Insights
Fixed Income

Overview: Systematic Active Fixed Income Signals

Algorithmic insights can provide valuable input into the direction of credit market valuations. The scope of data inputs into these algorithms is broad, crossing fixed income and equities, fundamentals and technicals, and market pricing. Using these insights, quantitative analysts can help fixed income market participants identify upside potential and avoid securities with comparatively poor performance prospects.

In this article, we provide information about three data signals that are used to construct actively managed fixed income portfolios in our first systematic active strategies, which we are offering in US Dollar Investment Grade Credit. Our systematic strategies will be implemented using algorithmic security and issuer selection signals provided to State Street Global Advisors via systematic strategy indices by Barclays Quantitative Portfolio Strategy (QPS), a provider of industry-leading quantitative portfolio research.

Below, we detail how these three signals can complement each other in a combined strategy.

Unpacking the Signals

The three signals that form the core of our systematic approach are based on relative value, momentum, and sentiment factors, in the corporate bond market.

Relative Value

The relative value signal is designed to identify mispriced bonds. Relative value has long been used by credit investors to identify attractive opportunities across corporate issuers in a given sector. The quantitative value score has benefits compared with a fundamental approach because it can cover a wide range of securities and analyze a large number of corporate bonds simultaneously.

This signal is based on rules that attribute observed bond spreads to issuers' fundamentals and peer characteristics, including rating, sector, and maturity. The part of the spread that is not attributed to those characteristics forms the basis for the relative value signal. In a given sector and rating group of the US investment grade universe, the algorithm identifies bonds that trade cheap to their peers, after controlling for risk characteristics and fundamentals.

The relative value signal tends to be stable as corporate bond mispricings correct slowly. A higher signal value means that a bond trades at a steeper discount to its peers after accounting for fundamentals. Such mispricing tends to correct over time, leading to outperformance of value bonds over their peers. Historical data shows that diversified portfolios of undervalued bonds with high relative-value scores have persistently outperformed otherwise similar portfolios of bonds with low value scores.

Momentum

We use a cross-asset momentum signal that is based on equity performance for each respective corporate bond issuer. It allows investors to differentiate credit issuers by their past equity performance. It helps to identify issuers that may exhibit improving prospects, reflected by positive equity returns, or declining prospects, demonstrated by poor equity returns (Figure 1).

Figure 1
The Equity Market Performance of an Issuer Can Give Insights Into Future Performance of its Credit Securities

Cross Momentum Signal Capturing Equity Momentum Premium in Credit

- This signal is a cross-asset momentum scorecard
- It measures relative momentum in issuer past equity returns
- The score ranges from 1 to 10, with higher scores indicating attractiveness

Relative Performance of Issuer Stocks	
Equity Returns	• Map bonds to equity tickers • Calculate stock returns over a combination of several near-term horizons
Combine Signals	• Adjust returns for horizon lengths • Combine signals
Confirmation	• Trending stocks have stronger signal • Differentiates trending and volatile stocks

Source: Barclays QPS Research.

Empirical results indicate that historically there has been a strong positive relationship between an issuer's past equity returns and the subsequent returns of its corporate bonds. Our analysis showed that bonds of companies with strong relative equity performance usually outperformed their peers with weak or negative equity returns.

The equity momentum signal reflects the information spillover from equities to corporate bonds. The credit market tends to react with a lag to changes in a company's fundamentals. There are several reasons why equity momentum leads performance in corporate bonds:

- Different reaction times. Equity markets tend to react faster than credit to company news.

- Divergent motivations of equity and credit investors. Credit and equity markets remain segregated, with credit investors focused on the strength of the balance sheet and equity investors focused on profitability and growth opportunity.

- Varying behavioral biases. Impact of transaction costs is stronger in credit than in equities. For example, there could be a stronger propensity among credit investors to "sit out" negative news because of high transaction costs.

Historical backtesting data suggests that equity momentum works well in combination with relative value because combining the two signals helps avoid "value traps" — issuers that are cheap for a reason, as reflected in weak or negative equity returns. In other words, negative equity momentum can provide credit investors with an early warning for credit performance declines.

Importantly, the equity momentum signal tends to be a contra-cyclical signal that often works well in credit down cycles, as it helps differentiate between vulnerable issuers and those that have better prospects of recovery.

Sentiment

One of the indicators of the sentiment of sophisticated investors about the future prospects of a company is their short position. Actively shorted names as measured by their equity short interest tend to underperform the market. This cross-asset signal applies to credit.

Equity shorting is implemented by investors borrowing a stock and selling it in the market. They buy the stock back later at a lower price in order to return it to the original owner, thereby benefiting from any price decline. They can implement bearish views by shorting individual stocks.

High levels of equity short interest have long been documented to predict low future stock returns. Empirical results indicate that this applies to corporate bonds. We find a consistent negative relationship between equity short interest and subsequent bond returns across geographies and rating segments. Issuers with significant short interest are risky and tend to underperform their peers.

This signal is constructed from information on equity shorting activity collected daily. It considers several parameters of the stock lending market for a more accurate interpretation of short interest, which is very helpful when stocks are difficult to borrow.

Putting the Signals Together

Each security will have three scores, reflecting the strength of each signal, and a composite score, based on a weighted combination of the three. (This composite score combines the relative value, momentum, and sentiment signals.) A systematic strategy selects securities with high composite scores, subject to a set of constraints that ensure the risk characteristics of the portfolio remains aligned with those of the benchmark index (see Building a Portfolio: A Closer Look at Our Process).

Diversification Benefits

An important characteristic of these signals is that they have low correlation with each other and can therefore effectively complement each other to provide a positive and stable performance relative to the benchmark.

Our historical backtesting suggests that these three signals had low pairwise correlation consistently across all market regimes, which resulted in a relatively stable alpha and moderate drawdowns in our sample portfolios. The diversification benefits were especially apparent in historical market stress periods such as the Great Financial Crisis and the start of the COVID crisis in 2020. The low correlations stem from two sources: The signals capture different investment styles (momentum/relative value/sentiment), and they reflect information gleaned from different sources and from different markets (equity and credit).

Liquidity Constraints

Barclays QPS tested the efficacy of the combined signals using bonds with different liquidity profiles. They used their proprietary liquidity cost scores (LCS) developed over a decade ago as a conservative estimate of transaction costs. LCS is a measure of bid-offer spread for trades in normal institutional size — QPS also used a proprietary trade efficiency score (TES) that combines LCS with trading volume to measure a bond's tradability. TES represents a relative rank of bonds reflecting how tradable they are in the market. It is used to filter the index universe in a portfolio optimization and avoid buying bonds deemed less tradable. Historical analysis showed that all three signals remain effective across securities with different liquidity profiles.

Furthermore, Barclays QPS analyzed the market capacity of the strategy and found that the alpha the signals generated was maintained even for very large AUM.

Our Portfolio Construction Goals

One of the most important goals in our portfolio construction process is to generate alpha using systematic, signal-based holdings. We believe that quantitative signals can persistently identify outperformance opportunities in credit markets. We are using these signals, which pull information from both fixed income and equity data, to identify bonds that can generate excess return versus benchmarks.

Our capabilities as a large fixed income manager allow us to source bonds and efficiently build portfolios that maximize signal exposure, while investing in reasonably liquid securities and controlling trading costs. We combine the Barclays QPS research excellence with our practical portfolio sampling and implementation experience.

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* Pensions & Investments Research Center, as of December 31, 2022.
† This figure is presented as of June 30, 2023 and includes approximately $63 billion USD of assets with respect to SPDR products for which State Street Global Advisors Funds Distributors, LLC (SSGA FD) acts solely as the marketing agent. SSGA FD and State Street Global Advisors are affiliated. Please note all AUM is unaudited.

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