

Leveraged Finance and Financial Distress: High-Yield Bonds and Bankruptcy Prediction

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ABSTRACT

Leveraged finance—the use of high levels of debt (typically above investment-grade levels) to finance corporate acquisitions, recapitalizations, or growth—has grown into a major asset class, with the global leveraged loan market exceeding \$1.4 trillion and the U.S. high-yield bond market exceeding \$1.5 trillion. High-yield bonds (rated below BBB/Baa by the major rating agencies) offer higher yields than investment-grade bonds to compensate investors for higher default risk, lower recovery rates, and lower liquidity. Financial distress—the condition in which firms cannot meet or have difficulty meeting their financial obligations—imposes direct costs (legal fees, management distraction) and indirect costs (foregone investment, customer and supplier relationship deterioration) that can destroy substantial value. Altman (1968) developed the Z-score bankruptcy prediction model as the first quantitative discriminant analysis approach to identifying financially distressed firms. This paper reviews high-yield bond markets, credit analysis, covenant structures, bankruptcy prediction models, and the restructuring process.

Keywords: High-Yield Bonds; Leveraged Finance; Financial Distress; Bankruptcy; Altman Z-Score; Covenants; Restructuring; Credit Analysis

1. INTRODUCTION

The high-yield bond market—referred to as ‘junk bonds’ by critics and ‘high-yield’ by practitioners—traces its modern origins to Michael Milken’s work at Drexel Burnham Lambert in the 1970s–1980s, which systematically documented that the higher yields on speculative-grade bonds more than compensated investors for higher default rates and created an actively traded primary market for original-issue high-yield bonds. Before Milken’s work, most non-investment-grade bonds were ‘fallen angels’—bonds that had originally been investment-grade but been downgraded. The creation of an original-issue high-yield market enabled leveraged buyouts and growth-stage companies to access public bond markets that previously required investment-grade ratings.

The economic function of leveraged finance markets is to provide debt capital to companies that cannot access investment-grade debt markets due to their current leverage levels, business risk, or credit metrics, at yields that compensate investors for the incremental default risk. The credit spread between high-yield bonds and investment-grade bonds reflects both expected loss (probability of default $\times$ loss given default) and a risk premium for the higher volatility and lower liquidity of high-yield bonds. In practice, average BB-rated bonds have historically yielded approximately 150–300 basis points above Treasuries, while CCC-rated bonds have yielded 500–1000+ basis points above Treasuries.

2. COVENANT ANALYSIS

2.1 Financial Maintenance Covenants

Debt covenants—contractual restrictions protecting lenders from borrower actions that increase default risk—are the primary governance mechanism in leveraged finance. Financial maintenance covenants—requiring borrowers to maintain minimum ratios (interest coverage, leverage, fixed charge coverage) tested quarterly—provide early warning signals and give lenders renegotiation rights before financial distress becomes severe. Incurrence covenants restrict specific actions (additional debt issuance, dividend payments, asset sales) that would increase credit risk. The trend toward ‘covenant-lite’ leveraged loans since 2010—fewer or no financial maintenance covenants—has reduced lender protection and potentially increased default severity for the current leveraged loan market.

2.2 Recovery and Recovery Analysis

Recovery rates—the fraction of par value recovered by creditors in bankruptcy—average approximately 40% for senior secured bonds, 30% for senior unsecured bonds, and 15% for subordinated bonds, reflecting the priority of claims in bankruptcy. Recovery rates are highly variable and depend on: asset coverage (the ratio of asset liquidation value to total debt); capital structure complexity (more creditor classes create more coordination problems); industry (liquid assets like commercial real estate recover more than intangible-asset businesses); and economic cycle (recoveries are lower in recessions when asset sale proceeds fall).

3. BANKRUPTCY PREDICTION

Table 1. Bankruptcy prediction models and their accuracy.

Model	Variables	Accuracy
Altman Z-Score (1968)	Working capital/assets, retained earnings/assets, EBIT/assets, MV equity/BV debt, sales/assets	95% 1-year accuracy; 72% 2-year in original sample
Ohlson O-Score (1980)	9 financial ratios in logit regression; size, leverage, liquidity, profitability	Logit probabilities; better calibrated than Z-score for probability estimation
Merton distance-to-default	Equity price and volatility as signals of asset value; structural credit model	KMV/Moody's commercial version widely used; better for large public firms
Machine learning models	Random forest, gradient boosting using 100+ financial and market variables	Consistently outperform traditional models; less interpretable

4. RESTRUCTURING AND REORGANIZATION

When firms cannot meet their financial obligations, they may restructure out of court (renegotiating debt terms with creditors) or file for formal bankruptcy protection under Chapter 11 (U.S.) or equivalent proceedings in other jurisdictions. Out-of-court restructuring is faster and less expensive than formal bankruptcy but requires consent from all creditor classes—often difficult when there are many creditors or creditor classes with conflicting interests. Chapter 11 provides a ‘breathing space’ through the automatic stay (halting collection actions) while the debtor develops a reorganization plan, and enables ‘cramdown’ of dissenting creditor classes under specific conditions. Gilson (1997) documents that firms that restructure outside bankruptcy are no more likely to re-file for bankruptcy than those that use formal proceedings—suggesting that out-of-court restructuring can be as effective when coordination problems are manageable.

5. CONCLUSION

Leveraged finance provides essential capital market access to companies that cannot qualify for investment-grade debt, enabling LBOs, growth-stage financing, and corporate restructuring that creates economic value when properly deployed. High-yield bond and leveraged loan markets have grown dramatically since the 1980s, providing yield enhancement opportunities for institutional investors and new issuer access for smaller and more leveraged companies. The trend toward covenant-lite leveraged loans has reduced lender protections at the expense of potentially higher default severity in future cycles. Bankruptcy prediction models have improved from Altman's Z-score to machine learning approaches with higher accuracy, though interpretability remains important for credit decisions. Future research should examine how private credit funds' growing share of leveraged finance changes restructuring dynamics compared to the more dispersed public bond market.

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