

**EFFECT OF CAPITAL STRUCTURE ON FINANCIAL PERFORMANCE OF
DEPOSIT TAKING MICROFINANCE INSTITUTIONS IN MOMBASA
COUNTY, KENYA**

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DECLARATION

This research project report is my own work and has not been presented to any institution or university for award of a degree.

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LIST OF ACRONYMS

AMFI	Association of Microfinance Institution
ANOVA	Analysis of Variance
CBK	Central Bank of Kenya
DTMIs	Deposit Taking Microfinance Institutions
MFI s	Microfinance Institutions
NIM	Net Interest Margin
ROA	Return on Assets
ROE	Return on Equity
SME s	Small and Medium Enterprises

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ABSTRACT

The objective of the study was to determine effect of capital structure on financial performance of Deposit Taking Microfinance Institutions in Mombasa County. Study population comprised of four DTMIs operating in the County of Mombasa with the study period being ten years from 2009 to 2018 using correlation research design. Data used was secondary collected in form of yearly reports issued by Central bank of Kenya and also financial statements from respective DTMIs. The study findings established an insignificant weak positive relationship between financial performance and variables considered. Proportion of debt, proportion of core capital and proportion of total capital had an insignificant weak negative correlation. Firm size had weak positive association which was also insignificant. The study recommends the importance of balancing merits of debt and bankruptcy costs because use of leverage beyond an optimal point has adverse effects on performance. Further CBK should consider reviewing the stringent capital requirements as this has been seen to be hurting the performance of DTMIs. Since this study used Return on assets for a ten year period, further studies can be done based on other measures of performance like Return On Equity of Net Interest margin covering a longer period like twenty years.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Capital structure is regarded as a collection of various types of funds a firm can issue for financing (Niu, 2008). This mixture of funding sources was considered by Ross et al., (2002) as a way of deciding what proportions of equity and leverage to be used for maximum value. Modigliani and Miller (1958) first propounded this concept where they argued that selecting equity or debt in perfect markets has no influence on determination of firm value. However, after careful considerations of market imperfections, mixture on types of funds decisions are of great significance due to tax advantages of debt which gives a firm a higher value as argued by (Modigliani & Miller 1963). Ross et al., (2009) maintains the importance of striking a balance on the funding sources as this provides an assurance of a firm's greater value and shareholders' interests being fully taken care of. On the other hand, financial performance is regarded as firm's achievement of profitability and efficiency in diverse operational situations (Pike and Rose). According to (Bititcie et al., (2007) financial performance which is measured by liquidity, profitability and loan portfolio has gained acceptance among scholars as a generally acceptable measure of a firm's strength

This study was anchored on three theories namely trade off theory, pecking order theory and agency theory. Trade off theory maintains an optimum level is achieved by using borrowed funds up to a level of balance between costs of insolvency and advantages resulting from the use of debt (Kraus & Litzenberger, 1973). Similarly using debt in a firm may result to both costs of bankruptcy and tax advantages depending on how much debt is used (Fama & French 2002). In accordance with Pecking Order Theory, a firm maintains a sequence in funding its operations and normally like to use own sources of funds which it has generated internally because it is cheap to do so compared to borrowing from outside (Myers & Majluf, 1984). On the other side, Agency Theory argues the presence of an agency association between holders of debt and equity as principals on one side and the firm management as the agents on the other which leads to agency costs. Therefore, a firm's

performance is better of when these costs of agency are kept at the lowest point possible which results to firm value (Jensen & Meckling, 1976).

Microfinance Industry in Kenya is made up of over 250 Microfinance Institutions (MFIs). Out of the 250, only 54 are registered. The Association of Microfinance Institutions (AMFIs) which is the body that is responsible for MFIs is made up of 36 providers of credit, 11 microfinance banks, 3 wholesale microfinance institutions, 2 commercial banks, 1 development organization and 1 Sacco. Out of the 54 MFIs is a list of 13 DTMIs given license by CBK to take deposits out of which 4 are operating in the county of Mombasa. Mombasa county has experienced a decline in activities due to the introduction of standard gage railway which has seen more firms relocating to Nairobi which has led to decline in customer deposits of financial institutions operating in the region. Since DTMIs play a key role in the intermediation process, there is need to evaluate their performance in relation to the mixture of its funding sources which will ensure depositors' fund are protected in times of financial crisis. To achieve this the Central bank of Kenya requires such DTMIs to maintain capital adequacy ratios which goes hand in hand in ensuring stability in the financial sector.

1.1.1 Capital Structure

Capital structure can be said to be composition of various types of funds which a firm can issue for financing (Niu, 2008). Capital structure came to scholars' limelight after Modigliani and Miller (1958) seminal paper. This paper made a major assumption that firms operate in perfect markets hence finding no impact in the mixture of funding sources in value determination. After realizing non-existence of perfect markets in real life, Modigliani and Miller (1958) made an improvement to their earlier paper by incorporating the tax element and found that decisions revolving around mixture of funding sources greatly impact firm value (Modigliani & Miller, 1963). Thus a firm which uses debt is regarded to be of high value than unlevered firm. However, according to (Jensen and Meckling, 1976), how firms decide to combine debt and equity may result to monitoring costs (agency costs) hence ultimately affecting a firm's riskiness. Therefore, in its quest

for value maximization, it is imperative to balance the mix of debt and equity as noted by Ross et al., (2009)

Gearing ratios which shows the owners and creditors capital contribution are key indicators of capital structure concerned with debt amount and a firms' capability to meet their legal obligation. These ratios deal with the capability of firms in meeting the capital costs resulting from use of funds generated from outside sources. It's imperative to note that the industrial sector of operation has a great role in influencing how managers make decisions on how to combine debt and equity which ultimately affects capital structure (Myers & Majluf, 1984). Hence the industry of operation as argued by Booth et al., (2001) influences assets types a firm will have leading to determination on the level of debt that firm should hold. In this regard a firm which has a lot of current assets like DTMI's will portray positive effects than one with more fixed assets (Panno, 2003). Of great importance therefore is the capability of a firm to properly manage assets taking into account its industry of operation. The proportion of fixed and current assets has a great influence on the funding sources which eventually affects market value as argued by Ross et al., (2009).

1.1.2 Financial Performance

Capability in portraying efficiency in different operational environments and be profitable is said to be a firm's better performance (Pike & Roos, 2004). Because of the ability to make comparisons between firms and reporting periods, financial performance has received wide acceptance among scholars (Bititci et al., 2007). Ideally in the case of a financial institution, performance measurement is based on aspects of liquidity, profitability and loan portfolio. Liquidity enables a firm to settle its short-term debts when they arise and it's important because of the unforeseen and instants demands in payment. Profitability is key in firm success as it involves achievement of other goals (Samiloglu & Demirgunes 2008). On the other hand, loan portfolio is the money given out to borrowers as loans and is critical to financial institutions because it involves management of loans.

In accordance to Alexandru et al., (2008) the major measure of performance comprise of return on assets, return on equity and net interest margin. Accordingly, Gul et al., (2011) views NIM as proportion of net revenues to total revenues. It indicates banks efficiency in the process of intermediation (Khrawish, 2011). However, Shareholders are more interested in equity returns because of efficient use of funds to generate revenue. On the other hand, Return On Assets indicates good use of assets for revenue generation. (Khrawish, 2011). According to Wen, (2010) a more efficient firm in resource mobilization will have its level of ROA being high.

1.1.3 Capital Structure and Financial Performance

Discussion on types of funding sources in determination of a firm's strength has stood high after the study of Modigliani and Miller (1958) seminal paper. Conversely, in imperfect markets being an ideal scenario, capital structure is critical in playing a key role in firm value addition. Scholars have differed on the critical role played by the mixture of funds value addition. In accordance with Trade Off Theory, firm maximization occurs where costs associated with insolvency equal debt benefits. In respect to Pecking Order Theory, firms desire funding from own sources compared to outside sources. Accordingly, Jensen and Meckling, (1976) affirmed agency relation results in costs as such an optimal point is arrived at when these costs are lowest.

Research conducted reveal that a mixture of funds and financial health of a firm have a direct association. For example, debt provides an encouragement to managers in making better investment decisions (Myers,1977). Increase in debt cuts down agency costs leading to high performance. Similarly, a firm where debt level is high, result in lower agency costs leading to high performance (Grossman & Hart, 1982). Although at early phases debt use decreases agency costs, excessive use of it results in financial distress leading to adverse results. This concurs with the study results of Kester (1986) for Japan and USA firms where he found capital structure being inversely related to performance.

1.1.4 Deposit Taking Microfinance Institutions in Mombasa County

The publication of AMFI (2018) sector report, revealed that Microfinance industry is composed of about 250 Microfinance Institutions (MFIs) where 54 are registered. Included in the list of 54 MFIs are three (3) wholesale MFIs, one (1) development bank, one (1) SACCO, thirty-six (36) providers of credit, eleven (11) MFI banks and two (2) commercial banks. Out of 54 MFIs registered, 13 have been given licenses by Central Bank of Kenya (CBK) which allows them to take deposits from the public. Mombasa county being the context of this study has only 4 licensed MFIs with active branches. An Act of parliament commonly known as Microfinance Act of 2006 gave rise to DTMIs

To ensure stability CBK normally regulates DTMIs. By end of December 2018 there were 13 DTMIs licensed by the CBK with only 4 which are Rafiki, Kenya Women, SMEP and Faulu having operational branches in Mombasa County. DTMIs reported 303,675 loans with 26.4 billion shillings being the portfolio outstanding. Of the 26.4 portfolio which was outstanding, 16.9 were performing while 9.5 were non performing which was according to AMFI, (2018) report

1.2 Research Problem

Choices surrounding the mixture of funding sources are critical in determining financial strength of firms. Capital structure plays a critical role by developing key macroeconomic factors such as inflation, developing markets, overall growth of an economy as argued by Booth et al. (2001). It is also key on a micro level by enabling investment goals. Even though no consensus exists on the ideal capital structure, Gitman, (2002) maintains that an optimal point is achieved wherever Weighted Average Cost of Capital is at lower most point. Anthony (2007) noted that use of debt improves financial performance while Dawar (2014) observed that excessive debt leads to adverse effects on performance. It is therefore important to establish to what degree does the use of various sources of funds influence firm performance.

It is a key requirement that Deposit Taking Microfinance Institutions (DTMIs) adhere to key Central Bank of Kenya requirements in their operations and statutory requirements which are mandated to adhere to adequate capital requirements. Over the years however, DTMIs have shown negative growth due to such stringent measures which is a discouragement to investors. CBK reports since the year 2011 have indicated negative performance for most DTMIs. These stringent measures by the CBK and the recent decline in activities in Mombasa county due to the introduction of standard gauge railway which has seen more firms relocate to Nairobi has led to decline in customer deposits thus worsening the situation hence the need to evaluate their performance.

Nadeem and Zongjun (2013) found an inverse association between ROA and performance of listed Pakistan firms due to high debt levels which negatively affected projects' present values. Likewise, Dawar, (2014) in a study of Indian firms observed that huge debt use had adversely affected performance due to interest and principal repayments. Similarly, Joshua (2007) in his research of South African and Ghanaian firms found a similar inverse association. Contrary Anthony (2007) reasoned that debt use below optimal point for a sample of Ghanaian firms helped deal with adverse and moral hazard problems leading to positive performance. Similar findings were recorded by Ben and Oino (2014) by concluding that banks which used high debt in Nigeria reported huge profits. Nyamora (2012) concur with the above positive results for commercial banks in Kenya. Monyi (2017) reported similar findings in her study of DTMIs in Kenya.

From the above studies, consensus among scholars on how the mix of different funding sources affects the firm's financial health has not been reached with some pointing a negative influence while others concluding a positive association. In spite of the several research work, there is limited evidence on the perspective of the county of Mombasa. This is the research gap the current study sought to fill by answering the following research question: What is the effect of capital structure on financial performance of deposit taking microfinance institutions in Mombasa county?

1.3 Research Objective

To determine the effect of capital structure on financial performance of deposit taking microfinance institutions in Mombasa county.

1.4 Value of the Study

Financial policy makers will use these study findings in legislative reforms with a view of streamlining the sector. CBK being the regulatory body will use this study to leverage DTMIs on stiff rules among them capital requirements imposed which have proved to be hurting the sector. The government of Kenya will use these study findings for making financial sector improvement which is important to the country's economic growth.

The study results will aid in broadening the present knowledge base and also identify areas which needs further research. Scholars will use this study to develop knowledge as it will identify key areas which requires improvement with the aim of managing strategic decisions which are key to planning and provision of improved knowledge on capital structure decisions.

Financial institutions will make decisions based on this study with a view of improving financial performance. Since DTMIs have experienced declining growth as a result of present-day regulations such as the interest rate capping which has drastically reduced retained earnings, it is important to highlight that, this study will assist in analyzing the composition of mixture of funds as a result on these changes.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This part focuses on an assessment of main study variables which were considered in the study. The assessment involved evaluation of key theories used and an analysis of empirical studies done.

2.2 Theoretical Review

This part focuses on the key theories considered of great importance in understanding the concept of capital structure. It's vital to point out that decisions regarding capital structure are critical as they inform what ratio of equity and debt to be used. Therefore, this research was anchored on Trade off theory, followed by an analysis of Pecking Order theory, and lastly an evaluation of agency Theory.

2.2.1 Trade off Theory

This theory was initially advocated by Kraus and Litzenberger (1973). It argues firm value maximization occurs where tax benefits and costs of bankruptcy are equal. To reach this point, a firm has to borrow until an equilibrium point is achieved (Kraus & Litzenberger, 1973). The intersection point mainly arises due to the obligation to pay principal and interest amounts periodically (Modigliani & Miller, 1963). Likewise, Myers and Majluf, (1984) argue that this optimal point occurs when tax benefits and bankruptcy costs are equal.

This theory is of importance to a firm in deciding how much debt to use in making sure it enjoys advantages of debt while minimizing bankruptcy costs. It views a more profitable firm being better off using debt to finance its operations as the high income arising thereof will act as a shield. Therefore, since the optimal point is where firm performance is maximized, a firm should strive to make sure that this point is achieved as it will result in positive influence.

2.2.2 Pecking Order Theory

This theory was proposed by Myers & Majluf, (1984). It views a firm as having preferences in financing and normally like financing using own sources which are generated internally because it is cheaper to do so and will only use finances from outside after the internal sources have been exhausted (Myers & Majluf, 1984). A firm will only resort to external finances after using its all own generated revenue with debt being given higher preference than equity because of the tax advantages. A part from the tax benefits, high preference of debt is because of imbalance in information with managers having more knowledge on firm's investment which leads of undervaluation of issue of equity (Myers & Majluf, 1984).

This theory is of importance to a firm because it aids in strategic capital structure decisions by having a hierarchy in financing based on costs and benefits This makes sure a firm exhausts its own sources which are cheap before resorting to outside sources preferring debt due to tax benefits compared to equity. Therefore, a more profitable firm is associated with high levels of retained earnings which it can use to finance its operations before going for debt thus avoiding the risk of financial distress. Additionally, to avoid overvaluation of shares a firm will make sure it uses equity finance as a matter of last resort as argued by Myers & Majluf, (1984).

2.2.3 Agency Theory

This theory was advocated by Jensen and Meckling (1976). It argues a firm incurs agency costs because of the relationship that exists. These costs are twofold; those associated with equity holders on one side and those associated on bond holders on the other. Since a firm's objective is to minimize cost, its optimal level therefore is at a point where the sum of all a costs are at minimum (Jensen & Meckling, 1976). These agency costs as noted by Stulz (1990) are due to information asymmetry. Debt influence can either result into a decline or a rise in agency costs depending on the levels used as per the argument of Jensen & Meckling, (1976)

The importance of agency theory is seen by firms' action to use debt which has an inverse relationship with agency costs leading to better performance which also helps managers to better consider shareholders' interests (Myers, 1977). These findings were validated by the findings of Margaritis and Psillaki (2010) where high debt use led to better performance. Conversely, high debt may result in cash outflow due to future interest and principal commitments resulting in bankruptcy. In this regard Jensen and Meckling (1976) agrees with this statement by maintaining that even though managers enjoy incentives of low debt, excessive use of it leads to adverse results of projects' Net Present Values (NPV) which negatively affects performance of firms. Similarly, Rao et al. (2007) agrees with this adverse relationship associated with high borrowing costs.

2.3 Determinants of Financial Performance

Firms capability to achieve profitability, efficiency and be able to endure diverse operational situations in their quest for revenue generation are what determines its performance. Financial performance determinants in this study were computed using ratios debt, total capital, core capital, and calculation of firm size.

2.3.1 Firm's Capital Structure

Capital structure is said as a composition of equity and debt a firm can issue for financing (Niu, 2008). Debt can be said as a liability where a firm borrows funds from outside sources with a commitment of repaying the principal and interest at a later date (Stephen, 2004). Debt impact can either be positive where it supports firm's competitive strategies or negative when used beyond certain levels where such competitiveness cannot be supported. Taub (1975) argued that when low debt levels are used, a firm will enjoy improved performance as more debt used due to the benefits interest tax shield until an optimal point is reached where tax benefits and bankruptcy costs are equal. When the optimal point is reached, any additional debt increases financial distress cost eroding the benefits gained from tax shield which ultimately leads to negative performance as argued by Nadeem and Zongjun (2013) in a study of Pakistan companies, where they found that that high debt financing leads to negative performance.

On the other hand, equity can be said as a contribution of shares by owners to the firm. It's obtained by taking total assets less total liabilities (Stephen, 2004). Profitable businesses are able to retain much inform of retained earnings hence are able to use high levels of equity finance compared to less profitable firms. Failure to guarantee future generation of cash leads to uncertainty due to failure to make crucial decisions regarding capital structure with firms declining due to increase in uncertainty (Zhu & Wang, 2013). Likewise, Oke and Afolabi (2011) concur with these findings by concluding that equity finance had adverse effects on performance. On the other hand, Ganka, (2010) reasons on the contrary by noting in his research findings that since equity as a source of finance is cheap, its positively related to performance. In trying to find out how a mixture of funding sources affected financial health on MFIs in Nakuru town, Waweru and Wanyoike (2016), found leverage had a positive an influence on profitability while equity finance did not show any influence on performance.

2.3.2 Core Capital

For depositor's protection, it is a requirement that Deposit Taking Microfinance Institutions adhere to minimum capital requirements known as core capital which prevents DTMI's from collapsing during financial crisis. Financial institutions can have more core capital than that required by the CBK which enhances its profitability and can survive market shocks. (CBK, 2014). Similar findings were observed by Mathuva (2009) where he found that high level of core capital helps financial institutions to issue more loans hence increasing profitability.

2.3.3 Total Capital

Besides the core capital requirement, a firm maintains other sources of capital. Therefore, the summation of the core capital and all other sources of capital maintained by the firm makes up the total capital (Jokipii & Milne, 2011). It is common practice to have financial institutions maintain their high level of total capital while those whose levels are low will look for measures to raise their existing capital. High capital levels are linked with the strength of banks leading to improved performance (Rime, 2001). Laeven and Levine (2009) records similar findings where banks improved performance.

2.3.4 Size of the Firm

Firm size is of great importance in determination of firm's strength. In accordance with Smith and Warner, (1979) large firms are less prone to insolvency because of the element of diversification and can also use more debt unlike smaller ones. Consequently, the smaller the firm the more the risk of lending to it due to high chances of bankruptcy. On the other part, Marsh (1982) points out that small firms normally depend on loans due to restricted access to equity which informs their heavy reliance on debt. According to Serrasquiro (2011), it's obtained by getting natural log of summation of all assets

2.4 Literature Review

Nadeem and Zongjun (2013) studied on how mixture of funding sources influences performance of Pakistan firms from 2004 to 2009. The research indicated that high debt led to adverse effect on ROA which ultimately leads a decline in firm performance. This observation concurs with Jensen and Meckling (1976) where they noted that high levels of debt leads to financial distress costs resulting to adverse firm performance. Similarly, this finding complies with tradeoff theory where debt usage beyond the optimum point leads to negative performance.

Anthony (2007) researched on how various sources of funds influence performance of MFIs in Ghana. The study covered 10 years from 1995 – 2004. According to the research findings, huge debt levels helps to reach many clients resulting in economies of scale, resulting to greater firm strength.

Joshua (2007) researched on debt policies and financial strength of SMEs where the scope of the study involved 160 sampled SMEs from Ghana and 200 South Africa from 1998 – 2003. The researcher used ROA and gross interest margin to measure performance. The research results revealed that when debt levels are high, performance tend to be adversely affected.

Dawar (2014) studied the association between agency theory and a mixture of funding sources of Indian firms. The objective was to establish how leverage and financial strength

for from the year 2003 to the year 2012 were related. The research found that high levels of debt adversely affected the strength of firms.

Nyamora (2012) studied the determinants of mixture of funding sources on Kenyan banks where inferential research design was used and established direct association between mixture of funding sources and profitability. However, corporate tax, size, bank risk and growth had an inverse association with a mixture of its funding sources. The researcher further concluded that corporate tax, size, bank risk, growth and asset structure are the key variable that affect banks capital structure.

Monyi (2017) researched on what determined the strength of DTMIs in Kenya from 2013 to 2014. The study used both longitudinal and descriptive research design and found high performance of DTMIS being associated with high leverage

2.4 Summary of Literature Review and Research Gap

Several scholars have put across theories on mixture of fund's sources and the financial strength of firms. Trade off theory maintains an optimum point is achieved by borrowing up to a point where insolvency costs and debt benefits are equal while for agency theory an optimal point is achieved where the sum of all agency cost are at the lowest point. In accordance to pecking order theory a firm prefer own sources of funds to borrowed funds hence this theory does not conclude an optimal point. In contract, the literature review shows conflicting findings with some scholars pointing a positive relationship (Antony 2007 and Nyamora 2012) while others presented a negative relationship (Nadeem and Zongjun, 2013). However, the finding of these studies are too general and cannot be generalized a for an emerging market like Mombasa county which has been experiencing a decline in the business activities with most clearing firms which form the major customers of DTMIs in the region closing down operations which has affected the strength of these financial institutions. Its therefore important that this gap be filled with accurate and current data hence the study sought to find out how a firm's mix of funding sources impacts financial health of DTMIs operating in the county of Mombasa.

Figure 2.1 Conceptual Framework

Independent Variable

Firms Capital Structure
Proportion of Debt

Proportion of Core Capital
Core capital to risk weighted assets

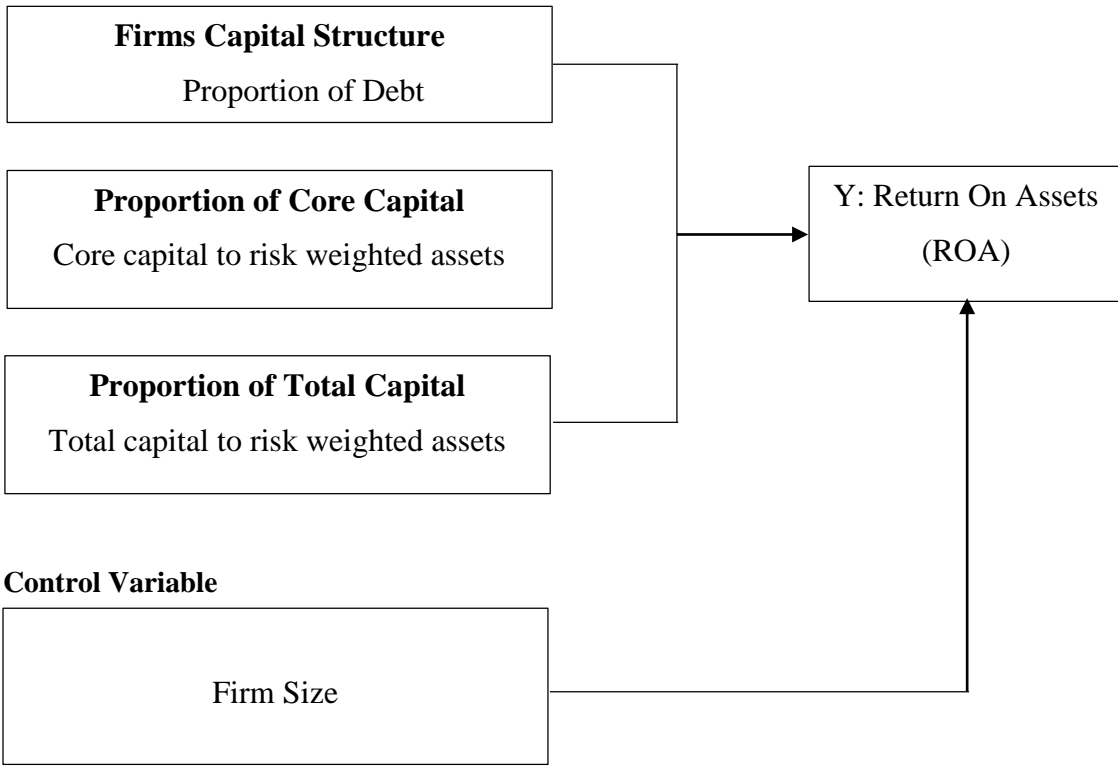
Proportion of Total Capital
Total capital to risk weighted assets

Control Variable

Firm Size

Dependent Variable

Y: Return On Assets
(ROA)



CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This part offers in depth analysis on the research design used, group of objects, tools employed to collect and analyze data and the regression model used which was key in providing a description of the variables.

3.2 Research Design

A research design is said to be a blue print used in carrying out the study as noted by (Kothari, 2008) in his research work. Coopers & Schindler, (2011) regards it as a way of answering several study questions. This research made use of correlation design which aided in getting the need to describe how the variables under consideration relate. It was therefore important in unfolding how financial performance and a mixture of funding sources for DTMI relate.

3.3 Target Population

Study population is said to be a grouping of items, persons or events which are of interest to a researcher and which have a shared characteristic which can be observed (Mugenda & Mugenda. The study population comprised a collection of all DTMI in the county of Mombasa. AMFI (2018) report gave a total of 4 DTMI operating in Mombasa County. Therefore, this research studied all 4 DTMI thus making the study a census.

3.5 Data Collection

In order to guarantee achievement of impartiality, data from secondary sources was employed for ten (10) years from year 2009 to year 2018. Data was collected from yearly reports issued by CBK and from websites of the respective DTMI.

3.6 Data Analysis

Regression method was used. Further Financial performance signified by ROA was expressed as a function of four key sub variables which are proportion of debt, proportion of core capital, proportion of total capital and firm size

3.6.1 Analytical Model

Multiple regression was used in this study because of the need to predict financial performance signified by ROA based on proportion of debt, proportion of core capital, proportion of total capital and the firm size.

The regression model was of the form

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where;

Y: Financial performance was measured by ROA

β_0 : Represents a factor that affects firm's performance without considering independent variables

β_1 , β_2 , and β_3 are constants of the independents

X₁: Proportion of firm's debt in the capital structure

X₂: Proportion of core capital

X₃: Proportion of total capital

X₄: Firm size

ε : Constant Error

3.6.2 Test of Significance

For overall model significance, correlation coefficient (R) was used which assisted in checking the magnitude and direction of change between a mixture of various funding sources and financial strength while coefficient of determination (R²) showed the degree in which deviations in financial strength were caused by the changes in proportions of debt, core capital, total capital and firm size.

3.6.3 Diagnostic Test

This study used linearity, autocorrelation and multicollinearity to test how a mixture of funding sources was related to financial strength. Linearity test revealed how the mixture of funding sources and financial strength were functionally related which was acquired using F-statistics in ANOVA. Autocorrelation was tested using Durbin Watson statistic

Multicollinearity which occurs at a point where linear relationship between two or more predictor variables exists was verified using Value Inflation Factor (VIF)

3.6.2 Operationalization of Variables

Return On Assets (Y) measured financial performance while capital structure as the predictor variable comprised of 4 sub variables which are proportion of debt (X_1), proportion of core capital (X_2), proportion of total capital (X_3) and firm size (X_4). By description proportion of total debt (X_1) considered debts of different maturity periods. According to the guidelines issued by CBK X_2 and X_3 signifies proportion of capital adequacy used by CBK in regulating DTMIs. Firm size (X_4) was the control variable calculated by computing the natural log of summation of all assets

Figure 3.1 Variable Operationalization

Variable	How the variable was measured	Supporting Literature
Y: ROA	Net revenue to total assets	Gul et al., (2011)
X_1 : Proportion of debt	Total debt to total capital structure	Taub (1975)
X_2 : Proportion of core capital	Core capital to risk weighted assets	Muthuva (2009)
X_3 : Proportion of Total Capital	Total capital to risk weighted assets	Jokipii & Milne (2011)
X_4 : Firm Size	Natural Log of total Assets	Serrasquiro (2011)

CHAPTER FOUR: DATA FINDINGS, ANALYSIS AND DISCUSSIONS

4.1 Introduction

Key focus of this part is presentation of data findings, the examination done and discussions aimed at determining how a mixture of a firm’s funding sources influences its financial strength.

4.2 Diagnostic Tests

This study used linearity, autocorrelation and multi collinearity to examine the association between different funding sources and financial strength.

4.2.1 Linearity

Linearity test shows the functional relationship between two variables which was acquired using F-statistics in ANOVA as follows

Table 4.1 Analysis of Variance

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	.001	4	.000	1.609	.194 ^b
Residual	.004	35	.000		
Total	.004	39			

Dependent Variable: ROA

Independents: (Constant), Firm Size, Proportion of Debt, Proportion of core capital and Proportion of Total Capital

Table 4.1 indicate predator variables are not significant in forecasting (ROA) as shown by the significant level of 0 .194 which is more than 0.05. This means that changes in financial performance cannot significantly be explained by changes in proportion of debt, proportion of core capital, proportion of total capital and the firm size.

4.2.2 Autocorrelation

Autocorrelation was tested using Durbin Watson. The values are as follows

Table 4.2 Autocorrelation Analysis

Model	Durbin-Watson
1	.867

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.000271	.015276	.007750	.0040679	40
Residual	-.0143382	.0414074	.0000000	.0094873	40
Std. Predicted Value	-1.838	1.850	.000	1.000	40
Std. Residual	-1.432	4.135	.000	.947	40

Dependent variable: ROA

Table 4.2 indicates a Durbin Watson value of 0.867 which lies between the minimum and maximum standard deviation of -1.432 and 4.135 respectively an indication of linearity.

4.2.3 Multicollinearity

The values of Variance Inflation Factor (VIF) used to test multicollinearity are as indicated.

Table 4.3 Variance Inflation Factor

Model	Collinearity Statistics	
	Tolerance	VIF
1 (Constant)		
Proportion of Debt	.532	1.881
Proportion of Core Capital	.030	33.379
Proportion of Total Capital	.029	35.045
Firm Size	.497	2.011

Table 4.3 above indicate a Variance Inflation factor of 1.881 for proportion of debt, 33.379 for proportion of core capital, 35.045 for proportion of total capital and 2.011 for firm size. Proportion of debt and firm size are not linearly related since the values of VIF are below 5. However, there exists linear connection between proportion of core capital and proportion of total capital as portrayed by their VIF values being more than 5

4.3 Descriptive Statistics

Table 4.4 Descriptive Analysis Results

	Mean	Std. Deviation	N
ROA	.007750	.0103227	40
Proportion of Debt	.787330	.1396932	40
Proportion of Core Capital	.238820	.2397800	40
Proportion of Total Capital	.280688	.2238572	40
Firm Size	22.556083	1.2687330	40

Table 4.4 indicates ROA of 0.0077 and 0.0103 for mean and standard deviation respectively. This is an indication that data is clustered around the mean. The same applies to proportion of debt, proportion of core capital, proportion of total capital and firm size

with standard deviation of 0.1397, 0.2398, 0.2239 and 1.2687 whose mean are 0.7873, 0.2388, 0.2807 and 22.5561 respectively.

4.4 Coefficient Analysis

Table 4.5 Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	-.026	.041		-.637	.528	-.109	.057
Proportion of Debt	-.028	.016	-.375	-1.759	.087	-.060	.004
Proportion of Core Capital	.012	.039	.271	.302	.764	-.067	.090
Proportion of Total Capital	-.017	.042	-.368	-.400	.692	-.103	.069
Firm Size	.003	.002	.313	1.423	.164	-.001	.006

Dependent Variable: ROA

The regression model used to establish how financial performance related to proportion of debt, proportion core capital, proportion of total capital and firm size was of the form

$$Y = -0.026 - 0.028x_1 + 0.012x_2 - 0.017x_3 + 0.003x_4 + \varepsilon$$

The regression coefficients reveal that when the debt proportion, proportion of core capital, proportion of total capital and firm size is zero, then financial performance (β_0) is -0.026. The model further indicates that, a unit rise in proportion of debt, decreases ROA by -0.028 units, a unit rise in proportion of core capital increase ROA by 0.012 units and a unit rise

in proportion of total capital decreases ROA by -0.017. Firm size was positively associated to financial strength since a unit change in firm size increases ROA by 0.003

4.5 Regression Analysis

Table 4.6 Regression Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.394 ^a	.155	.059	.0100148	.155	1.609	4	35	.194

The correlation coefficient (R) of 0.394 shown in table 4.6 indicates a weak positive association between financial strength and all the variables considered in the study. Coefficient of determination (R^2) of 0.155 reveal 15.5% of the deviations in financial strength can be attributed by debt proportion, proportion of core capital, proportion of total capital and firm size while 84.5 % can be attributed by other factors not incorporated in the model.

4.6 Correlation Analysis

Table 4.7 Correlation Analysis

		ROA	Proportion of Debt	Proportion of Core Capital	Proportion of Total Capital	Firm Size
ROA	Pearson Correlation	1				
	Sig. (1-tailed)					
	N	40				
Proportion of Debt	Pearson Correlation	-0.186	1			
	Sig. (1-tailed)	0.126				
	N	40	40			
Proportion of Core Capital	Pearson Correlation	-0.220	-0.194	1		
	Sig. (1-tailed)	0.086	0.115			
	N	40	40	40		
Proportion of Total Capital	Pearson Correlation	-0.193	-0.324	0.976	1	
	Sig. (1-tailed)	0.116	0.021	0.000		
	N	40	40	40	40	
Firm Size	Pearson Correlation	0.238	0.391	-0.656	-0.677	1
	Sig. (1-tailed)	0.07	0.006	0.000	0.000	
	N	40	40	40	40	40

Table 4.7 indicates a weak negative correlation of -0.186 between ROA and proportion of debt being insignificant with P value of 0.126. This applies to proportion of core capital with correlation of -0.220 and P value of 0.086. There was also a weak negative correlation of -0.193 between ROA and proportion of total capital with P value was 0.116 being greater than 0.005 therefore not significant. However, there was a weak positive association of 0.238 with firm size which was also non-significant having a P value of 0.07

4.7 Discussion of Findings

The summary model indicated a weak positive association between a mixture of funding sources and financial strength with only 15.5% of the changes in financial strength being influenced by mixture of funding sources while 84.5% were caused by factors not included in the model which can be attributed to the capital regulation by CBK. Multicollinearity indicated that proportion of debt and firm size being the independent variable were not correlated since the variable had VIF values below five. However, there existed linear

connection between proportion of core capital and proportion of total capital. Durbin Watson showed the existence of linear relationship between ROA and proportion of debt, proportion of core capital, proportion of total capital and firm size. However, the model had a P value of greater than 5% which is insignificant in prediction

The study showed an adverse association between proportion of debt and financial performance. This shows an additional unit of debt financing decreases the financial performance by -0.028. This results concur with that of Nadeem and Zongjun (2013) where any additional debt beyond the optimal point increases financial distress cost eroding the benefits gained from tax shield which ultimately leads to negative performance. The proportion total capital was seen to have a negative relation with financial performance where any unit change led to a decline in financial performance by -0.017. However, proportion of core capital and firm size had positive effect with a unit change increasing financial performance by 0.012 and 0.003 respectively

CHAPTER FIVE: SUMMARY CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Key focus of this part is an outline of study findings, conclusion and areas where more research work can be done.

5.2 Summary Findings

Regression coefficients of proportion of debt, core capital and total capital were -0.028, 0.012 and -0.017 respectively while firm size had a coefficient of 0.003. Using this coefficients, the model was $Y = -0.026 - 0.028x_1 + 0.012x_2 - 0.017x_3 + 0.003x_4 + \epsilon$. This shows that B_0 (the financial performance, when proportion of debt, proportion of core capital, proportion of total capital and firm size were rated zero) is equal to -0.026

5.2.1 Effect of Proportion of Debt on Financial Performance of DTMI

Regression model revealed proportion of debt had coefficient of -0.028. This shows that any additional unit of debt beyond optimal level will erode tax benefits of debt leading to a decline in the financial strength of DTMI. This connection was negatively associated with coefficient of -0.186 being insignificant. The proportion of debt also had a Variance Inflation Factor (VIF) of 1.881 indicating the absence of multi collinearity with proportion of total capital and firm size

5.2.2 Effect of Proportion of Core Capital on Financial Performance of DTMI

From the regression model, proportion core capital had a coefficient of 0.012 showing a positive effect with performance. The association was negatively related having a weak correlation coefficient of -0.220 being insignificant having a P value of 0.086 being more than 0.05. The VIF had a value of 33.379 indicating the presence of multi collinearity

5.2.3 Effect of Proportion of Total Capital on Financial Performance of DTMI

From the regression model, proportion total capital had a coefficient of -0.017. This shows that any additional capital requirement by the CBK decreases in the financial strength of DTMI due to bankruptcy costs. The association was negatively related having a weak correlation coefficient of -0.193 being insignificant having a P value of 0.116 being more than 0.05. The VIF had a value of 35.045 indicating the presence of multi collinearity

5.2.4 Effect of Firm Size on Financial Performance of DTMI

To avoid outliers arising from large value differentials, firm size was measured using natural log. From the regression model, coefficient of firm size was 0.003. This showed that when firm size increases by one-unit financial performance also rises by 0.003 units. However, this increase would be weak as shown by the correlation coefficient of 0.238. This variable had a P value of 0.07 and indication of non-significant. The diagnostic test revealed the nascence of a linear relationship between firm size an all other independent variable as shown by the VIF value of 2.011 being less than five

5.3 Conclusion

It can be established that a mixture of funding sources had an effect on financial strength. It was found that a unit rise in proportion of debt leads to a decline in ROA by -0.028 with a weak negative correlation coefficient of -0.186. It is therefore important for DTMI to balance proportion of debt since any additional unit of borrowed funds past optimum level will erode tax benefits of debt leading to bankruptcy.

Proportion of core capital had a coefficient of 0.012 indicating that when a DTMI increases its core capital, performance is enhanced. Proportion of total capital had a weak negative correlation of -0.193 with a unit capital requirement by the CBK resulting to a decline of -0.017 in ROA. From the three independent variables considered, only firm size was positively related with a value of 0.238. As such DTMI should endeavor to increase asset base which determines its size as a unit increase influences ROA positively

5.4 Recommendations

Deposit Taking Microfinance Institutions should strike a balance on proportion of debt. Although debt results in tax benefits, DTMIs should strike a balance benefits and costs of debt arising thereof. The strict capital requirements by the CBK was seen to negatively affect performance of DTMIs such measures the CBK may consider reviewing these measures so as to enhance performance of DTMIs to serve the poor better.

5.5 Suggestions for Further Research

Return on assets was used to measure financial strength because it indicated how good firm assets are used for revenue generation. However, further studies can be done based on other performance measures like Return On Equity which shows the efficient use of shareholders' funds to generate revenue. Another financial performance measure which can be considered for research is Net Interest Margin as this indicate the efficiency of a financial institution in the process of intermediation. The study used a correlation research design for ten-year period from 2009 to 2018. Therefore, this study can be replicated using a different methodology and covering a longer period like twenty years.

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APPENDIX: DTMI's OPERATING IN MOMBASA COUNTY

1	Faulu Microfinance Bank Limited
2	Kenya Women Microfinance Bank Limited
3	Rafiki Microfinance Bank Limited
4	SMEP Microfinance Bank Limited