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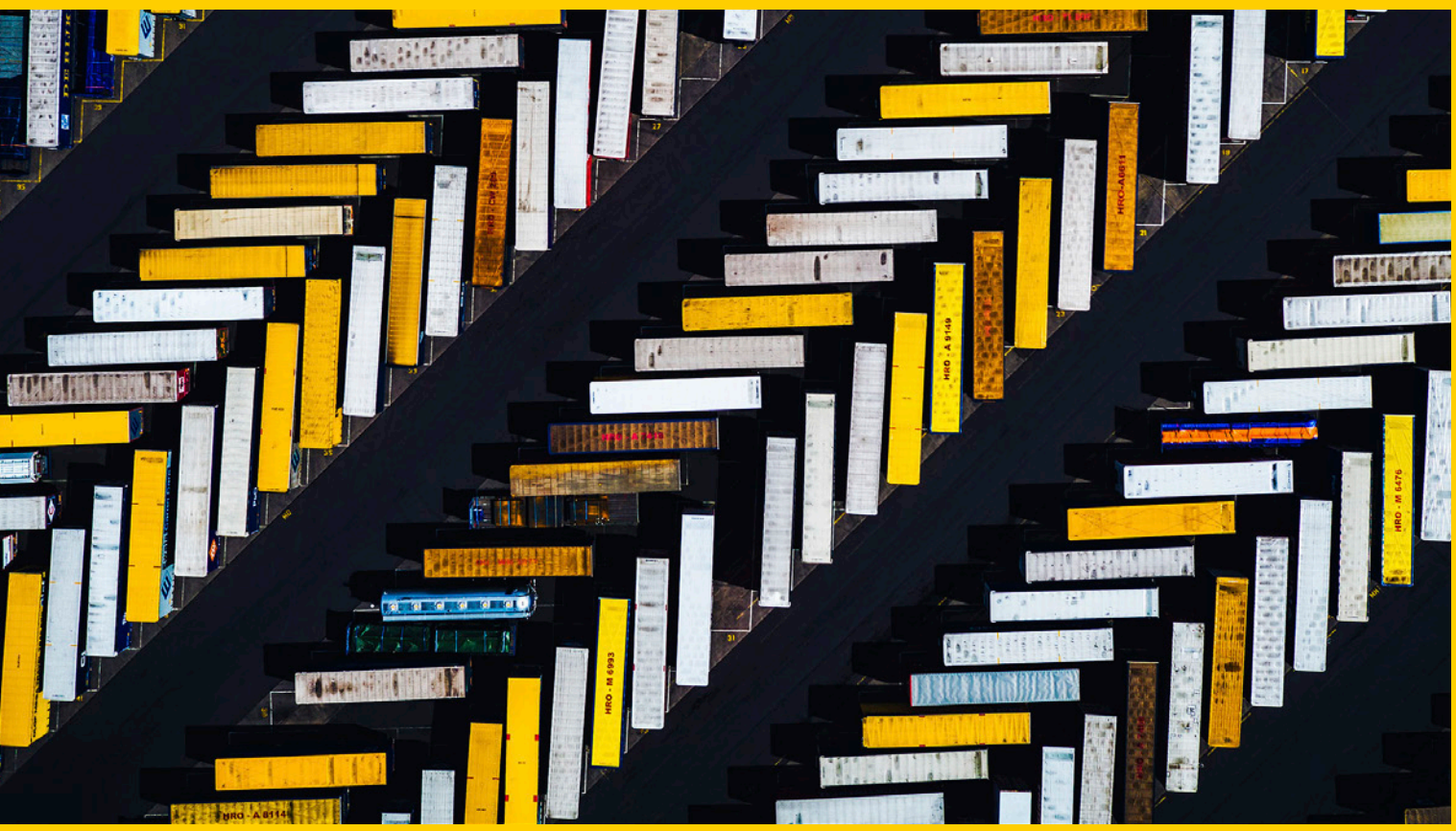
BlackRock.

Rethinking fixed income asset allocation

A systematic approach



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Summary

- Diversification is a cornerstone of asset allocation in investing. However, this assumption is critically dependent upon uncorrelated or negatively correlated asset returns.
- The post-pandemic landscape has ushered in an era of high inflation and interest rate volatility leading to increased stock-bond correlations — a stark departure from the negative correlations of the previous two decades.
- The ongoing struggle to rein in inflation has perpetuated volatility and uncertainty surrounding the diversification value of fixed income.
- With Treasuries no longer serving their role as a reliable form of portfolio ballast, asset allocators need a fresh approach to asset allocation and a departure from frameworks built and relied upon in a low interest rate, low inflation environment.
- Armed with data-driven insights, informed by studying historical periods of high inflation and positive stock bond correlation, we propose a more nimble and agile approach aimed at enhancing portfolio resilience.
- In this paper, we examine a novel method of blending tilting and timing in asset allocation to generate portfolios seeking a more consistent return profile.

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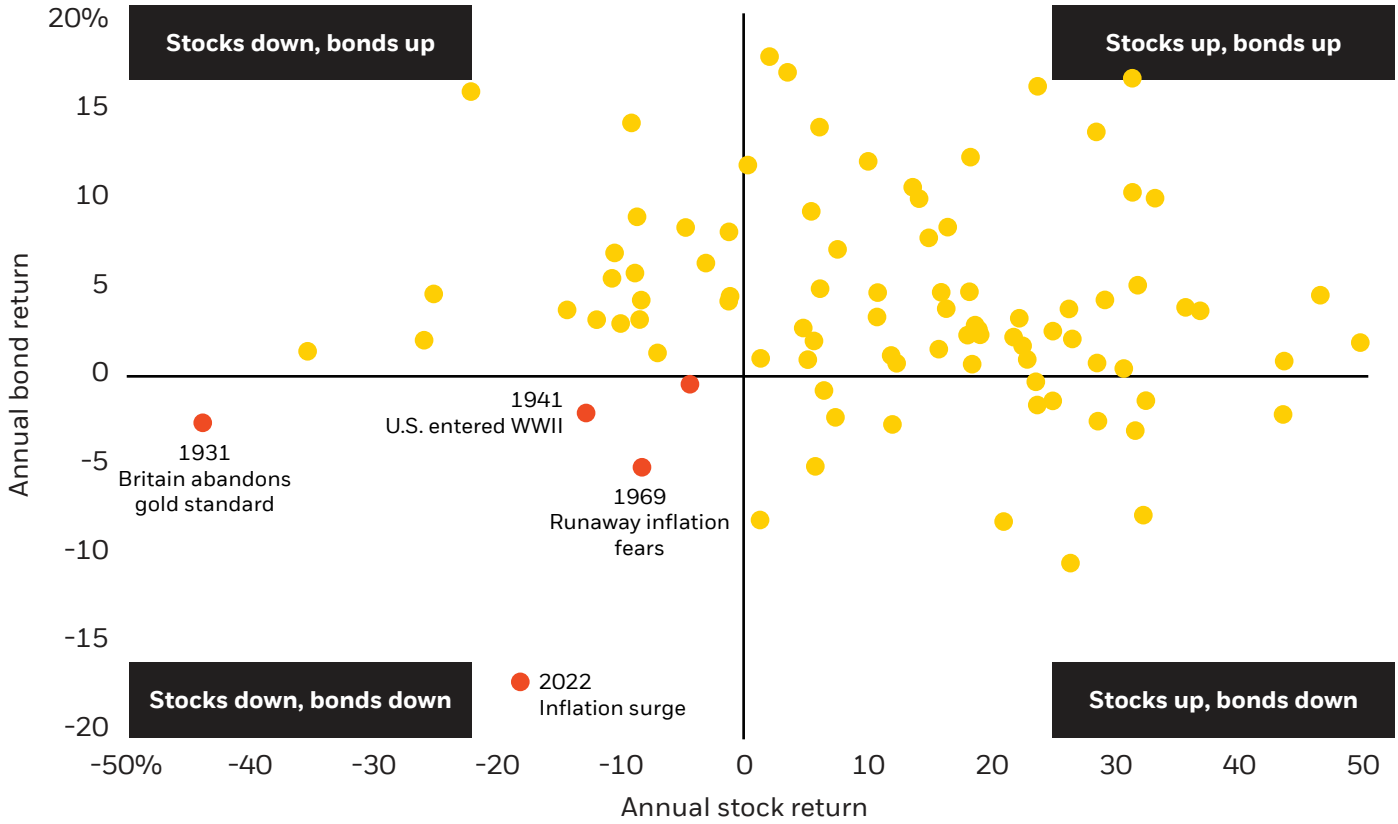
BSYSH0825U/M-4729121-2/18

The role of the stock-bond correlation ("SBC")

Changes in the macroeconomy post-pandemic have ushered in a regime largely unfamiliar to most investors. For over twenty years, price of stocks and bonds typically moved in opposite directions making bonds a reliable diversifier in portfolios. This inverse relationship began to change in 2021 with stock-bond correlation ("SBC") turning positive. What followed in 2022 was the fastest and most aggressive monetary tightening since the Volcker shock resulting in rare simultaneous downturn in stocks and bonds leading to historically poor performance (Figure 1).

Figure 1: Annual U.S. equity and bond returns



The return of bonds are based on the annual return of 10-year U.S. Treasury Bond. Stocks are represented by the total return of S&P 500 Index from 1957 onwards. Prior to 1957, the returns are based on price changes in S&P Composite Index. Source: BlackRock, with data from LSEG Datastream as of June 30, 2025. The figures shown relate to past performance. **Past performance is not a reliable indicator of current or future results.** Index performance returns do not reflect any management fees, transaction costs or expenses. Indices are unmanaged and one cannot invest directly in an index.

BSYSH0825U/M-4729121-3/18

What drives stock-bond correlation?

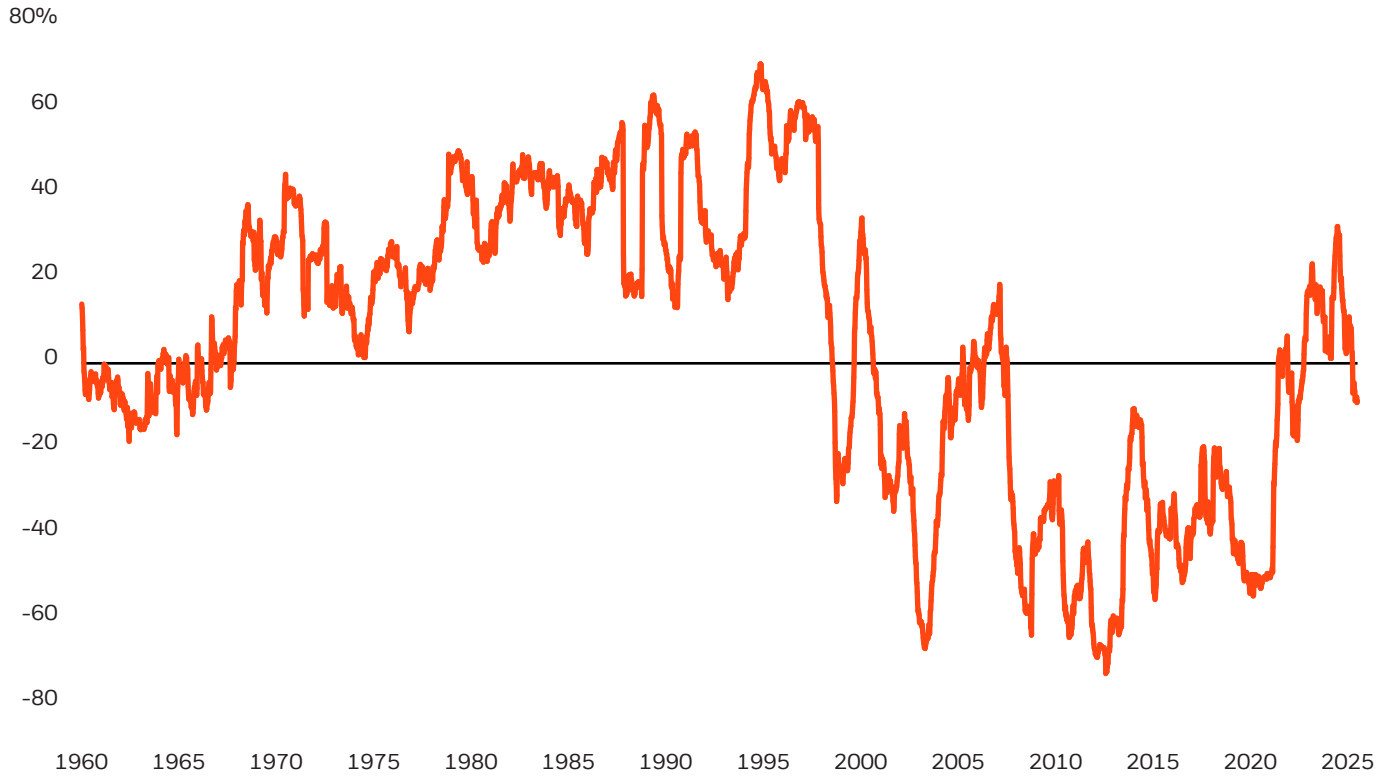
There has been much academic literature published decomposing the fundamental and econometric characteristics underlying SBC. One approach with appealing economic sensibility draws the link between SBC and the impact of inflation on consumption, growth and equity valuations.

For over the last two decades, stock and bond returns have generally shown negative correlation. Figure 2 shows the rolling 252-day correlation between stock and bond returns since 1960. Between 1970 and 2000, daily stock and bond returns had an average correlation of approximately +30%. However, since 2000, this correlation shifted to an average of -26%.

In 2022, the average daily correlation between stocks and bonds shifted to strongly positive with both asset classes posting sharp declines. This shift coincided with a profound change in how economic, consumption and confidence levels interact with inflation.[1]

COVID-19 pandemic's inflationary period diminished consumers' real purchasing power and eroded confidence; effects that persist and continue to impact consumption forecasts negatively.[2] The outlook for consumption, and by extension the outlook for the broader economy, is now negatively related to increases in inflation, and this leads to a change in the relationship between stocks and bonds. Periods of rising inflation are not only bad for bonds (as they typically are) but are also bad for stocks (as inflation undermines confidence, spending and growth). The converse also applies, as falling inflation boosts both stocks and bonds. In both directions of inflation, we see a fundamental case for positive SBC.

Figure 2: Stock-bond correlation



Notes: Correlations computed using 252-day lookback, equally weighted daily returns. Return of bonds are based on 10-year U.S. Treasury note and equity returns are represented by S&P 500 Index from 1965. Prior to 1965, equity returns are based on DJ Industrial index. Source: BlackRock, with data from LSEG Datastream as of June 30, 2025.

1 BlackRock Investment Institute. "Investment Perspectives Mega Forces Future of Finance." October 2023. https://www.blackrock.com/corporate/literature/whitepaper/bii-investment-perspectives-october-2023.pdf. **2** Binici, M., Centorrino, S., Cevik, S., & Gwon, G. (2022). Here Comes the Change: The Role of Global and Domestic Factors in Post-Pandemic Inflation in Europe. IMF Working Papers, 2022(241), A001. Retrieved August 12, 2025, from https://doi.org/10.5089/9798400225789.001.

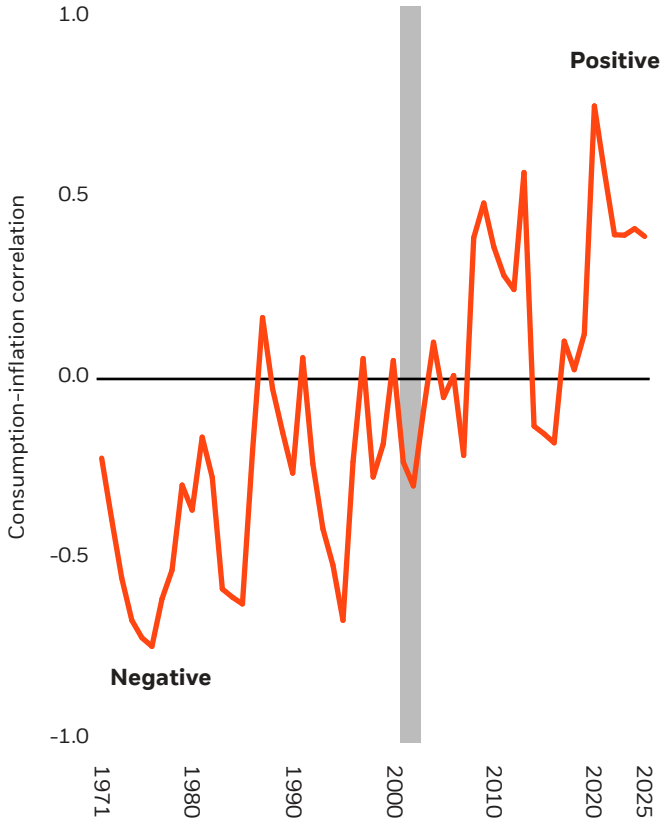
BSYSH0825U/M-4729121-4/18

Figure 3 presents the long-term historical trend of how consumption relates to inflation. It highlights a significant change around 2000, similar to the pattern observed in Figure 2 for SBC. Before 2000, inflation and consumption were negatively correlated by an average of 30%, a trend that is comparable to the current situation where an increase in inflation corresponds with a decrease in consumption.

After 2000, the period of sustained low inflation accompanied at times by concerns over the possibility of deflation meant the greater problem facing policy makers was one of too little inflation. As a result, increases in inflation were an objective, associated with improved consumption and economic growth leading to enhanced stock market performance. During this period, the correlation between consumption and inflation was positive, averaging around 15%. This indicates that inflationary periods were generally beneficial for stocks but typically detrimental for bonds, resulting in a negative SBC. And though not yet reflected in long-term correlations in Figure 3, the post-COVID era highlights a return to a negative consumption/inflation relationship, where rising (falling) inflation is both bad (good) for bonds and stocks and hence contributing to positive stock-bond correlation.

Moving forward, the crucial insight for portfolio management is that a dependable negative SBC, which historically allowed bonds to diversify portfolios effectively, is unlikely to reemerge. This will only happen if there is a resurgence of a positive link between consumption and inflation.

Figure 3: Inflation may now harm growth



Notes: Long-term correlation between consumption and inflation based on 5-year window of quarterly PCE and GDP price deflator.

Source: Federal Reserve Bank or St Louis, as of March 31, 2025. Calculations based on those presented in NBER working paper No. 27861 "Stock-bond return correlation, bond risk premium fundamental, and fiscal-monetary policy regime" September 2020.

Stock-bond correlation and market regimes

In the late '90s, central banks in developed markets gained credibility for their ability to control inflation, supported by global trends that kept inflation below target levels. This harmonious monetary policy supported growth and also stabilized inflation — a phenomenon Olivier Blanchard and Jordi Gali called the "divine coincidence" of monetary policy.[3]

During this period, markets were characterized by alternating between "risk on" and "risk off" regimes. In each of these phases, risky assets such as equities and credit would move inversely to safe assets such as government bonds. The SBC was consistently negative over this timeframe. Post Global Financial Crisis, the combination of positive risk premia for both asset types, combined with negative SBC, led to a rise in the popularity of risk parity allocations (allocating exposures based on risk contribution). Risk parity asset allocations capitalize on the diversification benefits of government bonds to optimize portfolios during periods of negative SBC.

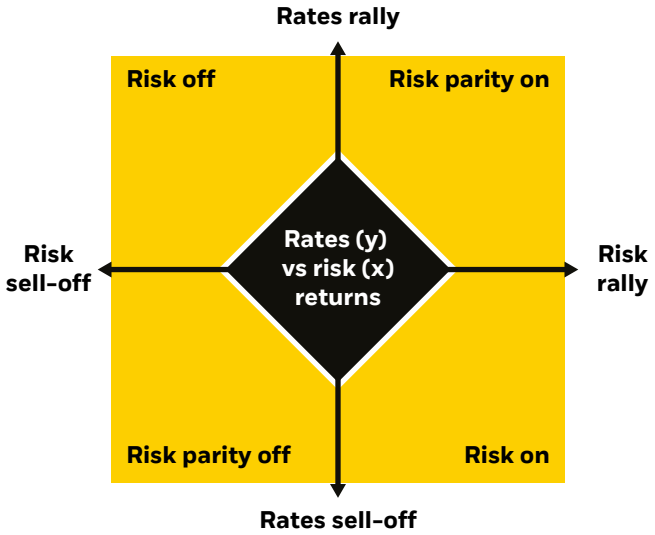
But this was not always the case. From the mid-'60s to the late '90s, a period characterized by high inflation uncertainty, SBC was mostly positive. During this time, markets were characterized by risky and safe assets moving in tandem, which we refer to as 'risk parity' regimes.

3 Blanchard, O. and Galí, J. (2007), "Real Wage Rigidities and the New Keynesian Model," Journal of Money, Credit and Banking, Vol. 39, No 1, pp.36-65.

BSYSH0825U/M-4729121-5/18

The illustration in Figure 4 depicts how the SBC interacts with different market conditions, specifically "risk" and "risk parity" scenarios. Negative SBC regimes, where risky and safe asset returns move in opposite directions, align with risk on/risk off market environments (the southeast to northwest diagonal). Conversely, positive SBC regimes, where both risky and safe assets move together, align with risk parity on/risk parity off movements (the southwest to northeast diagonal).

Figure 4: "Risk parity on/off" vs. "risk on/off" quadrants



Notes: For illustrative purposes only. Source: BlackRock.

Traditional asset allocation approaches

Asset allocators traditionally differentiate between "strategic" and "tactical" decision making. The former involves harvesting long-term risk premia (i.e., the compensation for bearing any multitude of types of risk) across asset classes, while the latter focuses on identifying short-term dislocations, either directionally or cross-sectionally. The distinction reflects two ways investors typically seek to generate returns in financial markets.

In our systematic framework, "tilt" and "timing" correspond to strategic and tactical asset allocation. "Tilt" is slow-moving and seeks to capture long-term risk premia. It generally contributes positively to portfolios during low volatility periods and expansion phases of the economic cycle. "Timing" is fast and complements tilt by seeking to generate positive returns in periods of higher volatility or economic transitions.

Combining tilt with timing in asset allocation can result in portfolios with a more consistent return profile. Both strategies are crucial for navigating the full spectrum of economic cycles and market volatility, corresponding to both transitions into and out of economic recessions and/or financial crises. Timing can offset periods of underperformance when tilts are struggling. Conversely, in periods where volatility is muted, and risk premia are stable, tilts can add value.

A closer look at tilts

Asset allocation tilts are adjusted to capture gradually evolving long-term trends in expected returns, accommodating both directional long exposures and cross-sectional short positions. These include well-known risk premia, such as carry, which are dynamic and reflect changes in the potential for expected returns and relative value across asset classes within a strategic asset allocation framework. Generally, tilts are based on three broad concepts which encapsulate the economic sensibility of risk parity, momentum and carry.

Inverse volatility weighted (1/vol)
This approach establishes the archetypical "risk parity" portfolio where each asset is given the same level of risk. The total risk for the portfolio is balanced out according to predictions of long-term risk and return. While risk parity typically thrives in stable conditions with low inflation, they have recently faced challenges due to inflation and increasing interest rates, which have simultaneous losses in both stocks and bonds.

Trend following (mean/vol)
This approach uses asset price trends, return persistence and serial correlation observed in asset returns captured by a mean (smoothed) of recent realized returns. It plays a key role in Commodity Trading Advisor (CTA) funds' time-series momentum strategies. Mean/vol is defensive during protracted downturns such as the Global Financial Crisis, but vulnerable to sharp market reversals. Abrupt selloffs, followed by steep market rallies are its Achilles' heel, as seen with the quick sell-off and rally in March 2020, an environment where recent returns are poor predictors of future performance.

Volatility adjusted expected return (carry/vol)
The carry factor approach for fixed income allocation relies on forward-looking return expectations. Since carry in fixed income is inversely related to recent price returns, this factor has a strong value trait, favoring underperforming assets. This pro-cyclical tilt is challenged during extended market downturns or recessions.

BSYSH0825U/M-4729121-6/18

Table 1 summarizes key performance statistics from a stylized back-test of two-asset tilt portfolios constructed using the above-mentioned approaches. In line with expectations, tilt portfolios generally exhibit a strong risk-on profile (i.e., they outperform in up markets and underperform in down markets) with carry/vol being the most risk seeking. Tilt is also implicitly short volatility (i.e., it underperforms when market volatility is high or increasing). Historically, these strategies have tended to perform well in low-volatility, growth-positive environments (i.e., "Goldilocks"), and have struggled during periods of stagnant or negative growth combined with rising inflation (i.e., "stagflation"). The trend-following approach offers the most defensive return profile, but at the cost of limited upside. Figure 5 shows cumulative return for each type of tilt portfolio.

Table 1: Performance statistics for tilt portfolios

	1/vol	mean/vol	carry/vol
Return	0.72%	0.73%	0.73%
Risk	1.08%	0.97%	1.10%
Information ratio	0.66	0.75	0.67
S&P 500			
Up months	1.95%	1.21%	2.39%
Down months	-1.75%	-0.24%	-2.55%
Risk parity			
Up months	2.55%	1.31%	2.09%
Down months	-2.63%	-0.35%	-1.78%
Growth/inflation regime			
Goldilocks	1.47%	0.83%	2.14%
Overheating	0.74%	0.88%	0.72%
Slowdown	1.15%	0.75%	1.16%
Stagflation	-0.28%	0.47%	-0.62%
Interest rate volatility regime (MOVE)			
Quartile 1	1.44%	1.36%	1.61%
Quartile 2	1.40%	0.85%	1.27%
Quartile 3	0.50%	0.53%	0.57%
Quartile 4	-0.02%	0.36%	-0.04%
Risk volatility regimes (VIX)			
Quartile 1	2.03%	1.97%	2.21%
Quartile 2	1.15%	1.09%	1.56%
Quartile 3	0.64%	0.22%	0.77%
Quartile 4	-0.54%	0.10%	-1.14%

Notes: Summary of performance statistics from a stylized back-test for a hypothetical two-asset tilt portfolio containing U.S. 10-year Treasury Note Future and 5-year U.S. High Yield CDX rebalanced daily. Performance measured over period July 31, 2006–June 30, 2025. Risk and return statistics are reported annualized using monthly data. Asset returns based on TY1 Comdty and Markit CDX.NA.HY 5-year Excess Return Index. Growth and inflation regimes defined using difference between 3-month and 6-month average for U.S. Manufacturing PMI and headline CPI YOY respectively. Interest rate volatility regimes defined using ICE BofA MOVE Index. Risk regimes defined using Chicago Board Options Exchange Volatility (VIX) Index. Risk parity regime returns calculated for a hypothetical inverse volatility weighted portfolio of S&P 500 Index and Bloomberg Barclays U.S. Treasury Index. Performance measured over period July 31, 2006–June 30, 2025. Source: BlackRock, with data from Bloomberg. For illustrative purposes only. The figures shown relate to past performance. **Past performance is not a reliable indicator of current or future results.**

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The securities or asset classes in the back-tested portfolios were selected with the full benefit of hindsight, after their performance returns over the period shown was known. It is not likely that similar results could be achieved in the future. Back-tested performance returns have certain limitations. Unlike actual performance returns, they do not reflect actual trading, liquidity constraints, fees and other costs. Back-tested performance returns are indicative of a hypothetical portfolio rebalanced daily. No representation is being made that any account, portfolio or strategy will or is likely to achieve results similar to those shown.

Figure 5: Cumulative performance of different types of tilt portfolio

Notes: Stylized back-test showing cumulative performance of each type of tilt calculated for a two-asset portfolio of U.S. 10-year Treasury Note Future and 5-year High Yield CDX rebalanced daily. Asset returns based on TY1 Comdty and Markit CDX.NA.HY 5-year Excess Return Index. 1/vol portfolio uses inverse volatility weighting for each asset. Mean/volatility approach uses the ratio of exponentially weighted moving average return with 252-day half-life over volatility to weight each asset. Carry/vol method uses 5-year High Yield CDX Option Adjusted Spread and 10-year repo rates as measure of carry of each asset respectively. Volatility is computed as the exponentially weighted standard deviation of daily returns with 63-day half-life. Performance measured over period July 31, 2006–June 30, 2025. Source: BlackRock, with data from Bloomberg. For illustrative purposes only. The figures shown relate to past performance. **Past performance is not a reliable indicator of current or future results.**

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BSYSH0825U/M-4729121-8/18

A closer look at timing

Asset allocation timing is about generating alpha by tactically capitalizing on significant market movements. Therefore, timing indicators are quicker than tilts and designed to be directionally neutral over time (i.e., equally long and short). Timing signals typically fall within two main categories:

Market-based technicals
These are fast indicators which consume market data such as price return, level etc. and capture short-term momentum bursts, or the cross-asset lead/lag interactions that take place when markets react to exogenous surprises.

Macro-based fundamentals
Large and persistent market moves can also be driven by broader changes in macroeconomic fundamentals, which are gradually reflected in asset pricing. Therefore, it is sensible to complement the faster technical signals with slower ones that rely on leading properties of key macroeconomic data. This data can be either structured (e.g., metrics in corporate financial statements), or unstructured such as central bank statements. With advancements in AI-based machine learning techniques, we can now analyze unstructured data sets to forecast investment outcomes. For example, we can extract market sentiment from central bank reports using sophisticated algorithms. With central banks actively combating inflation, these tools allow us to develop nuanced signals based on the language used in central bank communications.

Revisiting asset allocation framework in positive SBC regimes

Asset allocation frameworks, that have been developed and tested over the last two decades (a period defined by negative SBC), must adapt to the current positive but unstable SBC regime. A positive SBC regime makes it difficult to diversify risk, exposing portfolios to extreme tail events and deeper maximum drawdowns. This significant change underscores the need for a more dynamic approach to asset allocation. This approach should include robust timing that is defensive and aims to perform well in both positive and negative SBC regimes.

This also means tackling the challenge of developing insights for a relatively unfamiliar positive SBC regime. To address the lack of recent experience with positive SBC, we examine periods of high inflation and positive SBC from the early 1960s in our research. This allows us to test and validate new insights that are robust and can navigate both risk-on/off and risk-parity-on/off regimes.

Within our framework, we define a “risk on/risk off” (R2) factor and a “risk parity on/risk parity off” (P2) factor.

In negative SBC regimes, we aim to maximize the return of the R2 factor by taking a long position in risky assets and a corresponding short position in safe assets. Asset weights are adjusted so that each asset contributes equally to the overall risk. The direction of these exposures means the factor exhibits the maximum gain (loss) during risk on (off) periods.

In positive SBC regimes, we aim to maximize the return of the P2 factor by taking long positions in both risky and safe assets. Asset weights are adjusted so that each asset contributes equally to the overall risk. The direction of these exposures means the factor exhibits the maximum gain (loss) during risk parity on (off) periods.

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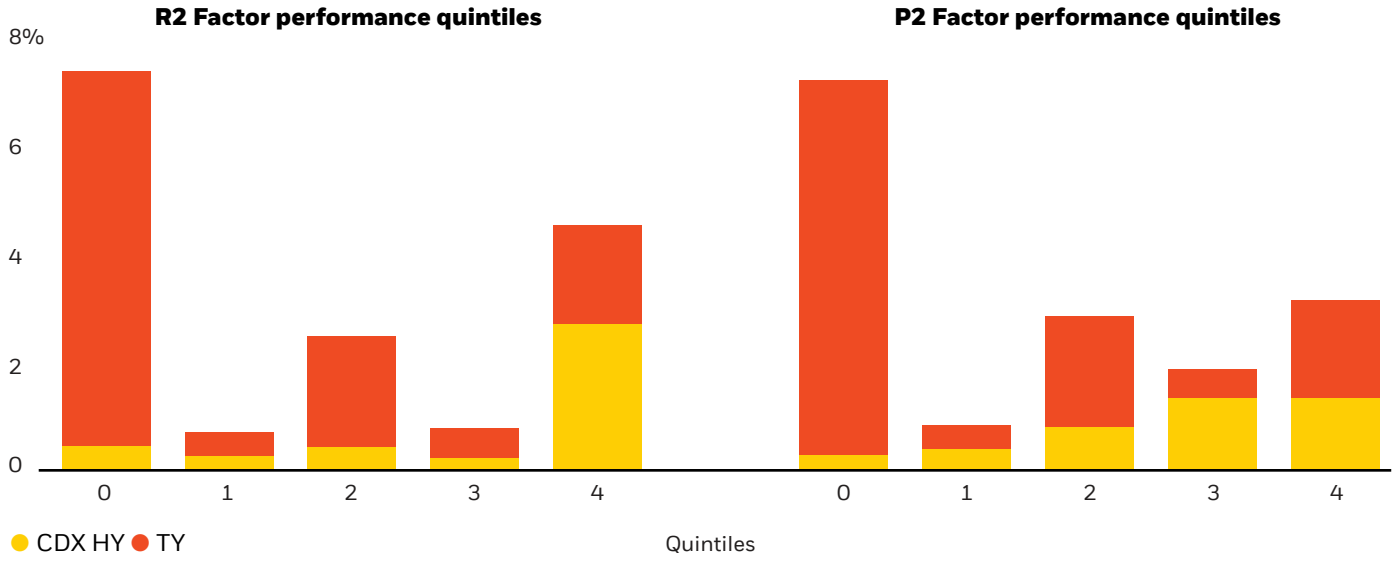
Putting it all together

As systematic investors, we embrace innovation and new methods to maintain an information edge in financial markets. By expanding our research to cover data from the 1960s and tapping into sophisticated machine learning techniques to analyze complex data, we've identified valuable insights. These insights allow us to dynamically navigate positive and negative SBC regimes. **Our framework captures SBC regime shifts without directly estimating the SBC parameter, aligning with the risk on/off and risk parity on/off factors.**

To verify the efficacy of these insights, we examine the average performance of timing R2 and P2 factor across various regimes. We construct R2 and P2 factor as a two-asset portfolio made up of 5-year High Yield CDX as the risky asset and 10-year U.S. Treasury Note Future as the safe asset. (R2 factor is long risky asset and short safe asset; equal risk weighted, P2 factor is long both risky and safe asset; equal risk weighted). We then modulate the exposure of these factors using our timing indicators and measure performance through time. The bar chart in Figure 6 shows the performance of each timed factor across return quintiles for a buy and hold R2 and P2 portfolios. On average, the returns are positive across all quintiles and most notably concentrated at the tails of return distribution for R2 and P2 factors. This concentration gives the bar chart its convex shape. This clustering of performance in the tails indicates a defensive return profile and outperformance during periods of extreme market conditions.

Figure 6: Portfolio timing returns in R2 and P2 factor return quintiles



Notes: Bar plot showing average monthly performance of timing R2 and P2 portfolio of a risky (5-year High Yield CDX) and safe (10-year U.S. Treasury Note Future) asset in quintiles of returns for risk parity "R2" and risk on–risk off "P2" factor. Timing portfolio uses a blend of proprietary technical and fundamental insights. Asset returns based on TY1 Comdty and Markit CDX.NA.HY 5-year Excess Return Index. Portfolio rebalanced daily over period July 31, 2006–June 30, 2025. Source: BlackRock, with data from Bloomberg. For illustrative purposes only. The figures shown relate to past performance. **Past performance is not a reliable indicator of current or future results.**

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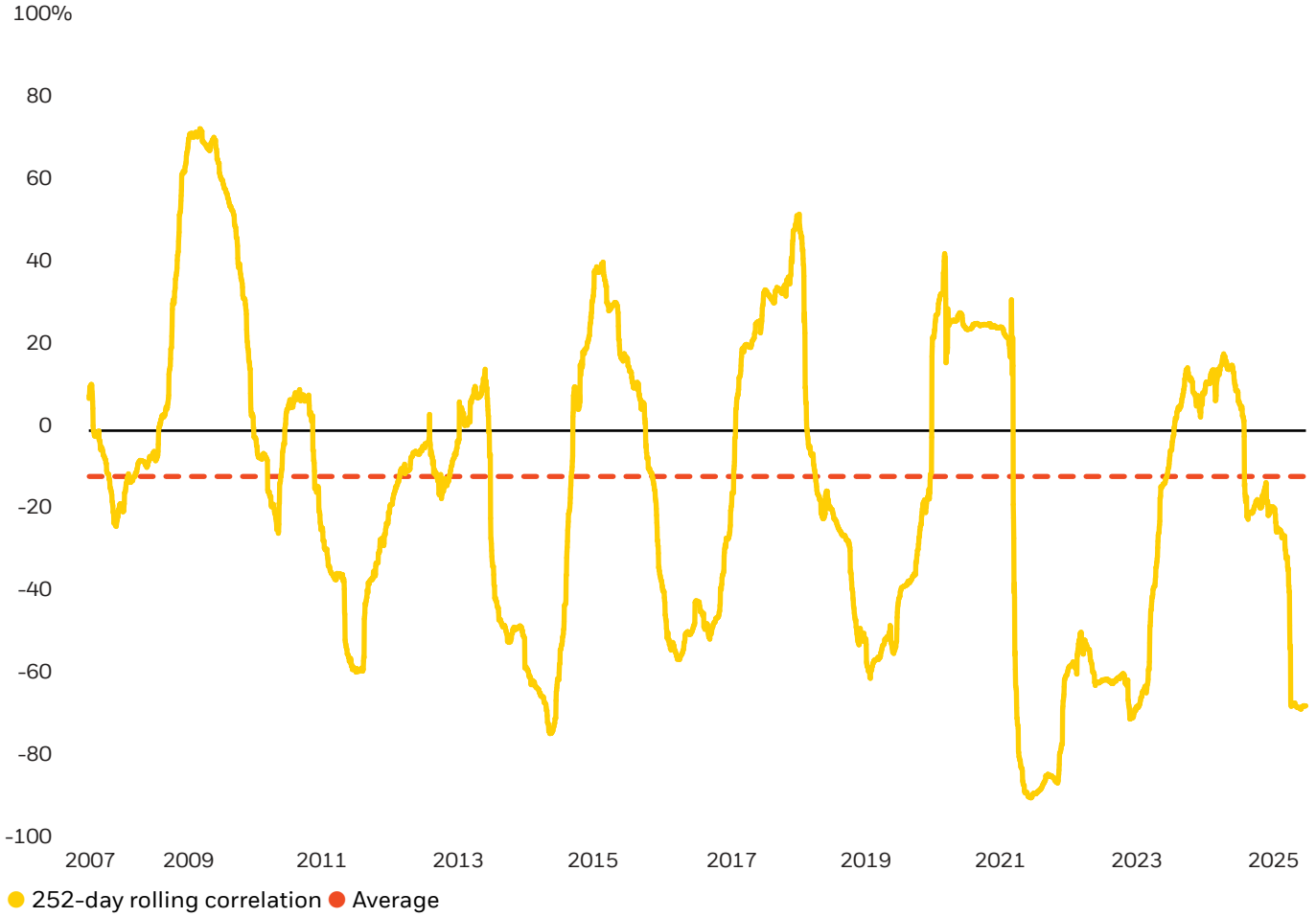
For tilt, we use a blend of trend following and carry/vol based approach, balancing the defensiveness of trend following with risk seeking, and aim for a higher return profile of carry/vol.

We examine the correlation between tilt and timing to ensure additivity. Figure 7 displays the rolling 252-day correlation. The average correlation over the performance window is -14%. The low or slightly negative correlation between tilt and timing suggests that together, they have the potential to enhance risk-adjusted returns and generate a more consistent return profile across SBC regimes.

Figure 7: Correlation between tilt and timing



Notes: 252-day correlation between tilt and timing returns measured over period July 31, 2006–June 30, 2025. Correlation statistics from a stylized back-test for a hypothetical two-asset tilt portfolio containing U.S. 10-year Treasury Note Future and 5-year U.S. High Yield CDX rebalanced daily. Asset returns based on TY1 Comdty and Markit CDX.NA.HY 5-year Excess Return Index. Performance measured over period July 31, 2006–June 30, 2025. Correlation statistics from a stylized back-test for a hypothetical two-asset tilt portfolio containing U.S. 10-year Treasury Note Future and 5-year U.S. High Yield CDX rebalanced daily. Asset returns based on TY1 Comdty and Markit CDX.NA.HY 5-year Excess Return Index. Performance measured over period July 31, 2006–June 30, 2025. Risk and return statistics are reported annualized using monthly data. Growth and inflation regimes defined using difference between 3-month and 6-month average for U.S. Manufacturing PMI and headline CPI YOY respectively. Interest rate volatility regimes defined using ICE BofA MOVE Index. Risk regimes defined using Chicago Board Options Exchange Volatility (VIX) Index. Risk parity regime returns calculated for a hypothetical inverse volatility weighted portfolio of S&P 500 Index and Bloomberg Barclays U.S. Treasury Index. Performance measured over period July 31, 2006–June 30, 2025. Source: BlackRock, with data from Bloomberg. For illustrative purposes only. The figures shown relate to past performance. **Past performance is not a reliable indicator of current or future results.**

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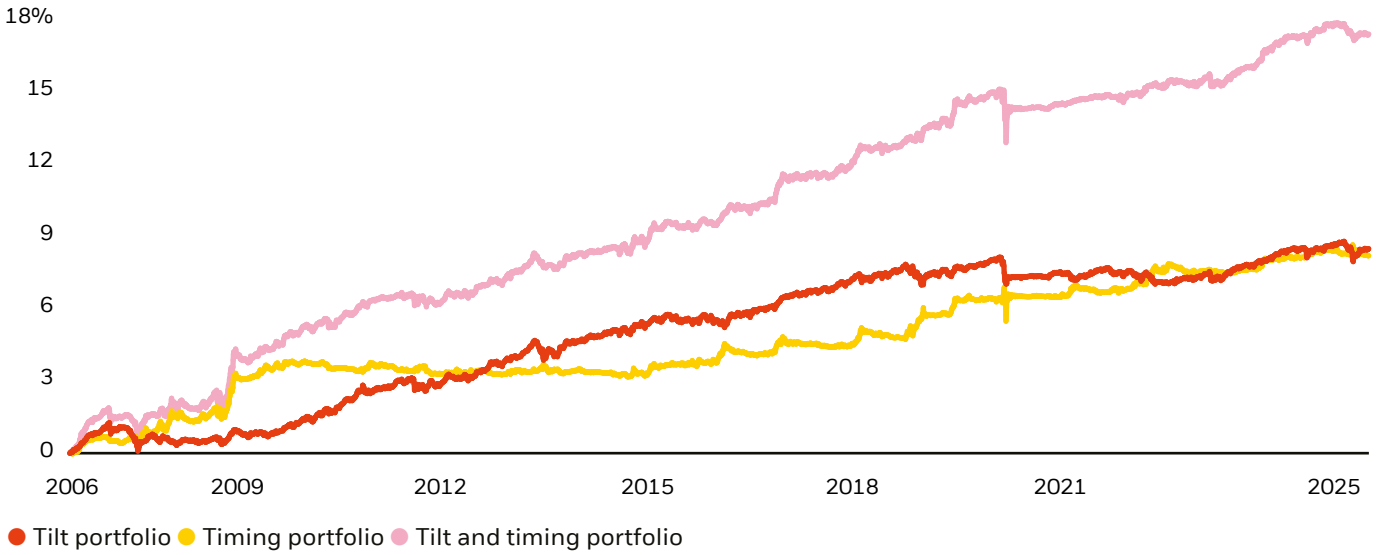
Ultimately, we combine tilt and timing using the scientific and disciplined techniques pioneered by Richard Grinold and Ronald Kahn.[4] Optimization methods balance the return forecasts from these characteristics against the risk of deviating from a given benchmark. Our systematic asset allocation framework is versatile, and can be appropriate for both top-level multi-asset allocation seeking to harvest broad risk premia and for systematic global macro strategies to exploit short-term opportunities. In our Systematic Fixed Income team, we use this framework to tilt and time core allocations within multi-sector strategies. Our framework adapts to market conditions by emphasizing tilts in stable markets. It focuses on timing to enhance alpha potential and defensiveness in periods when outcomes are driven by tails of asset return distribution.

Figure 8 and Table 2 show cumulative returns and performance statistics from a stylized back-test of a tilt, timing and tilt + timing portfolio. As conjectured, a combination of tilt and timing yields better risk-adjusted performance with an information ratio of 1.26 vs. 0.85 for tilt and 0.82 for timing. The correlation statistics also highlight the additivity from combining a defensive timing overlay to a traditional risk on tilt as measured by lower correlation to broad market betas. In conclusion, our framework seeks to deliver a portfolio with a more upside participation and helps mitigate losses in down markets across SBC regimes.

Figure 8: Cumulative returns of tilting + timing



Notes: Summary of stylized back-test showing cumulative performance of hypothetical performance statistics for tilt, timing and tilt + timing portfolio in Figure 8 and in Table 2. Correlation statistics calculated using data for Bloomberg U.S. Treasury Total Return Index, Bloomberg U.S. Corporate High Yield Total Return Index and S&P 500 Total Return Index.

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4 Richard Grinold and Ronald Kahn. "Active Portfolio Management: A Quantitative Approach for Producing Superior Returns and Controlling Risk." McGraw Hill, 2nd edition. 1999.

BSYSH0825U/M-4729121-12/18

Table 2: Performance statistics for blended tilt + timing portfolio

	Tilt	Timing	Tilt + timing
Return	0.44%	0.42%	0.86%
Risk	0.51%	0.50%	0.69%
Information ratio	0.87	0.85	1.25
S&P 500			
Up months	1.08%	0.27%	1.35%
Down months	-0.84%	0.74%	-0.11%
Risk parity			
Up months	1.02%	0.35%	1.37%
Down months	-0.64%	0.56%	-0.08%
Growth/inflation regime			
Goldilocks	0.89%	0.42%	1.31%
Overheating	0.48%	0.06%	0.54%
Slowdown	0.57%	0.58%	1.16%
Stagflation	-0.04%	0.66%	0.61%
Interest rate volatility regime (MOVE)			
Quartile 1	0.89%	0.12%	1.01%
Quartile 2	0.64%	0.33%	0.97%
Quartile 3	0.33%	0.49%	0.83%
Quartile 4	0.10%	0.64%	0.74%
Risk volatility regimes (VIX)			
Quartile 1	1.25%	0.36%	1.61%
Quartile 2	0.79%	0.09%	0.88%
Quartile 3	0.30%	0.39%	0.69%
Quartile 4	-0.31%	0.83%	0.51%
Correlation			
Treasury	2.72%	22.46%	18.10%
HY	46.83%	-8.98%	27.72%
SPX	54.21%	-15.77%	28.24%

Notes: Summary of stylized back-test showing cumulative performance of hypothetical performance statistics for tilt, timing and tilt + timing portfolio in Figure 8 and in Table 2. Correlation statistics calculated using data for Bloomberg U.S. Treasury Total Return Index, Bloomberg U.S. Corporate High Yield Total Return Index and S&P 500 Total Return Index.

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Conclusion

The post-pandemic shifts in interest rates and inflation have significantly changed market dynamics. This new reality means both discretionary and systematic investors should reconsider asset allocation approaches that have been developed and tested over the last two decades. Given the current positive but unstable SBC, it's crucial for those that manage assets to be more deliberate about navigating “risk” and “risk parity” regimes. By examining historical periods of high inflation and positive SBC, we can unlock valuable insights that allow for more dynamic allocation suitable for both negative and positive SBC regimes. A systematic allocation approach, guided by economic sensibility and powered by these data-driven insights is well positioned in seeking to deliver more consistent portfolio outcomes in a world of unpredictability.

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