



Chapter 05

Financial Analysis, Valuation, and Recovery Models in Bankruptcy and Liquidation

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Learning Objectives

Once this chapter is completed, it is expected that the readers can:

1. Know how corporate governance links with insolvency.
2. Track down failed governance that often results in insolvency.
3. The role of directors, auditors and management in avert financial distress.
4. Under CAMA 2020 and NCCG 2018, examine the corporate governance reforms.
5. Examine the manipulation of financial statements, fraud and their relationship with insolvency.
6. Assess early-warning of business failure.
7. Determine the position of regulators like SEC, FRCN and NAICOM.
8. Debate the consequence of ethical maltreatment on insolvency.

INTRODUCTION

The bulk of bankruptcy and liquidation assessment is conducted through financial analysis. Analysts, auditors and creditors use financial indicators to know whether a company is solvent, financially distressed or bankrupt before any formal form of insolvency procedure is initiated.

Financial distress prediction, according to Altman ⁽¹⁾, is the process in which the signs in the accounting ratios are identified as indicators of decreasing profitability, liquidity and solvency. The insolvency events in Nigeria are usually predetermined by poor financial management, poor corporate governance, and macroeconomic instability, especially in manufacturing and industrial goods companies (CBN, 2022).⁽²⁾

In this chapter, models of financial health, firm valuation, and recovery forecasting are offered. It also incorporates the practice in areas that apply to insolvency practitioners, auditors and regulators.

DEVELOPMENT

Financial Distress and Insolvency

The definition of financial distress as used in this study can be defined as follows: Financial distress is the inability to meet one or multiple financial obligations (i.e. both debt and liquidity commitments) as they become due. <|human|>Definition of Financial Distress 5.2.1 Financial Distress The financial distress as applied in this work could be defined as follows: Financial distress is the failure to fulfill one or more financial obligations (i.e. debt as well as liquidity obligations) when they fall due.

Financial distress is a phenomenon whereby a company finds it hard to meet its financial

commitments as they fall even before the actual insolvency is announced. It is the dark zone between bankruptcy and solvency.⁽³⁾

Financial Distress Indicators

The following are financial distress indicators

1. Constant loss of cash.
2. Weak profit margins and returns on equity.
3. Excessive leverage
4. Worsening working capital turnover.
5. Default on loan obligations
6. Qualified audit opinions

These symptoms are frequently pre-petition of bankruptcy in Nigeria, e.g., the liquidity crisis in the run-up to the delisting of Forte Oil Plc (2020).

Bankruptcy Evaluation Financial Statement Analysis

Financial analysis involves utilizing major ratios where the balance sheet, income statement, and cash flow statement are used. In a bid to evaluate insolvency, insolvency practitioners measure five dimensions:

Table 5.1. Dimensions		
Dimension	Ratios Used	Interpretation
Liquidity	Current ratio, quick ratio	Ability to meet short-term obligations
Leverage	Debt-to-equity, total debt ratio	Long-term solvency risk
Profitability	ROA, ROE, net margin	Efficiency of resource utilization
Efficiency	Asset turnover, receivable days	Operational performance
Market Valuation	Price-to-Book, Earnings Yield	Investor confidence and solvency perception

A healthy company will tend to have:

- Current Ratio $\geq 1,5$,
- Debt/Equity $\leq 2,0$,
- Positive operating cash flows.

Bankruptcy Predictive Models

Various quantitative models have been created in the world to predict bankruptcy. Auditors, financial analysts and regulators utilize these models in identifying at-risk firms.

Altman's Z-Score Model (1968)

The most renowned model of bankruptcy prediction is the one created by Edward Altman which integrates five financial ratios:

$$Z = 1,2x_1 + 1,4x_2 + 3,3x_3 + 0,6x_4 + 1,0x_5$$

Where:

- x_1 =Working Capital/Total Assets
- x_2 =Retained Earnings/Total Assets
- x_3 =EBIT/Total Assets
- x_4 =Market Value of Equity/Book Value of Debt

- $x_5 = \text{Sales} / \text{Total Assets}$

Interpretation:

- $Z > 2,99$ this means Financially Healthy
- $1,81 < Z < 2,99$ this implies a Gray Zone
- $Z < 1,81$ this implies Distress Zone

Example (Nigerian Context):

Another manufacturing company that is experiencing decreased liquidity and debt ratio reports a Z-score of 1,45, which means that it is on the verge of distress, and therefore needs to be restructured immediately.

Ohlson's O-Score Model (1980)

Ohlson came up with a logit model that predicts the probability of bankruptcy (P):

$$P = \frac{1}{1 + e^{-Z}}$$

Where Z = combination of financial ratios like leverage, liquidity and profitability.

It is especially applicable in listed companies whose market information is accessible. It has predictive power in Nigerian Exchange Group (NGX) industrial firms, which is supported by studies conducted by Nigerians, including Anyanwu et al.⁽⁴⁾

Zmijewski (1984) Model.⁽⁵⁾

Three ratio based probit model:

$$Z = -4,3 - 4,5X_1 + 5,7x_2 + 0,004x_3$$

Where:

- $x_1 = \text{Net Income} / \text{Total Assets}$
- $x_2 = \text{Total Liabilities} / \text{Total Assets}$
- $x_3 = \text{Current Assets} / \text{Current Liabilities}$

If ($Z > 0$), bankruptcy risk is high.

Nigerian auditors extensively apply this model in risk analysis of the financial sector (CBN, 2022).

Springate Model (1978)⁽⁶⁾

Another more direct version of the model developed by Altman:

$$S = 1,03x_1 + 3,07X_2 + 0,66x_3 + 0,4x_4$$

If ($S < 0,862$), the firm is likely insolvent.

This is applied by practitioners where data is scarce, which is typical in new markets.

Valuation in Liquidation

In cases where a firm is going into liquidation, the fair valuation of its assets is very crucial in fair settlement of its creditors. The key methods of valuation are:

Going Concern vs. Liquidation value

Table 5.2. Going Concern vs. Liquidation value

Valuation Type	Basis	Application
Going Concern Value	Business continues operations	Used in reorganization
Liquidation Value	Sale of assets under distress	Used in bankruptcy or dissolution

Forced-sale conditions typically result in liquidation value being 30-60 % below market value.

Asset-Based Approach

This approach calculates the **Net Realizable Value (NRV)** of all tangible and intangible assets.

$NRV = \text{Market Value of Assets} - \text{Selling Costs}$

Example:

In case total assets = 5billion, and disposal cost = 0.5billion, then $NRV = 4.5\text{billion}$ -making the point through which creditors will be distributed.

Discounted Cash Flow (Income-Based Approach)

Applied in situations where the company is undergoing a restructuring process as opposed to its actual liquidation.

$$V = \sum_{t=1}^n \frac{(1+r)^t}{CF_t}$$

Where:

- CF_t = expected cash flow in period t ,
- r = discount rate.

It presupposes preservation of viable segments of the business (e.g., restructuring of assets of NITEL in 2015).

Market-Based Approach

This includes competing companies of the same industry against their valuation benchmarks. Usually used in mergers and acquisitions (M&A) before liquidation, e.g. the purchase of Diamond Bank by Access Bank (2018).

The Financial Recovery and Restructuring Models

The aim of recovery models is to restore firms prior to or at insolvency. These measures are promoted in CAMA 2020 (Sections 672-676) and Insolvency Regulations (2021).

Debt Restructuring

This includes a renegotiation of the maturity of debt, interest rates or conversion of debt to equity.

They were used in the recovery of Aero Contractors Nigeria (2016) in which AMCON restructured loans to prevent complete liquidation.

Equity Injection

This includes injection of new capital by the current or new investors. This played a major role in the recapitalization of Oando Plc (2019) after the company experienced a lot of financial distress.

Asset Sale and Divestment

This includes the disposing non-core to increase liquidity. As an example, Dangote Cement Plc sold part of its transport subsidiaries to maximise cash flow.

Operational Restructuring

This includes covered in efficiency and cost containment and workforce minimization, with supply chain optimisation and change of management.

Government Intervention or Reregulation

An essential role is played by the Asset Management Corporation of Nigeria (AMCON) which purchases toxic assets and offers restructuring structures (AMCON Act, 2019).

5.7 Insolvency Practitioners Financial Modelling

Financial modeling tools are utilized in the modern insolvency practice to predict the recovery outcomes.

Table 5.3. Example Model (Simplified)		
Parameter	Variable	Value (₦ million)
Total Asset Value	A	5,000
Secured Debt	SD	3,000
Unsecured Debt	UD	1,000
Liquidation Cost	LC	500
Realization Rate	RR	70 %

Liquidation Proceeds (LP):

$$LP = A \times RR - LC = 5,000 \times 0.7 - 500 = \text{₦}3,000 \text{ million}$$

Distribution:

- Secured creditors: ₦2,100m (70 %)
- Unsecured creditors: ₦700m (23 %)
- Residual shareholders: ₦200m (7 %)

This is a method of analysis that is helpful in fair settlements within CAMA.

Cash Flow Projections and Sanity Checks

Insolvency practitioners need to conduct cash flow viability analysis prior to deciding on the liquidation or reorganisation of the company to determine whether the company is able to produce positive cash flow in its operations.

Cash Flow Adequacy Ratio (CFAR)

The calculation of the Cash Flow Adequacy Ratio indicator is shown in the following equation

CFAR =
$$\frac{\text{Operating Cash Flow}}{\text{Debt Repayment} + \text{Dividends} + \text{CAPEX}}$$

If CFAR < 1, the firm lacks sufficient liquidity for survival

Free Cash Flow to the Firm (FCFF)

FCFF = EBIT (1-T) + Depreciation - ΔWC - CAPEX

Used to determine the worth of the whole business in recovery

Financial Reporting Insolvency

CAMA 2020 requires those companies that are in liquidation to prepare final accounts and present their reports to the Corporate Affairs Commission (CAC) and the Federal High Court.

Key components include:

- a. Realization and Distribution Statement.
- b. Liquidator’s Cash Account.
- c. List of Unpaid Creditors.
- d. Certificate of the auditor (to be transparent).

Wrongful reporting of financial matters is a criminal act in section 669 of CAMA 2020.

Nigerian Empirical Nigerian Bankruptcy Prediction

Table 5.4. Nigerian Empirical Nigerian Bankruptcy Prediction		
Study	Method	Key Findings
Ogunbameru & Akinyomi (2021)	Ohlson Model on NGX firms	O-Score effectively predicts distress 2-3 years prior
Enekwe et al. (2019)	Altman Z-Score	Industrial firms’ solvency deteriorates with leverage
CBN (2022)	Stress testing of banks	Liquidity ratios are leading insolvency indicators
AMCON (2020)	Asset recovery analysis	Over 60 % of rescued firms failed due to poor governance

Conceptual Framework for Financial Distress Management

This model (figure 5.1) combines financial, management and regulatory aspects of dealing with insolvency with the focus on prevention through monitoring and intervention.

Financial models have certain limitations.

- 1. Reliance on past information which might not reflect market shocks.
 - 2. Fraud in accounting numbers of compromises ratio reliability.
 - 3. Valuation is misleading because of macroeconomic volatility (e.g., inflation, naira depreciation).
 - 4. A change in model may be needed by industry-specific factors.
- Therefore, professional judgment and governance evaluation must be supplemented

by financial models but not substituted.



Figure 5.1. Financial Distress and Recovery Model

SUMMARY

In this chapter, the author has sat down to elaborate the financial aspects of bankruptcy and liquidation with reference to prediction, valuation and recovery. Other models like the Z-score by Altman and O-score by Ohlson were discussed and their applications in Nigeria were discussed. Statutory requirements were combined with valuation and restructuring plans to form a comprehensive analytical framework.

Proper financial analysis can be used to early detect, fairly liquidate, and recover effectively- this is necessary to retain the confidence of the creditors and ensure economic stability.

REVIEW QUESTIONS

1. Explain what financial distress is and what are its key markers.
2. Discuss the Z-score model by Altman and how it is applied to the Nigerian firms.
3. Differentiate between the going concern and liquidation valuation.
4. Explain significant financial recovery plans provisioned by CAMA 2020.
5. Explain why quantitative models' weaknesses have when predicting bankruptcy.

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