

# Corporate Credit Spread Signals

## Contents

|                                                     |   |
|-----------------------------------------------------|---|
| Credit Spread Signals.....                          | 2 |
| Valuation Relative to a Fitted Curve.....           | 2 |
| Bid Book.....                                       | 2 |
| Event Risk Indicator .....                          | 3 |
| Liquidity Signal .....                              | 3 |
| Equity Signals and Covenants .....                  | 3 |
| Testing Equity Signals Without Bond Covenants.....  | 4 |
| EDF and Rating Agency Measures of Credit Risk ..... | 5 |
| Flags to Identify At-risk Credits .....             | 6 |
| General Point .....                                 | 7 |

## Credit Spread Signals

The main components of the credit spread are default risk, liquidity and peripherally linked to it, tenor.

The first component, default probabilities and recovery rates can be assessed, and then it is possible to compute the expected value of the payoff to the bondholders and thus the default risk. The default component can be divided into expected loss in the event of default and a risk premium – a premium to compensate investors for bearing the risk that the issuer will not repay. The second component is liquidity, which is a mixture of transaction costs (bid-ask spread) and the ability to sell the bond without moving the market. Investors require a premium to hold bonds that are illiquid which is also why typically, government bonds have smaller bid-ask spreads than corporate bonds. The third component is when we ascribe a term premium component to the credit spread – this is the extra return investors require to hold longer-maturity corporate bonds.

We expect bonds with higher spreads to outperform bonds with lower spreads. Bonds with higher spreads are attractive because they offer a larger yield cushion and the prospect of spread compression i.e., mean reversion in spreads. Since it is difficult to be certain, a priori, about the period over which we would expect the spread to mean revert, we tend to look at spread changes between one to three months.

We find spread to swaps to be a better predictor of bond outperformance as they exclude stock-specific factors.

We find value in modifying spread signals to make them neutral to ratings (and possibly maturity) effects. This is because spreads may be better at picking bonds within a particular ratings category, rather than choosing between ratings. Therefore, it makes sense to construct ratings-adjusted versions of the spread signal. That is, we compare each bond's spread to its bucket average rather than to the entire universe.

## Valuation Relative to a Fitted Curve

- Spread relative to a fitted issuer curve as an indicator of whether the bond is rich/cheap compared to bonds of the same issuer. We often find most issues to have an insufficient number of bonds outstanding for us to be able to fit a reliable issuer curve.
- Spread relative to a fitted ratings and industry curve, say for example AA industrials, are useful because they help to compensate for credit quality, maturity, and ratings effects. However, bonds that trade cheap to the fitted curve may do so for a valid reason: maybe their credit quality is lower than AA; or perhaps the bonds are less liquid than other AA industrial bonds. However, the more we control for factors that drive the spread, the smaller the sample of bonds becomes available to fit the curve and therefore the less reliable the fit (and the cheap/dear measure associated with it).
- Other approaches we consider include spread relative to fitted, fair value spread, computed using a cross-sectional regression characterizing the market's pricing of the various bond attributes - i.e., ratings, industry, maturity, maturity type, age, size, credit risk etc.

## Bid Book

Net long/short positions by name – we find that the information content of this signal is likely to decay very quickly. It has not proved especially useful in monthly back tests. Other supply signals, such as expected

redemptions and issuance in that name have proven to be more useful. An increase in supply may affect a bond's credit risk (widen spreads) via its impact on the firm's leverage. Even if leverage is largely unaffected, a change in supply may impact the liquidity of outstanding bonds.

## **Event Risk Indicator**

We define event risk from a bondholder's perspective i.e., the deliberate attempt to alter the risk/return profile to benefit equity investors at the expense of bondholders. Equity variables such as book value vs. market value, Debt/EBITDA etc. or some combination of these ratios often helps us identify event risk. Firms where these equity ratios are low by industry standards are potential takeover candidates, as there is the potential to gear up the balance sheet, which is bad for bondholders.

## **Liquidity Signal**

Over a long period of time, we expect the bonds of smaller issuers, as captured by nominal amount outstanding and total (monthly) market turnover, to outperform the bonds of larger issuers because of the liquidity premium paid by the former. This phenomenon is akin to the small-firm effect documented in the literature for equity investments. Additionally, the age of the bond, i.e., time since issuance, can be used to pick out bonds likely to outperform the wider market. New issues tend to trade at a premium early on in their life because investors frequently sell bonds to reinvest in new issues in the same name. We find that this premium is gradually eroded over time. Bid book information is useful in identifying which bonds trade regularly.

## **Equity Signals and Covenants**

Finance theory offers insights into the relationship between equity and bond returns. For example, the Merton model for valuing bonds with default risk is based on principles of option pricing. This model notes that the potential returns for the company's equity and bond investors are quite different. On maturity, the payment to the bondholder is the smaller of the face value of the debt or the market value of the firm. If the value of the firm falls below the face value of the debt, then equity holders will default and let bondholders take control of the firm. However, if the firm's market value is greater than the face value of the debt, then equity holders have an incentive to pay bondholders, as any increase in the value of the firm more than the face value of debt accrues only to the former.

The resultant payoff pattern for the bondholder resembles that of holding a long position in a risk-free bond and a short position in a put option on the firm's value with a strike price equal to the face value of the bond. Based on the Black-Scholes option pricing model, we expect the excess return on the corporate bond to be negatively related to the volatility of the value of the firm and positively related to the increase in the firm's value.

The negative link between corporate bond excess returns and the volatility of the value of the firm is intuitive: increased volatility increases the probability that the firm will default on its debt obligations. If we assume that changes in a firm's value can be proxied by changes in the value of its equity, then we would expect equity and bond returns to be positively correlated. However, the link between the performance of a company's equity and its bonds is not straightforward i.e., what is good for equity investors is not necessarily good for bond holders. We expect strong positive correlation where there are no structural features i.e., covenants allowing for coupon step-ups or investor puts for example. Senior unsecured debt issued by cyclical companies falls in this category.

If the debt is fully securitized, or over-collateralized there should be no relationship between equity and bond performance. For example, some companies try to ring fence their debt by agreeing to structures which limit their ability to sell assets, increase leverage, pay dividends etc.

Finally, in some cases the correlation may be negative or positive depending on the nature of bond covenants. For example, put at par (bought back at par value) if bonds are downgraded below investment grade might mean that a credit negative event may end up being positive for bonds. For example, suppose a company, which is experiencing difficulties has bonds outstanding which are trading below par. In these circumstances, one would normally expect bond spreads to widen and equity prices to suffer as well. However, suppose the company is pledged to redeem the bonds at par if bonds get downgraded to non-investment grade. In this scenario, the bond spreads may tighten if bond investors believe there is an increased likelihood that the bonds will be downgraded, but at the same time the company is not likely to default in the foreseeable future.

## Testing Equity Signals Without Bond Covenants

To test the equity signals, we divide our bond universe into three distinct groups depending on our prior regarding the equity-bond correlation (i) positive correlation i.e., every equity alpha is expected to predict bond returns; (ii) no correlation and (iii) distorted and potentially misleading correlation. We do this to examine the ability of equity signals to pick outperforming bonds in the sector where there are no distortions arising from bond structural features.

We consider the following equity signals:

### 1. Earnings Revisions (Analyst Revision Signal and Up/Down)

When analysts upgrade their earnings forecast for companies, this has a positive impact on the share price performance of the companies. This signal works because investors and analysts under react to new information, which provides the smart investor with an opportunity to adjust his portfolio, in expectation that more analysts will upgrade their earnings etc. Where we expect a positive relation between stock and bond returns, we would expect analyst revision signal to help us select bonds likely to outperform the wider corporate bond market. However, it is important to ascertain whether positive earnings revisions are related to an improvement in the company's trading environment (good for both equities and bonds), or whether it is to do with possible changes in the capital structure of the firm (potentially bad for bond holders).

### 2. Earnings Quality (Accruals)

This signal, which is based on the information contained in the company cash flow statements, is designed to look at the quality of a company's earnings. This signal pre-supposes that company earnings figures do get aggressively managed. There are two main reasons as to why this may happen. First, managers of projects and products may be over enamored of their prospects, which in turn may lead them to recognize income earlier than is prudent. Second, as company directors are increasingly remunerated with share options, and the length of CEO tenure is seemingly shortening, there are clear incentives to maximize short-term reported earnings. The signal works on the principle that the "truth will eventually come out" - i.e., that perceptive market participants will eventually identify any earnings manipulation, or that the company itself will report that trading is not up to over-optimistic expectations.

The signal is constructed essentially as follows:  $[\text{Cash Flow} - \text{Operating Profit}] / \text{Total Assets}$ . The numerator, which is a measure of accruals, seeks to identify to what extent earnings are corroborated from cash: i.e., whereas earnings - which impact on operating profit - are easy to manipulate in the short term, cash flow is

much more difficult to "manage" in this way. Accounting items used to inflate earnings away from the company's cash flow are treated as signs of earnings manipulation. The accruals are given as a proportion of the total assets of the firm: if the proportion of potentially unsustainable earnings is relatively small compared with the overall value of the firm, they will have less of an impact on the share price when they eventually come out in the wash.

Bad for bonds for two reasons:

- a. When the earnings manipulation is revealed to the market, the value of the firm is diminished. Within the Merton framework, for example, this implies that debt is less likely to be paid off - i.e., bond prices fall.
- b. If earnings are not actually realized at the time they are reported, there is a higher probability that debt repayment schedules will not be kept. This is bad news for bondholders.

### *3. Equity Valuation*

This signal is used to identify (over and undervalued) stocks whose intrinsic value is at variance with the traded market price. Intrinsic value is proxied by the present value of the company's expected future stream of earnings. This signal captures the market's perception of a company's fundamentals, rather than the fundamentals themselves. Stocks with a relatively low price are expected to outperform stocks with a relatively high price. Where we expect equity and bond returns to be positively correlated i.e., a good performance by the stock to be emulated by the bonds issued by that company, this could prove to be a useful signal for bond selection. Relatively low equity price may also be an event risk indicator – prompting the company's management to embark on radical capital restructuring or make the company a target for LBO plays.

### *4. Director's Dealings*

The rationale for this equity signal is that company directors are better placed to judge the prospects of their company and industry than outsiders such as equity analysts. If company insiders make excess returns on their equity investments, is it feasible for bondholders to mimic the trading behaviour of insiders and make excess returns on their bond investments. The signal only looks at cash transactions i.e., the dollar value of buys and sells each month.

### *5. Equity and Bond Momentum*

There is widespread evidence that equity markets trend i.e., firms with recently high past returns outperform firms with recently poor performance even after the returns are risk-adjusted. We investigate whether the equity momentum effect, which is largely attributed to the inability of investors to correctly process firm-specific information, is asset-specific. Given that bonds and equity represent different claims to the same cash flow i.e., the bond and the equity markets are related at the firm level, it is reasonable to expect equity momentum to spill over into bonds.

## **EDF and Rating Agency Measures of Credit Risk**

We observe that these measures of credit risk are better at predicting ratings changes and defaults, rather than spread movements. In fact, we have uncovered evidence that suggests that these measures are a coincident rather than a leading indicator of spread changes. For higher-grade credits (AAA and AA), spread movements reflect liquidity and technical factors rather than changes in credit quality. Thus, for higher-grade credits we do not find these measures to be especially useful for selecting bonds.

More generally, as these measures of credit risk are constructed using market valuations, such as equity prices and the volatility of equity prices, they are vulnerable to any mispricing of the firm's equity due to say a speculative play by hedge funds, the existence of which does not necessarily imply diminished prospects for the firm and its bondholders.

## Flags to Identify At-risk Credits

Below we list potential flags that help us identify at-risk credits. We have built some of the following into effective signals. In other cases, however, we have insufficient historical data to run reliable signal back tests; these ideas are also likely to prove useful at the desk, as a final filter to weed out unwanted credits from the list of bonds identified by our security selection model as "buys" or "strong buys".

- Sell-side FI analysts' recommendations: each month we receive a list of favoured and unfavoured bonds in each sector as well as top "dogs" across the whole market over different time horizons – 1mth, 6mths and 12mths.
- Identify companies currently active in the Commercial Paper (CP) market whose short-term credit rating outlook is poor, as this is an indicator of a potential liquidity squeeze at the company. The CP market is very liquid and is used by companies to raise short term financing; they typically issue senior unsecured debt with a maturity of 90 days or less.
- Identify firms that draw down bank lines of credit - this is a "flag" for a potential liquidity crisis at a firm.
- Identify companies whose percentage of debt that is composed of convertible bonds is higher than the industry average; this identifies firms with higher-than-average spread volatility.
- Proportion of short-term debt to total debt for individual firms – if this ratio is higher than the industry average, the firm may be more exposed to funding fluctuations than its competitors.
- Minority Interest Debt as a proportion of the firm's On-balance Sheet Debt - a large change in this proportion of debt may represent a large rise in "recourse" debt to the parent.
- Reserves to Charge-offs or Net Credit Losses as percentage of Average Fin. Receivables - declining Reserves to Charge-offs and rising Net Credit Losses as percentage of Average Fin. Receivables indicates declining asset quality for Finance Companies/Banks.
- Identify largest changes in Credit Default Spreads (CDS), and largest spread changes between CDS bids/offer for individual firms - an indication of risk.
- Largest percentage rise in Short-Interest Sellers - flags a rise in investor pessimism at a company.
- Calculate the number of Account Revisions/Restatements during the past 3 yrs. Any number above 1 may indicate potential accounting problems at a firm.
- Number of Equity analysts following a firm - a low number may indicate a higher probability of mis-valuation by the market.

## General Point

For all signals, it is useful to know whether the signal is good at betting long or short, and whether its ability to pick bonds is concentrated in a particular ratings sector, industry, or maturity bucket, or spread out evenly across the bond universe.

---

### Author

Sameer Jain is founder of ActiveAllocator. ActiveAllocator.com is a digital asset allocation platform with technology-enabled customized advice capabilities. It is the world's first portal that seamlessly integrates traditional, illiquid, and alternative investments within portfolios. It helps investors analyze existing allocations, discover inefficiencies, and create bespoke portfolios in minutes.

Contact: [sameer.jain@activeallocator.com](mailto:sameer.jain@activeallocator.com)