Topics@CreditEdge Webinar
Navigating Choppy Markets: Safety-First Equity Strategies Based on Credit Risk Signals

Samuel Malone, Ph.D, Director – Research
Yukyung Choi, Associate Director – Senior Research Analyst

December 2018
Speakers

Presenter
Samuel Malone, Ph.D
Director – Research

Presenter
Yukyung Choi
Associate Director – Senior Research Analyst

Moderator
Ryan Donahue
Product Strategist
About Moody’s Analytics

Moody’s

Leading global provider of credit rating opinions, insight and tools for credit risk measurement and management

Moody’s INVESTORS SERVICE

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
Navigating Choppy Markets: Safety-First Equity Strategies Based on Credit Risk Signals

Introduction

In early October, US equity markets suffered their second major correction this year and their worst fall in more than eight months. Values of stocks worldwide plunged to levels not seen in more than one year.

Widely cited drivers of the rout include the nascent US-China trade war, rising interest rates, and recent concerns related to Italy and several emerging markets. The sustainability of current levels of US growth and low unemployment over the medium term is also a growing concern.

Rising yields in particular increase the potential for equity volatility. Assuming stable expectations for the path of company earnings, upward shifts in the yield curve exert downward pressure on the prices of equities through the valuation channel. For equity prices to remain stable in a rising interest rate environment, therefore, investors must believe that the expected path of earnings continues to improve.
Agenda

1. Recent market events
2. Default risk and credit migration risk
3. Clouds gathering over the technology sector
4. Safety-first investment strategies
5. Strategy alpha in different yield environments
Recent events
Returns of the NYSE FANG+ Index members during the October 2018 sell-off and partial recovery
Default risk and credit migration risk
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 issuer credit deterioration

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
On average, the 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.
Clouds gathering over the technology sector
Average DP and EDF for S&P 500

Crossover point
Safety-first investment strategies
Cumulative returns of top and bottom quintiles formed on EDF and Deterioration Probability vs. the S&P 500 benchmark

Deterioration Probability Factor Strategy

EDF Factor Strategy

MOODY'S ANALYTICS
Strategy alpha in different yield environments
The CAPM regression

We run the regression:

\[ R_{strategy, t} - r_f = \alpha + \beta (R_{market, t} - r_f) + \epsilon_t \]

to obtain...

\( \hat{\alpha} = \) estimate of mean excess return not due to systematic risk exposure

\( \hat{\beta} = \) estimate of systematic risk loading
CAPM regression results based on sign of the change in the slope of the Treasury yield curve

<table>
<thead>
<tr>
<th>Macro Scenario</th>
<th>Result</th>
<th>RiskyDP</th>
<th>SafeDP</th>
<th>RiskyEDF</th>
<th>SafeEDF</th>
</tr>
</thead>
<tbody>
<tr>
<td>All months</td>
<td>$\alpha$</td>
<td>-0.20 (0.17)</td>
<td>0.23** (0.11)</td>
<td>-0.66** (0.31)</td>
<td>0.27** (0.12)</td>
</tr>
<tr>
<td></td>
<td>$\beta$</td>
<td>1.19*** (0.04)</td>
<td>0.88*** (0.03)</td>
<td>1.67*** (0.07)</td>
<td>0.71*** (0.03)</td>
</tr>
<tr>
<td>Yield Curve steepens</td>
<td>$\alpha$</td>
<td>0.12 (0.34)</td>
<td>0.05 (0.18)</td>
<td>0.32 (0.56)</td>
<td>-0.07 (0.21)</td>
</tr>
<tr>
<td></td>
<td>$\beta$</td>
<td>1.21*** (0.07)</td>
<td>0.88*** (0.04)</td>
<td>1.67*** (0.11)</td>
<td>0.72*** (0.04)</td>
</tr>
<tr>
<td>Yield Curve flattens</td>
<td>$\alpha$</td>
<td>-0.44*** (0.15)</td>
<td>0.38*** (0.13)</td>
<td>-1.41*** (0.33)</td>
<td>0.53*** (0.14)</td>
</tr>
<tr>
<td></td>
<td>$\beta$</td>
<td>1.16*** (0.04)</td>
<td>0.88*** (0.04)</td>
<td>1.65*** (0.09)</td>
<td>0.68*** (0.04)</td>
</tr>
</tbody>
</table>

Standard errors are shown in parentheses below point estimates. Significance Levels are denoted as follows: 1% (***) , 5% (**), 10% (*).
CAPM regression results based on sign of change in 2-year Treasury yield

<table>
<thead>
<tr>
<th>Macro Scenario</th>
<th>Result</th>
<th>RiskyDP</th>
<th>SafeDP</th>
<th>RiskyEDF</th>
<th>SafeEDF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\alpha$</td>
<td>-0.45 (0.28)</td>
<td>0.23 (0.17)</td>
<td>0.23 (0.48)</td>
<td>-0.15 (0.18)</td>
</tr>
<tr>
<td>Yields up</td>
<td>$\beta$</td>
<td>1.36*** (0.07)</td>
<td>0.86*** (0.04)</td>
<td>1.68*** (0.12)</td>
<td>0.77*** (0.16)</td>
</tr>
<tr>
<td></td>
<td>$\alpha$</td>
<td>-0.13 (0.20)</td>
<td>0.26 (0.14)</td>
<td>-1.45*** (0.40)</td>
<td>0.58*** (0.16)</td>
</tr>
<tr>
<td>Yields down</td>
<td>$\beta$</td>
<td>1.09*** (0.04)</td>
<td>0.89*** (0.03)</td>
<td>1.62*** (0.09)</td>
<td>0.68*** (0.04)</td>
</tr>
</tbody>
</table>

Standard errors are shown in parentheses below point estimates. Significance Levels are denoted as follows: 1% (***), 5% (**), 10% (*).
CAPM regression results based on sign of change in 10-year Treasury yield

<table>
<thead>
<tr>
<th>Macro Scenario</th>
<th>Result</th>
<th>RiskyDP</th>
<th>SafeDP</th>
<th>RiskyEDF</th>
<th>SafeEDF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yields up</td>
<td>(\alpha)</td>
<td>-0.24</td>
<td>0.23</td>
<td>0.20</td>
<td>-0.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.28)</td>
<td>(0.15)</td>
<td>(0.45)</td>
<td>(0.17)</td>
</tr>
<tr>
<td></td>
<td>(\beta)</td>
<td>1.20***</td>
<td>0.88***</td>
<td>1.62***</td>
<td>0.75***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.06)</td>
<td>(0.03)</td>
<td>(0.10)</td>
<td>(0.04)</td>
</tr>
<tr>
<td>Yields down</td>
<td>(\alpha)</td>
<td>-0.17</td>
<td>0.24</td>
<td>-1.56***</td>
<td>0.62***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.21)</td>
<td>(0.15)</td>
<td>(0.41)</td>
<td>(0.17)</td>
</tr>
<tr>
<td></td>
<td>(\beta)</td>
<td>1.17***</td>
<td>0.87***</td>
<td>1.66***</td>
<td>0.67***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.05)</td>
<td>(0.04)</td>
<td>(0.11)</td>
<td>(0.05)</td>
</tr>
</tbody>
</table>

Standard errors are shown in parentheses below point estimates. Significance Levels are denoted as follows: 1% (***)}, 5% (**), 10% (*).
Conclusions

» The average Deterioration Probability for the technology sector worsened several months before the recent tech-led market correction.

» Straightforward safety-first factor strategies appear to work well on average in environments of:
  – Heightened market stress
  – Flattening yield curves

» DP-based strategies seem to have helped differentiate tech stocks reasonably well during the last couple of years.

» Credit risk metrics like the EDF and the Deterioration Probability may prove useful for enhancing various types of equity strategies, ranging in nature from systematic to discretionary.