EFFECT OF CAPITAL STRUCTURE ON PERFORMANCE OF MICROFINANCE INSTITUTIONS: A CASE OF DEPOSIT TAKING MICROFINANCE INSTITUTIONS

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Abstract: *Most DTMFIs in Kenya started off as NGOs and had built significant supply side competencies, as such, funding structure had no relevance. However, with growth and commercialization, MFIs are spinned off to become fully independent, the puzzle of funding structure that will ensure sustainability and profitability becomes relevant. The main objective of this study was to investigate on the effect of capital structure on the performance of microfinance institutions with a case of taking microfinance institutions. The study also sought to determine the effect of debt to equity ratio, debt to asset ratio, total debt ratio and customer deposits on the performance of microfinance institutions in Kenya. This study used a descriptive research design. The target population for this study constituted of 8 Deposit Taking Microfinance institutions in Kenya. Census method was used to select all the 8 DTMs in Kenya. This study used cross-sectional data, where all the MFIs were observed at the same point of time (2010-2014). The research concentrated on secondary data using annual reports of the relevant Deposit Taking Microfinance institutions. The study made use of both descriptive and inferential statistics. In relation to descriptive statistics the study used frequency distributions, percentages, measures of central tendency (mean) and measures dispersion (Standard deviation) to summarize the data. The study also used correlation and multivariate regression analysis to examine the magnitude of the influence of the independent variable on the respective dependent variables. From the results, the study found that there is a positive relationship between debt to equity ratio and the performance of microfinance institutions in Kenya. The study also established that debt to asset ratio, total debt and customer deposits and the performance of microfinance institutions in Kenya. The study also found portfolio at risk influences the performance of microfinance institutions negatively. The study recommends the development of appropriate policies to enable MFIs to have access to debt to enhance their operations. In addition, the Nairobi Security Exchange should have a look at their listing requirements and work towards designing mechanisms that would enable MFIs to get listed and to offer them the opportunity to access equity capital.*

Key Words: Financial performance, Debt Ratio, Capital structure, Microfinance

Introduction

A microfinance works well when it measures and discloses its performance and that accurate, standardized performance information is imperative, both financial information and social information. Further, MFIs, donors, investors, bank supervisors and customers' need this information to judge their cost, risk and returns. Zuraidah, Norhasniza and Shashazrina (2012) highlight six major indicators of MFIs performance. They include: Portfolio quality, productivity and efficiency, financial viability, profitability, leverage and capital adequacy scale, outreach and growth. He also observes that the essence of calculating and analyzing performance indictors (ratios) is to provide information that may help improve MFIs financial performance.

Microfinance institutions (MFIs) in sub-Saharan Africa include a broad range of diverse and geographically dispersed institutions that offer financial services to low-income clients: non-governmental organizations (NGOs), non-bank financial institutions, cooperatives, rural banks, savings and postal financial institutions, and an increasing number of commercial banks. Overall, MFIs in Africa are dynamic and growing. A study by Lafourcade et al. (2005 found that of the 163 MFIs that were involved in their study, 57 percent were created in the past eight years—and 45 percent of those in the past four. African MFIs appear to serve the broad financial needs of their clients. Unlike trends in most regions around the globe, more than 70 percent of the reporting African MFIs offer savings as a core financial service for clients and use it as an important source of funds for lending. MFIs in Africa tend to report lower levels of profitability, as measured by return on assets, than MFIs in other global regions. Among the African MFIs that provided information for this study, 47 percent post positive unadjusted returns; regulated MFIs report the highest return on assets of all MFI types, averaging around 2.6 percent. The microfinance sector in Africa is quickly expanding, and institutions have increased their activities. In fact, African MFIs are among the most productive globally, as measured by the number of borrowers and savers per staff member. MFIs in Africa also demonstrate higher levels of portfolio quality, with an average portfolio at risk over 30 days of only 4.0 percent. However, operating and financial expenses are high, and on average, revenues remain lower than in other global regions. Efficiency in terms of cost per borrower is lowest for African MFIs.

In Cameroon, Shu and Oney (2014) compared the performance and outreach aspect of the MFIs in Cameroon against the African benchmark and revealed that MFIs had implemented a low cost strategy and are heavily exposed to default risk. In addition, the authors argue that MFIs in Cameroon were more focused on making profits, instead of reaching out to the poorest of the poor in the communities.

The capital structure decision of a business is important because a poor decision can affect a firm's profitability leading to a decrease in shareholders' value and vice versa. The overriding objective of financial decisions is to maximize the wealth of shareholders. In other words, the objective of a firm's financial decisions is to increase its profitability and the value of its shares. According to Kar (2012), the effect that capital structure decisions have on profitability and firm value is that, it increases value through the present value of tax savings from the use of debt. Intuitively, this may imply that firms should use 100% debt to maximize their value. However, excessive use of debt may lead to a reduction in value because of the increasing possibility of financial distress and possible downgrading of the firm's credit rating. Therefore the possible effects of capital structure policy are that it can increase both gains and losses of the firm (Leon, 2013).

In Malaysia, Zuraidah, Norhasniza and Shashazrina (2012) found that short term debt and total debt have significant relationship with Return on Asset and Return on Equity. Similarly in Ghana, Abor (2005) established that short term debt has a significant positive relationship with Return on Equity and long term debt has a significant negative relationship with return on Equity. Short term debt are less expensive as compared to long term debts leading to an increase in profit levels. In Uganda, Sekabira (2013) found that debt and grants were negatively correlated to operational and financial sustainability of microfinance institutions. When sustainability was more constricted to financial sustainability, debt and share capital remained noteworthy. Other than grants, debt was paid back on competitive market interest rates, whereas share capital

fetched in revenues to the MFIs at market interest rates from the borrowers. Grants and debt had a substantial damaging consequence on MFI performance.

A profitable microfinance industry is vital in maintaining a stable micro- banking system. Low profitability weakens the capacity of Deposit taking MFIs to absorb negative shocks, which subsequently affect Microfinance institutions solvency (Gupta, Srivastava & Sharma, 2011). Profitability of MFIs is determined by the way they are run given the environment in which they operate, risk management capabilities, their competitive strategies, quality of their management and levels of capitalization. Many MFIs look to deposit financing and commercial debt as essential elements of funding future growth in the microfinance sector (Zuraidah, Norhasniza & Shashazrina, 2012). Commercial debt financing is an important tool in MFI funding and management; both short-term as well as longer-term debt financing. Deposit to assets ratio is only relevant to MFIs that mobilize deposits. The lower the ratio, the greater is the MFI's capability to fund its assets base from deposits. A proportionally larger deposit base as a percentage of total assets will typically lead to an overall lower cost of funds, assuming that the deposits program is cost efficient in its operational and financial expense of deposits ratios. The higher the ratio, the more the MFI must rely on external funding, which is often a more costly source of funding than deposits (Abor, 2005).

Ayayi (2012) highlights six major indicators of MFIs performance. They include: Portfolio quality, productivity and efficiency, financial viability, profitability, leverage and capital adequacy scale, outreach and growth. He also observes that the essence of calculating and analyzing performance indicators (ratios) is to provide information that may help improve MFIs financial performance.

According to AMFI (2012) for DTMs and credit only microfinance institutions the main source of funding is borrowings, which account for 54.2% of the balance sheet in Dec 2011. Compulsory deposits account for 22.5% of the structure; however they are on a downward trend from 28.8% as of Dec 2009, as voluntary deposits (sight and term) increased their share from 0.33% in 2009 to 6.32% in 2011. Obota (2013) established that the transformed DTMs had higher mean in the following ratios; Return on Equity, Portfolio at Risk, Debt/ Equity ratio, operating expenses and portfolio yield. This means that the performance of the transformed DTMs was better compared to that of those MFIs that did not transform.

The microfinance industry in Kenya is growing at a very rapid rate. While East Africa is at an earlier stage of competition, the major urban centers in Kenya, are becoming saturated by competition among numerous MFIs (Kimando & Kihoro, 2012). From an economic perspective competition means more firms are competing for a limited market share and thus having to adjust ever closer to the needs of the customers as well as lowering prices down to a point where marginal revenue equals marginal cost. According to Mwangi (2013), 25% of borrowers in microfinance institutions take loans from six or more different financial institutions which eventually lead to repayment crisis in the microfinance industry. DMFIs with a relatively high portfolio to asset ratio may be at greater risk of failure.

In the year 2012, the main source of funding for DTMs and credit only microfinance institutions was borrowings, which accounted for 54.2%. Compulsory deposits accounted for 22.5% of the structure, which was a decrease from 28.8% in the year 2011 (AMFI, 2012). The change in deposits and debt influence the capital structure of microfinance institutions. Whether the capital structure in DTMFIs influence financial performance has not been empirically determine.

Understanding the role of DMFIs' funding structure and its composition, whose knowledge largely misses in the literature, constitutes a knowledge gap in Kenya, hence studying the field will be critical. Mainly this study sought to investigate on the effect of capital structure on the performance of microfinance institutions with a case of taking microfinance institutions.

The following are the hypothesized relationship between the independent variables and the performance of microfinance institutions;

H_01: There is no relationship between debt to equity ratio and the performance of microfinance institutions in Kenya

H_02: There is no relationship between debt to asset ratio and the performance of microfinance institutions in Kenya

H_03: There is no relationship between customer deposits and the performance of microfinance institutions in Kenya

H_04: There is no relationship between total debt ratio and the performance of microfinance institutions in Kenya

Theoretical Review

This study used capital structure theories which include the Modigliani–Miller Theorem and the pecking order theory.

The Modigliani–Miller Theorem

The Modigliani–Miller theorem (of Franco Modigliani, Merton Miller) forms the basis for modern thinking on capital structure. The basic theorem states that, under a certain market price process (the classical random walk), in the absence of taxes, bankruptcy costs, agency costs, and asymmetric information, and in an efficient market, the value of a firm is unaffected by how that firm is financed. It does not matter if the firm's capital is raised by issuing stock or selling debt. It does not matter what the firm's dividend policy is. Therefore, the Modigliani–Miller theorem is also often called the capital structure irrelevance principle. Modigliani was awarded the 1985 Nobel Prize in Economics for this and other contributions. One of the important financial decisions confronting a firm is the choice between debt and equity. In their seminal paper dealing with irrelevance of debt in capital structure for determining firm value, Modigliani-Miller (1958) included a number of assumptions - one of which was absence of corporate tax. Subsequently, when Modigliani-Miller (1963) factored corporate tax in the model, it was found that theoretically the value of a firm should increase with debt because of higher interest tax shield. But monotonic increase of debt for higher tax shield increases bankruptcy cost especially when profitability of the firm is low and fluctuating. This leads to 'trade off' theory of capital structure that postulates an optimum debt level or target level, where the marginal increase of present value of tax saving is just offset by the same amount of bankruptcy cost (Maina & Ishmail, 2014).

Although it is not possible to determine the exact debt target level objectively in microfinance, because of MFIs industrial organization, trade off theory explains that that there is a limit to debt financing and the target debt may vary from MFI to MFI depending on profitability, among a host of other factors (Kar, 2012). Consistently, profitable MFIs with lot of tangible asset that can be offered as collateral for debt may have a higher target debt ratio. Simply put high proportion of fixed interest capital to equity would imply that the MFI is highly indebted and therefore risks

becoming insolvent. On the other hand highly leveraged MFIs may perform better by enjoying scale economies, enhancing their ability to boost profitability (Kyereboah-Coleman, 2011).

Pecking Order Theory

The alternative theory of finance known as 'pecking order' theory was developed by Myers (1984). It is based on the premise that in reality successful firms (zero' debt firms) with high and consistent profitability rarely goes for debt financing. The origin of pecking order theory is asymmetric information where managers know more about a firm's prospect than the outside investors. The theory suggests that if the firm issues equity shares to finance a project, it has to issue shares at less than the prevailing market price. This signals that the shares are overvalued and the management is not confident to serve the debt if the project is financed by debt. Thus issue of shares is 'bad news (Sekabira, 2013).

The pecking order theory suggests that firms have a particular preference order for capital used to finance their businesses (Myers, 1984). Owing to the presence of information asymmetries between the firm and potential financiers, the relative costs of finance vary between the financing choices. Where the funds provider is the firm's retained earnings, meaning more information than new equity holders, the new equity holders will expect a higher rate of return on capital invested resulting in the new equity finance being more costly to the firm than using existing internal funds (Kisgen, 2006). A similar argument can be provided between the retained earning and new debt-holders. In addition, the greater the exposure to the risk associated with the information asymmetries for the various financing choices besides retained earnings, the higher the return of capital demanded by each source. Thus, the firm will prefer retained earnings financing to debt, short-term debt over long-term debt and debt over equity (Hall, Hutchinson & Michael as, 2000).

On the contrary if external borrowing is used to finance the project, it sends a signal that the management is confident of the future prospect of serving debt. Hence debt is preferred over shares in financing decision (Boateng, 2004). If debt is issued, pricing of debt instrument remains a problem. To avoid controversy the management may wish to finance project by internal Fund generation, i.e. by retained earnings. Thus, financing follows an order, first-retained earnings, then-debt and finally equity when debt capacity gets exhausted. This explains why the profitable firm uses less debt (Abor, 2005). These preferences exhibit transitivity. MFIs in Africa may represent an interesting scenario since retained earnings are zero and perhaps following the pecking order may opt for debt since quite a number are not regulated and therefore have no access to capital market.

Empirical Review

Equity Capital and Performance

According to Kisgen (2006), equity capital is the mode that enables equity holders to exert influence and monitor managerial decisions continuously through the board of directors. Therefore, they are able to take immediate corrective action when they spot the initial signs of inefficient utilization of resources. When control is to be exerted, the equity holders, as residual claimants, have the right to revise the employment terms of managers. They can successfully adapt by bringing about the desired changes through coordination with firm managers. Such form of coordination is more expensive than coordination through price-based systems. It is also likely to result in greater value to equity holders and thereby increasing firm performance. Hall et

al. (2000) suggests that strategic assets should be financed through equity. A deviation from this relationship can lead to higher organizing costs, which could have far reaching implications in the long run resulting in poor performance.

Graham (2000) discussed the main costs of equity as; tax costs, adverse selection, premium and floatation costs. These costs have an effect on the performance of firms when aggregated. These findings by Graham are consistent with existing theoretical models and empirical studies. Myers and Majluf (1984) consider a firm with a single all-or-nothing investment opportunity shows that asymmetric information increases the cost of equity if the firm is pooled with those of lower quality resulting in decreased performance.

Contrarily, Kimando and Kihoro (2012) argues that the firm that uses equity finance is able to make its performance better since there is direct control and because all the equity holders are the residual claimants they have to ensure that resources are allocated efficiently to be able to maximize shareholders wealth. Booth's arguments have been supported by Boateng (2004) who found that use of equity capital is positively related to the performance of family owned businesses in Pakistan.

Debt and Performance

Kyereboah-Coleman (2007) defined debt capital a capital which a business raises by taking out a loan. Debt capital differs from equity or share capital because subscribers to debt capital do not become part owners of the business, but are merely creditors, and the suppliers of debt capital usually receive a contractually fixed annual percentage return on their loan, known as the coupon rate. Debt may be short term or long term. According to Leon (2013), debt capital ranks higher than equity capital for the repayment of annual returns. This means that before any dividends are paid to suppliers of equity, interest on debt capital must be paid in full. A company that is highly geared has a high debt capital to equity capital ratio. There are several capital structure perspectives showing how decision to use debt affects the firm's value. The use of debt in capital structure of the firm also leads to agency costs. The need to balance gains and costs of debt financing emerged as a theory known as the static trade-off theory by Myers and Majluf (1984).

It values the company as the value of the firm if unlevered plus the present value of the tax shield minus the present value of bankruptcy and agency costs. In their analysis of the agency problem between professional managers and dispersed shareholders, Jensen and Meckling (1976) argued that debt constrains managerial expropriation by imposing fixed obligations on corporate cash flow. Jensen (1989) further examined this argument in the context of free cash flow, debt, and leveraged buyouts. Jensen argues that free cash flow, debt, and leveraged buyout forced managers to disgorge their corporations' free cash flow, replacing equity with debt.

The agency model of Jensen (1986) suggests that since debt sales bring additional cash into the firm, this could exacerbate agency problems. Alternatively, if firms use the debt issue proceeds to address the gap between investments needs and internal sources of funding, this would not necessarily lead to an increase in excess cash within the firm. The periodic interest payments on debt would then commit managers to pay out excess free cash flow. Hence, debt issues could reduce agency costs, and have positive effects on firm value. In contrast, Zuraidah et al. (2012) argue that all securities sales (including debt) indicate decreases in future operating performance, and hence impact negatively on firm value. In conclusion, the use of debt is one way to improve performance and firms value Conversely, some studies have shown that debt has a negative effect on firm performance. Tchakoute (2015), for instance are of the view that the use of

excessive debt creates agency problems among shareholders and creditors and that could result in negative relationship between leverage and firm performance. Sekabira (2013) found in their Indian study that leverage has a negative effect on performance, while Krishnan and Moyer (1997) connect capital and performance to the country of origin. Leon (2013) support a negative impact of leverage on the profitability of the firm.

In Kenya, Maina and Ishmail (2014) conducted a study on capital structure and financial performance in the firms listed at the Nairobi Securities Exchange. The population of interest of this study was the firms quoted at the NSE, and a census of all firms listed at the NSE from year 2002-2011 was the sample. Secondary data was collected from the financial statements of the firms listed at the NSE. The study used Causal research design and Gretl statistical software to perform the panel Regression analysis. The study concluded that debt and equity are major determinants of financial performance of firms listed at the NSE. There was evidence of a negative and significant relationship between capital structure (DE) and all measures of performance, which implies that the more debt the firms used as a source of finance they experienced low performance.

Customer Deposits

Saving deposits or saving accounts are one of the most popular deposits for individual accounts. These accounts not only provide cheque facility but also have lot of flexibility for deposits and withdrawal of funds from the account. Financial institutions cannot take for granted that any of their deposits are stable, long-term sources of funds until they have carefully analyzed typical savings patterns in their portfolio of deposit products (Kyereboah-Coleman, 2011).

Savings plays a role in both financial performance and outreach of MFIs through four major ways. Savings is a source of relatively cheap funds because it normally attracts low interest rates compared to commercial loans (Kar, 2012). Savings affects outreach as a financial service as MFIs not providing savings services may achieve lower outreach than MFIs providing savings. According to Kisgen (2006), savings mobilization provides relatively less costly information during loan appraisal process and improves corporate governance of the MFI and increased outreach.

Conceptual Framework

This study sought to investigate on the effect of capital structure on the performance of microfinance institutions. The independent variables of the study were debt to equity ratio, short term debt, long term debt and total debt ratio. On the other hand, the dependent variable was the performance of microfinance institutions as measured by return on assets.

ROA measures how well the institution uses all its assets. It is also an overall measure of profitability which reflects both the profit margin and the efficiency of the institutions (Sekabira, 2013). ROA are used as a measure of MFIs profitability, which further is an indicator of performance. ROA is calculated using the following formula:

$$ROA = \frac{Net\ income}{Average\ Assets}$$

The debt to asset ratio measures the amount of funds borrowed by the firm in relation to its assets. In regards to profitability, if the use of debt is increased it will lead to a higher debt to

asset ratio. The debt ratio is calculated by dividing total liabilities by total assets. Both of these numbers can easily be found the balance sheet (Oriaro, 2001).

$$Debt\ Ratio = \frac{Total\ liabilities}{Total\ assets}$$

In addition, there are a number of factors additional to the capital structure that may have an impact on MFIs performance, this is why control variables are included in the model. The following control variables will be used: age of the firm, size of the firm, portfolio at risk and savings to assets. The age of the firm might also have an impact on the firm's performance. According to CGAP (2009) age have three important effects on MFIs; higher number of loans may drive scale economics, higher average loan sizes may improve the cost structure and more knowledge about customers may streamline processes. Due to economies of scale the size of a firm is considered to be an important determinant of a firm's performance. Larger, well known firms have greater access to the long term capital market than smaller unknown firms. Smaller, unknown firms tend to either borrow short term by means of bank loans, or issue stock. This explains why larger companies will lean toward debt financing and smaller firms toward equity financing. Portfolio at Risk is a measure for the quality of the portfolio, and how well the MFI are collecting their loans (CGAP, 2009). This variable states all portfolios with more than 30 days in arrears, and therefore has a risk of not being repaid (Leon, 2013). This will have an effect on the earnings of the MFI, and therefore it may also have a negative effect on the performance.

Savings to assets is a measure of how large proportion of the assets that are financed by savings. Many MFIs faced liquidity problems during the financial crises, and because of rising financial costs and the fluctuations of exchange rates affects many of the MFIs who rely on external finance, many of the MFIs have started to fund at least part of their lending activity by using local savings (Magiri, 2002). As stated above MFIs that can mobilize savings often have a relatively low cost of funds, because savings is a source of relatively cheap funds.
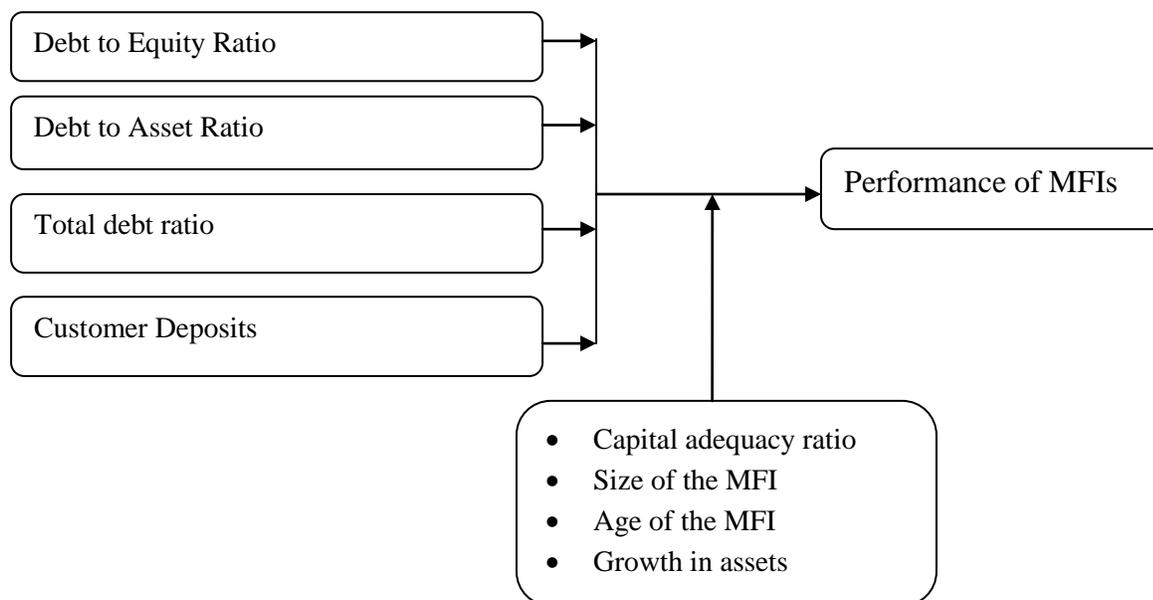
Independent variables   **Intervening variables**   **Dependent Variable**

Figure 1: Conceptual Framework

Research Methodology

This study used a descriptive research design. Descriptive research design was opted because it facilitates to generalize the findings to a larger population. The descriptive research design approach has been credited owing to the fact that it allows relations and analysis of variables. The target population for this study constituted of Deposit Taking Microfinance institutions in Kenya. Currently there are there are 8 Licensed Deposit Taking Microfinance institutions (AMFIs, 2012). Census method was used to select all the 8 DTMs in Kenya.

This study used cross-sectional data, where all the MFIs was observed at the same point of time (2010-2014). The research concentrated on secondary data using annual reports of the relevant Deposit Taking Microfinance institutions. Secondary data from financial statements of the selected Deposit Taking Microfinance institutions was collected from their records and publications. This was used to specifically help in identifying the financial performance of the institutions. Data from the annual reports was collected over a period of 5 years to ensure objectivity. The study therefore focused on data ranging from 2010-2014. The data obtained from the annual reports include return on equity, debt to equity ratio, debt to asset ratio, customer deposits, capital adequacy ratio, growth in assets, age of the MFI, size of the MFI and portfolio at risk.

Data collected from the survey was sorted, edited and recorded to have the required quality and accuracy levels. It was then coded and entered into a statistical package for social sciences (SPSS version 21) for generation of frequency tables and charts. The study made use of both descriptive and inferential statistics. In relation to descriptive statistics the study used frequency distributions, percentages, measures of central tendency (mean) and measures dispersion (Standard deviation) to summarize the dat. The study also used and multivariate regression analysis to examine the magnitude of influence of the independent variable on the respective dependent variables. The regression function that includes the dependent and independent variables was;

$$Y = \beta_0 + \beta_1 DER + \beta_2 DAR + \beta_3 CD + \beta_4 CAR + \beta_5 GRW + \beta_6 AGE + \beta_7 SIZE + \beta_8 PaR + \varepsilon$$

Where:

Y = Return on Equity (ROE);
β_0 = Constant Term;
$\beta_1, \beta_2, \beta_3$ and β_4 = Beta coefficients;
DER= Debt to Equity Ratio;
DAR= Debt to Asset Ratio;
CD= Customer Deposits;
CAR= Capital Adequacy Ratio;
GRW= Growth in Assets;
AGE= Age of the MFI
SIZE= Size of the MFI
PaR= Portfolio at Risk
ε = Error term

Results and Discussions

The descriptive statistics comprise of mean and standard deviation of the dependent (return on equity) and the independent variables (total debt, shareholders' funds, debt to equity ratio, total

assets, debt to asset ratio, customer deposits, capital adequacy ratio, growth in assets and portfolio at risk).

Table 1: Mean and Standard deviation of the Dependent and the Independent Variables

	Mean	Std. Deviation
Return on equity	1.668	.35316
Debt	9221.000	1668.222
Shareholders' equity	5055.600	3278.993
Debt to equity ratio	6.200	1.351
Debt asset ratio	.818	.098
Customer deposits	14953.800	11446.065
Capital adequacy ratio	17.0600	3.744
Size of the MFI	35074.200	14693.730
Growth in assets	19.442	8.693
Portfolio at risk	1572.600	613.936

From the findings, the average return on equity for all the deposit taking microfinance institutions for the period ranging 2010 and 2014 was 1.6680 and had a standard deviation of 0.35316. Further, the average debt of all the deposit taking MFIs for the period ranging between 2010 and 2014 was Ksh 9,221 million and had a standard deviation of Ksh 1,668 million. Within the same period, the average shareholders' equity was Ksh 5,055 million with a standard deviation of Ksh 3,278 million. In addition, the debt to asset ratio and debt to equity ratio were 6.2 and 0.818 with standard deviations of 1.351 and 0098 respectively.

Further, the average customer deposit was Ksh, 14,953 million with a standard deviation of Ksh 11,446 million. The average capital adequacy ratio was 17.06 with a standard deviation of 3.744. In addition, the average size of DTMs in terms total assets was Ksh 35,074 million and a standard deviation of Ksh 14,693 million. The average growth in assets was 19.44% and the average portfolio at risk was Ksh 1,572 million with a standard deviation of 613.936 million.

Regression Analysis

Regression analysis was used in this study to evaluate the strength of the relationship between the dependent and the independent variables. The study measured performance using Return on equity as the dependent variable. The regression function that includes the dependent and independent variables was;

$Y = \beta_0 + \beta_1 DER + \beta_2 DAR + \beta_3 CD + \beta_4 CAR + \beta_5 GRW + \beta_6 AGE + \beta_7 SIZE + \beta_8 PaR\ \beta_9 DE + \varepsilon$

Where: β_0 = Constant Term; $\beta_1, \beta_2, \beta_3$ and β_4 = Beta coefficients; DER= Debt to Equity Ratio; DAR= Debt to Asset Ratio; CD= Customer Deposits; CAR= Capital Adequacy Ratio; GRW= Growth in Assets AGE= Age of the MFI; SIZE= Size of the MFI; PaR= Portfolio at Risk; DE=Debt and ε = Error term.

The R-Squared shows the proportion in the dependent variable that can be explained by the independent variables. In this study the R-squared was 0.7225, which shows that the nine independent variables (debt equity ratio, debt asset ratio, customer deposits , capital adequacy ratio, growth in assets, age of the MFI, size of the MFI and Portfolio at risk) explain most of the dependent variable (return on equity) at 72.25%. This shows that the other factors not considered in this study explain the least of the dependent variable (return on equity) at 27.75%.

Table 2: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.85	0.7225	0.7122	0.5143

The analysis of variance in this study was used to determine whether the regression model is a good fit for the data. The results show that the model was significant since the p-value is 0.000 which is less than 0.05 thus the model is statistically significance in predicting the influence of the nine independent variables on the dependent variable. Further, the F-calculated (59.396) was more than the F-critical (2.606) which shows that the models was fit in predicting the influence of the four independent variables on the dependent variable.

Table 3: Analysis of Variance

	Sum of Squares	df	Mean Square	F	Sig.
Regression	57.982	4	14.4955	59.39561565	0.000
Residual	9.762	40	0.24405		
Total	67.744	44			

The constant term (B_0) shows that, when the nine independent variables are held constant, the value of return on equity in the deposit taking microfinance institutions will be 0.505. The findings show that debt to equity ratio positively and significantly influences return on equity ($\beta=0.629$, p-value=0.000). This shows that a unit increase in debt to equity ratio will lead to a 0.629 increase in return on equity. Since the p-value (0.000) is less than the significance level (0.05), we reject the null hypothesis and accept the alternative hypothesis: there is a positive relationship between debt to equity ratio and return on equity. The findings also show that debt to asset ratio positively and significantly influences return on equity ($\beta=0.409$, p-value=0.012). This shows that a unit increase in debt to asset ratio will lead to a 0.409 increase in return on equity. Since the p-value (0.012) is less than the significance level (0.05) we reject the null hypothesis and accept the alternative hypothesis. From these findings we can infer that there is a positive relationship between debt to asset ratio and return on equity.

The findings further show that debt influences return on equity in deposit taking microfinance institutions positively and significantly ($\beta=0.411$, p-value=0.009). This implies that a unit increase in the total debt would lead to a 0.411 increase in return on equity. The relationship is significant as the p-value (0.009) is less than the significance level (0.05) and hence we reject the null hypothesis and accept the alternative hypothesis. We can therefore deduce that there is a positive significant relationship between total debt and return on equity in deposit taking microfinance institutions.

According to the findings, there is a positive relationship between customer deposits and return on equity in deposit taking microfinance institutions ($\beta=0.434$, p-value=0.000). This shows that a unit increase in customer deposits would lead to a 0.434 increase in return on equity. Since the p-value (0.000) is less than significance level (0.000) we reject the null hypothesis and accept the alternative hypothesis. We can therefore infer that there is a positive relationship between customer deposits and return on equity.

The findings also show that capital adequacy ratio positively and significantly influences return on equity ($\beta=0.425$, p-value=0.000). This shows that a unit increase in capital adequacy ratio will lead to a 0.425 increase in return on equity. Since the p-value (0.000) is less than the significance

level (0.05), we reject the null hypothesis and accept the alternative hypothesis: there is a positive relationship between capital adequacy ratio and return on equity.

Further, the findings show that growth of Deposit taking microfinance institutions has a slight influence on return on equity (β=0.034, p-value=0.432). However, since the p-value (0.432) is greater than the significance level (0.05) there is not relationship between growth of Deposit taking microfinance institutions and return on equity. In addition, the study also found that there is a slight insignificant relationship between age of the deposit taking microfinance institutions and return on equity (β=0.025, p-value=0.652).

The findings further show that firm size in terms of total assets influences return on equity deposit taking microfinance institutions positively and significantly (β=0.234, p-value=0.021). This implies that a unit increase in the total assets would lead to a 0.234 increase in return on equity. The relationship is significant as the p-value (0.021) is less than the significance level (0.05) and hence we reject the null hypothesis and accept the alternative hypothesis. We can therefore deduce that there is a positive significant relationship between size of the deposit taking microfinance institutions and return on equity.

According to the findings, there is a positive relationship between portfolio at risk and return on equity in deposit taking microfinance institutions (β=-0.125, p-value=0.034). This shows that a unit increase in portfolio at risk would lead to a 0.125 decrease in return on equity. Since the p-value (0.034) is less than significance level (0.000) we reject the null hypothesis and accept the alternative hypothesis. We can therefore infer that there is a negative relationship between portfolio at risk in deposit taking microfinance institutions and return on equity.

Table 4: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	**Std. Error**	**Beta**		
(Constant)	0.505	0.156		3.237	.
DER	0.629	0.125	0.564	5.032	0.000
DAR	0.409	0.098	0.344	4.173	0.012
Debt	0.411	0.096	0.367	4.281	0.009
CD	0.434	0.094	0.369	4.617	0.000
CAR	0.425	0.099	0.360	4.293	0.000
GRW	0.034	0.136	0.031	0.250	0.432
AGE	0.025	0.075	0.004	0.333	0.652
SIZE	0.234	0.098	0.169	2.388	0.021
PaR	-0.125	0.054	-0.109	-2.315	0.034

Conclusions

The study concludes that there is a positive significant relationship between debt to equity ratio and the performance of microfinance institutions in Kenya. This implies that an increase in debt to equity ratio would lead to an increase in return on equity. These findings agree with Sekabira (2013) findings that in Uganda debt to equity ratio positively influences the performance of microfinance institutions.

The study concludes that debt to asset ratio positively and significantly influences return on equity in deposit taking microfinance institutions in Kenya. This shows that an increase in debt to asset ratio would lead to an increase in return on equity. These findings concur with Zuraidah, Norhasniza and Shashazrina (2012) findings that in Malaysia debt to asset ratio had significant relationship with Return on Equity.

The study further concludes that total debt influences return on equity in deposit taking microfinance institutions positively and significantly. This implies that a unit increase in the total debt would lead to an increase in return on equity. These findings disagree with Zuraidah et al. (2012) argument that all total indicate decreases in future operating performance, and hence impact negatively on firm value. However, these findings agree with Tchakoute (2015) findings that the use of debt is one way to improve performance and firm's value.

The study concludes that there is a positive relationship between customer deposits and return on equity in deposit taking microfinance institutions. This shows that an increase in customer deposits would lead to an increase in return on equity. These findings agree with Kar (2012) argument that customers savings is a source of relatively cheap funds because it normally attracts low interest rates compared to commercial loans and hence it has a positive significant influence on profitability. According to Kisgen (2006), savings mobilization provides relatively less costly information during loan appraisal process and improves return on equity of the MFI.

Recommendations

The study found that total debt has a positive significant influence on the performance of microfinance institutions. From the findings of the study we recommend the development of appropriate policies to enable MFIs to have access to debt to enhance their operations.

The study found that shareholders' equity was influencing the performance of MFIs positively. In this regard, the Nairobi Security Exchange should have a look at their listing requirements and work towards designing mechanisms that would enable MFIs to get listed and to offer them the opportunity to access equity capital.

The study found that customer deposits had a positive influence on the performance of microfinance institutions. The study therefore recommends that microfinance institutions should come up with strategies to improve customers deposits. These strategies may include the adoption of mobile banking and agency banking.

The study found that portfolio risk influences the performance of microfinance institutions negatively. This study therefore recommends that microfinance institutions should focus at reducing non-performing loans by revising their credit risk management practices. In addition, they should come up with measures to improve their debt collection like by using debt collection agencies.

Areas for further Research

This study measured performance by use of return on equity only. The study therefore suggest further studies on the role of capital structure in the performance of microfinance institutions to measure performance using return on equity and return on assets. In addition, the nine variables

considered in this study could only explain 72.25% of return on assets. The study therefore suggests further studies to establish other factors influencing return on equity not considered in this study. The study also found that customers' deposits in deposit taking microfinance institutions were fluctuating over the years and hence the study therefore suggests further studies to establish factors affecting customer deposits in deposit taking microfinance institutions.

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