Application of Net Working Capital to Total Asset in Signalling Financial Distress of Non-Financial Firms Listed on Nairobi Security Exchange

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Abstract: *Financial distress has been a serious challenge to the existence of not only small firms but also big public companies and private firms both locally and internationally. Corporate financial distress is an ongoing issue in Kenya affecting even giant companies with a national outlook. The study aimed at establishing application of net working capital to total asset in signalling financial distress of non-financial firms listed on NSE. The study focused on the period from 2010 to 2014 since there data could be obtained both from the organization and the company/ NSE websites. This study employed a descriptive research design. The target population was all 42 non-financial companies consistently listed on NSE. The study conducted a census on all the 42 companies. The researcher gathered the secondary data by reading audited financial statements for the period 2010-2014 of all the 42 companies. Secondary quantitative data derived from audited financial statements of the companies were recorded on the data collection sheet. The researcher also used primary data by use of questionnaire to gather general information about managers who helped in the retrieval of the financial statements of their respective companies. Data collected was analysed in light of the study objectives using both descriptive and inferential statistics. A linear regression model was used to find out the significance of the independent variables on status of selected companies. The result showed that out of 42 consistent listed firms studied, seven firms were out rightly distressed since their Z-score values fell either in the lower limits of the grey zone or in the financially distressed zone. The study established that comparatively, the net working capital for these firms ranged between low and negatives throughout the five year period implying that these companies either struggle to meet or could not meet its immediate demands. The study recommends it to the regulators such as NSE and CMA among other users to integrate or use along with other analytical tools to aid in their decision as to whether to delist a company or not.*

Keywords: Altman z-score model, Net working Capital, Total Assets, Financial Distress, Nairobi Security Exchange

1. Introduction

The accounting concepts and convention give credence to the going concern concept and attributes it to the ability of an entity to attract relationships and contracts in order to continue doing business. The mere threat to this assumption would see critical stakeholders pull out thereby leading to liquidation of the firm, a situation that may be terminal to the firm. The threat to going concern is normally a process that may be observed statistically or through inability to meet obligations. The inability to meet financial obligations, financial distress, is a stage that if not detected early may lead to the winding up of a firm. Organizations survive if they can manage the flow of resources and dependencies on external groups. According to Sudarsanam& Lai (2001) a company starts experiencing cash flow problems when major trade customers start paying slowly, major creditors tighten credit terms or sales fall below expectation resulting to financial distress.

According to Gestel, (2006), the issues of corporate financial distress have been approached from various disciplines' perspective such as political theory, legal theory, management, economics, accounting and finance. For instance, Korteweg, (2007) defined financial distress as a situation where promises to creditors of a company are broken or honoured with difficulty. It is a reduction in financial efficiency that results from shortage of cash.

Turetsky and MacEwen (2001), defined financial distress as series of subsequent stages characterised by a special set of adverse financial events. Each stage of financial distress has a distress point and continues until the next distress point is reached. Technically, each stage of financial distress is defined as an interval between two distress points. The onset of financial distress begins with a volatile, decrease from positive to negative cash flow. Followed by dividend reduction which signalises the change to the next stage leading to default. Technical default on debt precedes troubled debt restructuring which usually tends to reduce the risk of potential bankruptcy.

The concept of financial distress have been explained from different perspectives by different scholars: Sudarsanam& Lai (2001) described financial distress from the degree of firms resource dependency and relationships with its stakeholders, Korteweg, (2007) and Garrett (2008) from cash flow perspective, Turetsky and MacEwen (2001) looked at it as a flow of event from one distress point to another while, Adeyemi (2011) looked at operational, managerial and financial difficulties. This study would describe financial distress of a given company by analysing net liquid asset, financial leverage, productivity of company's assets (assets earning power) and finally in terms decline in market value of equity. The definition of financial distress, including bankruptcy, in this study resembles the definition of Altman. Financial distress is the deterioration of operational efficiency, non-payment of current obligations due to cash flow problems, very high leverage, the firm's total liabilities are in excess of total assets, with or without formal declaration of bankruptcy. Global economies have become increasingly sensitive to signs of corporate financial distress, bankruptcy and corporate demise since the global financial crisis of 2008 and the collapse of large joint

stock companies in the U.S.A. and Europe such as Philipp Holzmann, Arthur Andersen, Enron, WorldCom, Swissair, ABB and Parmalat. Their collapse shocked investors across the globe and resulted in enormous losses to both investors and lending institutions involved with them. As a result, many organisations around the world have concentrated on corporate ethics and governance with a view to minimise the risks of corporate financial distress. Therefore, early prediction of distress is essential for managers, investors, lending institutions and various stakeholders who wish to protect their financial investments and interests.

According to Outecheva (2007) very low liquidity and negative cash flow combined with high leverage leads to financial distress amongst many corporate firms. As soon as firms have reached a certain level of leverage but do not strategically conform to their business plans, financial distress can occur even in a booming economic environment. High levels of leverage in the firms and increasing volatility make equity value vulnerable, so that each possible decline in the enterprise value may rapidly impair equity Altman and Hotchkiss, (2006).

Kenya experienced and continues to experience a spate of corporate failures that led affected companies being put under receivership, reorganize with an aim of recovering from the situation. For instance Nyagah stockbrokerage firm was placed under statutory management in 2008 due to its inability to meet financial obligations. Uchumi supermarkets was put under receivership and also delisted from trading on the then Nairobi stock exchange in 2006 but turned around in later years and got relisted on NSE but the success was short lived as the company started experiencing financial difficulties again in 2014 leading to a number recovery strategies. Similar cases of financial distress among local firms include Discount Securities in 2008, Invesco insurance in 2008, Standard Assurance in 2009, Ngenye Kariuki Stock brokers in 2010, Hutchings Biemer in 2010, Pan Paper mills in 2009, Mumias sugar company in 2013 and sugar industry by extension, Kenya airways 2014 to date, Kenolkobil in 2013 and a number of commercial banks to mention a few. This provides an interesting setting for this study to apply Altman's model to signal impeding corporate financial distress.

2. Statement of the Problem

Corporate financial distress has been a serious challenge to the existence of not only small firms but also big public companies and private firms both locally and worldwide. According to Titman (2009) stakeholders mind about the future of the company as they expect continuity of services.

Alexaki (2008) conducted a research in Asia by using Altman z-score model noted that the model performs well in predicting business failures for a period of up to five years earlier however this presents a geographical research gap. Massimiliano (2014), who researched as to whether the Z-score can correctly predict the failure of industrial listed companies in Italy but he only focused on industrial firms hence it left a research gap both in scope and context. Ijaz et al. (2013) conducted a study in Pakistan for the period 2009-2010 with an objective of testing the reliability of the Z-score and current ratio in predicting financial distress among the 35 listed companies of the Karachi Stock Exchange. The results indicated that current ratio and Altman's Z-score are reliable tools of assessing financial health of those companies. Though based on the same concept of financial distress prediction, his study presented both geographical and conceptual gaps.

Locally, Kiege (1991) researched on business failure prediction using discriminant analysis; Kogi (2003) did an analysis of discriminant corporate failure prediction models based on stability of financial ratios; Taliani (2010) and Abudo (2011) researched on predicting financial distress in commercial banks in Kenya; Muchira (2007) investigated the missing link between prudent management, bankruptcy laws and financial distress in Uchumi supermarket and finally Metho (2007) carried out a study on cash flow ratios as a predictor of corporate failures. . Review of these local studies present conceptual research gaps since the variables used in these studies are different from the variables used in the current study. The current study also vary in scope and focuses on different time period.

Although Altman Z score model received wide application across industries and countries, there exist both contextual and conceptual research gaps because none of the above mentioned studies applied the Z'' score model for emerging in the context of non-financial firms that have been quoted on NSE for the period 2010 – 2014 and this prompted the researcher to conduct the study on investigating application of net working capital to total asset in signaling financial distress of non-financial firms listed on Nairobi securities exchange. The findings of this study can be used to make a generalized conclusion about the population as opposed to when examining a single firm in isolation.

3. The General objective of the study

The general objective of this study was to investigate theapplication of net working capital to total asset in signaling financial distress of non-financial firms listed on Nairobi Security Exchange

The Specific objectives of the study
1) To investigate theapplication of current assets in signaling financial distress of non-financial firms listed on Nairobi Security Exchange
2) To investigate theapplication of current liability in signaling financial distress of non-financial firms listed on Nairobi Security Exchange

4. Theoretical Review

Cash Management Theory
According to Beaver (1966), an organization is a reservoir of liquid assets which is supplied by inflows and drained by outflows. The reservoir serves as a cushion or buffer against variations in the inflows. Accordingly the solvency of a firm can be defined in terms of the probability that the reservoir was be exhausted at which point the firm was be unable to meet its obligation as they mature Beaver, (1966), Blum (1974). Cash management theory is concerned with the managing of cash flows into and out of the firm; cash flows

within the firm and cash balances held by the firm at a point in time by financing deficit or investing surplus cash. Short-term management of corporate cash balances is a major concern of every firm. This is so because it is difficult to predict cash flows accurately, particularly the inflows, and there is no perfect coincidence between cash outflows and inflows Aziz & Dar, (2006). During some periods cash outflows was exceed cash inflows because payments for taxes, dividends or seasonal inventory was build up. At other times, cash inflow was be more than cash sales and debtors may realize in large amounts promptly. An imbalance between cash inflows and outflows would mean failure of cash management function of the firm. Persistence of such an imbalance may cause financial distress to the firm and hence, business failure Aziz & Dar, (2006). In order to avoid financial distress the management should maintain cash balance in the organization. Neither too much cash nor negative cash level is advantageous to the firm Aziz & Dar, (2006). Too much investment in illiquid assets deprives the company the much needed cash to finance operation. When operations are negatively affected, sales as well as profitability are also negatively affected which in turn cause financial distress Blum, (1974). Beaver summarized this theory in the following four ceteris paribus propositions: (I) the larger the reservoir, the smaller the probability of failure; (II) the larger the net liquid-asset flow from operations (i.e. cash flow), the smaller the probability of failure; (III) the larger the amount of debt held, the greater the probability of failure; and (IV) the larger the fund expenditures for operations, the greater the probability of failure.

Taffler (1983) added a fifth ceteris paribus proposition that the more highly variable the inflows, outflows, and claims on firm, the greater the probability of failure. He argued that a deteriorating economic environment increases the volatility of inflows and outflows in cycle-sensitive industries. Therefore, financial distress can be avoided through proper cash management.

Conceptual Framework

The study adopted the following conceptual framework:

Source: Author 2017

Working Capital/Total Assets (WC/TA)

Working Capital refers to money utilized by business firms in their daily activities or operations. Working capital is the available capital for conducting day-to-day operations of an organization represented by its net current assets Adeniji (2008). In the same vein, Akinsulire (2008), described working capital as the items that are required for the day-to-day production of goods to be sold by a company. Therefore, it is the excesses of current assets over current liabilities. Working Capital is a very important item of the balance sheet. Mathematically, it is given by working capital = Current Assets less confident liabilities. From this equation is called net current assets. It is the cash a business requires for day-to-day operations, or, more specifically, for financing the conversion of raw materials into finished goods, which the company sells for payment. In short, it is that portion of total funding needed for daily operations.The Working Capital to Total Assets ratio measures a company's ability to cover its short term financial obligations (Total Current Liabilities) by comparing its Net Current Assets to its Total Assets. This ratio can provide some insight as to the liquidity of the company, since this ratio can uncover the amount of remaining liquid assets (with Total Current Liabilities subtracted out) compared to the company's Total Assets.
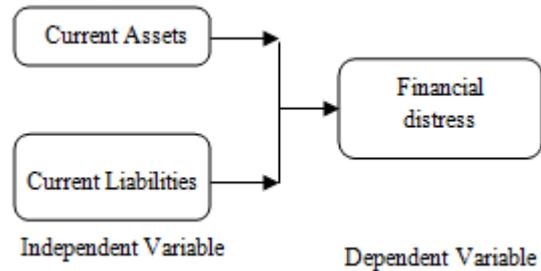
$$\text{Working Capital/Total Assets (WC/TA)} = \frac{\text{Total Current Assets} - \text{Total Current Liabilities}}{\text{Total Assets}}$$

An increasing Working Capital to Total Assets ratio is usually a positive sign, showing the company's liquidity is improving over time. A low or decreasing ratio indicates the company may have too many Total Current Liabilities, reducing the amount of Working Capital available. A low working capital to total assets ratio, usually indicates serious cash flow difficulties for the company, with the company unable to make payments to its suppliers and creditors, even when it makes profit and has assets to cover its liabilities. It could be a predictor for an imminent bankruptcy or disaster, as the reason for the low ratio could be consistent operating losses by slow sales that eat into working capital reserves, causing it to shrink relative to total assets. A low or negative ratio could however also indicate adoption of a zero working capital initiative.

According to Ryan (2014), Working capital represents the difference between a firm's current assets and current liabilities. For well-run firms, managing working capital is simply a daily occurrence it can easily handle.

Firms employ its short-term assets as well as short-term financing sources to carry out its day to day business. Working Capital to Total Asset ratio by itself may not be sufficient to gauge the financial health of a company but it helps in understanding company's position if used alongside other financial variables to get a true picture. Working capital can take different forms, it can take the form of cash and then change to inventories and receivables then back to cash (operating cycle).

Inventories are integral component of working capital and careful planning, and proper investment is necessary to maintain the inventory in a healthy state of affairs. Management of inventory has two aspects and involves a trade-off between cost and risk factors. Maintaining a sizable inventory has its accompanying costs that include

locking of funds, increased maintenance and documentation cost and increased cost of storage. Apart from these things, there is also a chance of damage to the stored goods. On the other hand, maintaining a small inventory can disrupt the business and can have serious impacts on the delivery schedule. As a result, it is extremely important to maintain the inventory at optimum levels. The accounts receivables need to be collected on time in order to maintain the flow of cash. It is also extremely important to ensure timely payouts to the creditors to ensure smooth functioning of the business and maintaining liquidity.

Therefore the approach taken by any company to manage its working capital has a great influence on firms' risk profile, liquidity and profitability. The short-term interest rates are, in most cases, cheaper compared to their long-term counterparts. This is due to the amount of premium which is higher for short term loans. As a result, financing the working capital from long-term sources means more cost. However, the risk factor is higher in case of short term finances. Maintenance of adequate working capital is another extremely important aspect because: Adequate working capital ensures sufficient liquidity that ensures the solvency of the organization. Working capital ensured prompt and on-time payments to the creditors of the organization that helps to build trust and reputation. Lenders base their decisions for approving loans based on the credit history of the organization. A good credit history can not only help an organization to get fast approvals but also can result in reduced interest rates. Earning of profits is not a sufficient guarantee that the company can pay dividends in cash but adequate working capital ensures that dividends are regularly paid. Lastly, a firm maintaining adequate working capital can afford to buy raw materials/ inventories and other accessories as and when needed. This ensures an uninterrupted flow of production/ supplies. Adequate working capital, therefore, contributes to the fuller utilization of resources of the enterprise.

5. Research Methodology

Descriptive research was conducted to describe the present situation, what people currently believe, what people are doing at the moment Collins, Onwuegbuzie and Jiao, (2007). The major purpose of descriptive research design is description of the state of affairs as it exists at present Kothari, (2004). The study employed a descriptive research design as it was the best design in answering the `what' questions with regards to applicability of Altman Z'' score model in signaling financial distress of non-financial firms listed on NSE.

The population of interest in this study consisted of all 42 non-financial firms that have been consistently listed at the Nairobi securities exchange of Kenya during the period 2010-2014 as per the NSE listing. The choice of non-financial firms was occasioned by the fact that Altman Z"-Score model may not work best with financial firms due to the opacity of their balance sheets and their frequent use of off-balance sheet items. This could result to issue of mismatch in comparison with other companies' financial reports. The target population comprised of both financially sound and potentially bankrupt companies. The study mainly

used secondary quantitative data from audited financial statements for the period 2010-2014.The researcher gathered the secondary data which is the main source of data, by reading audited financial statements for the period 2010-2014. Secondary quantitative data derived from audited financial statements of the companies was recorded on the data collection sheet. The researcher used respective company's websites, NSE and CMA websites and also published financial reports to access the data.

Qualitative analysis was done on the information collected from the results of the questionnaires; quantitative analysis was included, both descriptive and inferential statistical techniques were used. Descriptive statistics was used to analyze the quantitative data.

6. Results and Discussions of the Findings

Financially Distressed firms
Out of the 42 consistent firms that were listed at the Nairobi Securities Exchange during the period between 2010 and 2014, all the 42 firms were selected and non were dropped due to availability of data on their respective financial statement that aid in calculation of Z score model. This Altman's Z score analysed the firms, then calculated the Z-score model to determine financial distress.

Seven firms were out rightly distressed since all their Z-score values were less than 1.6 the firms include Kenya Power and Lighting company Ltd, and its average Z-scores were as shown below for the five consecutive years.

Table 4.1: Average Z scores

Year	Z-score
2014	0.65624
2013	0.91919
2012	0.994
2011	0.67619
2010	0.87569

The average Z-scores of the firm indicated above show that the firms failed in its operations. In that it had low working capital. The firm could not finance its operations over the study period, 2010-2014.The study disagrees with Altman et al (2016) study of reassessing the classification performance of the *Z*-Score model in predicting bankruptcy and other types of firm distress, with the goal of examining the model's usefulness for all parties, especially banks that operate internationally and need to assess the failure risk of firms.

Express Kenya Limited

The findings presents in the graph below sows the working capital for Express Kenya Limited and it indicate clearly that the firm has been negative throughout the five year period. Implying that the company could not meet its immediate demands. Though the working capital kept on improving from year to year the total assets, total liabilities and sales have been declining over the study period. This finding shows that this firm experience difficulty in financing its activities since its net working capital were negative. This agrees with Ryan (2014) who showed that a negative

working capital position means the firm has spent more cash out than it brought in managing its commitments, within a given period of time.

This findings further points out that the firm's total assets are declining which could be a sign that the company is selling off its assets to improve its gearing position and ease liquidity problem. EBIT fluctuates between very low to negative values because the remaining assets do not generate enough earnings and this explains why there is no retained earnings. This findings confirm argument by Kokemuller (2007), that Low or negative retained earnings for an established business is a sign that the company hasn't

consistently earned income over time This trend is also shown in the Z-score values.

The study findings also indicated that the market confidence level decreased during 2nd, 3rd and 4th year under study and improved during the 5th year as this could be a sign that the firm issued more shares to raise funds. In the same vein Chavakhin & Gertmenian (2003), confirmed that even if the firm starts experiencing temporary financial difficulties, it could resort to issuing more common stock if it has significant market capitalization.
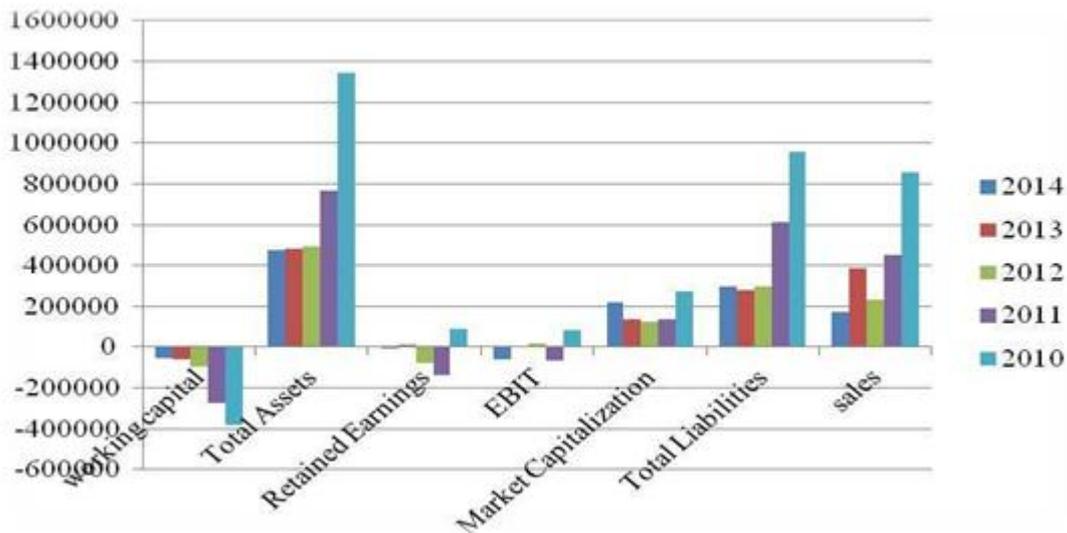
7. Conclusions

This study was conducted with the objective of to investigate theapplication of net working capital to total asset in signaling financial distress of non-financial firms listed on Nairobi Security Exchange. Financial distress arises as a result of economic distress, decline in performance and the poor management of companies. It is sometimes very challenging to ascertain these factors, which could indicate that a company is experiencing financial difficulties. Commonly used tools by credit managers are financial statements and ratio analysis. This process serves as a predictory to financial distress of a company. Some of the basic factors considered during analysis are profitability ratios, ratios relating to efficiency of asset management, risk, short term cash management and debt ratios as well as stock market data. By analysing these ratios, however do not conclusively alert a credit granter that the company is in financial difficulties. The study has established that there was a drop in the working capital of the financially distressed companies from the year 2010 to 2014. This showed that the companies started facing reduction in the working capital due to financial hitches leading to a decrease in the profitability of the company

The result of this study have indicated that the net working capital of financially distressed firms are below the threshold values because networking capital is considered sufficient when the current assets can cover the current liabilities two times. The net working capital in relation to total assets for

the seven firms ranged from negative value to 1 and this is an indication that these firms are struggling to sustain its operation as they are not able to meet their current obligations.

The study findings showed net working capital to be a very important variable to signal looming financial distress in a firm. Although investing in working capital items like inventory, cash and other current assets reduce profitability,it is quite prudent for any business entity to balance the trade-off between liquidity and profitability to avoid inability to meet immediate obligations.

8. Recommendations

The study recommends that the application of net working capital to total asset in signaling financial distress of non-financial firms listed on Nairobi Security Exchange should use the prevailing Economic conditions such as changes in the economy, markets and industries in the economy in order to predict a true picture of the company in the economy.

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