



Financial Distress: Theory, Measurement & Consequence

(A Seminar Paper Presented at the Catholic University
of Eastern Africa, Department of Commerce on 10th November 2000)

*Jonah Aiyabei**

Introduction

Prediction and analysis of corporate financial performance is a crucial phenomena in a developing country like Kenya in the light of recent closure of businesses such as banks and insurance companies. Other firms have been put in receivership, and even individuals declared bankrupt. There is an increasing trend of failure of Kenyan businesses such as KCC and KENATCO are examples of these.

A business core aim is to generate profit and by extension, maximization of wealth. In the course of operations, however, a firm might experience financial problems caused by both internal and external environmental factors. These financial factors lead to what we refer to as financial distress. Wruck (1990) defines financial distress as a situation where a firm's operating cash-flows are not sufficient to satisfy current obligations (such as trade credits or interest expenses), and the firm is forced to take corrective action.

The consequence of financial distress may include a firm's default on its contracts. It may also involve financial restructuring between the firm, it's creditors and shareholders. Actions taken by a firm under financial distress are often circumstantial and ideally would not be taken if the firm had sufficient cash flow.

Rose et al (1996) linked financial distress to insolvency and defined it as: "Inability to pay one's debt and lack of means of paying one's debts. Such as a condition of a woman's (or man's) assets and liabilities that, the farmer needs immediately available would be insufficient to discharge the later."

Altman (1983) distinguished between stock-based insolvency and flow-based insolvency all of which leads to financial distress. The former occurs when a firm has negative net-worth, causing the value of its assets to be less than the value of its debts. This can be illustrated by a balance sheet equation as follows:

Assets < Debts ——— (for a insolvent firm)

Assets = Equity + Debts — (for a solvent firm)

Flow-based insolvency occurs when a firm's cash flows are insufficient to cover contractually required payments. Altman illustrates this concept as

shown below:

Figure 1

Financial literature has devoted significant attention to issues of measuring, avoiding, and consequences of financial distress based on data from developed nations. A review of literature (see Bibeaults, 1982; O'Neill, 1986; and Robin and Pearce, 1992) reveals a wide range of research on the issue among developed countries. There is a need to explore small business financial performance evaluation during the life cycle of an entrepreneurial firm in a developing nation such as Kenya.

The purpose of this paper is to:

- i) discuss the financial performance based on the financial life cycle
- ii) explore the signs of financial distress
- iii) address the issue of how firms deal with financial distress and present a model of measuring financial distress.

Theoretical Framework

A cyclical concept of performance can be used to describe the financial life cycle of a firm. This concept has been used in marketing literature to describe the product life cycle (Kotler, 1995). Rasheed (1997) used a financial life cycle model to describe financial performance over time as illustrated by figure 2 below:

Figure 2

The shape of the curve suggests cyclical variation in financial performance over a continuum of time. The vertical axis represents financial performance as a univariate measure. The two most used variables in financial literature are return on sales (ROS), or return on assets (ROA), (Ramajam, 1984). These measures are generally referred to as return. The horizontal axis represents time (n) in reporting periods (usually years). The intersection of the horizontal axis represents a break-even point. The first stage of the financial life cycle (FLC) is the startup phases. This is characterized by financial returns below break-even point. The second stage, growth, represents returns greater than zero. The stagnant is a situation in which a firm has stabilised and has a market niche. Turn around is a period of poor performance followed by increased returns.

A firm experiencing an extended crisis period will often end in distress, which eventually may result in voluntary or involuntary liquidation (Klutie 1991). Application of this operational cyclical model is logical for a Less Developed Countries (LDC) such as Kenya, due to limited resources to withstand long periods of poor performance.

Quantitative Measures of Financial Performance

The typical univariate measures of financial performance have been return on sales (ROS) or Return on Assets (ROA). ROS is calculated as the earnings before interest and taxes divided by next revenue. ROS is commonly referred to as operating profit margin. Return on assets (ROA) is defined as earning before interest and taxes divided by net book value of assets. Other statistical methods of assessing the potential for failure have been used in financial literature. Some measures are combinations of financial ratios. For example, Beaver (1967) proposed three univariate model financial ratios that measured profitability, liquidity and solvency.

Rasheed (1997) noted that the most statistically significant results in predicting bankruptcy (read distress) have been produced by multivariate models. The model proposed by Altman (1968) combines various ratios. He used Multiple Discriminate Analysis (MDA) to discriminate between characteristics of a financially distressed firm and a non-financially distressed one combining traditional ratio analysis with statistical techniques. MDA analyses the entire variable profile of the object simultaneously rather than sequentially examining individual characteristics. Combinations of ratios are analyzed together in order to remove possible ambiguities and misclassifications.

Altman (1968) suggested that this model can predict ultimate of distress as much as two reporting periods prior to the event. He revised the original Z score model of 1968 in 1983 to make it suitable for all firm sizes, hence it can be applied for small size firms in developing countries. The standard regression model he developed is as below:

$$Z = 6.5(X_1) + 3.26(X_2) + 6.72(X_3) + 1.05(X_4)$$

Where $X_1 = \frac{\text{Networking Capital}}{\text{Total Assets}}$

$$X_2 = \frac{\text{Accumulated Retained Earnings}}{\text{Total Assets}}$$

$$X_3 = \frac{\text{EBIT}}{\text{Total Assets}}$$

$$X_4 = \frac{\text{Book Value of Equity}}{\text{Total Liabilities}}$$

The critical categories used by Altman to predict financial distress, based on Z model, are as follows:

For $Z < 1.10$ indicates a firm in a financial distress zone

$Z = 1.10$ to 2.60 a firm in gray zone

$Z > 2.60$ a firm is a non bankruptcy zone

Altman's model was used to predict bankruptcy for small businesses. This paper suggests that the multivariate models using Z score can be used to

measure financial performance in Kenya. There is a need to compute the Z score on date from Kenyan institutions such as banks. This can further be used to demonstrate the following proposition:

1. How firms can predict financial distress as measured by Altman's Z score in Kenya.
2. What action firms should take when they are in various zones of the Z score as indicated by Altman.

Indicators of a Financially Distressed Firm

- 1. Dividend reduction:** A company which has shown a continuous decline in amount of dividend over time, or even failed to declare dividends at all.
- 2. Plant closing:** A financial distressed company may not support all its plants leading to closure of some branches. In the last four years, Kenya has witnessed its banking industry closing some branches which do not break-even.
- 3. Losses:** Operating losses make a company not to pay dividends or increasing investment. A loss is a reduction in capital, hence the company moves towards bankruptcy.
- 4. Lay offs:** In Kenya, retrenchment has affected both the public and private sectors. Companies such as Barclays Bank, Standard Chartered, National Oil Corp, etc, are laying off their staff.
- 5. CEO resignations:** The top managers of an organization are well placed to see much ahead of time the performance of their organizations. They can therefore resign and move to firms that show potential for withstanding economic hardship. This resignation can be a sign of poor performance.
- 6. Plummeting stock prices:** Stock prices are indicators of a market value for the company. Instability and often decline in price may force shareholders to pull out of the company by disposing shares. Creditors observe performances of an organization based on the stock prices.

Options in Time of Financial Distress

Business firms can deal with financial distress, that is, when they are in a Z score of between 1 and 10, in several ways which may include:

- 1. Disposing of real property:** A company may opt for this to get money to pay its creditors and meet other operating costs.
- 2. Merging with other firms:** Mergers and alliances, such as that

between Bamburi Cement and Athi River, can put a distressed company back on good financial footing. This is more critical in the case of unnecessary competition. In recent years the oil industry has witnessed some merger and buyouts, for example BP and Shell and more recently BP-Shell and Agip in Kenya.

3. Reducing capital spending on research and development: This option may make a firm 'survive' in the short-run. In the long run, research is critical in the light of dynamic business environment.

4. Issuing new shares: This depends on whether a company has exhausted its authorized share capital.

5. Negotiating with creditors: An organization may negotiate with creditors to extend the duration of debt servicing. This may involve new negotiations on interest rates and paying period. A successful negotiation may save a company from liquidation.

6. Liquidation: A situation in which a firm is terminated as a going concern involves selling its assets to salvage its value. The proceeds, net of transaction costs, are distributed to creditors in order of established priority.

7. Lay offs: Reducing staff levels is an option adopted by some organizations. Other firms are right sizing their labour force.

Conclusion

This paper discussed the theoretical aspect of a financially distressed firm based on a cyclical concept. The financial life cycle model represents an important contribution as a framework for analyzing the process of decline among business firms. Research is necessary to find out whether Kenyan firms conform with the financial life cycle model. Altman's model as a measure is a critical input to companies in Kenya. Firms can know ahead of time when they are 'sick' and when 'healthy'. Research on financial distress can also be done to identify strategies appropriate at different stages of distress as suggested by Altman's Z score levels.

It is also necessary for stakeholders to have knowledge of the Z score. This will assist them in making decisions pertaining to an organization. Fund lenders for example need to assess the Z score measure before committing finances.

* The author is a lecturer in the Department of Commerce at the Catholic University of Eastern Africa. His specialisation and research interest is in Finance. Currently, he is among the few qualified financial analysts in Kenya.

Correspondence

Mr Jonah Aiyabei

Lecturer, Department of Commerce

Catholic University of Eastern Africa

P O Box 62157

Nairobi, Kenya

Email: jkaiya@hotmail.com

References

1. Altman, E.I. (1968), "Financial Ratios, Discriminate Analysis and the Prediction of Corporate Bankruptcy" in *Journal of Finance*, September.
2. Altman, E.I., (1983), *Corporate Financial Distress: A Complete Guide to Predicting, Avoiding and Dealing with Bankruptcy*, Toronto: Wiley & Sons.
3. Beaver, W., (1967), "Financial Ratios as predictors of Failure" in *Journal of Accounting Research*.
4. Kotler, P. (1980), *Marketing Management*, Englewood Cliffs, NJ: Prentice-Hall.
5. O'Neill, H. (1986), "An Analysis of the Turnaround Strategy in Commercial Banking" in *Journal of Management Studies*, Zmarch: 165-188.
6. Ramanujam, V., (1984), *Environment Context, Organizational Context, Strategy and Corporate Turnaround*, PhD Dissertation, University of Pittsburgh.
7. Ross et al. (1987), *Corporate Finance Management*
8. Rasheed (1987), "Financial Distress in Entrepreneurial Firms" (seminar paper)
9. Wruck, K. (1990), "Financial Distress: Reorganization and Organization Efficiency" in *Journal of Financial Economics* 27, pg. 425