

CASE STUDY

RiskCalc™ Case Study: J. Crew

Probability of Default Risk Rises after Private Company Completes Leveraged Buyout

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Abstract

On November 23, 2010, mail order retailer J. Crew agreed to a leveraged buyout (LBO) led by two private equity firms: TPG Capital L.P. (formerly Texas Pacific Group), and Leonard Green & Partners L.P. The acquisition was valued at approximately \$3.1 billion with \$1.6 billion of debt assumed by both private equity firms. Transaction costs associated with this buyout amounted to \$155 million.

By 2012, J. Crew was operating as a private entity controlled by both private equity firms. Moody's Analytics analyzed the impact of this restructuring on J. Crew's probability of default before and after the LBO using the RiskCalc™ North America Large Firm 3.1 model. The analysis revealed that J. Crew's EDF™ (Expected Default Frequency) increased markedly after it restructured and turned private.

Table of Contents

1. Introduction	3
2. Expected Default Frequency Analysis	3
2.1 EDF Modes	3
2.2 EDF Analysis	3
3. Diagnostic Financial Analysis	4
3.1 Overview: Financial Statement Change Relative to LBO	4
3.2 Relative Contribution Results	5
3.3 Relative Sensitivity Results	7
4. Summary	7

1. Introduction

J. Crew Group, Inc. (J. Crew) was founded in 1983 as a mail order retailer of women's and men's apparel, shoes, and accessories. Since its founding, J. Crew expanded both the scale of its retail operations and its global presence. In 1997, buyout firm Texas Pacific Group purchased J. Crew from its founders, Arthur Cinader and his daughter Emily Woods. A decade later, J. Crew completed an initial public offering that resulted in a market capitalization of approximately \$1.14 billion.

On November 23, 2010, J. Crew agreed to a leveraged buyout (LBO) led by two private equity firms: TPG Capital L.P. (formerly Texas Pacific Group), and Leonard Green & Partners L.P. Under the terms of the deal, J. Crew shareholders received \$43.50 per share in cash, a 16% premium over the stock's closing price of \$37.65 the day prior to the announced LBO. The acquisition was valued at approximately \$3.1 billion with \$1.6 billion of debt assumed by both private equity firms. Transaction costs associated with this buyout amounted to \$155 million.

By 2012, J. Crew was no longer a public company and was now operating as a private entity controlled by both private equity firms. Moody's Analytics (MA) analyzed the impact of the restructuring on J. Crew's probability of default before and after the LBO. MA ran financial statement data from 2011 and 2012 (the years before and after the LBO, respectively) through its RiskCalc™ North America Large Firm 3.1 model to determine J. Crew's probability of default. The analysis revealed that J. Crew's EDF™ (Expected Default Frequency) increased markedly after it restructured and turned private.

RiskCalc offers both one-year and five-year term EDF analysis. Results for both EDF term structures are interpreted and evaluated in the same way. For brevity, this case study will focus solely on one-year term EDF, as the five-year term EDF analysis bears similar results.

2. Expected Default Frequency Analysis

2.1 EDF Modes

RiskCalc offers two different modes to evaluate the EDF of a firm: Financial Statement Only (FSO) and Credit Cycle Adjustment (CCA). We apply these to J. Crew to offer additional insight into its risk profile before and after its LBO.

FSO mode serves as the base case level of analysis. The resulting EDF value considers the health of a company based on its financial statement information. The FSO mode provides a stable estimate of a firm's default risk throughout the credit cycle and captures the firm's long term performance. FSO mode also provides an industry adjustment factor through a dummy variable for each sector, which ensures that the model captures the difference in the default rates among sectors.

CCA mode combines the company financials with the general credit cycle in the economy to create a more accurate probability of default estimate at any given point in time. Benefiting from forward-looking equity markets, RiskCalc Plus uses the Distance-to-Default (DD) calculation from the Moody's Analytics Public Firm model. For example, if the DD factor for public firms in an industry indicates a level of risk is below the historical average, the FSO EDF level is adjusted downward to arrive at the CCA EDF level. Conversely, if the risk level is higher than the historical average, the FSO EDF level is adjusted upward to arrive at the CCA EDF level.

2.2 EDF Analysis

The following table shows the J. Crew EDF analysis in FSO and CCA mode.

Measurement	Financial Statement Only (FSO)		Credit Cycle Adjustment (CCA)	
	Before LBO (2011)	After LBO (2012)	Before LBO (2011)	After LBO (2012)
1-Yr EDF	0.08%	2.51%	0.06%	1.86%
Bond Default Rate Mapping	Aa3.edf	B1.edf	Aa3.edf	Ba3.edf
Percentile	11.58%	84.53%	9.94%	80.51%

Before its LBO, J. Crew's one-year FSO EDF measured 0.08%; after its LBO, that same measure rose to 2.51%. The year-to-year change in one-year FSO EDF equates to a 3,307.50% increase. Under CCA mode, the observed one-year EDF changed from

0.06% in 2011 to 1.86% in 2012, a 3,000% increase. To offer additional context about the increased risk, these EDF metrics are mapped to Moody's Investor Service bond default ratings to provide an implied rating. Implied bond default ratings are based on the long-term study of a bond rating's default rates and interpreted in the same manner under either computational mode. Accordingly, under the FSO approach, the one-year bond default rating went from Aa3 before the LBO to B1 after it. Similarly, the one-year bond default rating under CCA mode changed from Aa3 to Ba3.

Besides implied ratings, RiskCalc provides a percentile measure to better illustrate both the EDF findings and the increased likelihood of default. The percentile measure compares J. Crew's EDF value to that of all firms comprised in the model development sample. Percentile measures before and after the LBO for the one-year FSO EDF are 11.58% and 84.53%, respectively. This means that before the LBO, 11.58% of firms in the model development sample are safer and have FSO EDF values lower than the J. Crew EDF of 0.08%. Conversely, this means that 88.42% of firms display a one-year FSO EDF that is higher than 0.08%. After the LBO, the comparison changes dramatically, as 84.53% of the firms in the model development sample exhibit a one-year FSO EDF lower than 2.51%. Again, percentile measures for CCA mode are interpreted in the same way as those for FSO mode.

3. Diagnostic Financial Analysis

What factors contributed to such a significant change in J. Crew's EDF in less than two years? To answer this, RiskCalc employs the following two types of analyses:

- » Relative contribution: Quantifies how much a particular ratio contributes to the EDF.
- » Relative sensitivity: Quantifies how a change in a ratio will impact the EDF.

3.1 Overview: Financial Statement Change Relative to LBO

Before we examine these analyses and their results, we provide a quick overview of how selected financial statement items changed relative to J. Crew's LBO.

Goodwill and intangible assets are two line items that changed significantly and impact both analyses. Goodwill increased from \$0 prior to the LBO to \$1.687 billion afterwards. Intangible assets also jumped during this span from \$4.343 million to \$985.322 million. Both of these items affect the return on assets ratio because they increased the amount of assets after the LBO; however, neither of these items impacts the return, so the overall effect is to decrease the value of the ratio.

Coincidentally, the increase in goodwill and intangible assets also helps to enlarge J. Crew's asset base, which affects the size factor in both analyses. As the relative contribution analysis illustrates, the impact size is not as significant compared to the other factors.

Borrowing increases with many LBOs. J. Crew's LBO debt structure included \$400 million notes at a rate of 8.125% and a \$1.2 billion term loan credit facility.

The rise in debt and interest expense increased J. Crew's leverage and affected its earnings before interest, taxes, depreciation, and amortization.

Table 2 RELATIVE ANALYSIS BEFORE LEVERAGED BUYOUT

	Relative Contributions 1-Year	Relative Contributions 5-Year	Relative Sensitivities 1-Year	Relative Sensitivities 5-Year	Percentile	Ratios or Level
Change in Working Capital Accruals	-3.11%	-16.22%	2.01%	9.08%	51.80%	-0.099
EBITDA/Interest Expense	-16.00%	-20.13%	-11.06%	-12.06%	92.39%	6,737.966
Sales Growth	-5.41%	-9.62%	-114.54%	-192.18%	52.72%	9.137
Change in ROA	4.00%	1.53%	-281.53%	-163.07%	25.54%	-2.577
Change in Leverage	-6.11%	-7.84%	23.45%	26.05%	15.76%	-6.666
Total Debt/Total Assets	-12.88%	-17.92%	108.06%	161.70%	2.00%	0.000
Cash and Equivalents/Current Liabilities	-25.17%	-9.47%	-98.92%	-38.35%	90.13%	140.892
Return on Assets	-23.36%	-8.82%	-54.16%	-17.72%	95.58%	14.126
Size	-3.96%	-8.45%	-206.27%	-279.80%	64.22%	81,906,091.27 7

Table 3 RELATIVE ANALYSIS AFTER LEVERAGED BUYOUT

	Relative Contributions 1-Year	Relative Contributions 5-Year	Relative Sensitivities 1-Year	Relative Sensitivities 5-Year	Percentile	Ratios or Level
Change in Working Capital Accruals	-1.68%	-8.11%	12.59%	80.18%	66.68%	1.188
EBITDA/Interest Expense	20.15%	23.44%	-365.90%	-352.86%	15.96%	168.528
Sales Growth	-3.66%	-6.02%	-31.91%	-61.99%	48.53%	7.709
Change in ROA	11.67%	4.14%	-1.26%	-1.39%	6.08%	-14.230
Change in Leverage	15.39%	18.23%	2.57%	6.30%	100.00%	44.606
Total Debt/Total Assets	6.67%	8.58%	164.37%	212.14%	80.98%	44.606
Cash and Equivalents/Current Liabilities	-12.83%	-4.46%	-78.06%	-29.92%	79.61%	70.164
Return on Assets	17.31%	6.04%	-204.64%	-66.11%	21.63%	-0.105
Size	-10.64%	-20.99%	-38.70%	-89.10%	85.65%	329,104,227.9 93

3.2 Relative Contribution Results

Results for J. Crew's relative contribution analysis before and after the LBO are shown in Tables 2 and 3. The last two columns in each table form the basis for the other analyses and illustrate how J. Crew's fundamentals compare with the entire development sample. The value in the Ratios or Level column is the raw value of the ratio, calculated from the financial statement inputs entered into RiskCalc. The Percentile column shows where each J. Crew ratio ranks compared with that of other firms in the model development sample.

A review of the factors before and after the LBO indicates four ratios where the actual values slumped significantly after the LBO. Percentile values for these same factors over the same time horizon also indicate these factors after the LBO did not compare well relative to other firms. Among these factors are earnings before interest, taxes, depreciation and amortization (EBITDA)/interest expense, a change in leverage, total debt/total assets, and return on assets.

A closer look at the factors reveals that the ratio EBITDA/interest expense equaled 6,737.97% before J. Crew's LBO, but plummeted to 168.53% after the LBO. Although this ratio signals that J. Crew's earnings after the LBO are sufficient to cover the company's interest expense, the ratio dropped precipitously from its level before the LBO.

It is also valuable to know how well J. Crew fared compared to its peers using this same metric. Did J. Crew's peers also experience a similar drop in the level of this ratio? Table 2 shows that the corresponding percentile before the LBO is 92.39%, which means that 92.39% of all companies in the model development sample reported a value for EBITDA/interest expense lower than J. Crew. After the LBO, the percentile for the same ratio dropped to 15.96% (refer to Table 3), meaning 84.04% of J. Crew's peers reported a higher EBITDA/interest expense value than J. Crew.

We observe a similar pattern with the other three factors, including a change in leverage, total debt/total assets, and return on assets. All three factors exhibit favorable ratios and percentiles prior to the LBO, but those values change substantially after the LBO.

Neither the actual value of the ratio nor its corresponding percentile sufficiently measures a ratio's impact on the company's EDF. Another metric called relative contribution is needed to provide such insight. Relative contribution quantifies how each ratio in the model contributes to a firm's EDF. Relative contribution shows which model variables help increase default risk and which help decrease it, as well as the relative magnitudes of those variables. Each ratio contributes to a firm's EDF but the degree to which one ratio's effect is deemed "good" while another ratio's effect is deemed "bad" is measured relative to the magnitude of the impact of all other factors in the model.

Under relative contribution analysis, each ratio's effect on EDF is classified as either positive (greater than zero) or negative (less than zero). A positive relative contribution means a firm's ratio is increasing its EDF. A negative relative contribution, however, means a firm's ratio is decreasing its EDF. Finally, a relative contribution value equal to zero means the ratio has a neutral impact on the EDF.

Relative contribution also offers a method to compare and evaluate the magnitude, or size of the effect a ratio has on the EDF relative to other ratios. Magnitude is evaluated only within a single financial statement; it is not evaluated across different firms or financial statements.

To better understand and to visualize this impact, RiskCalc provides a graphical representation of relative contribution. Relative Contribution data in Tables 2 and 3 are shown in the corresponding Figures 2 and 3.

Figure 1 Relative Contribution Before Leveraged Buyout

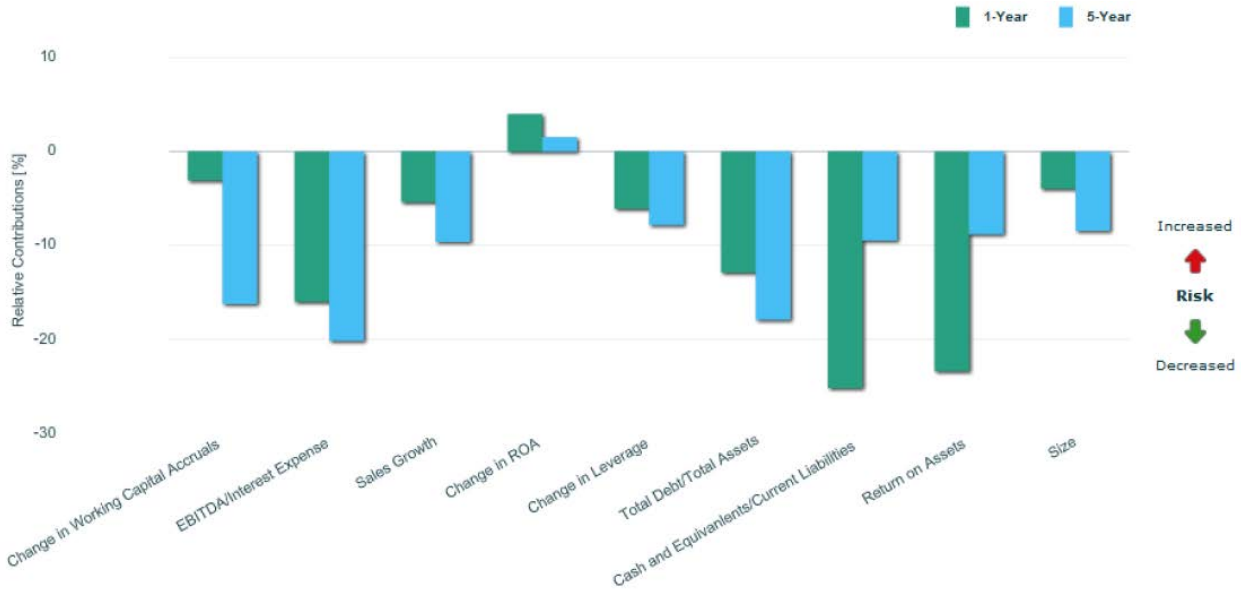
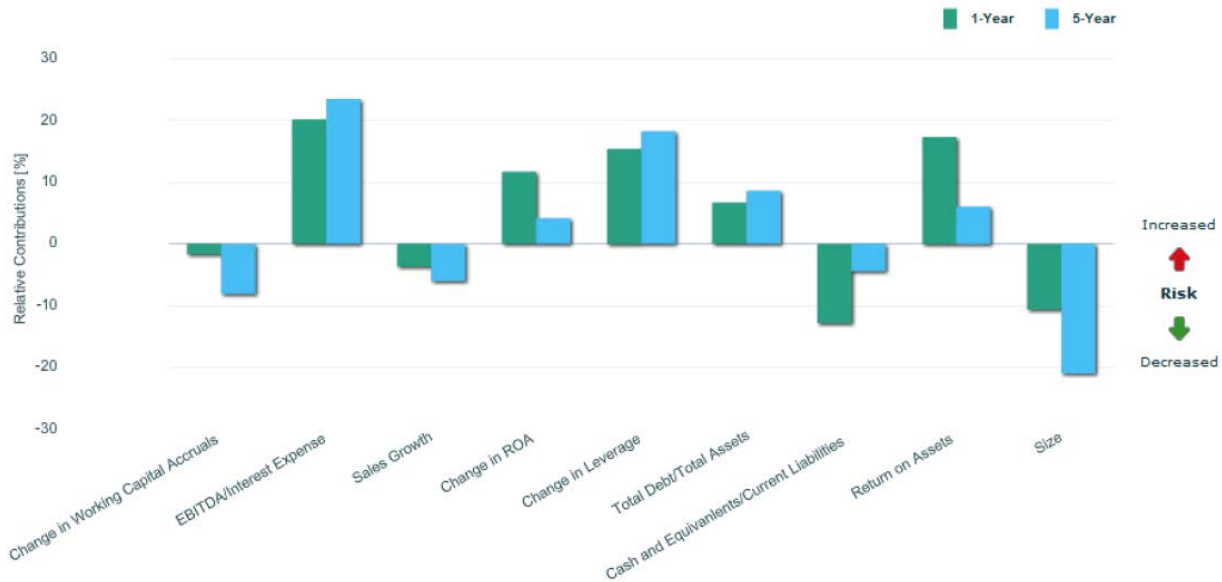


Figure 2 Relative Contribution After Leveraged Buyout



Examining the EBITDA/interest expense ratio again, notice the change in impact to the one-year EDF. Before the LBO, relative contribution for EBITDA/interest expense stood at -16.00% and was among the largest contributors to a low EDF. The effect of this ratio, therefore, was beneficial because it pulled J. Crew's overall one-year EDF down. The effect of this ratio, therefore, was beneficial because it pulled J. Crew's overall one-year EDF down. After the LBO, the opposite effect occurs. Relative contribution for this ratio is now 20.15% and its effect on the overall one-year EDF is the largest of any factor. Its effect is detrimental as the relative contribution is positive and the ratio value increases the EDF. The larger role that

EBITDA/interest expense plays in the impact of one-year EDF after the LBO is easy to see when viewed in Figure 2. The one-year bar graph for this ratio is larger than the one-year graphs for other ratios.

Likewise, the other three factors including a change in leverage, total debt/total assets, and return on assets, mirror the effect on EDF demonstrated by the factor EBITDA/interest expense—they decrease the risk of the company prior to LBO and increase afterwards.

It is also interesting to note how much greater the magnitude of these factors is compared to the other factors employed in the model. For example, before the LBO, return on assets and EBITDA/interest expense were approximately 7.5 times and 5.1 times, respectively, stronger than the factor with the least impact, change in working capital accruals. After the LBO, those same factors grew to 10.3 times and 12.0 times as strong as change in working capital accruals.

Now that we identified the factors that significantly impact J. Crew's EDF and quantified them by relative contribution, what steps can management take to improve the company's future EDF? Does J. Crew management simply allocate resources that will improve the more significant ratios identified via relative contribution? To help answer these questions we use relative sensitivity analysis, described in the following section.

3.3 Relative Sensitivity Results

Relative sensitivity quantifies how a firm's EDF will change given a small change in one ratio or another. In simple terms, relative sensitivity is a what-if analysis.

The analysis entails a small change to a single ratio while all other ratios remain constant. The resulting change in EDF is observed and tracked. If the change in EDF is in the same direction as the change in the ratio, relative sensitivity is deemed positive. A positive value means increasing the ratio would increase the firm's EDF. If the change in EDF is in the opposite direction as the change in the ratio, relative sensitivity is deemed negative. A negative value means increasing the ratio would decrease the firm's EDF.

The magnitude of a ratio's relative sensitivity is expressed relative to the average absolute change in the EDF when each ratio is shocked. When the magnitude of relative sensitivity is greater than 100%, the ratio is above average in sensitivity relative to other ratios. A magnitude equal to 100% means the ratio reflects average sensitivity. When the magnitude is less than 100%, the ratio is below average sensitivity compared to other ratios.

To improve its one-year EDF, J. Crew must focus on ratios with the largest sensitivity. In Table 3, the following three factors exhibit a magnitude larger than the others:

- » EBITDA/interest expense (-365.90%)
- » Return on assets (-204.64%)
- » Total debt/total assets (164.37%)

EBITDA/interest expense is approximately 3.66 times the average sensitivity. For return on assets, the magnitude is roughly 2.05 times the average sensitivity, while total debt/total assets are 1.64 times the average sensitivity. Both EBITDA/interest expense and return on assets are negative, so increasing these two ratios would decrease J. Crew's EDF. Total debt/total assets is positive, so an increase in this ratio would increase EDF, which J. Crew must avoid. Instead, management must try to decrease the value of this ratio to improve its overall EDF.

4. Summary

From 2011 to 2012, J. Crew's one-year EDF jumped from 0.08% to 2.51% based on analysis performed using Moody's Analytics RiskCalc. More troublesome is that the RiskCalc Credit Cycle Adjusted EDF, which reflects the effect of a sector's credit cycle, also reflected a large increase over that same time horizon. The one-year CCA EDF surged from 0.06% to 1.86%.

Four factors identified through relative contribution analysis were the impetus behind this drastic change in EDF: EBITDA/interest expense, a change in leverage, total debt/total assets, and return on assets.

If J. Crew wants to reduce its probability of default, it must focus on three key ratios: EBITDA/interest expense, return on assets, and total debt/total assets. To achieve a lower EDF, J. Crew must focus resources to increase its EBITDA/interest expense and return on assets ratios while simultaneously decreasing total debt/total assets.

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