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CLEMENCE WAMONA MWAWUGHANGA, DR. GEORGE OCHIRI

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[1] Clemence Wamona Mwawughanga, Dr. George Ochiri

[1]Jomo Kenyatta University of Agriculture (JKUAT), Kenya
[2]Jomo Kenyatta University of Agriculture (JKUAT), Kenya

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ABSTRACT

The objective of this paper was to examine the financial health of banks listed and also not listed in the Nairobi stock Exchange, Kenya using the Altman Z score model of 2005.The CBK have the regulatory mandate to keep on check the financial health of banks considering that the Kenyan economy largely depends on banks. Following the many bank failures in Kenya, the CBK and the Kenya Bankers association have been pushing for improvement including transparency on commercial banks. Ever since the 2008 financial crisis, financial healths of banks have been a concern to corporate managers and other stakeholders. This study therefore applies Altman Z score, a multivariant financial analysis model to gauge the financial health of banks in Kenya. The ratios that form the model were the independent variables and they included Working capital to total assets and Retained earnings to total assets. Studies on applicability of Z score model appear rear/scanty especially on financial institutions and mainly focused on validity and effectiveness. This study used survey descriptive research design. The target population was the commercial banks in Kenya. The secondary data was extracted from audited annual reports and financial statements of banks' respective websites and CBK for a period between 2010 to 2015. The annual financial statements included the statement of comprehensive income and statement of financial position. The collected data was analyzed using advanced excel program. In the analysis Multivariate Discriminant Statistical techniques as used by Altman 2005 was applied. Results indicated that during the period under study high percentage of Kenyan banks were on grey zone. Conclusions were made that Altman model was an average tool which can only be relied alongside other measure.

Key Words: *Working, Retained Earnings, Assets, Liabilities*

INTRODUCTION

Financial health evaluation of banks will remain to be critical in the world because of its role in economic and financial growth .Many organizations in the world have fallen due to financial distress. Many bankruptcy proceedings across the world have been filed for example Swissair and ABB in the USA. Banking industry profile report (2009) asserted why bank industry cannot be ignored in any economy because of its significant role. The European crisis that had began in July 2011 attracted the attention of investors raising questions such as whether the banks in which they have invested can continue operations and which banks will face economic conditions. Further due to rising competition, deregulation, globalization and good customer services this has given interest to all concerned and interested parties in detailed critical evaluation of banks.

Financial performance of any firm indicates a powerful stability and growth. Tan, (2012) conducted a study on the impact of financial distress on firm's performance using the regression analysis and using leverage proxy for financially distressed firms and found that financially distressed firms underperform. This means for any firm to perform well, thus contribute to the economy growth positively, it must be strong. Ramaratham and Jayaraman (2010) indicated that measuring financial performance of a firm is imperative and prominent in the context of emerging hyper competition at almost every sector of a business. It is also worth to note that potential investors will definitely require tools to predict the volatility of a company's health.

In Kenya, financial healths of banks have a great implication to the economy. According to Oloo (2011), couples of banks have been reporting losses. Measuring financial health of commercial banks is an important task which needs to be employed by corporate managers, investors', depositors and other banks stakeholders. This is to help achieve sustainable growth of the economy by removing any vulnerability that may lead to insolvency of banks. According to Ponraj and Rajendran (2012), financial strength of the banks is measured in terms of financial ratio, profitability ratios, capital adequacy ratio, income and expenditure ratio, deposits and returns ratio.

The Z score model formula was developed in 1968 by Edward I. Altman an assistant Professor of finance at New York University by then. The models' main purpose was to predict the probability that a firm will go into bankruptcy. The Z score uses both income and balance sheet values to measure the financial strengths of a firm (Altman, 2003).One of the classic works in areas of the ratio analysis and bankruptcy classification was done by Beaver in 1967. Altman (1968) noted that a number of indicators could discriminate between matched samples of failed and non failed firms for as long as five years prior to failure. Deakan (1972) utilized the same fourteen variables that Beavan analyzed but applied them with a series of multivariate discriminant model. The aforementioned studies imply a definite potential of ratios as indicators of financial strength. According to Altman(1968) ratio analysis measuring profitability, liquidity and solvency as most significant indicators, though the order of their importance was not clear since every study cited a different ratio as being most effective indicator. Following the shortcoming of ratio analysis (for instance, a firm with a poor profitability or solvency record may be referred as a potential bankrupt. However because of its above average liquidity, the situation may not be considered serious). Altman thought that it was confusing and susceptible to faulty interpretation and sought to build on the findings of earlier studies by combining several measures into a meaningful predictive model, thus emphasizing rather than downgrading. The final discriminant function was arrived by observation of statistical significance of various

alternative functions including determination of the relative contribution of each independent variable; evaluation of intercorrelation among the relevant variables, observation of the predictive accuracy of the various profile and judgment of the analyst.

A study by Suzanne, Kay, and Larry (2010) on efficacy of Altman's Z score model to predict bankruptcy of specialty in retail firms doing business in contemporary times suggested that further exploration of Altman's Z score and alternative formulas is necessary. Gnyana (2015) in his research on prediction of financial distress using Altman Z score for selected companies in India concluded that, Z score is one of the popular and effective model and all investors should analyse the Z score of company before investment decision to avoid financial loss due to financial failure. Similarly Stepanyan (2014) used the model to analyze the US Airline business and found the model to be very useful.

In Ghana Kingsley (2011) concluded that Altman's Z score is applicable in predicting bankruptcy for firms listed in Ghana. This is regardless on the nature and size of the company in question. In Zimbabwe, Ncube (2014) on Altman's Z score for non manufacturing firms and financial institutions listed in Zimbabwe stock exchange recommended the use of the model in predicting corporate failure in the financial services and banking sector. From the above, despite Altman's model being old and despite of its limitations, it has remained to be the most globally used model. We can also argue that various equations now exists but they all follow the concepts of the original one derived by professor Altman in 1968. Pam (2013) conducted a research in the banking sector of Nigeria and found that liquidity, profitability, operating efficiency and total assets turnover which are key variables of the Altman's Z score as an important tool in determining the strength of a bank. The study focused on two failed banks and two banks which were very strong. A study by Alexia (2008) indicated that Altman's Z score model performs well in predicting failures for up to 5 years earlier. His study was based on whether Z score could predict failures.

As has been indicated above, the study on Altman's Z score has been done in several developed economies globally and in most cases they focused on manufacturing firms, retail firms, Airlines business and listed firms. In Kenya studies of the same have been done. For example Kinivo and Olweny (2014) conducted a study on financial performance of Kenya Saccos using data from 2008-2013. Odipo and Sitati (2008) conducted a study on financial distress prediction using Z score so as to determine the usefulness of the model in predicting business failure in Kenya. He used a sample of 10 firms that continue to be listed and 10 firms that were delisted in Nairobi stock exchange between 1981 -2009.The model was accurate. The Z score model by Altman from the perspective above is the most used model of predicting the probability of financial failure hence financial/strength by corporate managers, financial analysts and Auditors.

Banking industry in Kenya started in the early 20th century. The first bank was National bank of India in 1986 in Mombasa. According to Central Bank of Kenya (CBK) report (2015) as at June 30, 2016, there were 42 commercial banks, 12 microfinance banks (MFIs) and one mortgage finance company regulated by CBK. (Appendix 1). The CBK governor who assumed his job in June 2015, advocates for a smart policy towards capitalization using risk based approach and it has a robust capital adequacy ratio plan in place. January 2015 was the deadline for banks to increase the total capital to risk weighted asset ratio to 14.5 % up from 12 %.The ratio helps ensure lenders can absorb any market shocks such as bad loans. According to CBK new rules the minimum core capital to risk weighted assets ratio

i.e. a measure of a bank's financial strength based on what shareholders have put in is 10.5% up from 8% previously. Meeting capital requirements can be a big challenge, no wonder we have been seeing a lot of banks issuing corporate bonds and doing rights issue. The cabinet secretary of the National Assembly in his 2015/2016 budget statement proposed an increase of minimum core capital for bank, mortgages a proposal which was rejected on 27th August 2015 by the National Assembly.

Banks play an important role in the growth of the economy in that they provide the function of financial intermediation by linking surplus units with deficit units. Banks also help in the transfer of wealth between different generations. To perform all these functions with ease they have to be financially strong. Scott and Timothy, (2006) confirmed that Commercial banks play an important role in facilitating economic growth by providing credit to small business and individuals.

Statement of the Problem

Commercial banks play an important role in economic development of a country. It is therefore important to know their health and failure prediction so that measures to curb the same may be employed. Further all banks stakeholders must understand the health of the banks to avoid heavy losses which comes with insolvency. Based on the CBK inspectorate report of 2007, there has been bank failures since 1984 to 2007 along with other financial Institutions within the same period. Recently there has been noticed bank merging and acquisition so as to improve value and profitability for example Equatorial commercial Bank limited and Southern credit Banking Corporation (2010). Recent events have also created a certain amount of doubt in the integrity of local banks in Kenya. The closure of three banks in a spate of nine months (Dubai Bank in August 2015, Imperial Bank in October 2015 and the chase bank (2016) has sent jitters and shocks among millions of bank customers hence the study. Further the central Bank of Kenya and the Kenya Bankers Association (KBA) have been continuing to push for improvement including transparency so that customers may be able to learn more and also have more choice.

Previous studies on application of Z score done in Kenya suggested the model to be over 80% applicable. The studies however focused on Saccos and listed firms in Nairobi stock exchange for example case of Kinivo and Olweny (2014). Besides studies were testing the efficiency and validity of the model.

This study therefore sought to apply the Edward Altman's Z score model as a measure of the health's of commercial banks in Kenya so as to know its applicability in the period between 2010 to 2015. This is unlike other studies which base financial strengths/performance on Return on assets, Return on capital employed and net sales (profitability).Further each ratio of Z score model was analyzed individually to see the most contributor to the Z score as far as banks' health is concerned.

Objectives of the study

The general objective of this study was to test the application of Altman Z score model on measuring financial health of banks in Kenya. The specific objectives were:-

- To evaluate the effect of working capital to total assets on banks' health.
- To determine how level of retained earnings will influence the banks' health in Kenya.

LITERATURE REVIEW

Theoretical Review

Commercial Loan Theory

This theory was developed by Adam Smith during the 18th century. According to this theory commercial banks must provide short term liquidating loans to meet working capital requirements. This theory thus maintains that commercial banks liquidity would be assured as

long as assets are held in short term loans that would be liquidated in the normal course of business. This theory did not take into account the relative stability of the core deposits. The core deposits enable a bank to extend loans for a reasonable period of time without becoming illiquid.

However the assumption that all loans would be liquidated in the normal course of business is unlikely to be fulfilled in the time of business slow down or recession. Jasienei, Filomena and Grazina (2012) indicated that the higher the proportion of less risky liquid assets for the banks total assets, the better for the bank since they can be able to meet their obligation as they fall due and the opposite is also the same. This theory can therefore be applied to explain the health of banks in relation to their working capital. Short term liquidity thus is a risk measure of enterprises running into debts. High liquidity (working capital ratio) therefore for any bank if maintained increase of income from loans will rise.

Pecking Order Theory

This theory was first suggested by Donaldson in 1961 and later popularized by Stewart Myers in 1984 who indicated that firms prefer to use internal finance or retained earnings over external finance. Kayhan (2007) asserted that there is a relationship between change in retained earnings, managerial discretion and firm's characteristics. The pecking order theory does not take an optimal capital structure as a starting point, but instead asserts the empirical fact that firms show a distinct preference for using internal finance (as retained earnings or excess liquid assets) over external finance. If internal funds are not enough to finance investment opportunities, firms may or may not acquire external financing, and if they do, they will choose among the different external finance sources in such a way as to minimize additional costs of asymmetric information.

(Akerlof, 1970) noted that outside investors ask for the risk of failure for the average firm in the market. The resulting pecking order of financing is as follows: internally generated funds first, followed by respectively low-risk debt financing and share financing. In Myers and Majluf model (1984), outside investors rationally discount the firm's stock price when managers issue equity instead of riskless debt. To avoid this discount, managers avoid equity whenever possible. The Myers and Majluf model predicts that managers will follow a pecking order, using up internal funds first, then using up risky debt, and finally resorting to equity. In the absence of investment opportunities, firms retain profits and build up financial slack to avoid having to raise external finance in the future. The pecking order theory regards the market-to-book ratio as a measure of investment opportunities. With this interpretation in mind, both Myers (1984) and Fama and French (2000) note that a contemporaneous relationship between the market-to-book ratio and capital structure is difficult to reconcile with the static pecking order model. Iteration of the static version also suggests that periods of high investment opportunities will tend to push leverage higher toward a debt capacity to the extent that high past market-to-book actually coincides with high past investment, however, results suggest that such periods tend to push leverage lower.

Retained earnings can impact firms positively hence their strengths can be judged based on what is being retained as profits. Al-Najjar and Belghitar (2011) noted that the profitability and leverage significantly impact cash holdings under pecking order theory. Empirical evidence supports both the pecking order and the trade-off theory. Empirical tests to see whether the pecking order or the trade-off theory is a better predictor of observed capital structures find support for both theories of capital

structure (Shyam, Sunder and Myers, 1999; Fama and French, 2002).

Conceptual framework

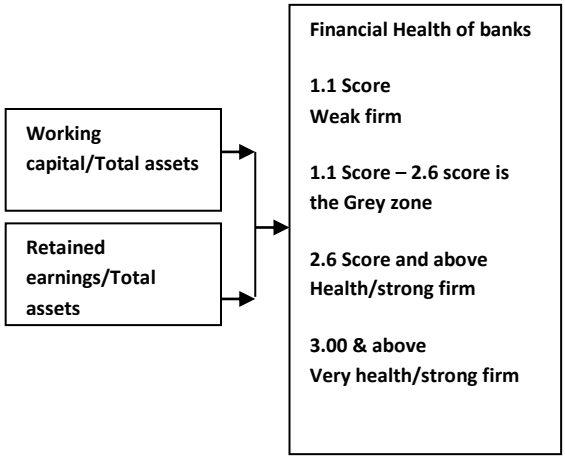

Figure 1: Conceptual Frameworks

Edward Z score

Working capital to Total Assets

Mehmet and Eda (2009) indicated that working capital is the whole current assets owned by a firm. Akindele and Odusina (2015) defined working capital as basically the portion of assets required by a business in current operation. In its gross form, it is the investment in current assets. The ratio provides information about the short term financial position of the business that is referred to as the liquidity. The more the working capital there is compared to the total assets the better the liquidity situation. According to Agha (2014) the most important items inside determination of working capital are inventories of the corporations, its accounts receivable and payables.

The management of working capital is therefore considered a tool to maintaining competence of the business inside their operations. Therefore from the above definition, liquidity determines the level of bank performance. Dang (2011) recorded that adequate level of liquidity is positively related with bank profitability. Further it has been evidenced from the above that working capital has an effect on firms' investments and its financial strengths. Short term liabilities/obligations can be covered with positive working capital. Positive working capital allows the surplus of the current assets to be used to fulfill their financial commitment and obligation which is a vital aspect for the continuing growth. Rehman and Anjum (2013) asserted that working capital is often assessed by lenders to judge the financial short term paying back ability in difficult financial period. This means a strong relationship between performance and working capital efficiency. Therefore working capital should efficiently be managed by controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet due short term obligation.

Retained earnings to Total Assets

Retained earnings are source of finance for growth of companies (Triumalaisamy, 2013). Retained earnings are retained by firms for investment in operations and therefore not paid out as dividends. They are preferable by managers as they reduce the commitments of interest payments. Retained earnings to total assets helps measure how much the company relies on debt. Campbell, Hischer, and Szikgyi (2012) stated that retained earnings are retained by firms for investment in operations and therefore not paid out as dividends. The ratio indicates the ability of a firm to earn profit and thereby securing retained earnings. Normally a firm that has a higher R/E will not starve for liquidity crunch and the firm can re invest in the appropriate venture at cheaper cost. The more the retained earnings to total assets the better for the organization. It is noted that costs related to transaction and bankruptcy are reduced, hence growth opportunities are realized. However the purpose for utilization of the retained earnings must be clearly stated otherwise it may lead to

overcapitalization. Ball (2013) postulated that failure to grow revenues makes investors think that there are no advantages. In this study therefore firms who have retained earnings can be seen by potential investors, depositors and other stakeholders as strong. Further Kasilingam (2012) postulated that RE/TA indicates how much assets will be financed from retained earnings. The increase from retained earnings will give adequacy to the firm and which indicates favorable impacts on debt to equity ratio.

Empirical Review

According to Lacey (2010) empirical review is a form that consists of an overview of existing evidence, pertinent to a clearly formulated research question which uses pre-specified and standardized methods to the identity and critically appraises relevant research and to collect report and analyze data from the studies that are included in the review.

Working Capital to Total Assets

Ehiedu (2014) in his study on the impact of liquidity on profitability of some selected companies in Nigeria concluded that 75% of them indicated that the current ratio has a significant positive correlation with profitability. In their study on working capital and corporate profitability, Falope and Ajilone (2009) suggested that managers can create value for their shareholders if the firms manage their working capital in more efficient ways, for example by reducing number of days of accounts receivable. Mathuva (2010) examined the influence of working capital components on corporate profitability on firms listed in the NSE for the period's 1993-2008.Results suggested that there exists highly significant negative relationship between working capital and profitability. According to Said and Tumin (2011) in Malaysia however indicated no significant relationship of liquidity level of banks and its performance. In India, Sharma and Kumar (2011) found that working capital management and profitability is correlated. Their study was based on a sample of 263 non financial BSE 500 firms listed at the Bombay stock exchange from 2000 to 2008. The data was evaluated using OSL multiple regression. Stephene and Elvis (2011) examined the effect of working capital management on firms using SMEs in Kenya using fixed panel data 232 firms, the results indicated that management of working capital significantly affects the firms profitability positively implying that firms need to concentrate and improve their collection and payment policy.

Retained Earnings to Total Assets

Retained earnings of companies become equity and consequently appear on the balance sheet as a component of owner's equity which also includes initial investment capital and additional paid in capital (Wright 2014). A study by Michael and Oliver (2014) in Nigeria on retained earnings and share stock revealed that there is a strong relationship between retained earnings and net assets for share. This implies that if the retained earnings are properly invested, the returns will catalyze growth development and expansion of firms. Kanwal (2012) in his study found that Retention Ratio and Return on Equity has significant positive relation with financial performance. The prime idea behind earnings retention is that the more the company retains the faster it has chances for growth. Al-Najjar and Belghiturn (2011) in their research found there was a positive relationship between growth opportunities and cash holdings. Kim and Suh (2010) examined the interactions between retained earnings and capital structure and found that retained earnings convey information about both funding needs (asset growth) and internal funds .Horkan (2014) explained that retained earnings are retained capital, which is the portion of net income that management keeps to fund future growth and to pay company debt.

RESEARCH METHODOLOGY

The study used quantitative research design because data collected was financial ratios hence quantitative in nature. The target population of this study comprised of all commercial banks regulated by CBK. This study applied the Altman model on measuring financial health of commercial banks in Kenya. From the list of all banks in Kenya the researcher separated the banks into two; those listed in NSE which were 11 in number and those not listed which were 31 in number. This study used secondary data from Audited financial statements from 2010 to 2015.The data was collected from the Central bank websites and banks under study. The collection of data was done by means of secondary data collection sheet. This study adopted financial health as the dependent variables.

RESEARCH FINDINGS AND DISCUSSION

Secondary data was collected from the CBK and Commercial Banks' websites. Out of the 42 banks in Kenya only 11 banks are listed in NSE and 31 are not listed. Data was collected from all the 11 banks listed indicating a 100% response and due to non availability and difficulties of information for some years, data for only 11 banks not listed was collected.

Findings of the Mean ratio and Descriptive findings of the Variables of Banks

This section presents the mean ratios of the variables of the data collected based on the results of the banks under the study. The mean ratios of variables that form the Altman's model for the banks studied and the statistical analysis of the collected data based on the results of the individual variables.

Working capital to Total assets and Financial Health

The study sought to establish effect of liquidity on the financial health of banks in Kenya over the period of six years (2010-2016) .Fig 4.1 shows that the WC/TA of the banks listed in NSE was increasing throughout the period under the study. This implies that the banks were meeting their short term obligations comfortably. However this was not so with banks which are not listed as shown in figure 4.2 but the fact that it was never negative was a good sign of the liquidity position of banks.

Table 4.1 shows the working capital as the contributor of financial health of banks. The mean and standard deviation values were low, indicating that no major deviation existed in the data set. The results also indicate the ratio as the possible contributor of financial health of banks. Mean of the six years for banks have been improving for banks listed in NSE hence improved performance was attained .This is contrary to banks not listed in NSE whose working capital kept on deteriorating. This ratio confirms a study by Peripanathan (2014) that liquid assets are positively related to financial performance of companies. The standard deviation of 21% in 2015 for banks listed is an indication that in 2015 listed banks were highly liquid. This was contrary to banks not quoted. The negative minimum observed in year 2015 signifies warning situation which may lead to insolvency.

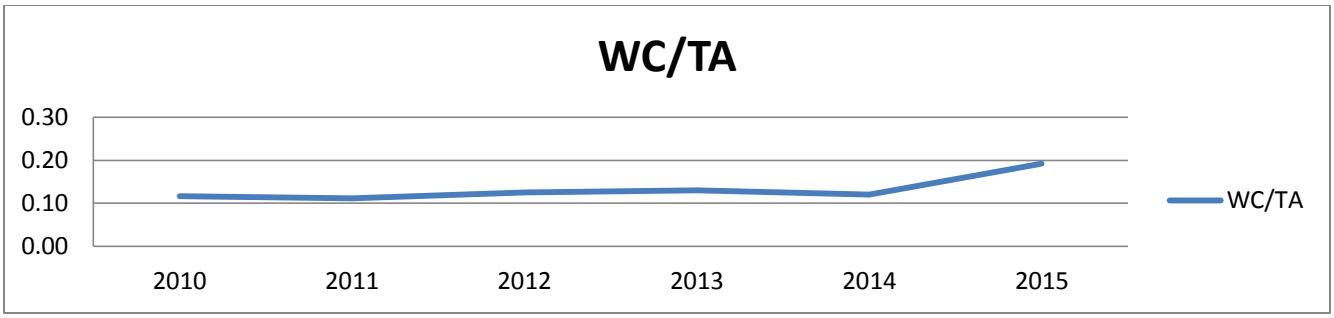

***Figure2: 4*WC to/TA of banks listed**

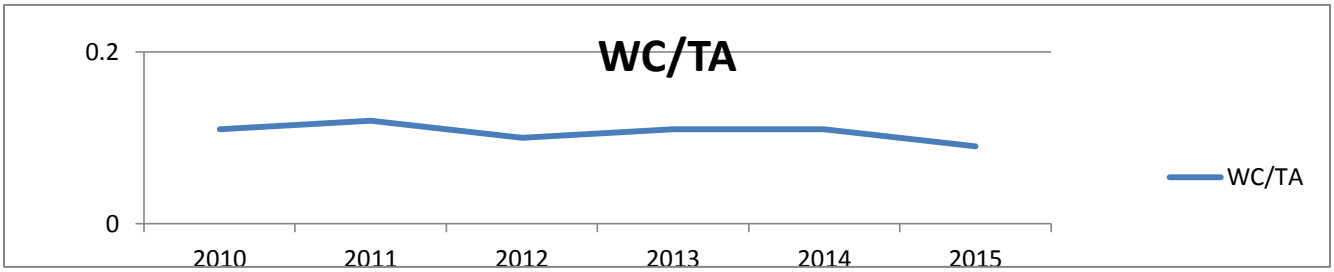

***Figure 3:* WC to TA of banks not listed**

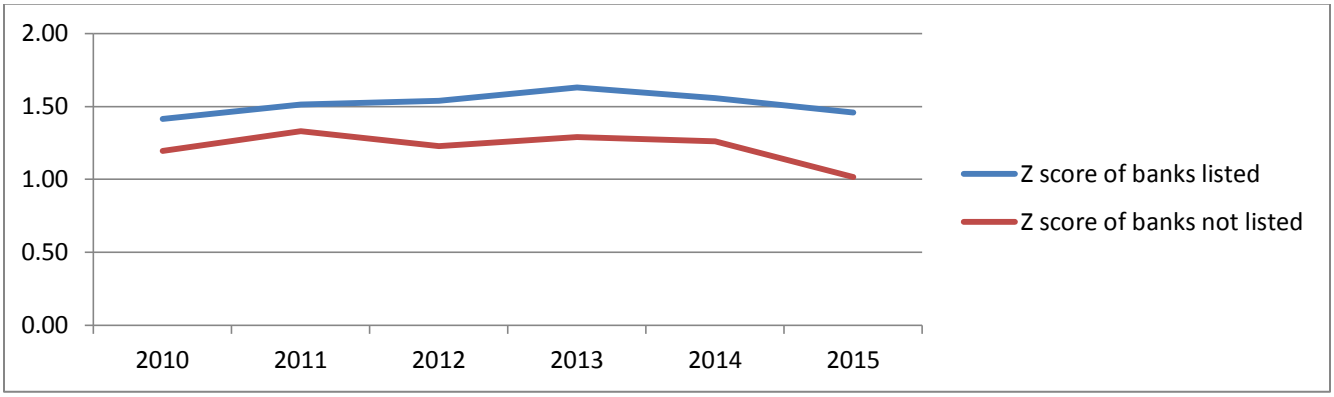

***Figure 4:* Z scores of banks**

Table1: Descriptive Statistics Of Working Capital To Total Assets Of Banks Listed At NSE

		2010	2011	2012	2013	2014	2015
N		11	11	11	11	11	11
Mean		0.11	0.10	0.12	0.12	0.12	0.18
Std dev.		0.03	0.03	0.03	0.06	0.06	0.21
Std.error = (sd/√N) N is 11		0.01	0.01	0.01	0.02	0.02	0.06
Margin of Error (1.96*std.Dev/N^.5)		0.02	0.02	0.02	0.04	0.03	0.12
95% confidence interval for mean	Lower Limit	0.09	0.08	0.10	0.09	0.09	0.06
	Upper limit	0.13	0.12	0.14	0.16	0.15	0.30

Minimum	0.05	0.04	0.07	0.04	0.04	0.01
Maximum	0.16	0.16	0.17	0.27	0.20	0.78
Range	0.11	0.11	0.10	0.23	0.17	0.77

Table 2: Descriptive Statistics Of Working Capital To Total Assets Of Banks Not Listed

		2010	2011	2012	2013	2014	2015
N		11	11	11	11	11	11
Mean		0.11	0.12	0.10	0.11	0.11	0.09
Std dev.		0.10	0.08	0.06	0.06	0.07	0.07
Std.error = (sd/√N) N is 11		0.03	0.03	0.02	0.02	0.02	0.02
Margin of Error (1.96*std.Dev/N^.5)		0.06	0.05	0.04	0.03	0.04	0.04
95% confidence interval for mean	Lower Limit	0.06	0.07	0.07	0.08	0.07	0.05
	Upper limit	0.17	0.17	0.14	0.15	0.15	0.13
Minimum		-	0.04	0.04	0.05	(0.03)	-
Maximum		0.29	0.31	0.22	0.22	0.19	0.23
Range		0.29	0.27	0.18	0.17	0.22	0.23

Retained Earnings Total Assets and Financial Health

Retained earnings to total assets ratio measures cumulative profitability overtime as a proportion of total assets. Fig.2 indicated the managerial efficiency in terms of profitability of the business. The increasing ratio of RE/TA in the study for both banks listed and not listed is an indication that there have been no investments done overally by the banks .Continued rise of this ratio may be the possible cause of profitability declining. RE ratio also leads to overcapitalization. It is an alarming situation for banks. The study also observed low ratio of retained earnings to total assets in most banks. (Appendix VII).This means that banks were financed through increasing debts rather than reinvesting.

Table 3 presents descriptive analysis of the ratio of retained earnings to total assets over the years under the study. The mean of 6% to11% and 3% to5% of both listed and not listed banks respectively indicated a weak position as fixed assets are financed through the same percentages which means they were relying more on external sources of funds. The descriptive statistics shows that 2015 had a higher standard deviation of 14% in the retained earnings to Total assets of banks listed contrary to 9% of banks not listed. The study also revealed a low ratio representing high growth of Z score. This was evidenced in year 2013 when the Z mean score was high ,the retained earnings to total assets was low for both banks listed and not listed, a clear indication that the high growth was attributed by increasing debt rather than reinvesting profits. This conclusion confirms Khan and Zulfiqal (2012) that retained earnings had a weak positive relationship with profitability as measured by stock performance. Contrary to Kanwal (2012) that the idea behind earning retention is for the company to grow fast. In 2013

the banks preferred retained earnings in their capital structure hence pecking order theory of 1984. Thus a change in retained earnings may have little significance in the financial health of banks. Further RE is costly since they are forgone dividend by equity holders. Retained earnings therefore remain retained unless reinvested and increase profits.

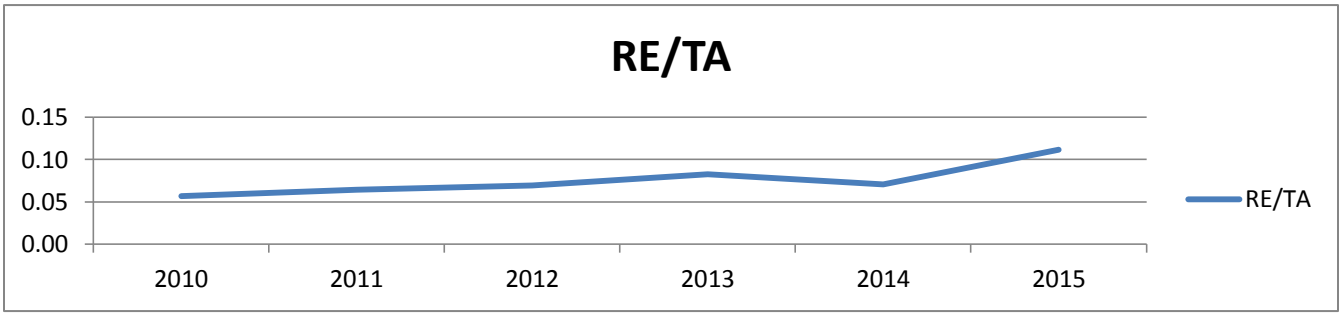

Figure 5: **RE to Total Assets of listed banks**

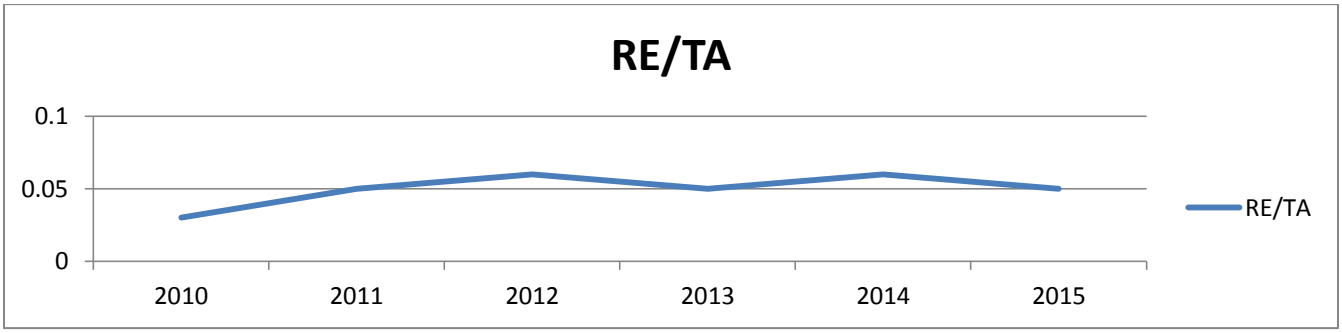

Figure 6: **RE to TA of banks not listed**

Table 3 Descriptive Statistics of Retained Earnings to Total Assets of Listed banks

		2010	**2011**	**2012**	**2013**	**2014**	**2015**
N		11	11	11	11	11	11
Mean		0.06	0.03	0.07	0.04	0.08	0.11
Std dev.		0.04	0.03	0.04	0.04	0.05	0.14
Std.error = (sd/√N) N is 11		0.01	0.01	0.01	0.01	0.02	0.04
Margin of Error (1.96*std.Dev/N^.5)		0.02	0.02	0.02	0.03	0.03	0.08
95% confidence interval for mean	Lower Limit	0.04	0.05	0.05	0.06	0.05	0.03
	Upper limit	0.08	0.09	0.10	0.11	0.11	0.19
Minimum		0.00	0.00	0.00	0.00	0.00	0.00

Maximum	0.11	0.11	0.12	0.13	0.13	0.49
Range	0.11	0.11	0.12	0.13	0.13	0.49

Table 4: Descriptive Statistics of Retained Earnings to Total Assets not listed Banks

		2010	2011	2012	2013	2014	2015
N		11	11	11	11	11	11
Mean		0.03	0.05	0.06	0.05	0.06	0.05
Std dev.		0.05	0.05	0.06	0.05	0.05	0.05
Std.error = (sd/√N) N is 11		0.02	0.02	0.02	0.01	0.02	0.02
Margin of Error (1.96*std.Dev/N^.5)		0.03	0.03	0.03	0.03	0.03	0.03
95% confidence interval for mean	Lower Limit	0.00	0.01	0.02	0.02	0.03	0.02
	Upper limit	0.07	0.08	0.09	0.08	0.09	0.08
Minimum		-	(0.01)	0.00	(0.00)	(0.00)	(0.02)
Maximum		0.18	0.15	0.18	0.15	0.17	0.16
Range		0.18	0.15	0.18	0.15	0.17	0.18

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The study revealed that a change in working capital had a significant change in financial health as measured by Z score. The findings also indicated that working capital to total assets ratio directly affects the profitability. This was as evidenced in the study where banks whose working capital ratio was high their Z score was also high. They could meet their financial obligation comfortably. Analysis also showed that most non-listed banks liquidity was at stake.

The mean analysis of retained earnings to total assets and the Z score revealed that retained earnings least affect the financial health among the ratios used by Altman. The descriptive analysis result suggested that banks had been refinancing their activities with debts rather than reinvesting internally. If this trend continues it can had a negative impact on the overall performance of banks.

Conclusions

From the study it was concluded that working capital to total assets ratio was a crucial ratio in this period of global financial turmoil. Banks are therefore advised to hold liquid assets because any form of illiquid may have led to contagion during bank runs. From the study it could therefore be concluded that working capital to total assets ratio to be an important ratio or component of corporate

financial management. This was because deficiency of it may have led to bank failures as seen in the case of some banks studied. The reason simply being that it was the operating liquid available to run banks. Bank managers could therefore maximize this ratio so as to avoid panic runs and also avoid periodic liquidity shock. Data used revealed that banks did not have control of some of its assets and liabilities. Further they were regulated by regulatory bodies and therefore it was upon the bank managers to match their assets and liabilities appropriately so as to stay profitable.

It was established that retained earnings ratio though important was negatively related to financial health. This means that higher retained earnings to total assets is not a guarantee to a health bank The reason behind this being that if retained earnings were not reinvested could not have had any significant effect on the financial health of banks. The study also concluded that retained earnings policies should be done with clarity. The low retained earnings in the study at a time where the Z score was high may be due to reinvested funds from the previous year.

The Altman Ratios and Z score

The study sought to establish the application of Z score on measuring financial health of banks in Kenya. Financial statements and ratio analysis were commonly used by corporate managers, business managers and other stakeholders of banks. The liquidity, profitability ratios, efficiency ratios, reinvested earnings and leverage are integrated into a single score. The ratios can be used with past, current or projected data. From the analysis it was found that the banking industry in Kenya lied in the grey zone. The Model though recommended by most studies globally and regionally the study found it to be an average tool which could only be relied alongside other measures. This was an indication that financial managers could manage their balance sheets by considering dealings and initiatives designed to impact on financial health. The Z score being critical business tool managers can utilize it to make quality decisions of business in order to improve the firm's health. The study also revealed that Z score can be utilized to assess the factors contributing to the poor financial health. Further, the results could be used by business managers as a tool for negotiations to defend their credit rating during capital raising especially when excess average or deficiency levels of WC/TA,RE/TA,EBIT/TA and BVE/TL were present. The study revealed that banks decisions and actions were conclusively revealed in their balance sheet and statement of income and expenditure.

Recommendations

Firms' are required to measure and evaluate their performances. The Altman model should only be used as an assessment tool. Survey of listed banks should also be done so as to establish other factors and ratios disclosed in their financial statements and determine what actions are taken based on these actions.

From the study it is found that financial health is contributed by combination of many financial ratios. However EBIT was found to be the main contributor which cannot be ignored. This is because this is where management efficiency is tested. Retained earnings were the least contributor to financial health during the period under study. Retained earnings can lead to overcapitalization especially if there are no proper defined dividend and retention policies. Management of banks should focus on solvency ratios and leverage ratios so as to enhance credibility among their customers. For wealth maximization, managers should focus on maximizing earnings and retained earnings.

This study highly recommended potential investors and business managers to use Altman in assessing

financial health of companies. The results can help them align business strategies with capital allocation decision and provide transparency of financial conditions to lenders and equity capital providers. The Z score can also be used to raise capital and secure credit. Other areas which may impact on their financial health for example marketing, should also be taken into consideration. Regulatory policies by the central bank, fiscal policies should be maintained.

Areas for further research

Further research should be undertaken by using other models. The Z score model may not be the only model to measure the financial health of banks and therefore the researcher recommends other model like CAMEL and Black Scholes Mercton Option pricing Model to determine the financial health of firms'. Other non financial factors should also be incorporated alongside the financial models. A similar study should also be done on non financial firms and determine if the same results would be achieved.

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