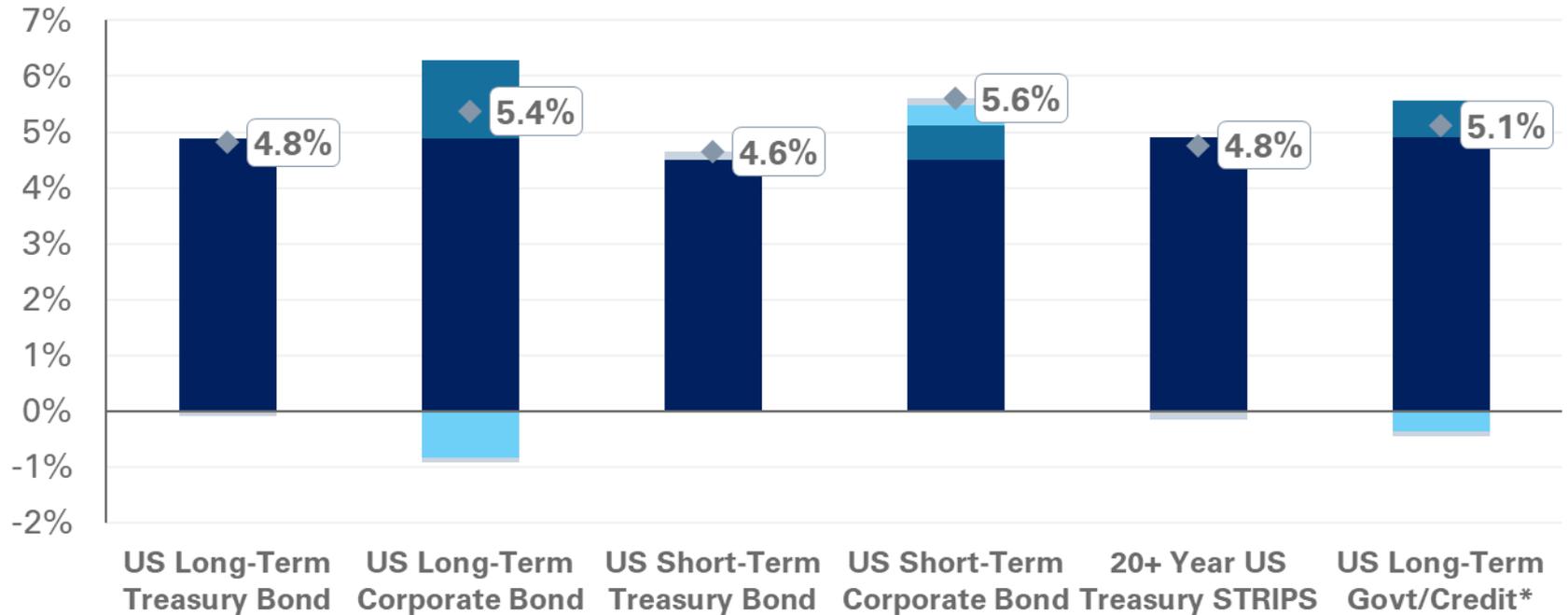
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Source: NEPC



# FIXED INCOME

## BUILDING BLOCKS: 10-YEAR EXPECTED RETURN



- Government Rates
- Credit Spread
- Spread Price Change
- Credit Deterioration
- Government Rates Price Change
- ◆ Total Return

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Source: NEPC



# REAL ASSETS



# REAL ASSET ASSUMPTIONS

## OVERVIEW

- **We see a favorable environment for diversified real assets exposure given ongoing geopolitical risks and the potential for inflation surprises**
  - A diversifying blend of real assets provides an elevated beta to inflation relative to public equity and nominal bond exposure
- **Real estate forecasts have increased as higher cap rates reflect an improving valuation profile**
- **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

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

Asset Class	12/31/24 10-Yr Return	12-Month Change
Commodity Futures	4.4%	-0.2%
Midstream Energy	4.6%	-0.9%
REIT	5.3%	-0.7%
Global Infrastructure Equity	5.4%	-1.2%
Global Nat Resource Equity	7.0%	+0.8%
Gold	4.7%	-0.2%
Real Estate - Core	5.9%	+0.5%
Real Estate – Non-Core	7.6%	+0.5%
Private Debt - Real Estate	6.5%	+0.2%
Private Real Assets - Natural Resources	8.2%	-
Private Real Assets - Infrastructure	6.0%	-0.8%

Note: \*Calculated as a blend of other asset classes. NEPC’s capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor’s realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

Source: NEPC



# REAL ASSET

## REAL INCOME

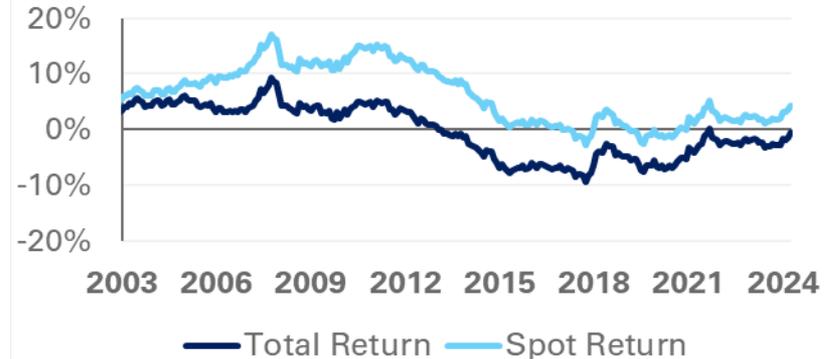
- **Equity: Real income is inflation-adjusted dividend yield**

  - 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 Asset Yields**

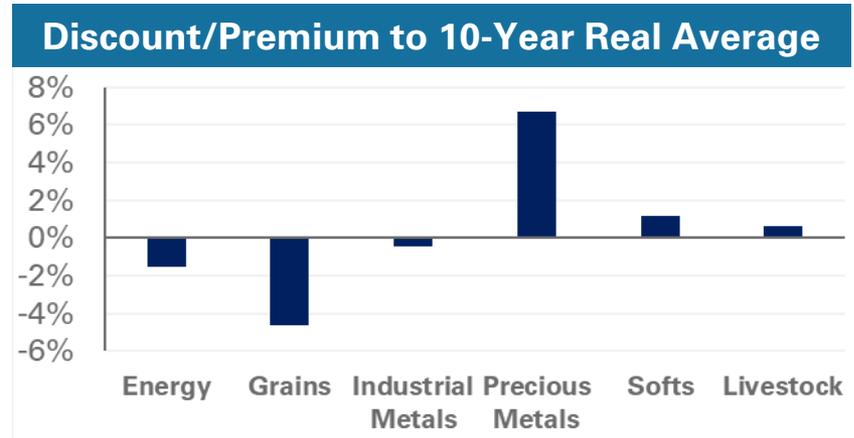
	12/31/24	12/31/23
Midstream Energy	3.1%	5.9%
Real Estate - Core	3.1%	2.6%
U.S. REITs	4.3%	4.2%
Global Infrastructure Equities	3.6%	3.7%
Natural Resource Equities	3.7%	3.7%
U.S. 10-Year Breakeven Inflation	2.3%	2.2%
Commodity Index Roll Yield	-0.9%	-0.9%

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



# REAL ASSET VALUATION

- **Commodity valuation inputs reflect the long-term average of spot prices**
  - Energy and grains prices are trading at a large discount 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

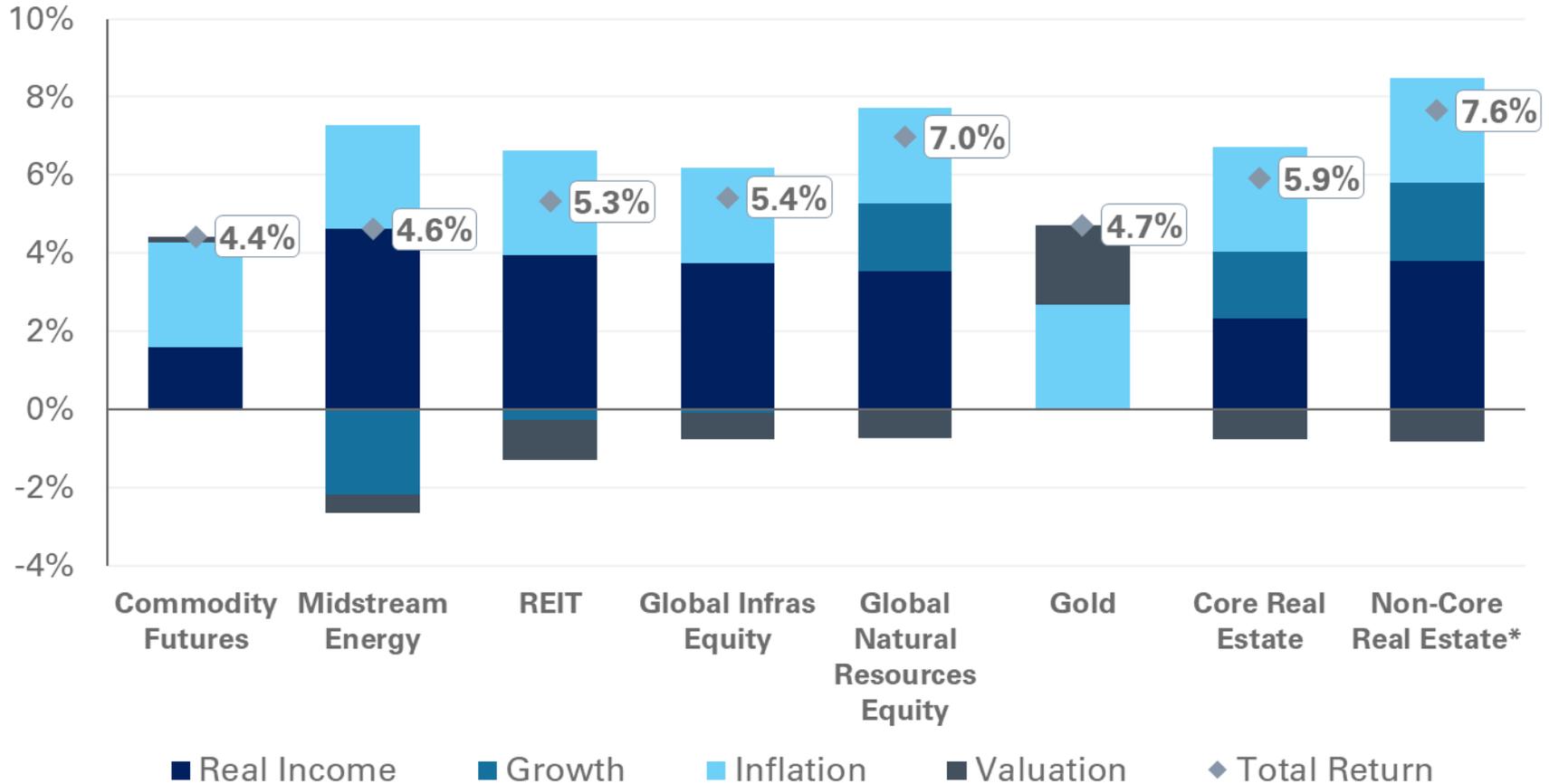


Sources: FactSet, NEPC



# REAL ASSET

## BUILDING BLOCKS: 10-YEAR EXPECTED RETURN



Note: \*Calculated as a blend of other asset classes. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

Source: NEPC

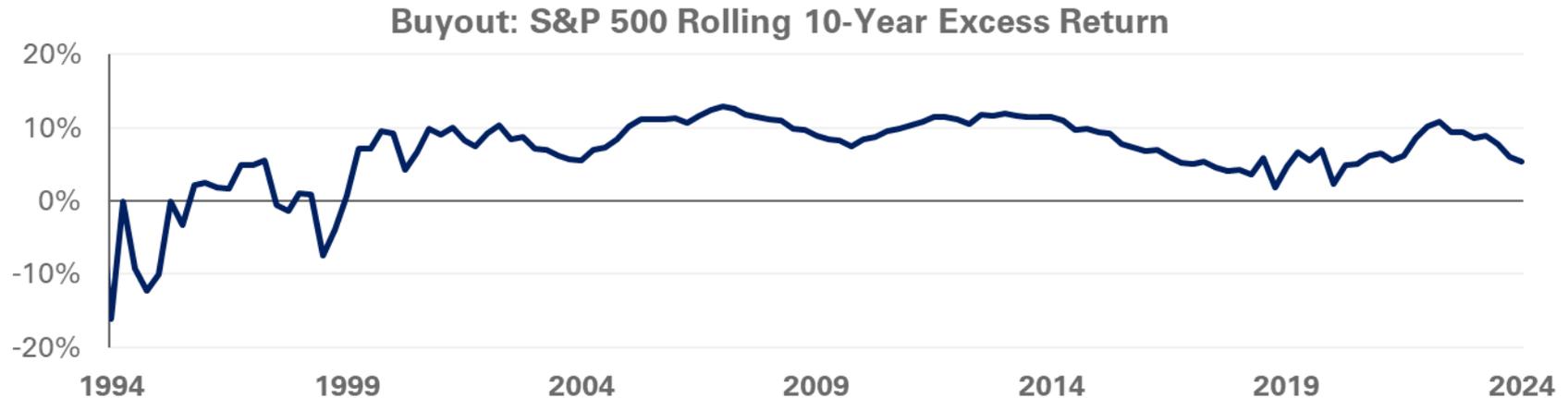


# ALTERNATIVE ASSETS



# ALTERNATIVE ASSETS

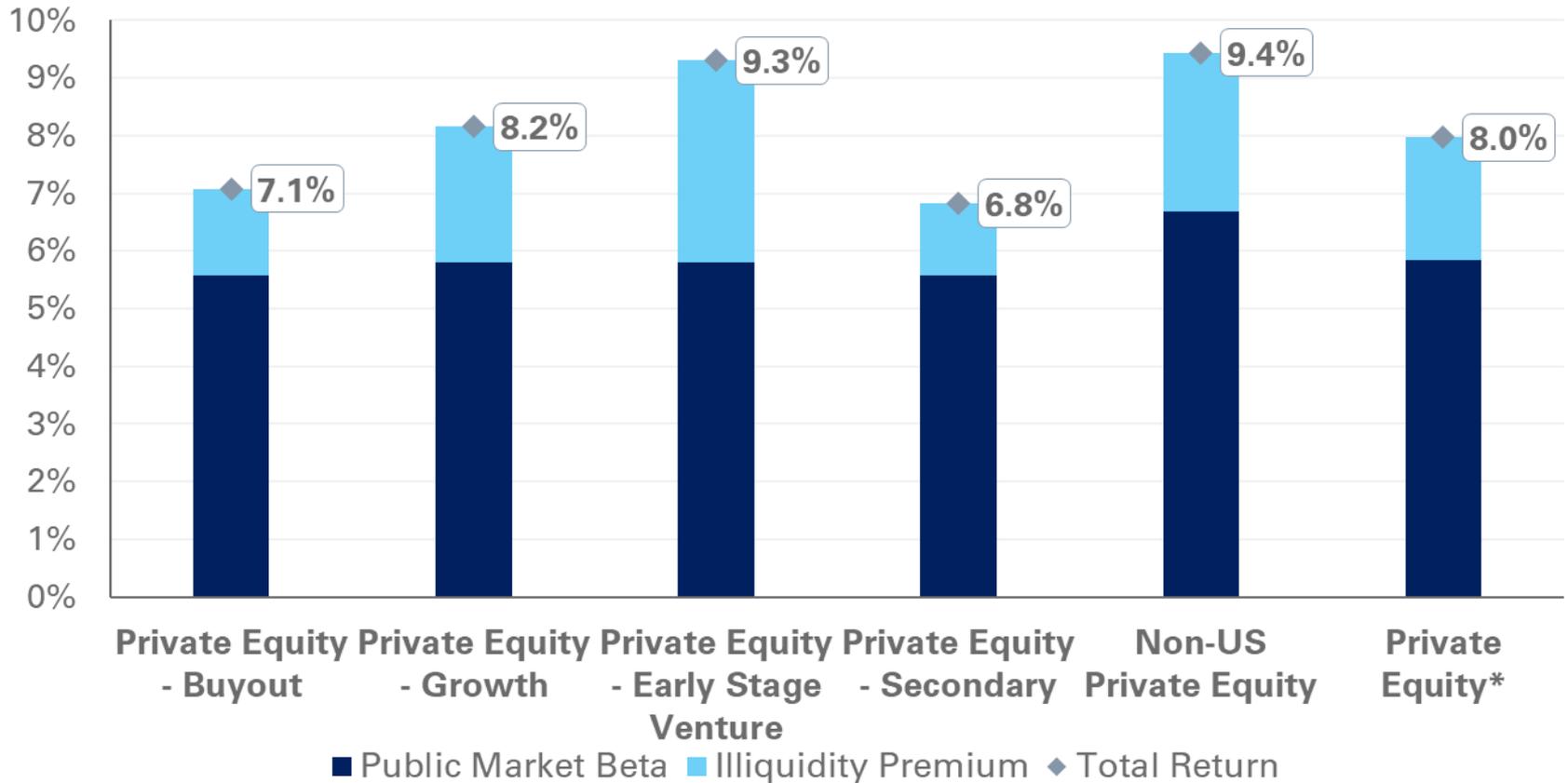
## METHODOLOGY



- **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**

# PRIVATE EQUITY

## BUILDING BLOCKS: 10-YEAR EXPECTED RETURN

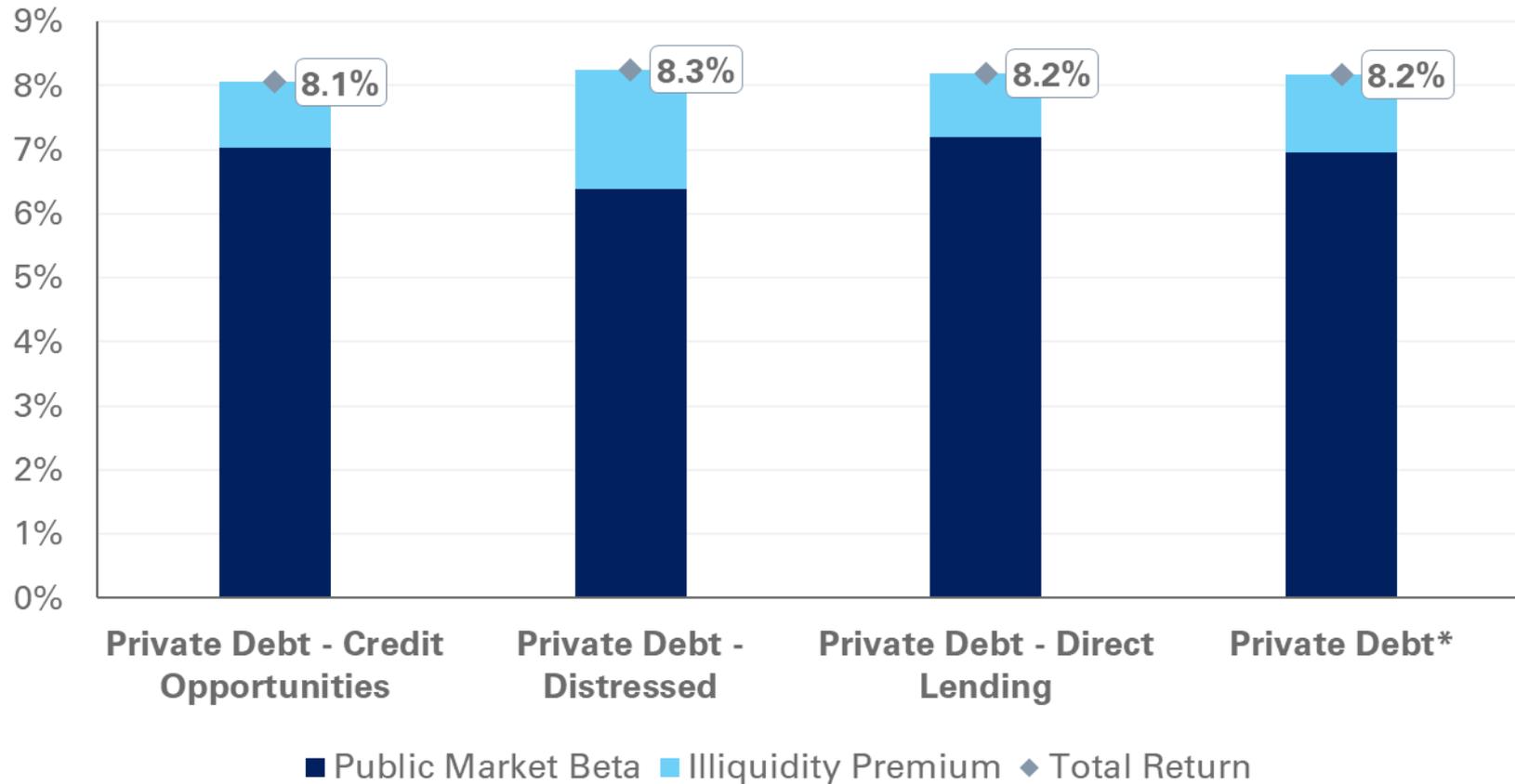


Note: \*Private Equity is a derived composite of 34% U.S. Buyout, 34% U.S. Growth, 8.5% U.S. Secondary, 8.5% U.S. Venture, 15% Non-U.S. PE. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time. Source: NEPC



# PRIVATE DEBT

## BUILDING BLOCKS: 10-YEAR EXPECTED RETURN

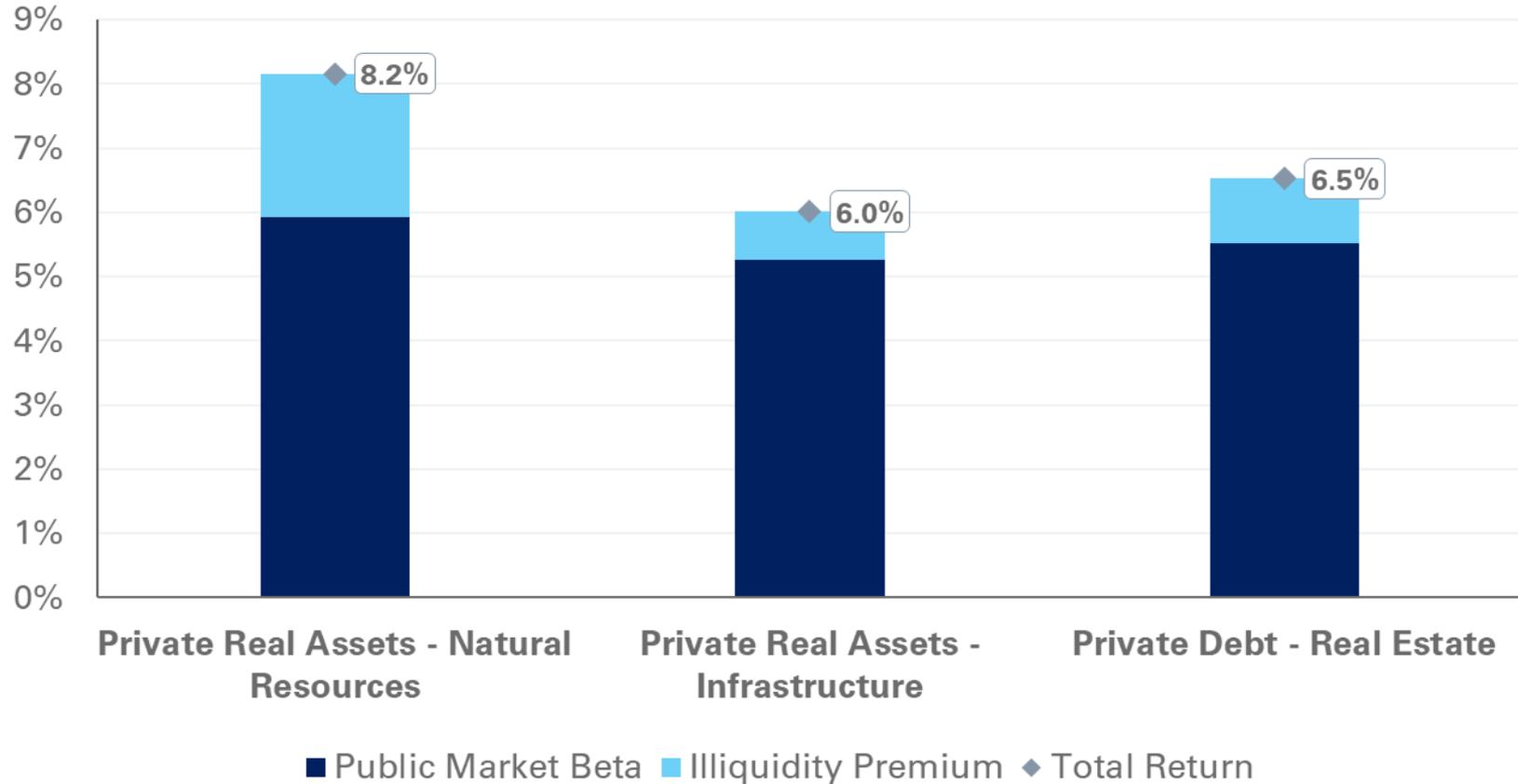


Note: \*Private Debt is a derived composite of 25% Credit Opportunities, 25% Distressed, 50% Direct Lending. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time. Source: NEPC



# PRIVATE REAL ASSET

## BUILDING BLOCKS: 10-YEAR EXPECTED RETURN



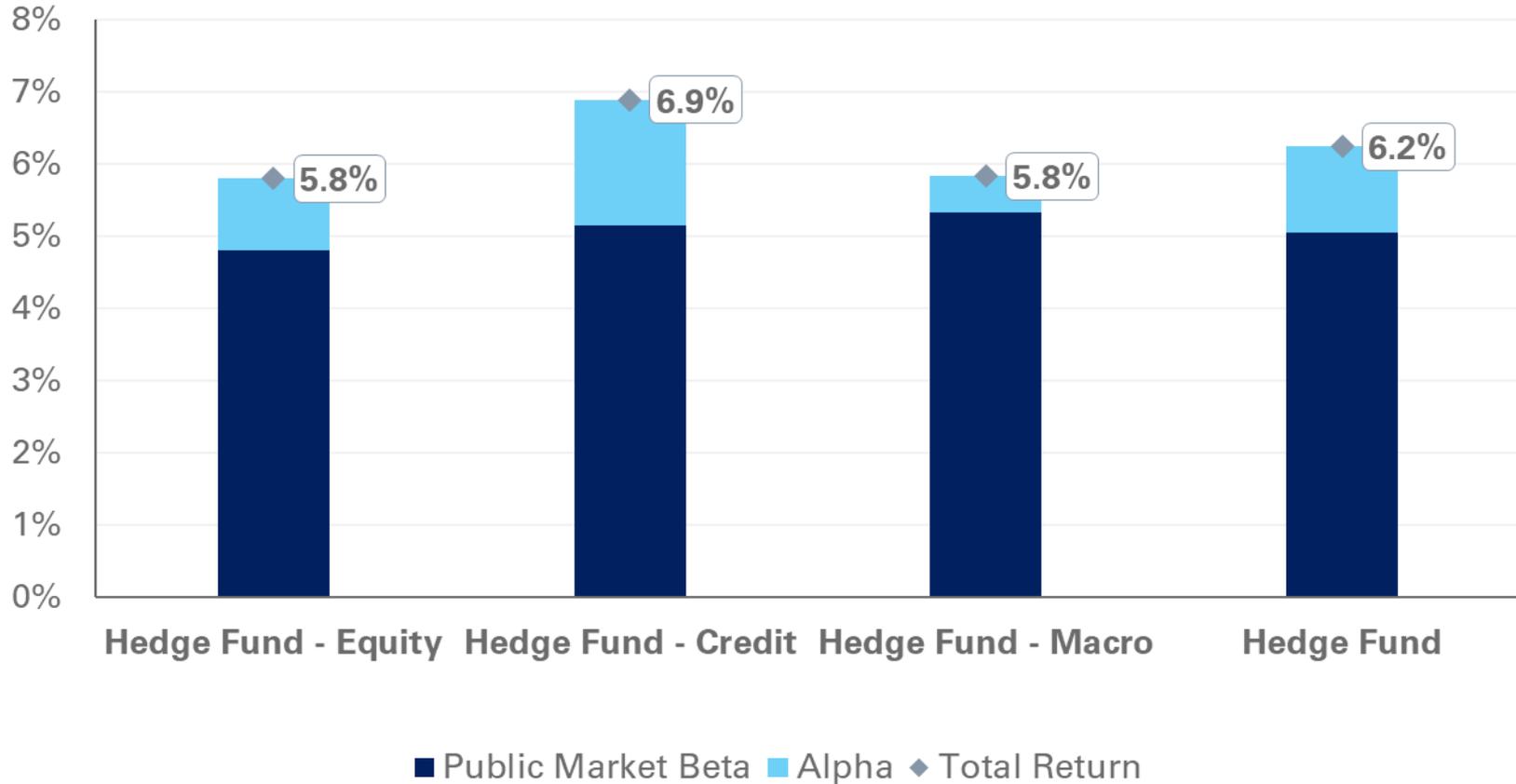
Note: NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

Source: NEPC



# HEDGE FUND

## BUILDING BLOCKS: 10-YEAR EXPECTED RETURN



Note: \*Hedge Funds is a derived composite of 40% Long/Short, 40% Credit, 20% Macro. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.  
 Source: NEPC



# APPENDIX



# 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% High Yield Securitized, 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	12/31/2024	12/31/2023	Delta
U.S. Large-Cap Equity	5.6%	4.4%	+1.2%
U.S. Small/Mid-Cap Equity	5.8%	6.0%	-0.2%
Non-U.S. Developed Equity	5.3%	4.6%	+0.7%
Non-U.S. Developed Equity (USD Hedge)	5.6%	4.8%	+0.8%
Non-U.S. Developed Small-Cap Equity	6.7%	6.4%	+0.3%
Emerging Market Equity	8.0%	8.6%	-0.6%
Emerging Market Small-Cap Equity	7.1%	7.9%	-0.8%
Hedge Fund - Equity	5.8%	5.5%	+0.3%
Private Equity - Buyout	7.1%	7.4%	-0.3%
Private Equity - Growth	8.2%	8.7%	-0.5%
Private Equity - Early Stage Venture	9.3%	9.8%	-0.5%
Private Equity - Secondary	6.8%	6.9%	-0.1%
Non-U.S. Private Equity	9.4%	10.3%	-0.9%
China Equity	8.3%	9.9%	-1.6%
Global Equity*	6.1%	5.4%	+0.7%
Private Equity*	8.5%	9.0%	-0.5%

Note: \*Calculated as a blend of other asset classes. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

# 10-YEAR RETURN FORECASTS

## FIXED INCOME

Geometric Expected Return			
Asset Class	12/31/2024	12/31/2023	Delta
Cash	4.1%	3.9%	+0.2%
US TIPS	4.9%	4.6%	+0.3%
US Treasury Bond	4.7%	4.2%	+0.5%
US Corporate Bond	5.7%	5.3%	+0.4%
US Corporate Bond - AAA	5.0%	4.4%	+0.6%
US Corporate Bond - AA	5.2%	4.6%	+0.6%
US Corporate Bond - A	5.5%	5.1%	+0.4%
US Corporate Bond - BBB	5.9%	5.6%	+0.3%
US Mortgage-Backed Securities	4.9%	4.4%	+0.5%
US Securitized Bond	5.4%	5.2%	+0.2%
US Collateralized Loan Obligation	5.7%	5.5%	+0.2%
US Municipal Bond	3.8%	3.5%	+0.3%
US Municipal Bond (1-10 Year)	3.4%	2.9%	+0.5%
US Taxable Municipal Bond	5.6%	5.3%	+0.3%

Note: NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

# 10-YEAR RETURN FORECASTS

## FIXED INCOME

Geometric Expected Return			
Asset Class	12/31/2024	12/31/2023	Delta
Non-US Government Bond	2.5%	2.4%	+0.1%
Non-US Government Bond (USD Hedge)	2.8%	2.6%	+0.2%
Non-US Inflation-Linked Bond (USD Hedge)	3.6%	3.2%	+0.4%
US Short-Term TIPS (1-3 Year)	4.8%	4.7%	+0.1%
US Short-Term Treasury Bond (1-3 Year)	4.6%	4.4%	+0.2%
US Short-Term Corporate Bond (1-3 Year)	5.6%	5.4%	+0.2%
US Intermediate-Term TIPS (3-10 Year)	4.9%	4.6%	+0.3%
US Intermediate-Term Treasury Bond (3-10 Year)	4.6%	4.2%	+0.4%
US Intermediate-Term Corporate Bond (3-10 Year)	5.9%	5.6%	+0.3%
US Long-Term TIPS (10-30 Year)	5.3%	4.5%	+0.8%
US Long-Term Treasury Bond (10-30 Year)	4.8%	3.7%	+1.1%
US Long-Term Corporate Bond (10-30 Year)	5.4%	4.7%	+0.7%
20+ Year US Treasury STRIPS	4.8%	3.3%	+1.5%
10 Year US Treasury Bond	4.8%	4.2%	+0.6%
10 Year Non-US Government Bond (USD Hedge)	2.4%	2.1%	+0.3%
US Aggregate Bond*	5.0%	4.6%	+0.4%

Note: \*Calculated as a blend of other asset classes. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

# 10-YEAR RETURN FORECASTS

## FIXED INCOME

Geometric Expected Return			
Asset Class	12/31/2024	12/31/2023	Delta
US High Yield Corporate Bond	6.3%	6.1%	+0.2%
US Corporate Bond - BB	6.9%	6.8%	+0.1%
US Corporate Bond - B	6.6%	6.3%	+0.3%
US Corporate Bond - CCC/Below	-0.2%	1.4%	-1.6%
US Short-Term High Yield Corporate Bond (1-3 Year)	5.7%	5.5%	+0.2%
US Leveraged Loan	7.3%	7.2%	+0.1%
Emerging Market Investment Grade External Debt	5.7%	5.0%	+0.7%
Emerging Market High Yield External Debt	7.8%	9.0%	-1.2%
Emerging Market Local Currency Debt	6.7%	6.1%	+0.6%
US High Yield Securitized Bond	9.3%	8.7%	+0.6%
US High Yield Collateralized Loan Obligation	7.8%	7.8%	-
US High Yield Municipal Bond	4.3%	4.5%	-0.2%
Hedge Fund - Credit	6.9%	6.6%	+0.3%
Private Debt - Credit Opportunities	8.1%	7.8%	+0.3%
Private Debt - Distressed	8.3%	8.6%	-0.3%
Private Debt - Direct Lending	8.2%	8.1%	+0.1%
Private Debt*	8.3%	8.3%	-

Note: \*Calculated as a blend of other asset classes. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

# 10-YEAR RETURN FORECASTS

## REAL ASSETS

Geometric Expected Return			
Asset Class	12/31/2024	12/31/2023	Delta
Commodity Futures	4.4%	4.6%	-0.2%
Midstream Energy	4.6%	5.5%	-0.9%
REIT	5.3%	6.0%	-0.7%
Global Infrastructure Equity	5.4%	6.6%	-1.2%
Global Natural Resources Equity	7.0%	6.2%	+0.8%
Gold	4.7%	4.9%	-0.2%
Real Estate - Core	5.9%	5.4%	+0.5%
Real Estate – Value-Add	7.1%	6.6%	+0.5%
Real Estate - Opportunistic	8.1%	7.6%	+0.5%
Private Debt - Real Estate	6.5%	6.3%	+0.2%
Private Real Assets - Natural Resources	8.2%	8.2%	-
Private Real Assets - Infrastructure	6.0%	6.8%	-0.8%

Note: NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

# 30-YEAR RETURN FORECASTS

## EQUITY

Geometric Expected Return			
Asset Class	12/31/2024	12/31/2023	Delta
U.S. Large-Cap Equity	7.1%	6.7%	+0.4%
U.S. Small/Mid-Cap Equity	7.2%	7.4%	-0.2%
Non-U.S. Developed Equity	6.7%	6.4%	+0.3%
Non-U.S. Developed Equity (USD Hedge)	6.9%	6.6%	+0.3%
Non-U.S. Developed Small-Cap Equity	7.8%	7.5%	+0.3%
Emerging Market Equity	9.1%	9.2%	-0.1%
Emerging Market Small-Cap Equity	8.5%	9.1%	-0.6%
Hedge Fund - Equity	6.3%	6.0%	+0.3%
Private Equity - Buyout	9.3%	8.8%	+0.5%
Private Equity - Growth	10.3%	9.7%	+0.6%
Private Equity - Early Stage Venture	11.2%	10.6%	+0.6%
Private Equity - Secondary	8.7%	8.2%	+0.5%
Non-U.S. Private Equity	10.5%	10.8%	-0.3%
China Equity	9.0%	9.5%	-0.5%
Global Equity*	7.5%	7.3%	+0.2%
Private Equity*	10.5%	10.1%	+0.4%

Note: \*Calculated as a blend of other asset classes. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

# 30-YEAR RETURN FORECASTS

## FIXED INCOME

Geometric Expected Return			
Asset Class	12/31/2024	12/31/2023	Delta
Cash	3.6%	3.4%	+0.2%
US TIPS	5.0%	4.7%	+0.3%
US Treasury Bond	4.8%	4.3%	+0.5%
US Corporate Bond	6.3%	5.9%	+0.4%
US Corporate Bond - AAA	5.7%	5.1%	+0.6%
US Corporate Bond - AA	5.5%	5.1%	+0.4%
US Corporate Bond - A	6.0%	5.5%	+0.5%
US Corporate Bond - BBB	6.5%	6.1%	+0.4%
US Mortgage-Backed Securities	5.0%	4.6%	+0.4%
US Securitized Bond	5.6%	5.4%	+0.2%
US Collateralized Loan Obligation	5.1%	4.9%	+0.2%
US Municipal Bond	4.1%	3.8%	+0.3%
US Municipal Bond (1-10 Year)	3.8%	3.5%	+0.3%
US Taxable Municipal Bond	6.4%	6.0%	+0.4%

Note: NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

# 30-YEAR RETURN FORECASTS

## FIXED INCOME

Geometric Expected Return			
Asset Class	12/31/2024	12/31/2023	Delta
Non-US Government Bond	3.1%	2.9%	+0.2%
Non-US Government Bond (USD Hedge)	3.3%	3.2%	+0.1%
Non-US Inflation-Linked Bond (USD Hedge)	3.6%	3.3%	+0.3%
US Short-Term TIPS (1-3 Year)	4.6%	4.4%	+0.2%
US Short-Term Treasury Bond (1-3 Year)	4.4%	4.2%	+0.2%
US Short-Term Corporate Bond (1-3 Year)	5.5%	5.2%	+0.3%
US Intermediate-Term TIPS (3-10 Year)	5.0%	4.7%	+0.3%
US Intermediate-Term Treasury Bond (3-10 Year)	4.8%	4.4%	+0.4%
US Intermediate-Term Corporate Bond (3-10 Year)	6.4%	6.0%	+0.4%
US Long-Term TIPS (10-30 Year)	5.4%	4.8%	+0.6%
US Long-Term Treasury Bond (10-30 Year)	5.1%	4.3%	+0.8%
US Long-Term Corporate Bond (10-30 Year)	6.6%	6.0%	+0.6%
20+ Year US Treasury STRIPS	5.3%	4.2%	+1.1%
10 Year US Treasury Bond	5.3%	4.8%	+0.5%
10 Year Non-US Government Bond (USD Hedge)	3.2%	2.8%	+0.4%
US Aggregate Bond*	5.3%	4.9%	+0.4%

Note: \*Calculated as a blend of other asset classes. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

# 30-YEAR RETURN FORECASTS

## FIXED INCOME

Geometric Expected Return			
Asset Class	12/31/2024	12/31/2023	Delta
US High Yield Corporate Bond	7.4%	7.1%	+0.3%
US Corporate Bond - BB	7.8%	7.7%	+0.1%
US Corporate Bond - B	7.3%	7.1%	+0.2%
US Corporate Bond - CCC/Below	1.3%	1.9%	-0.6%
US Short-Term High Yield Corporate Bond (1-3 Year)	5.9%	5.6%	+0.3%
US Leveraged Loan	6.7%	6.6%	+0.1%
Emerging Market Investment Grade External Debt	6.4%	5.0%	+1.4%
Emerging Market High Yield External Debt	8.3%	9.0%	-0.7%
Emerging Market Local Currency Debt	5.8%	5.5%	+0.3%
US High Yield Securitized Bond	8.8%	8.3%	+0.5%
US High Yield Collateralized Loan Obligation	7.5%	7.3%	+0.2%
US High Yield Municipal Bond	5.1%	4.9%	+0.2%
Hedge Fund - Credit	7.2%	7.0%	+0.2%
Private Debt - Credit Opportunities	8.9%	8.4%	+0.5%
Private Debt - Distressed	9.7%	9.3%	+0.4%
Private Debt - Direct Lending	8.9%	8.9%	-
Private Debt*	9.2%	9.0%	+0.2%

Note: \*Calculated as a blend of other asset classes. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

# 30-YEAR RETURN FORECASTS

## REAL ASSETS

Geometric Expected Return			
Asset Class	12/31/2024	12/31/2023	Delta
Commodity Futures	3.9%	3.9%	-
Midstream Energy	6.3%	6.6%	-0.3%
REIT	7.1%	7.3%	-0.2%
Global Infrastructure Equity	6.5%	7.0%	-0.5%
Global Natural Resources Equity	7.5%	7.1%	+0.4%
Gold	4.8%	4.8%	-
Real Estate - Core	6.5%	6.1%	+0.4%
Real Estate – Value-Add	7.8%	7.3%	+0.5%
Real Estate - Opportunistic	8.7%	8.2%	+0.5%
Private Debt - Real Estate	6.9%	6.6%	+0.3%
Private Real Assets - Natural Resources	8.9%	8.7%	+0.2%
Private Real Assets - Infrastructure	6.8%	7.1%	-0.3%

Note: NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

# VOLATILITY FORECASTS

## EQUITY

Volatility			
Asset Class	12/31/2024	12/31/2023	Delta
U.S. Large-Cap Equity	17.4%	17.2%	+0.2%
U.S. Small/Mid-Cap Equity	21.4%	21.0%	+0.4%
Non-U.S. Developed Equity	19.6%	19.7%	-0.1%
Non-U.S. Developed Equity (USD Hedge)	17.4%	17.7%	-0.3%
Non-U.S. Developed Small-Cap Equity	23.3%	24.2%	-0.9%
Emerging Market Equity	27.4%	28.1%	-0.7%
Emerging Market Small-Cap Equity	30.6%	31.4%	-0.8%
Hedge Fund - Equity	10.9%	11.0%	-0.1%
Private Equity - Buyout	20.7%	20.0%	+0.7%
Private Equity - Growth	30.8%	31.5%	-0.7%
Private Equity - Early Stage Venture	48.0%	46.5%	+1.5%
Private Equity - Secondary	20.4%	20.4%	-
Non-U.S. Private Equity	29.0%	32.0%	-3.0%
China Equity	30.4%	30.6%	-0.2%
Global Equity*	18.2%	18.2%	-
Private Equity*	25.8%	25.9%	-0.1%

Note: \*Calculated as a blend of other asset classes. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

# VOLATILITY FORECASTS

## FIXED INCOME

Volatility			
Asset Class	12/31/2024	12/31/2023	Delta
Cash	0.6%	0.6%	-
US TIPS	6.0%	6.0%	-
US Treasury Bond	5.5%	5.4%	+0.1%
US Corporate Bond	7.9%	7.7%	+0.2%
US Corporate Bond - AAA	7.0%	6.8%	+0.2%
US Corporate Bond - AA	6.7%	6.6%	+0.1%
US Corporate Bond - A	7.7%	7.6%	+0.1%
US Corporate Bond - BBB	8.6%	8.4%	+0.2%
US Mortgage-Backed Securities	6.5%	6.5%	-
US Securitized Bond	7.9%	8.0%	-0.1%
US Collateralized Loan Obligation	6.5%	7.7%	-1.2%
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%	-

Note: NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

# VOLATILITY FORECASTS

## FIXED INCOME

Volatility			
Asset Class	12/31/2024	12/31/2023	Delta
Non-US Government Bond	9.8%	9.5%	+0.3%
Non-US Government Bond (USD Hedge)	4.1%	4.1%	-
Non-US Inflation-Linked Bond (USD Hedge)	6.7%	6.7%	-
US Short-Term TIPS (1-3 Year)	3.3%	3.3%	-
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)	5.8%	6.0%	-0.2%
US Intermediate-Term Treasury Bond (3-10 Year)	5.4%	5.9%	-0.5%
US Intermediate-Term Corporate Bond (3-10 Year)	7.4%	7.1%	+0.3%
US Long-Term TIPS (10-30 Year)	12.6%	12.4%	+0.2%
US Long-Term Treasury Bond (10-30 Year)	12.3%	11.8%	+0.5%
US Long-Term Corporate Bond (10-30 Year)	12.4%	11.9%	+0.5%
20+ Year US Treasury STRIPS	21.0%	20.7%	+0.3%
10 Year US Treasury Bond	7.6%	7.5%	+0.1%
10 Year Non-US Government Bond (USD Hedge)	4.9%	5.0%	-0.1%
US Aggregate Bond*	5.8%	5.8%	-

Note: \*Calculated as a blend of other asset classes. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

# VOLATILITY FORECASTS

## FIXED INCOME

Volatility			
Asset Class	12/31/2024	12/31/2023	Delta
US High Yield Corporate Bond	11.3%	11.2%	+0.1%
US Corporate Bond - BB	9.7%	9.7%	-
US Corporate Bond - B	11.7%	11.6%	+0.1%
US Corporate Bond - CCC/Below	20.4%	20.3%	+0.1%
US Short-Term High Yield Corporate Bond (1-3 Year)	8.2%	8.2%	-
US Leveraged Loan	6.1%	9.1%	-3.0%
Emerging Market Investment Grade External Debt	8.7%	8.7%	-
Emerging Market High Yield External Debt	17.5%	17.5%	-
Emerging Market Local Currency Debt	12.6%	12.7%	-0.1%
US High Yield Securitized Bond	13.0%	11.2%	+1.8%
US High Yield Collateralized Loan Obligation	15.9%	10.4%	+5.5%
US High Yield Municipal Bond	12.0%	12.0%	-
Hedge Fund - Credit	9.7%	9.9%	-0.2%
Private Debt - Credit Opportunities	14.3%	14.5%	-0.2%
Private Debt - Distressed	13.9%	14.4%	-0.5%
Private Debt - Direct Lending	11.0%	11.0%	-
Private Debt*	11.8%	11.8%	-

Note: \*Calculated as a blend of other asset classes. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

# VOLATILITY FORECASTS

## REAL ASSETS

Volatility			
Asset Class	12/31/2024	12/31/2023	Delta
Commodity Futures	18.5%	18.5%	-
Midstream Energy	27.7%	28.2%	-0.5%
REIT	22.4%	21.8%	+0.6%
Global Infrastructure Equity	19.3%	19.4%	-0.1%
Global Natural Resources Equity	22.9%	23.3%	-0.4%
Gold	16.6%	16.4%	+0.2%
Real Estate - Core	14.7%	15.0%	-0.3%
Real Estate – Value-Add	23.0%	23.4%	-0.4%
Real Estate - Opportunistic	27.3%	25.8%	+1.5%
Private Debt - Real Estate	11.9%	11.9%	-
Private Real Assets - Natural Resources	32.5%	32.3%	+0.2%
Private Real Assets - Infrastructure	10.6%	12.4%	-1.8%

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Information on market indices was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.

All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses.

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