MOODY'S ANALYTICS

EDF CASE STUDY Groupon Inc.

Moody's Capital Markets Research, Inc.

Authors

Sai Mao
+1 (212) 553-1035
sai.mao@moodys.com

Irina Makarova
+1 (212) 553-4307
irina.makarova@moodys.com

About

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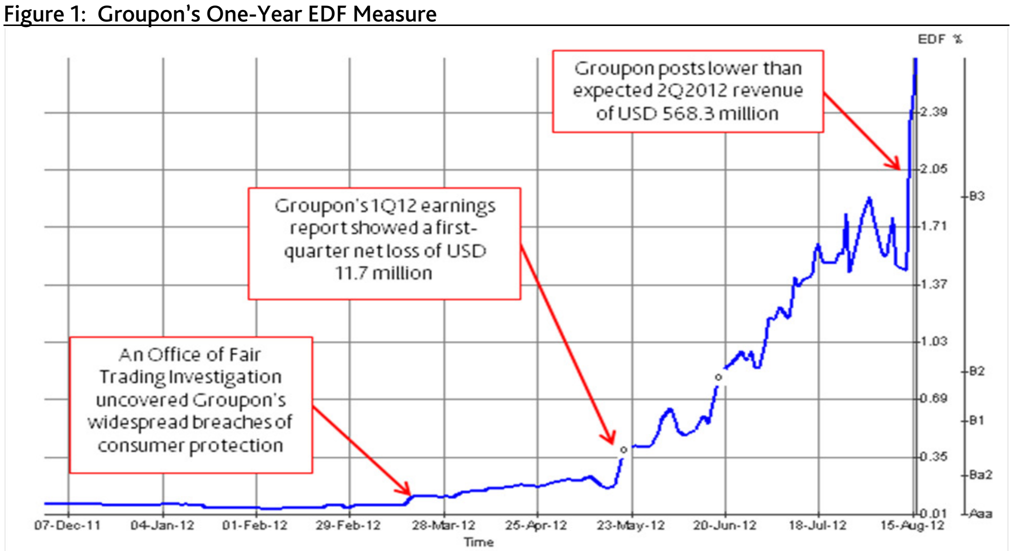
Summary

- Groupon Inc. operates a discount deals website that shares information on local goods, services, and cultural events for businesses and consumers around the world. Groupon currently has over 10,000 employees and 37 million active customers globally.
- In its second quarter 2012 earnings report, Groupon reported revenue of USD 568.3 million, which fell short of analysts' estimates. Revenue from international operations makes up half of Groupon's total revenues, and the disappointing report was attributed to weak demand in Europe. Following the earnings figures, the company's stock price plunged more than 27% to an all-time-low USD 5 a share, which reflected a weak performance of Groupon's core business.
- Moody's Analytics' public EDF™ measure had been rising since Groupon reported a fourth quarter loss of USD 9.8 million on February 8, 2012. The firm's one-year probability of default increased from 0.04% in March, 2012 to 2.71% in just five months. The change in Groupon's EDF measure was driven by adverse changes in two of its primary components, market leverage (a measure of financial risk) and asset volatility (a measure of business risk). Groupon's market leverage increased by 20% over the past six months. Its asset volatility jumped from 33% to 52% since March, 2012 and is now in the 75th percentile of its industry peer group.

Figure 1: Groupon's One-Year EDF Measure



Heightened Competition and Weakened Core Business Drives Default Risk Higher

The Expected Default Frequency (EDF) measure for Groupon Inc., a discount deals website that shares information on local goods, services, and cultural events for businesses and consumers across the world has risen sharply over the past five months. The firm's one-year probability of default increased from 0.4% in February 2012 to 2.71% as of August 16, 2012. In implied ratings terms, its current EDF level is consistent with a B3 rating, down sharply from an implied rating near single-A at the start of the year.

Because Groupon does not have traded bonds or CDS from which to observe credit spreads, and because it is not rated by any of the major global credit rating agencies, Moody's Analytics' public EDF measures provide a unique view into the company's credit risk. As Figure 1 on the cover of this report shows, Groupon's EDF measure has gone up significantly since March 2012. The company is facing stiff competition from LivingSocial, Google Offers, AmazonLocal, and other imitators in over 50 countries across the globe.

The heightened competition pushed Groupon to develop an aggressive business expansion strategy, which included actions to raise capital and make new acquisitions. Some of the most notable acquisitions included CityDeal, Darberry.ru, Qpod, ClanDescuento and Taggle, which were among the top three daily-discount deals sites in Europe, Russia, Japan, South America and India respectively.

As we show in Figure 2 and Figure 3, Groupon's EDF measure has not only increased in absolute terms, but also relative to its peers in the US internet information providers sector. In Figure 2, we show the time series of Groupon's EDF measure since its initial public offering in November 2011, as well as the EDF measures for LinkedIn Corp., Pandora Media Inc, and Yelp Inc. Among this small group, Groupon shows a significantly higher risk of default and a distinctly negative trend.

Figure 2: Groupon's EDF Measure vs. Selected Internet Sector Peers' EDFs

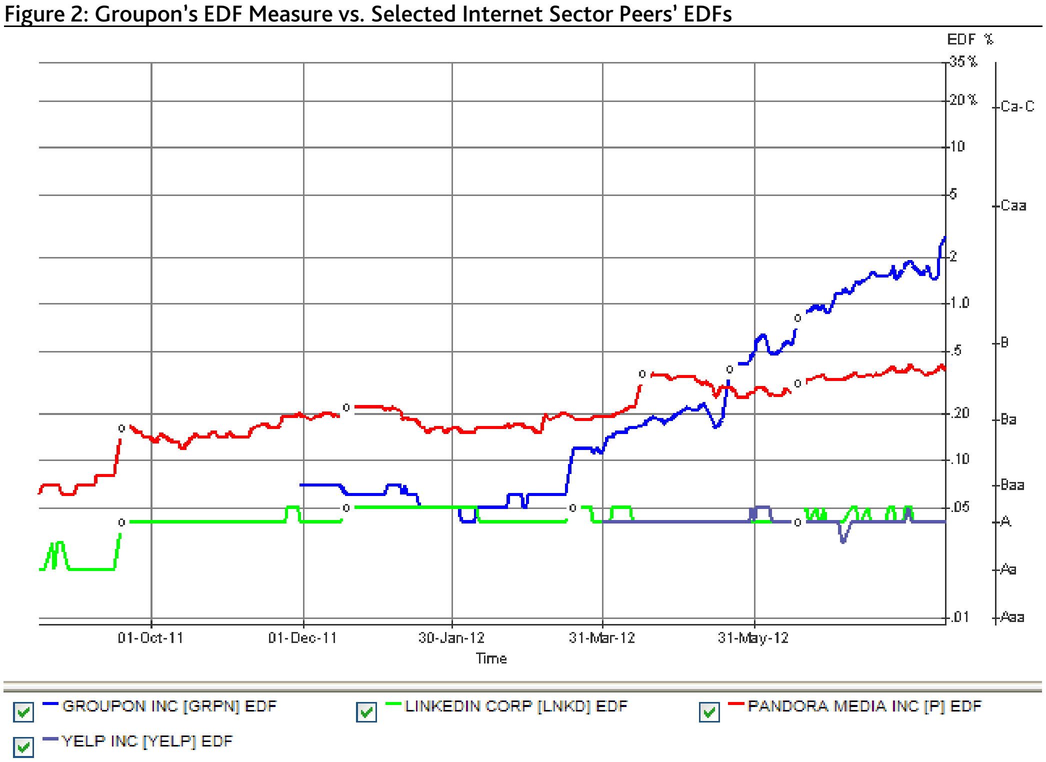


Figure 3: Groupon's EDF vs. It's Peer Industry Group

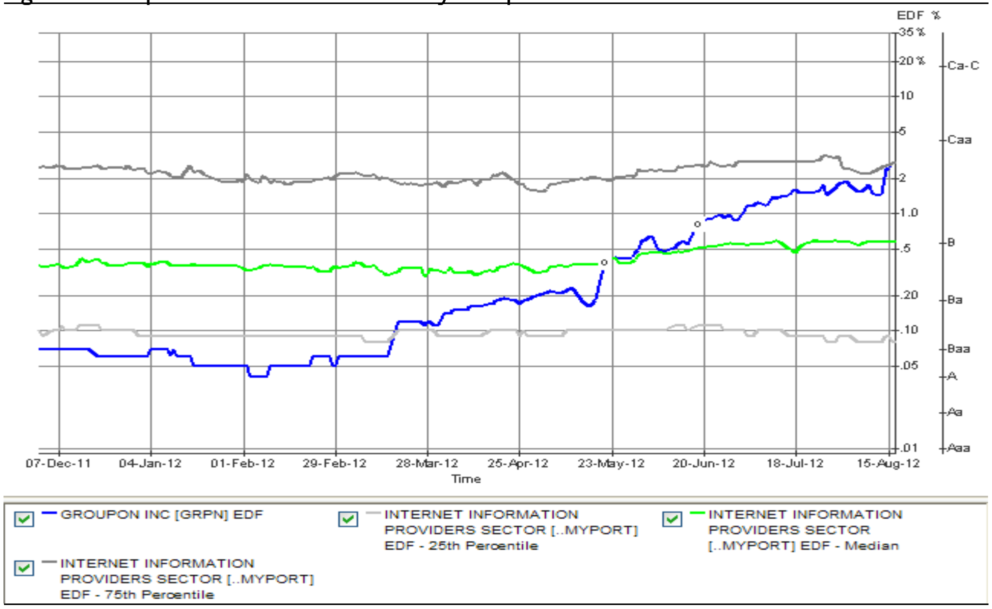


Figure 3 shows that over the past six months Groupon's EDF measure has underperformed the entire internet information providers sector. The graph shows Groupon's EDF measure versus the median, 25th, and 75th percentile EDFs for its industry peer group. As recently as February 2012, Groupon's EDF measure was within the 25th percentile of its industry sector. Since that time its probability of default has risen quickly and is now trending among the riskiest firms in its industry, with its EDF measure five times greater than the median for its industry group.

Moody's Analytics' research has shown that firms whose EDFs underperform their industry sectors (i.e., rise faster than their peers) experience higher default rates than outperforming firms with similar EDF levels. Based on data from 1992 to 2011, we calculated one-year default rates conditioned on a firm's EDF level and on the relative EDF change versus its sector. Relative performance is measured by the difference in the change in a firm's EDF measure and the change in its industry median EDF measure.

Figure 4 shows the results. For ease of presentation, we bucketed EDF levels and change versus sector into ten equally sized categories (deciles), shown across the top row. The first column represents the deciles of EDF level. Each cell in the table shows the one-year default rate for each EDF level decile, relative change decile combination. Firms whose EDF measures underperform their industry sectors generally experience higher default rates, regardless of EDF level. In Figure 4, this is shown by the fact that default rates increase from left to right. Taken with the data from Figure 3, the table suggests that the trend of Groupon's EDF metric versus its industry group shows relatively heightened risk of default.

Figure 4: Average Realized Default Rates by EDF Level and Relative Performance vs. Industry Sector

Firm EDF Level	EDF Change Relative to Industry Peer Group Change										
	1	2	3	4	5	6	7	8	9	10	ALL
1	0.05%	0.03%	0.02%	0.00%	0.00%	0.01%	0.03%	0.00%	0.00%	0.00%	0.02%
2	0.10%	0.05%	0.06%	0.06%	0.00%	0.00%	0.02%	0.07%	0.11%	0.27%	0.05%
3	0.10%	0.06%	0.01%	0.03%	0.01%	0.03%	0.07%	0.06%	0.03%	0.18%	0.05%
4	0.28%	0.12%	0.17%	0.15%	0.09%	0.10%	0.08%	0.09%	0.17%	0.30%	0.15%
5	0.32%	0.23%	0.24%	0.32%	0.22%	0.24%	0.21%	0.27%	0.22%	0.46%	0.27%
6	0.62%	0.44%	0.45%	0.34%	0.44%	0.56%	0.44%	0.72%	0.51%	0.97%	0.55%
7	0.71%	0.56%	0.66%	0.80%	0.64%	0.72%	0.73%	1.06%	1.18%	1.63%	0.89%
8	1.01%	1.01%	1.19%	1.25%	1.27%	1.44%	1.58%	1.65%	2.05%	3.10%	1.68%
9	3.14%	2.22%	4.83%	5.16%	5.25%	4.34%	4.87%	5.75%	6.37%	8.39%	5.60%
10	6.43%	4.68%	5.76%	7.70%	7.70%	6.96%	7.67%	9.31%	9.99%	13.70%	8.94%
All	0.66%	0.63%	1.08%	1.73%	1.73%	1.83%	2.24%	2.92%	3.13%	5.96%	2.16%

Understanding the Drivers of Groupon's EDF Measure

In this section we examine the drivers of Groupon's EDF measure. In contrast to some black-box statistical models of credit risk, the drivers of the EDF model share many of the same basic approaches to measuring credit risk as fundamental credit analysis. Studying these drivers in addition to the EDF itself helps identify why a firm's default risk is changing.

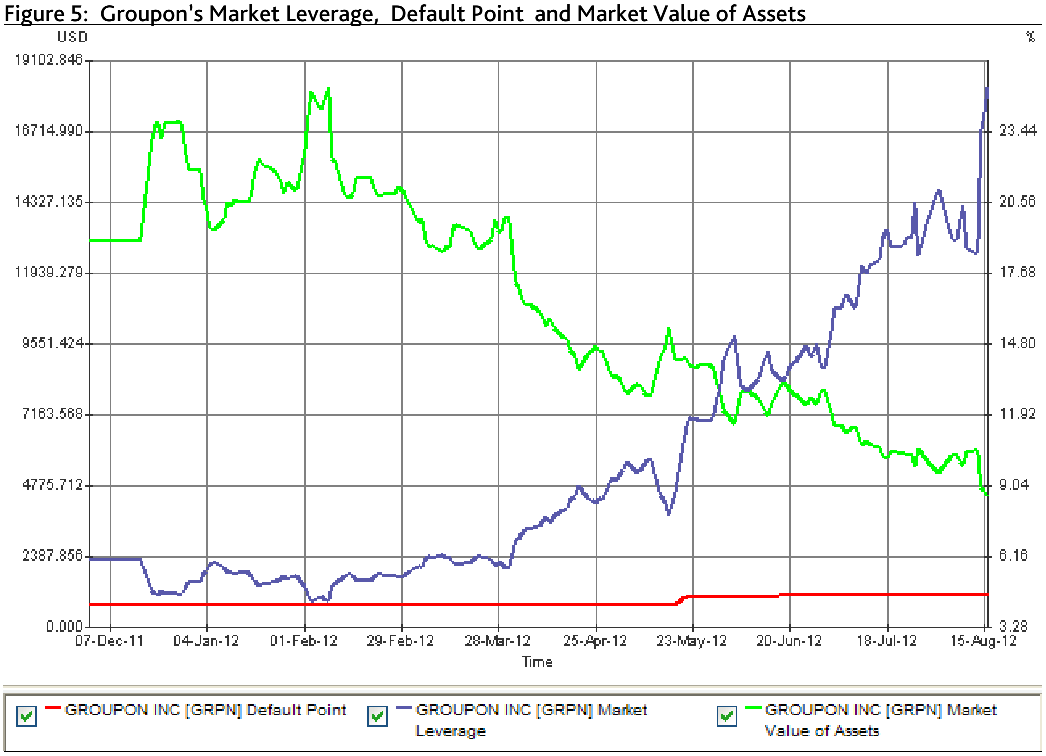
Moody's Analytics' public firm EDF model belongs to a class of credit risk models referred to as structural or asset value models. The basic assumption of asset value models is that there is a causal, economically motivated reason that default occurs. Default is highly likely to occur when the market value of the firm (the sum of the value of its market capitalization and debt) is insufficient to cover its liabilities due at some future date – i.e. firms tend to default when they are insolvent. This follows from the fact that equity holders are residual claimants on the value of the firm. If the market value of the firm is negative, equity holders can and often will "put" the residual value of the firm to creditors.

The above economic intuition can be translated into three quantifiable variables: the expected value of a firm's assets (*A*), the volatility of its assets (denoted by σ), and its default point, *X*. The default point represents the amount of a firm's liabilities due in the future that would trigger a default if not paid on time. The interaction of the three variables is encapsulated by the firm's distance-to-default (*DD*) which, under some largely innocuous assumptions, can be expressed as:

$$DD \approx (\ln(A)-\ln(X)) / \sigma$$

This simple equation essentially states that a firm's relative credit risk (measured by *DD*) is a function of its financial risk and its business risk, two factors that are core concepts of fundamental credit analysis. The numerator of the above equation measures a firm's financial leverage *(X/A)* based on market values – i.e. the firm's financial risk. All else equal, higher leverage decreases *DD* and hence increases the probability of default. The denominator of the *DD* equation represents the firm's business risk. Firms in industries with high asset volatility tend to exhibit higher risk of default, all else equal. Once we have calculated a firm's *DD*, we can derive its probability of default (its EDF measure) by looking at the historical average default rate consistent with each *DD* level.

Figure 5: Groupon's Market Leverage, Default Point and Market Value of Assets

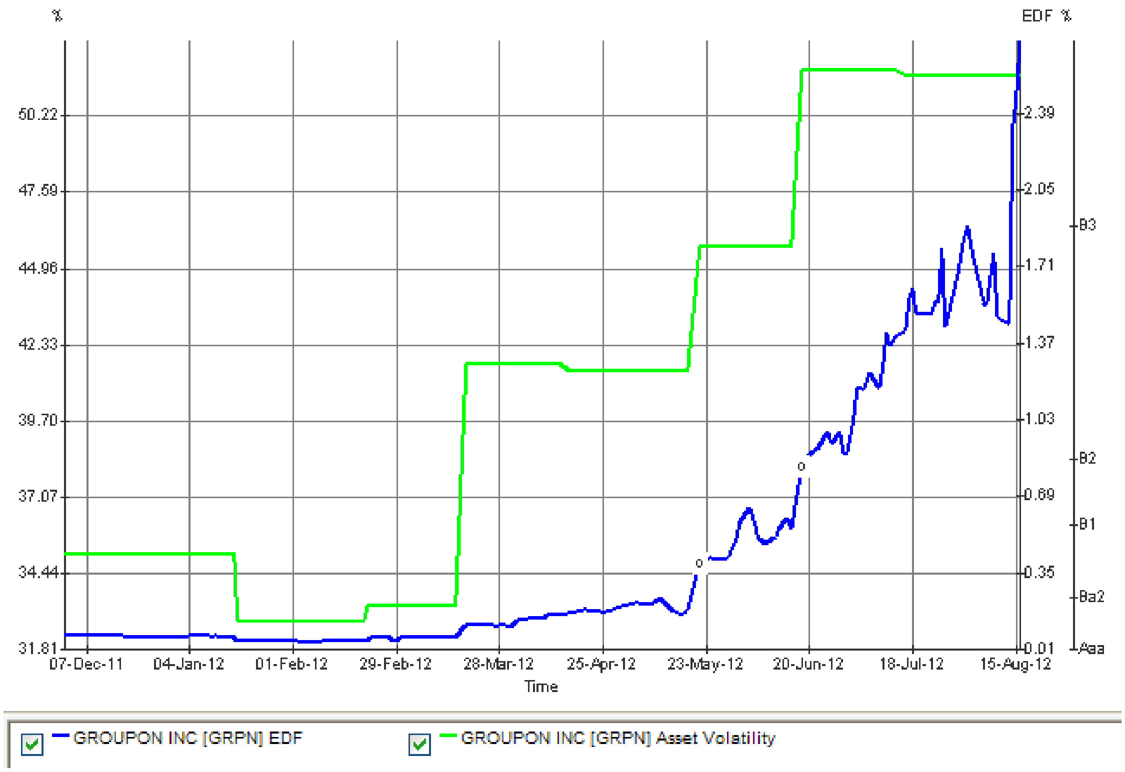


Groupon's climbing EDF metric has primarily been the result of two adverse trends: an increase in its market leverage and a jump in its asset volatility. The changes in these two drivers of the EDF show that Groupon faces both financial challenges as well as a real increase in its business risk.

Figure 5 shows the times series of Groupon's market leverage and its components – its market value of assets and default point. Market leverage is simply the ratio of the default point to the market value of assets. Along with the aggressive business expansion, growth in Groupon's core daily-discount deals business appears to have hit wall, and investors have started to question the firm's future profitability. This is directly shown in the company's poor performance in the equity market, which as of August 16, 2012, is 75% below its initial public offering price of USD 20 in November 2011. The company's plummeting equity value has translated into a rapid decrease in the company's market asset value over the same period.

Although Groupon's default point – an estimate of the amount of debt due in one year that would trigger a credit event – has risen by 40% over the past six months, it is the fall in its market value of assets that has led to a marked fall in the market value of the company's net worth. The gap between the default point and market value of assets has decreased from USD 17.4 billion to USD 3.3 billion in just six months. Consequently, Groupon's market leverage has jumped significantly. Groupon's current market leverage level of 25.2% is the highest in the internet information providers group, and twice the sector's average.

Figure 6: Groupon's EDF Metric and Asset Volatility



Groupon has also shown a material increase in its business risk since the start of the year. The most notable question regarding Groupon's business risk is whether its business model is sustainable, particularly considering the growing numbers of competitors. With low barriers to entry, a customer base with a high degree of price sensitivity, and powerful competitors expanding in the business (e.g. Google and Amazon), its business risk is particularly high. Wall Street analysts are increasingly questioning the growth potential of the company's flagship daily-discounted deals business, since its customer base may have limited ability to grow in the future. Consequently, the company's business risk, as measured by its asset volatility shown in Figure 6, has risen significantly since March 2012, and currently stands at 51.59%. Its asset volatility is in the 75th percentile of its industry peer group, placing it among the higher risk companies on that single credit risk metric.

Summary

Since Groupon reported a fourth-quarter 2011 loss of USD 9.8 million on an adjusted basis, Moody's Analytics' public EDF measure had increased from 0.04% to 2.71% as of August 16, 2012. The sharp increase in its EDF measure was driven by changes in both its market leverage (financial risk) and asset volatility (business risk). Groupon's market leverage level of 25.2% is currently among the highest in the internet information providers group, and twice the sector's average. The gap between the default point and market value of assets has decreased from USD 17.4 billion to USD 3.3 billion in just six months. Historically, if the market value of assets falls below the company's default point, it is assumed that the firm will not be able to sell assets or raise additional capital to pay its debt. Investors have become concerned that growth in Groupon's core daily-discount deals business appears to have hit a wall, which is shown in the company's poor performance in the equity market since March. Its share price is now 75% below its initial public offering price of USD 20 in November 2011. Asset volatility of the firm is trending among the 75th percentile of its industry peer group, suggesting that the current business model is relatively vulnerable to aggressive competitors.

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Authors
Sai Mao 1.212.553.1035
sai.maro@moodys.com

Irina Makarova 1.212.553.4307
irina.makarova@moodys.com

Contact Us
Americas : 1.212.553.4399

Europe: +44 (0) 20.7772.5588

Asia: 813.5408.4131