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Mendocino County Employees Retirement Association

January 17, 2024

2024 Capital Market Projections

Mendocino County Employees Retirement Association

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Agenda

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Process Overview

How are Capital Market Projections Constructed?

Guiding objectives and process

Underlying beliefs guide the development of the projections:

- An initial bias toward long-run averages
- A conservative bias
- An awareness of risk premiums
- A presumption that markets are ultimately clear and rational

Reflect our beliefs that long-term equilibrium relationships between the capital markets and lasting trends in global economic growth are key drivers to setting capital market expectations

Long-term compensated risk premiums represent "beta"—exposure to each broad market, whether traditional or "exotic," with limited dependence on successful realization of alpha

The projection process is built around several key building blocks:

- Modeling at the individual asset class level (e.g., a detailed bond model, an equity model)
- A path for interest rates and inflation
- A cohesive economic outlook
- A framework that encompasses Callan beliefs about the long-term operation and efficiencies of the capital markets

2024 vs. 2023 Expected Return and Risk Assumptions

Summary of Callan's Long-Term Capital Market Assumptions (2024-2033)

Asset Class	Index	Expected Return*	Expected Risk	2023 Expected Return	Change in Expected Return
Equities					
Broad US Equity	Russell 3000	7.65%	17.95%	7.35%	0.30%
Global ex-US Equity	MSCI ACWI ex USA	7.65%	20.70%	7.45%	0.20%
Fixed Income					
Core US Fixed	Bloomberg Barclays Aggregate	5.25%	3.75%	4.25%	1.00%
Alternatives					
Core Real Estate	NCREIF ODCE	6.00%	14.20%	5.75%	0.25%
Private Infrastructure	MSCI Glb Infra/FTSE Dev Core 50/50	6.35%	15.45%	6.15%	0.20%
Cash Equivalents	90-Day T-Bill	3.00%	0.90%	2.75%	0.25%
Inflation	CPI-U	2.50%	1.60%	2.50%	0.00%

Fixed income expected returns are now the highest since the Global Financial Crisis, driven by the Federal Reserve raising interest rates

Equity expected returns incrementally increased for 2024, but the difference between equity and bond expected returns continues to narrow

*Expected return is a 10-year annualized forecast.

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Current Market Conditions

Nobody Saw 2023 Coming

Recession was on everyone's radar for 2023, and the only disagreement was the quarter in which it would show up

- 2023 economic growth surprised on the upside, with 2+% growth in the first half of the year and 4.9% growth in Q3
  - This despite the Federal Reserve's rate hikes, the war in Ukraine, elevated inflation, and geopolitical uncertainty
  - Driven by consumption as wage growth from a very strong job market boosted consumer incomes as well as from fiscal stimulus

The Fed has likely finished raising interest rates to fight inflation

- The Fed raised rates 525 bps since March 2022, from 0.0%-0.25% to the current target range of 5.25%-5.5%
- Inflation has decreased down to 3.4% from the 9% spike in summer 2022
- The Fed is now signaling modest rate decreases for the coming year

Recession no longer inevitable, but risks remain

- Strong GDP growth suggests labor markets will continue to be tight; resulting wage growth is contributing to inflationary pressure. Any slowdown in the economy is likely still a ways off
- Reducing inflation all the way down to the Fed's stated goal of 2% would cause some discomfort. Squeezing out the last of excess inflation would require a period of below trend growth, a loosening of the labor market, and the pain of a rise in unemployment

Equity Markets Had A Robust 2023

Bonds ended up having a solid year as well

S&P 500 up 26% in 2023

- Essentially recouping the losses of 2022

Fixed income

- The Bloomberg Aggregate recovered in Q4, buoyed by the prospects of Fed rate cuts to end the year in the green

Real Estate

- 2023 was a challenging year, particularly for the office sector

Inflation

- Has recently decreased, but still materially above the Fed's 2% target
- Inflation has averaged 2.5% over the last quarter century

Returns for Periods ended 12/31/23

	Quarter	1 Year	2 Years	5 Years	10 Years	25 Years
U.S. Equity						
Russell 3000	12.07	25.96	0.88	15.16	11.48	7.74
S&P 500	11.69	26.29	1.69	15.69	12.03	7.56
Russell 2000	14.03	16.93	-3.55	9.97	7.16	7.91
Global ex-U.S. Equity						
MSCI World ex USA	10.51	17.94	0.54	8.45	4.32	4.62
MSCI Emerging Markets	7.86	9.83	-6.32	3.69	2.66	--
MSCI ACWI ex USA Small Cap	10.12	15.66	-3.79	7.89	4.88	7.28
Fixed Income						
Bloomberg Aggregate	6.82	5.53	-4.19	1.10	1.81	3.85
90-day T-Bill	1.37	5.01	3.22	1.88	1.25	1.90
Bloomberg Long Gov/Credit	13.24	7.13	-11.62	1.12	3.22	5.21
Bloomberg Global Agg ex-US	9.21	5.72	-7.29	-1.56	-0.79	2.25
Real Estate						
NCREIF Property*	-1.37	-8.39	3.12	5.26	7.40	8.31
FTSE Nareit Equity	16.22	13.73	-7.25	7.39	7.65	9.27
Alternatives						
CS Hedge Fund Index*	1.81	4.66	2.86	4.77	4.08	5.96
Cambridge Private Equity*	1.60	2.78	3.19	15.18	14.78	13.61
Bloomberg Commodity	-4.63	-7.91	3.40	7.23	-1.11	2.83
Gold Spot Price	11.02	13.45	6.44	10.09	5.59	8.19
Inflation - CPI-U	-0.34	3.35	4.89	4.07	2.79	2.54

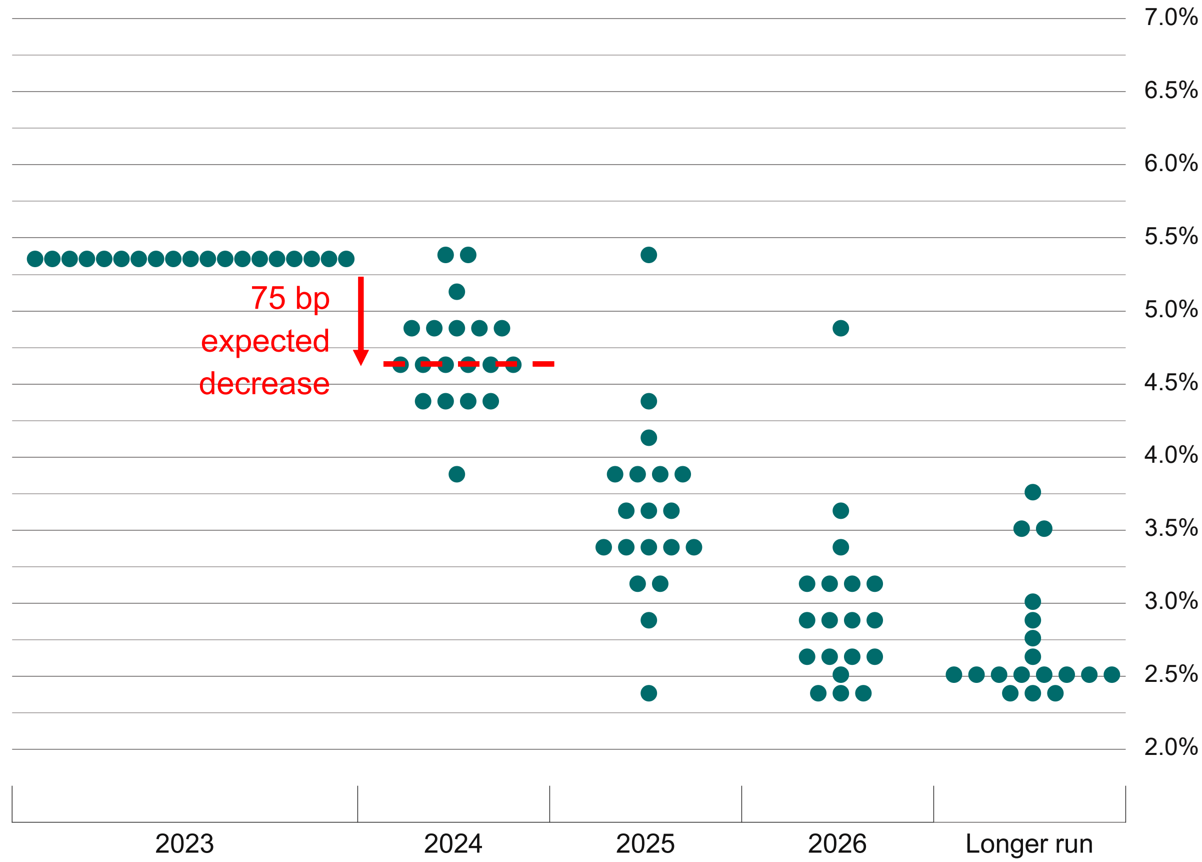
*Cambridge PE data as of June 30, 2023; CS Hedge Fund Index and NCREIF Property data as of 9/30/2023
Sources: Bloomberg, Callan, Cambridge, Credit Suisse, FTSE Russell, MSCI, NCREIF, S&P Dow Jones Indices

The Fed's 'Dot Plot'

December 2023 (latest)

Federal Open Market Committee (FOMC) participants' assessments of appropriate monetary policy

- Dot plot suggests a total of 75 bps of rate cuts in 2024
- Longer-run unchanged at 2.5%
- Dispersion of views widens in 2025 but narrows over "longer run"
- However, the market expects on the order of six 25 bp rate cuts in 2024



Source: Federal Reserve (One participant did not submit longer-run projections for the federal funds rate.)

Thoughts on the Macro Economy

U.S. economy remained strong through the rate hikes in 2022 and 2023. Why?

- Stimulus and lots of it = pent up demand
- Tight labor market – consumers are confident that they have a job and pay is rising
- Retail housing market has taken a big hit from higher rates, but has NOT dragged down the economy as in rate hike episodes of yore
- Commercial real estate is also working through challenges, particularly in office

Unraveling the current growth momentum in the US economy is likely to take time

Risks are plentiful:

- Inflation remains elevated for longer than expected, causing the Fed to delay or scrap anticipated rate cuts
- Recession
- Housing market
- Geopolitical strife

2024 Capital Market Expectations

Callan's Capital Market Assumptions: 10 Years 2024–2033

Key changes from 2023

Summary of Important Changes for 2023 Capital Markets Assumptions

- Cash return raised to 3.0% from 2.75% (+ 0.25%)
- Core fixed income return up 1.0%, from 4.25% to 5.25%
- Public equity returns up 20-30 bps; equity risk premium over both cash and fixed income narrowed substantially
- Inflation held at 2.5%
- Private markets returns raised commensurate with public equity, including real estate

Equity Forecasts

Overview

Fundamental Relationship:

Equity Return = Capital Appreciation + Income +/- Valuation Adjustment

$$\text{Equity Return} = \underbrace{\text{Capital Appreciation}}_{\text{Real Earnings Growth + Inflation}} + \underbrace{\text{Income}}_{\text{Dividend Yield + Net Share Buybacks}} \pm \text{Valuation Adjustment}$$

Building up U.S. equity (S&P 500) returns from long-term fundamentals, we arrive at 7.50%

Real earnings growth is linked to real GDP growth over long horizons; we forecast US real GDP of **2.50%** over the next decade

Inflation(CPI-U) forecasted at **2.50%** over the next ten years
- Slightly above the Fed's inflation target of 2%
- Realized inflation over past quarter century has been 2.5%
- In line with the market-based forecast of breakeven inflation (yield difference between Treasuries and TIPS)

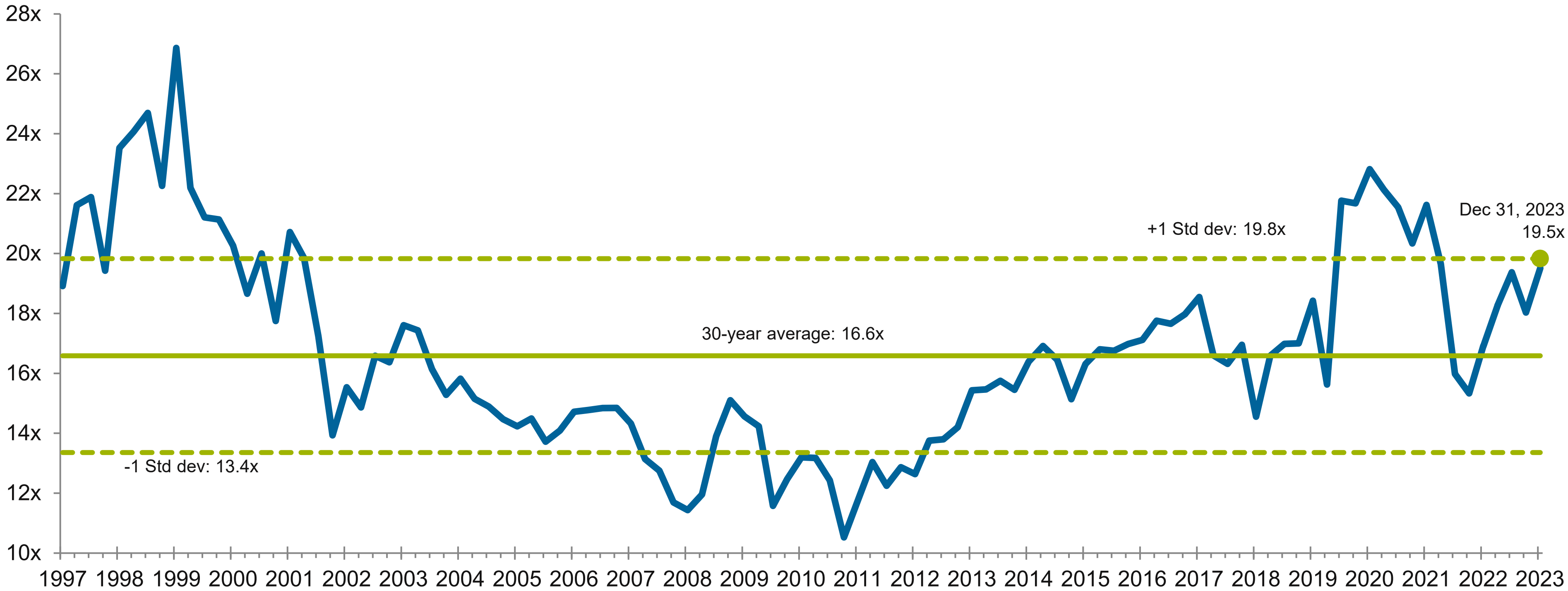
Income return of **2.50%** from dividend yield and share buybacks

Equity valuations are broadly in line with historical norms so no valuation adjustment

Small premium for Global ex-U.S. over U.S. stems from emerging market growth potential

U.S. Equity Market: Valuation

S&P 500 Index: Forward P/E Ratio



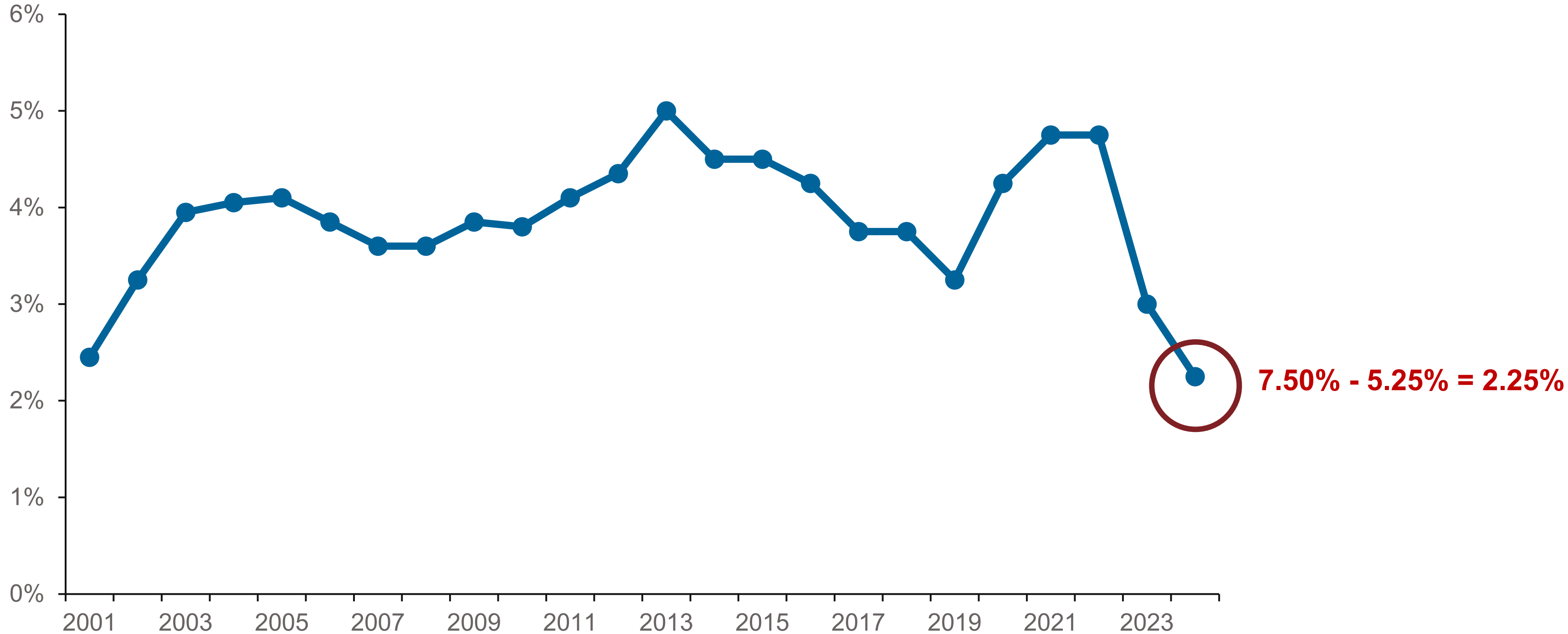
Valuations are not cheap, though the forward P/E is still within one standard deviation of its long-term average

Source: FactSet, FRB, Refinitiv Datastream, Standard & Poor's, Thomson Reuters, J.P. Morgan Asset Management.
Price-to-earnings is price divided by consensus analyst estimates of earnings per share for the next 12 months as provided by IBES since December 1998 and by FactSet since January 2022. Current next 12-months consensus earnings estimates are $245. Average P/E and standard deviations are calculated using 30 years of history.
Data are as of December 31, 2023.

Callan’s Equity Risk Premia Forecasts Over Time

S&P 500 forecast minus Bloomberg Aggregate forecast

Forecasted Equity Risk Premium vs. Bonds

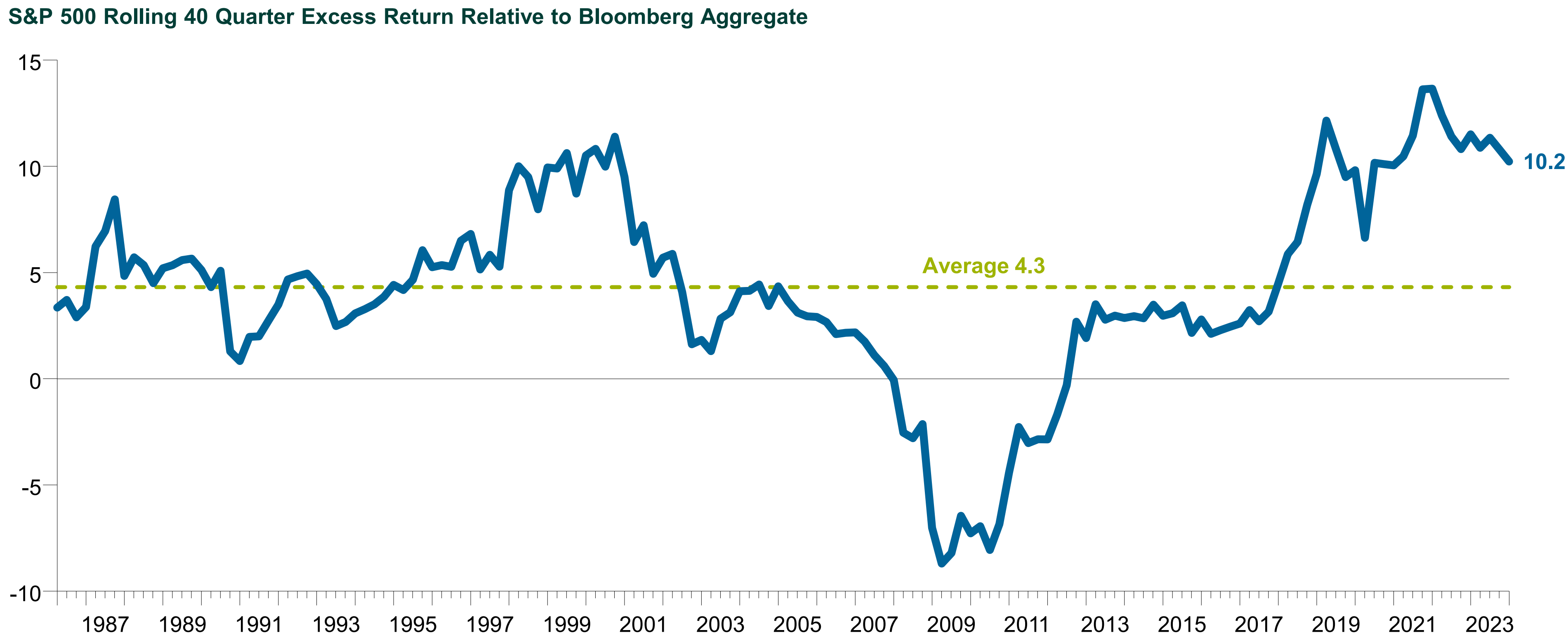


Increasing interest rates have raised our forecast for the Bloomberg Aggregate to 5.25%

This means Callan’s forecasted return spread between the S&P 500 and the Bloomberg Aggregate (2.25%) is the narrowest since 2000

Forecasts are annualized over ten years.

Historical Equity Risk Premium Over Bonds



Core Real Estate

Background

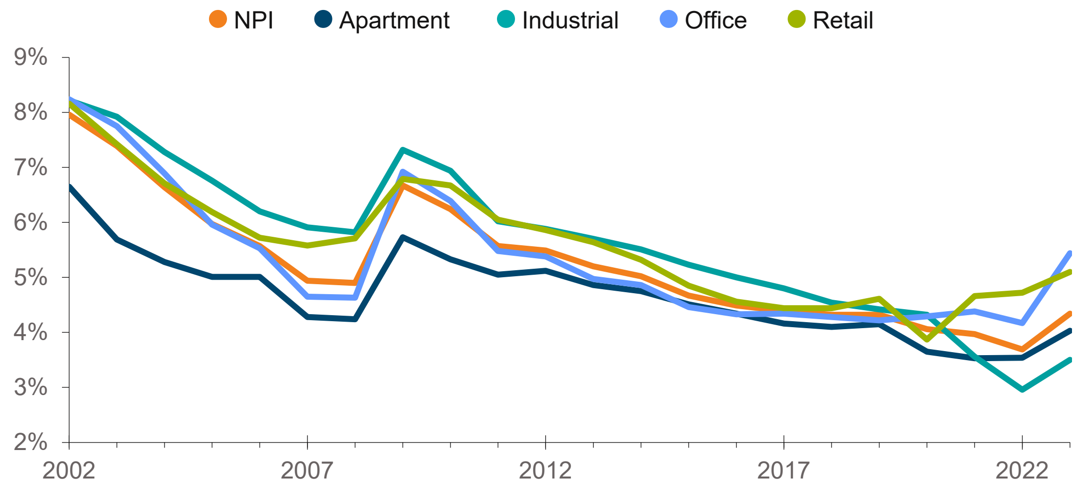
Real estate has characteristics of equity (ownership and appreciation) and bonds (income from rents). Real estate returned negative 8.4% for the 12 month period ending September 30, 2023, on an unlevered property basis

While real estate, especially within offices, is expected to continue facing headwinds in the short-term, recent price declines could make more attractive entry points available for long-term investors

Slight increase in real estate returns compared to last year.

2024 real estate return projection: 6% (up 25 bps)

Annual Cap Rates



Callan Return Assumptions (unlevered property returns)

	Office	Retail	Industrial	Apartments	Other	NPI Index
Income	5.7%	5.6%	4.3%	5.1%	5.8%	5.1%
Appreciation	0.0%	0.4%	2.3%	0.6%	0.9%	1.0%
Total Return	5.7%	6.0%	6.6%	5.7%	6.7%	6.1%

Source: Callan, NCREIF NPI index

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MCERA Portfolio Expected Return and Risk

2024 Capital Market Projections – MCERA Target

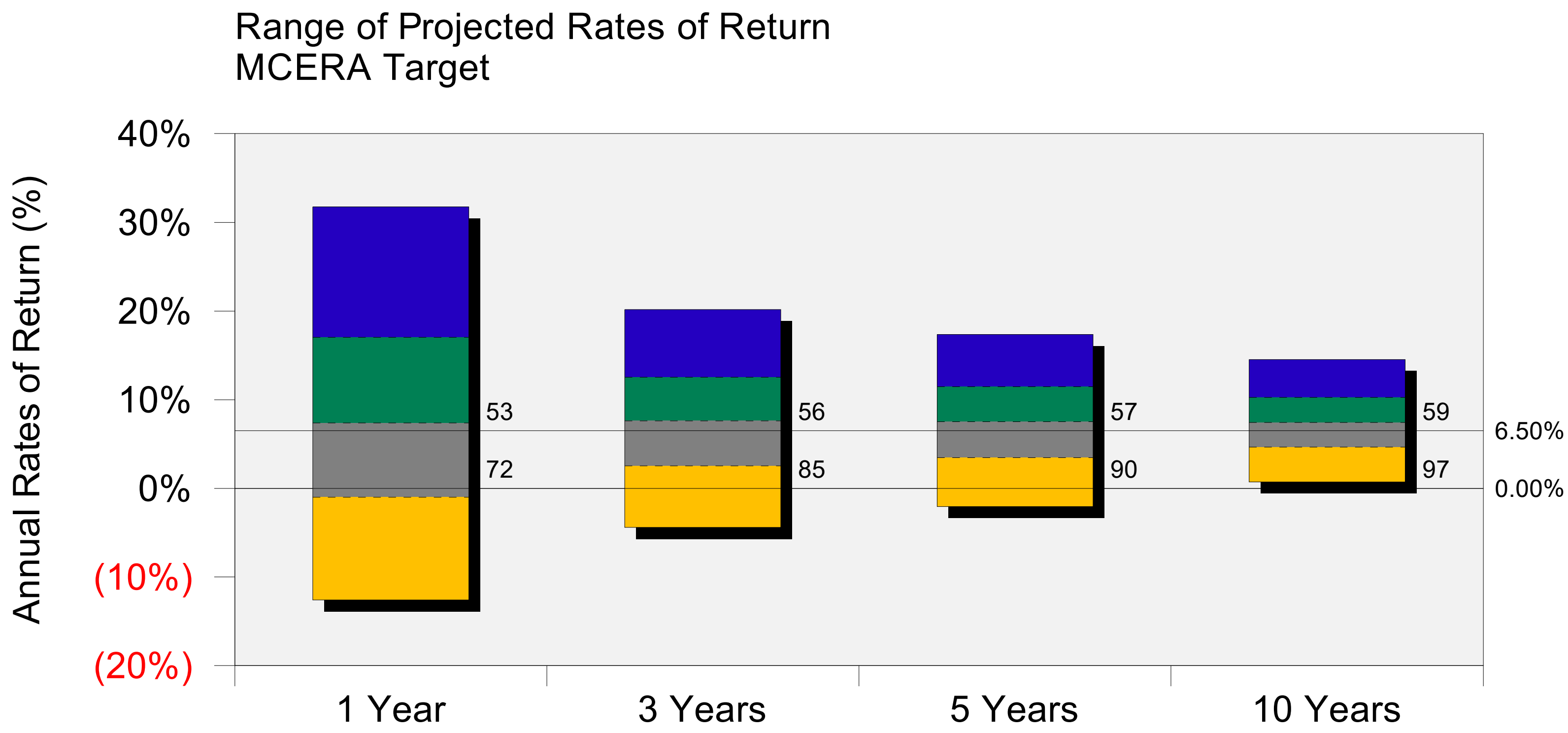
Expected Return on Assets, Assuming Passive Implementation

Asset Class	MCERA Target
Broad US Equity	37%
Global ex-US Equity	25%
Core US Fixed	21%
Core Real Estate	11%
Private Infrastructure	6%
Totals	100%
2024 10-Year Capital Market Forecast	
Expected Return	7.5%
Expected Risk (Standard Deviation)	12.4%

2023 10-Year Capital Market Forecast	
Expected Return	*7.0%*
2022 10-Year Capital Market Forecast	
Expected Return	*6.0%*

Range of Potential Returns

MCERA Policy

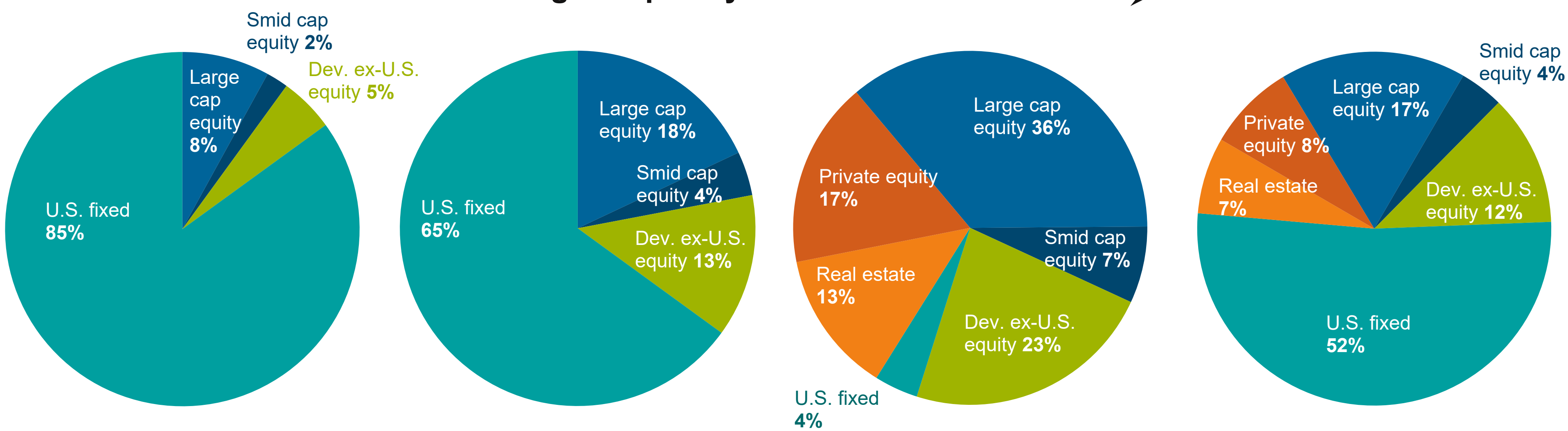


	1 Year	3 Years	5 Years	10 Years
5th Percentile	31.7%	20.2%	17.4%	14.5%
25th Percentile	17.0%	12.5%	11.5%	10.3%
Median	7.4%	7.6%	7.5%	7.4%
75th Percentile	(1.0%)	2.5%	3.5%	4.7%
95th Percentile	(12.6%)	(4.4%)	(2.0%)	0.7%
Prob > 6.50%	53%	56%	57%	59%
Prob > 0.00%	72%	85%	90%	97%

Based on 2024 Callan CMA's

7% Expected Returns Over Past 30 Years

Increasing Complexity



1994	2009	2022	2024
Return: 7.0%	**Return: 7.0%**	**Return: 7.0%**	**Return: 7.0%**
Risk: 5.7%	**Risk: 6.9%**	**Risk: 16.8%**	**Risk: 8.6%**

Increasing Risk

In 1994, our return expectation for broad U.S. fixed income was 6.2%.

Just 15% in return-seeking assets was required to earn a 7% projected return.

15 years later, an institutional investor would have needed an additional 20% of the portfolio in public equities for a total of 35% to achieve a 7% projected return.

In 2022 an investor was required to include 96% in return-seeking assets (including 30% in private markets investments) to earn a 7% projected return at almost 3x the volatility compared to 1994.

Today's 7% expected return portfolio is much more reasonable than it was just two years ago. The allocation to fixed income jumps to 52%, while risk is essentially cut in half. Private markets investments are also cut in half.

Appendix

2024 vs. 2023 Risk and Return Assumptions

Summary of Callan's Long-Term Capital Markets Assumptions (2024–2033)

		Projected Return			Projected Risk		2023–2032		
Asset Class	**Index**	1-Year Arithmetic	10-Year Geometric*	**Real**	Standard Deviation	Projected Yield	1-Year Arithmetic	10-Year Geometric*	Standard Deviation
Equities									
Broad U.S. Equity	Russell 3000	8.85%	7.65%	5.15%	17.40%	1.95%	8.75%	7.35%	18.05%
Large Cap U.S. Equity	S&P 500	8.70%	7.50%	5.00%	17.00%	2.00%	8.60%	7.25%	17.75%
Smid Cap U.S. Equity	Russell 2500	9.80%	7.70%	5.20%	22.00%	1.75%	9.60%	7.45%	22.15%
Global ex-U.S. Equity	MSCI ACWI ex USA	9.65%	7.65%	5.15%	21.40%	3.70%	9.45%	7.45%	21.25%
Developed ex-U.S. Equity	MSCI World ex USA	9.25%	7.50%	5.00%	20.15%	3.75%	9.00%	7.25%	20.15%
Emerging Market Equity	MSCI Emerging Markets	10.65%	7.70%	5.20%	25.60%	3.55%	10.45%	7.45%	25.70%
Fixed Income									
Short Duration Gov/Credit	Bloomberg 1-3 Year Gov/Credit	4.25%	4.25%	1.75%	2.40%	3.70%	3.75%	3.80%	2.30%
Core U.S. Fixed	Bloomberg Aggregate	5.25%	5.25%	2.75%	4.25%	4.70%	4.25%	4.25%	4.10%
Long Government	Bloomberg Long Gov	6.20%	5.40%	2.90%	13.75%	4.80%	4.55%	3.70%	13.50%
Long Credit	Bloomberg Long Credit	6.85%	6.30%	3.80%	11.90%	6.20%	5.75%	5.20%	11.75%
Long Government/Credit	Bloomberg Long Gov/Credit	6.55%	6.00%	3.50%	11.70%	5.55%	5.20%	4.65%	11.40%
TIPS	Bloomberg TIPS	5.10%	5.05%	2.55%	5.40%	4.30%	4.10%	4.00%	5.30%
High Yield	Bloomberg High Yield	7.30%	6.80%	4.30%	11.75%	8.45%	6.75%	6.25%	11.75%
Global ex-U.S. Fixed	Bloomberg Global Agg ex US	3.60%	3.15%	0.65%	9.80%	2.70%	2.70%	2.25%	9.80%
Emerging Market Sov Debt	EMBI Global Diversified	6.75%	6.35%	3.85%	10.65%	7.70%	6.25%	5.85%	10.65%
Alternatives									
Core Real Estate	NCREIF ODCE	6.85%	6.00%	3.50%	14.00%	4.00%	6.60%	5.75%	14.20%
Private Infrastructure	MSCI GI Infra/FTSE Dev Core 50/50	7.30%	6.35%	3.85%	15.20%	4.80%	7.15%	6.15%	15.45%
Private Equity	Cambridge Private Equity	12.15%	8.75%	6.25%	27.60%	0.00%	11.95%	8.50%	27.60%
Private Credit	Cambridge Senior Debt Index	8.40%	7.40%	4.90%	15.70%	7.40%	8.00%	7.00%	15.50%
Hedge Funds	Callan Hedge FOF Database	6.25%	6.05%	3.55%	8.20%	0.00%	5.80%	5.55%	8.45%
Commodities	Bloomberg Commodity	5.45%	3.90%	1.40%	18.05%	3.00%	5.05%	3.50%	18.00%
Cash Equivalents	90-Day T-Bill	3.00%	3.00%	0.50%	0.90%	3.00%	2.75%	2.75%	0.90%
Inflation	CPI-U		2.50%		1.60%			2.50%	1.60%

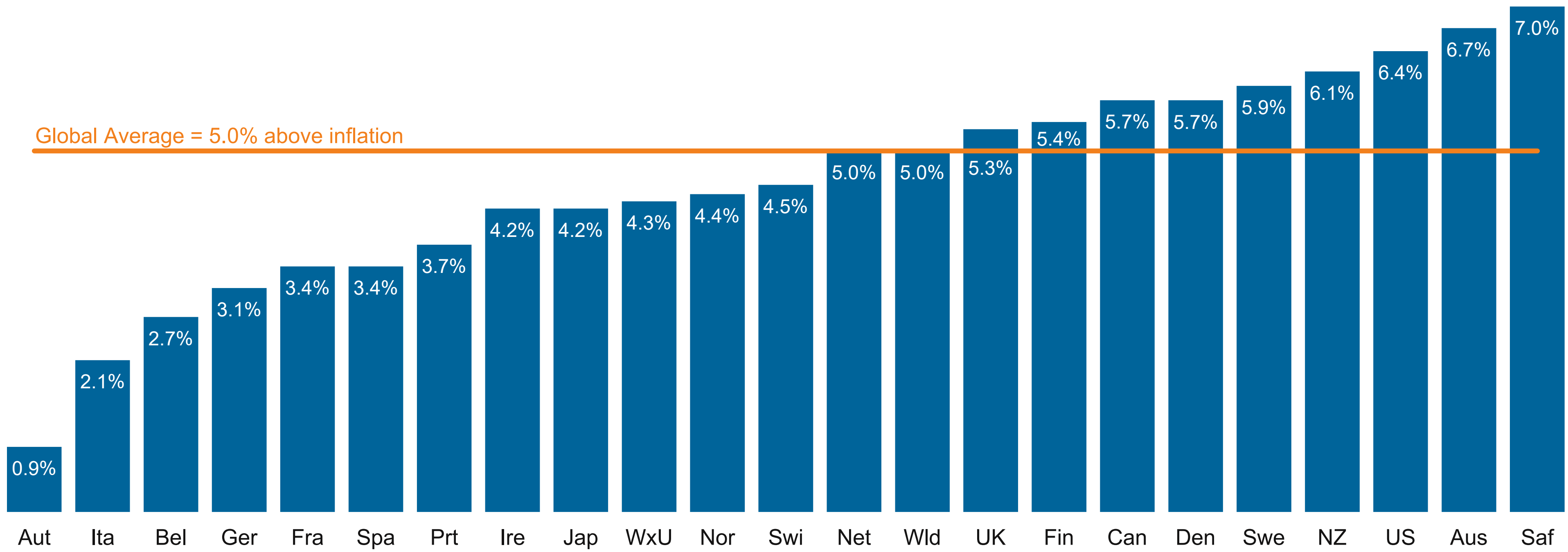
* Geometric returns are derived from arithmetic returns and the associated risk (standard deviation).

** Projected Yields represent the expected 10-year average yield

Source: Callan

Equities Have Delivered 5% Real Return Globally

Real (above inflation) annualized returns on equities (1900–2022)



Globally, equities have outpaced inflation by roughly 5% per year since the start of the 20th century

Individual country experience differs markedly

Underscores importance of international diversification

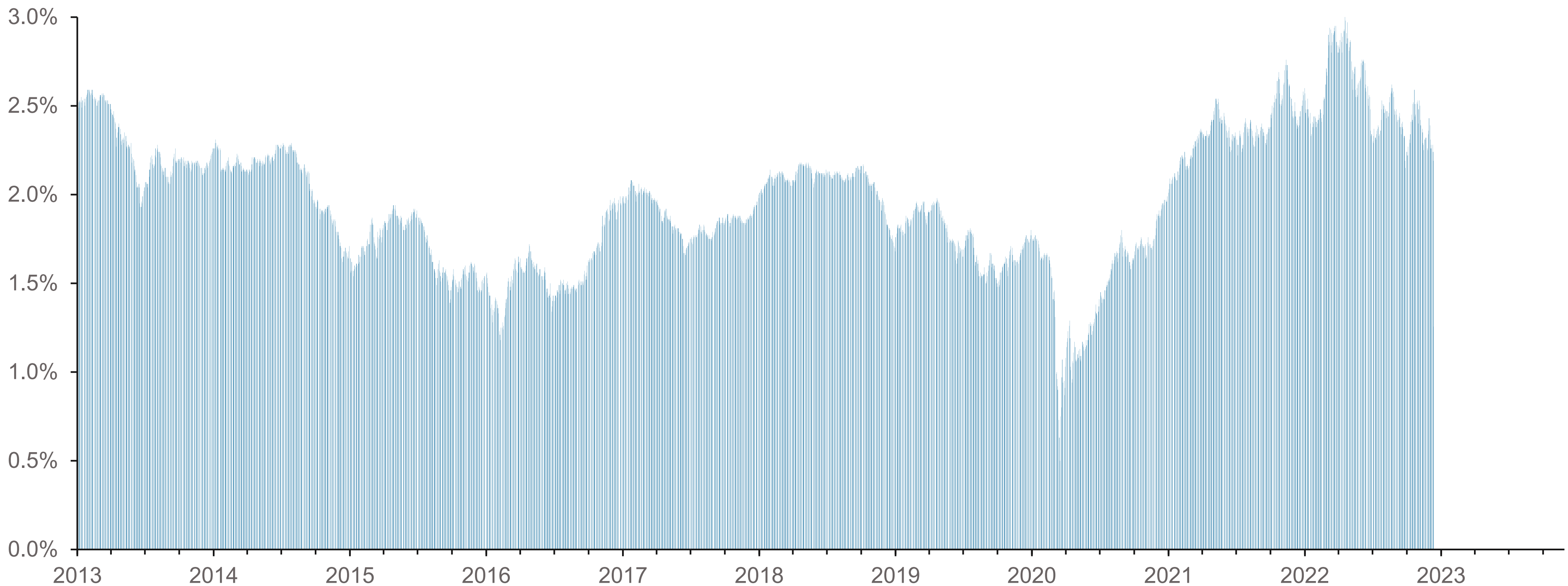
Note the U.S. experience as one of the strongest performers

- Reflects period where the U.S. transitioned into the world's largest economy
- On winning side of two World Wars
- Dangerous to extrapolate exceptional U.S. historical performance into the future

Source: Credit Suisse Global Investment Returns Yearbook 2023.

10-Year Breakeven Rate: Bond Market Forecast of Inflation

10-Year Breakeven Inflation Rate



- 10-year breakeven inflation rate is the difference in yield between the nominal 10-year Treasury and the 10-year Treasury Inflation-Protected Security (TIPS).
  - Includes current higher levels of inflation
  - Extra yield nominal Treasury would have to earn to maintain the same purchasing power as a TIPS investment.
- Values of implied inflation reached 3% in April 2022 but have since declined to around 2.25%

Source: Federal Reserve Bank of St. Louis

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