



# Can We Predict a Corporate Bankruptcy?

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In many cases, credit managers could easily predict corporate bankruptcies. Quite simply, a company declares bankruptcy because it does not have adequate capital to fund operations and remain solvent. Often, bankruptcy is the result of taking on too much risk, and this will be evident in a fundamental analysis of the financial statements. It stands to reason that a corporation's public disclosure would provide ample warning of a high risk of bankruptcy...except when it doesn't.

Indeed, amongst the 20 largest public company non-financial bankruptcy filings since 1980, nearly half were accused by regulators of manipulating their earnings to create the impression of a healthier company. And among those in the highly leveraged financial services industry, whether or not they actually declared bankruptcy, the speed at which recent banking institutions fell from grace and the inability of the marketplace to value their assets gives one pause for concern as to whether the traditional ways of gauging bankruptcy risk has effectively protected stakeholders.

In the case of Lehman Brothers ([LEHMQ.PK](#)), in August of 2007, the bank announced it would eliminate its subprime lender BNC Mortgage. After the announcement, the stock price dropped a mere 34 cents to \$57.20. On September 10th of the following year, Lehman's share price was \$4.22 and 5 days later it became the largest bankruptcy filing ever.

Famously, hedge fund manager David Einhorn, who had a short position on Lehman Brothers' stock, questioned the bank's valuation just months prior to the firm's collapse, to which Lehman's CFO said "had no basis in fact."

Shortly after Lehman declared bankruptcy, Washington Mutual ([WAMUQ.PK](#)) did as well, making it the second largest filing in history.

And since that turbulent time, bankruptcy filings have only increased. In fact, the number of business bankruptcy filings during the first six months of this year rose 64 percent over the same period in 2008, according to U.S. Bankruptcy Courts. Chapter 11 reorganization filings were up 113 percent over 2008, while Chapter 7 liquidation filings increased by 57 percent.

Clearly we've entered into a new era of bankruptcy risk. With an increase in the number of bankruptcies and the changing nature of company failures – driven by risks related to financial instruments and the speed in which companies decline – traditional approaches to identifying bankruptcy risk should be

challenged to determine the best approach in this new environment. Economic pressures like the current recession and competitive changes such as new technology can significantly accelerate bankruptcies.

There are a number of broadly accepted bankruptcy models commonly used by corporate credit officers to gauge their exposure, both academic and practical, which are based on accounting factors that have been found to be predictive of bankruptcy. Measures of liquidity, leverage and profitability have formed the basis for these accounting-based bankruptcy models, the best known of which are the Altman Z-Score and the Ohlson O-Score. Accounting-based models are viewed as largely static, updated after annual or quarterly financial data is made available.

An alternative to static accounting-based models is a market-based approach. Market-based models have been found in academic research to provide a measure of bankruptcy risk as effective, or more effective, than accounting-based models. Market-based risk models are based on the option pricing theories of Black-Scholes and Merton's Distance to Default (DD).

A third measure of bankruptcy risk is through evaluating the potential for fraudulent reporting of financial statements. One approach, accepted by most of the D&O insurance market, is the Audit Integrity Accounting and Governance Risk (AGR®) rating, which is commonly used to identify companies that may be committing fraud, or, more politely "managing earnings."

Each of these three approaches – accounting-based, market-based and fraud-based – is at least moderately effective on a stand-alone basis in predicting bankruptcies. Since the models are not assumed to be highly correlated, each model has the potential to add incremental value to the other models.

To validate bankruptcy models, an Accuracy Ratio test is typically performed. This widely accepted validation test is designed to measure the predictive power of a model, and to compare different models. An Accuracy Ratio of 100% indicates a perfect model, and an Accuracy Ratio of 0% indicates a model with no predictive power; the higher the percentage, the closer the approximation to a perfect model.

Though not designed specifically as a bankruptcy predictor, the stand-alone Accuracy Ratio for the AGR Model is 45%. The Accuracy Ratio for the Ohlson Model is 77% and for the Merton DD model it is 86% (these results are consistent with numerous academic studies).

To determine whether a better approach would improve bankruptcy prediction, the three models above were combined in a single model, using regression techniques to determine which factors in combination best predict bankruptcies. The resulting model was found to have an Accuracy Ratio of 91%, indicating a highly predictive model.

Beyond adjusting current models, credit officers can institute other strategies to gauge risk such as:

- Increase the frequency of model updates. Some models only utilize year-end data, which cannot react quick enough in today's environment;
- Add in market-based information to get a timely perspective on how the marketplace is assessing risk. Significant stock declines and excess volatility indicate heightened bankruptcy risk;
- Incorporate forensic accounting or other non-traditional bankruptcy risk approaches. An overreliance on fundamental research can create a false sense of security. Certain key forensic

accounting and corporate governance measures have been found to identify companies where fundamental data cannot be relied on.

Whether an actual bankruptcy filing occurs or not, companies with high bankruptcy risk are more likely to suffer losses, defaults, restructuring, asset sales, downsizing, equity dilution and other events damaging to creditors.

And analysis of past bankruptcy cycles indicates that bankruptcy filings lag an economic rebound by up to a year, which may mean further increases in bankruptcies the quarters ahead, as companies weakened by the recession struggle to survive a still challenging environment.

As the economy recovers from a deep, painful recession, many companies continue to be vulnerable to bankruptcy risk and financial distress. New approaches to identifying and monitoring this key risk should be considered, particularly in light of the changing nature of bankruptcy risk.

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