Topics@CreditEdge Webinar
Dealing with Fallen Angel Risk

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About Moody’s Analytics

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Independent provider of credit rating opinions and related information for over 100 years

Moody’s ANALYTICS

Models, data, software and research for financial risk analysis and related professional services
CreditEdge by the Numbers

50
Years of default data

1989
When the first EDF measure was calculated

60,000+
EDF measure for publicly traded firms

250+
Data fields

11,700+
Defaults in our global database

76,000+
Active CUSIPs in our database
Dealing with Fallen Angel Risk

Fallen Angel risk results from the possibility and price impact of bond downgrades from investment grade (IG) into high yield (H-Y). We find that the price deterioration experienced by bonds of future Fallen Angels is significantly greater than the price deterioration experienced by bonds of future IG downgrades on average. As of Q1 2019, over 50% of investment grade bonds in the US and globally by amount outstanding are rated Baa, so that a near-term recession could cause the incidence of Fallen Angels to rise substantially. In light of these circumstances, we test the early warning power of the CreditEdge Deterioration Probability (DP) metric for Fallen Angel downgrades, and find it well-suited for this purpose. DP quintile portfolios exhibit monotonically increasing rates of Fallen Angel downgrades, and we find that historical underperformance by high DP versus low DP bond portfolios is exacerbated during market downturns.
Agenda

1. Leading metrics
2. Case studies
3. Fallen Angels
4. Rising Stars
5. Q&A
Leading metrics
EDF and the DP
The CreditEdge public firm EDF model predicts default with accuracy and high degree of advance warning

- CreditEdge **accurately** and **timely** predicted the level of high-yield default rate
- The EDFs of the North American credit crisis casualties increased many months before default
The Deterioration Probability (DP) measures the risk of downgrade of issuers

Deterioration Probability (DP) is a metric ranging from 1-70% that estimates probability of downgrade for rated firms in the next 12 months – DP does not measure the probability of upgrade.

High EDF metrics are associated with high DP
- 1-year EDF measure
- **Trigger Exceedance** (EDF trigger level): company’s EDF above or below its group trigger
- **Slope** (EDF term structure): 5-year EDF minus its 1-year EDF
- **Relative EDF**: ratio of a firm’s EDF to its industry median EDF
- **Industry Median EDF Growth Rate**

Negative rating gap is associated with increased DP
- **Implied Rating Gap**: the difference between the firm’s Moody’s rating and the best available Market Implied Rating

Indicators of future downgrades
- Stable, positive or negative **outlook**
- **Recent downgrade** in last 12 months
The validation shows Deterioration Probability provides a strong signal for downgrade events.

For an average firm, the DP **doubles** in the **2 years** leading up to the downgrade event.

DP **peaks** roughly **2 months before** the downgrade event – giving risk / investment managers time to take action.
Case studies
PG&E and Xerox
Xerox

DP and Moody's Rating

XEROX CORP [Deterioration Probability]  XEROX CORP [Moody's SRA Rating]
Fallen Angels
Preparing for a turn in the credit cycle with CreditEdge
Baa-rated debt as fraction of investment grade debt
Mean bond bid price path around downgrade and FA events
12-month downgrade and Fallen Angel frequencies by DP quintile

Downgrade Frequency by DP

Fallen Angel Frequency by DP
Cumulative downgrade and Fallen Angel frequencies for the highest DP Quintile – Global IG
Run-up to Credit Event – DP level versus time for global IG issuers

Average

Median

Credit Event

MOODY'S ANALYTICS
Dealing with Fallen Angels, June 2019
19
Run-up to Credit Event – DP percentile in cohort versus time for global IG issuers

### Average

- **Downgrade**
- **Fallen Angel**

### Median

- **Downgrade**
- **Fallen Angel**

**Credit Event**
Spearman correlations: OAS with EDF and OAS with DP
Spearman correlations: OAS with EDF and OAS with DP
Spearman correlations: OAS with EDF and OAS with DP

Lower correlation for DP  Less yield slippage from DP sort than EDF sort
### Confusion Matrices

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Sum to 100%
Yield slippage math

Computing the net benefit of the DP screen

**USIG ex-top 20 vs. benchmark**

\[
-1\text{bps} \\
+ \\
(1.0 \times 1.2\% - (0.80 \times 1.2\% + 0.20 \times 7.8\%)) \times (-990\text{bps}) \\
= 12\text{bps}
\]

**USIG ex-top 20 vs. top 20**

\[
-7\text{bps} \\
+ \\
(-990\text{bps}) \times (1.2\% - 7.8\%) \\
= 58\text{bps}
\]
Cumulative total returns, high DP vs. low DP

US Investment Grade

- Low DP
- High DP
Cumulative total returns, high DP vs. low DP

Euro Investment Grade

low DP  high DP
4

Rising Stars
Finding Value in Fallen Angels
12-month **rising star** frequencies by DP quintile: Global HY

Bucket D1 corresponds to issuers with the lowest 20% of DP levels, whereas bucket D5 contains the top quintile of issuers by DP.
Alpha Factor

A Bond’s Alpha Factor = OAS/Fair Value Spread

The FVS is a bond-level model output
When ranked by Alpha Factor, the most undervalued Fallen Angel issues (high AF 20%) outperformed the most overvalued FA bonds (low AF 20%)

USHY Fallen Angel: Performance of High AF/Low AF Strategies

Trading Frequency: Monthly
Dealing with Fallen Angels

- Fallen Angel risk is high and rising in global bond markets
- Unanticipated Fallen Angel downgrades are material events for bondholders, even compared to the garden-variety downgrade in IG.
- CreditEdge contains a metric, the DP, for predicting credit deterioration at the issuer level
- We have validated the DP for measuring Fallen Angel risk, and found it to be useful for IG bond investors
- The value premium in fixed income appears to be larger within the Fallen Angel asset class than in HY as a whole
Thank you

Questions welcome!
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