

# BUSINESS ANALYSIS & VALUATION

5e

USING FINANCIAL STATEMENTS

**Text & Cases**



## Chapter 10: Credit Analysis and Distress Prediction

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*Chapter 10: Credit Analysis and  
Distress Prediction  
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# Key Concepts in Chapter 10

- The likelihood of financial distress is an important aspect of firm risk.
- Numerous parties are interested in the credit-worthiness of a company, including banks, investors, suppliers, auditors, and employees, among others.
- Debt is an important source of financing, though there are trade-offs in financing with debt instead of equity capital.

# Why Firms Use Debt Financing

- Interest tax shields
  - Corporations or other taxable entities are able to deduct interest paid on debt as an ordinary business expense.
- Management incentive alignment
  - Leverage imposes a discipline on management to create value, reducing conflicts of interest between managers and shareholders.

# Some Potential Downsides of Debt Financing

- Increasing levels of debt financing may be accompanied by higher a likelihood of financial distress.
- Financial distress has some of the following negative consequences:
  - Legal costs
  - Damage to ability to raise capital
  - Cost of conflicts between creditors and stockholders

# Median Leverage in Selected Industries

**TABLE 10-1**

**Median Leverage in Selected Industries – Year-end 2010**

Industry	Net Interest-Bearing Debt-to-Book Equity	
	All Listed Firms	NYSE Firms
Prepackaged Computer Software	-41.9%	-49.4%
Pharmaceuticals	-60.2%	-7.5%
Crude Petroleum and Natural Gas	10.8%	22.2%
Industrial Inorganic Chemicals	3.1%	26.3%
Electric Services	74.2%	79.5%
Water Supply	81.7%	90.5%

Source: Standard and Poor's Compustat 2011.

# The Market for Credit

- Commercial banks
  - May have better knowledge of a firm, but are constrained in the amount of risk they can assume.
- Non-bank financial institutions
  - For example, savings & loans, insurance companies, and investment bankers.
- Public debt markets
  - Requires that a firm have the size, financial strength, and credibility to bypass the banking sector.
- Sellers who provide financing
  - Suppliers typically extend very short term financing to buyers, but may occasionally grant a loan.

# Analyzing Credit

- Credit analysis is more narrowly focused than estimating the value of a firm's equity.
- Business strategy, accounting, financial, and prospective analyses are still important.
  - The better a firm's future business prospects, the lower the risk to the creditor.
- The steps a commercial lender might follow are presented next. Note that they are interdependent.

# The Credit Analysis Process in Private Debt Markets

1. Consider the nature and purpose of the loan.
  - This helps with structuring the terms and duration of the loan, along with the rationale for borrowing.
  - The size of the loan must be set.
  
2. Consider the type of loan and available security.
  - Numerous types of loans are available from open lines of credit to lease financing.
  - The type and amount of security needed to collateralize a loan must be established.



# The Credit Analysis Process in Private Debt Markets

## 3. Conduct financial analysis.

- Comprehensive analysis of business strategy, accounting, and financial aspects of the firm.
- Ratio analysis is useful, particularly ratios addressing the ability to make loan payments.

## 4. Assemble loan structure and debt covenants.

- Loan covenants specify mutual expectations of the borrower and lender.
- Some covenant terms include the borrower maintaining specific financial conditions.

# Financial Statement Analysis and Public Debt

Debt ratings provide important information to investors

- The meaning of debt ratings:
  - Standard & Poor's has a rating system from D to AAA that grades the relative riskiness of debt.
  - Debt ratings influence the yield that debt instruments must pay for investors to buy them.

TABLE 10-2

Debt Ratings: Example Firms and Average Yields by Category

S&P debt rating	Example firms in 2010	Percentage of public industrials given same rating by S&P	Average yield, 2010	Average spread over 12-month LIBOR rate
AAA	Exxon Mobil Johnson & Johnson Microsoft	0.4%	4.0%	3.2%
AA	General Electric Wal-Mart Canon	2.1%	4.2%	3.4%
A	Coca-Cola McDonald's TJX	11.7%	4.4%	3.6%
BBB	Daimler Nordstrom Best Buy	29.7%	4.9%	4.1%
BB	General Motors Fiat Netflix	27.3%	6.4%	5.6%
B	Ford Motor Company Eastman Kodak American Airlines (AMR)	27.7%	8.0%	7.2%
CCC	E-Trade Sbarro's Clearwire	1.1%	9.9%	9.1%
CC	Realty	<0.1%	13.6% <sup>a</sup>	12.8%
D	Blockbuster A&P	<0.1%	30%+ <sup>a</sup>	30%+

<sup>a</sup>Representative yields as most securities not actively traded.

Source: Standard and Poor's Compustat 2011.

**TABLE 10-3****Debt Ratings: Median Financial Ratios by Category**

Median ratios for overall category in January 2011  
(excludes financial firms)

S&P debt rating	Earnings before interest and taxes to net capital	Pretax interest coverage	Cash flow from operations to total debt	Net debt to net capital
AAA	41.6%	105.4	317%	-33%
AA	25.9%	14.6	47%	31%
A	23.5%	11.5	57%	22%
BBB	16.1%	5.9	35%	32%
BB	15.4%	3.7	28%	37%
B	9.6%	1.5	14%	58%
CCC	-2.6%	-0.3	>0.1%	87%

Source: Standard and Poor's Compustat 2011.

# Financial Analysis and Public Debt

- Factors that drive debt ratings:
  - Performance measures are used to gauge the expected future health of the firm and the ability to repay debt.

TABLE 10-4

Factors Used in Quantitative Models of Debt Ratings

	Firm 1	Firm 2	Firm 3
Profitability measures	Return on long-term capital	Return on long-term capital	Return on long-term capital
Leverage measures	Long-term debt to capitalization	Long-term debt to capitalization Total debt to total capital	Long-term debt to capitalization
Profitability and leverage	Interest coverage Cash flow to long-term debt	Interest coverage Cash flow to long-term debt	Fixed charge coverage Coverage of short-term debt and fixed charges
Firm size	Sales	Total assets	
Other		Standard deviation of return Subordination status	

Source: © Cengage Learning

# Prediction of Distress and Turnaround

- Models for distress prediction
  - Several models to predict distress have been developed over the years. One of the more popular and robust models is the Altman's Z-score model:

$$Z = 1.2(X_1) + 1.4(X_2) + 3.3(X_3) + 0.6(X_4) + 1.0(X_5)$$

where

$X_1$  = net working capital/total assets (measure of liquidity)

$X_2$  = retained earnings/total assets (measure of cumulative profitability)

$X_3$  = EBIT/total assets (measure of return on assets)

$X_4$  = market value of equity/book value of total liabilities (measure of market leverage)

$X_5$  = sales/total assets (measure of sales generating potential of assets)

- Debt of distressed companies present investment opportunities because they trade at steep discounts.

# Z-Score Calculations for Canon and Kodak

	Model Coefficient	Canon, Inc. Dec. 31, 2010		Eastman Kodak Company Dec. 31, 2010	
		Ratios	Score	Ratios	Score
Net working capital/Total assets	1.2	0.079	0.09	-0.112	-0.13
Retained earnings/Total assets	1.4	0.771	1.08	0.896	1.25
EBIT/Total assets	3.3	0.096	0.32	-0.074	-0.24
Market value of equity/Book value of total liabilities	0.6	4.934	2.96	0.218	0.13
Sales/Total assets	1.0	0.900	<u>0.90</u>	1.296	<u>1.30</u>
Altman Z-score:			5.35		2.31

Source: Thomson ONE, accessed October 2011.



# Concluding Comments

- Debt financing offers tax savings and possible reduction of agency costs to firms.
- The risk of financial distress increases with the level of debt financing.
- Credit analysis employs many of the same tools used in business valuation, and is used by issuers of debt, and investors.
- Debt ratings are important information to investors of public debt.