Q1 2024

Is Your Equity Hedge Fund Portfolio Resilient Enough for Uncertain Times?

Executive Summary

Major asset classes have historically exhibited significant sensitivity to macroeconomic drivers, such as growth, inflation and volatility. With the outlook for macroeconomic uncertainty still heightened, these sensitivities may continue to have meaningful impacts on portfolio performance.

We analyze the historical macroeconomic sensitivity of traditional asset classes and major hedge fund strategies. We show that the average hedge fund is unlikely to provide meaningful diversification during periods of macro uncertainty, which are also typically difficult for traditional assets. However, long/short low-risk strategies have tended to exhibit low macro sensitivity, offering the potential to mitigate the macro sensitivities found elsewhere in investors' portfolios.

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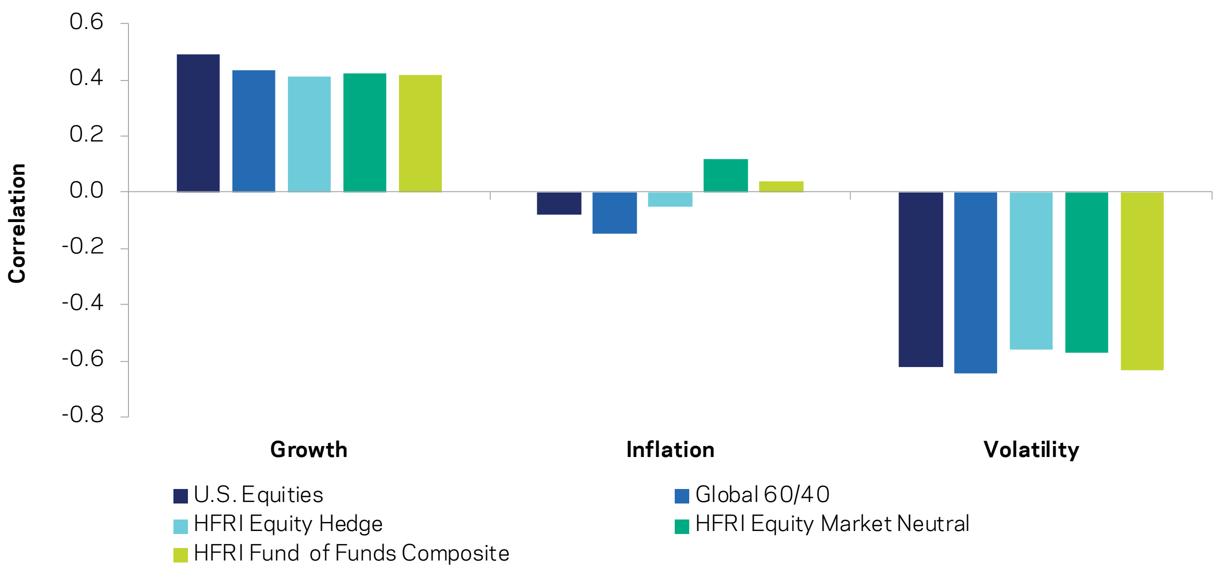
The Macroeconomic Environment: Navigating Uncertainty

After a decade of enjoying a robust and steady macroeconomic environment marked by stable growth and low inflation, investors have recently faced a more challenging macro landscape with elevated levels of uncertainty. The global economy is now potentially facing a slowdown amid higher interest rates and stickier inflation. As much as a potential 'soft landing' has gained traction in recent months, many investors are still worried about the outlook for growth and inflation.

Traditional asset classes tend to exhibit a meaningful sensitivity to major macroeconomic drivers. In particular, U.S. equities and a Global 60/40 portfolio have historically tended to benefit from positive growth, somewhat lower inflation and lower volatility (**Exhibit 1**). While this is expected for traditional markets, it is noteworthy that hedge funds on average—even those classified as market neutral—have also exhibited broadly similar sensitivities. In particular, their return correlation to growth and volatility has been historically aligned to that of equity markets. In other words, the average hedge fund is unlikely to provide much-needed diversification to traditional portfolios during periods of macro uncertainty.

Exhibit 1: Macro Sensitivity[1] of Traditional Asset Classes

January 1, 1990 – December 31, 2023



Source: AQR, Bloomberg. Gross of fees data from January 1, 1990 – December 31, 2023. Throughout this paper, US Equities are the S&P500 Index. Global 60 / 40 is 60% MSCI World Index and 40% of a weighted composite of Australian, European, Canadian, Japanese, U.K. and U.S. 10-year government bonds. HFRI Fund of Funds Composite Index is made up of hedge fund managers who may invest in multiple assets classes e.g., equities, fixed income, and more. HFRI Equity Hedge Index is made up of managers who maintain at least 50% exposure to, and may in some cases be entirely invested in, equities, both long and short. HFRI Equity Market Neutral Index is made of managers who aim to be market neutral to traditional equity markets. Please see Appendix for more details on the construction of the return series and macroeconomic environmental indicators. Hypothetical performance results have certain inherent limitations, some of which are disclosed in the Appendix. Past performance is not a guarantee of future performance.

1 We utilize a combination of levels and changes for varying macro indicators over a trailing 12-month trailing time horizon.

Long/Short Low-Risk Investing: a Complementary Solution

In light of the uncertain macro-economic environment, what alternative investment solutions are available to help investors' portfolios? Long/short low-risk investing, which favors safer companies against riskier ones, may offer a valuable complementary solution to existing hedge fund allocations. Low-risk anomalies have been studied at AQR for over a decade, expanding upon original research from Fischer Black (1972). While the original findings focused on low statistical risk, researchers (including AQR's Asness, Frazzini, and Pedersen) have since uncovered consistent evidence on fundamental measures of risk, where "safe" companies are those with less sensitivity to macro-economic fluctuations, and bear lower operational and business risk. These fundamental measures of low risk, often referred to as "quality" indicators, include measures of profitability, earnings stability and credit risk, among others. While we'll focus in this piece on well-known factors associated with these broad investment ideas, the ways of capturing these ideas extends far beyond commoditized factors and academic literature into the more proprietary sphere. Throughout this paper, "low-risk" will refer to a blend of low statistical risk and low fundamental risk.[2]

Low-risk investing offers a number of important benefits:

1. It has delivered attractive, diversifying returns over the long-term.
2. It provides exposure to investment ideas that hedge funds have historically been underexposed to.
3. It tends to be relatively agnostic to varying macro environments in contrast to typical hedge funds.

Long/short low-risk investing has provided attractive returns over the long-term, which has been diversifying to traditional markets' returns. For instance, its realized historical correlation to U.S. equities has been around -0.4 over the past three decades. Importantly, these returns have come primarily from uncorrelated alpha as opposed to market beta exposure (**Exhibit 2**).

2 Throughout this paper, we utilize a Long/Short Low-Risk portfolio constructed using a 50% allocation to the Quality-Minus-Junk ("QMJ") factor and a 50% allocation to the Betting-Against-Beta ("BAB") factor. BAB goes long low-beta stocks and short high-beta stocks. QMJ goes long high-quality stocks and short low-quality stocks. All returns are excess of cash. AQR has contributed a number of papers on the existence of both factors, including *Betting Against Beta (Frazzini, Pederson, 2013)* and *Quality Minus Junk (Asness, Frazzini, Pedersen, 2018).*

Exhibit 2: Net Performance of Hypothetical Long/Short Low Risk and HFRI Managers

January 1, 1990 – December 31, 2023

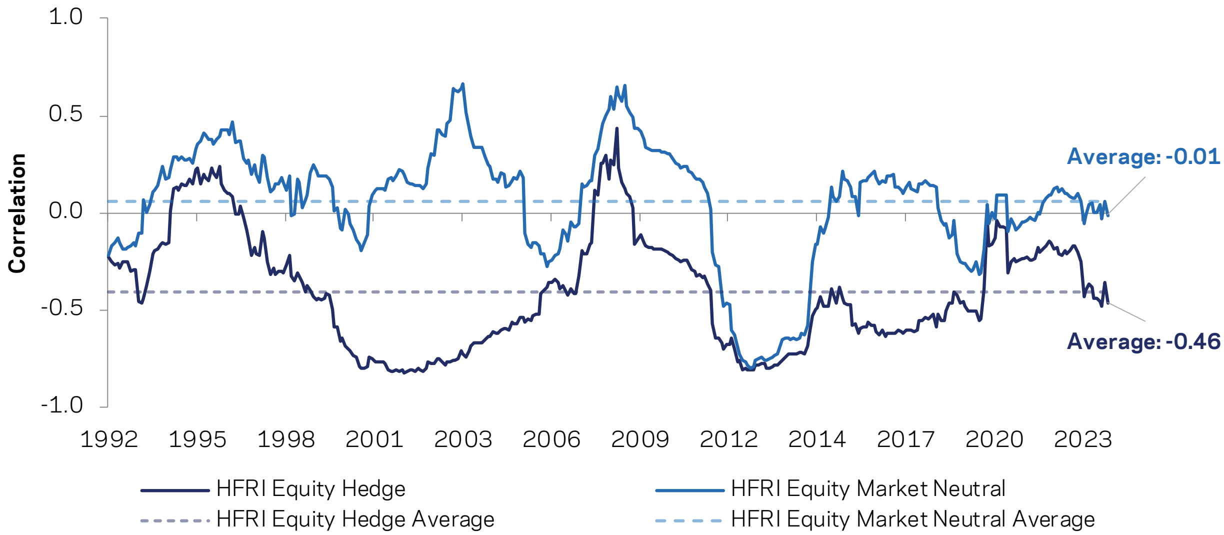
	Hypothetical Long/Short Low-Risk Strategy	HFRI Equity Hedge	HFRI Equity Market Neutral
Annualized Return	8.1%	10.4%	5.6%
Alpha to equity market	9.8%	7.2%	5.2%
Beta contribution	-1.7%	3.2%	0.4%
Volatility	8.5%	9.0%	3.0%
Sharpe Ratio of Alpha	0.8	0.5	0.8
Correlation to US Equities	-0.4	0.8	0.3
Correlation to Global 60/40	-0.4	0.8	0.3

Source: AQR, Bloomberg. Hypothetical Net performance of the Hypothetical Long/Short Low-Risk Strategy is calculated based on a 0.6% mgmt. fee and a 15% performance fee above the ICE BofA 3-Month T-Bill Index per annum in USD. Please read important disclosures in the Appendix. Risk-free rate is the ICE BofA U.S. 3-Month Treasury Bill Index. Hypothetical data has inherent limitations, some of which are disclosed in the Appendix Please see appendix for an explanation of the Hypothetical Long/Short Low Risk Strategy construction. For illustrative purposes only, not representative of an actual portfolio currently managed by AQR.

When analyzing the typical exposures of average hedge funds, we find notable biases. Despite attractive return properties, a meaningful portion of long/short equity hedge fund performance has come from beta exposure, while returns remain highly correlated to traditional asset classes. Additionally, long/short equity hedge funds have historically bet on average against low risk, likely driven by a preference for lottery stocks[3] or stocks with option-like payoffs. While equity market-neutral funds have not explicitly bet against low risk, they have on average delivered little to no exposure to it (**Exhibit 3**).

Exhibit 3: Rolling 36-Month Correlation of HFRI Managers vs Hypothetical Long/Short Low Risk

January 1, 1990 – December 31, 2023

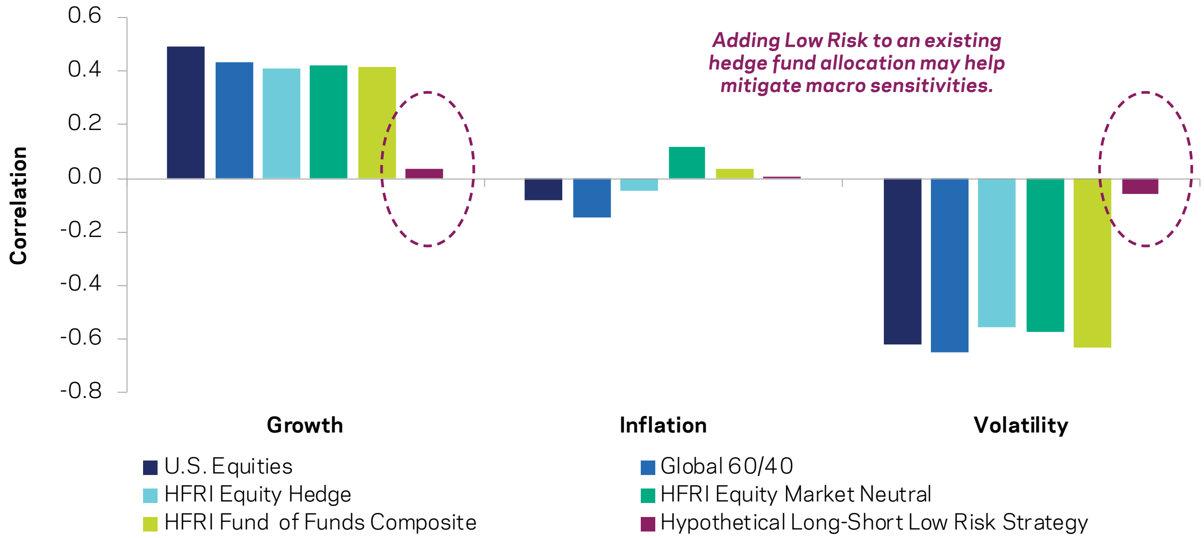


Source: AQR. The above chart shows the rolling 36-month correlation of the HFRI Equity Hedge Index and the HFRI Equity Market Neutral Index to a Long/Short Low Risk strategy as well as the average correlation of that portfolio over the full period. Hypothetical data has inherent limitations, some of which are disclosed in the Appendix. Please see appendix for an explanation of the Hypothetical Long/Short Low Risk Strategy construction. For illustrative purposes only, not representative of an actual portfolio currently managed by AQR.

3 "Lottery stocks" are commonly defined as stocks that may offer outsized returns with a high amount of risk and a low probability of actually achieving those returns.

Importantly, long/short low-risk investing has not taken on the same macro-economic sensitivity to growth or volatility as the average hedge fund (**Exhibit 4**). Instead, low risk has tended to be relatively agnostic to varying macro environments, offering the potential to mitigate macro sensitivities within an investor's portfolio. We explore further the properties of low-risk investing during certain macro scenarios in the next section.

Exhibit 4: Macro Sensitivity of Traditional Asset Classes and Long/Short Low-Risk Investing
January 1, 1990 – December 31, 2023



Source: AQR, Bloomberg. Please see Appendix for more details on the construction of the return series and macroeconomic environmental indicators. Hypothetical performance results have certain inherent limitations, some of which are disclosed in the Appendix. Past performance is not a guarantee of future performance. Please see appendix for an explanation of the Hypothetical Long/Short Low Risk Strategy construction. For illustrative purposes only, not representative of an actual portfolio currently managed by AQR.

Low-Risk Investing During Market Drawdowns or Recessions

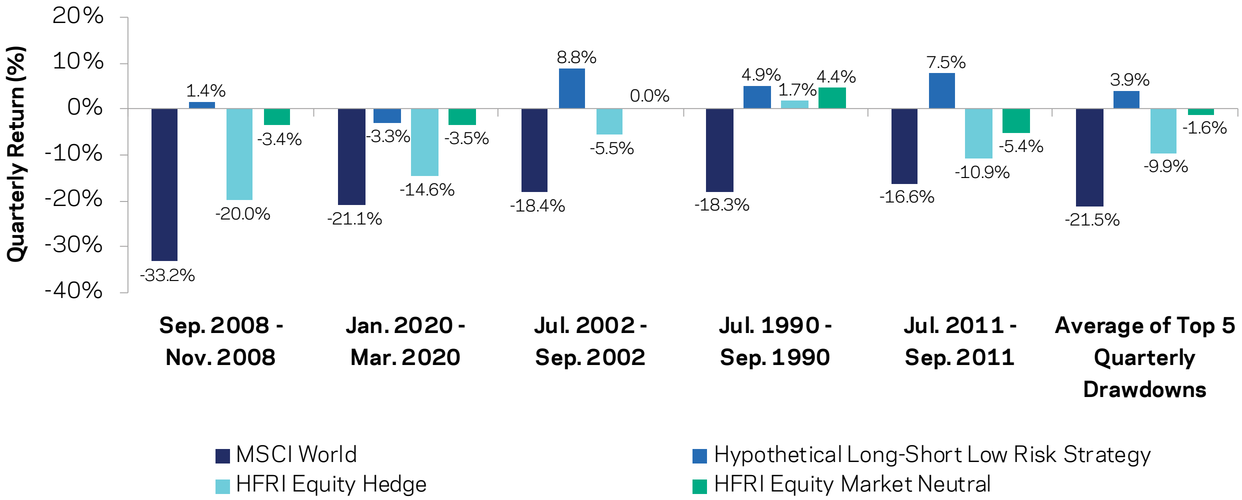
A long/short low-risk strategy has delivered positive returns on average during the top five[4] quarterly equity market drawdowns since January 1990 (**Exhibit 5**). This phenomenon is partly attributable to "low fundamental risk", also known as "quality", which offers flight-to-safety properties as investors tend to prefer safer, higher quality, lower risk stocks during times of economic stress.

Similarly, low risk exhibits little bias to economic recessions, having historically delivered returns comparable to the long-term average during NBER-defined recessions (**Exhibit 6**).[5]

4 This phenomenon also holds when looking at the top 10 quarterly equity drawdowns since 1990.
5 Though a 50/50 QMJ/BAB portfolio allows for a more transparent, naïve implementation of a long/short Low-Risk portfolio, there are more sophisticated ways to construct low-risk strategies. For instance, *Ilmanen, Maloney, and Ross (2017)* show that long/short low-risk factors that are country, market, and industry-neutral are less susceptible to varying macro-economic regimes. Finally, it is also important to consider the price one pays for low-risk stocks. Historically, a low-risk portfolio that takes other factors (e.g. valuation) into account has outperformed a standalone low-risk portfolio.

Exhibit 5: Net Performance During Largest Quarterly MSCI World Drawdowns

January 1, 1990 – December 31, 2023

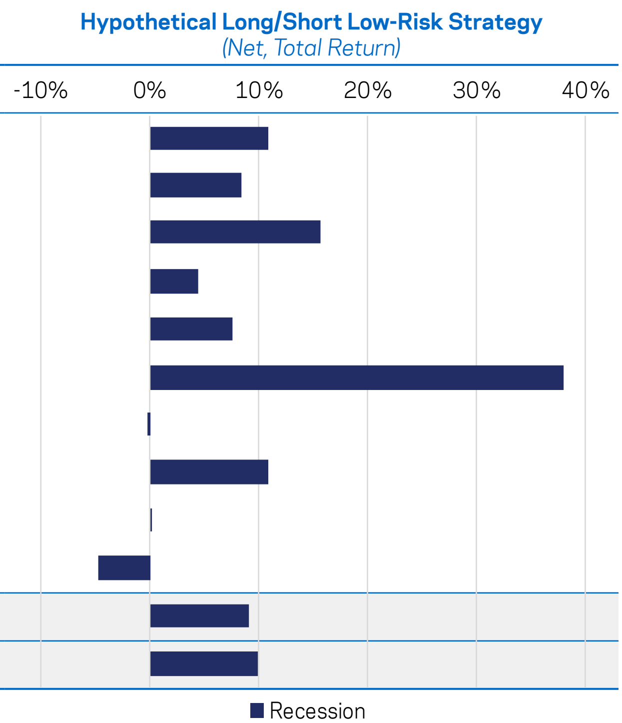


Source: AQR, Bloomberg. Net performance of the Hypothetical Long/Short Low-Risk Strategy is calculated based on a 0.6% mgmt. fee and a 15% performance fee above the ICE BofA 3-Month T-Bill Index per annum in USD. Past performance is not a guarantee of future performance. Please read important disclosures in the Appendix. Risk-free rate is the ICE BofA U.S. 3-Month Treasury Bill Index. Hypothetical data has inherent limitations, some of which are disclosed in the Appendix. Please see appendix for an explanation of the Hypothetical Long/Short Low Risk Strategy construction. For illustrative purposes only, not representative of an actual portfolio currently managed by AQR.

Exhibit 6: Low Risk Net Performance* During 10 NBER-Defined Recessions

January 1, 1950 – December 31, 2023

NBER-Defined Recession	Market Return (Total Return)
Eisenhower Recession (Sep-57 - Apr-58)	-1.5%
"Rolling Adjustment" (May-60 - Feb-61)	20.3%
Nixon Recession (Jan-70 - Nov-70)	-2.0%
Oil Crisis (Dec-73 - Mar-75)	-7.8%
Energy/Volcker (Feb-80 - Jul-80)	9.6%
Iran/Energy Crisis (Aug-81 - Nov-82)	14.2%
Gulf War (Aug-90 - Mar-91)	8.0%
Post-Dot.com (Apr-01 - Nov-01)	-0.9%
GFC (Jan-08 - Jun-09)	-35.0%
COVID-19 (Mar-20 - Apr-20)	-1.1%
Average Across These Recessions	0.4%
Full Sample Average (incl. Recessions)	

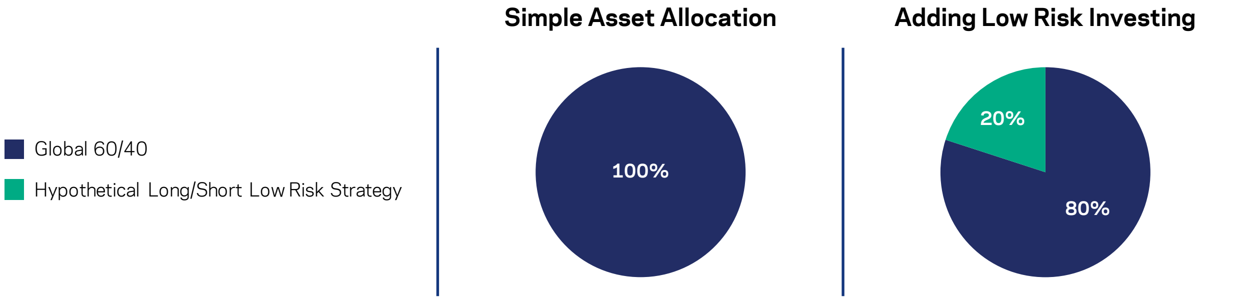


*Note, we do not show HFRI performance due to inception in January 1990. Source: AQR, Federal Reserve Bank of St. Louis. Market return is the cumulative total return of U.S. equity (S&P500) during NBER-defined recessions. "Recession" is the cumulative excess return during recessions. Please see appendix for an explanation of the Hypothetical Long/Short Low-Risk Strategy. The strategy realizes an average annualized volatility ~8.5% over the long-term and is net of a 0.6% model mgmt. fee and 15% performance fee above the ICE BofA 3-Month T-Bill Index. Hypothetical data has inherent limitations, some of which are listed in the Disclosures.

How Can Low-Risk Investing Help an Existing Asset Allocation?

For investors looking to mitigate their portfolio's sensitivity to macro growth and volatility, long/short low-risk investing is a natural solution. It not only has attractive macro properties, but also helps address the average hedge funds' higher-risk bias. Adding a modest allocation to a long/short low-risk portfolio has the potential to increase the Sharpe ratio of a typical portfolio mix and reduce its max drawdown (**Exhibit 7**). Finally, the alpha potential may be further magnified by employing a more sophisticated version of the strategy. At AQR, we use a meaningfully broader array of metrics and proprietary methods to extract additional alpha beyond a simple Low-Risk portfolio.

Exhibit 7: Adding Low Risk to an Existing Asset Allocation
January 1, 1990 – December 31, 2023



	Simple Asset Allocation	Adding Low Risk Investing
Annualized Return	6.7%	7.2%
Annualized Volatility	9.2%	6.9%
Sharpe Ratio	0.4	0.6
Max Drawdown	-32.8%	-26.2%

Source: AQR, Bloomberg. Net performance of the Hypothetical Long/Short Low-Risk Strategy is calculated based on a 0.6% mgmt. fee and a 15% performance fee above the ICE BofA 3-Month T-Bill Index per annum in USD. Past performance is not a guarantee of future performance. Global 60 / 40 is 60% MSCI World Index and 40% of a weighted composite of Australian, European, Canadian, Japanese, U.K. and U.S. 10-year government bonds. HFRI Equity Market Neutral Index is made of managers who aim to be market neutral to traditional equity markets. Please read important disclosures in the Appendix. Risk-free rate is the ICE BofA U.S. 3-Month Treasury Bill Index. Hypothetical data has inherent limitations, some of which are disclosed in the Appendix Please see appendix for an explanation of the Hypothetical Long/Short Low Risk Strategy construction. For illustrative purposes only, not representative of an actual portfolio currently managed by AQR.

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The MSCI World Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets.

Global 60 / 40 is 60% MSCI World Index and 40% of a weighted composite of Australian, European, Canadian, Japanese, U.K. and U.S. 10-year government bonds. HFRI Fund of Funds Composite Index is made up of hedge fund managers who may invest in multiple assets classes e.g., equities, fixed income, and more. HFRI Equity Hedge Index is made up of managers who maintain at least 50% exposure to, and may in some cases be entirely invested in, equities, both long and short. HFRI Equity Market Neutral Index is made of managers who aim to be market neutral to traditional equity markets.

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Hypothetical Long-Short Low-Risk Strategy Description:

The backtest is formed by combining two academic U.S. stock selection factors, to create a Hypothetical Low-Risk portfolio. The two factors (QMJ and BAB) are combined at 50% / 50% capital weights, respectively. This backtest is undiscounted, gross of any trading costs, and net of a 0.60% management and 15% performance fee. Please refer to the factor descriptions below.

Quality Minus Junk (QMJ): The "Quality Minus Junk" (QMJ) factor from AQR's data library, as defined in Asness, Frazzini and Pedersen (2013). The Quality Score is the average of four aspects of quality: Profitability, Growth, Safety and Payout. We use a broad set of measures to compute each of four aspects of quality; the score for each aspect is the average of the individual z scores of the underlying measure. Each variable is converted each month into ranks and standardized to obtain the z score.

1) Profitability is measured by: Gross profits over assets, return on equity, return on assets, cash flow over assets, gross margin, and the fraction of earnings composed of cash. 2) Growth is measured by: The five year prior growth in profitability, averaged across the measures of profitability. 3) Safety is defined as: Companies with low beta, low idiosyncratic volatility, low leverage, low bankruptcy risk and low ROE volatility. 4) Payout is defined using: Equity and debt net issuance and total net payout over profits. QMJ factors are constructed as the intersection of six value weighted portfolios formed on size and quality. At the end of each calendar month, we assign stocks to two size sorted portfolios based on their market capitalization. For U.S. securities, the size breakpoint is the median NYSE market equity. We use conditional sorts, first sorting on size, then on quality. Portfolios are value weighted, refreshed every calendar month, and rebalanced every calendar month to maintain value weights. The QMJ factor return is the average return on the two high quality portfolios minus the average return on the two low quality (junk) portfolios.

Betting Against Beta (BAB): The "Betting Against Beta" (BAB) factor from AQR's data library, as defined in Frazzini and Pedersen (2013). BAB factors are portfolios that are long low beta securities and that short sell high beta. To construct each BAB factor, all securities in a country are ranked in ascending order on the basis of their estimated beta and the ranked securities are assigned to one of two portfolios: low beta and high beta. In each portfolio, securities are weighted by the ranked betas (lower beta securities have larger weights in the low beta portfolio and higher beta securities have larger weights in the high beta portfolio). The portfolios are rebalanced every calendar month. To construct the BAB factor, both portfolios are rescaled to have a beta of one at portfolio formation. The BAB is the self financing zero beta portfolio that is long the low beta portfolio and that short sells the high beta portfolio.

Construction of Macro indicators

Each of our macro indicators combines two series, which are first normalized to Z-scores: that is, we subtract a historical mean from each observation and divide by a historical volatility. We use rolling 10-year windows for means and volatilities when normalizing the last three macro indicators. However, for the growth and inflation indicators we use in-sample means and volatilities because we do not have long histories of economist forecasts needed to construct the surprise series below. This choice does not seem to change any major results. When we classify our quarterly 12-month periods into, say, "growth up" and "growth down" periods, we compare actual observations to the median so as to have an equal number of up and down observations (because we are not trying to create an investable strategy where data should be available for investors in real time, we use the full sample median).

The underlying series for our Growth Indicator are the Chicago Fed National Activity Index (CFNAI) and the "surprise" in industrial production growth over the past year. Since there is no uniquely correct way to capture any risk factor, averaging may make the results more robust and signals humility. CFNAI combines 85 regular indicators of U.S. economic activity. The other series — the difference between actual annual growth in industrial production and the consensus economist forecast a year earlier — is narrower but more directly captures the surprise effect in economic developments. We use median forecasts from the Survey of Professional Forecasters data published by the Philadelphia Fed. While data surprises a priori have a zero mean, this series has exhibited a downward trend in recent decades, reflecting the (partly unexpected) relative decline of the U.S. manufacturing sector.

The Inflation Indicator is also an average of two normalized series. One series measures the de-trended level of inflation (CPIYOY minus its mean, divided by volatility), while the other measures the surprise element in realized inflation (CPIYOY minus consensus economist forecast a year earlier).

For the Volatility indicator, we estimate the volatility of the S&P500 and 10-year Treasuries using a one-year window. We normalize both the level of volatility and its change from a year ago, and average these to give a composite Volatility Indicator.

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