ATLAS CAPITAL ADVISORS

Identifying and Managing Equity Downside Risk

CFA Society of San Francisco

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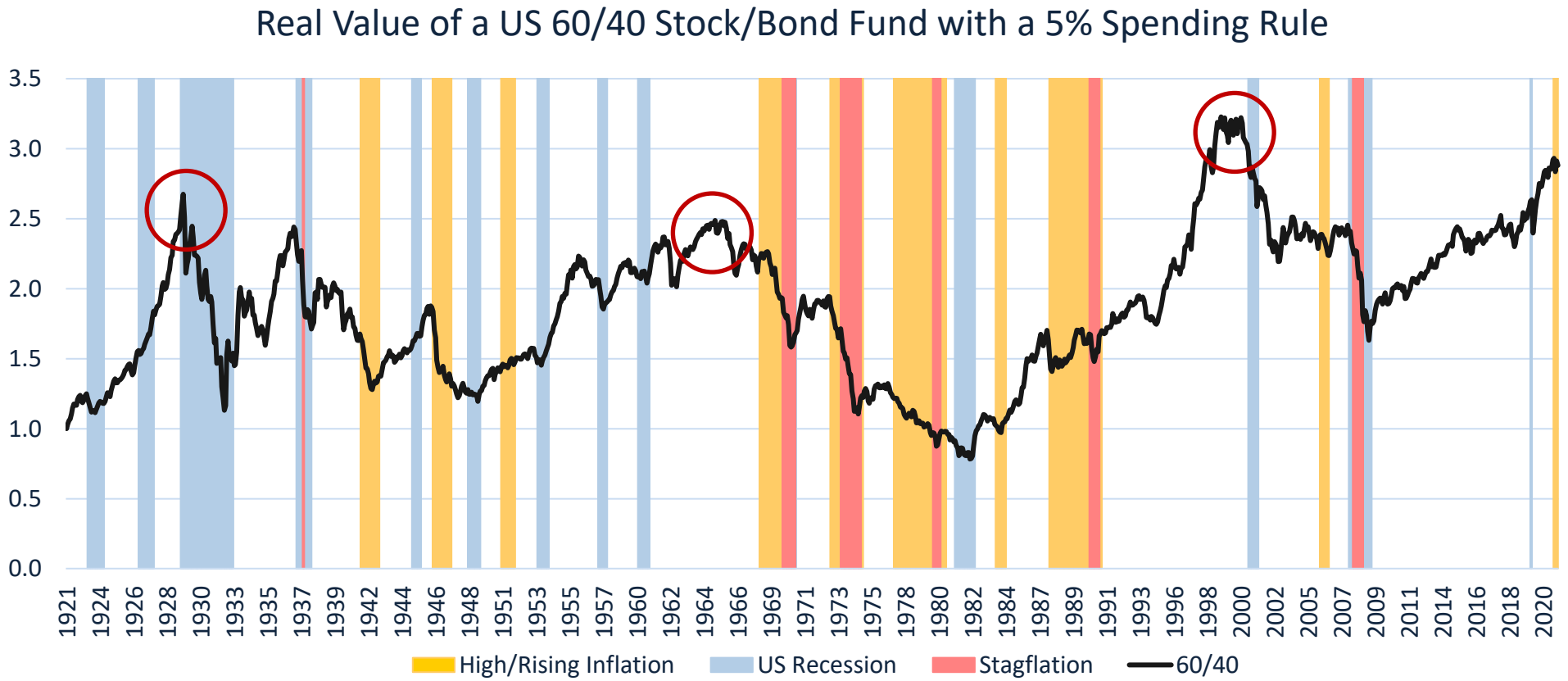
Why do we care about equity downside risk in 2022?

- Discussion topic today: we have not had a sustained equity bear market in fourteen years. Should I worry now or buy the dip?
  - Since the global financial crisis, the equity market has been supported by easy monetary policy from central banks, particularly in 2020 – 2021
  - Central banks may not be willing or able to continue to support markets given the high inflationary pressure today
  - As such, it might be worthwhile to put today's stock market in historical context and assess the probability stock prices could fall from here
- Part 1: What information is useful for estimating equity downside risk?
  - And what does it say today?
- Part 2: How well do standard "defensive" investment choices protect during bear markets?
  - No sure things!
- Part 3: Should we reduce our equity weight at times of high downside risk?
  - Overall, it would have been useful to do this, but there would have been "false alarms"

Equity market downturns can be severe and lasting

- Chart shows the real value of a fund with a US 60/40 mix of S&P 500 and 10-year Treasury bonds and an annual payout of 5% of average balance of prior 5 years
- Real value rose overall, but would have fallen 10% per year when inflation high and rising, 8% per year during recessions, 17% per year during stagflation (inflation & recession)

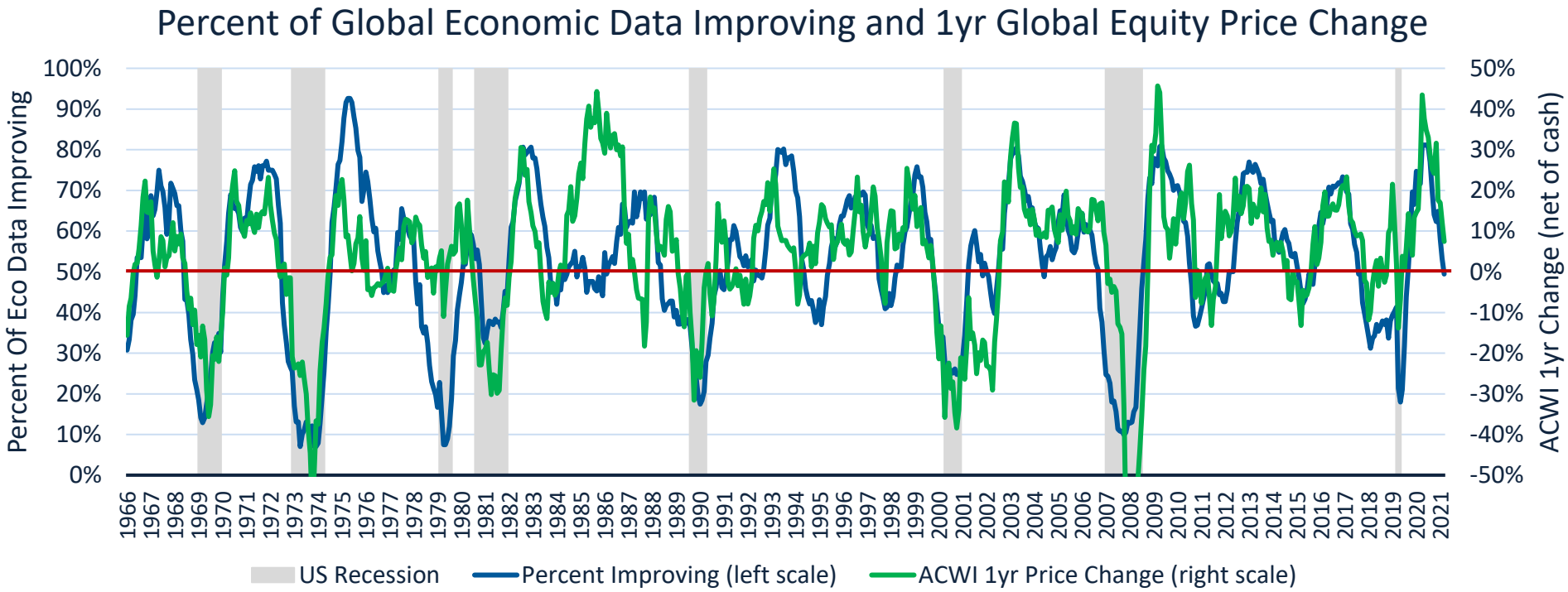


Source: Robert Shiller Dataset, http://www.econ.yale.edu/~shiller/data.htm, investments in S&P 500 and 10yr Treasury. 5% of prior five-year average value spent each year. 1921 - 2021

Part 1: Conditions that often signal elevated downside risk

- Sustained equity bear markets are normally caused by a combination of problems at once, not by just one problem
- The most common combination at the start of major US bear markets has been:
  - Stretched equity market valuations
  - Slowing economic growth
- Often the slowing economic growth was a consequence of monetary tightening
- An effective downside risk dashboard contains a combination of relevant information. The information with the best predictive power historically is:
  a. Economy (most important)
  b. Value
  c. Inflation Trend
  d. Equity Price Trend
  e. Credit Spread Trend
- All of these are ways to measure what is happening (or is expected to happen) with the global economy, other than Value

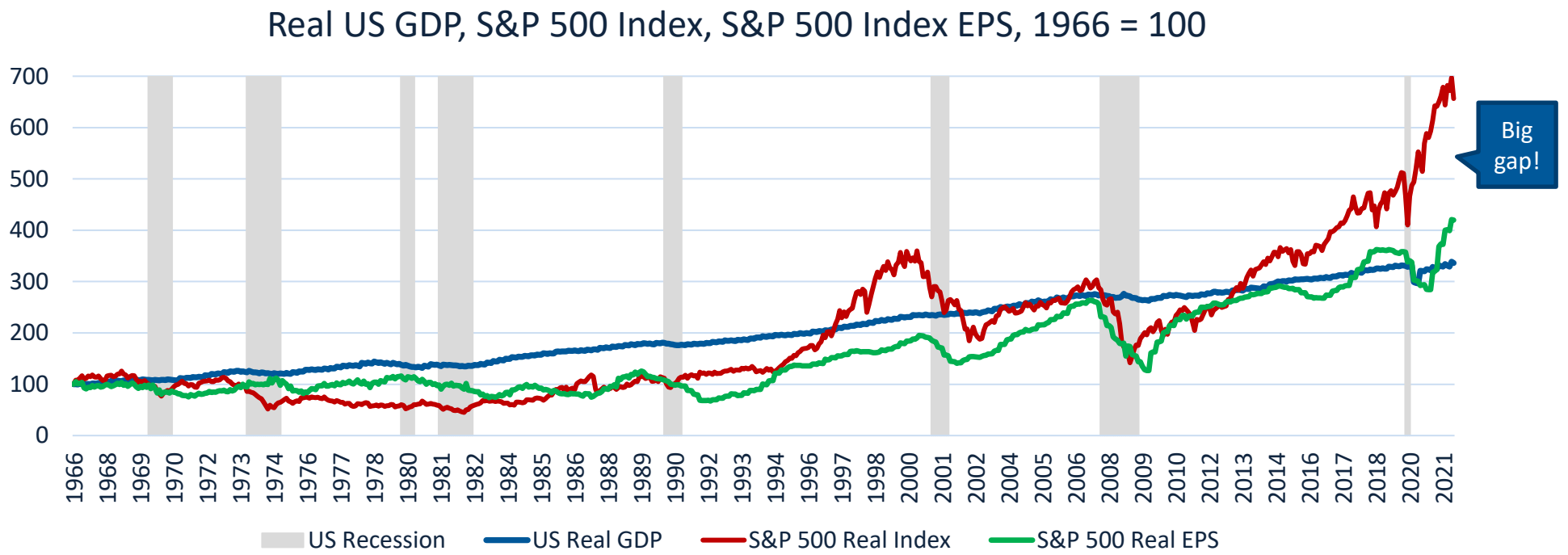
a) Economy: Strong relationship between economic changes and equity prices



- The chart compares the percentage of global economic data which improved in the past year (blue line) with the trailing one-year change in global equity prices (green line)
- The correlation is high and moreover the peaks and troughs align
- This seems logical, if most of the economic data are getting worse there's a higher probability of a recession and stock market correction

Source: Bloomberg, (NDUEACWF for ACWI, shown net of cash return). NBER. Economic improvement percent based on a database of 350 economic metrics from the 14 largest global economies. 12/1966 to 02/2022

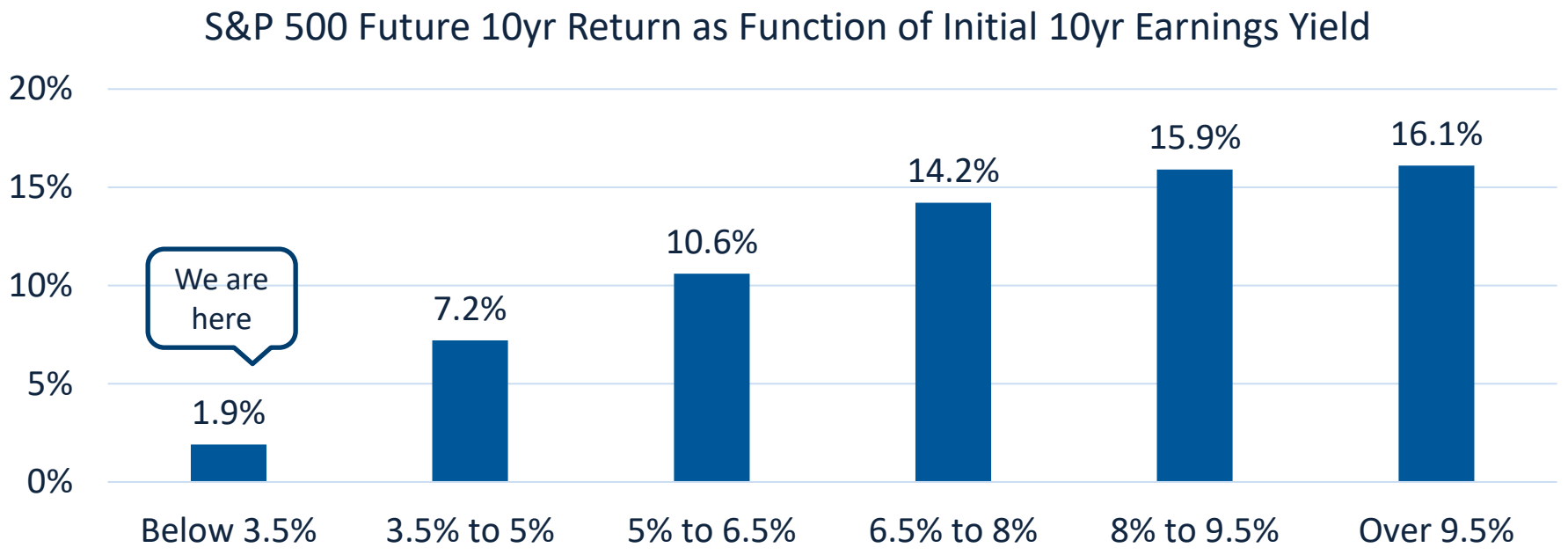
Economic growth affects stock prices through impact on earnings



- The growth in the EPS of the S&P 500 has aligned with the growth in US GDP
- Relatively small deviations of economic growth below trend led to relatively large declines in the earnings per share of the companies in the S&P 500 index
- These earnings drops have usually led to depressed stock prices in recessions, especially if accompanied by increased risk aversion (price/earnings ratios falling)

Source: Bloomberg, GDP Cur$ Index, CPI Indx Index, SPX Index, NBER, 12/1966 to 02/2022

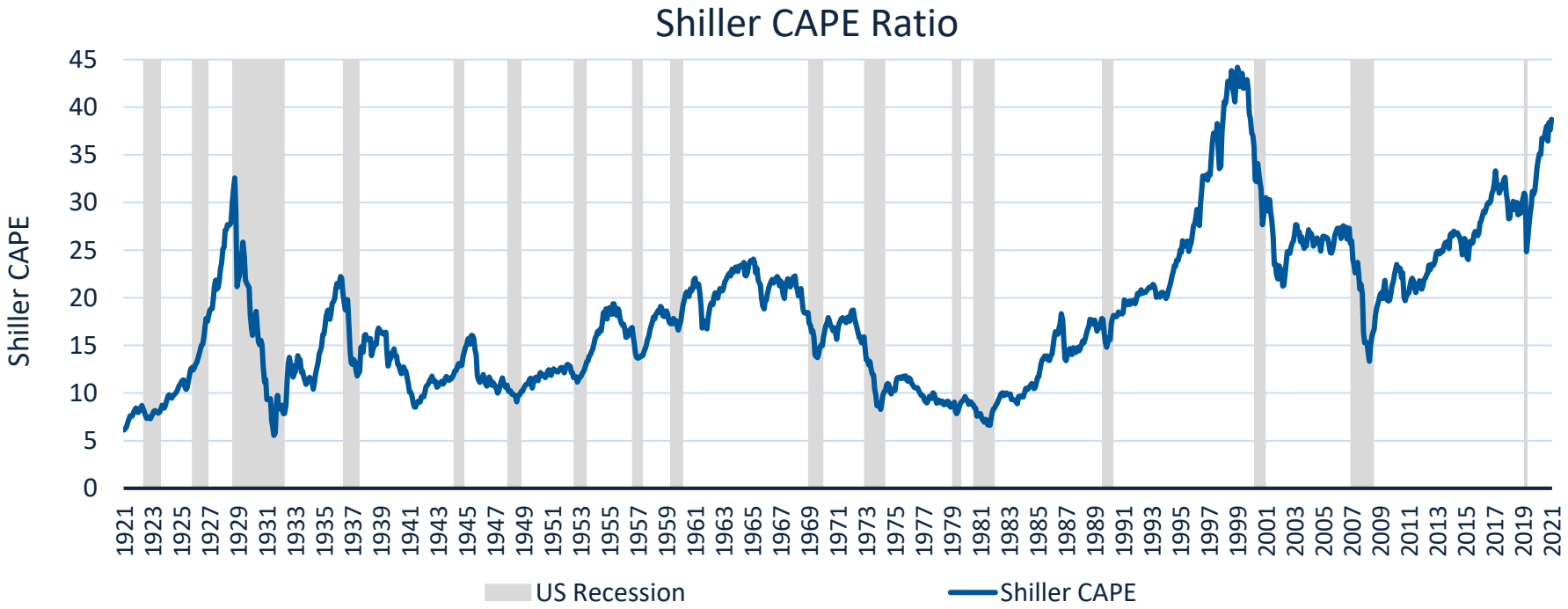
b) Value – also influences return (in the long term)



- The chart shows the next ten-year total return of the S&P 500 as a function of the ten-year average real earnings divided by current price (inverse of the Cyclically-Adjusted Price/Earnings Ratio, or CAPE), as introduced by Robert Shiller of Yale, data since 1945

Source: Robert Shiller Dataset: http://www.econ.yale.edu/~shiller/data.htm

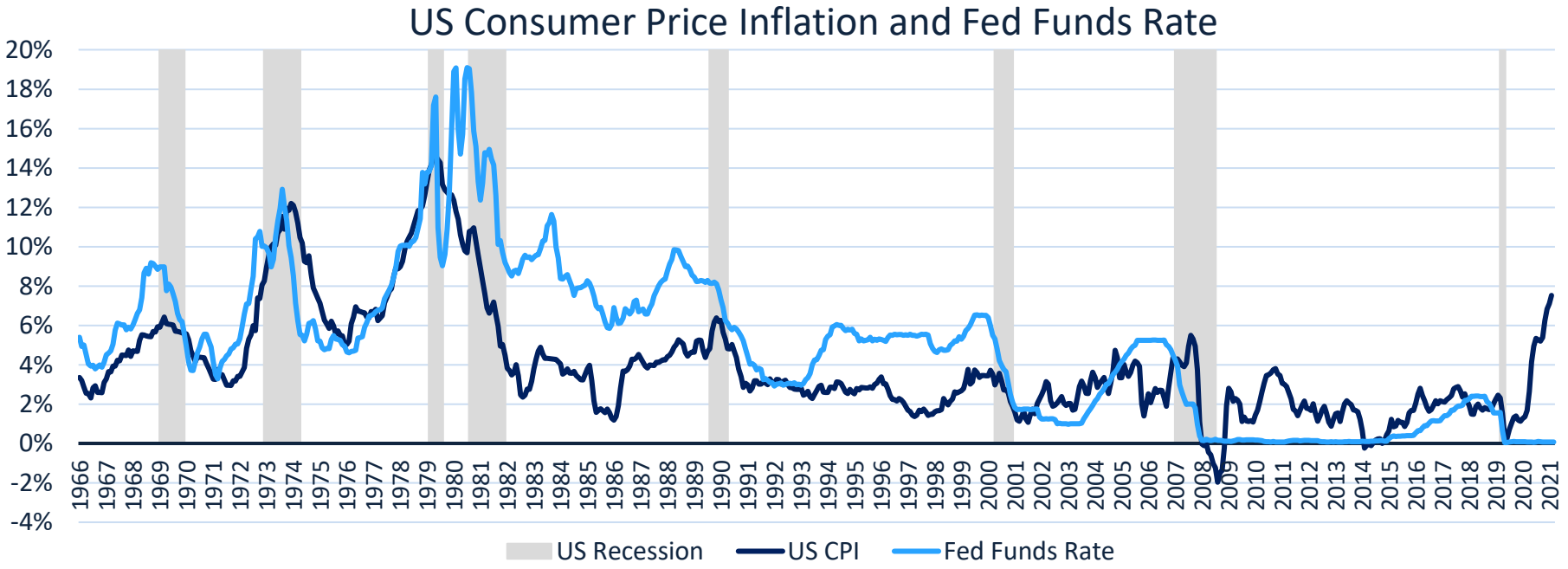
But equity market can stay expensive for a long time



- The chart shows the CAPE ratio for US stocks
- Stocks were often expensive (CAPE was relatively high) before bear markets, however also expensive many other times
- On average, Value does not predict short-term outcomes for equity investors well – its influence is much stronger if something else is also going wrong

Source: Robert Shiller Dataset, http://www.econ.yale.edu/~shiller/data.htm

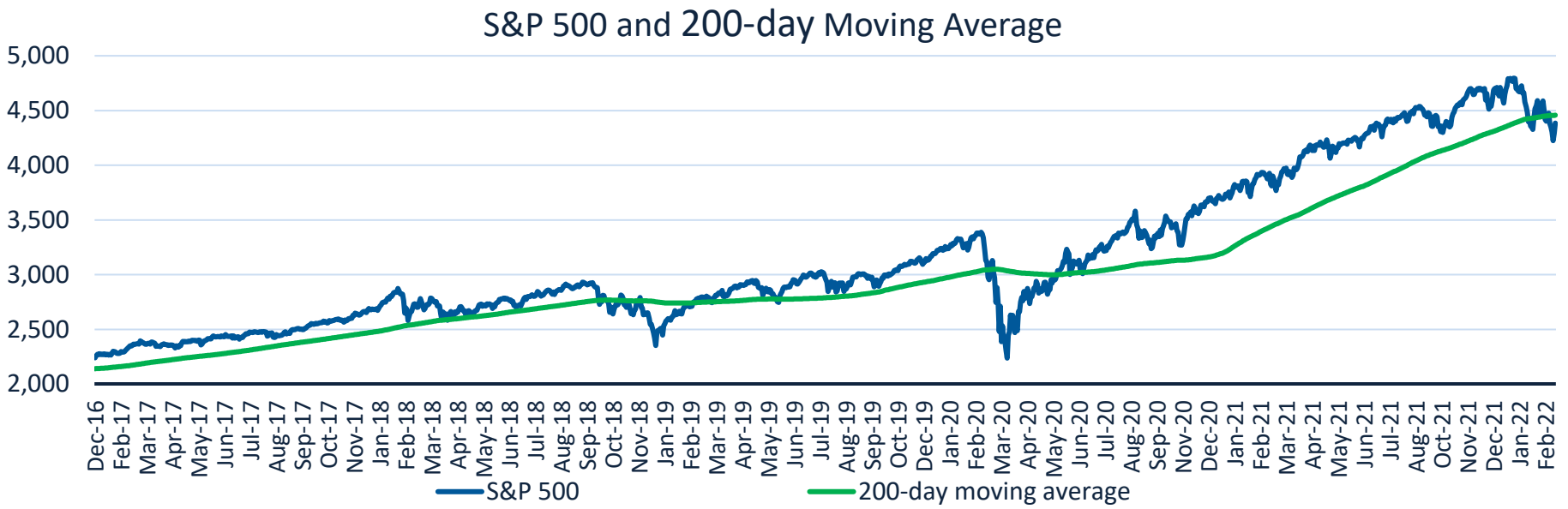
c) Inflation – fighting it often leads to stock market losses



- Rising inflation matters because of the response it usually triggers from central banks
- The typical sequence is:
  - Rising inflation becomes a problem
  - Central banks tighten monetary policy in response
  - The response slows the economy, leading to a recession and equity bear market
  - Which solves the inflation problem!

Source: Bloomberg, CPI Indx Index, FEDL01 Index, 12/1966 to 01/2022

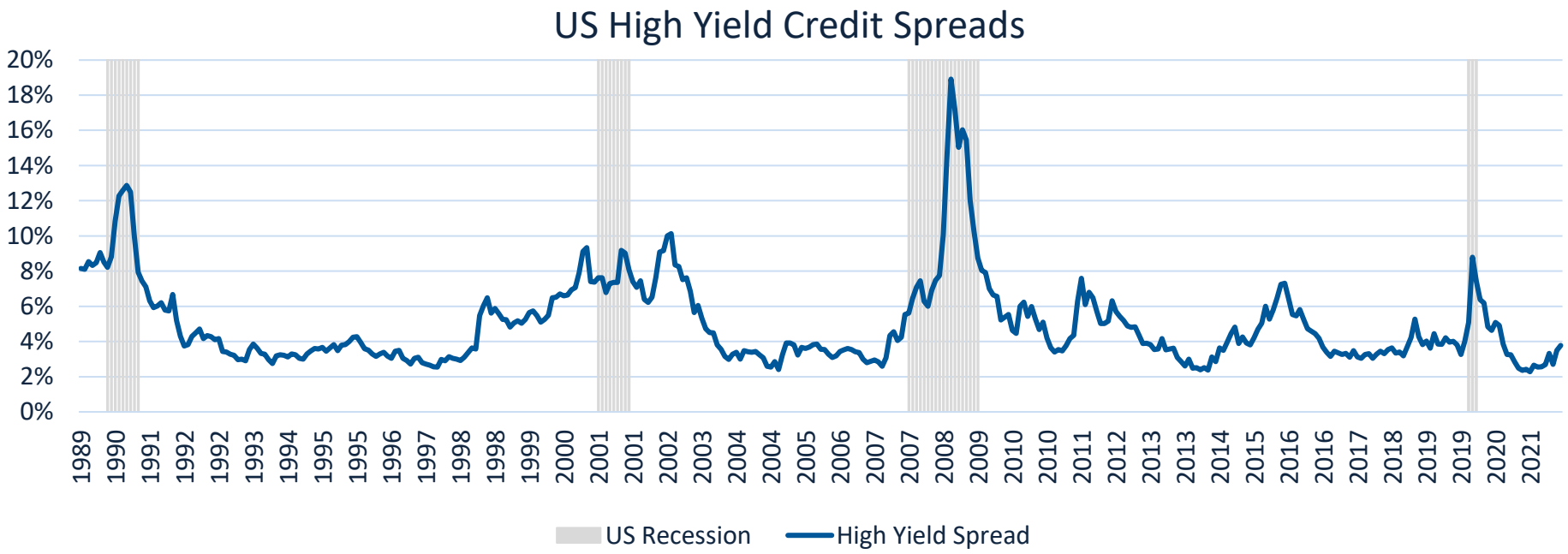
d) Price trend – used to confirm other signals



- We need a forward-looking signal to confirm the backward-looking info discussed so far
- Equity price trend reflects the outlook of equity investors, and is very useful because:
  a. Equity investors may be correctly anticipating future developments
  b. Equity investors may be ignoring important problems, and we need to wait for them to pay attention before we act
- It is better to wait to defend against losses until equity market participants recognize the outlook has changed for the worse – that is, the trend has turned down
- But trend is for confirmation – we should only act on it if aligned with other signals

Source: Bloomberg, SPX Index, 12/2016 to 02/2022

e) Credit spreads – indicate concern about default risk

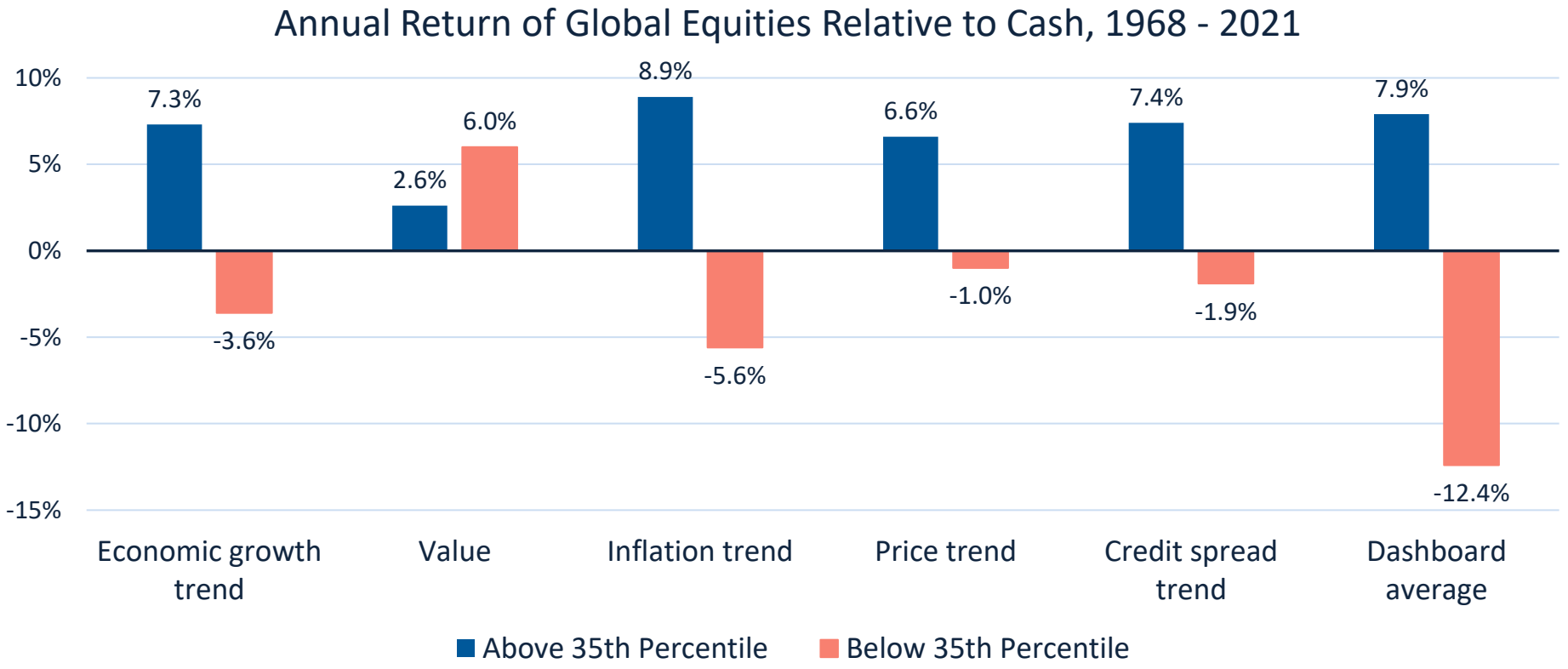


- The chart shows high yield credit spreads, the gap between the interest rates paid by less creditworthy borrowers and the rates paid by the government
- Economic booms and busts are often called credit booms and busts because of the important influence of changes in lender behavior on the economy
- Sometimes credit investors anticipate trouble before equity investors do, and thus rising credit spreads provide a useful early-warning sign

Source: Bloomberg, CSI BARC, NBER, 12/1987 to 02/2022

Each dashboard item has some use on its own (except Value)

- Chart shows the return of global equities relative to cash at times when the dashboard item was better than the 35th percentile of the prior history and when it was worse
- The average percentile of the five items would have been a better guide to the outlook (and signal a warning less often) than any individual item

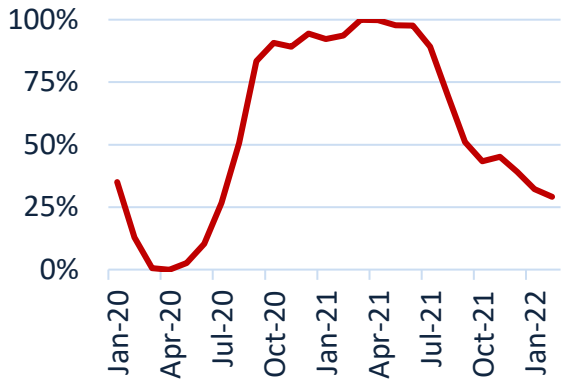


Bloomberg: Atlas Capital Advisors analysis, percentile based the data prior to the date of calculation

Conditions today: Information relevant to equity outlook is negative

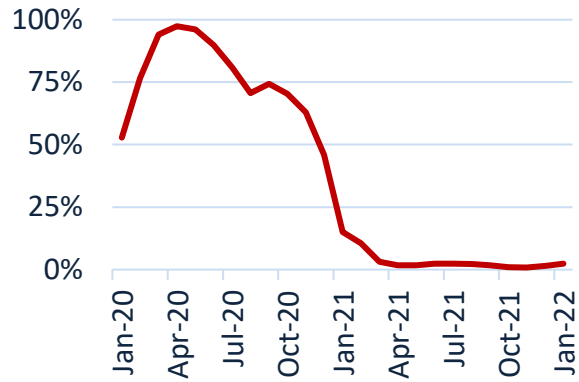
- All indicators below 35th percentile at once (rare, only in 1969, 1991, 2001)
- Dashboard average below 25% (only 5% of history, 1973-4, 1980, 1990, 2000, 2008)

Economic Trend, Hist. %ile



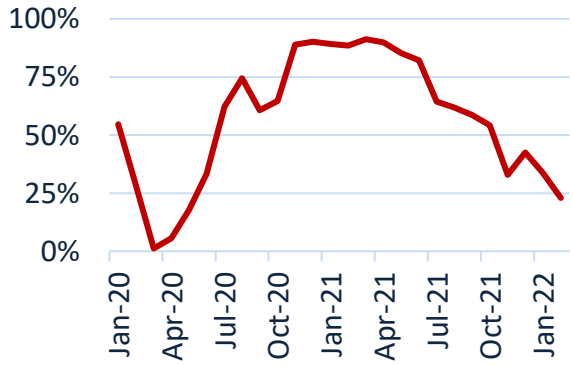
Equity Value, Historical %ile

Inflation Trend, Historical %ile

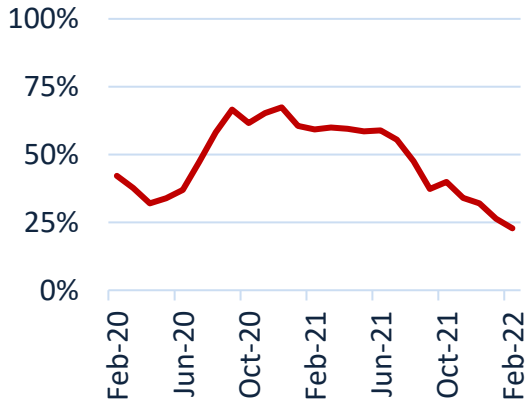


Equity Price Trend, Hist. %ile

Credit Spread Trend, Hist. %ile



Average Dashboard %ile

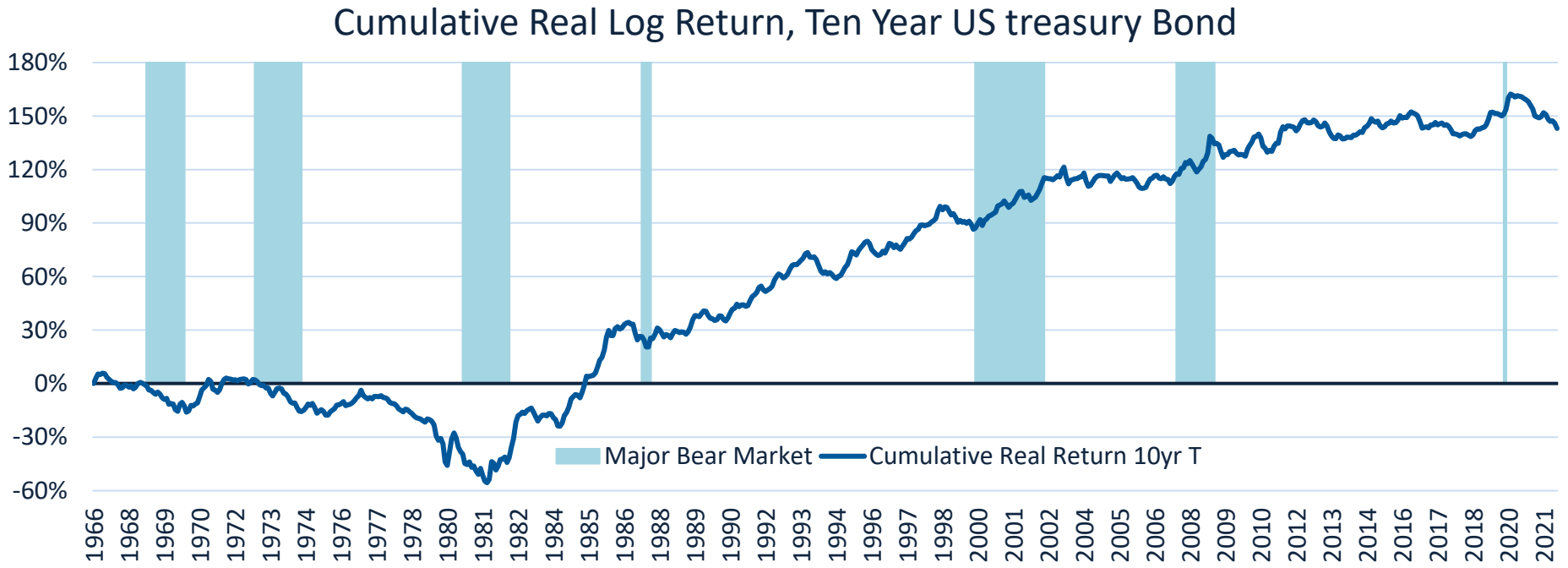


Source: Bloomberg, Atlas Capital Advisors analysis, based on period since 1967

Part 2: Survey of defensive/hedging allocations

- Most institutional allocators hold diversifiers expected to provide positive returns when equities have a negative return, such as:
  a) Long maturity US government bonds
  b) Global macro hedge funds
  c) Tilting towards equity value
  d) Tilting towards low volatility equity

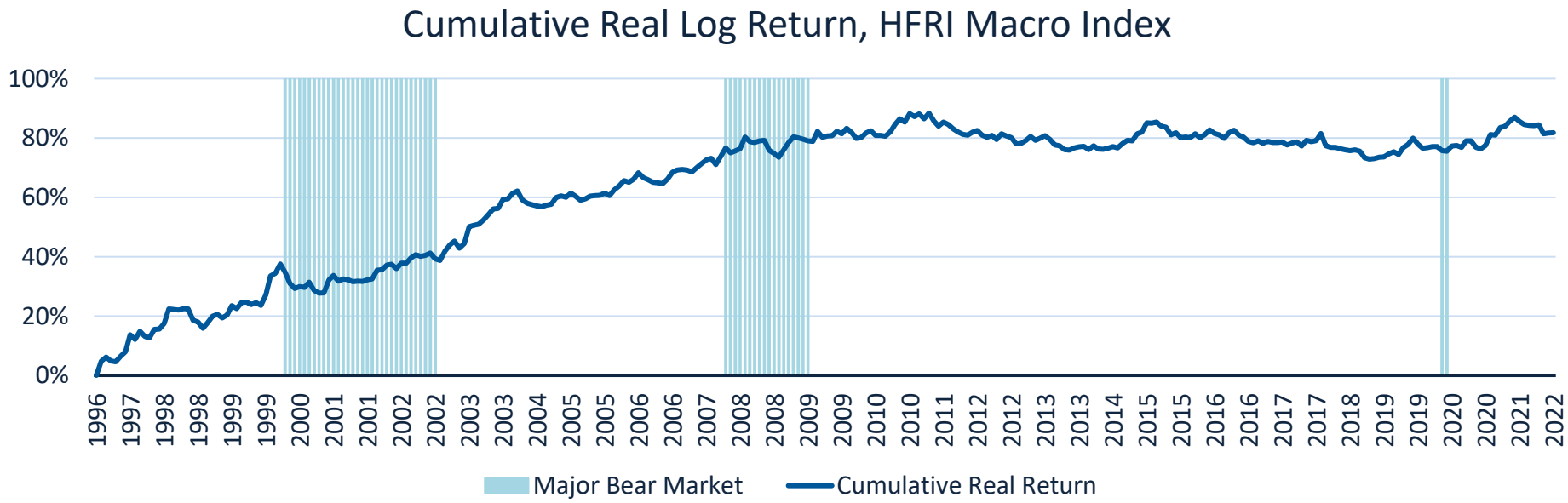
a) Long maturity government bonds have not always been diversifiers



- Investments in long-term US government bonds are often considered by allocators to provide good protection against equity downside risk
- Long-term bonds were *not* effective for downside protection during equity bear markets in the 1960's to 1980's, when inflation was a problem
- Low interest rates limit any potential help from bonds in next downturn and bonds will not help at all if rates rise to align with inflation

Source: Robert Shiller Dataset: http://www.econ.yale.edu/~shiller/data.htm, 12/1966 to 02/2022

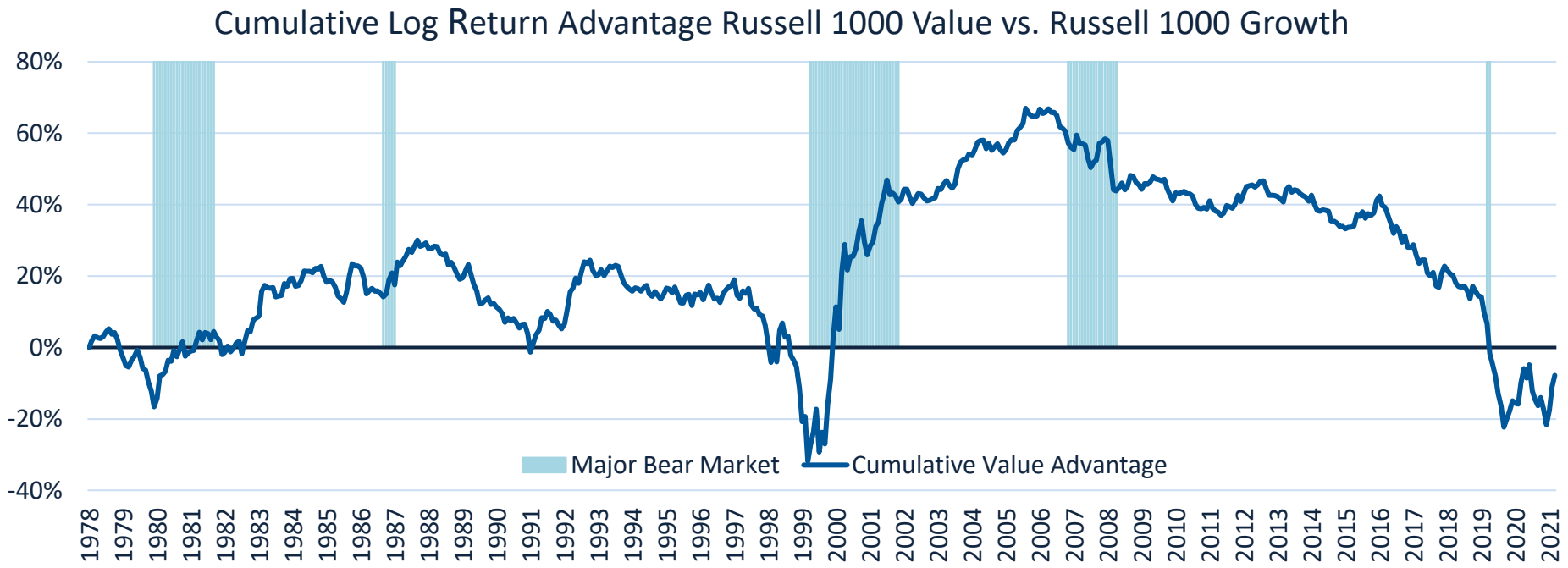
b) Macro hedge funds helped in 2000 and 2008 downturns, not since



- Based on the HFRI Macro Index results, this category of hedge funds indeed had positive returns when equity prices were plunging in the 2000 and 2008 downturns
- However, this category has struggled to generate real returns since
- It's a similar story with Commodity Trading Advisors – did well in the two big downturns but not much of a real return since

Source: Bloomberg, HFRIMI Index, 12/1992 to 01/2022

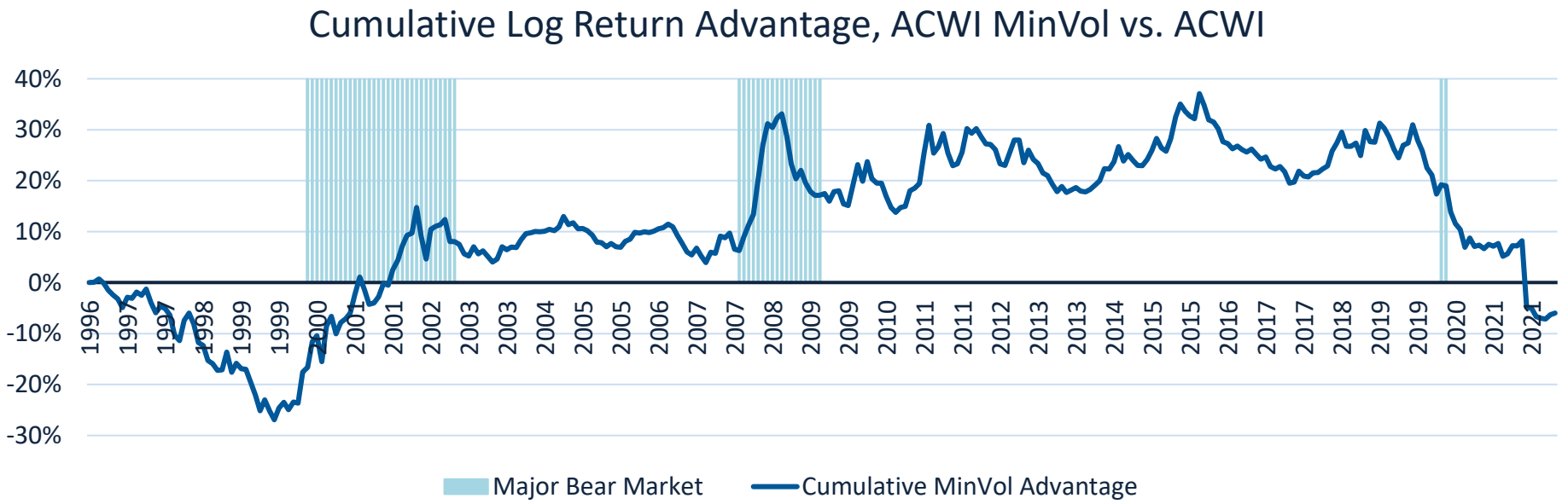
c) Value tilt is broadly accepted, but results in downturns mixed



- Most investors expect Value stocks to outperform Growth stocks during major bear markets
- A Value tilt would have helped enormously in the tech bust
- But a tilt toward Value (at least as defined in Russell index) would have been harmful during the GFC and especially in 2020
- Many (including us!) believe that a Value renaissance may *finally* be at hand

Source: Bloomberg, RU10VATR Index for Russell 1000 Value RU10GRTR Index for Russell 1000 Growth, 01/1982 to 02/2022

d) Low volatility tilt was helpful in recent downturns



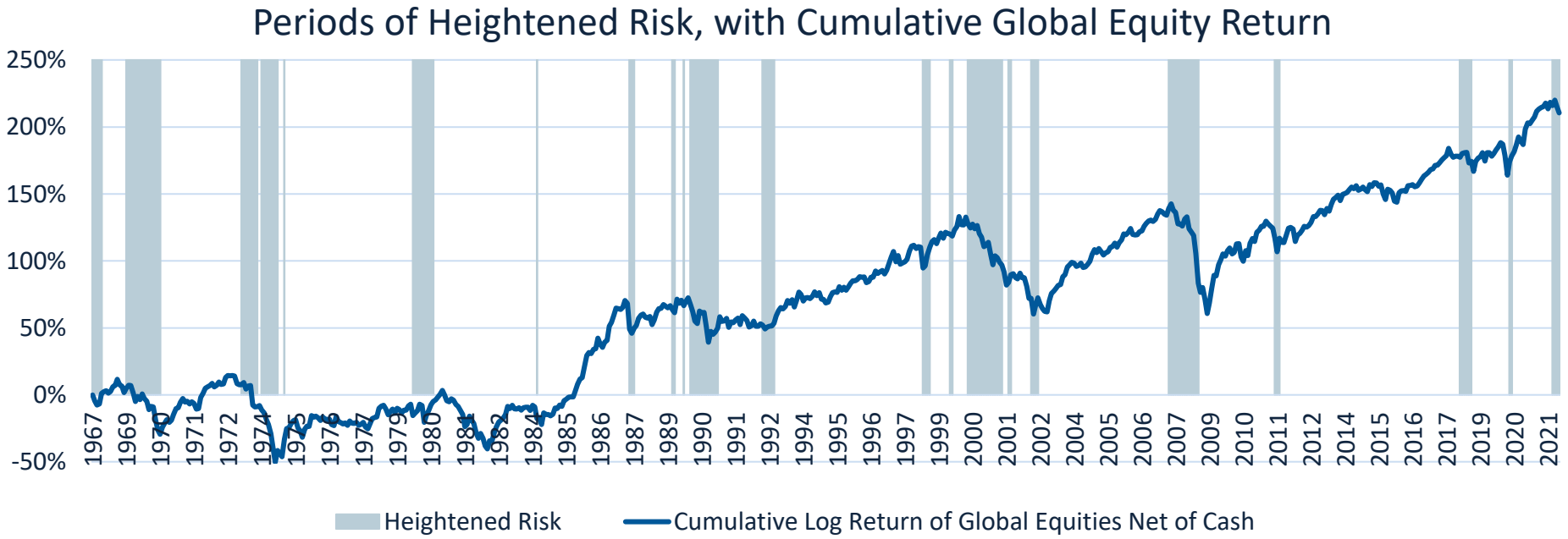
- "Low vol" or "min vol" equity strategies tilt towards equity holdings that have lower price volatility
- Low volatility stocks tend to have higher dividend yields and be in more predictable industries (e.g., consumer staples, utilities)
- A low volatility tilt would have helped in the tech bust and GFC, but not in 2020
- These strategies can lag the index when equity investors are risk-seeking, after bear markets end and in risk-on periods such as the late 1990's and the last few years

Source: Bloomberg, M00IWD$O Index for MSCI ACWI Minimum Volatility, GDUEACWF for ACWI, 05/1996 to 02/2022

Part 3: Should we reduce equity exposure when risk of loss is high?

- It is not common for allocators to manage equity downside risk
  - A reliable equity defense is a bet against the stock market
  - Bets against the stock market will usually lose money
  - Therefore, it is not worthwhile to *always* defend against losses
- But, it can be worthwhile to *sometimes* defend against losses
  - The usual causes of major bear markets (inflation, recessions and bubbles) develop gradually – we can see these problems coming and prepare a strategy for them
  - Most investors operate within an acceptable range of equity weight (e.g., 55% - 65%)
  - There is the potential for better returns at lower risk if equity positions are moved within the range based on whether the outlook is safe or unsafe
- No downside warning approach will be 100% accurate:
  - False alarms: the dashboard says downside risk is high but equities rise nonetheless
  - Missed downturns: the dashboard says equities are safe but they fall

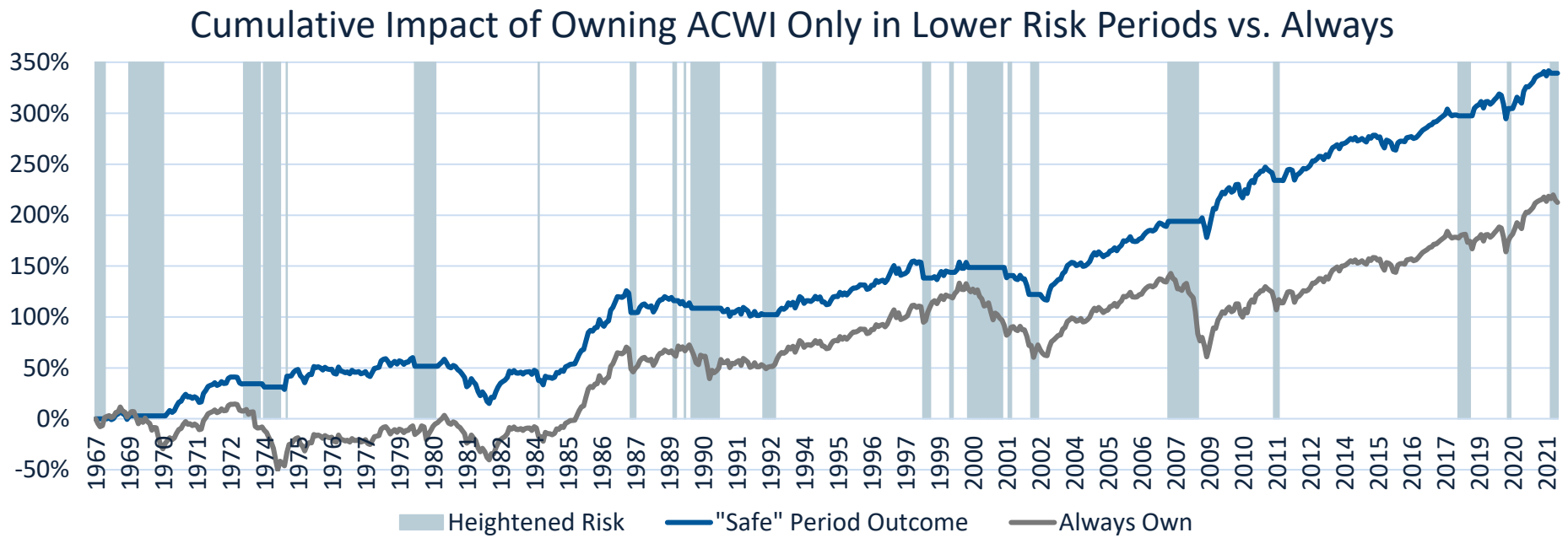
We can define higher risk periods based on the dashboard



- The chart illustrates periods of higher downside risk, when the dashboard average was below the 35% percentile – 18% of the time historically
- The dashboard would have signaled a warning when it was really needed, but there would have also been many "false alarms"
- Judgment is important here – one reads the dashboard and then considers it in context

Source: Bloomberg, Atlas analysis, screen based on economic database and MSCI ACWI price trend, 12/1967 to 02/2022

Potential advantage to avoiding equities in high-risk periods



- The chart compares the cumulative return of global equities (pre-tax, net of cash, log return) if owned continuously versus if owned only in the lower risk "safe" periods
- Hypothetically, with the benefit of hindsight, it would have been advantageous to mechanically follow the dashboard and reduce equity holdings in high-risk periods
  - 4.0% return over cash per year if always hold ACWI (the global equity index)
  - 6.5% return over cash per year (and less risk) if only hold equities when safe to do so
- The return during the non-shaded "safe" periods was good, at 8.1% per year over cash

Source: Bloomberg, Atlas. Hypothetical model based on dashboard items. Cumulative sum of monthly log returns for global equities, net of cash, 12/1967 to 12/2020

Summary of discussion

- We can create framework for assessing whether the probability of a crash is elevated, but not one for assessing when a crash is certain
- The economy has historically had the most bearing on what is next for the stock market, because most crashes are linked to declines in economic growth
- Value, inflation trend, price trend, and credit spread trend are also relevant
- Based on these metrics, downside risk is elevated as of February 2022
- There is no truly satisfying approach to managing equity downside risk
  - Equities make money on average so betting against equities can be costly
  - Most “defensive” investment choices have a mixed record
- But avoiding a large/sustained downturn can improve capital balances and spending power for years to come
- For an investor with an interest in protecting their portfolio from losses, a way to manage the difficult trade-offs is to:
  - Use a systematic evidence-based framework to distinguish between when the risk of equity losses is high and when it is low, updated regularly
  - Based on the framework and judgment decide whether reducing equity weight is merited at the current time
  - Set a comfortable de-risk amount based on possibility the signal could be incorrect
  - Use a similar framework to re-risk when the danger signals turn around

About the speaker

- **Ken Frier, CFA**, *Chief Investment Officer, Atlas Capital Advisors*
- Ken has over 30 years of experience as an institutional investor, having been Chief Investment Officer of The Walt Disney Company, Hewlett-Packard Company, Stanford Management Company and the UAW Retiree Medical Benefits Trust. He is currently the CIO of Atlas Capital Advisors, a San Francisco-based RIA, and a member of the Investment Advisory Group of the Alaska Permanent Fund. His career includes extensive research, writing, and speaking on asset allocation and investment risk management. Ken graduated with honors in Mathematical Science from the University of North Carolina, Chapel Hill, and has an MBA from the Stanford Graduate School of Business, where he was an Arjay Miller scholar. Ken is an active member and volunteer with CFA Society San Francisco.
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