ASSESSING FINANCIAL DISTRESS FOR LISTED MANUFACTURING INDUSTRIES IN TANZANIA

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ABSTRACT

Following independence in 1961 the government of Tanzania invested heavily in Tanzania's manufacturing sector allowing the sector to grow smoothly. Despite improvement in macro-economic stability in the 2000s, the performance of Tanzania's manufacturing sector remains unimpressive. Manufacturing industries have received widespread public attention especially after Altman (1968) developed a Z-score model of measuring financial distress of the firms. However, most of the researches have been carried out in industrially developed countries and very few studies have been conducted in developing countries.To address these challenges, a study was conducted from all listed domestic manufacturing industries in Tanzania in order to assess their financial health. The data were captured from Dar es Salaam Stock Exchange (DSE) annual financial statements covered a five years period, from 2010-2014. The data were analyzed using Altman's Z-scores (1983). The findings have shown that two manufacturing firms out of six are not financially good and their Z-scores predict that they are likely to be bankruptcy. The Z-score for the other four firms predict that they are non-bankruptcy suggesting that their financial healthy are good. The findings of this study provide warning signal to managers of the firms to make remedial actions before it is too late. It also provide signal to investors to take early precaution before the situation become worse. It is recommended that it is better for the Dar es Salaam Stock Exchanges to use the signals from our findings to control the targeted firms and suggest solutions to them.

Key words: Financial Distress, manufacturing, Industries, Tanzania

1.0 INTRODUCTION

Since 1960s, financial distress prediction has been a critical area of study in the corporate finance literature. Following the criteria of Z-score developed by Altman (1968) as a composite measure of a firm's financial condition and the seminal work of Altman (1968), numerous researchers have attempted to replicate studies in capital markets worldwide such as Olweny (2014), Soon *et al.* (2014) just to mention a few.

The financial condition of the manufacturing industries have received widespread public attention especially after Altman (1968) developed the Z score as a composite measure of a firm's financial condition. Altman suggests that firms with a Z score of less than 1.81 are considered financially distressed and face a high risk of bankruptcy. Distress firms are generally loss making and suffer from severe liquidity constraints (Altman, 2002). The interest in the prediction of corporate bankruptcy is increasing due to the implication associated with this phenomenon for investors, creditors, competitors and government in rationalizing the decision-making process.Following this definition, one third of all United States manufacturing firms were considered financially distressed in 2005 (Carey, 2005). Although corporate failures are perceived to be a problem of developed economies, firms operating in emerging economies are not exception.Most of the researches on financial distress have been carried out in industrially developed countries Agarwal and Taffler (2007), Sandin and Porporato (2007) Muller *et al*. (2009). However, very little studies have been conducted in developing countries (Maina and Sakwa, 2010; Kikuyo and Olweny, 2014; Soon *et al.,* 2014; Bal, 2015).

According to Altman (1968), distress prediction model assist a managers of a firm to track company's performance and help them to identify problems and take effective action to minimize the incidence of failure. Several studies have used the Altman's model to predict the financial performance of manufacturing companies (Christopoulos*et al.,* 2007; Kikuyo andOlweny, 2014; Soon *et al.*, 2014). The Z-score models were used as a proxy for bankruptcy risks in such areas as strategic planning, investment decisions, asset pricing, capital structure, credit risk pricing, distressed securities and going-concern research (Altman, 2002; Chouhan*et al.,* 2014).However, in the context of emerging economies like Tanzania, measuring performance of companies by predicting their financial distress has received less attention mainly due to the short history of financial markets.

Following independence in 1961 to 1980 the government of Tanzania invested heavily in Tanzania's manufacturing sector allowing the sector to grow smoothly. However, this trend changed dramatically due to a serious economic crisis caused by external shocks and internal constraints during the late 1970's. In 1980 to 1995 manufacturing sector faced international competition mainly from Asian products, which caused several industries to close down (TICR, 2012).During the second half of the 1990's, the government developed Sustainable Industrial Development Policy (SIDP) 1996-2020, the main purpose being to shift the economy's engine of growth from the public to the private sector. As a result, the industrial sector started to grow steadily and achieved a high growth rate in the 2000's. Since 2000, consistent economic reforms have transformed Tanzania's manufacturing sector (Ibid).

Despite improvement in macro-economic stability in the 2000s, the performance of Tanzania's manufacturing sector remains unimpressive (TICR, 2012). Tanzania lags behind in terms of the quantity and quality of industrial goods produced and exported. It continues to rely heavily on an unproductive agricultural sector, and low value-added manufacturing. Manufacturing value added as a share of GDP has mostly stagnated at roughly 9.5 percent between 2000 and 2010, which is still below the average for the region, making Tanzania one of the least industrialized countries in the world (Ibid). For instance, Food and beverages alone account for nearly half of total manufacturing value added, followed by non-metallic mineral products (11 percent), tobacco (7 percent) and textiles (5 percent) (ASIP, 2009).

Given the widespread occurrence of financial distress (Hofer, 2007); it is necessary to examine financial distress amongmanufacturing industries in Tanzania because manufacturing industries are important for the economic growth. If bankruptcy could be predicted ahead of time, companies could better secure their companies and could take action to reduce risk and loss of business and perhaps even avoid the bankruptcy itself. Furthermore, investors are also concerned in the firms they have invested or they will want to invest. Therefore, it will be useful if we can predict the manufacturing firms which are vulnerable to bankruptcy.As Chang and Lin (2009) claim that the single mostimportant thing that distinguishes rich countriesfrom poor ones is basically their higher capabilitiesin manufacturing, where productivity is generallyhigher. Therefore, this paper analyzes the financial health of listed domestic manufacturing industries in Tanzania and predicts their financial health and viability.

2.0 METHODOLOGY

2.1 Source of Data

The sample of this study consists of listed domestic manufacturing industries in Tanzania. The data were captured from the annual financial statements covered a five years period from 2010-2014. The domestic manufacturing industries listed in Dar es Salaam Stock Exchange (DSE) which have provided audited financial statements under the period of study include; TOL Gases Ltd, Tanzania Breweries Ltd (TBL), TATEPA Ltd, Tanzania Cigarette Company (TCC), Tanga Cement Public Ltd (SIMBA) and Tanzania Portland Cement Co. Ltd (TWIGA). Therefore, this study analyzes the financial distress of all listed domestic manufacturing industries which have provided their audited financial statements under the period of study.

2.2 Measurement of Variables

The variables used in this study were measured using Altman's Z-score Model (1983) which isinternationally accepted.The original model of Altman's (1968) was not suitable for the study because the model apply only to public traded equity companies. However, Altman's Z-score Model (1983) apply for privately held firm which was an appropriate model because the domestic manufacturing companies listed in the DSE are private companies. Accordingly, Samarakoon and Hasan (2003) suggested that Altman's Z-score models appeared to be a good evaluation of risk in order to predict corporate distress.

According to Altman's Z-score model (1983), the scores in the range of 1.23 to 2.90 are considered to exist in a grey area or "zone of ignorance". This is the area where firms share distress and non-distress financial characteristics implying that the firms are having some financial troubles, thus should be watched before it is too late. Firms with Z scores below 1.23 indicate bankrupt firms, and Z score above 2.90 indicates non-bankruptcy firms.
The Altman's discriminant function (1983) takes the form of:

$$Z = 0.717X_1 + 0.847X_2 + 3.107X_3 + 0.420X_4 + 0.998X_5$$

Where: X_1 = Working Capital/Total Assets (WC/TA)
X_2 = Retained Earnings/Total Assets (RE/TA)
X_3 = Earnings before Interest and Taxes/Total Assets (EBIT/TA)
X_4 = Book Value of Equity/Total Liabilities (BE/TL)
X_5 = Sales/total assets (S/TA)

Altman define defines each ratio as follows:

2.2.1 Working Capital/Total assets (X_1)

This is a measure of liquid assets in relation to the firm's size.The difference between current assets and current liabilities represents working capital. A positive working capital indicates a firm's ability to pay its bills. A business entity with a negative working capital will experience difficulty meeting its obligations. Altman's research shows that this ratio is more helpful than other liquidity ratios, such as the current ratio or the quick ratio.

2.2.2 Retained Earnings/Total Assets (X_2)

This represents a measure of cumulative profitability reflecting its earning power. Low retained earnings over time may indicate a poor business while cumulative profitability of the firm over time indicates the efficiency ofthe management in manufacturing, sales, administration and other activities.

2.2.3 Earnings before Interest and Taxes/Total Assets (X_3)

This measures how effectively a firm is using its resources.This ratio estimates the cash supply available for allocation to creditors, the government, and shareholders. Altman classifies the ratio as a superior measure of profitability.

2.2.4 Book Value of Equity/Total Liabilities(X_4)

Book value of equity is measured by combining book value of all shares of stock, preferred and common, while total liabilities include both current and long term liabilities. The measure shows how much the firm's assets can decline in before theliabilities exceed the assets and the firm becomes insolvent.

2.2.5 Sales/total assets (X_5)

The ratio measures the ability of the management to compete. The capital turnover ratio is the standard financial measure for illustrating the sales generating capacity of the assets.

2.3Analysis

The data were analyzed using ratio analysis of Altman's Z-score model (1983). The values of the five ratios (X_1 to X_5) were added to obtain the Z-score value for each firm.

3.0 RESULTS AND DISCUSSION

The results of Z'-score for the sampled companiesare presented in Tables 1.

Table 1: Results of Z'-score for the Listed Domestic Manufacturing Industries

Industry	2010 Z'-score	2011 Z'-score	2012 Z'-score	2013 Z'-score	2014 Z'-score	Mean Score
TOL	-0.530	0.523	0.683	0.711	1.316	0.541
TBL	2.632	3.395	3.349	3.660	4.080	3.423
TATEPA	1.504	1.203	1.332	0.664	*Missing*	1.176
TCC	5.298	5.324	5.992	5.148	5.037	5.360
SIMBA	3.934	3.833	3.056	4.451	2.307	3.516
TWIGA	4.275	3.698	4.135	3.388	3.471	3.793

According to Altman's Z-score model (1983) the decision criteria are as follows: The scores below 1.23 indicate bankrupt firms, the scores in the range of 1.23 to 2.90 are considered to exist in a grey area while the Z score above 2.90 indicates non-bankruptcy firms.On one hand, TOL and TATEPA with Z-score of 0.541 and 1.176 respectively indicate that these firms are likely to be bankrupt because their Z-score are below 1.23. According to Altman (1983), distressed firms are firmswith the Z-score below 1.23 indicating that they have experienced losses, have higher leverage and their cash holdings are low. Likewise, they have recently had very negative returns. The Z-score of TOL Company in year 2010 was negative 0.530 implying that this company was having high losses. On the other hand, TBL, TCC, SIMBA and TWIGA with the Z-score of 3.423, 5.360, 3.516 and 3.793 respectivelyindicate that they are non-bankrupt firms because their Z-scores are above 2.90.Altman's (1983) suggests that the higher the value of the Z-score the better the financial health of the firms while low and negative scores indicate serious financial distress.Therefore, the findings of this study imply that the financial health of TCC is better as compared to other firms because of its higher Z-score value. Therefore, investors can use thisinformation to analyze the financial health of their invested companies whether they show any sign of bankruptcy and invest more in safe stocks in order to increase their returns. Likewise, managers of the companies should pay more attention in managing and controlling their financial stability and the liquidity of their companies and take early precaution before the situation become worse. The findings suggest that managers of the firms which show the signs of financial distress should take remedial actions before the situations become worse to ensure the company's future profitability. This is important because financial distress is often argued to lead to low market prices which may drive firms into bankruptcy (Hofer, 2007). The findings of this study provide the signals of financial distress prior to its occurrence. Therefore, the Dar es Salaam Stock Exchange can use the signals from our findings to control the targeted firms and suggest solutions to them.

4.0 CONCLUSION

This paper analyzes the financial health of listed domestic manufacturing industries in Tanzania and predicts their financial health and viability using Altman's Z-score model (1983). The findings show that financial stability of two manufacturing industries is at the stake as their Z-scores predict that they are likely to be bankruptcy. The Z-scores for the other four firms predict that they are non-bankruptcy suggesting that their financial health is good. The results of this study provide warning signal to both managers of the firms and investors about the financial status of their firms and make a correct decision before it is too late. It is recommended that managers and investors should adopt such model in their financial planning. If failure can be predicted earlier before a crisis occurs, managers could make a proper decision such as a merger or restructuring to avoid potential bankruptcy costs.

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