Factor investing in Corporate Credit Markets: The Next Frontier

October 2018

Niels Schuehle PhD, Head of Fixed Income Research, Quantitative Beta Strategies

IN BRIEF

- Investors are becoming increasingly familiar with the concept of factor investing in the equities space—to help enhance return or reduce risk—and increasingly from an alternatives perspective via long-short strategies. Factor investing in single name corporate bonds is the next frontier.
- Our research suggests that the same factors present in other asset classes, such as value, quality and momentum, can be identified and viably captured (net of transaction costs) in corporate credit markets.
- How these factors are included within a portfolio is dependent on the desired outcome (risk reduction or yield enhancement) and the willingness to take tracking error to the benchmark.

EVOLUTION OF RULES-BASED FIXED INCOME INVESTING

Factor investing relies upon a rules-based approach to buy or sell securities based on certain return drivers (such as cheapness or recent returns). The concept of factor investing is supported by decades of academic research and out-of-sample empirical results across a range of geographies and time periods. Practical applications of factor-based investing have also become increasingly common, as investors globally have increased their familiarity with these strategies.

Investors became familiar with value, quality, momentum and size factors in equity markets in the 1990s, and investors broadly understand traditional risk premia in fixed income, such as duration and spread risk. Yet in cash bond markets—and particularly in corporate credit factor investing is a new frontier for many. If investors do have any fixed-income factor exposure, it will tend to be limited to derivative-based investments in cross-asset risk premia strategies.

We believe that this is set to change. The first impetus is investor familiarity. As investors have become more comfortable with investing in factors in equity markets, they are beginning to consider the relevance of factor based investment approaches within their fixed income allocations. The second reason is that the availability of fundamental corporate data which was historically limited and unreliable, is improving in credit markets, thereby making an assessment of these strategies more viable.

Creating a reliable dataset: Entity level mapping

Implementing factor-based investment strategies relies on screening companies or markets based on a number of metrics and systematically investing based on this research. The most common metrics can either be market-based (for example, price momentum) or more fundamental in nature (for example, the price-to-earnings ratio).

In the equities space, obtaining fundamental data is simple: companies issue common stock, and rarely in multiple share classes. In the corporate bond space, however, companies can issue multiple rounds of debt from different subsidiary legal entities and be impacted by corporate actions over time. The lack of a universal firm-level identifier makes mapping each individual bond to the issuing balance sheet very challenging. Furthermore, not only do we need current data to research factors, but we also require clean data going back 15 to 20 years[1] in order to develop a reasonable back-test.

Our research has resulted in the creation of a clean set of data going back roughly 20 years, with good coverage of the underlying universe. **Exhibit 1** shows the market coverage that underpins our analysis on factor characteristics in credit markets.

EXHIBIT 1: CREDIT MAPPING

US Investment Grade	2004	2017
Senior Issues	1,988	4,969
Issuers	469	658
Issuers mapped (%MV)	428 (86%)	640 (98%)

Source: J.P. Morgan Asset Management, as at 31 December 2017. %MV represents the total percentage of market value of senior issues with mapped equity data

APPLYING FACTORS IN CREDIT MARKETS

We have been implementing factor-based strategies across asset classes for many years and believe that factors express themselves across asset classes. While the definitions and metrics used need to be appropriate for the asset class in question, the underlying drivers of these factors are the same. We now apply the same factors that investors are more familiar with in equities to the corporate credit market, which additionally serves as a good out-of-sample test for factors in general. The factor definitions have been modified to accommodate the differences between equities and fixed income instruments.

Exhibits 2, 3 and **4** show the central results of our individual factor research in the US investment grade industrials sector. However, the results hold across global credit markets and in both high yield and investment grade sectors. In each performance, issuers in the index are ranked on the respective factor measures, and then divided into quintiles, with Q1 representing the lowest scoring issuers and Q5 the highest scoring. We analyse return generation, risk and Sharpe ratios, demonstrating monotonic improvements in the latter for each factor.

1. In addition, private companies without listed equity can also issue debt, provide another data challenge. In our results below, these are excluded on the basis that private issuers empirically demonstrate a vastly different risk/return profile in aggregate.

EXHIBIT 2: VALUE FACTOR IN CREDIT

VALUE *BUY CHEAP SECURITIES*

Cheap securities tend to outperform more expensive securities

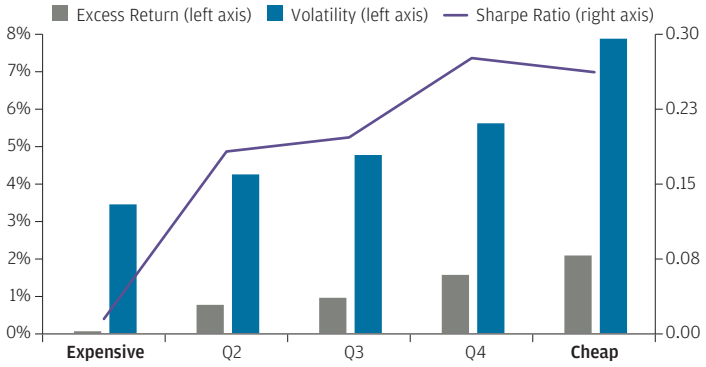
Approach

In fixed income, we consider a market measure of value, such as option-adjusted spread, relative to a fundamental measure of value, such as the probability of default, to measure the "cheapness" of individual bonds.

Results

Relatively cheaper companies tend to generate higher returns and a better Sharpe ratio than relatively more expensive companies, though we do see higher risk associated with higher returns.

VALUE IN US INVESTMENT GRADE INDUSTRIALS (1998-2017)



Source: Bloomberg-Barclays, FactSet, Worldscope. J.P. Morgan Asset Management. Analysis period 1998-2017. All performance is gross of transaction cost and gross of fees. Excess Return shown versus key rate duration matched Treasuries.

Past performance is not a reliable indicator of current and future results.

EXHIBIT 3: QUALITY FACTOR IN CREDIT

QUALITY *BUY HIGH QUALITY SECURITIES*

Higher quality securities tend to deliver stronger risk adjusted returns than lower quality securities

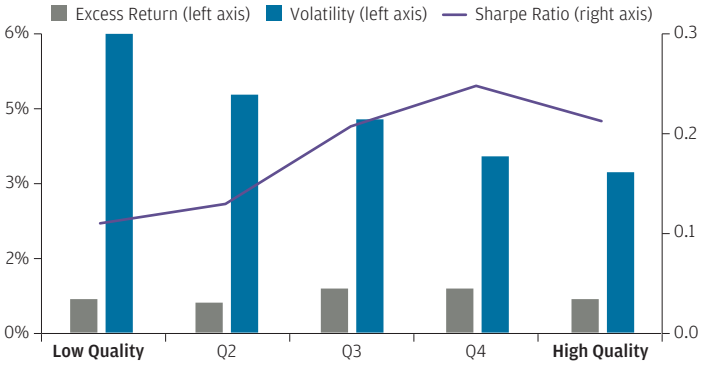
Approach

As is the case for equities, in fixed income we fundamentally believe that the core assessment of a company's quality should be anchored on the financial statements of that company. In fixed income, we consider a number of metrics covering profitability, leverage, default risk and interest coverage ratios.

Results

Over the period analyzed, we see that higher quality companies have generated comparable returns to lower quality companies, while generally exhibiting lower levels of risk, thereby achieving stronger risk adjusted returns.

QUALITY IN US INVESTMENT GRADE INDUSTRIALS (1998-2017)



Source: Bloomberg-Barclays, FactSet, Worldscope. J.P. Morgan Asset Management. Analysis period 1998-2017. All performance is gross of transaction cost and gross of fees. Excess Return shown versus key rate duration matched Treasuries.

Past performance is not a reliable indicator of current and future results.

EXHIBIT 4: MOMENTUM FACTOR IN CREDIT

MOMENTUM *BUY SECURITIES WHICH HAVE OUTPERFORMED*

Securities which have recently outperformed tend to continue to outperform

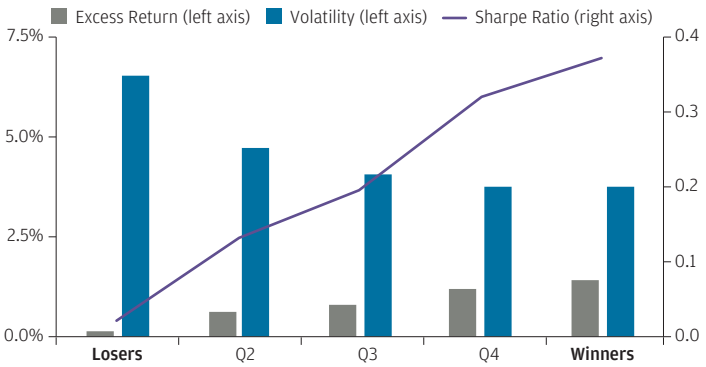
Approach

We consider both credit momentum as well as the momentum of the bond issuer's equity, given the academic research suggesting equity markets tend to lead the credit market.

Results

Across both metrics, we see an increase in return alongside a decrease in risk as we move along quintiles. Naturally, however, momentum strategies often lead to higher turnover, which is a key consideration we would look to address when developing factor-based strategies.

MOMENTUM IN US INVESTMENT GRADE INDUSTRIALS (1998-2017)



Source: Bloomberg-Barclays, FactSet, Worldscope. J.P. Morgan Asset Management. Analysis period 1998-2017. All performance is gross of transaction cost and gross of fees. Excess Return shown versus key rate duration matched Treasuries.

Past performance is not a reliable indicator of current and future results.

Other factors, such as the size effect or the short maturity anomaly, can also be shown to hold in the cross section of fixed income markets; however, our conclusion is generally that these effects are better incorporated in the portfolio construction process as opposed to being used as explicit factors.

BRINGING IT ALL TOGETHER: A MULTI-FACTOR APPROACH

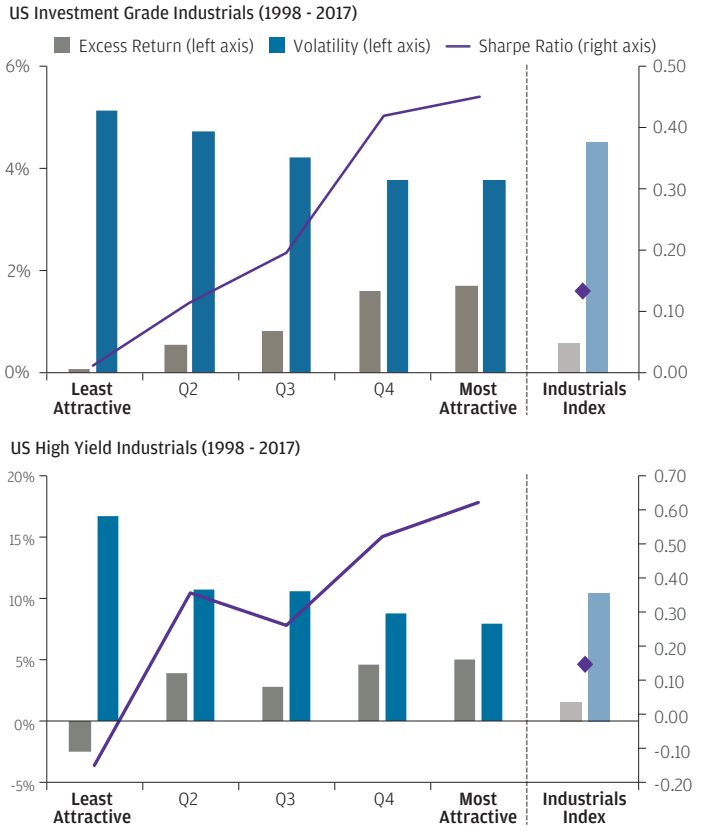
Our analysis shows that each individual factor works across sectors and regions in investment grade and high yield corporate credit markets. That said, while each standalone factor brings different benefits, there are also practical considerations investors need to take into account:

- While the value factor can enhance returns, risk is also higher and, when managed as a standalone factor, turnover (a key consideration in fixed income) is relatively high.
- While the primary benefit of the quality factor is to dampen volatility, when managed as a standalone factor, quality may tilt towards lower yielding securities, reducing the yield of a potential strategy.
- While the momentum factor can improve both risk and return, managing momentum on a standalone basis would result in higher turnover and transaction costs, which could erode the value-add of the factor.

Given these key considerations, we also considered the impact of using a multi-factor approach across investment grade and high yield markets, within sectors. To do this, we used an integrated approach, ranking all securities on a series of value, quality and momentum metrics, combining these into an aggregate multi-factor score and rebalancing on a monthly basis.

As shown in **Exhibit 5,** across investment grade markets we see higher return, lower risk, and thus higher Sharpe ratios for companies with higher aggregate factor scores, comparing those characteristics to the relevant Industrials Index. We additionally show the results for an equivalent process applied within the US High Yield Industrials sector to highlight the broader applicability of factor investing approaches within corporate credit.

EXHIBIT 5: MULTI-FACTOR RESULTS ACROSS INVESTMENT GRADE AND HIGH YIELD MARKETS



Source: Bloomberg-Barclays, FactSet, Worldscope. J.P. Morgan Asset Management. Analysis period 1998-2017. All performance is gross of transaction cost and gross of fees. Excess return is over key rate duration matched treasury.

Past performance is not a reliable indicator of current and future results.

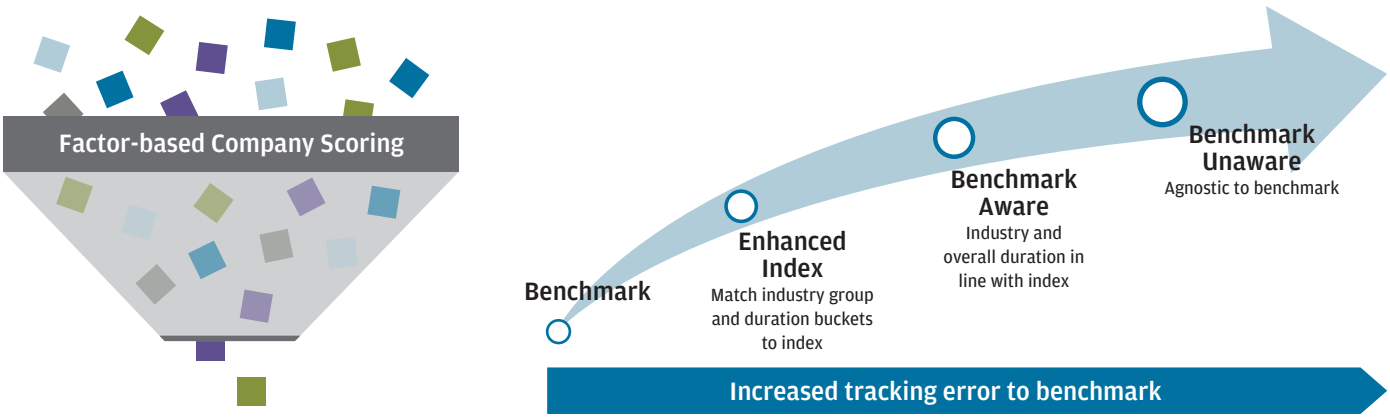
PORTFOLIO IMPLEMENTATION

Multi-factor scores present an input that allows investment managers to build investment portfolios that can meet their desired outcomes—see **Exhibit 6.** Two core considerations ultimately determine what the appropriate portfolio construction approach may be:

- The willingness of the investor to take on tracking error relative to the underlying index
- Whether the investor is more concerned with downside risk or yield enhancement

EXHIBIT 6: USING FACTOR SCORES TO BUILD FIXED INCOME CREDIT PORTFOLIOS

Framework is flexible and can be adapted to suit client risk preferences and portfolio requirements



Source: J.P. Morgan Asset Management as at 22nd October 2018.

In the following example, we illustrate a hypothetical benchmark-aware portfolio, where a balanced multi-factor approach can provide asymmetry relative to the market cap index. The portfolio buys securities from the US investment grade corporate bond universe that score in the top tertile based on the multi-factor score and holds them until they drop into the bottom tertile.

The key portfolio outcome is that the portfolio achieves an upside capture of close to 1, while on the downside the capture is around 0.8 over the longer term (**Exhibit 7**). This is also manifested in the lower maximum drawdown values for the factor portfolio.

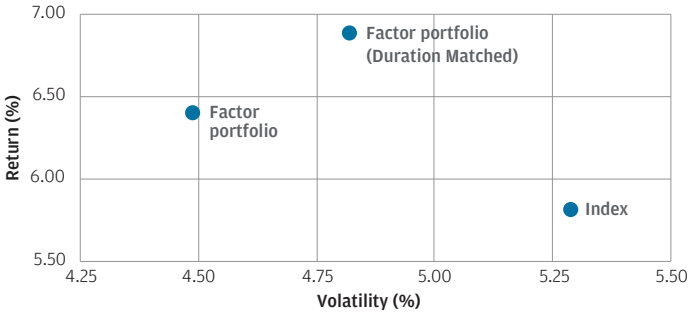
EXHIBIT 7: EXAMPLE STRATEGY RESULTS: US CORPORATES (INVESTMENT GRADE CREDIT)

Investment Grade (Duration Matched)

	1998 - 2017		1998 - 2007		2008 - 2017	
Portfolio	Factor	Index*	Factor	Index*	Factor	Index*
Return (%)	6.9	5.8	7.3	6.0	6.5	5.6
Volatility (%)	4.8	5.3	4.6	4.5	5.1	6.0
Sharpe ratio	1.0	0.7	0.8	0.5	1.2	0.9
Up Capture (%)	102		109		96	
Down Capture (%)	81		90		75	
Tracking Error	1.7		1.2		2.1	
Maximum Drawdown (%)	-10.1	-15.4	-4.3	-4.6	-10.1	-15.4
Correlation to equity	0.0	0.2	-0.2	0.0	0.2	0.4

* Index is Bloomberg Barclays US Corporate Index.

Higher Return with Lower Volatility (1998 – 2017)



Source: Bloomberg-Barclays, FactSet, Worldscope. J.P. Morgan Asset Management. Analysis period 1998-2017. All performance is gross of transaction cost and gross of fees.

Past performance is not a reliable indicator of current and future results.

The outperformance of this particular strategy relative to the reference index manifested itself in periods of market stress, such as the 2008/09 financial crisis, or 2016 volatility caused by oil prices movements and fears of recession. These characteristics would therefore be particularly beneficial for investors who are concerned about residual correlation to equities within their investment grade credit allocations. The data in **Exhibit 7** indeed demonstrates that the factor portfolio is less correlated to the equity market than its reference index.

The strategy is robust to conservative transaction cost estimates: in our research we applied point-in-time transaction cost estimates to the returns, which are higher than what we would expect to realize in practice. The overall impact of the transaction cost estimates would be to reduce the long-term annualized return of the strategy from 6.9% to 6.4%. This still leaves a healthy excess return relative to the benchmark return (which is gross of fees).

CONCLUSION

The investment industry is increasingly familiar with factor investing within cash equity markets and long-short alternative futures strategies. We believe these factors are asset class agnostic, and our research suggests that the same factors – value, quality and momentum – are present in credit markets.

While the investment example presented here focuses on a balanced multi-factor approach that can help investors achieve an asymmetric exposure to the underlying asset class, investment approaches can be tailored to suit the particular needs of investors.

While hurdles to factor investing in credit relating to data availability may have delayed solutions in the smart beta space, we believe we are about to reach a tipping point where factor investing in fixed income will gain significant traction.

NEXT STEPS

For more information, please contact your usual J.P. Morgan representative.

LV–JPM51560 | 10/18 | 0903c02a823ee443

J.P.Morgan
Asset Management