

An Empirical Analysis of the Liquidity, Solvency and Financial Health of Small and Medium Sized Enterprises in Kisii Municipality, Kenya

Nyabwanga, Robert Nyamao*¹ Dr. Ojera, Patrick¹ (PhD), Otieno Simeyo² and Nyakundi Finlay Nyanyuki³

1. School of Business and Economics, Maseno University P.O. Box 333 Maseno, Kenya.
2. School of Business and Economics, Jaramogi Oginga Odinga University P.O. Box 210 - 40601 Bondo, Kenya.
3. Faculty of Commerce, Kisii University College. P.o.Box, 408-40200, Kisii. Kenya.

[*E-mail of the corresponding author: nyamaonyabwanga@gmail.com](mailto:nyamaonyabwanga@gmail.com)

Abstract

Research findings have shown that the liquidity, profitability and solvency position of most Small and Medium Enterprises (SMEs) are in average position with the causal factors behind this position being unsound financial management, inadequate working capital, slow conversion of receivables and inventory into cash, lower position of sales and higher amount of debt. Therefore, the purpose of this paper was to carry out a Financial diagnosis of the SMEs financial performance by focusing on their liquidity, solvency and profitability positions using ratio analysis. Data for the study covered the period 2009-2011 and was obtained from the financial statements of three SMEs which were purposively sampled from the SMEs operating in Kisii Municipality. The sampled SMEs were those which had financial statements for the years under consideration. Data collected through the analysis of key ratios were analyzed using the mean, standard deviation, coefficient of variation, Student-t test and through the use of the Altman's Z-score model. The findings of the study showed that the liquidity position of the SMEs was on average low; their solvency was low and their financial Health was on average not good. Further, the results show that there is a significant impact of current ratio, quick ratio and Debt to Total Assets ratio on Return on Assets (ROA). The results of the study demonstrate that the liquidity position of the SMEs was well below the acceptable global norm of 2 for current ratio and 1 for quick ratio. Further, the results indicated that the financial health of the SMEs needed to be improved hence the recommendation that SMEs make liquidity, solvency management and financial stability an integral driver of their policy frameworks.

Key words: *Liquidity, Solvency and Financial Health*

1. Introduction

The essential part in management of working capital lies in maintaining liquidity in day-to-day operations is to ensure smooth running of the business and that it meets its obligations (Deloof, 2003). Liquidity management, which refers to management of current assets and liabilities, plays an important role in the successful management of a business and secures future growth. The liquidity position of a business is about the degree in which it can dispose money. Liquidity management is necessary for all businesses, small, medium or large. Nevertheless, this is not an effortless task because managers must ensure that the firm is running in an efficient and profitable manner and in most cases there are high possibilities of mismatch of current assets and current liabilities during this process. If this happens and firm's manager failed to manage it properly then it will affect firm's growth and profitability which will further lead to financial distress and finally firms can go bankrupt.

Small and medium enterprises are generally regarded as the driving force of economic growth, job creation, and poverty reduction in developing countries. They have been the means through which accelerated economic growth and rapid industrialization have been achieved (Harris and Gibson, 2006). While their contributions to development are generally acknowledged, SMEs face many obstacles that limit their long-term survival and development. Research on small-business development has shown that the rate of failure in developing countries is higher than in the developed world with the chances of small-business making it past the six-year mark in the developing countries being very slim (Sausser, 2005). A study by Nazrul & Shamem (2012) established that the liquidity, profitability and solvency position of most of the firms are in average position with the causal factors behind this position being unsound financial management, inadequate working capital, slow conversion of receivables and inventory into cash, lower position of sales and higher amount of debt.

Also as established by Sunday (2011), most SMEs do not engage their working capital in such a way as to enjoy maximum profit and their combination of debtors' management strategy, cash management, account payable (or creditors) and stock management strategy leaves much to be desired. Also, most SMES do not care about their working capital position, most have only little regard for their working capital position and most do not even have standard credit policy. Many do not care about their financial position, they only run business, and they mostly focus on cash receipt and what their bank account position is hence are in most cases characterized by signs of overtrading and illiquidity.

In Kenya, the 2003–2007 Economic Recovery Strategy (ERS) for Wealth and Employment Creation estimated that SMEs contributed 20% and 72% to the GDP and job opportunities respectively. Hence, when the ERS anticipated creating 500,000 jobs annually, 88% of the targeted jobs were to be created in SMEs sector (Ministry of Planning and National Development, 2003). However, majority of small and Medium enterprises in Kenya have over the years failed to grow to large enterprises as envisaged in their conceptual plans hence resulting to them being referred to as “the missing link”. Likewise, the new jobs created generally in the whole country declined from 485.5 thousand in 2007 to 467.3 thousand in 2008 (G.o.K 2008) and their contribution to the GDP of the country has only registered a marginal growth as it is estimated at about 22% in 2010 up from 18.2% in 1999 (Ministry of Labour, 2010). This work sought to analyze the liquidity, solvency and profitability positions of the SMEs; analyze the financial Health of the SMES and determine if there is a relationship between liquidity, solvency and profitability.

1.1 Problem of the Study

The SMES must ensure strategic cash flows against their needed cash outflow; this is a function of effective working capital management. In managing the working capital of a firm especially the small business, the acute shortage of fund needed for growth remain a subject of strategic financial management. The SMEs normally encounters high rate and threat of insolvency ; the problem of paying all bills from cash earnings which most time remain a poor means of settlement and also do experience situations where the sales cycle is shorter than the average age of account payable leading to trade debt building up in an ever increasing manner until a point is reached when it cannot be paid off in due date (Levy, 1993). Previous studies have also revealed that there is poor liquidity in most SMEs in Kenya with most of them reported to have current assets in excess of current liabilities. Studies have also revealed that most SMEs fail at most within 2 years with the strongest ones failing within 6 years, while only few surviving ones fail to

grow to large enterprises. To better understand these assertions, the study sought to carry out a financial diagnosis of the SMEs in Kisii Municipality using ratio analysis with the aim of determining their liquidity and solvency positions; their profitability performance and financial health. Such a diagnosis has not been carried out in the Kenyan context hence the current study takes precedence.

1.2 Objectives of the Study

The study sought to empirically conduct a financial diagnosis of the SMEs in Kisii Municipality with the aim of determining how efficient they are in managing their liquidity and solvency; their profitability performance and financial health. More specifically, the study sought to;

- i. Analyze the liquidity and solvency positions of the SMEs in Kisii Municipality in terms of the current ratio, quick ratio, absolute liquidity ratio and debt to total assets ratio
- ii. Analyze the profitability of the SMEs in Kisii Municipality in terms of ROA, Gross profit margin and net profit margin
- iii. determine the financial Health of the SMEs in Kisii Municipality using the Altman Z-score model.

1.3 Hypothesis of the study

- i. H_{0a} : SMEs in Kisii Municipality do not always exhibit a healthy financial position.
 H_{1a} : SMEs in Kisii Municipality always exhibit a healthy financial position
- ii. H_{0b} : Liquidity position has no impact on Profitability.
 H_{1b} : Liquidity position has a significant impact on Profitability.
- iii. H_{0c} : Solvency position has no impact on Profitability.
 H_{1c} : Solvency position has a significant impact on Profitability

2 Review of Related Empirical Literature

Qasim & Ramiz (2011) indicate the fact that liquidity refers to the available cash for the near future, after taking into account the financial obligations corresponding to that period. Liquidity risk consist in the probability that the organization should not be able to make its payments to creditors, as a result of the changes in the proportion of long term credits and short term credits and the uncorrelation with the structure of organization's liabilities. Further, Qazim and Ramiz (2011) posit that liquidity management is very important for every organization that means to pay current obligations on business that include operating and financial expenses that are short term.

Liquidity is particularly important to shareholders, long-term lenders and creditors, as it provides information about a particular business's safety margins afforded to creditors and its ability to repay loans. The levels of inventory, credit, accounts payable and cash that form part of the overall cash flow of a business affect the liquidity of the firm (Maness, 1994). By maintaining an appropriate level of liquidity a business should be in a position to survive down turns and moreover, it may be able to exploit profitable opportunities as they arise (Gitman, 1997). On the other hand, as asserted by Cooper, et al (1998), illiquidity, unless remedied, will give rise to insolvency and eventually bankruptcy as the Business's liabilities exceed its assets. Excessive debt exposes the business to potentially large interest costs and the risk of potential bankruptcy. Shareholders, long term lenders and creditors evaluate the level of risk they bear, and require compensation for the risks, which arise from a business's capital structure. The proportion of assets financed by creditors are of particular importance to shareholders, since creditors have a prior claim on the

assets in the case of liquidation (Gitman, 1997).

Liquidity ratios measure a business' ability to meet the payment obligations by comparing the cash and near-cash with the payment obligations. If the coverage of the latter by the former is insufficient, it indicates that the business might face difficulties in meeting its immediate financial obligations. This can, in turn, affect the company's business operations and profitability. The Liquidity versus Profitability Principle: There is a trade-off between liquidity and profitability; gaining more of one ordinarily means giving up some of the other.

Morris and Shin (2010) conceptually defines the liquidity ratio as “realizable cash on the balance sheet to short term liabilities.” In turn, “realizable cash” is defined as liquid assets plus other assets to which a haircut has been applied. Ration analysis is one of the conventional way that use financial statements to evaluate the company and create standards that have simply interpreted financial sense.

Raheman and Nasr (2007) in their study in which average collection period, inventory turnover in days, average payment period, CCC, current ratio, debt ratio, size of the firm, and financial assets to total assets ratio were the selected independent variables and net operating profit was the dependent variable found a strong negative relationship between the current ratio and debt ratio and profitability of the firms. The study also established a negative relationship between liquidity and profitability. Furthermore, they found out a significant negative relationship between debt used by the firm and its profitability.

Benjamin and Kamalavali (2006) in their study in which the independent variables used were current ratio, quick ratio, inventory turnover ratio, working capital turnover ratio, debtor's turnover ratio, ratio of current asset to total asset, ratio of current asset to operating income, comprehensive liquidity index, net liquid balance size and leverage and growth while dependent variable (profitability) was measured in terms of return on investment ROI established a negative association between ROI and the current ratio, cash turnover ratio, current asset to operating income and leverage. On the other hand they established a positive association between ROI and the quick ratio, debtor's turnover ratio, current asset to total asset and growth rate.

Dong (2010) in his study that focused on the variables that include profitability, conversion cycle and its related elements and the relationship that exists between them reported that the firms' profitability and liquidity are affected by working capital management. The relationships among these variables was found to be strongly negative. This denote that decrease in the profitability occur due to increase in cash conversion cycle. It is also found that if the number of days of account receivable and inventories are diminished then the profitability will increase numbers of days of accounts receivable and inventories

Saswata Chatterjee (2010) focused on the importance of the fixed and current assets in the successful running of any organization. It poses direct impacts on the profitability and liquidity. There have been a phenomenon observed in the business that most of the companies increase the margin for the profits and losses because this act shrinks the size of working capital relative to sales. But if the companies want to increase or improve its liquidity, then it has to increase its working capital.

Reilly and Brown (2005) stated that financial statement analysis seeks to evaluate managerial performance in several important areas including profitability, efficiency and risk. The ultimate goal of that analysis is to provide insights that will help us project future managerial performance. They also suggest that financial ratios should be examined relating to the economy, the firm's industry, firm's main competitors and the firm's past relative ratios.

Islam et al. (2009) conducted a research on financial diagnosis of the financial institutions of Bangladesh: A comparative study on IPDC, IDLC and ICB and through ratio analysis they measured the financial health of the financial institutions and concluded that financial institutions play a key role in the economic development of capital market of the country.

Hassan and Habib (2010) used financial ratios for conducting a research on performance evaluation of the pharmaceutical companies in Bangladesh. They revealed that the financial performance of Beximco Pharmaceuticals Ltd. is better than Square Pharmaceuticals Ltd. Also, Salauddin (2001) examined the profitability of the pharmaceutical companies of Bangladesh. By adopting ratio analysis, mean, standard deviation and co-efficient of variation, he found that the profitability of the pharmaceutical sector was very satisfactory in terms of the standard norms of return on investment.

Eljelly (2004) empirically examined the relationship between profitability and liquidity, as measured by current ratio and cash gap (cash conversion cycle) in Saudi Arabia. Using correlation and regression analysis, the result confirmed a significant negative relationship between the firm's profitability and its liquidity level, as measured by current ratio. This relationship is more pronounced for firms with high current ratios and long cash conversion cycles.

Dong and Su (2010) posits that there is a negative relationship between cash conversion cycle, financial debt and profitability. When the authors replaced cash conversion cycle with accounts receivable and inventory, they found negative relationship with these two variables; the opposite occurred with accounts payable. The authors concluded that companies can create more profit by handling correctly the cash conversion cycle and keeping each different component to an optimum level.

Raheman and Mohamed (2007) studied the effect of average collection period, inventory turnover in days, average payment period, cash conversion cycle, and current ratio on the net operating profitability of Pakistani firms. They found that as the cash conversion cycle increases, it leads to decreasing profitability of the firm and managers can create a positive value for the shareholders by reducing the cash conversion cycle to a possible minimum level.

3 Research Methodology

The study was based on secondary data collected from the audited Financial Statements associated with schedules and annexure for three SMEs operating in Kisii Municipality, Kenya. Purposive sampling technique was used to obtain a sample of 3 SMEs which were wholesale businesses. The study covers a period of 3 years (i.e. from 2009 to 2011). The available data have been analysed by using various financial ratios as a managerial tool as well as some simple statistical tools like Arithmetic Mean, Standard Deviation and Co-efficient of Variation, and The Altman's Z-Score model. The t-test has been applied for the purpose of testing hypotheses in this study.

3.1 Variables of the study

Current Ratios (CR): It is the ratio of current assets to current liabilities. This ratio measures the short term liquidity position of a firm indicating the amount of current assets available per unit of current liabilities. The higher the ratio the more will be the firm's ability to meet short term obligations and the greater will be the safety of funds of short term creditors. It is worthwhile to note that a very high current ratio may not be indicative of good liquidity position but may be the signal of excessive inventories over the current requirements, inefficiency in collection of debtors and high cash and bank balances without proper investment. Conventionally, a current ratio of 2:1 is taken as satisfactory. However, this satisfactory norm may differ depending on the country's economic conditions, nature of industry, management pattern and other factors of a particular firm under an industry. Therefore, satisfactory current ratio should be developed by a firm on the basis of its past experiences and be considered as standard. Current ratio should be considered in conjunction with quick ratio to ascertain the true liquidity position of an organization.

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current liabilities}}$$

Quick ratio (QR): It is the ratio of quick assets to quick liabilities. Quick assets refer to those current assets which can be converted into cash/bank immediately or at a short notice without suffering any loss. It actually means the current assets excluding inventories and prepaid expenses. The logic behind the exclusion of inventory and prepaid expenses is that these two assets are not easily and readily convertible into cash. Quick liabilities, on the other hand, refer to those current liabilities which are to be met within very short period. It actually means current liabilities excluding bank overdraft. The justification for exclusion of bank overdraft from current liabilities is that bank overdraft is normally considered as a particular method of financing a firm, and not likely to be called in on demand. This ratio measures the quick short-term solvency position of a firm. A high quick ratio indicates that the quick short term solvency position of a firm is good. Generally, a quick ratio of 1:1 is considered satisfactory for a firm though it depends on many factors. Quick ratio is a more rigorous and penetrating test of the liquidity position of an organization as compared to the current ratio of the firm.

$$\text{Quick ratio} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current liabilities}}$$

Debt to Total Assets [DTA]: This ratio shows the percentage of assets that are being financed by creditors (instead of business owners). Generally no more than 50% of a business' assets should be financed by debt. It is computed by dividing total debt by total assets. The degree of leverage of the companies is indicated by this ratio. The higher the percentage of debt to total assets, the greater the risk that the business may be unable to meet its maturing obligations and vice versa is also true

Return on Asset [ROA]: It is an overall measure of profitability. It is computed by dividing net income by average assets. The return on asset must be positive and some authors consider the standard figure of ROA is 10%-12%.

$$\text{ROA} = \frac{\text{Net profit after taxes}}{\text{average total assets}} * 100$$

Gross Profit Margin: This ratio establishes the relationship between gross profit and sales. It is calculated by using the following formula:

$$\text{Gross Profit Margin} = \frac{\text{Gross Profit}}{\text{Sales}} * 100$$

It measures the percentage of each sales revenue remaining after meeting firm's expenses on its goods. The gross profit margin indicates the limit beyond which sales are not tolerated to fall. A high ratio of gross profit to sales is a symbol of good management whereas a relatively low gross profit margin is clearly a danger signal for the firm. However, a very high and rising gross profit ratio may also be the result of the unwarranted valuation of opening and closing stock/inventories. A firm should have a reasonable gross profit ratio to ensure adequate coverage for operating expenses of the enterprise and sufficient return to the owners

Net profit margin: This ratio measures the relationship between net operating profit and sales of a firm. It is computed by using the following formula:

$$\text{Net Profit Margin} = \frac{\text{Net operating Profit}}{\text{Sales}} * 100$$

It indicates the efficiency of management to operate the firm successfully in relation to earned revenues and all types of costs associated with it at a reasonable level of risk and uncertainty. The high net profit ratio ensures good return to the owners and enables a company to maintain its survival stability in adverse economic condition like declining selling price, rising cost of production, falling demand etc. A relatively low net profit ratio gives the opposite picture. However, a company with a low net profit margin may earn a high rate of return on its investment if it has a high inventory turnover

4 RESULTS AND DISCUSSION

4.1 Empirical Analysis of Liquidity Position

4.1.1 Liquidity Position Based on Current Ratio

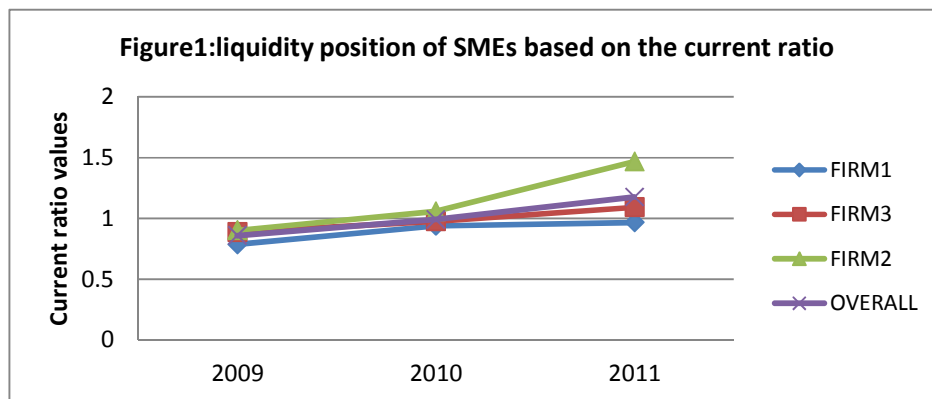
The ratio is a measure of the short-term liquidity of a firm. A high current ratio is an indication that a firm has the ability to pay its current obligations as and when they arise.

Table 1: Current Ratio of the SMEs

	2009	2010	2011	MEAN	STDEV	CV%
FIRM 1	0.786	0.938	0.967	0.897	0.097	10.84
FIRM 2	0.903	1.058	1.468	1.143	0.292	25.54
FIRM 3	0.887	0.976	1.092	0.985	0.103	10.44
Overall	0.859	0.991	1.176	1.009	0.159	15.79

The results of the analysis show that the current ratio of Firm 2 during the study period was satisfactory as its average of 1.143 was slightly higher than the overall industry average of 1.009. The current ratios of firms 1 and 3 were below the industry average an indication that firm 2 was better of than 1 and 3 in terms of ability to pay debts as they fall due. However, the average current ratios for the three firms: Firm 1(0.897:1); Firm 2 (1.143:1) and Firm 3 (0.985:1) are all below the global norm of 2:1. This implies that the three firms do not have satisfactory liquidity positions. Coefficient of variation of Current ratio of industry as a whole is 15.79% and shows consistency during the study period. On aggregate the results show that the SMEs may not pay their creditors on time and may not continue

to honor their obligations to the suppliers of credit, services and goods and this could result in losses on account of non-availability of supplies. Also, the inability to meet the short term liabilities could affect the business's operations and in many cases it may affect its reputation as well. However, as indicated by Nazrul and Shamem (2012) the low current ratios may be a sign of inventory turn over being much more rapid than the accounts payable becoming due.



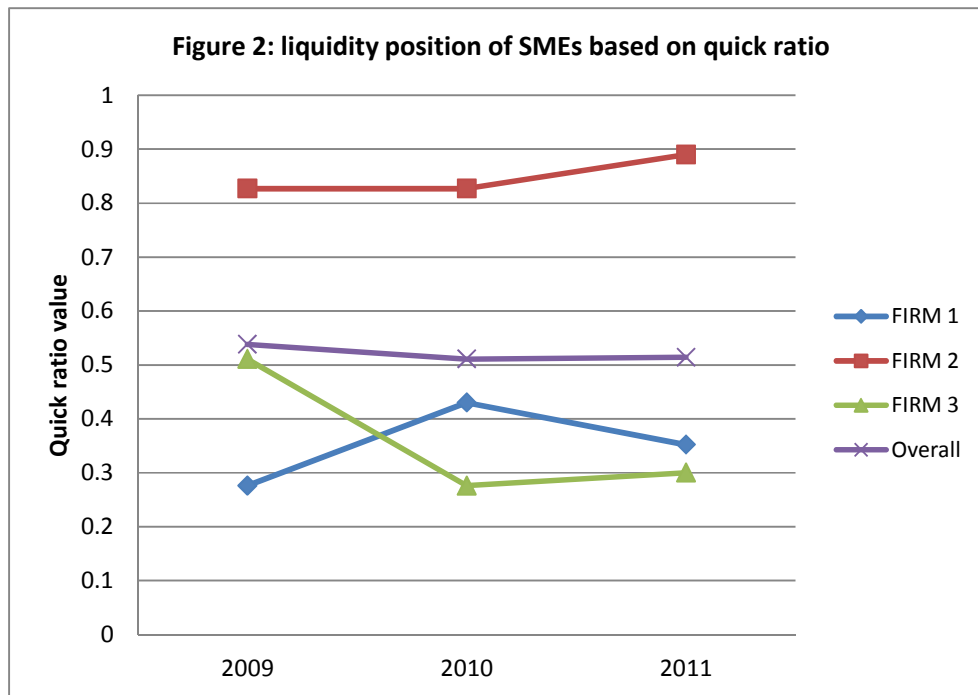
4.1.2 Liquidity Position Based On Quick Ratio

The liquidity indicator further refines the current ratio by measuring the amount of the most liquid current assets available to cover current liabilities. It is more conservative than the current ratio because it excludes inventory and other current assets which are more difficult to turn into cash. The Quick ratio measures the business's immediate short-term liquidity. In this ratio, 1:1 is considered as the standard norm.

Table 2: Quick Ratio of the SMEs

	2009	2010	2011	MEAN	SD	CV
FIRM 1	0.276	0.43	0.352	0.353	0.077	21.83%
FIRM 2	0.827	0.827	0.89	0.848	0.036	4.29%
FIRM 3	0.511	0.276	0.3	0.362	0.129	35.69%
Overall	0.538	0.511	0.514	0.521	0.015	20.60%

The results of the analysis as shown in Table 2 indicate that the industry average of the quick ratio is 0.521:1 with the values deviating from the mean by 0.015. The average quick ratio of Firm1 (0.353:1) and Firm3 (0.362:1) are below the industry average and only the quick ratio of Firm2 (0.848:1) is above the industry average. The average quick ratios of all the three SMEs studied are however below the standard norm of 1:1. This indicates that the selected SMEs may be unable to pay immediate short term liabilities. The coefficient of variation of Firm1 and Firm3 of 21.83% and 35.69% are above the industry average of 20.60% indicating less consistency during the study period. For Firm 2 the coefficient of variation of 4.29% is less than the industry average indicating consistency during the study period. As shown in figure 2, the three SMEs had a rise in their quick ratios between 2009 and 2010. However Firms 2 and 3 had improved quick ratios between 2010 and 2011 while firm 1 registered a decline in its quick ratio.



4.1.3 Liquidity Position Based On Absolute Liquid Ratio

This is the ratio of cash and near cash to current liabilities and it is useful in determining the absolute liquidity of businesses. The Table3 below gives the absolute liquidity of the SMEs.

Table3: Absolute liquidity ratio

	2009	2010	2011	MEAN	STDEV	CV%
FIRM 1	0.03	0.05	0.032	0.037	0.011	29.50
FIRM 2	0.076	0.103	0.097	0.092	0.014	15.41
FIRM 3	0.004	0.007	0.003	0.005	0.002	44.61
Overall	0.037	0.053	0.044	0.045	0.008	18.70

The results of the analysis show that the absolute liquid ratio of the three SMEs surveyed was poor thus indicating that the SMEs do not maintain little liquid cash which could be useful in meeting their short-term matured obligations and day to day expenditures. Lack of cash or liquid assets on hand may force a business to miss the incentives given by the suppliers of credit, services, and goods as well. Loss of such incentives may result in higher cost of goods which in turn affects the profitability of the business.

4.2 Empirical Analysis of the Solvency Position of SMEs Using the Debt to Total Assets Ratio

This ratio shows the percentage of assets that are being financed by creditors (instead of business owners). Generally no more than 50% of a business's assets should be financed by debt. This ratio can be reduced by paying off debt or increasing the value of the firm's assets. It is computed by dividing total debt by total assets. The degree of leverage

of the companies is indicated by this ratio. The higher the percentage of debt to total assets, the greater the risk that the business may be unable to meet its maturing obligations and vice versa is also true (Nazrul and Shamem, 2012).

Table 4: Debt to Total Assets Ratio of the SMEs

	2009	2010	2011	MEAN	STDEV	CV%
FIRM 1	97.10%	103.20%	101.00%	100.43%	0.031	3.08
FIRM 2	95.90%	98.20%	94.20%	96.10%	0.020	2.09
FIRM 3	101.60%	94.50%	110.70%	102.27%	0.081	7.94
Overall	98.20%	98.63%	101.97%	99.60%	0.021	2.07

The results of the analysis show that the three SMEs surveyed have higher percentages of the debt to total assets ratio (Firm 1=100.43%, firm 2=96.10% and firm 3=102.27%) indicating that the SMEs use debt financing more than equity to finance their investment in assets. Even though this high use of debt financing may result to higher profits, safety may be sacrificed. The high percentage of debt to total assets, can also be indicator of a greater risk that the SMEs may be unable to meet their maturing obligations. The results of descriptive statistics also show that the average debt-equity ratio (DER) was 99.6% with a standard deviation of 0.021. The maximum debt financing used by a business was 110.7% which was unusual but might be possible if the equity of the business was negative. The minimum level of the DER was 94.2%.

4.3 Empirical Analysis of The Profitability Position of SMEs

Profitability is the measurement of how successful a business is. The more profitable the business, the more money the business is making. Profitability refers to a business's ability to generate an adequate return on invested capital. Return is judged by assessing earnings relative to the level and sources of financing. Profitability is also relevant to solvency. Profitability ratios measure the income or operating success of a business for a given period of time. Income or lack of it, affects the business's ability to obtain debt and equity financing. It also affects the business's liquidity position and the business's ability to grow. As a consequence, both creditors and investors are interested in evaluating earning power or profitability. Analysts frequently use profitability as the ultimate test of management's operating effectiveness

The profitability position of the SMEs was analyzed using Return On Assets (ROA). It is a useful indicator of how profitable a business is relative to its total assets. It also gives an idea as to how well the business is able to use their assets to generate earnings. Calculated by dividing a business's annual earnings with its total assets. ROA is displayed as a percentage. The ROA figure gives investors an idea as to how effectively the business is converting the money that they have invested into net income. The higher the ROA figure the better it is seen as the business is earning more money on less invested capital. Mokhtar et al.(2005) states that return on asset must be positive and the standard figure of ROA is 10%-12%.

Table 5: Analysis of the profitability of the SMEs

	RETURN ON ASSETS (ROA)				Gross Profit Margin %				Net Profit margin%			
	FIRM 1	FIRM 2	FIRM 3	OVERALL	FIRM 1	FIRM 2	FIRM 3	OVERALL	FIRM 1	FIRM 2	FIRM 3	OVERALL
2009	-0.88	1.13	1.09	0.45	20	47.1	39.3	35.5	2.5	2.2	1.4	2.0
2010	1.41	3.35	2.36	2.37	22.8	42.2	37.4	34.1	3.4	5.5	4.8	4.6
2011	1.93	5.11	3.59	3.54	37.2	44.7	38.4	40.1	3	3.8	3.1	3.3
MEAN	0.82	3.20	2.35	2.12	26.7	44.7	38.4	36.6	3.0	3.8	3.1	3.3
STDEV	1.50	1.99	1.25	1.56	9.2	2.5	1.0	3.1	0.5	1.7	1.7	1.3
CV%	182.32	62.39	53.27	73.72	34.6	5.5	2.5	8.6	15.2	43.1	54.8	38.4

As shown in Table 5, for Firm1, the average return on assets was 0.82 per cent. For Firm 2, the average return on assets was 3.2 per cent whereas for firm 3, the average return on assets was 2.35 per cent. For the three SMEs studied the ROA was below the standard average implying that they are not very good in using their assets to generate sales. The ROA on aggregate increased from 0.45% in 2009 to 3.54% in 2011. The average gross profit margin for firm 1 amounted to 26.7 per cent and the net profit margin was 3.0 per cent. For Firm 2, the average gross profit margin amounted to 44.7 per cent and the mean net profit margin was 3.8 per cent. For firm 3, the average gross profit margin amounted to 38.4 per cent and average net profit margin was 3.1 per cent. Based on the industry establishment that the net profit margin must be positive and the standard figure should be between 5%-10%, the mean net profit margin values for the three SMEs obtained which ranged from 3% to 3.8% are all below the 5% minimum. This indicates low profitability of the firms studied. It also indicates that the SMEs' management do not operate the businesses successfully in relation to earned revenues and the costs associated with it.

4.4 Empirical Analysis of the The Financial Health of the Smes

The Z-Score Model for predicting bankruptcy published in 1968 by Edward Altman is regarded as the best Model for predicting bankruptcy and was applied to provide a significant idea about the Financial Health of the selected SMEs. The formula for the ratio is

$$Z = 1.2X_1 + 1.4X_2 + 3.3 X_3 + 0.6X_4 + 1.0X_5$$

Where

X_1 = Working capital divided by total assets

X_2 = Retained earnings divided by total assets

X_3 = Earnings before interest and taxes divided by total assets

X_4 = Market value of equity divided by the book value of total debt.

X_5 = Sales divided by total assets.

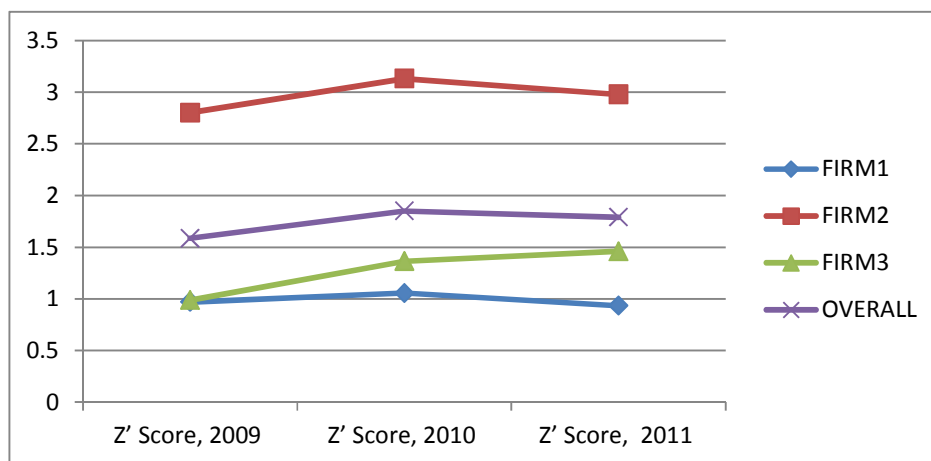
The range of the Z-value for most corporations is between -4 and +8; with financially strong corporations having Z values above 2.90, while those in serious trouble would have Z value below 1.23. Those in the middle have question marks that could go either way. The Z values of the surveyed SMEs were as shown in Table 6 below;

Table 6: SMEs' Altman Z Values

Business Number	Z' Score, 2009	Z' Score, 2010	Z' Score, 2011	Z' Score, Mean
FIRM1	0.97	1.056	0.933	0.986
FIRM2	2.802	3.132	2.978	2.971
FIRM3	0.987	1.364	1.459	1.270
OVERALL	1.586	1.851	1.790	1.742

For firm 1, the mean Altman's Z-score value of 0.986 indicates that the SME is very unhealthy and it is likely to go into bankruptcy; for firm 2, the mean Altman's Z-score value of 2.971 indicates that the SME is financially sound since the value is greater than 2.90. For Firm 3, the mean Altman's Z-score value of 1.27 shows that the SME is in the grey area since it lies between 1.23 and 2.90. This implies that it could either be headed to bankruptcy or recovery. The results show that 2 out of the 3 SMEs (67%) surveyed are financially unhealthy and are likely to close door. Only 1 out of the 3 (33%) is financially sound. On aggregate, a mean Altman's Z-score of 1.742 was obtained. This value is lower than 2.065 but greater than 1.23 which is the minimum recommended. This implies that on aggregate the SMEs financial health lies in the grey financially unhealthy area implying that their financial health is poor. The finding is in line with prior studies (Bowen et al, 2009, Nyabwanga et al., 2012) which showed that the financial performance of SMEs is low.

Figure 3: Altman's Z Values of the SMEs



4.5 Hypothesis Test for Financial Health of SMEs

To test the financial status of the SMEs, the study used the test values under the model of the study and a cutting score generated earlier by the researcher. In the model of the study, the centroid for financially unsound SMEs is below 1.23 and financially sound SMEs is above 2.90 and any Z'-Score between these two centroids falls into the grey area with a cut-off point of 2.065. The hypotheses were therefore stated as follows:

H_0 : SMEs in Kisii Municipality do not always exhibit a healthy financial position.

H_A : SMEs in Kisii Municipality always exhibit a healthy financial position.

Table 6: T-test for SMEs Financial Health

SME NO.	MEAN Z-SCORE	df	Test value=1.23		Test value=2.065		Test value=2.90		Remark
			t-value	Sig.(1 tailed)	t-value	Sig.(1 tailed)	t-value	Sig.(1 tailed)	
1	0.986	3	1.621	0.170*	**	**	**	**	FUH
2	2.971	3	19.276	0.001	11.433	0.001	9.671	0.001	FH
3	1.270	3	5.067	0.003	-3.109	0.098*	**	**	GFUH

FUH-Financially Unhealthy GFUH- Grey Financially Unhealthy FH-Financially Healthy

Under a test value of 1.23, SME number 1 returned a p-value>0.05 hence, we fail to reject the null hypothesis (H_0 : $\mu < 1.23$) and conclude that the mean Z'-score lie below 1.23. Therefore, the SME number 1 is considered to be financially unhealthy. Under a test value of 2.065, SME number 3 returned a p-value>0.05 hence we fail to reject the null hypothesis (H_0 : $\mu < 2.065$) and conclude that the mean Z'-score lies below 2.065. Therefore, SME number III is considered to be in the grey financially unhealthy area. Under a test value of 2.90, SME number 2 returned a p-value<0.05 hence we reject the null hypothesis (H_0 : $\mu \leq 2.90$) and conclude that mean Z'-score lies above 2.90. Therefore, the SME was considered to be in financially healthy area. The results indicate that 33.3% of SMEs are financially healthy, 33.3% are in the grey area meaning that their financial health can go either way and 33.3% are financially unhealthy.

Hypothesis 2

H_0 : Liquidity position has no impact on Profitability.

H_1 : Liquidity position has a significant impact on Profitability.

T-test results

Test value = 0						
	t	df	Sig (2-tailed)	Mean difference	95% Confidence Interval of the Difference	
CR, QR, ALR	2.137	2	0.027	0.87654	0.2831	1.7451
ROA	0.768	2	0.189	35.74985	-5.0468	110.234

Since $p < 0.05$, meaning that the t-test value is significant at 0.05, we reject the null hypothesis and conclude that there is a significant difference in profitability for different levels of liquidity as measured by CR, QR and ALR. This implies that Liquidity position has a significant impact on Profitability. Using the Eta squared obtained by the formula $\text{Eta Squared} = (t^2) / (t^2 + N - 1) = 0.69$, and based on Cohen (1988) recommendation, we conclude that there is a large effect, with substantial difference in profitability obtained for different levels of liquidity.

Hypothesis 3

H_0 : Solvency position has no impact on Profitability.

H_1 : Solvency position has a significant impact on Profitability

T-test results

Test value = 0						
	t	Df	Sig (2-tailed)	Mean difference	95% Confidence Interval of the Difference	
DER	5.394	2	0.003	0.9436	0.5647	1.6560
ROA	0.768	2	0.189	9.6544	-5.0468	110.234

Since $p < 0.05$, meaning that the t-test value is significant at 0.05, we fail to accept the null hypothesis and conclude that there is a significant difference in profitability for different levels of solvency as measured DER.

5 Conclusions

The study first sought analyze the liquidity and solvency positions of the SMEs in Kisii Municipality in terms of the current ratio, quick ratio, absolute liquidity ratio and debt to total assets ratio. The study established that the current and quick ratios of the SMEs studied were below the standard norm of 2:1 and 1:1 respectively. Based on this finding the study concluded that the SMEs studied were not in a position to meet their maturing financial obligations as required. On solvency, the study established that the debt to equity ratio of the firms was 96% on aggregate. This implied that the SMEs studied used creditors more in financing their operations and their current debt level was too high to cope with in the long run. In terms of the financial health of the SMEs, the study established that 2 out the three SMEs studied showed signs of financial ill-health with only one being considered to be financially healthy. The study concludes that the financial health of the SMEs is not good and this is manifested in their low profitability indices as measured by ROA, Gross profit Margin and Net profit margin

6 Policy Implications

The Ministry of trade should make financial stability of SMEs an integral driver of its policy framework through adoption of financial analysis models. Further, the government should create a separate authority to oversee the SME sector development and success so as to be in line with the economic pillar of vision 2030. SME owners or managers should be trained and encouraged to use financial ratios in gaining vital information on their businesses' financial positions. Further, the SME owners should be made aware of the importance of keeping financial statements of their businesses. This could be necessitated through training since it was established that majority of the SMEs do not prepare financial statements and for those that do, their adequacy is questionable. It is also imperative that the practical applicability of liquidity, solvency, profitability and bankruptcy prediction models be checked after some period of time as the economy changes.

7 Limitations of the Study and Suggestions for Further Research

The study tried to strengthen the position of existing work on SME financial performance using ratio analysis and financial health prediction, particularly based on the Altman model. Researchers might extend this research in several directions. First, future research could be extended to empirically analyse the liquidity, solvency and profitability and test financial health prediction models to more SMEs by taking a larger sample so as to corroborate the study findings. Such a study should adopt a survey research design. Second, since the data in the study was limited to a three year period of time due to unavailability of data constraint, future studies that should be longitudinal and making use of a longer study period should be carried out. Researchers should also extend the research by investigating the

relationship between the financial health of firms and liquidity positions by making use of time series analysis techniques.

References

- Altman, E.I. (1968). "Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy", *Journal of Finance*, 23.
- Banos-Caballero, S, Garcia-Teruel PJ, Martinez-Solano P. (2011). "How does working capital management affect the profitability of Spanish SMEs?" *Small Business Economics*, 3: 1–13.
- Benjamin, C., & Kamalavali, L. (2006). "Sensitivity of profitability to working capital management in India Corporate hospitals". *Journal of Business Finance & Accounting*. Retrieved from <http://ssrn.com/> on Jan. 2010.
- Bowen M, Morara M, Mureithi S (2009). "Management of business challenges among small and micro enterprises in Nairobi-Kenya", Retrieved from <http://www.kcajournals.com>. KCA J. Bus. Manag., 2:1.
- Cooper, B.J., Leung, P., Matthews, C., Carlson, P. Adapted by Mathews R. (1998). "Accounting and Finance For Managers". (New Zealand Edition). Australia: Jacaranda Wiley Limited.
- Deloof M. (2003). "Does working capital management affect profitability of Belgian firms?" *Journal of Business Finance & Accounting*, 5230: 573–587
- Dong, H., P. and Su, J., T.(2010) "The relationship between working capital management and profitability: A Vietnam case," *International Research Journal of Finance and Economics*, vol.49, pp.62-71, 2010
- Eljelly, A. (2004) "Liquidity-profitability tradeoff: an empirical investigation in an emerging market," *International Journal of Commerce and Management*, vol.14, no.2, pp.48- 61, 2004.
- Gitman, L.J. (1997). Principles Of Managerial Finance. (Seventh Edition). New York: Harper Collins College Publishers, 684-710.
- Harris, M. L., and Gibson, S. G. (2006). "Determining the common problems of early growth of small businesses in Eastern North Carolina". *SAM Advanced Management Journal*, 71(2), 39-45.
- Islam, A.K., Farzana, N. and Rahman, M.A. (2009). "Financial Diagnosis of the Financial institutions of Bangladesh: A Comparative Study on IPDC, IDLC and ICB", *Prime University Journal*, Vol. 3, No. 1, pp. 32-50.
- Maness, T.S. (1994). The Cash Flow Timeline and the Credit Manager. *Business Credit*, July/August.
- Nazmil, I.,& Shamen, A. (2012). Financial diagnosis of selected listed pharmaceutical companies in Bangladesh. *European Journal of business and management*
- Nyabwanga R., N., Ojera, P., Lumumba, M, Odondo, A., Simeyo, O.(2012). "Effect of working capital management practices on financial performance: A study of small scale enterprises in Kisii South District, Kenya". *African Journal of Business Management* Vol. 6(18), pp. 5807-5817,
- Qasim, S., & Ramiz, R. (2011). "Impacts of liquidity ratios on profitability". *Interdisciplinary Journal of Research in Business*. Vol. 1, Issue 7. PP 95-98
- Raheman, A. & Nasr, M. (2007). "Working capital management and profitability – case of Pakistani firms". *International Review of Business Research Papers*, Vol. 3 No. 1. pp. 279-300.
- Raheman, A.and Mohamed N. (2007) "Working capital management and profitability case of Pakistani firms": *International Review of Business Research Paper*, vol.3, no.1 pp.279-300, , 2007.
- Sausser, W. I; Jr. (2005). "Starting Your Own Business? Prepare for Success". *SAM Management in Practice*, 3(1), 1-4.
- Sunday, K. (2011). "Effective working capital management in small and medium scale enterprises". *International journal of business and management*. Vol. 6, No. 9

This academic article was published by The International Institute for Science, Technology and Education (IISTE). The IISTE is a pioneer in the Open Access Publishing service based in the U.S. and Europe. The aim of the institute is Accelerating Global Knowledge Sharing.

More information about the publisher can be found in the IISTE's homepage:

<http://www.iiste.org>

CALL FOR PAPERS

The IISTE is currently hosting more than 30 peer-reviewed academic journals and collaborating with academic institutions around the world. There's no deadline for submission. **Prospective authors of IISTE journals can find the submission instruction on the following page:** <http://www.iiste.org/Journals/>

The IISTE editorial team promises to review and publish all the qualified submissions in a **fast** manner. All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Printed version of the journals is also available upon request of readers and authors.

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digital Library, NewJour, Google Scholar

