

DECADES OF DATA: UNITED STATES

1900–2023



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Key Points

- Basing investment decisions on the extrapolation of capital markets returns from recent, relatively short periods is a common mistake. A core tenet of our research process is to “know the history,” which is the underlying theme of our Decades of Data publication.
- US equity investors are compensated for the additional risk of holding stocks in the long run. US equities have also consistently outpaced inflation over long-term holding periods.
- Earnings growth and dividend reinvestment are the primary contributors to equity returns, while the impact of valuation rerating is ultimately negligible due to mean reversion.
- Starting equity valuations are a useful indicator for long-term subsequent equity returns. For bonds, starting yields are a reasonable proxy for setting nominal return expectations.
- We also provide context around the market environment in 2023, including the 25%+ US equity return amid slowing inflation, resilient economic growth, and Federal Reserve pivot.

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CAMBRIDGE FIFTY
ASSOCIATES YEARS

Executive Summary

- **Basing investment decisions on the extrapolation of capital markets returns from recent, relatively short periods is a common mistake.** Viable conclusions about long-term expected returns cannot be drawn from return data for periods shorter than several decades, and even then, investors should be mindful that long-term statistics are beginning- and end-point sensitive and that returns are more variable than commonly assumed. Still, consideration of shorter time periods within a longer-term context can provide a powerful framework for evaluating current market conditions.
- **US equities (26.3%) rallied in 2023, rebounding from the double-digit decline suffered in 2022 (-18.1%).** Slowing inflation and resilient economic growth stoked expectations that the Federal Reserve may engineer an elusive economic “soft landing.” Tech-heavy US stocks were also boosted by investor fervor surrounding artificial intelligence (AI). The return in 2023 landed in the 76th percentile of annual returns since 1900, meaning that performance was higher 24% of the time historically. In fact—as we flagged in last year’s edition—US equities typically bounce back after drawdowns in a given calendar year, suggesting that the rebound was neither all that surprising nor exceptional. Looking ahead, history suggests this rally could continue. In the calendar year following swings between double-digit losses and gains (as we saw in 2022 and 2023, respectively), US equities declined in only one out of 11 instances, with an average return of nearly 17%. While many factors influence performance, as did the largely unexpected US economic resilience and emergence of AI in 2023, historical precedent alone supports the outlook for US stocks in 2024.
- **US bonds (2.8%) gained in 2023, steadying after a record drawdown (-17.0%) in 2022.** Slowing inflation, cessation of rate hikes, and a looming rate cutting cycle by the Fed-supported performance, with the ten-year US Treasury yield (3.89%) ending the year largely unchanged. Still, ten-year Treasury yields climbed as high as 4.98% by October, but their stronger income component and 100+ basis point (bp) yield decline in fourth quarter boosted returns. The year-over-year (YOY) US inflation rate nearly halved by year end (6.5% YOY in 2022 versus 3.4% YOY in 2023) as the post-COVID demand environment continued normalizing and commodity prices slumped. Inflation is now more in line with the trailing ten-year average, a far cry from June 2022 when the 9.1% YOY rate was more than 4x the ten-year average. Although inflation normalized more quickly than the 1970s/80s period, there have been prior instances like the recent experience, such as during the 1940s/50s. The recent inflationary period has also contributed to an increased correlation of equity and bond returns.

Executive Summary (continued)

- **US equities have enjoyed stronger-than-average returns in the post-GFC period.** For the full history analyzed, investors in US equities (1900–2023) earned a 9.8% nominal average annual compound return (AACR). Over the past ten years, however, US equities have posted a nominal AACR of 12.0%. Monthly rolling ten-year AACRs reached their highest point this cycle in February 2019 at 16.7%, the strongest ten-year return period since the ten years ended January 2001. The February 2019 peak coincided with the period when the largest declines during the GFC—which began in March 2009 when the S&P 500 Index hit its trough—fell out of the data set. This highlights the impact of beginning- and end-point sensitivity, and reminds investors that even over periods as long as ten years, returns can be skewed by short-term market fluctuations. The COVID-19 period also presents an interesting case study. Despite the 30%+ market drawdown, trailing ten-year returns remained above average at the market’s nadir in March 2020.
- **Equities have consistently outpaced inflation over the long term.** Across all rolling 50-year periods since 1900, real AACRs for US stocks ranged from 4.2% to 9.5%, whereas the range for benchmark government bonds (-0.9% to 3.6%) and cash (-0.7% to 1.8%) indicated the potential for diminished purchasing power. Since 1900, benchmark US government bonds and cash have produced full-period AACRs of 4.4% and 3.7%, respectively, representing a significantly narrower spread vis-à-vis the average inflation rate of 3.1% per annum. Interestingly, US government bonds had a lower minimum real return over the very long term relative to cash, which is likely a result of greater duration risk.
- **Over the long term, US equity investors are compensated for the additional risk of holding stocks.** Since 1900, US equity returns exceeded bond returns during 78% of all five-year periods, 87% of all ten-year periods, and 100% of all 25-year periods (calculated on a nominal basis using rolling monthly data). While equities tend to outperform in the long term, underperformance over five-year periods is not uncommon, as equities are more volatile and prone to larger drawdowns than bonds. Such periods are a reminder of the ballast that fixed income allocations have traditionally provided portfolios in terms of diversification. The experience for investors in 2022 challenged this conventional wisdom, although the key differentiator in this episode was that bond yields started at historically low levels. In such cases, investors may need to consider other avenues to effectively diversify portfolios.

Executive Summary (continued)

- **Earnings growth and dividend reinvestment are the primary contributors to equity total return over time, while valuation multiple rerating is ultimately negligible due to mean reversion.** Earnings growth provided the highest degree of return contribution, on average, but can be highly volatile (especially during periods of economic decline) relative to the steady stream of reliable income provided by dividends. For the four years available in the current decade, earnings growth has accounted for the lion's share of the positive return, while valuation multiples have moderately expanded. Dividend reinvestment's contribution has receded over time as share buybacks have become more pervasive. In the past three decades, dividend reinvestment averaged 2.3% versus 5.0% in the nine-decade period from 1900 to 1989. Over the full historical period, dividend reinvestment averaged 4.3%.
- **Starting valuations are a useful indicator for long-term (10+ years) subsequent equity returns.** Normalized valuations and subsequent returns have a stronger relationship over long time periods (e.g., ten-year subsequent returns), but starting valuations alone do not completely explain subsequent returns—many factors can influence equity performance. Since 1979, our cyclically adjusted price-to-cash earnings (CAPCE) ratio for the United States has explained 72% of the variation in subsequent ten-year real returns, a strong yet imperfect guide to future returns. As of December 31, 2023, US equity valuations ended in the top decile of historical observations. When US equity valuations have been above the 90th percentile, the median subsequent ten-year real return has been -3.8% annualized.
- **High- or low-valuation environments alone are not a catalyst for market reversals and may persist for several years.** Waiting for valuations to revert to mean can be an exercise in frustration. US equities provide a fitting example; over the past 30 years, valuations have been above the 75th percentile 95% of the time, based on the Shiller P/E ratio distribution dating back to the 1880s. Low valuations provide what famed investment analyst Benjamin Graham called “a margin of safety.” High valuations, on the other hand, typically price in lofty projections for the future, providing little room for error. Despite uncertainty regarding the timing of market reversals, the historical record for US equities is clear—periods of low valuations are followed by higher long-term subsequent returns, while periods of high valuations are followed by poorer long-term returns.

Executive Summary (continued)

- **Equity dividend yields are an important driver of equity total returns but are not a useful valuation indicator.** In the United States, higher starting dividend yields (i.e., lower equity prices relative to dividends) have typically been associated with higher subsequent ten-year returns relative to long-term averages. Dividend yields are currently in the bottom decile of the historical distribution, where the median subsequent real ten-year returns have been 0.1% annualized. Dividend yields fail to capture the whole picture, however, as US company stock buybacks are an increasingly popular source of shareholder return. While dividend yields fall short in terms of forecasting ability, the importance of dividend reinvestment as a driver of total return should not be understated. In fact, since 1900, US companies managed to maintain a positive dividend growth rate during recessions, on average, even as earnings contracted during these periods given their sensitivity to the economic cycle.
- **Subsequent nominal ten-year US bond returns closely track the starting yield, suggesting that yields are a reasonable proxy for forward return expectations.** Since hitting all-time lows in July 2020, US ten-year government bond yields have climbed more than 330 bps, ending 2023 at 3.89%, which has improved their forward return prospects. In fact, when yields historically were +/- 50 bps from today's starting levels, subsequent nominal ten-year AACRs notched a median of almost 4% annualized. Falling yields were a boon for US bond investors over the past 40 years, with US Treasury bonds returning 7.8% annualized from the early 1980s through 2021, but that paradigm reversed sharply in 2022. While bonds proved to be a poor diversifier, given their low yields heading into today's environment, future returns are likely to look better, given the steep backup in yields.

Executive Summary (continued)

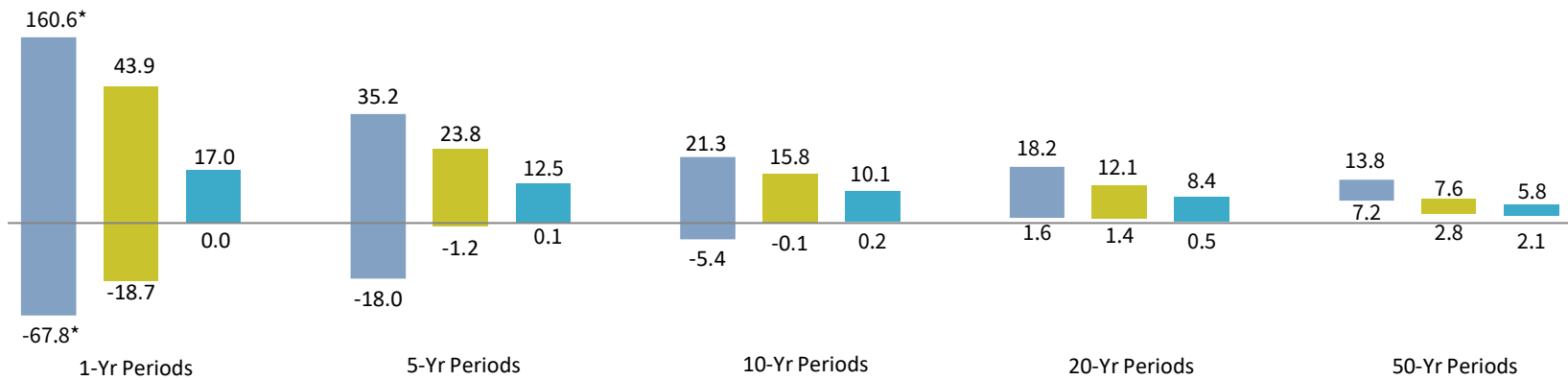
- **There is a distinct inverse relationship between the level of Treasury yields and equity market valuations in the United States.** Many have argued in recent years that high valuations for US stocks are justified (or at least in part explained) by the low level of Treasury yields. The reasoning is straightforward; when discount rates fall, the present value of future cash flows increases, thus pushing up valuations. However, Treasury yields do not tell the whole story. Since 1979, ten-year Treasury yields have explained only about 50% of the variation in equity market valuations. The relationship is not universal, however, and there are periods when equity valuations and yields have moved together. For example, in the early 2000s period preceding the GFC, there was a positive relationship, in that equity valuations and yields both increased. Given the possibility of differences across market environments, investors must consider the drivers of changes in interest rates, rather than their outright levels, and what impact such drivers may have on equity markets.
- **The relationship between asset prices and inflation is complex and nuanced.** While high inflation can erode nominal equity returns, the historical record shows that the deflationary environments can be the most challenging for equity performance. In nominal terms, bonds exhibit limited downside during periods of high inflation, as historically higher yield levels helped offset capital losses as bond prices fell. However, bond markets do suffer in real terms during the highest bouts of inflation when consumer price levels increase 5% annualized or more. Equities and bonds generate stronger results during decelerating inflationary environments, whereas real assets categories such as commodities, gold, and natural resources equities fare better during periods of accelerating inflation.

The range of investment returns narrows as holding periods increase

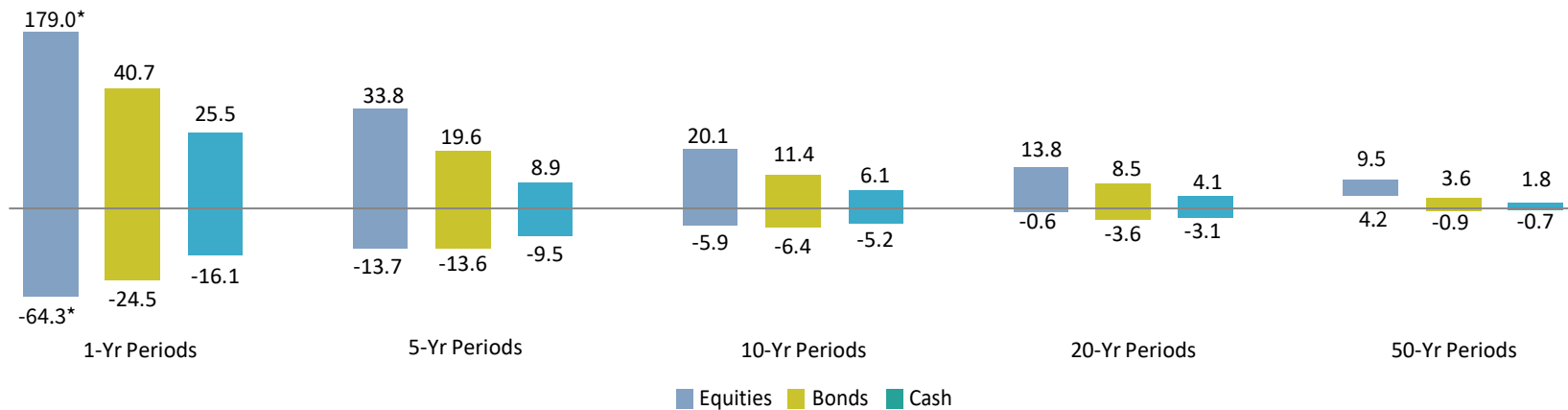
RANGE OF EQUITY, BOND, AND CASH RETURNS FOR VARIOUS ROLLING MONTHLY TIME HORIZONS

1900–2023 • Average Annual Compound Return (%)

Nominal Returns



Real Returns



* Axis capped for scaling purposes.

Equities outperform bonds and cash over the long term, but can underperform in the short run

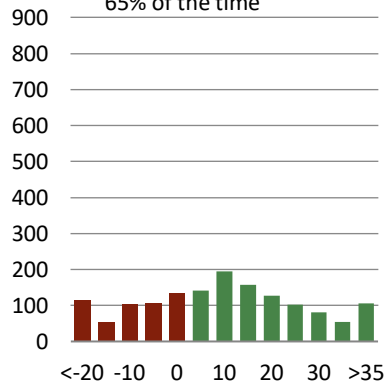
EXCESS RETURNS OF EQUITIES OVER BONDS AND CASH

1900–2023 • Number of Rolling Monthly Periods

1-Yr Periods

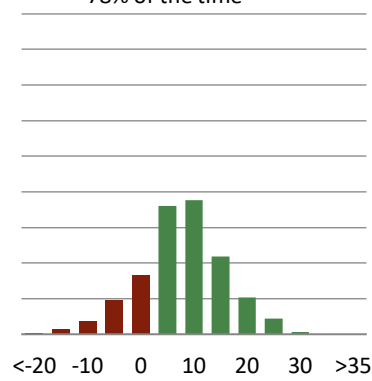
Equities have outperformed bonds

65% of the time



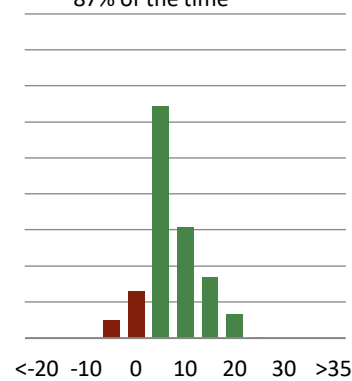
5-Yr Periods

78% of the time



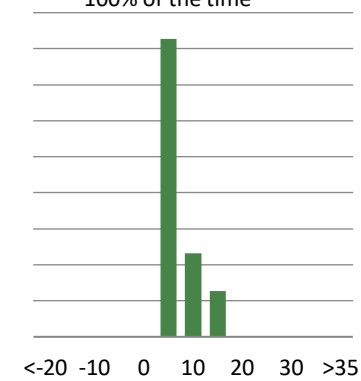
10-Yr Periods

87% of the time



25-Yr Periods

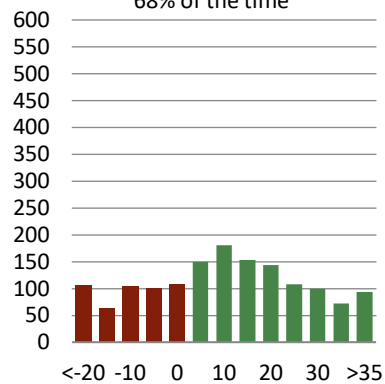
100% of the time



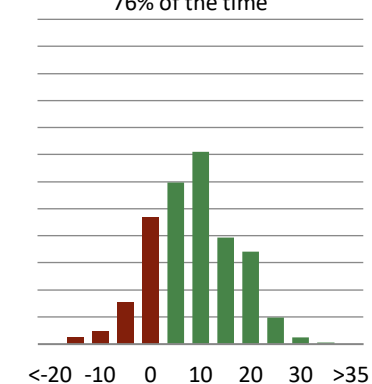
AACR Differentials (ppts)

Equities have outperformed cash

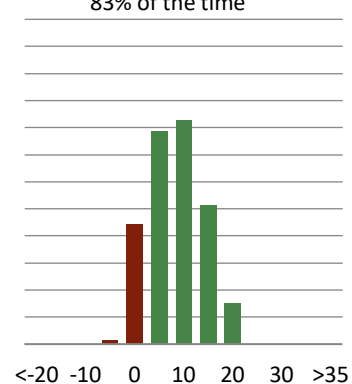
68% of the time



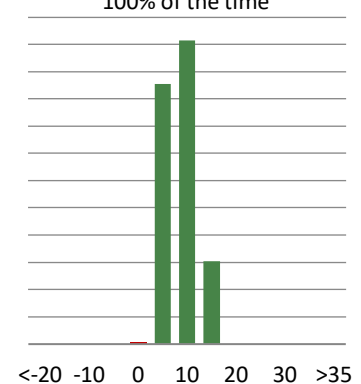
76% of the time



83% of the time



100% of the time

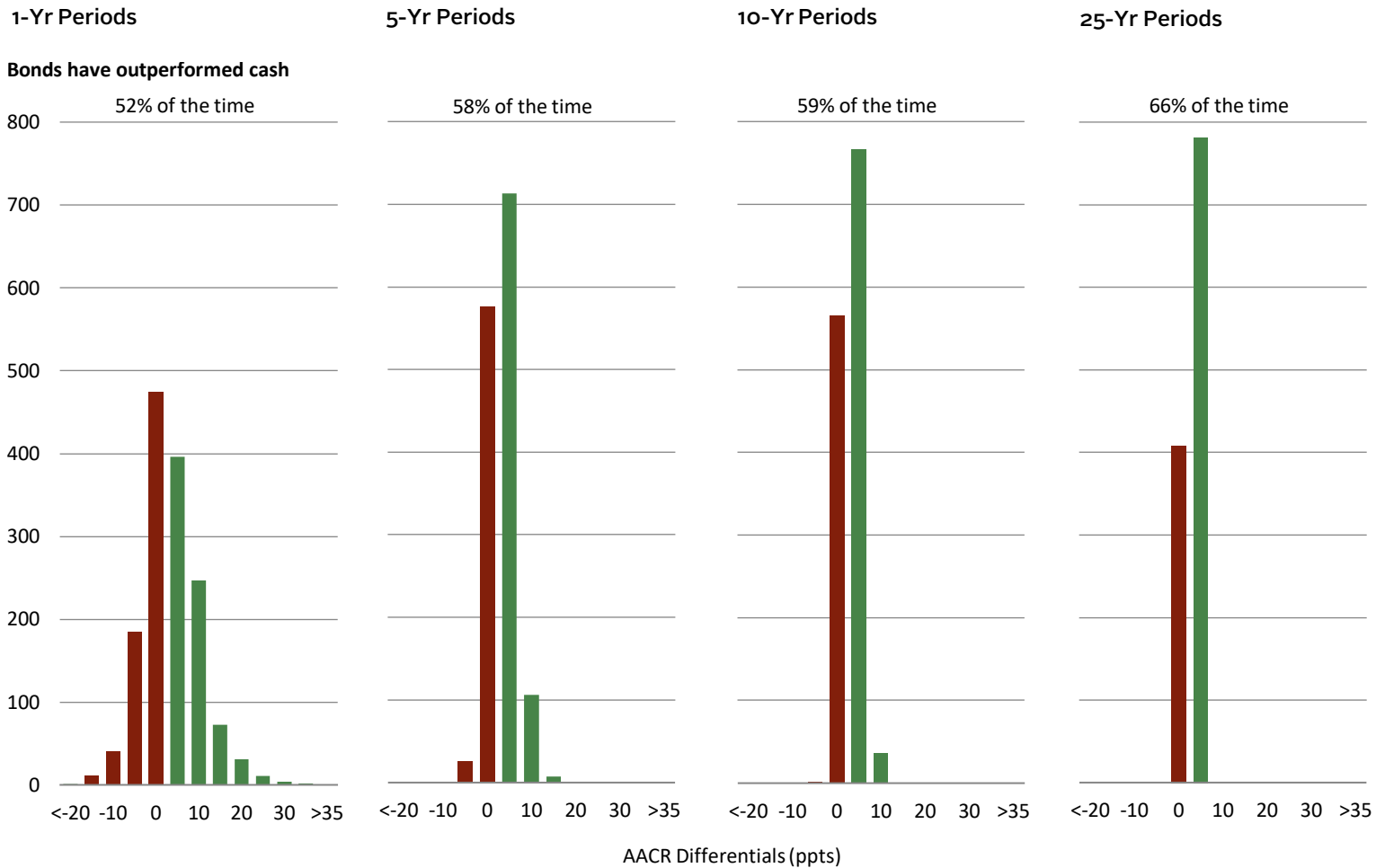


AACR Differentials (ppts)

Bonds' outperformance over cash is inconsistent over the short and long term alike

EXCESS RETURNS OF BONDS OVER CASH

1900–2023 • Number of Rolling Monthly Periods



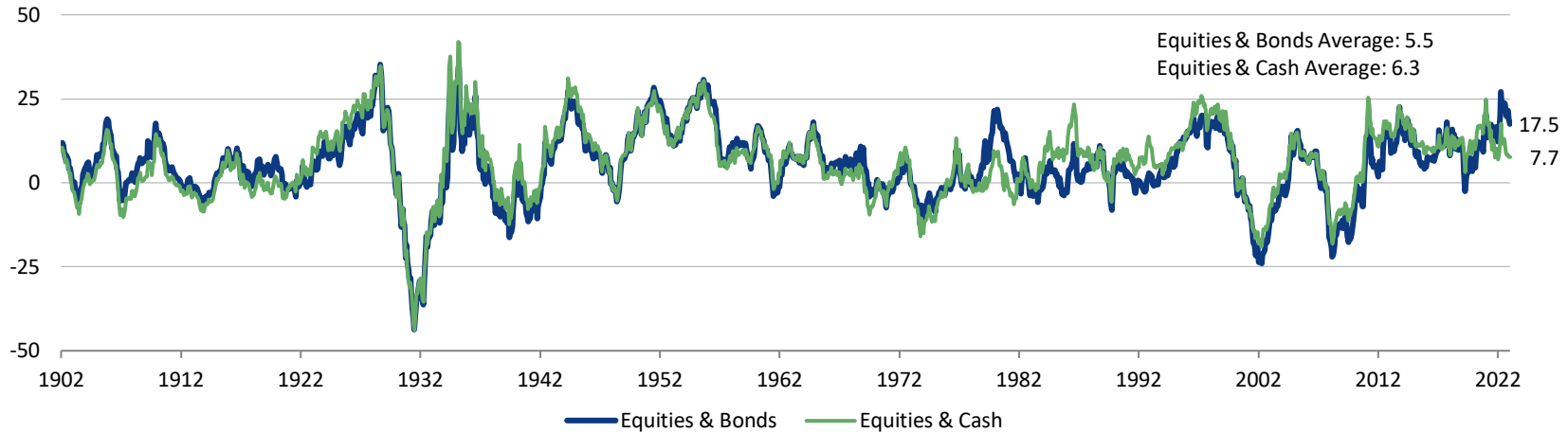
Sources: Global Financial Data, Inc., Intercontinental Exchange, Inc., Standard & Poor's, and Thomson Reuters Datastream.

Notes: Buckets represent ranges of 5 percentage points each with the label denoting the high end of the range, inclusive. For example, the "0" bucket corresponds to the number of rolling monthly periods in which the excess return of bonds over cash was greater than -5 but equal to or less than zero.

Equities outperform bonds and cash by a wide margin; bonds outperform cash to a lesser degree

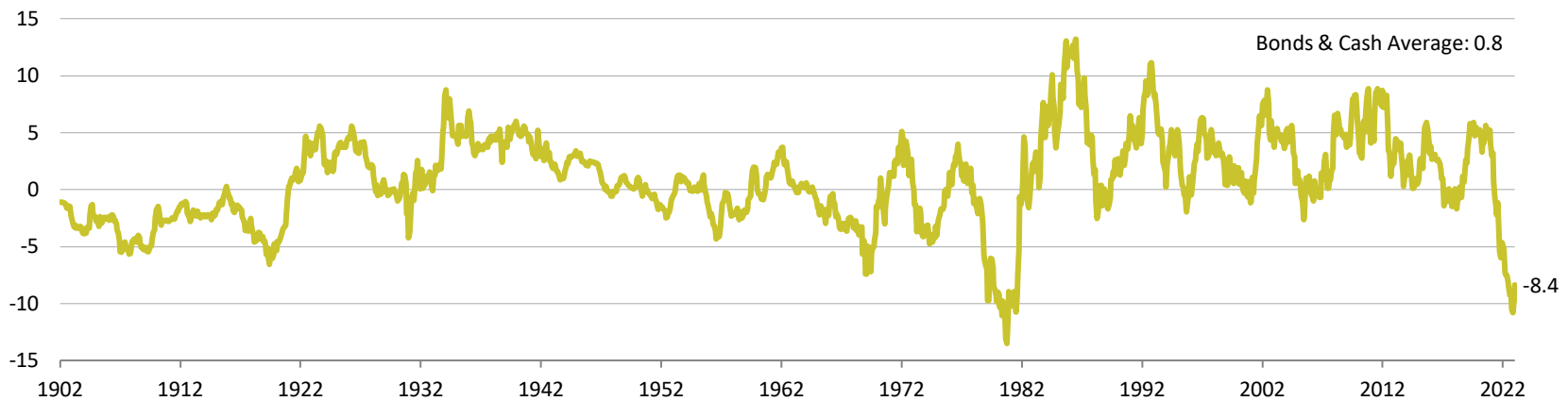
AACR OF ROLLING MONTHLY 3-YR RETURN DIFFERENTIAL BETWEEN EQUITY, BONDS, AND CASH RETURNS

1902–2023 • Percent (%)



AACR OF ROLLING MONTHLY 3-YR RETURN DIFFERENTIAL BETWEEN BONDS AND CASH RETURNS

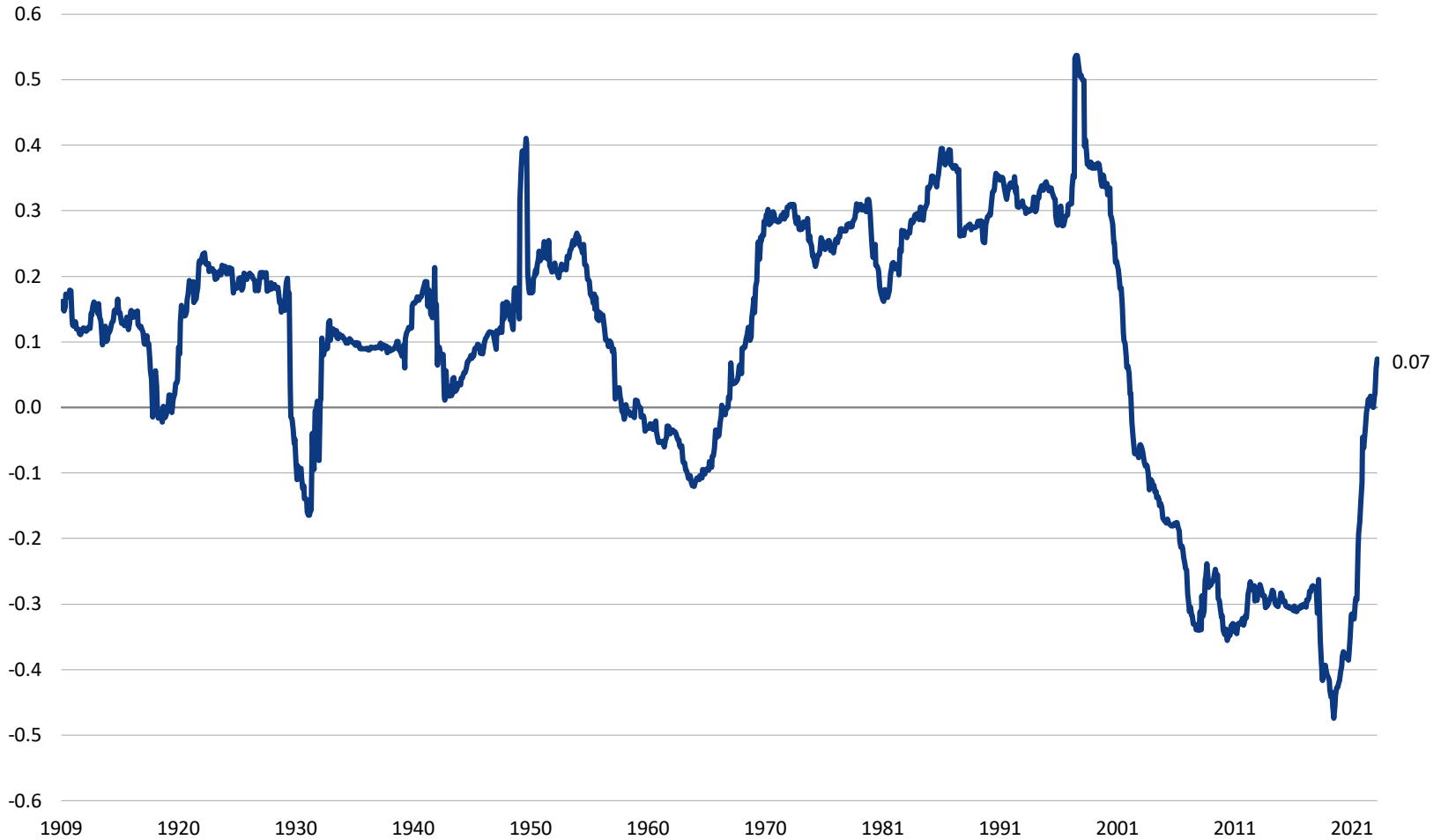
1902–2023 • Percent (%)



Stock-bond correlation has increased rapidly, due in part to sharply higher inflation rates

ROLLING 10-YR CORRELATIONS OF STOCK AND BOND RETURNS

December 31, 1909 – December 31, 2023 • Correlation Coefficient

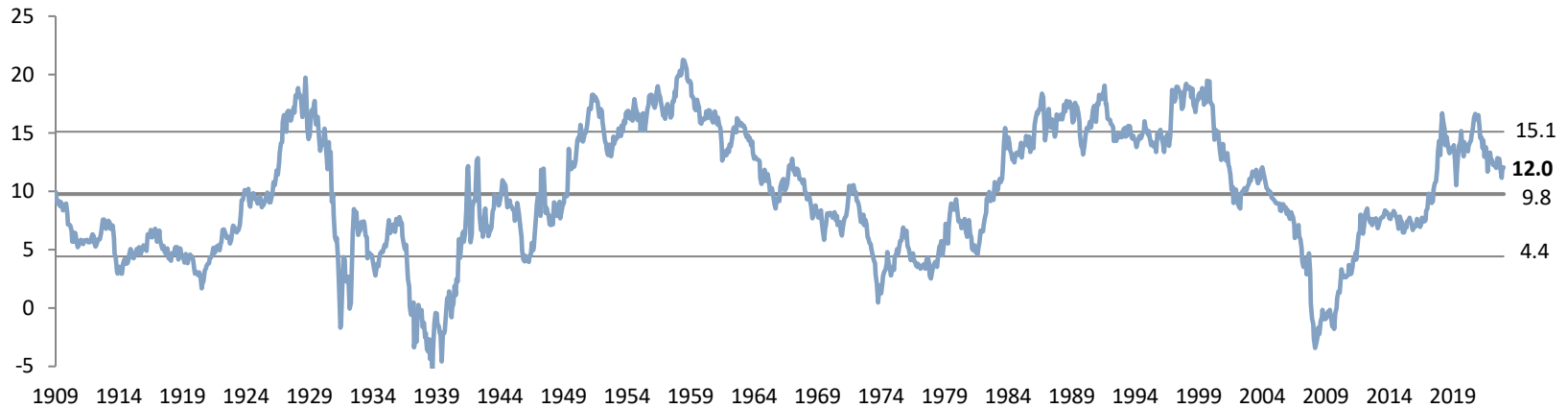


Equity performance tends to cycle about long-term averages

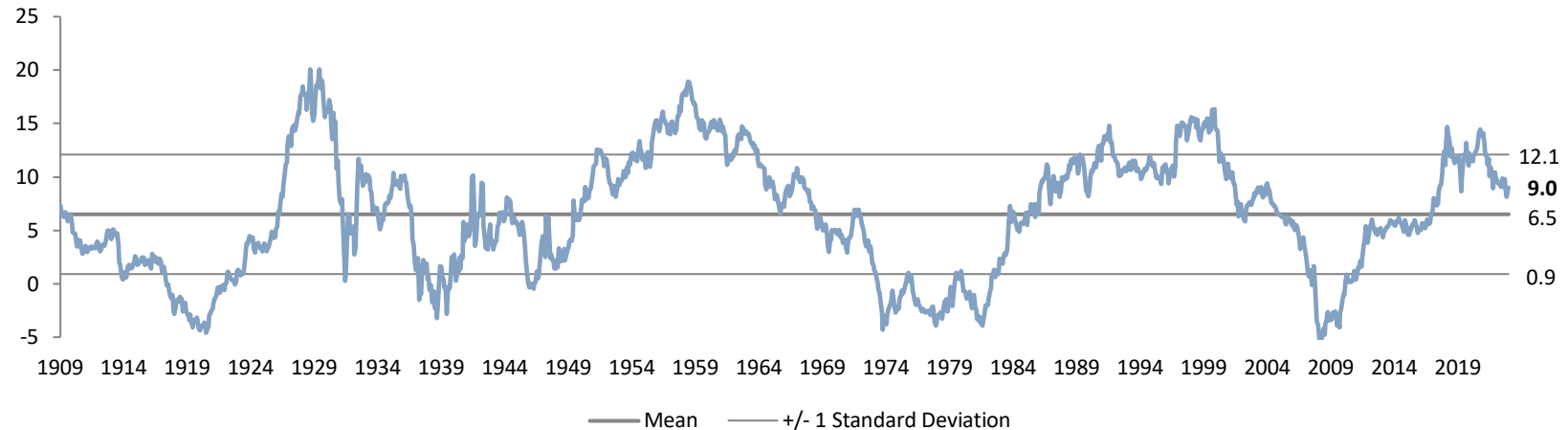
ROLLING MONTHLY EQUITY TOTAL RETURN 10-YR AACR

1909–2023 • Percent (%)

Nominal Returns



Real Returns

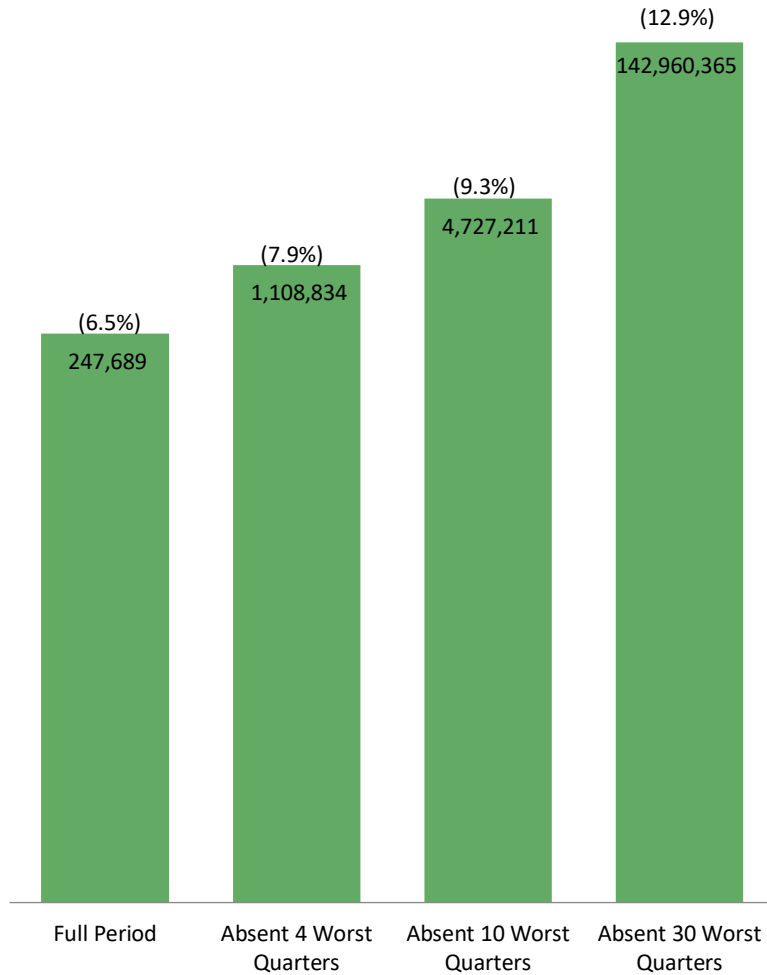


Sources: Global Financial Data, Inc., Standard & Poor's, and Thomson Reuters Datastream.

Attempting to time the market is a risky proposition

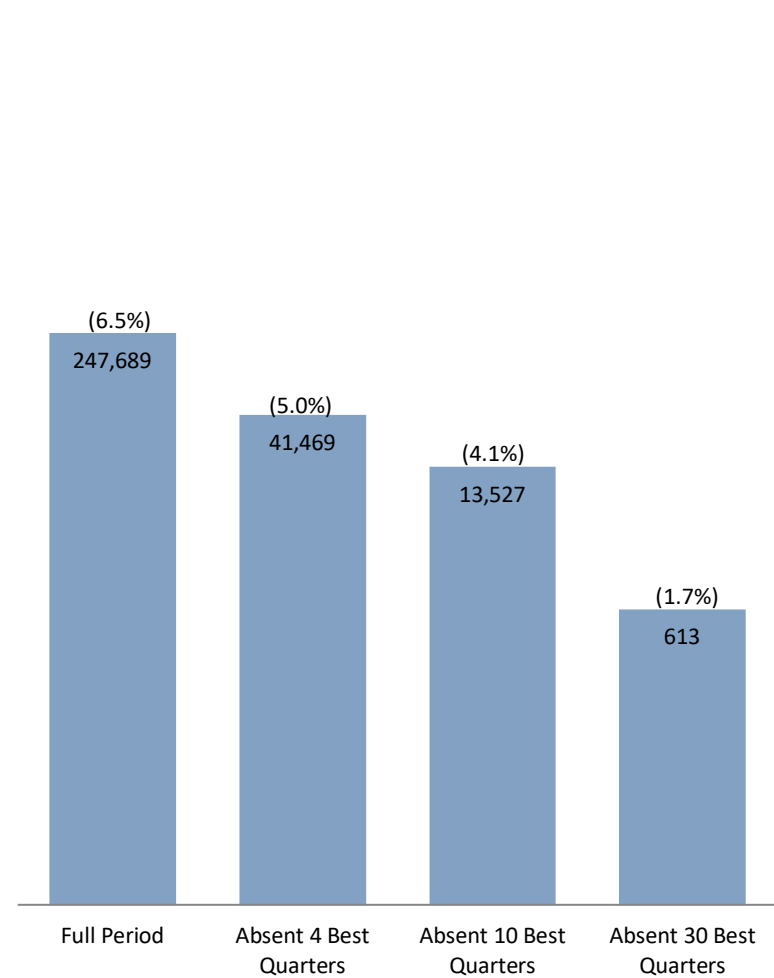
CUMULATIVE REAL WEALTH ABSENT WORST QUARTERS

1900–2023 • January 1, 1900 = 1 • AACR (%) in Parentheses



CUMULATIVE REAL WEALTH ABSENT BEST QUARTERS

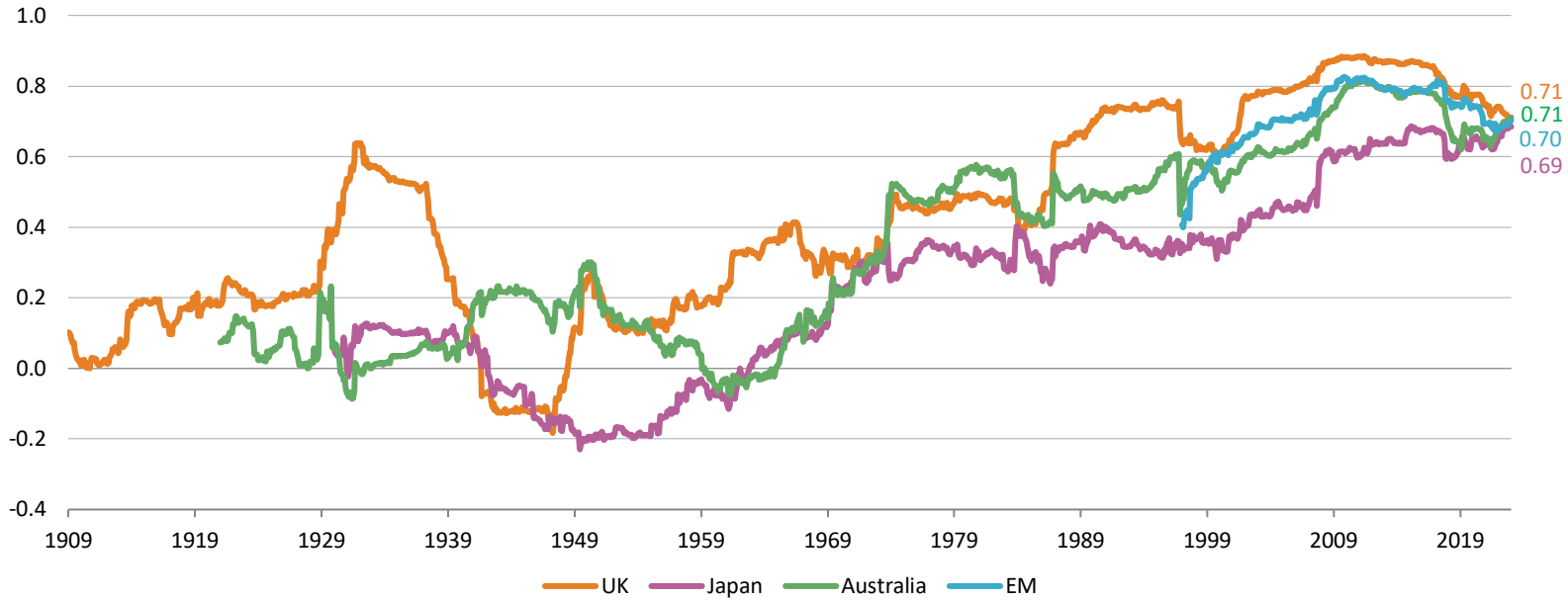
1900–2023 • January 1, 1900 = 1 • AACR (%) in Parentheses



US equity market correlations with other regions increased in recent decades

ROLLING 10-YR CORRELATIONS: US EQUITY VS GLOBAL PEERS

December 31, 1909 – December 31, 2023 • Correlation Coefficient



CORRELATION MATRIX

January 31, 1900 – December 31, 1969

	US	UK	Japan	Australia
US	1.00			
UK	0.20	1.00		
Japan	-0.02	0.01	1.00	
Australia	0.08	0.24	0.02	1.00

CORRELATION MATRIX

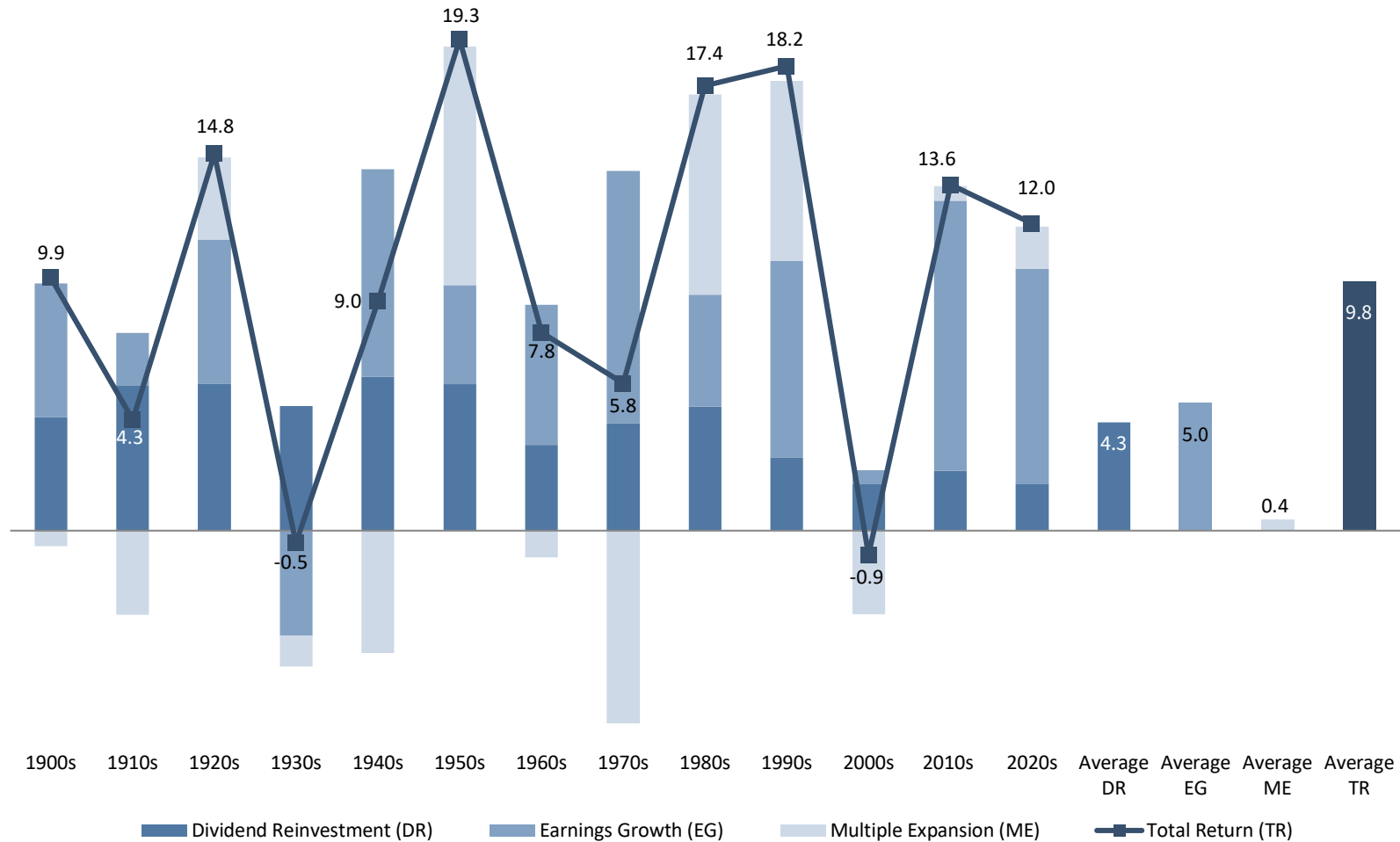
January 31, 1970 – December 31, 2023

	US	UK	Japan	Australia	EM
US	1.00				
UK	0.62	1.00			
Japan	0.46	0.40	1.00		
Australia	0.57	0.54	0.36	1.00	
EM	0.66	0.63	0.50	0.59	1.00

Earnings growth and dividend reinvestment drive equity market returns in the long run

BREAKDOWN OF TOTAL RETURN AACR OVER TIME FOR US MARKET

1970–2023 • Percent (%)

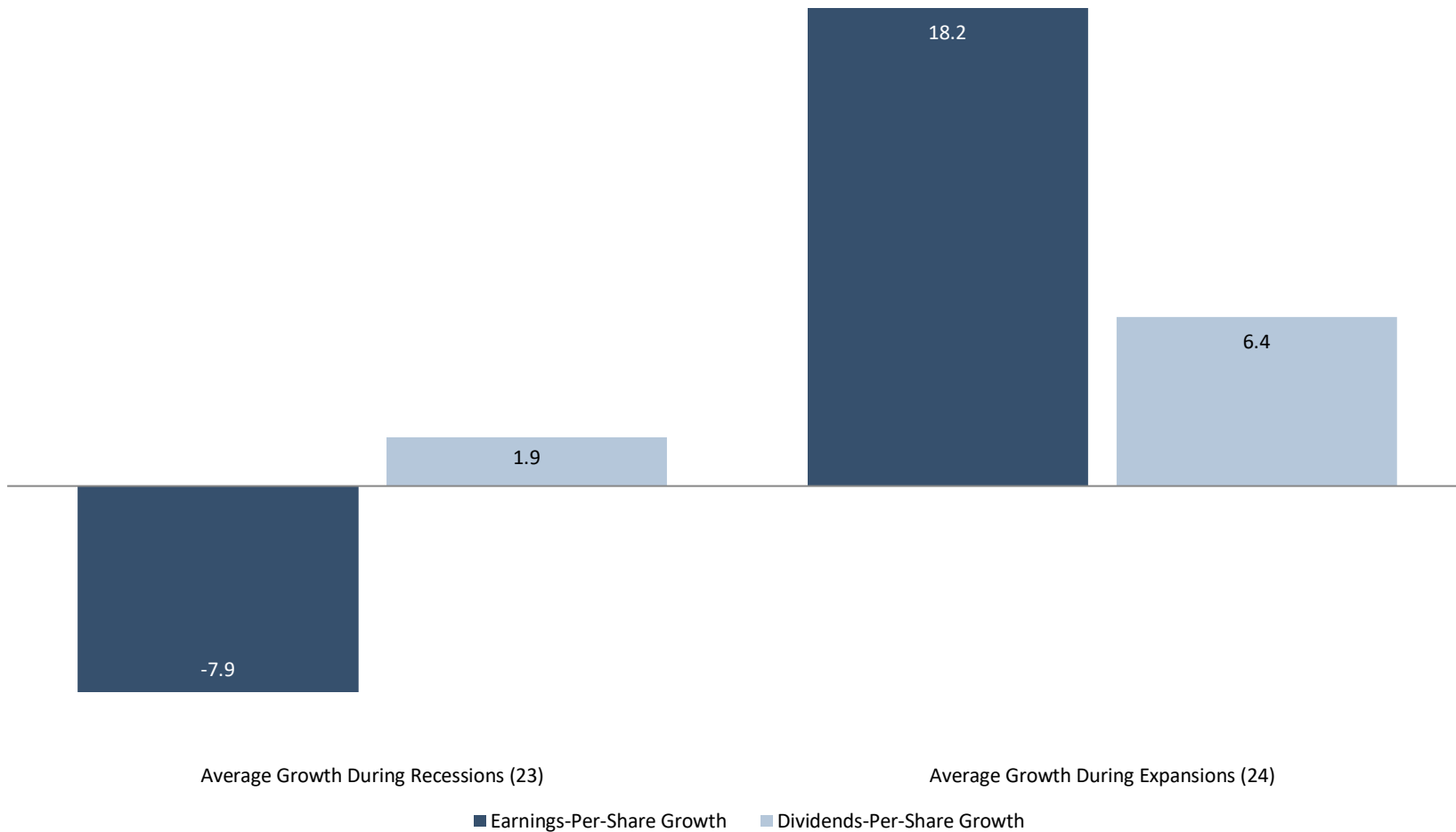


Sources: Global Financial Data, Inc., Standard & Poor's, and The Wall Street Journal.
 Note: Figures will not sum exactly to total return calculation because of combining cross terms.

US companies have managed to grow dividend payouts even during recessions, on average

S&P 500 EARNINGS PER SHARE AND DIVIDENDS PER SHARE YEAR-OVER-YEAR CHANGE

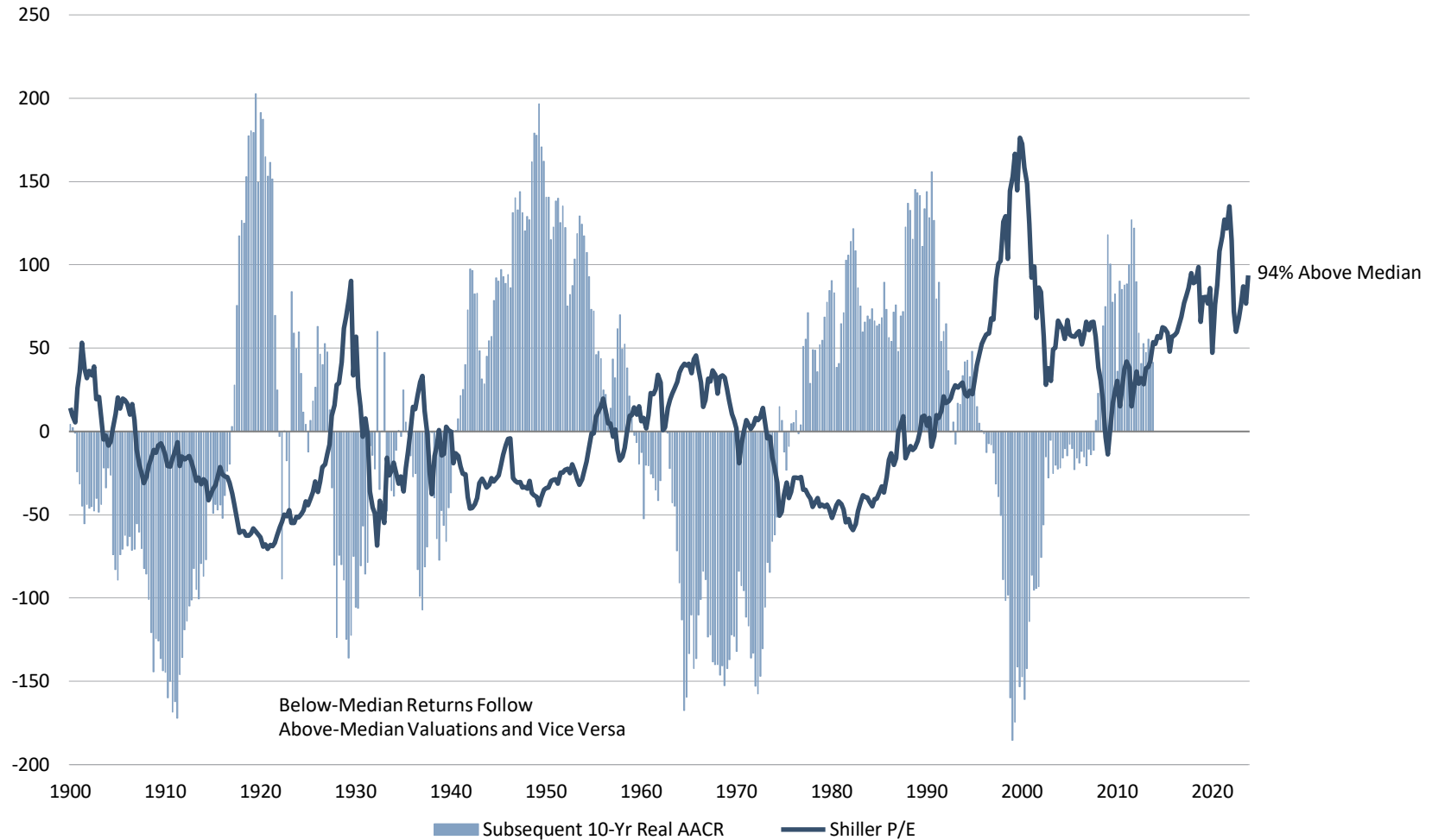
1900–2023 • Percent (%)



Elevated starting valuations portend weak subsequent returns and vice versa

SHILLER P/E RATIOS AND SUBSEQUENT REAL 10-YR AACRS

First Quarter 1900 – Fourth Quarter 2023 • Shown as Percent Above/Below Respective Long-Term Median (%)

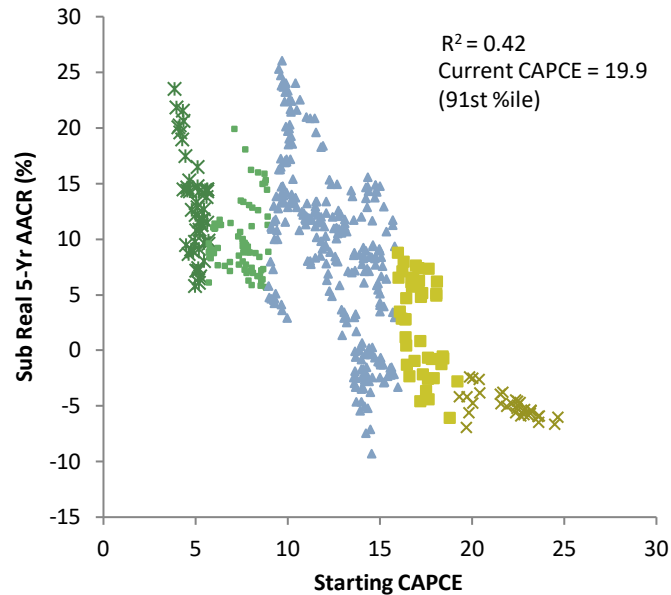


History implies current valuations may challenge real US equity returns over the next decade

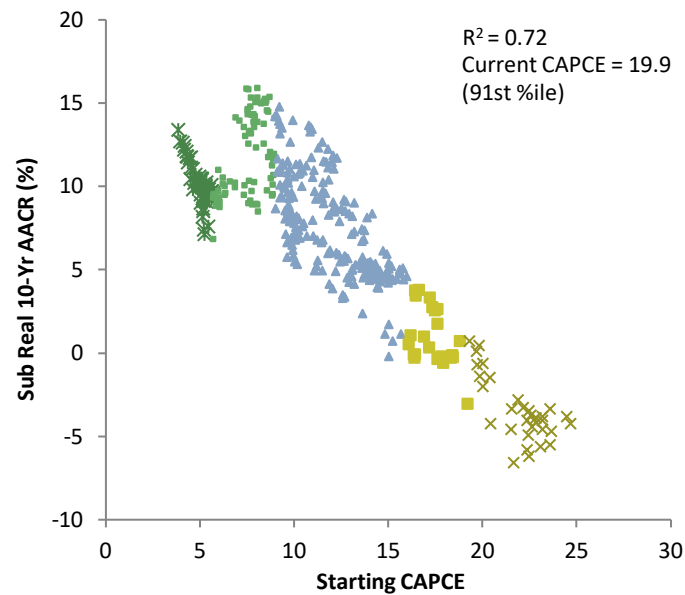
RELATIONSHIP BETWEEN CYCLICALLY ADJUSTED PRICE-TO-CASH EARNINGS RATIOS AND SUBSEQUENT REAL AACRS

December 31, 1979 – December 31, 2023

Initial Valuation and Subsequent 5-Yr AACR



Initial Valuation and Subsequent 10-Yr AACR

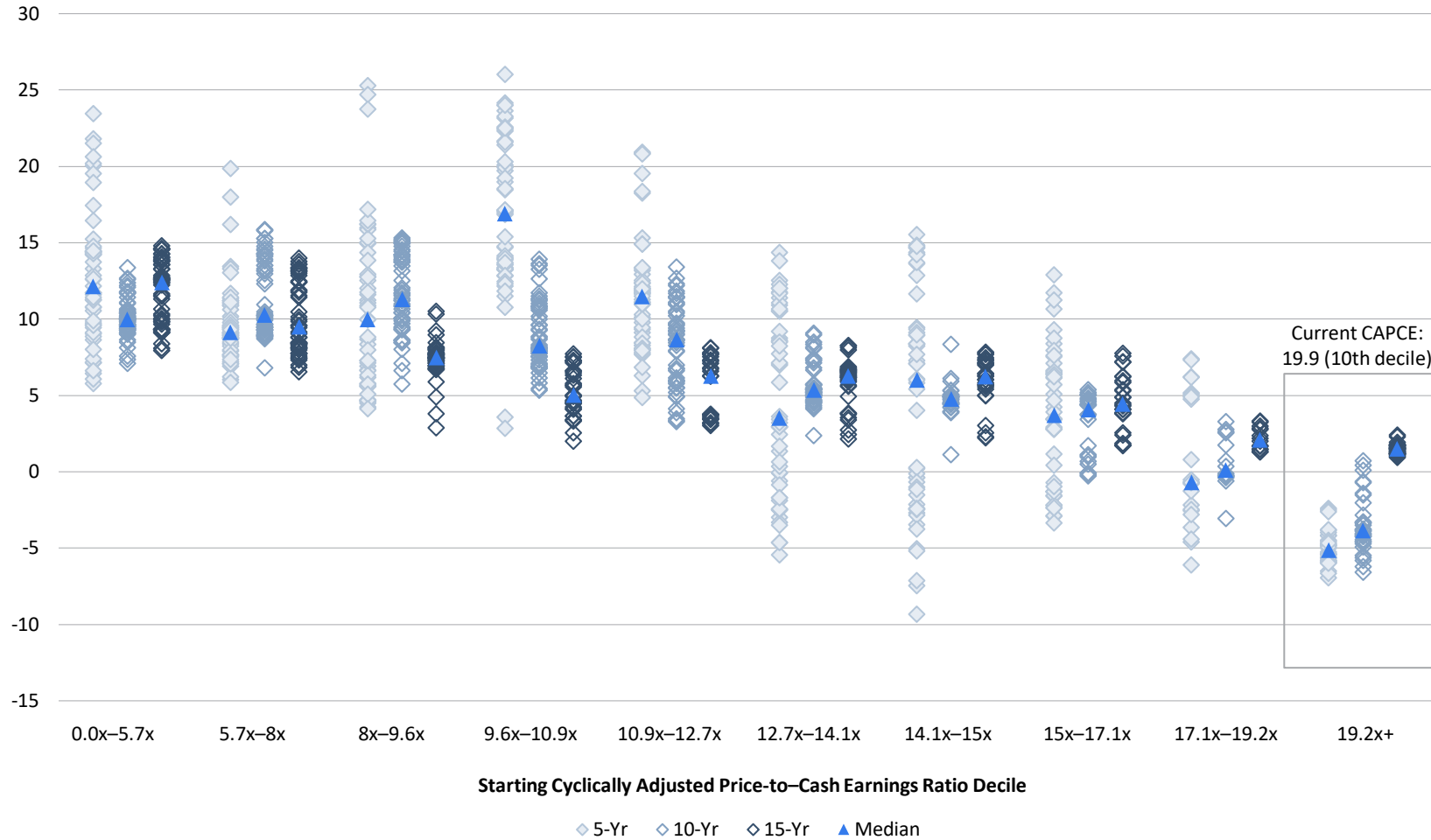


CAPCE Percentile	Starting Period Cyclically Adjusted Price-to-Cash Earnings Ratio			Subsequent Real 5-Yr AACR (%)			Starting Period Cyclically Adjusted Price-to-Cash Earnings Ratio			Subsequent Real 10-Yr AACR (%)		
	Median	High	Low	Median	High	Low	Median	High	Low	Median	High	Low
	0-10	5.1	5.7	3.9	12.2	23.5	5.8	5.1	5.7	3.9	10.0	13.4
10-25	7.7	9.0	5.7	9.1	19.9	5.6	7.7	9.0	5.7	11.6	15.9	6.8
25-75	12.7	16.0	9.0	10.0	26.0	-9.3	11.9	16.0	9.0	7.0	14.8	-0.2
75-90	17.1	19.2	16.0	2.8	8.8	-6.1	17.3	19.2	16.1	0.5	3.8	-3.0
90-100	22.4	24.7	19.3	-5.1	-2.4	-7.0	22.4	24.7	19.3	-3.8	0.7	-6.6
Overall	11.7	24.7	3.9	8.8	26.0	-9.3	10.5	24.7	3.9	8.5	15.9	-6.6

Starting normalized valuations are more meaningful as holding periods increase

DISTRIBUTION OF SUBSEQUENT REAL RETURNS FROM STARTING NORMALIZED VALUATION DECILES

December 31, 1979 – December 31, 2023 • Subsequent Real Return AACR (%)

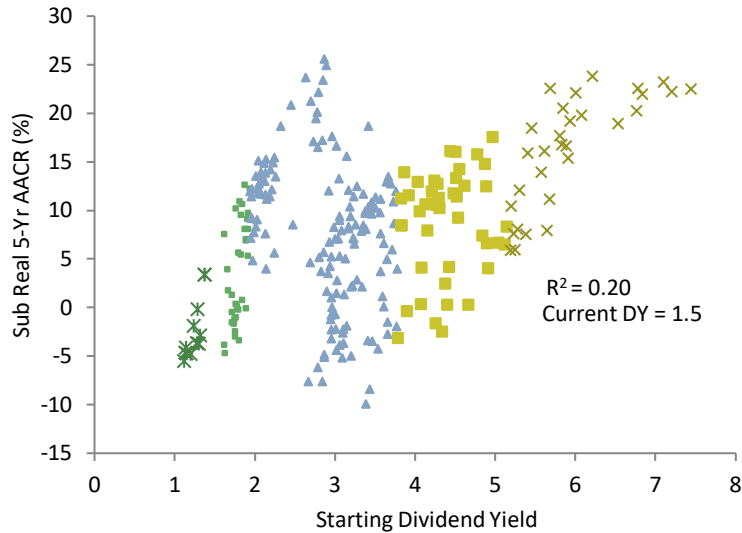


Dividend yield is a key driver of return, but the relationship with subsequent returns is weak

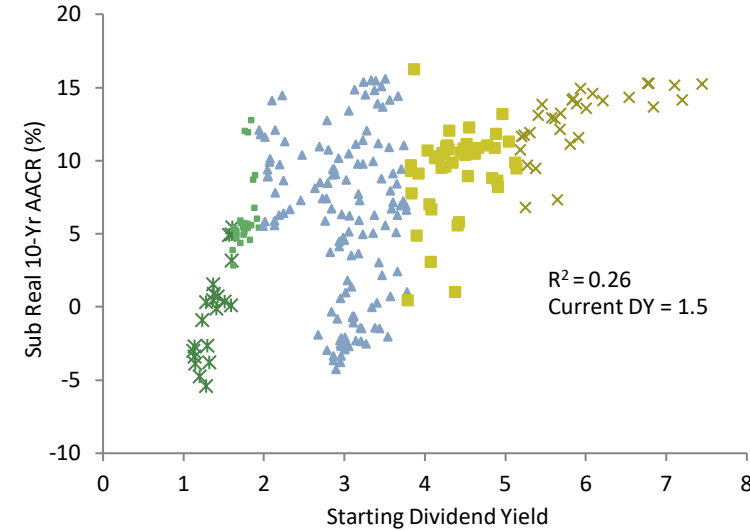
RELATIONSHIP BETWEEN DIVIDEND YIELDS AND SUBSEQUENT REAL AACRS

Fourth Quarter 1950 – Fourth Quarter 2023

Dividend Yield and Subsequent 5-YR AACR



Dividend Yield and Subsequent 10-YR AACR

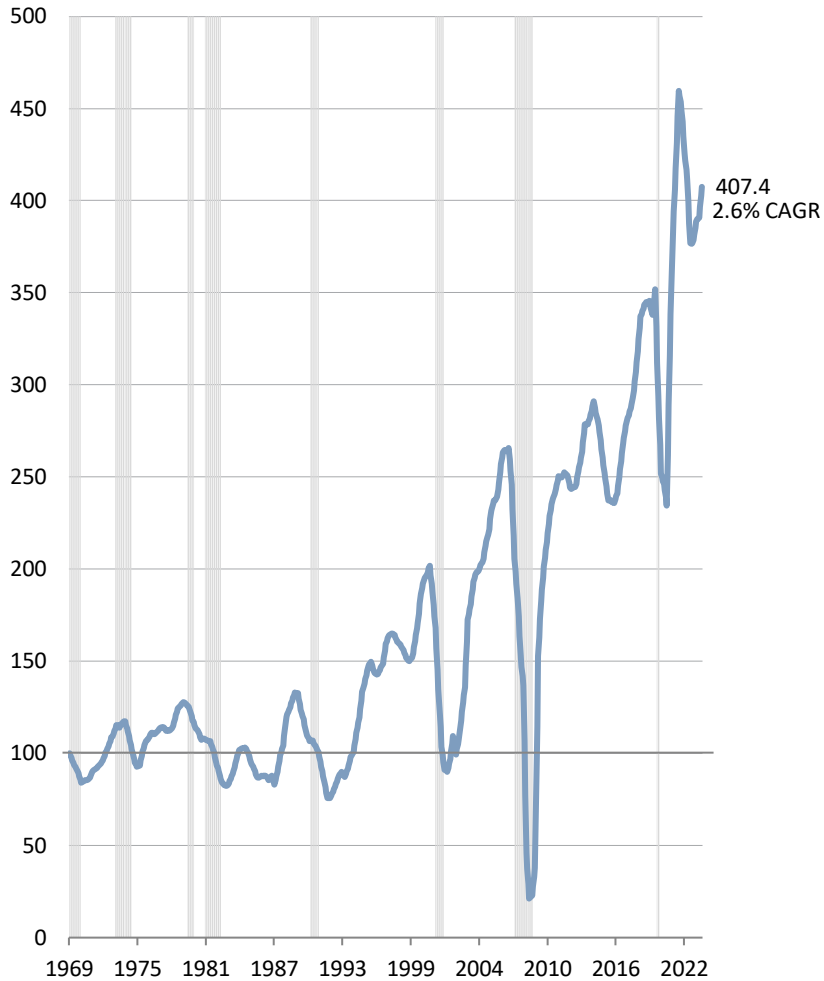


Dividend Yield Percentile	Starting Period Dividend Yield (%)			Subsequent Real 5-Yr AACR (%)			Starting Period Dividend Yield (%)			Subsequent Real 10-Yr AACR (%)		
	Median	High	Low	Median	High	Low	Median	High	Low	Median	High	Low
0–10	1.3	1.4	1.1	-3.7	3.4	-5.5	1.4	1.6	1.1	0.1	5.4	-5.4
10–25	1.8	1.9	1.6	2.8	12.6	-4.7	1.8	1.9	1.6	5.5	12.7	2.8
25–75	3.0	3.8	1.9	8.5	25.6	-9.9	3.1	3.8	1.9	6.7	15.6	-4.3
75–90	4.4	5.1	3.8	10.4	17.5	-3.1	4.4	5.1	3.8	10.2	16.3	0.5
90–100	5.8	7.4	5.2	17.2	23.8	5.9	5.8	7.4	5.2	13.4	15.3	6.8
Overall	3.1	7.4	1.1	8.1	25.6	-9.9	3.2	7.4	1.1	7.4	16.3	-5.4

Corporate earnings trend higher over the long term but draw down sharply during recessions

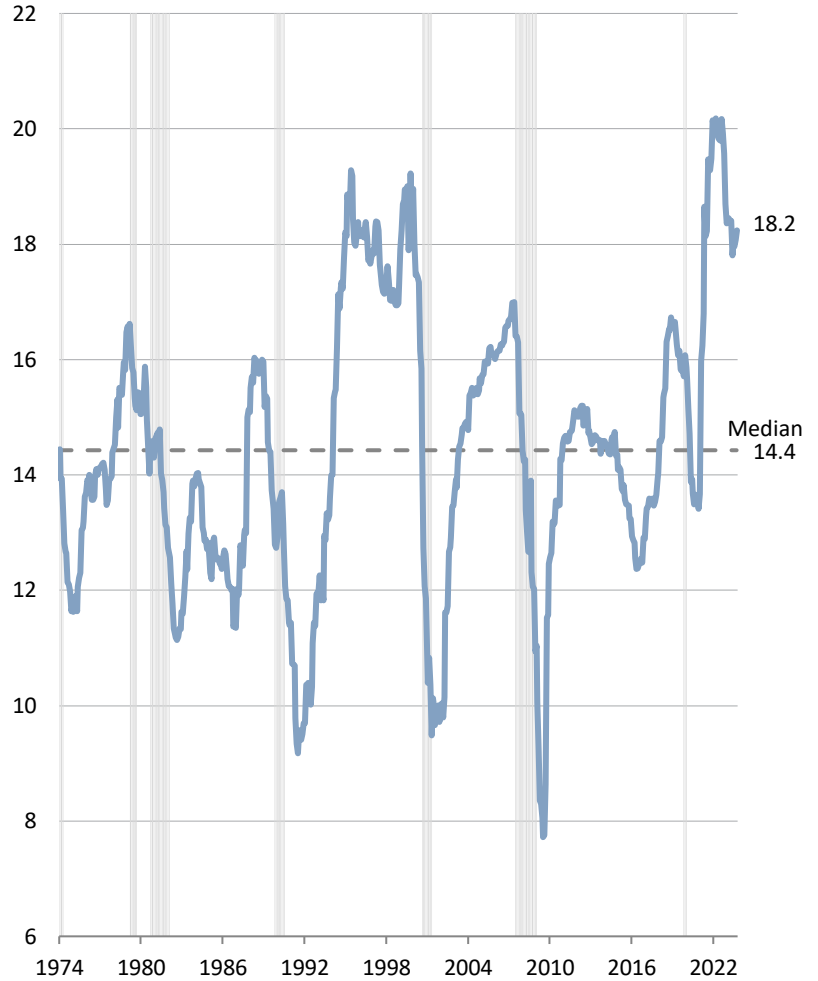
REAL EARNINGS PER SHARE OVER TIME

December 31, 1969 – December 31, 2023 • December 31, 1969 = 100



RETURN ON EQUITY

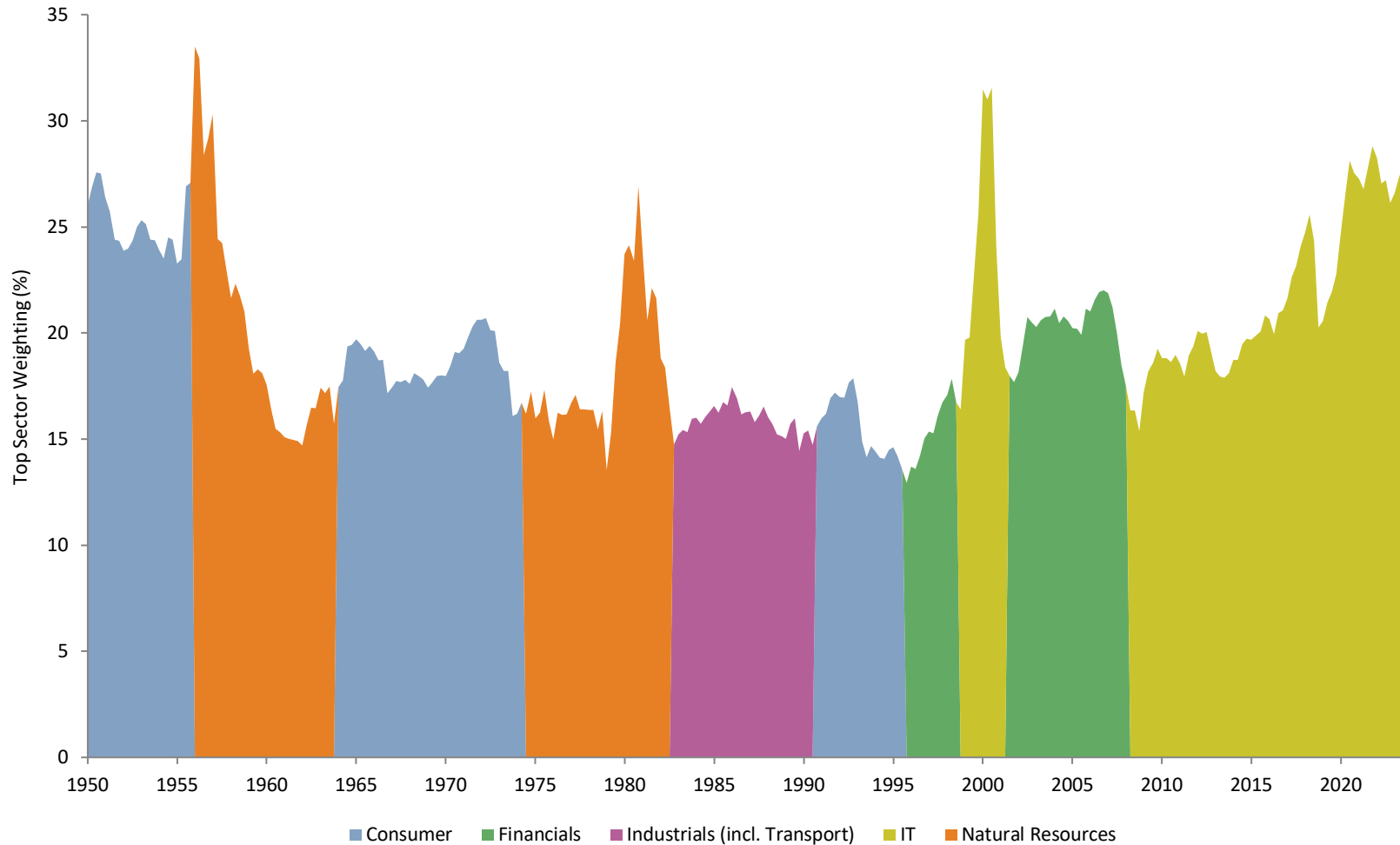
December 31, 1974 – December 31, 2023 • Percent (%)



The largest sectors typically represent around 20% of the US equity market, which has become increasingly concentrated in IT

S&P 500 INDEX LARGEST SECTORS BY MARKET CAPITALIZATION

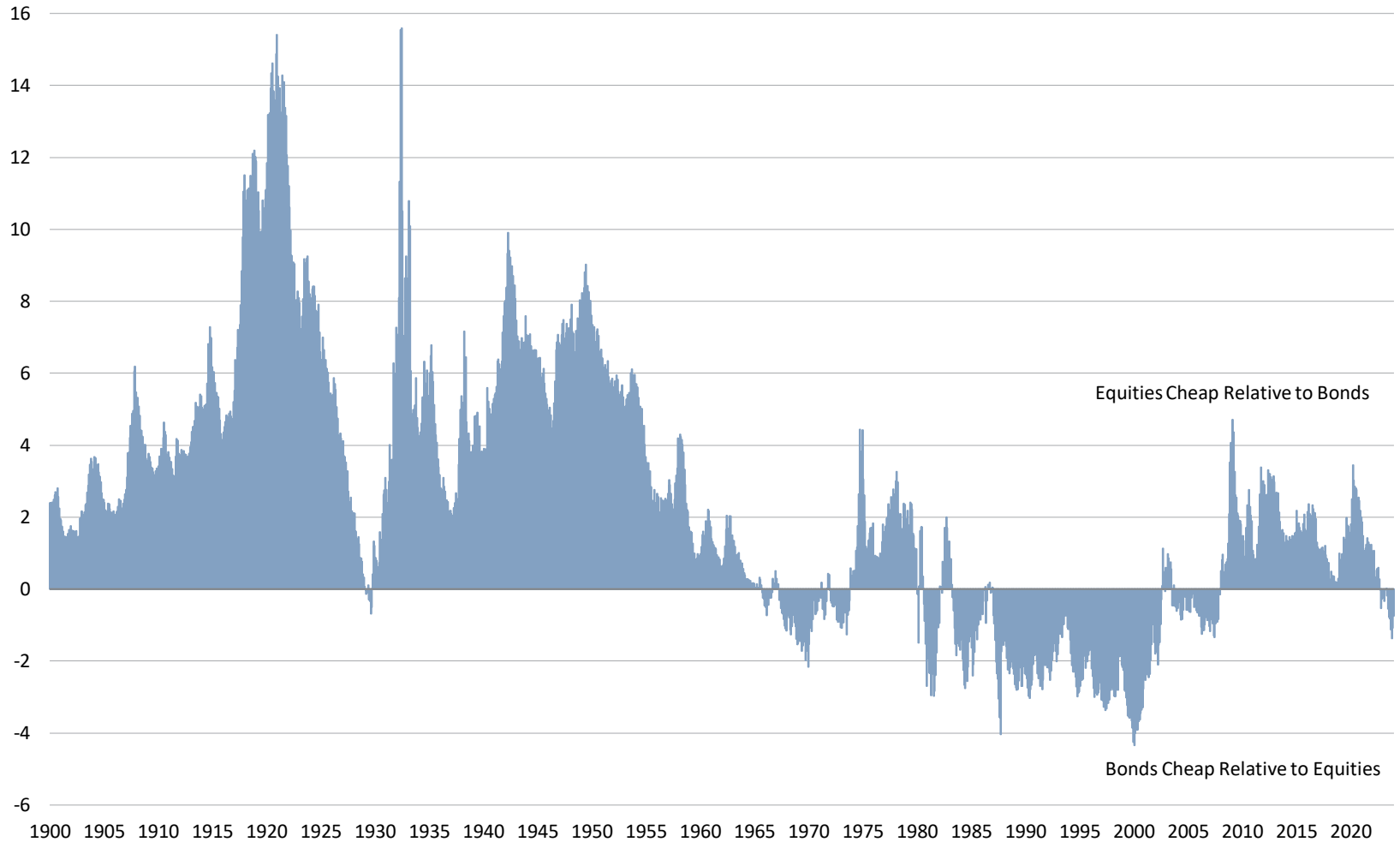
First Quarter 1950 – Fourth Quarter 2023 • Index Weight (%)



The relationship between equity and bond valuations has shifted over time

SHILLER EARNINGS YIELDS VERSUS 10-YR BOND YIELDS

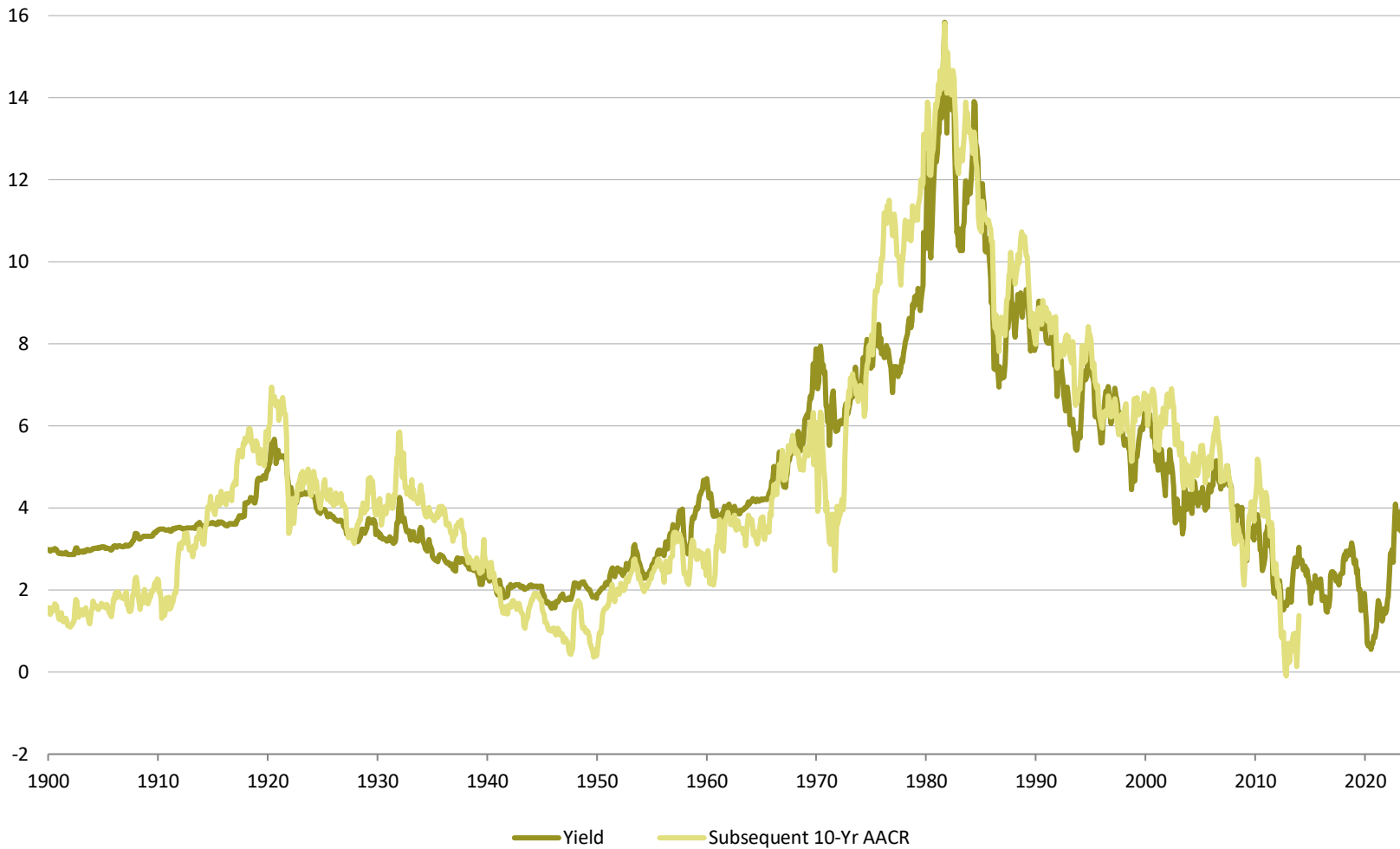
1900–2023



Starting bond yields are a reasonable barometer for prospective nominal returns

RELATIONSHIP BETWEEN TREASURY BOND YIELDS AND SUBSEQUENT 10-YR AACRS

1900–2023 • Percent (%)

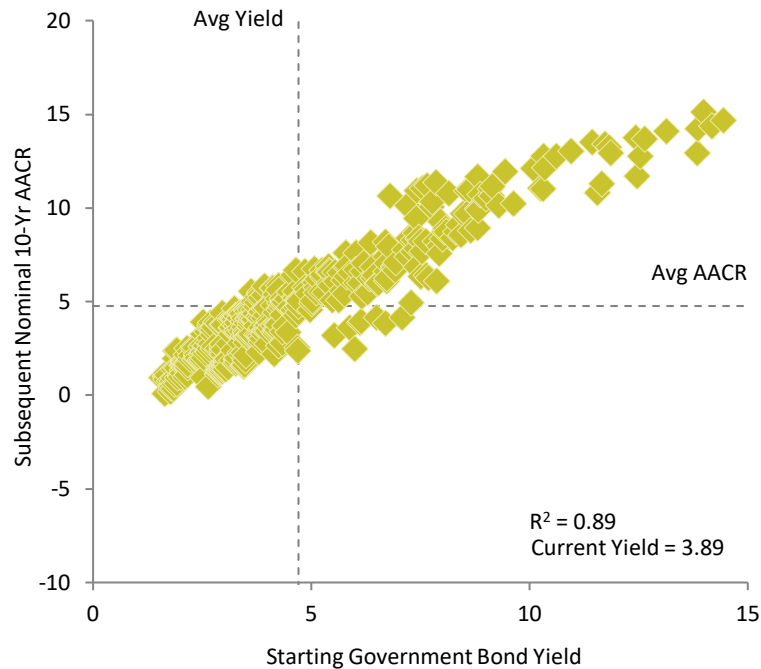


The starting yield-subsequent return relationship is weaker when accounting for inflation

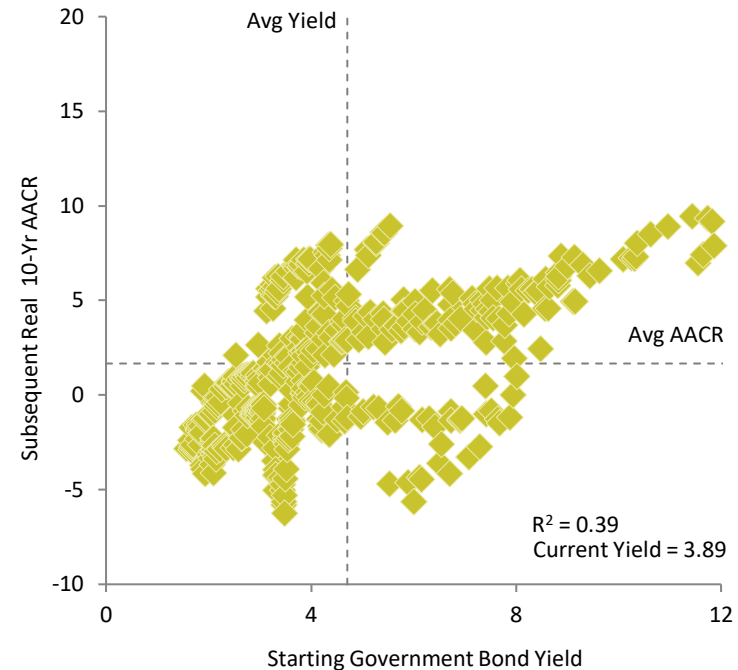
RELATIONSHIP BETWEEN GOVERNMENT BOND YIELDS AND SUBSEQUENT 10-YR AACRS

1900–2023 • Percent (%)

Nominal Returns



Real Returns



Yield	Starting Period			Subsequent Nominal			
	Government Bond Yields			10-Yr AACR (%)			
Quartiles	Mean	High	Low	Mean	High	Low	Std Dev
First	2.37	2.97	1.57	1.92	4.38	0.07	0.94
Second	3.41	3.84	2.98	3.27	5.55	1.38	1.15
Third	4.60	5.89	3.84	4.81	7.60	2.22	1.21
Fourth	8.46	15.84	5.90	9.08	15.82	2.48	2.83
Overall	4.71	15.84	1.57	4.77	15.82	0.07	3.19

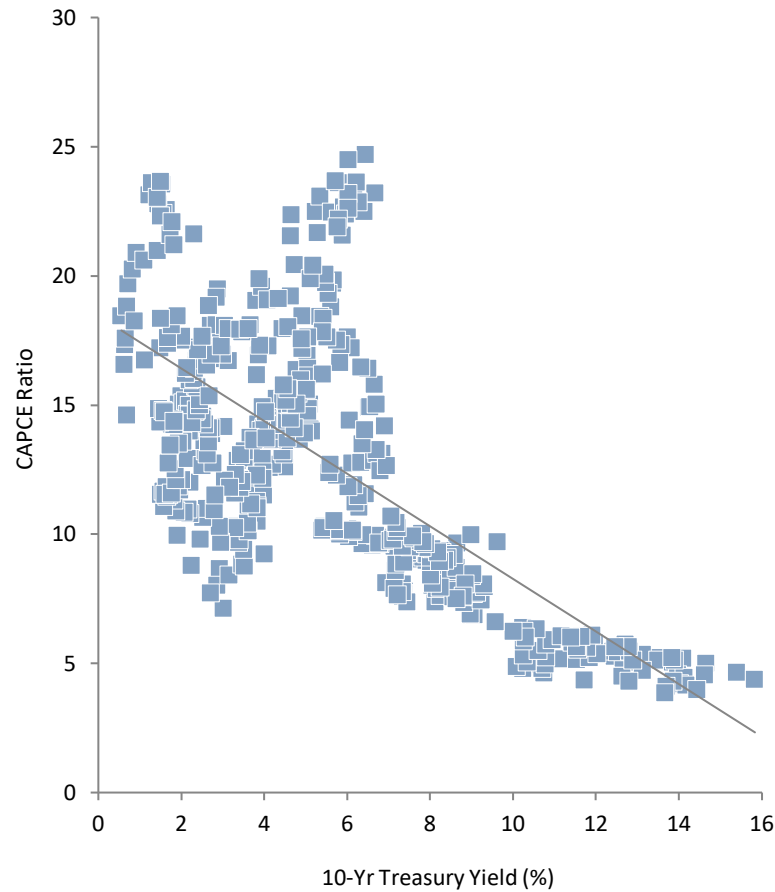
Yield	Starting Period			Subsequent Real			
	Government Bond Yields			10-Yr AACR (%)			
Quartiles	Mean	High	Low	Mean	High	Low	Std Dev
First	2.37	2.97	1.57	-1.07	2.65	-4.14	1.56
Second	3.41	3.84	2.98	0.69	7.14	-6.26	3.52
Third	4.60	5.89	3.84	2.79	8.93	-4.70	3.13
Fourth	8.46	15.84	5.90	4.22	11.43	-5.65	3.75
Overall	4.71	15.84	1.57	1.66	11.43	-6.26	3.70

Low (high) US Treasury yields are generally associated with higher (lower) equity valuations

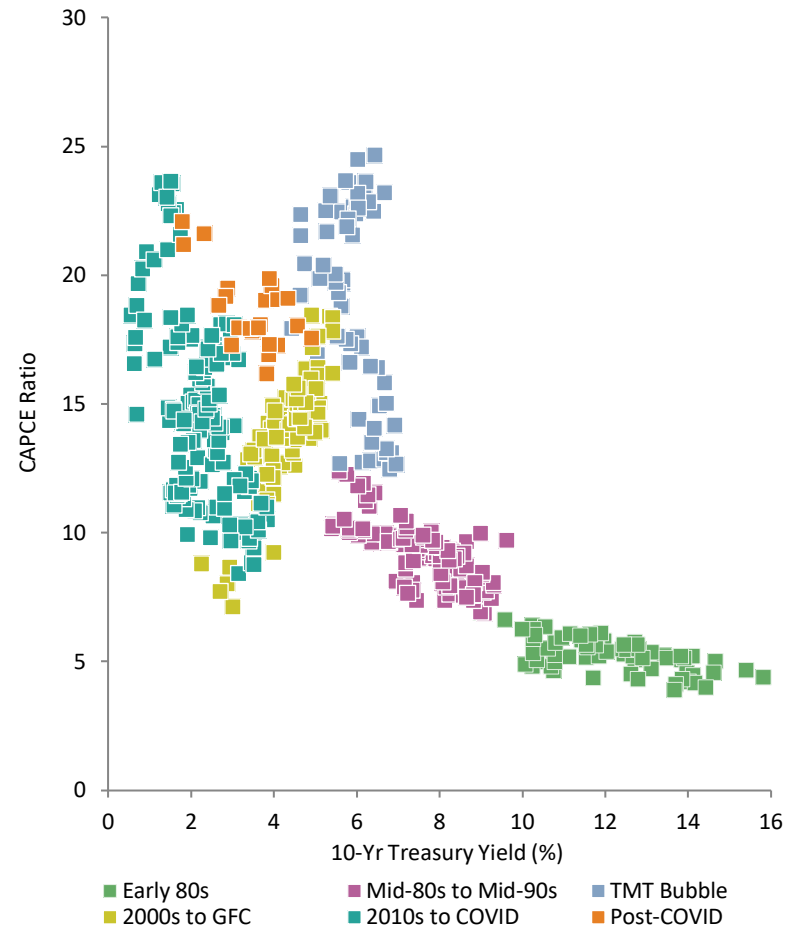
RELATIONSHIP BETWEEN EQUITY VALUATIONS AND 10-YR TREASURY YIELDS

December 31, 1979 – December 31, 2023

Full Period



By Market Environment

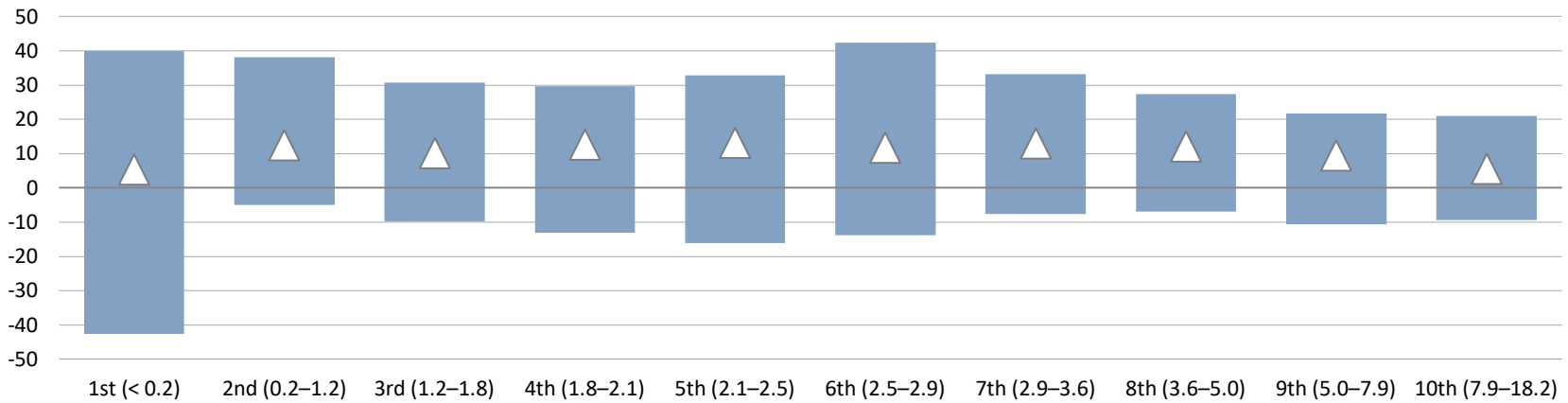


Median nominal equity returns are weakest at deflationary and inflationary extremes; high yields insulate nominal bond returns amid periods of high inflation

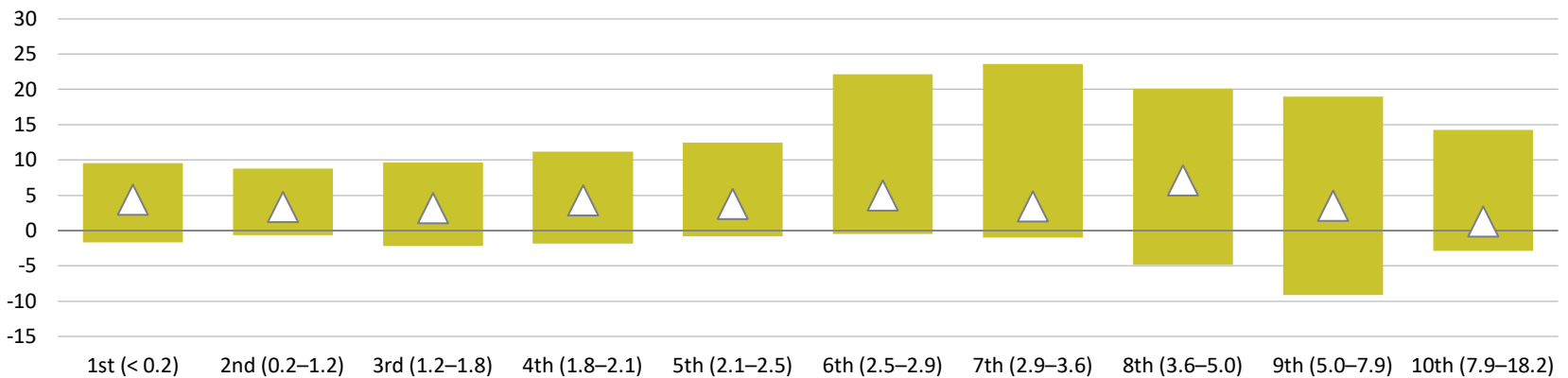
ROLLING 3-YR NOMINAL STOCK AND BOND RETURNS BY INFLATION DECILE

1902–2023 • AACR (%)

Nominal Stock Returns



Nominal Bond Returns



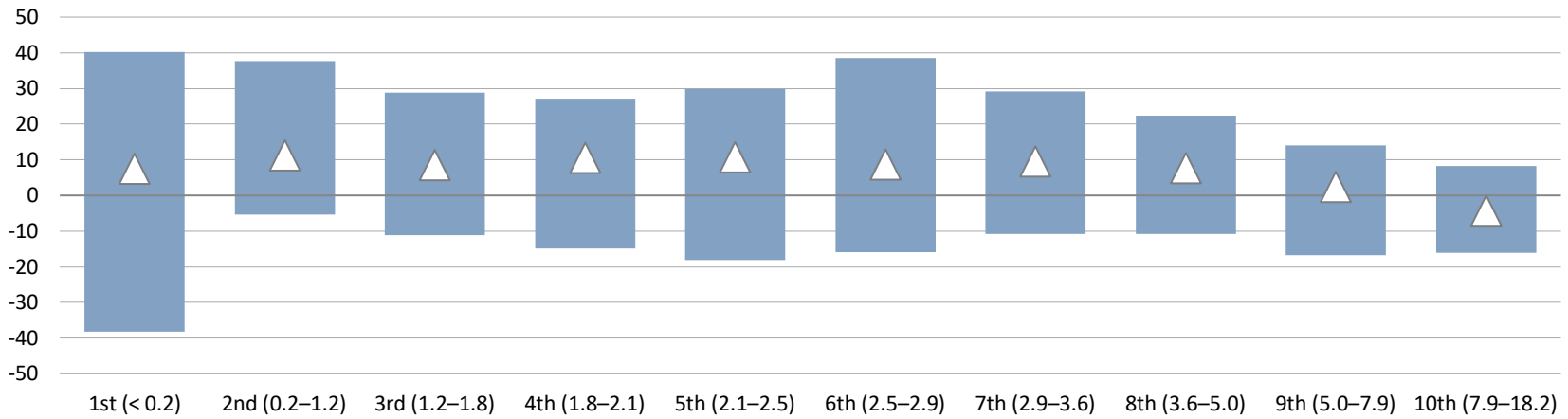
△ Median

Inflation significantly erodes bond returns in real terms

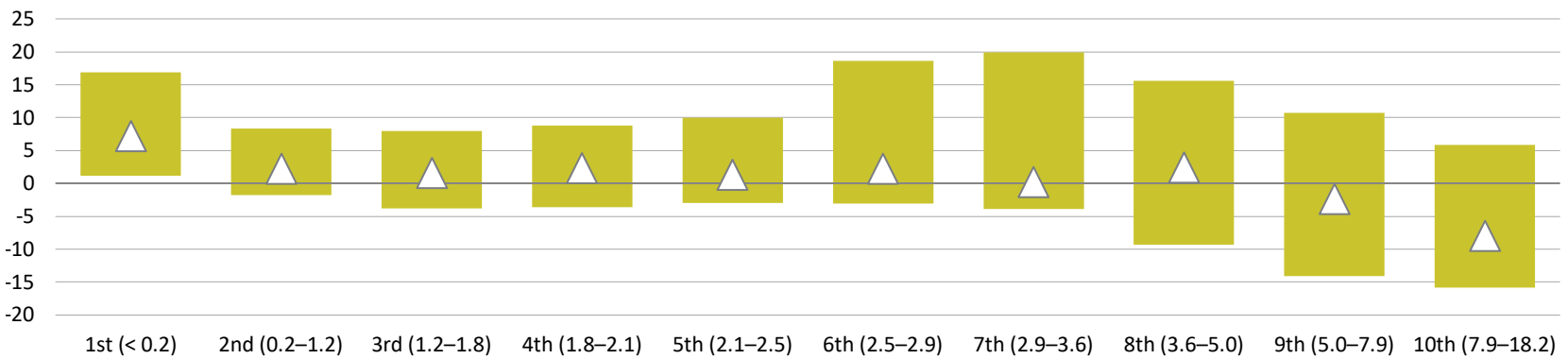
ROLLING 3-YR REAL STOCK AND BOND RETURNS BY INFLATION DECILE

1902–2023 • AACR (%)

Real Stock Returns



Real Bond Returns

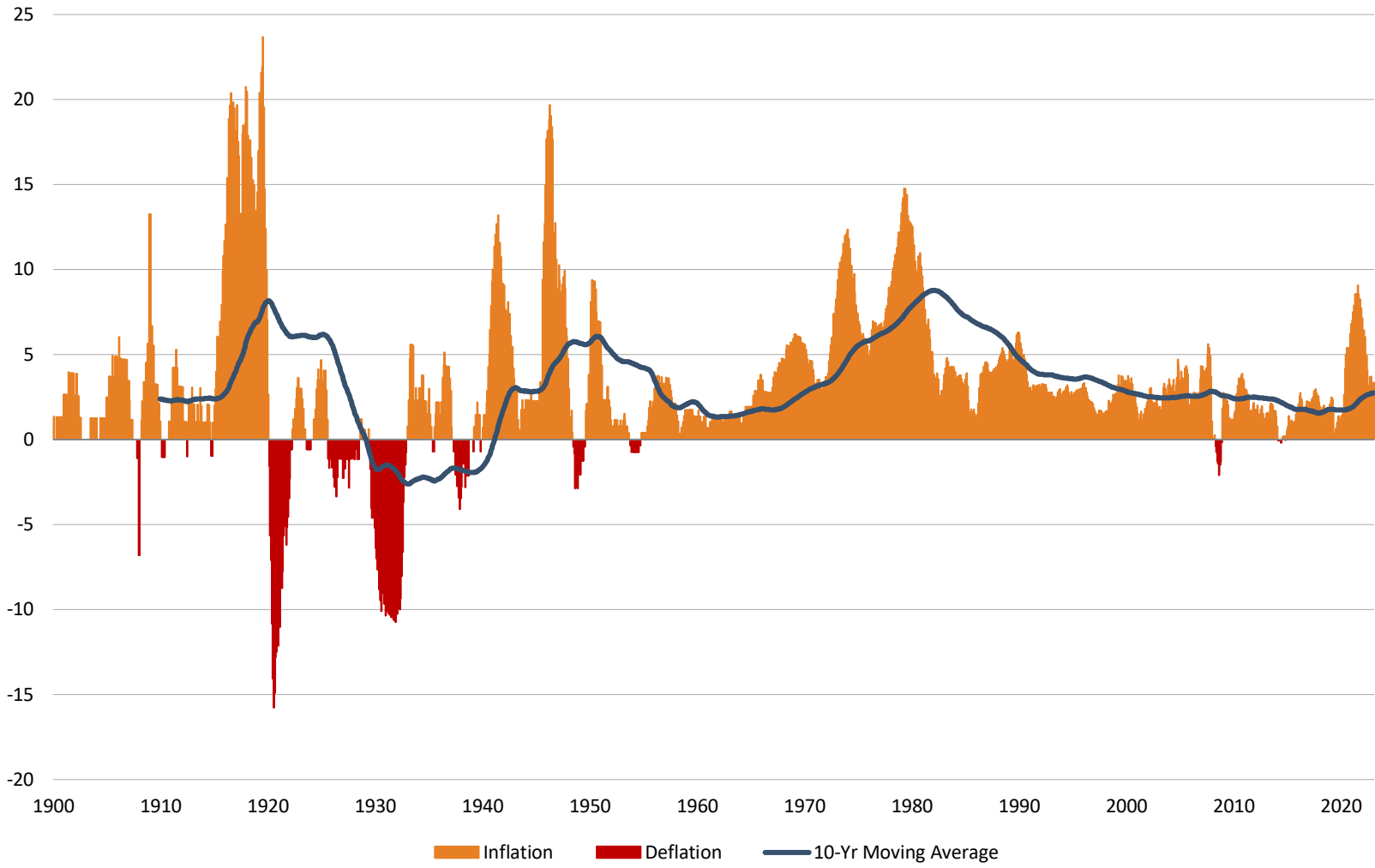


△ Median

US inflation has normalized quickly but largely in line with past historical episodes

US INFLATION

1900–2023 • Year-Over-Year (%)



Performance during Fed rate cutting cycles depends on the economic growth environment

FEDERAL RESERVE POLICY RATE CUTTING CYCLES

1971–2023

	One-Year Performance From Time of First Rate Cut (%)											Averages			
	Jun-74	Jun-81	Aug-84	Sep-87	May-89	Jun-95	Aug-98	Dec-00	Aug-07	Jul-19	Feb-20	Non-Recession	Recession	Recession ex COVID	Full Sample
S&P 500	16.1	-11.5	18.1	-12.4	16.6	26.0	39.8	-11.9	-11.1	12.0	31.3	16.7	4.9	-0.4	10.3
MSCI World x US	9.5	-18.0	26.5	-1.6	2.8	13.7	26.5	-21.2	-12.6	-1.3	22.7	12.8	-2.8	-7.9	4.3
MSCI EM	NA	NA	NA	NA	26.0	8.5	72.3	-2.4	-9.8	6.9	36.5	29.2	12.6	4.6	19.7
R1000® Growth	NA	-15.4	15.0	-17.2	20.3	27.8	48.3	-20.4	-6.8	29.8	44.3	20.8	4.4	-5.6	12.6
R1000® Value	NA	-11.3	24.0	-5.4	8.8	24.6	30.1	-5.6	-14.7	-6.0	22.2	13.5	-0.1	-5.7	6.7
R2000®	NA	-18.8	15.7	-10.7	0.4	23.9	28.4	2.5	-5.5	-4.6	51.0	10.5	5.9	-5.4	8.2
US Treasuries	5.8	11.8	29.5	14.7	8.6	2.4	-1.8	3.6	10.2	15.8	-2.0	12.1	6.3	8.0	9.0
US IG Corporate	14.3	11.9	27.4	15.0	8.9	5.1	0.7	10.3	1.9	12.4	2.8	12.1	8.4	9.5	10.1
US HY Corporate	NA	NA	24.4	12.1	-2.6	9.7	4.1	5.3	-1.0	4.1	9.4	10.9	2.8	0.6	7.3
10-Yr Yield (bps)	32	58	-251	-76	0	52	93	-5	-71	-147	31	-66	8	3	-26
2-Yr Yield (bps)	NA	0	-358	-17	-32	32	82	-204	-179	-178	-72	-88	-97	-104	-93
USD (DXY)	-4.3	10.5	-1.5	-0.9	-9.7	7.6	-0.2	6.6	-4.2	-5.2	-7.4	-0.1	-1.4	-0.2	-0.8

■ Non-Recession

■ Recession



Drew Boyer, Graham Landrith, and Guillermo Garcia Montenegro also contributed to this report.

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