Morgan Stanley
INVESTMENT MANAGEMENT

The MSIM Quantitative Credit Strategy Model

BROAD MARKETS FIXED INCOME TEAM | MARCH 2026

A factor-based approach to corporate credit markets.

We use quantitative tools to enhance our investment process, as they help provide structure and rigour with identifying and processing relevant and important data.

Our proprietary MSIM Quantitative Credit Strategy (QCS) model advises us on tactical credit risk positioning in corporate bond markets. The model is based on five signals, which reflect factors we think are important:

1. **Market Technicals**
2. **Risk Sentiment**
3. **Business Cycle**
4. **Carry**
5. **Valuation**

These signals incorporate both fundamental and technical inputs based on the following criteria:

1. There is evidence that relationship has worked in the past.

2. Academic literature supports the idea of these inputs.

3. The relationship has fundamental or behavioural logic.

4. Data is timely and readily available.

5. Signals are additive to the performance of the strategy.

Individually, these signals have limited predictive power for short-term credit excess returns, but when combined they create a more successful and reliable signal. This makes intuitive sense: by looking at a broader range of information, one gets a better picture of the appropriate risk to take.

This construct generates attractive Information Ratios, strong performance of the strategy during periods of market stress and few significant drawdowns (before taking transaction costs into account). However, returns can be modest over extended periods, so the strategy should not be relied upon to deliver attractive results in all market conditions. QCS remains an important component of our investment process, but it is only one of several inputs we consider.

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Introduction

The fundamental characteristic of credit investing is that lenders are paid a higher interest rate than the default-risk-free rate as compensation for the risk that creditors do not pay them back in full and/or on time. Historical data for the largest and most established corporate credit markets (e.g. the U.S. investment grade (IG) corporate credit market) show that this additional return has more than compensated investors for realised default losses. This suggests that a portion of the credit spread reflects a credit risk premium rather than pure default expectations.

It is widely accepted that investors are, and should be, paid a premium for taking on default risk. There are two main reasons for this:

1. **Volatility impact:** Credit events increase return volatility, particularly to the downside, which risk-averse investors find unattractive.
2. **Correlation risk:** Defaults tend to happen in clusters, at the same time that the economy is weak and other assets are doing poorly. This means investors are exposed to increased default risk at the same time that other assets they own (e.g., equities, property, privately owned businesses) perform poorly, and their employment prospects have diminished.

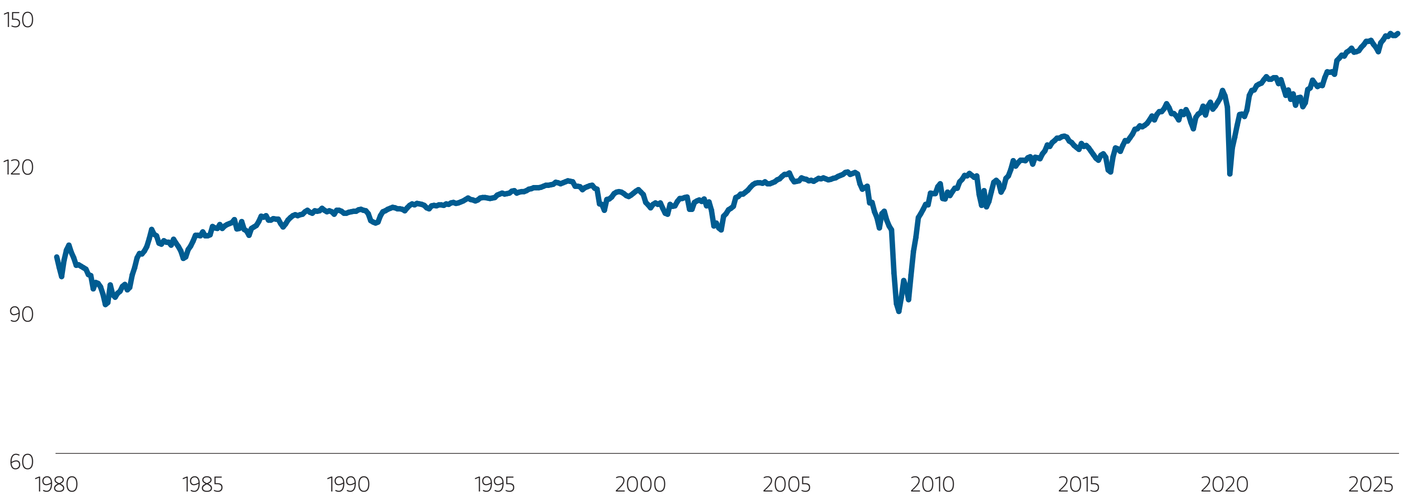
While losses from idiosyncratic credit events can be mitigated through diversification, systemic credit events cannot be avoided. It is therefore logical that investors demand a premium for bearing this risk – a concept consistent with the Capital Asset Pricing Model (CAPM), which states that investors should be rewarded for holding undiversifiable market risk.

Although there is ongoing debate about the relative attractiveness of credit risk premium versus other risk premia,[1] the key point remains: investing in corporate credit has historically generated higher returns than government bonds, albeit with increased return volatility.

DISPLAY 1

It Has Paid to Own Corporate Credit Over the Medium Term

U.S. investment grade corporates excess return vs U.S. treasuries (basis points)



Source: Bloomberg, as of December 31, 2025. U.S. Investment Grade Corporates represented by the Bloomberg US Corporate Bond Index. U.S. Treasuries represented by the Bloomberg US Treasury Index. The index performance is provided for illustrative purposes only. Past performance is not indicative of future results.

[1] For example, Berkin & Swedroe (2016) conclude that owning credit/default risk premium is unattractive in comparison to other factor-based investment strategies they consider, they recognise a positive premium exists. By contrast, Dor et al (2021) find that the introduction of corporate credit improves the risk-adjusted performance of equities/Treasuries portfolios. Of course, this debate is irrelevant to investors, e.g., pension funds and insurers, who are constrained, due to fiduciary or regulatory reasons, from owning assets which are riskier than corporate credit.

It is often assumed that the primary driver of credit volatility is realised defaults; however, it is more the fluctuations in default expectations and the credit risk premium that determine the volatility of credit returns.
The job of active credit investors is to identify when the credit risk premium is particularly attractive – when investors are being generously compensated for taking on default risk. This opportunity may arise on a single-name basis, at a specific level within the capital structure, at the sector level, in specific currencies, or in relation to the market as a whole. Yet distinguishing actual default risk expectations from the default risk premium can be challenging, requiring a deep understanding of corporate business models, structural sector trends, macroeconomic fundamentals, and the business cycle.

Fortunately, several studies[2] in recent years suggest that quantitative, factor-based models can help active investors identify attractive credit securities. Similar to equity analysis, this approach uses well-known factors – such as momentum, carry, and value – to construct portfolios that are more attractive to own on a market-neutral basis.

At MSIM Fixed Income, our Quantitative Credit Strategy (QCS) model differs in that we focus on the overall level of credit risk in a portfolio – the "credit beta," which represents the amount of default risk taken relative to a risk-free alternative. This is an important issue for both fixed income asset allocators, when determining their allocation to credit, and for corporate bond managers, when deciding on their level of portfolio risk relative to a benchmark. While most credit sectors are highly correlated with the overall market, they exhibit differing betas, meaning active sector exposures often translate into a macro risk exposure in addition to an idiosyncratic risk.

Interestingly, in spite of our focus on overall "credit beta risk," many of the factors we use are the same – or closely related to – those discussed in academic literature for taking non-market directional credit risk.

MSIM Quantitative Credit Strategy (QCS) model

Our Quantitative Credit Strategy model incorporates both fundamental and technical credit factors to assess the relative attractiveness of key credit markets. We integrate these signals into our day-to-day decision-making process, providing an efficient framework for processing information, enhancing investment discipline, and supporting consistent fund performance.

Our QCS model advises us on tactical investing in credit markets over a short time horizon (one to three months). The model is based on five signals:

1. Market Technicals

2. Risk Sentiment

3. Business Cycle

4. Carry

5. Valuation

By considering a broader range of information, investors gain a clearer picture of the appropriate level of risk to take. Individually, these signals have limited ability to predict short-term credit excess returns, but when combined they generate a more robust and reliable signal. When all signals align in the same direction, it is logical to have greater conviction and undertake more risk; conversely, when the factors conflict, it is prudent to moderate active positions.

We find that these indicators perform well across major corporate credit markets (U.S. and European Investment Grade and High Yield as well as Emerging Markets). The results show generally attractive Information Ratios, strong performances during periods of market stress and few significant drawdowns (before taking transaction costs into account). However, returns can be modest over extended periods, so the strategy should not be relied upon to deliver attractive results in all market conditions. QCS remains an important component of our investment process, but it is only one of several inputs we consider.

[2] For example, Israel et al (2018), Houweling & van Zundert (2017), Doctor (2019).

Factor-based approach

As noted earlier, the signals we use are either the same as, or closely related to, those documented in academic literature, so our approach is not necessarily novel. However, we find it reassuring that others have achieved success using similar methodologies. Our choice of inputs is guided not only by their historical effectiveness and intuitive appeal, but also by how they complement one another to create a stronger overall signal. In particular, we prioritise signals with low correlation to each other, as this increases the diversity of information within the signal.[3]

Signal 1: Market Technicals

QCS first signal is based on the average of two factors:

1. **Momentum of credit excess returns** – to gauge performance trend of credit.
2. **Bond supply** – change in the amount outstanding of the index.

PRIOR CREDIT EXCESS RETURNS

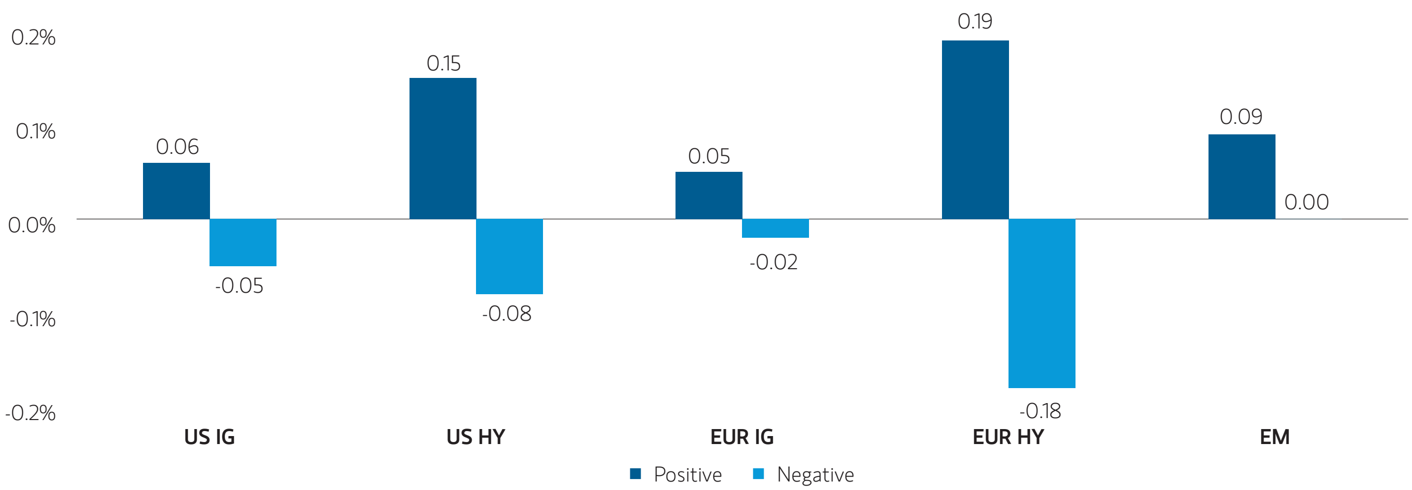
While the phenomenon lacks a fundamental explanation, it is well documented that financial assets exhibit persistence in return performance – assets that have been rising in price are more likely to continue rising, and vice versa. The adage "the trend is your friend" is particularly relevant in credit markets, where strong returns can become self-reinforcing by reducing refinancing risk, and weak returns can amplify it, as default concerns can become a self-fulfilling prophecy (see Display 2).

BOND SUPPLY

Financial literature concludes that debt issuance is negatively related to the subsequent returns of corporate bonds at 3 levels: (1) high debt supply occurs in periods of low risk aversion, typically signaling weaker future returns; (2) issuance cycles cause sector weights to change over time and they show that sector weight dynamics contribute negatively to index performance; (3) at issuer level, "aggressive" issuers underperform "conservative" ones. (Dor et al, 2021).

DISPLAY 2

Average weekly bond excess returns when prior 6-months were positive or negative (%)

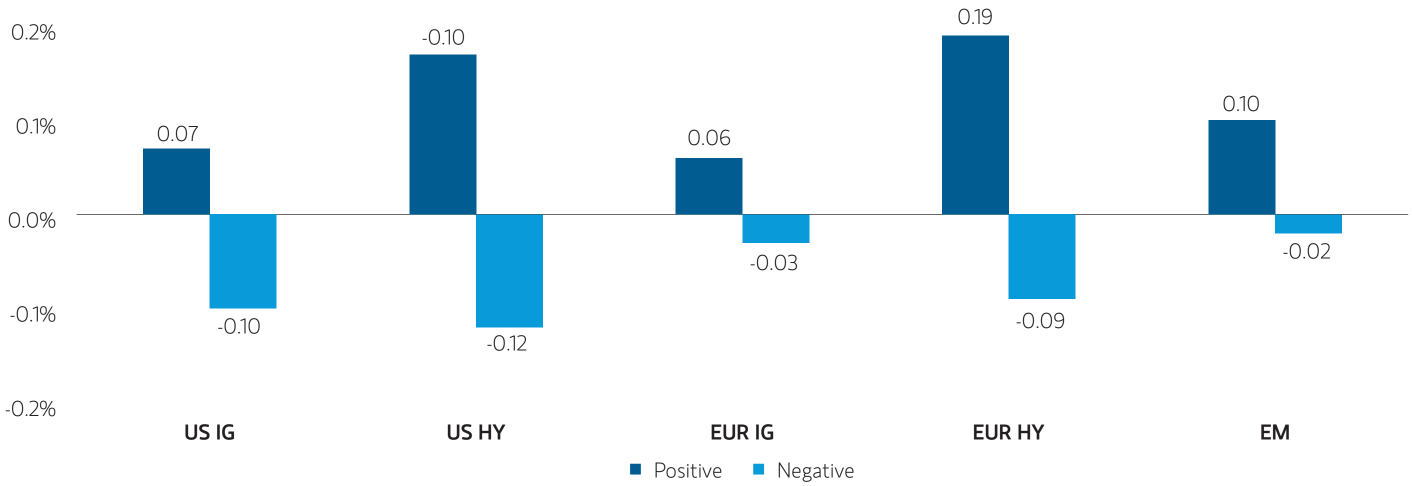


Source: Bloomberg, MSIM, December 2025. Period of observation is from January 2001 to December 2025. US IG is represented by the Bloomberg US Corporate Bond Index, US Treasuries by the Bloomberg US Treasury Index, US HY by the Bloomberg US Corporate High Yield Bond Index, EUR IG by the Bloomberg Euro-Aggregate Treasury Germany Index, EUR HY by the Bloomberg Pan-European High Yield Bond Index, EM by the JPMorgan EMBI Global Total Return Index. The Index performance is provided for illustrative purposes only. **Past performance is not indicative of future results.**

[3] Another way to address this issue would be through altering the weights assigned to each factor, depending on the regime one is in and/or the factor's success, but we have not yet found a robust, systematic manner in which to do this.

DISPLAY 3

Average weekly excess bond returns when prior equity returns were positive or negative (%)



Source: Bloomberg, MSIM, December 2025. Period of observation is from January 2001 to December 2025. US IG is represented by the Bloomberg US Corporate Bond Index, US Treasuries by the Bloomberg US Treasury Index, US HY by the Bloomberg US Corporate High Yield Bond Index, EUR IG by the Bloomberg Euro-Aggregate Treasury Germany Index, EUR HY by the Bloomberg Pan-European High Yield Bond Index, EM by the JPMorgan EMBI Global Total Return Index. The Index performance is provided for illustrative purposes only. **Past performance is not indicative of future results.**

Signal 2: Risk Sentiment

Our second signal is based on the average of two factors:

1. **Momentum of equities returns** – to gauge the performance of risky assets.
2. **The Morgan Stanley Global Risk Demand Index** – to capture broad risk-taking sentiment.

PRIOR EQUITY RETURNS

Across the five major bond markets, we find that excess returns are higher when equity returns over the previous six months have been positive, and vice versa (Display 3).

MORGAN STANLEY GLOBAL RISK DEMAND INDEX

Since 2004, Morgan Stanley has published a daily index measuring risk sentiment across markets.[4] It combines 10 different asset classes into a single risk-taking measure, including volatility indicators of equity, bond and FX markets as well as performance of beta (e.g. EM vs G10 bonds, HY vs IG). The rationale behind the Risk Sentiment signal is that risk sentiment and the performance of risky assets tend to exhibit persistence, and equity market performance often has a knock-on effect on corporate bonds. The Merton model postulates a fundamental link between equity and corporate bond valuations, and evidence suggests that changes in corporate fundamentals—initially reflected in equities—impact bonds with a lag.[5]

It is also plausible that risky assets exhibit momentum, providing useful information for positioning in corporate bonds. Equity and credit excess returns are positively correlated; past equity returns help predict future equity returns, which in turn signal future excess credit returns.

Another explanation is the "wealth effect": poor returns on risky assets reduce investor wealth, making investors more risk-averse and demanding higher risk premium for default risk (and vice versa).[6]

[4] Morgan Stanley, "MS Global Risk Demand Index", Strategy and Economics, May 2004.

[5] For example, Dor et al. (2021) report that earnings surprises have a persistent effect on corporate bond returns.

Signal 3: Business Cycle

A Business Cycle signal is included to capture expectations around the economic cycle, which in turn influence expectations of systemic default risk.

We construct this indicator using two key inputs:

1. **The risk-free yield curve** – the difference between 30-year and 3-month risk-free rate in a respective market.
2. **The economic surprise index** – the difference between actual macro data to consensus expectations.

RISK-FREE YIELD CURVE

The yield curve is a well-documented gauge of economic health, with an inverted curve often signals a recession within the next 12–18 months. Its connection to the business cycle stems from investor expectations of monetary policy: the curve primarily reflects market pricing of future policy rates, and an inverted curve suggests anticipated rate cuts - typically associated with recessions.

ECONOMIC SURPRISE INDEX

To provide additional insight into the direction of the Business Cycle, we incorporate economic surprise indices, which measure the difference between actual macro data releases and expectations. This helps us assess whether the economy is outperforming or underperforming relative to forecasts, and therefore whether default expectations should be revised lower or higher.

Signal 4: Carry

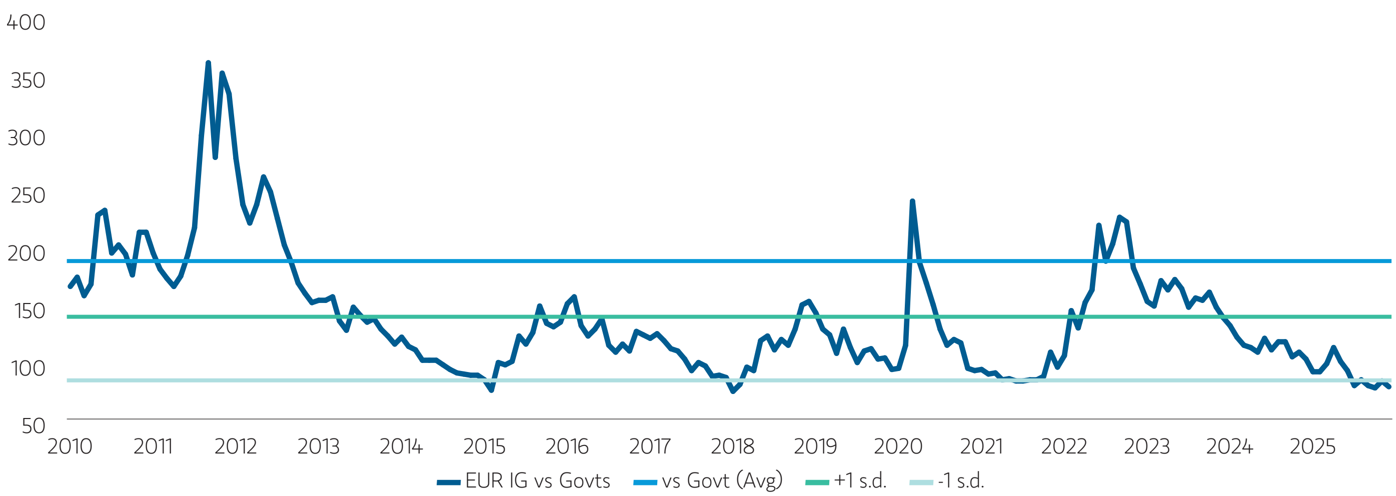
Carry is perhaps the most obvious and intuitive signal in corporate credit markets. Wider credit spreads mean that investors are paid more to own corporate credit rather than treasuries, and while periods of wider spreads have generally predicted higher default rates, the additional carry has historically outweighed default losses – at least for the market as a whole (see Display 4).

Both credit spreads and credit excess returns have historically been mean reverting. After periods of significant widening, spreads tend to compress, leading to credit outperforming Treasuries. Conversely, following periods of compression, spreads typically widen back towards their long-term average.

The mean-reversion aspect of this signal provides diversification to our Momentum and Risk Sentiment signals (Asness et al (2013)). Academic literature has documented that the low correlation between directional signals (Momentum, Risk Sentiment) and mean-reverting signals (Carry) can be explained through the liquidity channel: momentum signals, which reflect investors chasing returns, load positively on liquidity risk, but mean-reverting signals represent contrarian trades which load negatively on liquidity risk (Brunnermeier and Pedersen, 2009).

DISPLAY 4

Spread of the Euro Aggregate Corporate Benchmark vs Long-run Average



Source: Bloomberg, MSIM, December 2025. Spread represented by the Bloomberg Euro Aggregate Corporate Average Option-Adjusted Spread Index.
Past performance is not indicative of future results.

[6] This is the same concept as Ilmanen (1997) proposes for forecasting duration returns.

Signal 5: Valuation

Alongside the mean-reverting Carry signal, we also incorporate a Valuation signal, which estimates the fair value of credit spreads. To calculate this, we run an ordinary least squares (OLS) regression using six inputs: rates volatility, equity volatility, P/E ratio, swap and Treasury-EuroDollar (TED) spreads as well as the U.S. corporate bankruptcy index. Effectively, we use five pricing inputs from other markets – our fair value estimate is based on historical relationship between credit spreads and prices of other assets – and one global risk-event proxy (the bankruptcy index). Our assumption is that discrepancies between observed spreads and fair value will generally be resolved by credit spreads moving back in line with other market prices, rather than the reverse. Although the explanatory power of this model differs across the markets, it is generally high - the highest being in Euro IG spreads (R2 = 84%) and Euro HY (R2 = 81%) followed by U.S. IG spreads (R2=78%) and U.S. HY (R2=76%), whilst the lowest is for EM credit spreads (R2 = 67%).

Constructing a Diversified Portfolio of Signals

Having constructed five signals that we believe capture the key drivers of fluctuations in credit risk premium, we combine them into a single indicator, Quantitative Credit Strategy (QCS).

The first step is to normalise each signal relative to its historical distribution to ensure comparability. Each signal is assigned a score ranging from -10 (the most bearish on credit) to +10 (the most bullish). We then calculate an overall positioning signal from the average of the five signals, effectively giving each factor equal weight.

To reduce noise and transaction costs, we set the signal to zero when it falls within the range of -1.5 and +1.5, indicating low conviction and recommending no active risk-taking. While a single signal can theoretically range from -10 to +10, historically observations of the overall positioning signal show a tighter range of -6 to +6, reflecting the low or negative correlation between individual signals. In other words, the signals have never reached their extremes simultaneously.

Combining all five signals into one strategy provides a clear, consolidated view on whether an investor should be long or short credit risk against Treasuries, based on a broad set of proven indicators with a successful track record in credit markets.

Limitations

QCS is built on well-researched inputs and readily available data, and its results have shown consistency across different market regimes. However, there are several limitations to consider:

SIGNAL WEIGHTS

As market conditions evolve, certain factors may outperform others, raising questions about factor weights and need for frequent rebalancing. Similarly, QCS can experience long periods of low-conviction scores, meaning it cannot always be relied upon to provide active investment recommendations. Since QCS is designed to be just one input in a broader investment process, we maintain equal weights for simplicity and transparency. This approach uses the output as a robust framework to facilitate discussion of prevailing market conditions.

CORRELATION BETWEEN SIGNALS

Technical signal exhibits higher correlation with Risk Sentiment, which can reduce the efficacy of QCS output. However, earlier versions of QCS included only Momentum factor in the Technical signal; adding the Supply component has significantly reduced this correlation. Furthermore, relatively faster-moving Technical and Risk Sentiment signals show low or negative correlation to slower-moving Business Cycle, Carry and Value signals, providing a balanced mix of inputs.

Conclusion

Our proprietary MSIM Quantitative Credit Strategy (QCS) model advises us on tactical credit investing over a short time horizon (one to three months). The model is based on five signals incorporating both fundamental and technical inputs. Individually, these signals have limited predictive power for short-term credit excess returns, but when combined they create a more robust and reliable signal. QCS generates attractive Information Ratios, strong performances during periods of market stress, and few significant drawdowns (before taking transaction costs into account).

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