DETERMINANTS OF FINANCIAL PERFORMANCE OF DEPOSIT TAKING MICROFINANCE INSTITUTIONS IN KENYA

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Determinants of Financial Performance of Deposit Taking Microfinance Institutions in Kenya

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

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This thesis has been submitted for examination with our approval as University Supervisors.

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DEDICATION

This thesis is dedicated to my late mum Teresia Muthike; "You wanted the best for me your only daughter but you never lived long enough to see the fruits of your hard work. May God rest your soul in eternal peace." I also dedicate it to my late husband Felix Musyoki; "You were my strongest pillar in pursuing my academic ambitions and although parted physically, emotionally we remain bound together. May you rest in eternal peace. "To my two sons; Duncan and Emmanuel; "May you live to achieve more in life and aspire to be the most God fearing men on earth."

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TABLE OF CONTENTS

LIST OF TABLES

xiii

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS

ANOVA	Analysis of Variance
AMFI	Association of Microfinance Institutions in Kenya
CBK	Central Bank of Kenya
CCDR	Core Capital-to-Deposit Ratio
CGAP	Consultative Group to Assist the Poor
CPI	Consumer Price Index
DER	Debt-to-Equity Ratio
DFL	Degree of Financial Leverage
DTM	Deposit Taking Microfinance
DTMIs	Deposit Taking Microfinance Institutions
EBIT	Earnings Before Interest & Tax
EPS	Earnings per share
EUR	Euro
FLR	Financial Leverage Ratio
FSD	Financial Sector Deepening
KES	Kenya shillings
LDR	Loan-to-Deposit Ratio

MFB	Microfinance Bank
MFI	Microfinance Institution
MFR	Microfinance Rating
MM	Modigliani Miller
MS	Market Share
NABARD	National Bank for Agriculture and Rural Development
NNPLS	Net-non-performing loans
P/E	Price /Earnings Ratio
PAR	Portfolio at Risk
P-P	Probability-Probability, Percent-Percent
Q-Q	Quintile-Quintile
ROA	Return on Assets
ROE	Return on Equity
ROI	Return on Investment
ROSCA	Rotating Saving and Credit Associations
SACCOs	Savings and Credit Co-Operatives
SPSS	Statistical Package for Social Scientists
SIDBI	Small Industries Development Bank of India

SMEs   Small and Medium Enterprises

TRWA   Total Risk Weighted Assets

USD   US Dollar

DEFINITION OF TERMS

Capital Structure; A mix of a company's long term debt, specific short term debt, common equity and preferred equity. (Shim & Siegel, 2008)

Deposit Taking Microfinance institutions; those that provide financial services including taking deposits from the low income households and micro and small enterprises (MSEs), providing an enormous potential to support the economics of the poor and thus contribute to poverty alleviation.(Yunus, 2007; Sengupta & Aubuchon, 2008)

Financial leverage; the portion of firm's asset financed with debt instead of equity (Shim & Siegel, 2008)

Financial Performance; measure of how well firm use assets from its primary mode of business to generate revenues. It measures the financial health of an organization. The common indicators of financial performance are; profits, return on investment, return on assets, value added and margins among others. Financial performance guides management on the strategies and policies to adopt to improve sustainability of the organization (Almazari, 2011).

Non-performing loans; these are loans advanced that show weaknesses in payments or total failure in payment that might bring loss to the microfinance lending them. (Kashyap, Rajan & Stein, 2002).

Portfolio at risk; it's a standard international measure of portfolio quality that measures the portion of a loan portfolio which is deemed to be at risk because payment has not been done. (CBK (2014), Annual financial supervision report. Central Bank of Kenya)

ABSTRACT

Financial performance of an institution determines its outreach and depth in service provision. The purpose of this thesis was to study the determinants of financial performance of Deposit Taking Microfinance Institutions (DTMIs) in Nairobi City County, Kenya. The specific objectives of the study were; to assess the effect of Financial Leverage, Non-performing Loans, Capital Structure, and Market Structure on financial performance of DTMIs in Nairobi City County in Kenya. A mixed research design was used employing explanatory, descriptive and longitudinal designs. The target population of the study were all the thirteen DTMIs in the Nairobi City County, but a purposive sample of nine was used; that is, those that were registered and in operation by 2012. This is because, these are the DTMIs that have been captured in the bank supervision annual reports by CBK including the most current (dated 31st December 2014). These reports were major sources of secondary data for the study. By use of data collection schedules, secondary data was extracted from the published CBK banks supervision annual reports for years 2013 and 2014. For the purposes of primary data collection, proportionate random samples were selected from each of the sampled DTMIs using simple random sampling method. The sampling targeted portfolio managers and credit officers in all the nine DTMIs. The selected officers then complete questionnaires designed to collect the desired qualitative as well as quantitative data. The questionnaires were administered using the drop-and-pick method. The collected data was presented using contingency and frequency tables, graphs, charts and plots. The study partly used qualitative data (Likert scale data). To analyze these data, descriptive statistics such as the mean for central tendency and standard deviations for variability was computed. Other statistical procedures included the Pearson's coefficient of correlation, t-test, Analysis of Variance (ANOVA) and regression procedures. To assess normality of the data for modeling and parametric inference, Q-Q plots were constructed and coefficients of skewness and kurtosis determined. Durbin-Watson test was used to test for autocorrelation and correlation matrices were also used to check for relationships and collinearity/multicollinearity. Multiple linear regression analysis was performed on the data for each year, and for both years combined. This yielded to three multiple linear regression models which were very useful for comparison and confirmation of the relationships. Adjusted coefficients of determination, Fisher's tests and the t-tests were used to assess the goodness of fit of the developed models. All data modeling and hypotheses tests was performed at five per cent significance level and the analysis software that was used were Statistical Package for Social Sciences (SPSS), R-Statistical software and Ms Excel. The results indicated that there was a positive relationship between financial performance and financial leverage, non-performing loans, capital structure and market structure. The study concluded that all the variables under study are statistically significant in explaining the financial performance of DTMIs in the Nairobi City County in Kenya. The study recommends that the DTMIs should; avoid overreliance on debt financing, have a thorough loan documentation system to avoid accumulation of non-performing loans, maintain an optimal capital structure, increase product awareness in the market and rely more on research and development in pricing of their services.

CHAPTER ONE

INTRODUCTION

1.1 Background

Microfinance is an important tool for poverty eradication in many parts of the world. They target the poor through innovative approaches which include: group lending, progressive lending, regular repayment schedules and collateral substitutes. Consultative Group to Assist the Poor (CGAP), (2004) microfinance refers to a movement that envisions a world in which low-income households have permanent access to a range of high-quality financial services to finance their income producing activities, build assets, stabilize consumption, and protect themselves against risks. The range of financial services available to the poor has expanded to include loans, savings facilities, insurance, transfer payments and even micro-pensions. The users of microfinance services extend beyond business people to include the whole range of poor clients that require financial services to manage emergencies, acquire household assets, improve their homes, smoothen their consumption, and fund social obligations (Creswell, 2003).

The poor are considered high-risk borrowers; their loan sizes are small requiring high transaction costs; they cannot present high valued collaterals; and their income sources are highly unstable (Beck & Demirgiic-Kunt, 2008). Thus, the poor for long relied on alternative sources of finance: small loans and grants from close relatives, loans from self-established Rotating Savings and Credit Associations (ROSCAs), loans from Saving and Credit Cooperatives (SACCOs) ,and loans from traditional local moneylenders, often at unaffordable rates. The start of micro lending institutions in the 1970s which later grew to microfinance institutions, with added financial services to the financially excluded (mainly the poor), have received a warm welcome globally.

Unlike commercial banks, Microfinance Institutions (MFIs) use methodologies such as solidarity group lending, progressive loan structure, immediate repayment arrangements,

regular repayment schedules, and collateral substitutes to minimize associated financial risks and thereby reach the poor. For instance, Consultative Group to Assist the Poor (CGAP) reported that conventional banks in Sub-Saharan Africa serve only one quarter of the total borrowers. The reminder three-quarter borrows from nonbank financial intermediaries, non-governmental organizations, credit unions/financial cooperatives and others. Commercial Banks held 53 percent of the total loan portfolio and 60 percent of the total deposits (CGAP, 2001). This indicates that banks are involved in large loans per client unlike the microfinance institutions.

1.1.1 Financial Performance of Deposit Taking Microfinance Institutions.

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 their solvency. 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 (Laffont & Guessan, 2000).The share of the loan portfolio (as a percentage of total assets) devoted to financing income-generating activities for microenterprises and, possibly, SMEs must be above 70% of the total balance sheet. This ratio indicates that the MFI is focusing on its core business which is its most profitable activity (Farrington & Abrams, 2002). The main area of expertise of an MFI remains its sound knowledge of its clients; when it moves away from this, it takes a risk and causes provisions to put pressure on its profitability.

The cost of financial resources (equity, debts, grants and deposits) must be optimized by trying to give priority to deposits, which are often the cheapest resources. If this is not possible, the DTMI should optimize the debt/equity leverage effect in order to avoid financing growth exclusively at the exorbitant cost of accrued income. Indeed, in this case it can only achieve a sufficient level of net income by charging high rates, which in turn will raise the level of equity so as to boost growth or at least not to curb it. The

weight of the return on capital – dividends – must be a specific focus. It will be more difficult to bear if the debt/equity ratio is not optimized (Fehr & Hishigsuren, 2004).

Financial performance of a firm normally originates from the financial position and structure of the firm. This information is derived from the financial statement which is the yard stick to evaluate and monitor performance. Business executives use financial statements to draft a comprehensive financial plan that will maximize share-holders wealth and minimize possible risks that may pre-exist. Financial Statements evaluate the financial position and performance of a firm. These statements are prepared and produced for external stakeholders for example: shareholders, government agencies and lenders (Rahaman, 2010).

Financial performance measures how well a firm is generating value for the owners. It can be measured through various financial measures such as profit after tax, return on assets (ROA), return on equity (ROE), earnings per share and any market value ration that is generally accepted (Pandey, 1985).The financial performance of financial institutions can been measured using a combination of financial ratios analysis, benchmarking, and measuring performance against budget or a mix of these methodologies. The financial statements of financial institutions commonly contain a variety of financial ratios designed to give an indication of the corporation's performance (Oye, 2006).

Most microfinance institutions may have to borrow from the market even at an exceptionally high rate during a liquidity crisis. This ultimately causes a decline in the firms' earnings. Moreover, a bank's further borrowing to meet depositors' demand may place the bank's capital at stake. Thus, debt to equity ratio will rise, affecting the bank's effort to maintain an optimal capital structure (Muranaga & Ohsawa, 2002).

1.1.2 Financial performance of DTMIs globally

In the recent past, microfinance has gained prominence among poor and developing countries of Asia, Latin America, Eastern Europe and Africa. It has been prompted by the search for solutions to poverty alleviation. At first, the term microfinance was used interchangeably with microcredit and was easily understood as a credit methodology that employs effective collateral substitutes to deliver and recover short-term, working-capital loans to existing (or potential) micro-entrepreneurs (Yunus, 2007; Sengupta & Aubuchon, 2008: 9). However, microfinance has evolved over time and is now accepted to be the provision of a full range of financial services to low-income earners (Hashemi, 2003). Over the years, institutions offering microfinance services have grown both in outreach and asset base raising safety concerns on such microfinance operations.

Financial performance is a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues. It is also used as a general measure of a firm's overall financial health over a given period of time, and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation (Bernardin & Russel, 1998). There are many different ways to measure financial performance, but all measures should be taken in aggregation. Line items such as revenue from operations, operating income or cash flow from operations can be used, as well as total unit sales. Furthermore, the analyst or investor may wish to look deeper into financial statements and seek out margin growth rates or any declining debt.

Ultimately the financial performance assessment is devoid of such a multitude of options and methodologies despite critical importance of financial sustainability. Though an ambition for sustainable institutions has been often articulated, there was also an opinion that most microfinance institutions working in this field have been unsustainable (Dean, 2008). Research studies have shown that this is predominantly connected to the perception of micro borrowers' risk and creditworthiness, and the diseconomies of scale in making small loans (Dean, 2008). Microfinance has been attractive to lending agencies because of demonstrated sustainability and low cost of operations. In India, the

engagement of National Bank for Agriculture and Rural Development (NABARD) and Small Industries Development Bank of India (SIDBI) shows that they see long term prospect for this sector (Srinivasan & Sriram, 2006).

1.1.3 Financial Performance of DTMIs in Africa

Microfinance operations have moved a notch higher with DTMIs being regulated and recognized in the formal financial system, and governments on the other hand seeking for the best ways to streamline the regulation. A survey conducted by CGAP in 2007 indicated that the majority of Sub-Saharan Africa countries are increasingly focusing their attention on regulating microfinance, CGAP, (2004). It further showed that microfinance is becoming more integrated into formal financial systems and in some countries DTMIs are placed under the same law with commercial banks or under prudential regulation and supervision by the same authority.

Unlike commercial banks, DTMIs use methodologies such as solidarity group lending, progressive loan structure, immediate repayment arrangements, regular repayment schedules, and collateral substitutes to minimize associated financial risks and thereby reach the poor. For instance, Consultative Group to Assist the Poor (CGAP) reported that conventional banks in Sub-Saharan Africa serve only one quarter of the total borrowers. The reminder three-quarter borrows from nonbank financial intermediaries, nongovernmental organizations, credit unions/financial cooperatives and others. Banks held 53 percent of the total loan portfolio and 60 percent of the total deposits (CGAP, 2001). This indicates that banks are involved in large loans per client while MFIs deal with lower per capita loans suggesting MFIs' deeper outreach to the poor.

CGAP (2012) attests that the global fund committed for financial inclusion reached USD 29 billion. Moreover, the estimate showed Sub-Saharan Africa's stand as Eastern Europe, Central and South Asia's top priority destination for international financial inclusion funds. However, the effect of such funding on the performance of DTMIs has ignited mounting concerns. It is on DTMIs ability to extend loan services to the poor

without donors and governments' financial support in the long term, as well as remaining financially viable. There is also concern on the ability of governments and donors to continue funding to meet the growing demand for finance. Competing views on this has dominated policy and academic debates.

The nexus between DTMIs' loan service outreach to the poor and their institutional financial viability invites intensified scholarly debate on the approaches that DTMIs, donors, and governments are advised to follow to promote financial inclusion (Millson, 2013). The debate is predominantly between the proponents of the self-sustainability approach (also called the financial systems approach or the institutionalism approach) and the poverty lending approach (also called the welfarist approach). The source of the controversy is whether DTMIs could continue targeting the poor while remaining financially self-reliant (the poor with economic opportunities distinct from the extreme poor).

The poverty lending approach favors micro-lending to the poor at a lower cost (lower interest rates) through donor and government subsidies to decrease poverty (Millson, (2013); (Schreiner, 2002). In contrast, advocates of the self-sustainability approach contend that unless DTMIs are sustainable through full-cost recovery, the global microfinance demand will remain unmet. Donors and governments are shorthanded to reach the global microfinance needs, and their subsidies will be short-lived. In other words, while governments and donors provide relatively low cost financial access, their capital resources are insufficient to respond to the overwhelmingly huge loan demand. The self-sustainability proponents further suggest DTMIs seek alternative sources of funds, such as mobilizing funds from savings, leveraging equities, and making for-profit investments.

Barth *et al.* (2006), argue that the interest spread is wide between deposit and lending interest rates, which provides disincentives for savings and lending as it depresses the returns for savers and pushes up the lending interest rates. This implies that banking in African countries is very expensive due to this high interest spreads and overhead costs.

Political and economic volatility coupled with high risks because of weak and underdeveloped contractual frameworks, drives up the cost and reduces the time horizons for both investors and borrowers (Beck & Torre, 2007)

The value of non-performing loans or assets in DTMIs is associated with their failures in both developed and developing countries. The crisis which has influenced a large number of sub-Saharan African countries was also accompanied by the fast accumulation of non-performing assets (Caprio & Klingbiel, 2002). The global financial distress at first hit the advanced economies especially the United States and Europe and also the emerging markets and low income countries but in different ways. In addition, emerging markets with well-developed financial systems were mostly influenced by the cross-border financial linkages through capital flows, stock market investors and exchange rates. According to Kindle Berger and Aliber (2005), the financially less developed countries were affected in the growth and trade effects which were dominated by intervals.

Akhibe (2001) underscores that it is important to control the non-performing assets for the performance of the individual MFI and the financial environment of the economy. The productivity capacity of an economy is maximized when the financial regulator ensures that there exists a sound microfinance system that maximizes the social welfare of the people. DTMIs expose themselves to the risks of default from borrowers because of the nature of their business. These risks can be cushioned through prudent credit risk assessment and creation of adequate provisions for debts being doubted.

Waweru and Kalani (2009), found out that most financial crises encountered by DTMIs is often associated with the massive accumulation of non-performing assets which accounts for sizeable share of total assets of insolvent financial institutions. Daumont and Leroux (2004) concluded that accumulation of non-performing assets is attributable to economic downturns and macroeconomic volatility, high interest rates, insider lending and moral hazard.

1.1.4 Deposit Taking Microfinance Institutions in Kenya

In Kenya, there has been renewed interest in Microfinance by both policy makers and practitioners based on the valued contribution to efforts aimed at improving the livelihoods of the rural population. Microfinance industry in Kenya promotes small-scale investments that generates sufficient revenues from otherwise unrealized market activities while yielding a return on the investment. Agency costs may be particularly large in this industry because DTMIs hold private information on their loan clients. In addition, Deposit taking MFIs access to grant funding and other safety net protections may increase incentives for risk shifting or lax risk management, potentially increasing the agency costs of outside debt (Counts, 2005).

The establishment of the microfinance Act on 2nd May 2008 meant that a number of existing micro-finance institutions applied for licenses to allow them to take deposits from members and the general public. The main objective of the Microfinance Act is to regulate the establishment, business and operations of DTMIs in Kenya through licensing and supervision. In a report by CBK (2013) there are currently twelve (12) Deposit-taking MFIs operating in Kenya. In Kenya, there has been a tremendous increase in non-performing loans in DTMIs over the last 6 years; this has led to a decrease in liquidity, this negatively impacts on the investment decisions of the firm leading to poor financial performance of the firm (AMFI, 2013).

To achieve financial performance, DTMIs should be well equipped to deal with the changing monetary policy that shapes the overall liquidity trends and the financial institutions' own transactional requirements and repayment of short term borrowing. There are a number of other risks faced by financial institutions that negatively impact on financial performance for example; credit risk, operational risk and interest rate risk, which may culminate in the form of liquidity risk. Similarly, liquidity ratios are sometimes requested by DTMIs when they are evaluating a loan application. If you take out a loan, the lender may require you to maintain a certain minimum liquidity ratio, as part of the loan agreement, (Waweru & Kalani, 2009).

CBK,(2013) in its annual supervision report indicated that DTMIs proportion of borrowings decreased significantly in 2013, reflecting their increased reliance on deposits thanks to the improved capacity to mobilize savings Banks' and Credit only MFIs' borrowings remain quite stable in 2013. In overall, the amount of external debt of the sector decreased both including and excluding banks. Credit-only MFIs still have the highest portfolio yield (37.2%) considering that they mostly charge flat interest rates, closely followed by MFBs (35.1%) while the Banks' portfolio yield is significantly lower (19.4%).MFBs and Credit-only MFIs portfolio yield reflects the higher operational costs incurred, as they focus on issuing smaller loan sizes, could bear some internal inefficiencies and are generally yet to reach economies of scale compared to bank. Operating expense ratio is the highest for MFBs (26.1%) as they have to bear with post-transformation costs, followed by Credit-only MFIs (23.5%). Credit only MFIs and MFBs bear the same funding expense ratio (8.1%) although MFBs are more, which reflects the limited availability of affordable financial resources.

1.1.5 Financial performance of DTMIs in Kenya

The desire to serve clients better is the motivation for most MFIs transforming from non-regulated microfinance institution to DTMIs which are regulated. This was envisioned as an easier way to mobilize funds, greater outreach and a more efficient way of service delivery. Amongst the benefits of such transformation is cheaper access to funds through deposits in the long run, increased governance and greater competitive position. This will perhaps contribute towards achieving greater financial performance leading to self-sustainability of the DTMI.

Although the 2006 Microfinance Act in Kenya allows deposit taking MFIs, such institutions appeared in Kenya in 2009 when two of the pioneering MFIs- Faulu Kenya and Kenya Women Finance Trust transformed to deposit-takers. Transformation of microcredit programmes into a bank serving only low income clients is an old story that happened back in 1999 when K-Rep became the first commercial bank in Kenya to serve only low income clients, and the first NGO in Africa to transform into a regulated

financial institution, (Central Bank of Kenya, 2013). Financial inclusion remains to be a challenge for Kenya. There are 12 deposit taking microfinance institutions up to date that h9ave plunged into the deposit taking business.

CBK (2014) highlights that, in terms of their financial performance, without commercial banks, total assets of the DTMI sector stood at KES 57.4bn as of December 2013 posting 26.7% annual growth. The market shares of Credit only MFIs and MFBs remained stable with the two segments accounting for 28% and 72% respectively of the total assets for the sector without banks over the past 3 years. Credit-only MFIs registered stronger asset growth compared to MFBs over the past years. For all segments, a slower paced growth was achieved in 2013 compared to the previous year. The whole sector (over the past 3 years) and the sector without banks (since 2012) are mostly funded by deposits, representing 63.9% and 50.9% of total liabilities and equity respectively.

Borrowings are the second main source of funding for the sector without banks (27% of total liabilities and equity) while they only represent 13.3% of the whole sector's total liabilities and equity, ranking after equity (20.3%).The balance sheet structure of the whole industry remained stable over the past three years. The sector without banks experienced a significant increase of the share of clients' deposits leading to a reduction of the share of debt funding.

A financial access survey by the central Bank of Kenya in 2014, found that over 50 percent of the poorest quintile is financially excluded, while nearly 70 percent of the wealthiest quintile access financial services from formal prudential financial providers. Banks are dominant in the Kenya's MFI industry. For instance, the total asset held in the industry grew from USD 1.71 billion in 2009 (over two fold of Ethiopia's) to 2.59 billion at the end of 2011 (Over 4 fold of Ethiopia's), yet, 80 percent of the total asset belonged to the Equity Bank. If we exclude commercial banks from the figure, the asset growth drops significantly. The size of the MFI sector without banks is one-fifth its aggregate size with banks according to AMFI (2013).

The commercial Banks remain the most profitable segment as they have other income streams and benefit from economies of scale, with ROE and ROA at 26% and 5.4%. As in 2012, Credit-only MFIs show a higher level of profitability and sustainability than DTMIs in 2013. As of December, 2013, 4 out of 9 DTMIs were yet to break-even, two of them licensed in 2010 and two licensed in 2012.DTMIs in Kenya are by law restricted to limit loan per borrower not to exceed 2 percent of its equity. Again, DTMIs are coerced to direct their mobilized deposits to advancing microfinance loans i.e. from the total deposit mobilized, 70 percent should be allocated to microfinance loans according to FSD Kenya, (2012). In the long term, DTMIs, now also called microfinance banks (MFB), and the regulators will potentially determine depth-of-outreach in Kenya, as more and more credit only MFIs transform into MFBs.

1.2 Statement of the problem

The concept of financial performance has received significant attention from scholars in the various areas of business. It is an issue of primary concern virtually by all business stakeholders in any sector since financial performance is an ingredient to organizational health and ultimately its survival. Good financial performance may reflect management effectiveness and efficiency in utilizing a company's resources and this may contribute to the economy at large according to Ansah-Adu *et al.* (2012).

The funding structure of a Microfinance industry is basically a mix of fund which a DTMI deems as appropriate to enhance its operations. Thus, theory point out that high leverage or low equity/asset ratio reduces agency cost of outside equity and thus increases firm value by compelling managers to act more in the interest of shareholders (Berger & Udell, 2006). Modigliani and Miller (1958) argue on the basis of the following assumptions existence of perfect capital market; homogenous expectations; absence of taxes; and no transaction cost, that, capital structure is irrelevant to the value of a firm. DTMIs in Kenya use equity and or donations as some of their main source finances in Kenya which accounted for by 72.42% and 27.58% in form of debt AMFI (2013).

In CBK report (2012), the DTMIs altogether got 47.9% of total assets funded from deposits, the dominant fund source are borrowed money accounting for 54.2% followed by compulsory deposits of 22.5% and voluntary savings of 6.32%. The debt-to-equity-ratio is near 5%, which indicates low equity leverage in the sector. As of December, 2013 total liabilities of the sector was KES 47.8 billion. The total liabilities' growth rate decreased in 2013 for both the whole sector and the sector without commercial banks.

Non-performing loans can be treated as undesirable costs or outputs to the DTMIS loaning them and that impacts on the performance of DTMIs in Kenya. According to the supervision report by the central bank of Kenya, 2012, the ratio of non-performing loans to gross loans signaled an increase in credit risk which was largely attributed to high interest rate in the first half of 2012. The level of non-performing loans in DTMIs is measured using the portfolio at risk ratio (PAR). As at December, 2013, PAR for DTMIs stood at 7.8% and it signaled likely challenges of portfolio management, (CBK, 2014).

Ayuma (2015) cited access to financial information, prudential supervision, and cost of capital as determinants of financial risk of listed companies in the Nairobi Securities Exchange. Kiaritha (2015), highlighted internal politics, operating costs, savings culture, investment policies as determinants of financial performance of SACCOS. Makori *et al*. (2013) cited high dependency on short term borrowing, lack of liquidity monitoring system, political interference, investment in non-earning assets and inadequate managerial competences. Makau (2006) carried out a study on the effect of capital structure on firm value: evidence from Nairobi stock exchange. From the study, the researcher concluded that there existed a regression equation that was relating the firms leverage to its own growth, profitability, liquidity, size and non-debt ratio tax shields.

Therefore the purpose of this study was to answer the following questions: How does financial leverage affect financial performance of DTMIs in Kenya? How do non-performing loans affect the financial performance of DTMIs of Kenya? How does the capital structure affect financial performance of DTMIs in Kenya? How does Market structure affect their financial performance of DTMIs in Kenya?

1.3 Research objectives

1.3.1 General objective

The general objective of this study was to evaluate the determinants of financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya.

1.3.2 Specific objectives

i) To determine the effect of financial leverage on financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya.

ii) To assess the effect of non-performing loans on financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya.

iii) To establish the effect of capital structure on financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya.

iv) To examine the effect of Market structure on financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya

1.4 Research Hypotheses

H_{01}: The level of financial leverage has no significant effect on financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya.

H_{02}: The non-performing loans have no significant effect on financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya.

H_{03}: The capital structure has no significant effect on financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya.

H_{04}: Market structure has no significant effect on financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya.

1.5 Significance of the study

The study to be undertaken was on determinants of financial performance of Deposit Taking Microfinance Institutions in Kenya.

1.5.1 Regulatory Body

Firstly, this research would be beneficial to the CBK as the regulatory body for DTMIs as it will help highlight the determinants of financial performance which can be evaluated early to enable the DTMIs stay afloat even in the face of financial inclusion which can weigh heavily on them.

1.5.2 DTMIs Management

Secondly, the proposed study would be crucial to the top management of DTMIs to help prevent further degeneration and also be a caution to the top management of healthy DTMIs on how to prevent them from going into financial inefficiency.

1.5.3 Researchers/Institutions

Researchers and students particularly those pursuing postgraduate studies in Finance, Economics and Accounting will find this study useful in their quest to understand MFI control in the public sector. Scholars especially academicians engaged in research in MFI, finance, investment and public finance would find this study useful as one of the working documents especially to those focusing on the health status of the DTMIs financially.

1.5.4 Government

This study would also be important to the Government as it will help put up laws and legislation that help DTMIs to operate effectively in their endeavors. The Kenya Vision 2030 envisions an inclusive financial system that will serve the communities effectively. The banked and un-banked in the society will have their interests taken care of by

ensuring DTMIs do not charge exorbitant interest rates leading to high default in loan repayment. A system that gauges the client's ability to repay a loan will save most of the members the agony of having their assets attached for non-performing loans.

1.6 Scope of the study

The focus of this thesis was to evaluate the determinants of financial performance of DTMIs in Kenya and all facts would be derived from statements taken from DTMIs in Nairobi City County as each one under scrutiny has its headquarters there. The study targeted all the DTMIs based in Nairobi City County and licensed by the CBK. Secondary data was collected from CBK annual Microfinance supervision reports as well as reports from AMFI.

The study also aimed at analyzing the information on financial performance obtained from the each DTMIs managers and loan officers. The top management is the risk and strategy owners while the loan officers are in charge of lending which customers and therefore is better placed to assist in information especially concerning non-performing loans.

1.7 Limitations of the study

The study had various limitations and notably; it focused on DTMIs in Nairobi City County in Kenya, considered only four variables as the determinants of the financial performance of DTMIs whereas there could be many other factors. Also, the study was not able to carry out a census of the DTMIs but instead sampled those that had been in operation by the year 2012. Due to the limitations of using samples, care was taken to ensure that the sampled respondents were representative of the population in order to arrive at reliable generalizations.

The study also took only into consideration the financial indicators to determine the performance of DTMIs, whereas, there could be non-financial indicators of performance. The respondents to the questionnaire of the study also had reservations that

the findings of the study could be divulged to their competitors to their disadvantage; however, I assured them that the data was used for academic purposes only.

The process of sorting data from both primary and secondary sources was time consuming as no exact source would give all the required data. This also was not easy as some data was given in absolute values which were to be converted to nominal values. This also would have been a source of error to the data analyzed.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter was to review the available literature based on the proposed study. It dealt with the theoretical framework and conceptual framework of the study and then followed by the review of determinants of financial performance of DTMIs in Kenya. The chapter proceeded with the critique on the literature, followed by the research gaps and then lastly summary.

2.2 Theoretical Framework

Theories are formulated to explain, predict, and understand phenomena and, in many cases, to challenge and extend existing knowledge, within the limits of the critical bounding assumptions. The theoretical framework must demonstrate an understanding of theories and concepts that are relevant to the topic of the research and that will relate to the broader fields of knowledge in the study one is taking. The selection of a theory should depend on its appropriateness, ease of application, and explanatory power. The theoretical framework connects the researcher to existing knowledge (Cresswell, 2003).

2.2.1 The Moral Hazard Theory

Arko (2012) refers to moral hazard as the risk in which a party to a transaction provides misleading information about its assets, liabilities or credit capacity, or has an incentive to take unusual risks in a desperate attempt to earn a profit before the contract settles. Usually a party to a transaction may not enter into the contract in good faith, thus providing misleading information about its assets, liabilities or credit capacity. It is postulated that, moral hazard problems may be occasioned by asymmetric information which makes it difficult to distinguish between good and bad borrower. It is also noted that moral hazard has led to substantial accumulation of NPLs.

Problems of moral hazard in financial institutions are evident at many stages of the recent financial crises. This theory is considered relevant in this study since borrowers and lenders tend to conceal crucial information pertaining to the lending and borrowing agreement (Bloem *et al.*, 2001). Yet in modern macroeconomic theory economic growth rate depends, crucially, on the efficiency of financial institutions. The DTMIs themselves depend on accurate information about borrowers and the project the funds are used for.

Adewale *et al.* (2010) asserts that NPLs may be caused by less predictable incidents; they indicate that moral hazards resulting from generous government guarantees could lead to loan default. It is arguable that DTMIs with relatively low capital, just like other mainstream financial institutions, may respond to moral hazard incentives by increasing the riskiness of their loan portfolio. The foregoing is bound to result in higher non-performing loans on average in the future. As further reinforced by another study's argument -microfinance banks that tend to take more risks, including in the form of excess lending ultimately incur losses. Still in tandem with moral hazard, higher equity-to-assets ratio results in lower NPLs. Given that, moral hazard incentives such as low equity tend to aggravate, then DTMIs and other financial institutions ought to avoid such moral hazard incentives in order for them to mitigate losses through NPLs (Agu *et al.,* 2013).

2.2.2 Leverage "Irrelevance" theory

The proponents of theory are Villamil and Kumar (2008) who postulated that the value of the firm is independent of its leverage as long as there are no tax subsidies on interest payment, no transaction costs and the interest rate on borrowing is the same for corporations and individuals. They also challenged the traditionally held notion that a firm could increase its value by using debt as part of its capital structure. They postulate that the investors can create any leverage that they want but not offered, or the investor can get rid of leverage that the firm takes but is not wanted. From this perspective, the leverage of the firm has no effect on the market value of the firm.

Modigliani and Miller (1958) indicate that given a firm's investment policy, the dividend pay-out it chooses to follow will affect neither the current price of its shares nor the total return to its shareholders. In other words, in perfect markets, neither capital structure choices nor dividend policy decisions matter. Studies on performance, Kumar (2008) points out that numerous documented researches showing a fall in equity prices just before announcement of new equity issue and in the few years that follow hence validating the M & M leverage "irrelevance" theory.

2.2.3 Pecking Order Theory

The pecking order theory by Donaldson and modified by Myers and Majluf (1984) claims that firms prioritize their sources of financing according to the principle of least effort, preferring to raise equity as a means of last resort. When companies are faced with no option in internal financing other than external financing, then priority will be to borrow through debt issue since it is the least risky security. The pecking order theory assumes that there is no target Capital structure. The firms choose capitals according to the following preference order: internal finance, debt, equity. Myers and Majluf (1984), argued the existence of information asymmetry between managers (insiders) and investors (outsiders). They argued that managers have more inside information than investors and act in favor of old shareholders.

Modigliani and Miller (1958) were the pioneers in the theoretically examining the effect of capital structure on the firm value. 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.

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. 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.

In the perfect capital market, the capital structure does not affect a firm's value. It is the theory of capital structure irrelevance that a firm's value depends on the ability of its assets to create value, and is irrelevant if the assets originate in internal capital or external capital. Modigliani and Miller (1963) took taxation under consideration and proposed that the firms should employ as much debt as possible. Companies have an advantage in using debt rather than using internal capital, as they can benefit from debt tax shields. This tax shield allows firms to pay lower tax than they should, when using debt capital instead of using only their own capital. The theory argues that the more debt is, the more a firm's value is created.

2.2.4 The Traditional Trade-Off Theory.

Traditional Trade-Off theory is an opposing theory to the pecking order theory because it claims that firms always consider a balance between the costs of bankruptcy and the tax allowable – benefits they get from debt. According to Brealey and Myers (2006) the trade –off theory refers to the idea that a firm chooses how much debt or equity finance to use to balance costs and benefits. Since interest on debt is tax allowable compared to other external financing sources, it is a major advantage to the institution. However this is an increased risk to the company which can lead to financial instability and in addition the costs associated with bankruptcy.

This theory advocates for an optimal capital structure considering a level of leverage unlike the pecking order theory which ranks the different financing methods. The Trade-Off theory considers both the positive and negative effects of debt bearing in mind the tax relief earned due to debt financing as well as the present value of expected cost due to financial (Al-Tamimi & Hassan, 2010).

Although it may not be possibe 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 DTM to DTM depending on profitability, among a host of other factors (Brealey *et al.*, 2003). 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 DTMI is highly indebted and therefore risks becoming insolvent. On the other hand highly leveraged DTMIs may perform better by enjoying large scale economies, enhancing their ability to boost profitability.

2.3 Conceptual framework

According to Kombo and Tromp (2009) a concept is an abstract or general idea inferred or derived from specific instances. A conceptual framework is a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation. Smyth (2002) defines a conceptual framework a hypothesized model identifying the model under study and the relationship between the dependent and independent variables.

Kothari (2004) defines an independent variable also known as the explanatory variable is the presumed cause of the changes of the dependent variable, while a dependent variable refers to the variable which the researcher wishes to explain. The goal of a conceptual framework is to categorize and describe concepts relevant to the study and map relationships among them. Such a framework would help researchers define the concept, map the research terrain or conceptual scope, Systematize relations among concepts, and identify gaps in literature (Creswell, 2003).

The study hypothesized a causal relationship between financial performances of DTMIs with each of the independent variable namely; Financial Leverage, Non-Performing loans, Capital Structure and Market structure as shown in figure 2.1.

Independent variables   **Dependent variable**

Financial leverage
• Degree of financial leverage
• Earnings before interest and tax

Non-performing loans
• Loan portfolio
• Net non-performing loans
• loan to deposits ratio

Capital Structure
• Core capital to deposit ratio
• Debt-Equity ratio
• Total risk weighted assets

Market structure
• Market share
• Number of branches
• Number of active deposit accounts

Financial Performance
• Net income
• Return on equity
• Return on assets

Figure 2.1: Conceptual Framework

2.4 Empirical Review of variables

The key variables hypothesized in this study were reviewed in detail to create a theoretical underpinning. There are many variables that determine the financial performance of DTMIs including; Risk tolerance, Dividend payout, Investment culture, Access to financial information, Performance of top management etc. The variables considered in this study were enumerated as; Financial leverage, Non-performing loans, Capital structure and Market structure.

2.4.1 Financial leverage

Financial leverage refers to that part of the fixed cost which represents a risk to the firm (Shim & Siegel, 2007). It is largely dependent on the allocation between debt and equity while financing the firm. A firm is said to be unlevered if it uses equity in financing while a levered one is where more debt is used. Kumar (2011) says that, the guiding principle of leverage should be the course of action that maximizes the value of the firm. Goldstein *et al.* (2001) observes that a firm with low leverage currently can in future increase its leverage, where the option to increase leverage serves to reduce the otherwise optimal level of leverage today.

Jostova and Philipov (2005) indicate that the firm's leverage is an important determinant of its equity risk. This is because in case of bankruptcy, equity is given the last preference in the distribution of assets compared to other senior sources of funds. The larger the debt in the firm's capital structure, the higher the risk of default and therefore equity is less valued. Since financial performance is associated with fixed costs such as debt and preferred stock, financial leverage is therefore a measure of the risks involved which directly reflects the financial leverage of the firm.

Although it may not be 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. 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 (Goldstein *et al.,* 2001).

Strebulaev (2007) analyzed a dynamic trade-off model used to consider the option values of deferring leverage decisions to the next periods. He found out that if firms optimally finance only periodically because of the operating costs involved, then the debt ratios of most firms will deviate from the optimum most times. In the model analysed, the firm's leverage responds less to short-run equity fluctuations and more to long-run ones. 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. 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.

2.4.2 Non-performing loans

International Monetary Fund (IMF, 2009) stipulates that a non-performing loan is any loan in which interest and principal payments are more than 90 days overdue; or more than 90 days' worth of interest has been refinanced. On the other hand, the Basel Committee (2001) puts non-performing loans as loans left unpaid for a period of ninety days. An efficient and well-functioning financial sector is essential for the development of any economy, and the achievement of high and sustainable growth. One of the indicators of financial sectors health is loan qualities. Most unsound financial sectors show high level of non-performing loans within a country. The causes for loan default

vary in different countries and have a multidimensional aspect both, in developing and developed nations.

Loan portfolio constitutes the largest operating assets and source of revenue of most financial institutions. However, some of the loans given out become non-performing and adversely affect the profitability and overall financial performance of the lending institutions. Theoretically there are so many reasons as to why loans fail to perform. Some of these include depressed economic conditions, high real interest rate, inflation, lenient terms of credit, credit orientation, high credit growth and risk appetite, and poor monitoring among others.

More often than not, the loan of the financial institution is a key asset that generates the major share of the MFIs income (Jeanne & Svensson, 2007). Repayment of a DTMI's loans is a crucial indicator of performance. Poor collection of microloans is almost always traceable to management and systems weaknesses. The strongest repayment incentive for uncollateralized microloans is probably not peer pressure, but rather the clients' desire to preserve their future access to a loan service that they and their families find very useful: thus, healthy repayment rates are a strong signal that the loans are of real value to the clients, high delinquency makes financial sustainability impossible.

Loan is the major asset of most financial institutions from which they generate income. The quality of loan portfolio determines the financial performance of firm. The loan portfolio quality has a significant impact on the financial performance of the firm. A review or evaluation assessing the credit risk associated with a particular asset. These assets usually require interest payments such as a loans and investment portfolios. How effective management is in controlling and monitoring credit risk can also have an effect on the what kind of credit rating is given, (Kashyap *et al.,* 2002).

2.4.3 Capital Structure

Sushanta (2011) explains that capital structure is the mix of the long-term sources of funds used by the firm. They further explain that the capital structure decisions aims at maximizing the market value of the firm through employment of the optimal capital structure which maximizes the firms overall cost of capital and maximizes the market price per share of the firm. David Durand provided the net income approach of capital structure (Danielson & Scott, 2006).This approach states that a DTMI can increase its value by using the debt capital. Net operating income approach is the inverse to this approach. It contends that the value of a firm and cost of capital are independent of capital structure, thus the DTMI cannot increase its value by judicial mixture of debt and equity capital alone.

Loans are less liquid and more risky than other assets in a DTMIs portfolio. The risk of default, and the additional costs incurred in managing credit risk requires DTMIs to apply a risk premium to the interest rate charged for the loan. Larger share of loans to total assets may therefore translate to more interest revenue because of the higher risk. However, MFI loans are subject to significantly higher transaction costs than retail profit seeking banks, which include cost of funds for on-lending, the loan loss, and administrative costs (Cull *et al*., 2009). 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

The intermediate approach to the capital structure focused on this rather traditional theory of capital structure. It exposes that the value of the firm goes on increasing to a certain level of debt capital and finally the value of the firm decreases (Goldstein *et al.,* 2001). This theory holds the concept of optimal capital structure. Bauer *et al. (*2008) developed the capital structure theory based on the agency costs. They postulate that DTMIs incur two types of agency costs; costs associated with the outside equity holders

and the costs associated with the presence of debt in capital structure. Total agency costs first decreases and after a certain level of outside equity capital in capital structure, it decreases. This therefore means that DTMIs prefer internal financing as opposed to external financing because it reflects less financial risk which impacts on the financial performance of the DTMI.

The funding structure in deposit Taking Microfinance institution is crucial due to need of maximizing returns and also because of the impact such funding structure has on a DTMIs' ability to deal with the competitive financial market in Kenya. DTMIs with a relatively high portfolio to asset ratio may be at greater risk of failure. Regulated DTMIs made choice on funding decision to increase portfolio asset ratio due to specialization in lending and benefits from informational advantages, which may reduce intermediation costs and enhance profitability (Freixas, 2005)

2.4.4 Market structure.

A market structure describes the key traits of a market, including the number of firms, the similarity of the products they sell, and the ease of entry into and exit from the market. Examination of the business sector of our economy reveals firms operating in different market structures. Competitive forces are like an "invisible hand" that leads people who simply pursue their own interests and, in the process, serve the interests of society. According to CGAP (2001) once microfinance institutions are committed to managing business on a commercial basis, competition quickly becomes a hallmark of the environment in which they operate and determines efficiency. The economics literature states that competition ensures well-functioning markets, protects consumers, promotes allocative and productive efficiency and provides incentives for the development of new products.

Further, greater bank penetration in the overall economy is associated with DTMIs pushing toward poorer markets, as reflected in smaller average loans sizes and greater outreach to women (Cull *et al.,* 2007). However, Evans (2002) indicates that MFIs need

to assess the nature of the competition within the marketplace, then refocus their marketing campaigns and reprioritize their capital investments. Daniels (2000) also states that thinking more carefully about the competition issues, the MFIs might realize that the actual marketplace perception of the company's products, services and prices compared to the competition would be a major help in focusing time and money on the factors and business processes that have the biggest impact on the competitive position. MFIs were largely operating as a monopolist in the early years (CGAP, 2001; McIntosh *et al*., 2005). Such a market power is, however, associated with allocative inefficiency, which refers to the welfare losses as a result of high prices a monopolist charge. There is even further loss if the monopolist employs inefficient technology (productive inefficiency). Besides, there may not be pressure to invest in efficient technology and introduce new products (Motta, 2004).

Therefore, it would be reasonable to assume competition due to the market structure can be beneficial in the context of microfinance market as it may result in improved and new financial product designs, better customer services, lower costs and lower interest rates. Cull *et al.* (2007) investigated the performance of MFIs under the pressure of competition from formal banks, measuring competitive pressure by using bank penetration variables such as the number of bank branches per capita and per square kilometer. Their results show that MFIs faced with high competition tend to reduce the breadth of outreach but will focus more on the depth of outreach, i.e., more loans to women borrowers and smaller loans.

However, the effect on other performance indicators, such as profitability, appears to be weak. Competition and the effort to win clients and expand market share, therefore, may lead to low screening and lending standards. There are some indications of lose MFI-clients relationship with intense competition. Increased competition is also associated with an increase in information asymmetry, which makes it difficult for MFIs to know about the general debt level of clients. This in turn may lead to multiple borrowing, heavy debt burdens, low repayment rates and poor portfolio quality.

Nyaga (2008), notes that competition as experienced by the players was reported to exist on all the fronts modeled by Porter. MFIs however did not give due credence to the impact of competition on their chances of success relative to other factors. This study however did not focus on deposit taking microfinance institutions. On the other hand Mutua (2011) established that commercial banks receive services from the microfinance institutions which include savings and deposit mobilization among others. In establishing the linkage, commercial banks are faced by challenges like loan repayment and low interest rate unlike the micro finance institutions whose greatest challenge is geographical location of the small and micro enterprises.

Srinivasan and Sriram (2006) also indicates that intense competition lowers borrower selection standards, weakens relationships with customers and leads to multiple loan, taking thus high defaults. According to Bikker and Haaf (2002), 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. Repayment crisis subsequently lead to liquidity problems which negatively influence the operational performance of microfinance institutions. Despite its importance due to the increasing competition in the microfinance industry in Kenya, there is no record available to this study on the effects of Market structure on the loan performance of deposit taking MFIs in Kenya.

Research from the IMF (Hesse & Cihak, 2007) found that microfinance financial institutions tend to be more stable in times of crisis, as their investment patterns use the capital of members in ways that best serve their long term needs and interests. They have a lesser tendency to invest in high risk financial markets when compared to other forms of commercial banks. It is therefore thought that their comparative stability, under both average and extraordinary conditions, can help to mitigate crisis impact for members and clientele, especially in the short-term.

2.4.5 Measurement of financial performance

Traditionally, operating and financial ratios have long been used as tools for determining the condition and the performance of a firm (Ogilo, 2012). Parast and Fini (2010) indicate that in the pursuit of better financial performance and profitability, organizations are looking for strategies to improve their operational performance and boost their profitability. As competition intensifies due to changes in the industry structure and the emergence of new technologies, DTMIs are determined to reduce their operational costs while enhancing their profitability.

Similarly, financial performance of DTMIs can also be viewed in light of their overall financial performance. Herrmann (2008) says that when analyzing a firm's profitability, the concern is with evaluating a firm's earnings with respect to a given level of sales / assets / owners' investment or share value. In doing so, the common profitability measures include: Common size income statements; Return on total assets (ROA); Return on equity (ROE); Earnings per share (EPS); Price/Earning (P/E) ratio Under the common-size income statement, we express every item on the income statement as a percentage of sales, which is gross margin; operating margin; and profit margin.

Gross margin is the percentage of each sales dollar remaining after the firm has paid the direct cost of goods sold while Operating margin is the percentage of each sales dollar remaining after the firm has paid all expenses (excluding financing expenses and taxes); Profit margin is the percentage of each sales dollar remaining after the firm has paid all expenses (including interest and taxes). Return of total assets (ROA) takes into consideration the Return on Investment (ROI) and indicates the effectiveness in generating profits with its available assets, thus the higher the better.

Return on equity (ROE) indicates the return on owners' equity, hence the higher the better. Earnings per share (EPS) indicate the dollar amount earned on behalf of each common share, thus the higher the better. Price/earnings (P/E) ratio is the amount investors are willing to pay for each dollar of earnings, that is indicates investors'

confidence (Herrmann, 2008). In this study, financial performance of Deposit Taking Microfinance Institutions will be measured using ROE and ROA.

2.5 Critique of Existing Literature

Ali (2007) notes that the existing literature has identified the conventional financial structure as the main stronghold of financial efficiency in DTMIs. In addition, Wang and Chen (2010) focused on liabilities scale, interest rate, debt structure, operational ability and solvency in their study.

Dean (2008), developed independently the measures of financial performance any modern firm can adapt. Profit describes how much wealth your company has created (profit) or consumed (loss) over a certain period of time. These figures are reflected in the profit and loss account of the firm. Four useful measures of a firm's profitability are the rate of return on the firm's assets (ROA), rate of return on the firm's equity (ROE) operating profit margin and net firm income. A full measurement of profit must take into account owner's compensation and the higher the profit levels, does the same with financial performance

Sakwa *et al.* (2014) did a study on the challenges of stakeholder management in MFIs, which concluded that there were 3 stakeholder management challenges faced by MFIs transforming into regulated deposit taking financial institutions in Kenya. These are; managing staff and clients, creating appropriate governance structures and attracting private shareholders. However, the logistic regression model developed to test the association of the challenges and successful transformation was not statistically significant, indicating that the model was not able to distinguish between respondents who reported and those who did not report successful transformation. The study thus concluded that managing stakeholders was not a significant challenge in the transformation of microfinance institutions into regulated deposit taking institutions in Kenya.

Gathuku (2010) carried out a study on performance of microfinance institution with regard to regulation through the Microfinance Act 2006. She examined the potential sources of financial leverage in the inter-bank market and the effects on interest-rate spreads, loan/deposit flows and bank equity and argued that while a considerable potential for contagion results from asymmetric information among contracting parties, due to imperfect information collection and monitoring costs in markets for loans without collateral, the actual settlement process itself creates an 'institutional' contagion potential. This arises not just from the ability to spread credit risks of participating banks, but those relating to sovereign risk and liquidity risk.

Available literature on financial performance of DTMIs shows that the conventional financial structure is very unstable and therefore by itself it's a contributory factor to the occurrence of financial performance, (Diamond & Dybvig, 2003). Deposit taking microfinance institutions means that they have liabilities that are fixed with also a fixed interest rate too while their loans are their assets that earn variable and not fixed interest rate. These assets are prone to credit risk as well interest rate risk. Deposits are made with a short maturity while loans are mostly long term and so there is a mismatch between the two. This mismatch leaves these DTMIs exposed to financial performance in case of any economy shock or lack of adequate deposits.

Makau (2006) carried out a study on the effect of capital structure on firm value: evidence from Nairobi stock exchange. From the study, the researcher concluded that there existed a regression equation that was relating the firms leverage to its own growth, profitability, liquidity, size and non-debt ratio tax shields, the study also concludes that there was a general increase in leverages from year 2003 to years 2007, The researcher also concluded that in order for firm to increase its leverage it should increase it factors that leads to increase in its size and growth. The study further concludes that the firm own capital structure affects is value. The study further concludes that profitability of the company affects leverage of the company.

Richard (2009) notes that organizational performance encompasses three specific areas of firm outcomes financial performance (profits, return on assets, return on investment, etc.); product market performance (sales, market share, etc.); and shareholder return (total shareholder return, economic value added, etc.). In a survey on the quality, uses and perceived importance of various financial and non-financial measures, Hulme (2000) reports wider disparities between the perceived quality and importance of non-financial measures as compared to financial measures. Perceived inadequacies in a traditional performance measurement system that focuses on financial measures have led many organizations to switch to and put greater emphasis on forward looking non-financial measures such as customer satisfaction, employee learning and innovation (Ivatury & Siedek, 2006).

2.6 Research Gaps

From the reviewed empirical literature, it is evident that factors influencing the performance of DTMIs are multifaceted and are purely dependent on the operating environment of the DTMI. Sustainability of MFIs became a concern of donors in the mid-1990s and increasingly has been linked with growth of microfinance service provision. Some of the benefits of sustainability are increased outreach and quality of services offered (CGAP, 2004). Sustainable MFIs are able to increase their capital through retained earnings and hence increased capacity to reach more loan customers. Makau (2006) carried out a study on 'The effect of capital structure on firm value: Evidence from Nairobi stock exchange'. From the study, the researcher concluded that there existed a regression equation that was relating the firms leverage to its own growth, profitability, liquidity, size and non-debt ratio tax shields. Operating and financial ratios have long been used as tools for determining the condition and the performance of a firm (Ogilo, 2012).

Lauer (2008), argues that microfinance works and is sustainable; several institutions have proved that financial services for poor people can cover their full costs, through adequate interest spreads, relentless focus on efficiency, and aggressive enforcement of

repayment. Most MFIs find themselves unable to scale up their operations due to limited access to funds. Some of the reasons preventing them from accessing external funding are related to their weak organizational structures (especially not-for-profit), shortage of management skills and lack of profitability. They are unable to attract the interest of outside investors (Avgouleas, 2009). Njeru, Namusonge and Kihoro, (2012), in their study on sources of finances for companies listed on the NSE, Retained earnings were a major source of financing for mature, established firms in developing countries, compared to debt, common stock and preferred stock for the not so established companies.

Ayuma, Namusonge and Iravo (2015), cited access to financial information, capital structure, prudential supervision, and cost of capital as determinants of financial risk of listed companies in the Nairobi Securities Exchange. Kiaritha (2015), in her study, highlighted internal politics, operating costs, savings culture, investment policies as determinants of financial performance of SACCOS. Makori *et al*. (2013) cited high dependency on short term borrowing, lack of liquidity monitoring system, political interference, investment in non-earning assets and inadequate managerial competences. Makokha, Namusonge and Sakwa (2016) focused more on the risk management practices that affect the financial performance of commercial banks and therefore recommended that risk management framework should be adopted in financial institutions to enable them proactively mitigate risks. They did not look at the risks associated with increasing non-performing loans that are threatening the survival of most financial institutions.

Other studies have not been done specifically to establish the financial performance of DTMIs in Nairobi City County based on a combination of the variables considered in this study especially after the regulations stipulated in the Microfinance Act (2006). It is in the face of such that this study aims at filling the gap by establishing the factors considered to influence the financial performance of DTMIs in Nairobi City County. This study will add value to existing literature and may be used as a guide to DTMIs policy development for the general good of the country and their members.

2.7 Summary

Effective financial management is a key success to any firm. Managers must be adept in balancing between internal and external operational policies to ensure financial stability and growth of the organization. Financial risks encountered in recent time's impact directly on the financial status of most firms. The contagion effect has led to increase in the unbanked in most developing countries. Many DTMIs suffer financial impropriety resulting from increased non-performing loans which directly affects their operation with the clients bearing the bigger burden. Therefore a thorough understanding by the DTMIs management of the determinants of such risks is important.

According to literature reviewed previously, the greatest factor contributing to bad loans in DTMIs is defaulting by customers which accounted for substantial proportion of bad debts. Macroeconomic instability worsens the poor loan quality that faced these DTMIs together with lending at high interest rates to borrowers compared to commercial banks in the high risk segment of the credit market which cause moral hazards and adverse selection of the borrowers.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the methodology that was used to carry out the study. It gives the specific procedures, tools and instruments that were used in undertaking the study. These include; research design, target population, sampling techniques, data collection methods and instruments and data analysis tools and procedures.

3.2 Research design

Research design is a set of logical procedures that enable the researcher to obtain evidence to determine the degree to which the research hypotheses are correct. It is a general plan or strategy for conducting a research study to examine specific testable research questions of interest (Lavkaras, 2008). Further, it can be perceived as a plan and structure of investment conceived so as to obtain answers to research questions (Coopers & Schindler, 2011). The study used explanatory descriptive research design with a longitudinal dimension. Explanatory studies seek explanations of the nature of certain relationships, where hypothesis testing provides an understanding of the relationships that exist between variables. As such, this aspect of the design was quite instrumental in explaining the relationships between determinants and the financial performance of the DTMIs.

A descriptive research design helps provide answers to the questions of who, what, when, where, and how associated with a particular research problem. It is a description of the state of affairs as it exists (Orodho & Kombo, 2001). It is used to obtain information concerning the current status of a phenomenon and to describe what exists with respect to variables or conditions in a situation. Sekaran and Bougie (2011) concurs with Orodho and Kombo (2001) by asserting that descriptive study is undertaken in order to ascertain and be able to describe the characteristics of the variables of interest in

a situation. This approach therefore helped in describing the status of financial performance and its determinants in the DTMIs. The financial performance determinants described are; Financial leverage, non-performing loans, capital structure and market structure.

Longitudinal studies are studies in which multiple observations are made over time. The study used data on financial performance and its determinants in the DTMIs for two calendar years (2013 and 2014). This yielded data that was very useful in bringing out any trends in the determinants of financial performance of the cohort of the DTMIs being studied. Longitudinal studies have advantage over cross-sectional ones in providing information that describe processes over time. Quantitative data analysis was used to determine the relationships between the dependent and independent variables using secondary data. This data was obtained from CBK supervision annual reports. The quantitative approach was followed in a systematic manner to describe and test relationships and examine the cause and effect among variables.

3.3 Sampling frame

The sampling frame for this study included all the licensed DTMIs that were in existence within Nairobi City County by January 2013 and were included in the CBK's annual supervisory reports for years 2013 and 2014. The list of these DTMIs was extracted from the AMFI list of Deposit Taking Microfinance Institutions in Kenya by the end of year 2012, and verified using the CBK's annual supervisory reports. Due to the data availability constraint, nine out of the twelve listed DTMIs were involved in the study.

3.4 Target population

Target population is the universal set of elements that the researcher is interested in and to which (s) he wants to make inference. According to Ngechu (2004), a population is a well-defined or set of people, services, elements and events, group of things or

households that are being investigated. According to Mugenda and Mugenda (2003), a population refers to an entire group of individuals, events or objects having a common observable characteristic. The target population in this study was the set of all DTMIs in Nairobi City County that were in existence, registered and licensed by 31st December 2014. The reason for selecting the population of all DTMIs in Nairobi City County is the fact that all DTMI headquarters and senior management are based in the city of Nairobi, CBK (2013). Table 3.1 shows the current population of DTMIs in Nairobi City County as at December 2016.

Table 3.1: Current Population of DTMIS in Nairobi City County as at Dec, 2016

	DTMI	Date Licensed
1	Faulu Microfinance Bank Limited	21st May 2009
2	Kenya Women Microfinance Bank Limited (formerly KWFT)	31st March 2010
3	Uwezo Microfinance Bank Limited	8th November 2010
4	SMEP Microfinance Bank Limited	14th December 2010
5	Remu Microfinance Bank Limited	31st December 2010
6	Rafiki Microfinance Bank Limited	14th June 2011
7	Century Microfinance Bank Limited	17th September 2012
8	SUMAC Microfinance Bank Limited	29th October 2012
9	U & I Microfinance Bank Limited	8th April 2013
10	Daraja Microfinance Bank Limited	12th January 2015
11	Choice Microfinance Bank Limited	13th May 2015
12	Caritas Microfinance Bank Limited	2nd June 2015

Source: AMFI list of Deposit Taking Microfinance Institutions in Kenya (2012)

Some of the data that the researcher used are secondary data sourced from the CBK through the CBK's Annual Bank Supervision Reports. The most current such report that the CBK has published up to date is for the year 2014, hence the time limit of 31st December 2014. As such, Daraja, Choice and Caritas DTMIs were not involved in the study.

The observation units as well as the sampling units were individual portfolio managers and credit officers in the DTMIs. Stevenson and St-Onge (2005) intimate that DTMIs are heterogeneous in terms of their organizational status since some began as NGOs, credit only institutions or microfinance banks. They were registered under different laws like the Microfinance Act, the NGOs coordination Act, the Harambee (self-help) group regulations or the Banking Act. As such, the respondents were heterogeneous in terms of the age of their DTMI, regional reach, number of clients, size of loan portfolio as well as value of capital.

3.5 Sample and sampling technique

A sample is a representative subset of a population. It is the one that is actually studied in order to make conclusions on the entire population through statistical inference. Sample selection depends on the population size, its homogeneity, the sample media and its cost of use as well as the degree of precision required (Salant & Dilman, 1994). These authors also observed that a prerequisite to sampling is a precise definition of the target population. It is not often possible, however, to know the true population. In such cases, Yumane (1967) suggested that a theoretical sample may be used. Theoretical samples purposively select organizations that exhibit the desired features that focus on the researcher's study.

Purposive sampling technique was used to obtain the sample of nine DTMIs out of the twelve that are in Nairobi City County. This was guided by the fact that the desired data for the study concerning the remaining three DTMIs, which can only be obtained from the CBK, will not be available; otherwise, census would have sufficed the study.

Purposive sampling is a non-probability sampling design that allows the researcher to sample only those elements that have the required information in relation to the study objectives, (Kothari, 2004).

Simple random sampling was then used to select proportional samples of respondents comprising of portfolio managers and credit officers from each of the sampled DTMI. Simple random sampling is a probability sampling design in which every element in the population is accorded equal and independent chance of being selected into the sample. This minimizes selection bias hence the sampling error.

Out of the population of 71 employees in the relevant category (portfolio managers and officers) in all the 9 DTMIs, the researcher arrived at a working sample using the Yumane's formula:

$$n = \frac{N}{1 + N(e^2)}$$

Where;

$N \equiv$ The population size (71)

$n \equiv$ The sample size

$e =$ estimated standard error equal to 5% (for 95% confidence level)

Therefore, the sample size used was obtained as;

$$n = \frac{71}{1 + 71(0.05^2)} = 60 employees$$

The entire sample size was therefore 60 employees, distributed proportionately among the 9 DTMIs as shown in table 3.2.

Table 3.2: Sample distribution among the DTMIs

	DTMI	Number of employees in the relevant category	Sample size
1	Faulu Microfinance Bank Limited	13	11
2	Kenya Women Microfinance Bank Limited (formerly KWFT)	12	10
3	Uwezo Microfinance Bank Limited	10	9
4	SMEP Microfinance Bank Limited	7	6
5	Remu Microfinance Bank Limited	6	5
6	Rafiki Microfinance Bank Limited	7	6
7	Century Microfinance Bank Limited	7	6
8	SUMAC Microfinance Bank Limited	5	4
9	U & I Microfinance Bank Limited	4	3
	Total	**71**	**60**

Source: AMFI List of DTMIs in Kenya (2014)

3.6 Data collection instruments

Primary data was collected from the sampled employees of the DTMIs using questionnaires (See Appendix II). A questionnaire is a pre-formulated written set of questions to which the respondents record the answers usually within rather closely delineated alternatives. The questionnaire was complete and comprehensive enough. Where need be internal informants were used to give a lead on how to get to the respondents. On the other hand, secondary data on financial performance of DTMIs and its determinants was gathered from the CBK through the annual bank supervision reports. This was facilitated by the use of a secondary data collection schedule that was prepared to gather the relevant information on the study variables (See Appendix III).

3.7 Data collection procedures

Data collection refers to the means by which data is obtained from the subjects or elements under investigation. This study involved collection and compilation of both primary and secondary data.

3.7.1 Primary data

This is data that is collected from the original source and for the first time specifically for the purpose of the current study. It is first-hand information. For the purposes of this study, questionnaires with both open and closed questions were used to collect primary data. The questionnaire also contained Likert-type items that were designed in a simple to answer format. Likert-type items use an interval scale that specifically uses five anchors of; strongly agree, agree, neutral, disagree and strongly disagree. The Likert-type items measure the level of agreement or disagreement. They are good in measuring perception, attitude, values and behavior, and it is very useful in the conversion of qualitative responses into quantitative data values through data-coding (Zikmund *et al*., 2010).

The reliability of the questionnaires was verified through a piloting exercise. After the pilot study, and upon readiness to undertake the primary data collection exercise, the questionnaires were uniformly administered using the drop-and-pick approach to ensure reliability, accuracy, follow-up, minimized non-response and minimized bias.

3.7.2 Secondary data

Secondary data refers to descriptions or summaries by other people, other than the original researcher. They are accounts of events which were created well after the actual event occurred. Secondary sources are based on primary sources. By assessing, repackaging and distributing information, secondary sources make the information more accessible. Secondary sources can be articles in newspapers or popular magazines, books or movie reviews, or articles found in scholarly journals that address someone

else's original research. The procedure of collecting secondary data involved using a secondary data collection schedule which sourced data from the annual bank supervision reports from CBK. Other procedures included data acquisition from the internet and reading about theories and models from online libraries and relevant journals.

3.8 Pilot study

A pilot study is a research project that is conducted on a limited scale that allows researchers to get a clearer idea of what they want to know and how they can best find it out without the expense and effort of a full-fledged study. In a questionnaire, it is necessary to determine whether the questions and instructions are clear to the respondent and if they are consistent in obtaining the required feedback.

Bryman and Cramer (2012) and Saunders *et al*. (2007) indicate the purpose of a pilot study is to establish the accuracy and appropriateness of the research design and the study instruments. Newing (2011) states that the importance of a pilot test cannot be overemphasized as one will always find ambiguous questions and questions which turn out not to be relevant for eliciting the sort information among other errors. Cooper and Scindler (2011) concurs that the purpose of a pilot test is to detect weaknesses in design and implementation. Sekam (2008) reinforces that pilot testing is necessary for testing the reliability of instruments. A pilot study can reveal deficiencies in the research design of a proposed experiment or procedure and these can be addressed before time and resources are expended on large scale studies (Golafshani, 2003).

In this study, a small sample of the questionnaire designed as the main data collection instrument was used to pre-test the effectiveness and relevance of the instrument. It helped in testing the effectiveness, consistency and appropriateness of the prepared questionnaire. The questionnaire pre-testing was done using randomly selected managers and loan officers from the three DTMIs which were not included in the final data collection. It was also used to test the logistics and gather information prior to the main study in order to improve the quality and efficiency of the research. In effect, after

the pilot trials of the questionnaires, the researcher was able to assess the validity and reliability of the prepared questionnaire as a data collection instrument.

3.8.1 Validity

Mugenda and Mugenda (2003) define validity as the degree of accuracy with which results obtained from analyzed data represent the reality of the phenomenon under study. This implies that, to ensure the validity of the findings and results of the proposed study, the instruments of data collection must collect relevant and precise data. The data points must reflect the actual measurement on the ground. To ensure this, the questionnaire was given to two senior managers from the non-sampled DTMIs who were able to assess the validity of the statements on the questionnaire. Their views and responses about the questionnaire were reviewed and were used appropriately to improve the questionnaire as a data collection instrument.

3.8.2 Reliability

Reliability refers to a measure of the degree to which a research instrument yields consistent results after repeated trials (Mugenda & Mugenda, 2003). To ensure reliability of the questionnaire used, the respondents were sensitized on the motive, structure and the mode of answering the questionnaires. This ensured that the respondents fully understood these details and thus enhanced correctness and accuracy of the questionnaire as well as the responses.

The questionnaires were pre-tested in both the pilot and the main study using the Cronbach's Alpha correlation coefficient. Cronbach's alpha for the test of reliability is computed as follows;

$$\alpha = \frac{n}{n-1}\left(1 - \frac{\sum V_i}{V_{test}}\right)$$

Where;

n is the number of questions

V_i is the variance of the scores on each question

V_{test} is the total variance of overall scores on the entire questionnaire

According to George and Mallery (2003) Cronbach Alpha value greater than 0.7 is regarded as satisfactory for reliability assessment. A Cronbach alpha value for any of the variables; financial regulation non-performing loans, capital structure and market structure that was greater than 0.7 from the findings led to the conclusion that the constructs measured had adequate reliability for the subsequent stages of analysis.

3.9 Data analysis and presentation

Data analysis is the mathematical treatment of quantitative and/or qualitative data so as to obtain the desired statistical measurements. Data presentation on the other hand refers to conversion of data into summarized and easily understandable graphical forms. Modes of data presentation include contingency and frequency tables, graphs, charts and plots. Data analysis procedures include; determination of descriptive statistics, statistical modeling and statistical inference. Collectively, these statistical procedures enable the analyst to establish the various characteristics of data, and the relationships between variables so as to be able develop statistically significant relationship and forecasting models. Essentially, this culminates in drawing of valid conclusions and meaningful recommendations.

According to Zikmund *et al*. (2010), data analysis refers to the application of reasoning to understand the data that has been gathered with the aim of determining consistent patterns and summarizing the relevant details revealed in the investigation. It is extracting significant variables and detecting anomalies and testing any assumptions (Kombo & Tromp, 2009).

The data collected was edited and organized to ensure relevancy, standardization and completeness in readiness for analysis. To determine the patterns revealed in the data collected regarding the selected variables, data analysis was guided by the aims and objectives of the research. The research adopted both qualitative and quantitative methods in determining factors affecting financial performance in DTMIs in Nairobi City County in Kenya.

3.9.1 Qualitative data analysis

Using Likert-type items, questionnaires were used to collect qualitative data. Clason and Dormody (1994) described the difference between Likert-type items and Likert scales. They identified Likert-type items as single questions with five-level multiple choices. While multiple questions may be used in a research instrument, there is no attempt by the researcher to combine the responses from the items into a composite scale. Because of these conditions, Likert-type items fall into the ordinal measurement scale. The descriptive statistics recommended for ordinal measurement scale items include mean and mode or median for central tendency and frequencies for variability, (Harry & Debra, 2012). Additional analysis procedures appropriate for ordinal scale items include the chi-square measure of association.

Likert scale data, on the other hand, are data that are analyzed at the interval measurement scale. Likert scale items are created by calculating a composite score (sum or mean) from four or more Likert-type items; therefore, the composite score for Likert scales should be analyzed at the interval measurement scale. Descriptive statistics recommended for interval scale items include the mean for central tendency and standard deviations for variability (Harry & Debra, 2012). Additional data analysis procedures appropriate for interval scale items would include the Pearson's coefficient of correlation, t-test, Analysis of Variance (ANOVA), and regression procedures.

This study used the procedures for Likert-type items with appropriate data coding in collecting and analyzing the qualitative data.

3.9.2 Quantitative analysis

Quantitative data are numerical observations or measurements on quantifiable attributes or variables of interest. Whereas qualitative data describes, quantitative data on the other hand defines. Due to its numerical nature, quantitative data is not short of mathematical and statistical vigor, unlike the qualitative data. As such quantitative data is very useful in mathematical and statistical analyses that involve determination of descriptive measurements, modeling and inference. This study utilized quantitative data from both primary and secondary sources.

The primary quantitative data was obtained through questionnaires while the secondary data was deduced from the Annual Bank supervision reports by CBK for calendar years 2013 and 2014. This gave the study an aspect of quantitative research. Quantitative research usually is based on testing the theories composed of variables, measured with numbers, and analyzed using statistical techniques and aims at determining whether the predictive generalization of the theories hold true (Bryman & Cramer, 2004).

This study's data analysis was based on the principle components of the financial performance and how they affect the financial performance of DTMIs in Nairobi City County in Kenya. Once processed, the data was presented in form of tables and charts for various variables of interest. To analyze the data, descriptive statistics were computed in terms of frequencies, ratios/percentages, measures of central tendency and variability.

To assess normality of the data for modeling and parametric inference, Q-Q plots were constructed and coefficients of skewness and kurtosis were determined. For a normally distributed data, the Q-Q plots should indicate clustered data points around the central measure; mean, that fade sparingly equally in both directions. The measure of skewness; coefficient of skewness should indicate a symmetrical normal distribution with the coefficient lying between -1 and +1. A coefficient less than -1 indicate a negatively

skewed distribution, while a coefficient greater than +1 indicates a positively skewed distribution.

The coefficient of kurtosis should indicate a mesokurtic distribution, with the coefficient value being approximately equal to 3. A coefficient significantly less than 3 indicates a platykurtic distribution which best fits the t-distribution and not the normal distribution. On the other hand, a coefficient significantly greater than 3 indicates a leptokurtic distribution. Standard parametric tests, regression modeling as well as interval estimation require that the data are normally distributed and the observations are statistically independent. To assess the independence of the observations, Durbin-Watson tests of autocorrelation (serial correlation) were conducted. The test statistic for Durbin-Watson test, d, lies between 0 and 4. If $d \simeq 2$, there is no autocorrelation, but if d is significantly away from 2, then there is enough evidence of the presence of autocorrelation.

To determine the association between the hypothesized determinants of the financial performance of the DTMIs, correlation matrices of all determinants (independent variables) and the financial performance (dependent variable) were determined. These helped in determination of the most powerful determinants of the financial performance of the DTMIs. Further, the correlation matrices helped in the assessment of collinearity/multicollinearity among the determinants which are the explanatory variables in the financial performance model.

In case of any collinearity, the weaker collinear determinant is weeded out in the development of the regression model. This results into a reduced model, which is more powerful. It must be noted that inclusion of two or more collinear explanatory variables in a regression model compromises the explanatory power of the model making it inadequate for prediction.

Multiple linear regression analysis was performed on the data for each year, and for both years combined. These yielded three multiple linear regression models that were very useful in comparison, clarification and confirmation of the relationships as well as the general results. The researcher was now in a position to determine the effect, or lack of effect of the determinants on the financial performance of the DTMIs.

Regression analysis is a statistical modeling technique used to identify meaningful, stable relationships among sets of data. The application of these analytical procedures is based on the premise that, in the absence of known conditions to the contrary, relationships among the variables may reasonably be expected to exist. Regression measures the casual relationship between one dependent and one independent variable. Multiple regression analysis measures the effects of multiple independent variables on one dependent variable.

The dependent variable of the proposed model is financial performance and the independent variables are; financial leverage, non- performing loans, capital structure and Market structure. The model took the form;

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

Where;

Y is the Financial Performance of a DTMI

X_1 is the Financial Leverage of a DTMI

X_2 is the Non-Performing Loans of a DTMI

X_3 is the Capital Structure of a DTMI

X_4 is the Market Structure of a DTMI

β_0, β_1, β_2, β_3, and β_4, are the Regression coefficients

$\varepsilon \equiv$ Random Error

The goodness of fit of each multiple linear regression was assessed. The coefficient of determination (R^2) was used to assess the explanatory power of each model. R^2 gives the percentage of the variations in the response variable that can be explained by the model. This implies that $1 - R^2$ gives the unexplained variation, which is mainly associated to pure chance variations and other significant predictor variables that have not been captured by the analysis/model. As such, the higher the value of R^2, the stronger the model, and vice-versa. Specifically, using the rule of the thumb; if $R^2 \geq 75\%$, the model is excellent, if $60\% \leq R^2 \leq 74\%$, the model is good, if $50\% \leq R^2 \leq 59\%$, the model is satisfactory and if $R^2 \leq 49\%$, the model is poor.

To test the statistical significance of the models as well as their adequacy for prediction, Analysis of Variance (ANOVA) was performed on an entire model together with t-tests on the individual predictor variables (determinants). The ANOVA facilitates the Fisher's test (F-test) which uses the F-statistic as the test statistic. F-statistic is the ratio of the explained variation to the unexplained/residual variation. It was computed for each model in order to test the hypotheses;

Null hypothesis, H_0: The model is NOT statistically significant,

Alternative hypothesis, H_1: The model is statistically significant.

The computed F-statistic was then compared with the critical F-statistic at 5% significance level. The null hypothesis is rejected if, computed F-statistic $\geq$ critical F-statistic, or if the P-value (Sig.) is less than the significance level i.e. 0.05. P-value is mainly the probability that the Null hypothesis is actually true.

To test the statistical significance of the individual predictors (determinants) in the models, t-tests were performed. t-test uses the t-ratio/statistic as the test statistic. T-ratio is the ratio of the estimated regression coefficient to its standard error. A coefficient that has a high standard error yields a small absolute t-ratio rendering it to be non-significant.

51

This implies that the higher the absolute t-ratio, the stronger the predictor variable and vice-versa. t-test tests the hypotheses;

Null hypothesis, H_0: $\beta_i = 0$ (The associated predictor variable is NOT statistically significant)

Alternative hypothesis, H_1: $\beta_i \neq 0$ (The associated predictor variable is statistically significant)

The computed t-ratio is then compared with the critical t-statistic at 5% significance level. This is a two-tailed test, and so the critical t-statistic was obtained at 2.5% significance level. The null hypothesis is rejected if, computed |t-ratio| ≥ critical t-statistic, or if the P-value (Sig.) is less than the significance level i.e. 0.05.

Analysis of data using regression model has been used previously by Aduda (2011) in a study which investigated the relationship between executive compensation and firm performance in the Kenyan banking sector. Also Ngugi (2001) used regression analysis in a study on the empirical analysis of interest rates spread in Kenya while Khawaja and Musleh (2007) used regression analysis to identify the determinants of interest rates spread in Pakistan.

3.10 Definition and Measurement of Variables

The dependent variable in the study is financial performance and the independent variables are financial leverage, non-performing loans, capital structure and Market structure. Measurement of financial performance of the DTMIs was constituted in three indicators; Net Income, Return on Assets (RoA) and Return on Equity (RoE). The financial leverage was indicated by EBIT and Financial Leverage Ratio (FLR). The Non-Performing Loans were measured using Net-non-performing loans (NNPLs) and Loan-to-Deposit Ratio (LDR). The capital structure was measured using Core Capital-to-Deposit Ratio (CCDR), Debt-to-Equity Ratio (DER) and Total Risk Weighted Assets (TRWA). Market structure was measured using market share percentage (market size index), the number of branches that a DTMI has and the number of active deposit accounts. Table 3.3 shows the operationalization of the variables.

Table 3.3 Operationalization of variables

Objective	Variable	Dependent or Independent	Indicator(s)	Measurement Primary (Qualitative)	Measurement Secondary (Quantitative)	Data Level
To evaluate the determinants of financial performance of DTMIs in Nairobi City County.	Financial Performance	Dependent	▪ Net Income ▪ RoA ▪ RoE	Likert Scales	*Net Income* $RoA = \dfrac{Net.Income}{Total.Assets} x100$ $RoE = \dfrac{Net.Income}{Shareholders' Funds} x100$	Ratio (Percentage)
To determine the effect of financial leverage on financial performance of DTMIs in Nairobi City County.	Financial Leverage	Independent	▪ EBIT ▪ Degree of Financial Leverage (DFL)	Likert Scales	*EBIT* $DFL = \dfrac{EBIT}{EBIT - Interest}$	Ratio
To determine the effect of non-performing loans on financial performance of DTMIs in Nairobi City County.	Non-Performing Loans	Independent	▪ NNPLs ▪ LDR	Likert Scales	*NNPL = Total Non-performing loans and advances – Impairment loss allowance* $LDR = \dfrac{Advance.to.customers}{Customer.Deposits}$	Ratio Interval
To determine the effect of capital structure on financial performance of DTMIs in Nairobi City County.	Capital structure	Independent	▪ CCDR ▪ DER ▪ TRWA	Likert Scales	*CCDR* $DER = \dfrac{Liabilities}{Assets - Liabilities}$ *TRWA*	Ratio Interval
To determine the effect of Market structure on financial performance of DTMIs in Nairobi City County.	Market structure	Independent	▪ Market Share (MS) ▪ Number of branches ▪ Number of active deposit accounts	Likert Scales	*MS = Market Size Index* *Number of branches* *Number of active deposit accounts*	Ratio Interval

3.11 Summary

The study used explanatory descriptive research design with a longitudinal dimension. The sampling frame for this study included all the licensed DTMIs that were in existence within Nairobi City County by January 2013 and were included in the CBK's annual supervisory reports for the calendar years 2013 and 2014. As such, the target population of the study was the set of all DTMIs in Nairobi City County that were in existence, registered and licensed by 31st December 2014.

Purposive sampling technique was used to obtain the sample of nine DTMIs out of the twelve that are there in Nairobi City County. Simple random sampling was then used to select a sample of 60 employees comprising of portfolio managers and credit officers from each of the sampled DTMI. Primary data was collected using questionnaires with open and closed questions as well as Likert-type items. Secondary data was collected from the CBK'S Annual supervisory reports for years 2013 and 2014 using data collection schedules. A pilot study was conducted to test the reliability as well as the validity of the data collection instruments.

Frequency distribution tables were constructed with percentages and descriptive statistics to summarize and deduce the trends in the primary data. Correlational data analysis was conducted on the secondary data to determine the significant indicators on financial performance of the DTMIs and its determinants. Linear regression analysis was then conducted to determine the functional relationship between various determinants and financial performance. Goodness of fit tests were performed to assess the relationships and their strengths.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

The data collected was cleaned, edited and organized in readiness for analysis and presentation. For the purposes of description of the data, descriptive statistics of the key variables were computed. Further, correlational analysis was conducted on the various indicators of the explanatory variables (determinants of the financial performance of DTMIs) and the response variable (financial performance). This correlational analysis aimed at identifying the strongest indicator of the financial performance. The analysis then extended and fragmented to simplified bivariate correlations between each cluster of indicators of an explanatory variable (determinant) against the identified strong indicator of financial performance. This analysis yielded the strongest indicator for each determinant.

The study used the descriptive explanatory research design with a longitudinal dimension. As such, correlational and regression analysis were considered instrumental in explaining the interactions between financial performance and its determinants in the DTMIs. To achieve this, multiple linear regression models were obtained for years 2013 and 2014 as well as for the combined data. Reliability of regression models in explaining the functional relationship between variables depends on its goodness of fit as well as its general statistical significance. It is for this reason that this chapter provides an investigation and determination of the goodness of fit and statistical significance of each of the developed models

The softwares used for the analysis were Statistical Package for Social Scientists (SPSS) and Microsoft Excel Analysis toolpak. For proper, efficient and accurate application of quantitative analysis methods, qualitative data was coded appropriately in the various categories of analysis.

4.2 Primary data

Primary data was collected using questionnaires from the sampled respondents comprising portfolio managers and credit officers from each of the sampled DTMI. The questionnaires contained questions on Likert-type items and were uniformly administered using the drop-and-pick approach to ensure reliability, accuracy, follow-up and maximized response rate.

4.2.1 Response rate

Response rate is usually of great concern to any researcher due to the risk of non-response bias. Non-response bias is the error resulting from distinct differences between the people who responded to a survey versus those who did not respond. Response rate is used as one way to gauge the potential for non-response bias. The higher the response rate of a survey, the lower the risk of non-response bias. Of the distributed 60 questionnaires, 52 were received back as completed questionnaires with relevant and useful information for the study. The 52 completed questionnaires constituted an 86.67% response rate which was considered an excellent response rate (Mugenda & Mugenda, 2003) with a minimized risk for non-response bias. To this extent, the randomly collected primary sample data was considered adequate and sufficiently representative.

To ensure adequate representation of each DTMI, proportional random stratified sampling was used. Table 4.1 shows the distribution of the questionnaires collected from the sampled officers across the nine DTMIs.

Table 4.1: Distribution of the responses across the DTMIs

DTMI	Questionnaires dropped	Questionnaires Picked	Proportion	Response Rate
Century	6	4	7.70%	66.67%
Faulu	11	11	21.20%	100.00%
KWFT	10	9	17.30%	90.00%
Rafiki	6	6	11.50%	100.00%
REMU	5	4	7.70%	80.00%
SMEP	6	5	9.50%	83.33%
SUMAC	4	3	5.80%	75.00%
U & I	3	3	5.80%	100.00%
Uwezo	9	7	13.50%	77.78%
Total	**60**	**52**	**100.00%**	**86.67%**

In all the DTMIs, the response rate was above 60% indicating good response rate, and the distribution among the DTMIs was adequately proportional. The responses received were therefore sufficiently representative of the population.

4.2.2 Reliability Results

The term reliability generally refers to the consistency of a measure. The construct being measured using a questionnaire, however, is expected to vary from one respondent to another. The study used the Chronbach's coefficient alpha to estimate the consistency of Likert-items included in the questionnaires, and table 4.2 shows the results.

Table 4.2: Reliability test of the questionnaire items

Variable	Reliability Chronbach's alpha	Remark
Financial performance	0.902	Reliable
Financial leverage	0.871	Reliable
Non-performing loans	0.809	Reliable
Capital structure	0.845	Reliable
Market structure	0.911	Reliable

A high coefficient indicates that the items are consistently measuring the same underlying construct. George and Mallery (2003) provide the following rules of thumb: "_ > 0.9 – Excellent, _ > 0.8 – Good, _ > 0.7 – Acceptable, _ > 0.6 – Questionable, _ > 0.5 – Poor, and _ < 0.5 – Unacceptable". As such, having yielded all coefficients greater than 0.8 and greater than 0.9 for some sections, the questionnaires were accepted as consistent and reliable for the study.

4.2.3 Demographic factors

Among the primary data collected were the demographic profiles of the respondents. The objective was to get a brief insight into their backgrounds. The demographic details examined were; gender, highest education level, and job rank.

The sample constituted of 61.5% female respondents and 38.5% male respondents. The lowest maximum education level of the respondents was ordinary diploma qualification, while the highest was the master's degree. Figure 4.1 shows the distribution of the respondents across the education levels.
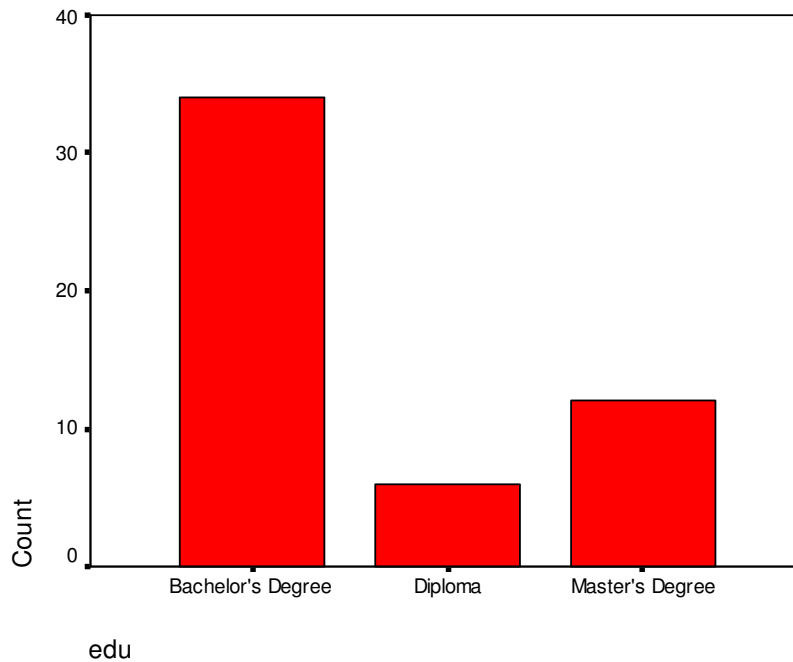
Figure 4.1: Education levels and gender

The sampled officers were classified into two ranks; portfolio managers (Rank 1), and credit officers (Rank 2). Table 4.3 shows the cross tabulation of the ranks against the education levels.

Table 4.3: Cross tabulation of job ranks against education levels

Rank	Bachelor's Degree	Diploma	Master's Degree	Total
1	2	0	4	6
2	32	6	8	46
Total	**34**	**6**	**12**	**52**

A total of 6 officers sampled were portfolio managers (rank 1) while 46 were credit officers (rank 2). It must be noted that all the officers in rank 2 perform the same duties, but their job titles differ depending on the DTMI in which they work. A total of 34 officers had bachelor degree qualifications, 6 officers had only diploma qualifications while 12 officers had master's degree qualifications. It is noted that none of the officers with diploma qualifications only was in rank 1. Table 4.4 shows the Chi-square test results to investigate whether job rank depended on the education level at 5% significance level.

Table 4.4: Chi-Square Test for independence – job rank versus education level

	Value	Degrees of Freedom	Significance
Pearson Chi-Square	7.433	2	.024
Likelihood Ratio	6.704	2	.035
N of Valid Cases	52		

Chi-square test tests the null hypothesis of the attributes being independent of each other. Since the P-values (Asymp. Sig.) are less than the significance level of 0.05, the null hypothesis is rejected. This implies that job rank depends on the education level of the officer. As such, it is concluded that job promotions and/or recruitments within the DTMIs are highly dependent on the highest education qualifications of the officers among other requirements.

4.2.4 Financial performance

Financial performance was the study's dependent variable. It is anticipated that variation in some or all aspects of the previously discussed determinants would result to some variation in the financial performance of a DTMI. In order to be able to relate this

variable to the determinants (independent variables), the study sought to delve into the characteristics of this variable, for a better insight. These characteristics ranged from the response of the DTMI's profitability the changes in the operating environment, to the growth/decline patterns of the DTMI's annual profits. The following series of tables show the results of the Likert-scale on the various aspects of the DTMIs' financial performance.

Table 4.5: Growth in profits despite changes in the operating environment

Levels	Frequency	Percent	Cumulative Percent
Agree	3	5.8	5.8
Neutral	2	3.8	9.6
Disagree	29	55.8	65.4
Strongly disagree	18	34.6	100.0
Total	52	100.0	
Mean = 4.192		*Mode = 4*	

Over 90% of the respondents disagreed that regardless of the changes in the operating environment, the DTMI will still grow in its profits. Only 5.8% agreed to this statement, with 3.8% being undecided. The analysis yielded a mean of 4.192 indicating "disagree" with mode = 4 indicating the same. Therefore turbulence in the operating environment will cause the DTMIs' profits to fluctuate, sometimes decreasing.

Table 4.6: Risk of closing branches due to financial constraints

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	16	30.8	30.8
Agree	29	55.8	86.5
Neutral	3	5.8	92.3
Disagree	4	7.7	100.0
Total	52	100.0	
Mean = 1.904		*Mode = 2*	

Over 86% of the respondents agreed that the DTMIs are not at the verge of closing any of its branches due to financial constraints. However, 7.7% of the respondents disagreed. The analysis yielded a mean of 1.904 indicating "agree" and a mode of 2 indicating the same. As such it is concluded that the DTMIs are not in any financial crisis that would result to some or all of their branches being closed down.

Table 4.7: Plans to increase investment in new technology

Levels	Frequency	Percent	Cumulative Percent
Agree	5	9.6	9.6
Disagree	30	57.7	67.3
Strongly disagree	17	32.7	100.0
Total	52	100.0	
Mean = 4.135		*Mode = 4*	

Only 9.6% of the respondents agreed that there are plans at the DTMIs to increase investment in new technology so as to aid efficient operations and service delivery. This leaves 93.4% who disagreed, with 32.7% disagreeing strongly. This is a major cause for

alarm since lack of investment in the adaptation to the changes in the dynamic world of technology may lead to the methods of service delivery of a DTMI or its products being obsolete and irrelevant in the long run. This will definitely ditch the DTMI into losses and a possible closure.

Table 4.8: Continuous cash flow to finance of the clients' projects.

Levels	Frequency	Percent	Cumulative Percent
Agree	7	13.5	13.5
Disagree	28	53.8	67.3
Strongly disagree	17	32.7	100.0
Total	52	100.0	
Mean = 4.058		*Mode = 4*	

It is indicated that only 13.5% of the respondents agreed that the DTMI will always have enough cash flow to finance any of its client's projects. All other respondents; 86.5% disagreed, with 32.7% disagreeing strongly. The mean was obtained as 4.058 and mode as 4, both indicating "disagree". This is another cause for alarm for the DTMIs as this indicates limitation of cash flow within the DTMIs hence limitation in their ability to meet their immediate customer needs. This may eventually result to customers voting with their feet to other financial institutions thus rendering the DTMIs financially non-competitive and non-performing.

Table 4.9: Consistent growth in annual net income of DTMIs

Levels	Frequency	Percent	Cumulative Percent
Strongly Agree	15	28.8	28.8
Agree	32	61.5	90.4
Disagree	5	9.6	100.0
Total	52	100.0	
Mean = 1.904		*Mode = 2*	

Over 90% of the respondents agreed that there is consistent growth in the annual net income of the DTMI, with 28.8% agreeing strongly. Only 9.6% disagreed. The mean was obtained as 1.904 while mode was obtained as 2 both indicating "agree". As such, despite the challenges identified in the previous discussions, the DTMIs have recorded a consistent growth in their annual net income over the years. This is quite encouraging, and raises the hope for DTMIs to excel, grow and spread even beyond Nairobi City County, or even to become fully fledged banks.

4.2.5 Financial leverage

The study sought to investigate the levels of financial leverage of the DTMIs as a determinant of their financial performance. These ranged from the use of debts as alternate corporate financing measure to the measures taken by the DTMIs to control their debt load. The following series of tables show the results of the Likert-scale on the various financial leverage characteristics.

Table 4.10: Debt as a preferable option for additional financing

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	11	21.2	21.2
Agree	33	63.5	84.6
Neutral	3	5.8	90.4
Disagree	5	9.6	100.0
Total	52	100.0	
Mean = 2.039		*Mode = 2*	

It is observed that 21.2% of the respondents strongly agree that DTMIs always use debt as the first option for additional financing, while 63.5% agree to it. This yields a cumulative 84.6% of the respondents agreeing to the use of debts as first option for additional financing. However, 9.6% of the respondent disagreed, while 5.8% were neutral. These proportions yield a mean 0f 2.039 which indicates "agree" with majority indicating that they agree (mode = 2).

Table 4.11: Use of debt as a source of finance does not always lead to increased cash flow for the DTMI

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	8	15.4	15.4
Agree	37	71.2	86.5
Neutral	3	5.8	92.3
Disagree	4	7.7	100.0
Total	52	100.0	
Mean = 2.058		*Mode = 2*	

15.4% of the respondents strongly agree while 71.2% agree that use of debt as a source of finance does not always lead to increased cash flow for the DTMIs. This yields a cumulative 86.5% of the respondents agreeing to the statement. 5.8% of the respondents were neutral about the statement, while 7.7% disagreed. The proportions yield a mean of 2.058 indicating "agree" with majority agreeing to it (mode = 2).

Table 4.12: Market value of the DTMI is determined by its financial leverage

Levels	Frequency	Percent	Cumulative Percent
Agree	7	13.5	13.5
Neutral	3	5.8	19.2
Disagree	19	36.5	55.8
Strongly disagree	23	44.2	100.0
Total	52	100.0	
Mean = 4.115			*Mode = 5*

Only 13.5% of the respondents agree that the market value of a DTMI is determined by its financial leverage. 5.8% were neutral. This leaves 36.5% and 44.2% of the respondents who disagree and strongly disagree respectively, yielding a cumulative 80.7%. The mean yielded by the responses is 4.115 indicating "disagree" with majority indicating that they strongly disagree (mode = 5). This leads to the conclusion that the market value of a DTMI is not determined by its financial leverage.

Table 4.13: Use of reserves to pay interest and debt at maturity

Levels	Frequency	Percent	Cumulative Percent
Agree	5	9.6	9.6
Neutral	3	5.8	15.4
Disagree	17	32.7	48.1
Strongly disagree	27	51.9	100.0
Total	52	100.0	
Mean = 4.269		*Mode = 5*	

9.6% of the respondents agree that DTMIs do not use reserves to pay interest and debt at maturity. However, a cumulative 84.6% disagree with 51.9% disagreeing strongly. The mean is 4.269 indicating "disagree" while the mode is 5. As such, it is concluded that DTMIs use reserves to pay interests and debts at maturity.

Table 4.14: Use of asset or liability to offset another liability or asset

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	21	40.4	40.4
Agree	23	44.2	84.6
Neutral	2	3.8	88.5
Disagree	6	11.5	100.0
Total	52	100.0	
Mean = 1.865		*Mode = 2*	

40.4% of the respondents strongly agree that no asset or liability stated in the balance sheet is offset by deduction of another liability or asset except inter-branch balances and items in transit or where a legal right of set-off exists. 44.2% agree to it, giving a cumulative of 84.6% of the respondents who agree. 3.8% were neutral, while 11.5% disagree. The mean yielded is 1.865 indicating "strongly agree" with majority indicating that they agree (mode = 2).

Table 4.15: Reduced borrowing in the money market

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	19	36.5	36.5
Agree	25	48.1	84.6
Neutral	2	3.8	88.5
Disagree	6	11.5	100.0
Total	52	100.0	
Mean = 1.904		*Mode = 2*	

It is observed that cumulatively, 84.6% of the respondents agree that borrowing in the money market is highly discouraged and if it has to be done, it has to be less than six times per annum, with 36.5 agreeing to this strongly. 3.8% were neutral, while 11.5% disagreed. The responses yielded a mean = 1.904 and mode = 2. Therefore, it is concluded that in the DTMIs, borrowing in the money market is highly discouraged and if it has to be done, it has to be less than six times per annum.

4.2.6 Non-Performing Loans (NPLs)

The study hypothesized non-performing loans as one of the determinants with a significant effect on the financial performance of the DTMIs. As such, various aspects of non-performing loans were investigated within the DTMIs. These aspects ranged from the DTMIs' lending policy, to the cleanliness of the collateral used by the customers to secure loans. The following series of tables show the results of the Likert-scale on the various aspects of the non-performing loans.

Table 4.16: Existence of a lending policy that minimizes NPLs

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	19	36.5	36.5
Agree	29	55.8	92.3
Neutral	2	3.8	96.2
Disagree	2	3.8	100.0
Total	52	100.0	
Mean = 1.750		*Mode = 2*	

Cumulatively, 92.3% of the respondents agree that in the DTMIs, there exist a lending policy that is geared towards the minimization of NPLs. 3.8% were undecided, while another 3.8% disagreed. The mean score is 1.75 indicating "strongly agree" while the majority agreed to the statement (mode = 2). It is therefore concluded that there exist lending policies in the DTMIs that bear the objective of minimizing the NPLs.

Table 4.17: Provision for NPLs at the DTMI branches

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	21	40.4	40.4
Agree	24	46.2	86.5
Neutral	5	9.6	96.2
Disagree	2	3.8	100.0
Total	52	100.0	
Mean = 1.769		*Mode = 2*	

The table shows that 40.4% strongly agree while 46.2% agree that provision for NPLs is actually done at the DTMI branches. Only 3.8% disagree, with 9.6% undecided. The mean score obtained was 1.769 indicating "strongly agree", where the majority just agree (mode = 2). Therefore, it was concluded that indeed, there are provisions for NPLs at the DTMI branches.

Table 4.18: Constant contact between customers and the DTMI

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	18	34.6	34.6
Agree	27	51.9	86.5
Neutral	2	3.8	90.4
Disagree	5	9.6	100.0
Total	52	100.0	
Mean = 1.885		*Mode = 2*	

It is indicated that 34.6% of the respondents strongly agree while 51.9% agree that there is a constant contact between the customers and the DTMI personnel that establishes the customer's ability to repay loans. 3.8% of the respondents were undecided while 9.6% disagreed. The responses yielded mean = 1.885 indicating "strongly agree", in which case majority actually agreed (mode = 2). As such, it is concluded that there exist a continuous contact between the DTMIs and their customers in order to be able to gauge and determine their ability to repay loans. This essentially goes a long way in ensuring that the rates of defaulting hence NPLs are minimized.

Table 4.19: Loan repayment adjustments

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	18	34.6	34.6
Agree	22	42.3	76.9
Neutral	5	9.6	86.5
Disagree	7	13.5	100.0
Total	52	100.0	
Mean = 2.019		*Mode = 2*	

The table shows that 34.6% of the respondents and 42.3% of the respondents strongly agree and agree respectively, that loan repayment adjustments are done according to the terms of agreement between the DTMI and the customer. This is with the aim of making sure that the customer is able to repay the loan without defaulting. However, 9.6% of the respondents were undecided, while 13.5% disagreed. The 13.5% cannot go unnoticed, as this is a significant proportion indicating that the DTMIs do not ensure that loan repayment adjustments are done according to the terms of agreement with the customer. This may be a point of great concern. All in all, the responses yielded a mean of 2.019 indicating "agree" with majority falling in that category (mode = 2).

Table 4.20: Existence of a thorough loan documentation system

Levels	Frequency	Percent	Cumulative Percent
Agree	7	13.5	13.5
Neutral	5	9.6	23.1
Disagree	27	51.9	75.0
Strongly disagree	13	25.0	100.0
Total	52	100.0	
Mean = 3.885		*Mode = 4*	

51.9% of the respondents disagreed while 25% strongly disagreed that there exist a thorough loan documentation systems in the DTMIs that leaves no loophole for exposure to loan defaulting. This is accompanied by a mean of 3.885 which indicates "undecided" with an inclination to "disagree". Majority indicated that they disagree (mode = 4). However, a meager 13.5% agreed that such systems exist in the DTMIs. It is therefore concluded that generally, there are no concrete and thorough documentation systems in the DTMIs that curb loans from being defaulted.

Table 4.21: Cleanliness of loan collaterals

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	19	36.5	36.5
Agree	22	42.3	78.8
Neutral	5	9.6	88.5
Disagree	6	11.5	100.0
Total	52	100.0	
Mean = 1.962		*Mode = 2*	

The table depicts that the proportions of respondents who strongly agree and who agree that the cleanliness of loan collateral is usually scrutinized thoroughly and ascertained in the DTMIs were 36.5% and 42.3% respectively. 9.6% were undecided, while 11.5% disagreed. The proportions were accompanied by a mean of 1.962 indicating "strongly agree" with majority indicating that they agree (mode = 2). Consequently, it is concluded that the cleanliness and legitimacy of the collaterals used as security by customers to secure loans at the DTMIs are thoroughly ascertained.

4.2.7 Capital structure

In the analysis of financial performance of DTMIs, capital structure cannot be ignored. A strong capital base provides a firm foundation upon which the financial excellence of a DTMI is built. As such, the study investigated various aspects of the capital structure of the DTMIs. These aspects ranged from decision making on issues that affect the capital structure to the maintenance of the prescribed minimum capital requirements. The following series of tables show the results of the Likert-scale on the various aspects of the capital structure.

Table 4.22: Managers rarely pursue their own objectives in making capital structure decisions

Levels	Frequency	Percent	Cumulative
Agree	6	11.5	11.5
Neutral	1	1.9	13.5
Disagree	29	55.8	69.2
Strongly disagree	16	30.8	100.0
Total	52	100.0	
Mean = 4.058		*Mode = 4*	

55.8% of the respondents disagreed while 30.8% strongly disagreed that managers of the DTMIs rarely pursue their own objectives in making capital structure decisions. 1.9% were undecided, while 11.5% agreed. This is associated with a mean of 4.058 indicating "disagree" and a mode of 4. All this generally implies that the managers of the DTMIs do not pursue their own objectives, rather they pursue the objectives of the DTMI more so on matters concerning capital structure.

Table 4.23: The DTMI operates on low-cost short term financing

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	19	36.5	36.5
Agree	28	53.8	90.4
Disagree	5	9.6	100.0
Total	52	100.0	
Mean = 1.827		*Mode = 2*	

A cumulative of 90.4% of the respondents agreed that DTMIs operate on low-cost short term financing. Only 9.6% disagreed. The mean was obtained as 1.827 indicating "strongly agree" with majority agreeing to the statement (mode =2). The conclusion is that DTMIs operate on low-cost short term financing.

Table 4.24: Competitiveness of DTMI's capital structures

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	21	40.4	40.4
Agree	24	46.2	86.5
Neutral	1	1.9	88.5
Disagree	6	11.5	100.0
Total	52	100.0	
Mean = 1.846		*Mode = 2*	

40.4% and 46.2% are the proportions of the respondents who strongly agree and agree respectively, that DTMIs capital structures are in line with the competitive structures existing in the industry. 1.9 % were undecided, while 11.5% disagreed. The mean is 1.846 indicating "strongly agree" with majority indicating that they agree (mode = 2).

Table 4.25: Use of funds for the intended purpose

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	17	32.7	32.7
Agree	29	55.8	88.5
Neutral	1	1.9	90.4
Disagree	5	9.6	100.0
Total	52	100.0	
Mean = 1.885		*Mode = 2*	

It is observed that 55.8% of the respondents agreed and 32.7% strongly agreed that DTMI funds are always used for the intended purpose. This is accompanied by a mean of 1.885 indicating "agree", majority being those that agree (mode = 2). It is therefore concluded that DTMI funds are always used for the intended purpose. This implies that the DTMIs adhere to their financial budgets hence minimizing wastage.

Table 4.26: Maintenance of the prescribed minimum capital requirements

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	23	44.2	44.2
Agree	24	46.2	90.4
Neutral	2	3.8	94.2
Disagree	3	5.8	100.0
Total	52	100.0	
Mean = 1.712		*Mode = 2*	

The table shows 46.2% and 44.2% of the respondents who agree and strongly agree respectively, that the DTMIs maintain the prescribed capital requirements. 3.8% were undecided, while 5.8% disagreed. These proportions were associated with mean = 1.712 indicating "strongly agree" with mode = 2 indicating "agree". Therefore, it is concluded that DTMIs do maintain the prescribed minimum capital requirements ensuring a capital structure that conforms with both internal and external regulations and requirements.

4.2.8 Market structure

Market structure is another key determinant of the financial performance of DTMIs. Any kind of business that endeavors to excel financially has to carefully build a large clientele network and develop concrete and sound marketing strategies and policies. In effect, these ensure a strong market structure that guarantees ready market for the goods or services being offered. The study sought to investigate various properties of the market structure of the DTMIs ranging from integration of market research and development to pricing decisions of the DTMIs. The following series of tables show the results of the Likert-scale on the various aspects of the market structure.

Table 4.27: Market research and development as an integral part of the DTMI's operations

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	23	44.2	44.2
Agree	21	40.4	84.6
Neutral	1	1.9	86.5
Disagree	7	13.5	100.0
Total	52	100.0	
Mean = 1.846		*Mode = 1*	

44.2% of the respondents strongly agree that market research and development is an integral part of the DTMI's operations. 40.4% agree to it, yielding a cumulative 84.6% of the respondents who agreed. 1.9% were undecided while 13.5% disagreed. The mean obtained was 1.846 indicating "strongly agree" with mode =1. Therefore, it is concluded that DTMIs conduct market research regularly in order to consistently develop their market structure.

Table 4.28: Reference of products to the market demands

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	29	55.8	55.8
Agree	23	44.2	100.0
Total	52	100.0	
Mean = 1.442		*Mode = 1*	

In this case, 100% agreed that the financial products offered by the DTMI are designed with reference to the market demands. 55.8% strongly agree, while 44.2% agree. This is accompanied by mean = 1.442 indicating "strongly agree" and mode = 1 indicating the same. This implies that the DTMIs put the voice of the customers into consideration when designing their financial products. This goes a long way in ensuring that the DTMIs are keeping pace with the changes in the market demand as well as ensuring that their products penetrate the market and are accepted by the customers.

Table 4.29: Prioritizing advertisement for product differentiation

Levels	Frequency	Percent	Cumulative Percent
Agree	5	9.6	9.6
Neutral	6	11.5	21.2
Disagree	26	50.0	71.2
Strongly disagree	15	28.8	100.0
Total	52	100.0	
Mean = 3.981		*Mode = 4*	

A total of 78.8% of the respondents disagreed that advertising for product differentiation is given priority. 11.5% were undecided, while 9.6% agreed. The mean was obtained as 3.981 and mode as 4 indicating that majority of the respondents disagreed. It is therefore concluded that advertisement for product differentiation is not usually given priority in the DTMIs. This could be one of the failures by the DTMIs that result to challenges in achieving the set market structure objectives.

Table 4.30: Innovation of new products is driven by market forces

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	15	28.8	28.8
Agree	32	61.5	90.4
Neutral	1	1.9	92.3
Disagree	4	7.7	100.0
Total	52	100.0	
Mean = 1.885		*Mode = 2*	

Innovation of new DTMI products is usually driven by market forces. This was confirmed by over 90% of the respondents with only 7.7% who disagreed. The proportions are accompanied by a mean of 1.885 indicating "strongly agree" and mode = 2 indicating "agree". As such, it is conclusive that DTMIs do not develop new products in isolation, but in consultation with the customers who are the target market for the new products, and in consideration of the prevailing market forces.

Table 4.31: Pricing of products is determined by the market forces

Levels	Frequency	Percent	Cumulative Percent
Strongly agree	18	34.6	34.6
Agree	31	59.6	94.2
Neutral	2	3.8	98.1
Disagree	1	1.9	100.0
Total	52	100.0	
Mean = 1.731		*Mode = 2*	

Over 94% of the respondents agreed that pricing of DTMI products is determined by the market forces, with 34.6% agreeing strongly. 3.8% were undecided, while a meager 1.9% disagreed. The mean was obtained as 1.731 indicating "strongly agree" while the mode was 2 indicating "agree". Consequently, it is concluded that pricing of DTMI products is greatly influenced by the market forces, more so those on demand and supply.

4.3 Secondary data

Secondary data on the indicators of financial performance and its determinants was gathered from the CBK for all the nine sampled DTMIs, through the annual bank supervision reports for years 2013 and 2014. The indicators of financial performance

were; net income, shareholders' funds, total assets, ROE and ROA. These indicators were coded as follows;

F3: Net income (Sh. "Millions")

F4: Share holders' funds (Sh. "Millions")

F5: Total assets (Sh. "Millions")

F6: Return On Equity (ROE – percentage)

F7: Return on Assets (ROA – percentage)

4.3.1 Descriptive statistics of financial performance indicators

Table 4.32 shows the descriptive statistics of these indicators for year 2013.

Table 4.32: Descriptive statistics for financial performance indicators – year 2013

		F3	F4	F5	F6	F7
N	Valid	9	9	9	9	9
	Missing	0	0	0	0	0
Mean		65.5556	592.2222	4594.4444	.0050	-.0189
Std. Deviation		138.79491	906.96303	7564.4009	.14740	.05802
Coefficient of Variation		2.117209	1.531457	1.646423	29.48	3.069841
Skewness		1.104	1.151	0.393	-.751	-1.400
Std. Error of Skewness		.717	.717	.717	.717	.717
Minimum		-27.00	45.00	80.00	-.30	-.16
Maximum		395.00	2897.00	21752.00	.23	.02
Sum		590.00	5330.00	41350.00	.05	-.17

In the year 2013, the mean net income of the DTMIs stood at Sh. 65.56 Millions, shareholders' funds at Sh. 592.22 Millions and the total assets at Sh. 4,594.44 Millions. On the other hand, the mean ROE stood at 0.5% and ROA at -1.89%. These mean values are associated with high standard deviation values that indicate high variation ranging from 153.15% variability to 2948% variability. This high variability in financial performance among the DTMIs may be attributed to the wide range [-27, 395] with nine observations only (count = 9), and the variation in one or more of the financial performance determinants investigated in this study. The skewness values range from -1.4 to 1.151 (Std. Error = 0.717) which indicate slight negative/positive skewness. This skewness is not significant since the coefficients lie within the range; ± 2 * Std. Error, i.e. [-1.434, 1.434]. Therefore the data are approximately normally distributed.

Table 4.33 shows the descriptive statistics of these indicators for year 2014.

Table 4.33: Descriptive statistics for financial performance indicators – year 2014

	F3	F4	F5	F6	F7
Mean	86.1111	1177.6667	6330.1111	-.0356	-.0121
Std. Deviation	203.03229	1750.2530	10137.933	.17424	.05379
Coefficient of Variation	2.357795	1.4862040	1.601541	-4.894382	-4.445454
Skewness	1.219	1.258	1.300	-1.311	-1.424
Std. Error of Skewness	.717	.717	.717	.717	.717
Minimum	-97.00	76.00	137.00	-.45	-.15
Maximum	474.00	4606.00	26985.00	.11	.02
Sum	775.00	10599.00	56971.00	-.32	-.11

In the year 2014, the mean net income of the DTMIs stood at Sh. 86.11 Millions, shareholders' funds at Sh. 1,177.67 Millions and the total assets at Sh. 6,330.11

Millions. On the other hand, the mean ROE stood at -3.56% and ROA at -1.21%. Just like in the year 2013, these mean values are associated with high standard deviation values that indicate high variation ranging from 148.62% variability to 489.44% variability. The skewness values range from -1.424 to 1.300 (Std. Error = 0.717) which indicate slight negative/positive skewness. This skewness is also not significant since the coefficients lie within the range; ± 2 * Std. Error, i.e. [-1.434, 1.434]. As such, the data are approximately normally distributed.

To determine whether the observations of both financial performance and its determinants indicators are dependent on years, and to rule out the possibility of years being a confound in the analysis, a two-way Analysis of variance (Two-Way ANoVA) was conducted at 5% significance level to test the hypotheses;

H_{01}: Variation in years does not affect the financial performance of the DTMIs

H_{02}: Variation in the indicators of financial performance does not affect the financial performance of the DTMIs

H_{03}: There is no statistically significant interaction between years and indicators of the financial performance of the DTMIs

Table 4.34 shows the two-way ANoVA output

Table 4.34: Two-way ANoVA output

Source of Variation	SS	df	MS	F	P-value	F crit
Years	6060825	1	6060825	0.29586	0.58838	3.990924
Indicators	3.7E+08	3	1.23E+08	6.018283	0.001121	2.748191
Interaction	9037953	3	3012651	0.147063	0.931205	2.748191
Within	1.31E+09	64	20485473			
Total	1.7E+09	71				

The P-value for "Years" (0.58838) is greater than the significance level of the test (0.05). Also, the computed F-statistic (0.29586) is much less than the critical F-statistic (3.99092). For these reasons, H_{01} fails to be rejected. This implies that variation in years does not affect the financial performance of the DTMIs. It further implies that any variation observed in the results of independent analysis of the financial performance of the DTMIs in the two years should not be attributed to the change in years (say from 2013 to 2014).

On the other hand, the P-value for "Indicators" (0.00112) is less than the significance level (0.05). Also, the computed F-statistic (6.01828) is greater than the critical F-statistic (2.74819). For these reason, H_{02} is rejected. This implies that variation in the indicators affects the financial performance of the DTMIs. As such, any variation observed in the results of independent analysis of the financial performance of the DTMIs in the two years can be attributed to the change in the indicators of the financial performance.

The P-value for the "Interaction" (0.93120) is greater than the significance level (0.05). Also, the computed F-statistic (0.14706) is less than the significance level (0.05). H_{03} is therefore not rejected, and the interaction between years and the indicators of financial performance is not statistically significant. These results of the two-way ANoVA rule out the possibility of years being a confound variable in the explanation of the variations in the financial performance of the DTMIs. This leaves the task of explaining the variations in the financial performance of the DTMIs as caused by the determinants; financial leverage, non- performing loans, capital structure and Market structure.

4.3.2 Model variables and their indicators

The study examined three indicators of financial performance of the DTMIs, which is the dependent/response variable of the study model. Several indicators were also examined for each independent/explanatory variable. Table 4.35 shows the indicators examined for each variable.

Table 4.35: Model variables and their indicators

Response variable	Explanatory variables			
Financial Performance	**Financial Leverage**	**Non - Performing Loans**	**Capital Structure**	**Market Structure**
Indicators: ▪ Net Income ▪ ROE ▪ ROA	Indicators: ▪ EBIT ▪ Financial Leverage Ratio	Indicators: ▪ Net non-performing loans ▪ Loan to Deposit Ratio	Indicators: ▪ Core capital to deposit ratio ▪ Debt to Equity Ratio ▪ Total risk weighted assets	Indicators: ▪ Market share ▪ Number of branches ▪ Number of active deposit accounts

4.3.3 Financial performance indicator

Financial performance is influenced by various variables, that is, financial performance determinants. These financial performance determinants, just like financial performance itself, have a number of indicators that can be used for their measurement and appraisal. As such, for analytical purposes, the most preferred indicator for financial performance is that which has the strongest relationship with the various indicators of the determinants. In order to determine the strongest hence the preferred indicator of financial performance of the DTMIs, an explorative correlation analysis was conducted yielding the correlation matrix as shown in Table 4.36. Pearson's product moment coefficient of correlation was used to determine the nature as well as the degree of the relationship between each indicator of a determinant and each indicator of financial performance.

Table 4.36: Correlation matrix – Determination of the strongest indicator for financial performance

		Year 2013			Year 2014		
		Net Income	ROE	ROA	Net Income	ROE	ROA
Net Income	Pearson Correlation	1	.646	.418	1	.536	.397
	Sig. (2-tailed)	.	.060	.263	.	.137	.290
ROE	Pearson Correlation	.646	1	.897(**)	.536	1	.985(**)
	Sig. (2-tailed)	.060	.	.001	.137	.	.000
ROA	Pearson Correlation	.418	.897(**)	1	.397	.985(**)	1
	Sig. (2-tailed)	.263	.001	.	.290	.000	.
EBIT	Pearson Correlation	.990(**)	.568	.368	.983(**)	.449	.310
	Sig. (2-tailed)	.000	.111	.330	.000	.225	.417
Financial Leverage Ratio	Pearson Correlation	.144	.217	.221	-.108	.199	.204
	Sig. (2-tailed)	.711	.575	.567	.783	.607	.599
NNPLs	Pearson Correlation	.961(**)	.546	.372	.928(**)	.499	.365
	Sig. (2-tailed)	.000	.128	.325	.000	.171	.334
Loan to Deposit Ratio	Pearson Correlation	.346	.017	.014	-.283	.359	.450
	Sig. (2-tailed)	.361	.965	.972	.461	.343	.224
Core Capital to Deposit Ratio	Pearson Correlation	-.620	-.650	-.467	-.476	.133	.227
	Sig. (2-tailed)	.075	.058	.205	.196	.734	.558
Debt to Equity Ratio	Pearson Correlation	.591	.727(*)	.403	.613	.184	.085
	Sig. (2-tailed)	.094	.026	.282	.079	.636	.829
Total Risk Weighted Assets	Pearson Correlation	.992(**)	.608	.370	.969(**)	.468	.336
	Sig. (2-tailed)	.000	.082	.327	.000	.204	.377
Market Share	Pearson Correlation	.994(**)	.626	.387	.969(**)	.454	.322
	Sig. (2-tailed)	.000	.071	.304	.000	.220	.397
No. of Branches	Pearson Correlation	.838(**)	.761(*)	.465	.902(**)	.506	.382
	Sig. (2-tailed)	.005	.017	.208	.001	.165	.310
No. of Active Deposit A/cs	Pearson Correlation	.978(**)	.631	.416	.799(**)	.323	.227
	Sig. (2-tailed)	.000	.068	.265	.010	.396	.557

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

It is observed that the only strong correlation among the proposed indicators of financial performance is that between ROE and ROA (0.897 and 0.985 for 2013 and 2014 respectively). This indicates that ROE and ROA are more or less equal measures of financial performance of the DTMIs, and so they can be used interchangeably. The correlation between each of these and the net income is relatively weak; 0.646 and 0.418 respectively for 2013, and 0.536 and 0.397 respectively for 2014. As such, neither ROE nor ROA can substitute net income as an indicator of financial performance.

It is further observed that the correlations between each of the indicators of the explanatory variables and ROE as well as ROA are all weak (less than 0.7). On the other hand, most of the correlations between the indicators of the explanatory variables and the net income are relatively strong (greater than 0.7). Therefore, strong correlations are those between the various financial performance indicators and the net income. This implies that net income is best explained by the listed indicators than the ROE and ROA. Further, it implies that variations in the net income as a measure of financial performance can be explained significantly by the variations in most of the indicators of the explanatory variables which are financial performance determinants. As such, net income is selected as the strongest and the preferred measure of financial performance of the DTMIs.

4.3.4 Normality of the response variable (Net Income) data

For the purposes of regression modeling and the parametric tests therein, the response variable data (net income) is required to originate from a normally distributed population. To verify the normality of the net income data, Q-Q plots were constructed.
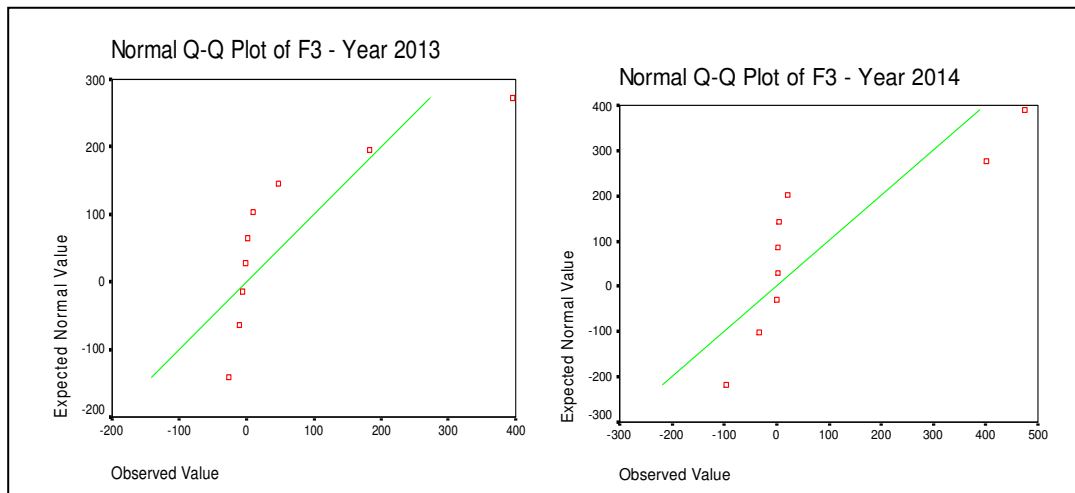
Figure 4.2: Q-Q plots - Normality check for the Net Income data

The Q-Q plots indicate approximately normal distribution of net income data (coded as F3) with the data points clustered and balanced around the line of exact-normal distribution. This is verified using the descriptive statistics of the net income data in Tables 4.33 and 4.34, where the positive skewness indicated is insignificant, hence the presence of symmetry. The data yielded a moment coefficient of kurtosis of 2.7904 which is very close to 3 indicating an approximately mesokurtic distribution with an inclination to platykurtic distribution due to the wide range. These descriptive statistics collectively indicate an approximate normal distribution of the net income data.

4.3.5 Indicators of the determinants of financial performance

In order to determine the strongest and the most statistically significant indicator for each explanatory variable, further correlation analysis was conducted for each cluster of indicators against the selected indicator of the response variable, net income. The resulting correlation matrices were useful in weeding out the weak/non-significant indicators as well as assessing the collinearity/multicollinearity among the indicators. Table 4.37 shows the correlation matrix of the measures of financial leverage and the net income.

Table 4.37: Correlation matrix – Financial leverage and net income

Year	Variable	Net Income	EBIT	Financial Leverage Ratio
	Net Income	1.0000		
2013	EBIT	0.9900	1.0000	
	Financial Leverage Ratio	0.1440	0.1900	1.000
	Net Income	1.0000		
2014	EBIT	0.9841	1.0000	
	Financial Leverage Ratio	-0.1078	-0.0849	1.0000

In both years, correlation between EBIT and net income is the strongest (0.9900 and 0.9841 respectively) while that between the financial leverage ratio and net income is very weak (0.1440 and -0.1078 respectively). As such, EBIT as a measure of financial leverage is a stronger determinant of financial performance than financial leverage ratio. Therefore, EBIT was selected as the indicator for the explanatory variable; financial leverage. The correlation between EBIT and financial leverage ratio is very weak (0.1900 and -0.0849 respectively) indicating that there does not exist any collinearity between the two indicators.

Table 4.38 shows the correlation matrix for the measures of non-performing loans and the net income.

Table 4.38: Correlation matrix – Non-performing loans and net income

Year	Variable	Net Income	NNPLs	Loan to Deposit Ratio
	Net Income	1.0000		
2013	NNPLs	0.9610	1.0000	
	Loan to Deposit Ratio	0.3460	0.3700	1.0000
	Net Income	1.0000		
2014	NNPLs	0.9283	1.0000	
	Loan to Deposit Ratio	-0.2827	-0.3710	1.0000

Net-Non-Performing Loans (NNPLs) have the strongest correlation with the net income in both years (0.9610 and 0.9283 respectively). The correlation between the loan to deposit ratio and the net income is very weak (0.3460 and -0.2827 respectively). As such, NNPLs is selected as the measure for non-performing loans; an explanatory variable in the determination of financial performance of the DTMIs.

Table 4.39 shows the correlation matrix of the measures of capital structure and the net income.

Table 4.39: Correlation matrix – Capital structure and net income

Year	Variable	Net Income	Core Capital to Deposit Ratio	Debt to Equity Ratio	Total Risk Weighted Assets
	Net Income	1.0000			
	Core Capital to				
2013	Deposit Ratio	-0.6200	1.0000		
	Debt to Equity Ratio	0.591	-0.785	1.0000	
	Total Risk Weighted				
	Assets	0.992	-0.639	0.6220	1.0000
	Net Income	1.0000			
	Core Capital to				
2014	Deposit Ratio	-0.4757	1.0000		
	Debt to Equity Ratio	0.6133	-0.9129	1.0000	
	Total Risk Weighted				
	Assets	0.9661	-0.6385	0.7649	1.0000

Total risk weighted assets emerge the strongest predictor for net income in both years (0.9920 and 0.9661 respectively). The correlations among the three indicators are all relatively strong ($r \geq 0.7$) indicating presence of collinearity among them. This implies that including more than one of these indicators in a model would compromise the explanatory power of the model due to the collinearity. Consequently, total risk weighted assets was selected as the key measure for capital structure; a predictor of the financial performance of the DTMIs.

Table 4.40 shows the correlation matrix for the measures of market structure and the net income.

Table 4.40: Correlation matrix – Market structure and net income

Year	Variable	Net Income	Market Share	No. of Branches	No. of Active Deposit A/c's
	Net Income	1.0000			
	Market Share	0.9940	1.0000		
2013	No. of Branches	0.8380	0.8690	1.0000	
	No. of Active Deposit A/c's	0.9780	0.9720	0.797	1.0000
	Net Income	1.0000			
	Market Share	0.9693	1.0000		
2014	No. of Branches	0.9017	0.9429	1.0000	
	No. of Active Deposit A/c's	0.7989	0.8843	0.7230	1.0000

Source: Author (2016)

The correlations between each of the indicators of market structure and net income are all strong (greater than 0.7) in both years. However, market share is the strongest of all (0.9940 and 0.9693 respectively). The correlations among the indicators are all greater than 0.7 (strong), indicating collinearity among the indicators. As such, only one of them can be included in the model determining the financial performance of the DTMIs. Market share is therefore selected as the measure of market structure.

Table 4.41 shows a summary of the model variables and the respective key indicators.

Table 4.41: Model Variables and the key Indicators

Response variable	Explanatory variables			
Financial Performance	Financial Leverage	Non-Performing Loans	Capital Structure	Market Structure
Indicator: ▪ Net Income	Indicator: ▪ EBIT	Indicator: ▪ Net -non performing loans	Indicator: ▪ Total risk weighted assets	Indicator: ▪ Market share

4.4 Regression results

To determine the functional relationship between financial performance of the DTMIs and its determinants, a multiple linear regression model was developed for each year and then for the two years. The response variable in the model is financial performance (Y) while the explanatory variables are; financial leverage (X_1), non- performing loans (X_2), capital structure (X_3) and Market structure (X_4). The model structure is;

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

4.4.1. Multiple Linear Regression for Year 2013

Table 4.42 shows a segment of the multiple linear regression output indicating the model summary, Analysis of Variance (ANoVA) and the regression coefficients of the model.

Table 4.42: Multiple Linear Regression Output Year 2013

Dependent Variable: Y	Coeff. (B)	Std. Error	t-statistic	Sig.	VIF
(Constant)	-9.407	6.066	-1.551	0.196	
X_1	0.25	0.072	3.478	0.025	8.51
X_2	-0.311	0.11	-2.821	0.048	3.809
X_3	-0.011	0.013	-0.84	0.448	49.993
X_4	848.532	378.386	2.243	0.088	39.056
R-Square	**0.995**				
F-Value	**410.390**	**Sig.**	**0.000**		
Durbin Watson	**1.721**				

The output yields the model;

$$Y = -9.407 + 0.250X_1 - 0.311X_2 - 0.011X_3 + 848.53X_4$$

It is observed that in the year 2013, the net income that was not influenced by the financial performance determinants captured in the model was Sh. (9.407) Million. Further, net income increased by Sh. 0.25 Million for every Sh. 1 Million increase in the EBIT (financial leverage), decreased by Sh. 0.311 Million for every Sh. 1 Million in the non-performing loans, decreased by Sh. 0.011 Million for every Sh. 1 Million in the total risk weighted assets (capital structure) and increased by Sh. 848.53 Million for every 1% increase in the market share (market structure).

4.4.2 Goodness of fit of the model

(a) Explanatory power

The model is associated with a multiple correlation value R = 0.999. This indicates a very strong direct association between the determinants of financial performance and the financial performance. The adjusted coefficient of determination, R^2 = 0.995 = 99.5%. This indicates a very high explanatory power of the model hence an excellent model. It implies that the model and the determinants of financial performance involved can

explain 99.5% of the variations observed in the financial performance of the DTMIs. The remaining 0.5% is the unexplained/residual variance which is attributed to other significant explanatory variables that are not captured in the model and the pure chance variations/errors.

(b) Serial/Auto correlation

The Durbin-Watson statistic was obtained as d = 1.721. This is a value close to 2 (i.e. d $\simeq$ 2) indicating the absence of serial correlation/autocorrelation. This implies that the observations were statistically independent of each other. Autocorrelation basically refers to lag correlation of a given set of data within itself, lagged by a number of observations. Presence of autocorrelation implies that the observations of a given variable influence each other. The consequence of autocorrelation in regression analysis is that the regression parameters become inefficient despite being unbiased and linear. This compromises the explanatory power of the regression model.

(c) F-test

F-test tests the hypotheses;

Null hypothesis, H_0: The model is NOT statistically significant,

Alternative hypothesis, H_1: The model is statistically significant.

The test statistic for F-test is the F-statistic. It is the ratio of the explained variation to the unexplained/residual variation. The obtained F-statistic = 410.38 is greater than the critical F-statistic obtained from the F-distribution table; $F_{0.05,4,4}$ = 6.3882. Also, the P-value obtained, sig = 0.000 is much less than the significance level, α = 0.05. Based on these findings, the null hypothesis is rejected implying that the model is statistically significant thus explaining the functional relationship between financial performance of the DTMIs and the determinants adequately.

(d) t-tests and collinearity diagnostics

t-test tests the hypotheses;

Null hypothesis, H_0: $\beta_i = 0$ (The associated predictor variable is NOT statistically significant)

Alternative hypothesis, H_1: $\beta_i \neq 0$ (The associated predictor variable is statistically significant)

The test statistic for the t-test is the t-statistic. It is the ratio of an esti-mated regression parameter to its standard error. The decision rule is; reject the null hypothesis if the computed |t-statistic| $\geq$ critical t-statistic, or if the P-value (Sig.) is less than the significance level i.e. $\alpha = 0.05$. Table 4.12 shows the findings as well as the conclusions of the t-tests.

Collinearity is the existence of a linear relationship between any two predictor variables in a regression model. Where more than two predictor variables are involved in such a relationship, then the relationship is referred to as multicollinearity. Collinearity renders a predictor variable non-significant in a model. It is measured using Variance Inflation Factor (VIF) which indicates the factor by which the variance of a regression parameter is amplified due to the existence of collinearity between the associated predictor variable and any other predictor variable(s) in the model. VIF = 1 indicates absence of collinearity while VIF $\geq$ 10 is a sign of serious multicollinearity requiring correction for the model to be usable and adequate for any prediction. Table 4.43 shows the results, decisions and conclusions of the t-tests as well as the collinearity diagnostics.

Table 4.43: t-test and collinearity diagnostic results (Year 2013)

Explanatory Variable	Computed |t-statistic|	Critical t-statistic	P-value (sig)	Decision	VIF	Conclusion
Financial Leverage	3.478	2.776	0.025	Reject H_0	8.510	Significant and Non-collinear
Non-performing loans	2.821	2.776	0.048	Reject H_0	3.809	Significant and Non-collinear
Capital structure	0.840	2.776	0.448	Fail to reject H_0	49.993	Non-significant and collinear
Market structure	2.243	2.776	0.088	Fail to reject H_0	39.056	Non-significant and collinear

It is observed that of the four explanatory variables, financial leverage and the non-performing loans are significant and non-collinear, while capital structure and market structure are non-significant and collinear. This implies that prediction power of the model developed using the year 2013 data is compromised by the presence of collinearity. It must be noted that the interaction between the determinants of financial performance is plausible and inevitable. To verify this, a simple linear regression analysis was performed where financial performance was regressed against each of the collinear determinants. Table 4.44 shows the regression output for capital structure (F15) as a determinant/predictor of financial performance (F3) using year 2013 data.

Table 4.44: Simple Linear Regression Output Year 2013 – Financial performance against capital structure

Dependent Variable: Y	Coeff. (B)	Std. Error	t-statistic	Sig.	R-Square
(Constant)	-13.6871	7.3873	-1.8528	0.1063	0.9810
X_3	0.0229	0.0011	20.5850	0.0000	
F-Value	423.7410				
Durbin Watson	2.5900				

The output yields the model;

$$Y = -13.6871 + 0.0229X_3$$

The model indicates an increase of sh. 0.0229 million per sh 1 million increase in the capital structure. The model is associated with 0.981 adjusted coefficient of determination indicating a very powerful model, and a high F-value (423.741) indicating that the model is statistically significant. The Durbin Watson statistic is 2.59 indicating absence of autocorrelation, while the t-statistic for capital structure as a predictor is high (20.585) indicating that it is a statistically significant and strong predictor of financial performance of the DTMIs. This confirms that using the year 2013 data, capital structure is a significant determinant of financial performance of a DTMI, though it is significantly correlated with other determinants.

Table 4.45 shows the regression output for market structure (F16) as a determinant/predictor of financial performance using year 2013 data.

Table 4.45: Simple Linear Regression Output Year 2013 – Financial performance against market structure

Dependent Variable: Y	Coeff. (B)	Std. Error	t-statistic	Sig.	R-Square
(Constant)	-20.2629	6.2405	-3.2470	0.0141	0.9870
X_4	772.3664	30.9213	24.9785	0.0000	
F-Value	**623.9250**				
Durbin Watson	**1.8550**				

The output yields the model;

$$Y = -20.2629 + 772.3664 X_4$$

The model indicates an increase of sh. 772.3664 million per 1% increase in the market structure. The model is associated with 0.987 adjusted coefficient of determination indicating a very powerful model, and a high F-value (623.925) indicating that the model is statistically significant. The Durbin Watson statistic is 1.885 indicating absence of autocorrelation, while the t-statistic for market structure as a predictor is high (24.9785) indicating that it is a statistically significant and strong predictor of financial performance of the DTMIs. This confirms that using the year 2013 data, market structure is a significant determinant of financial performance of a DTMI, though it is significantly correlated with other determinants.

(e) Zero mean, normality and homoscedasticity of the regression residuals

The residual term in a regression model is required to bear a normal distribution with a zero mean. Figure 4.3 shows the distribution of the standardized residuals from the year 2013 data.
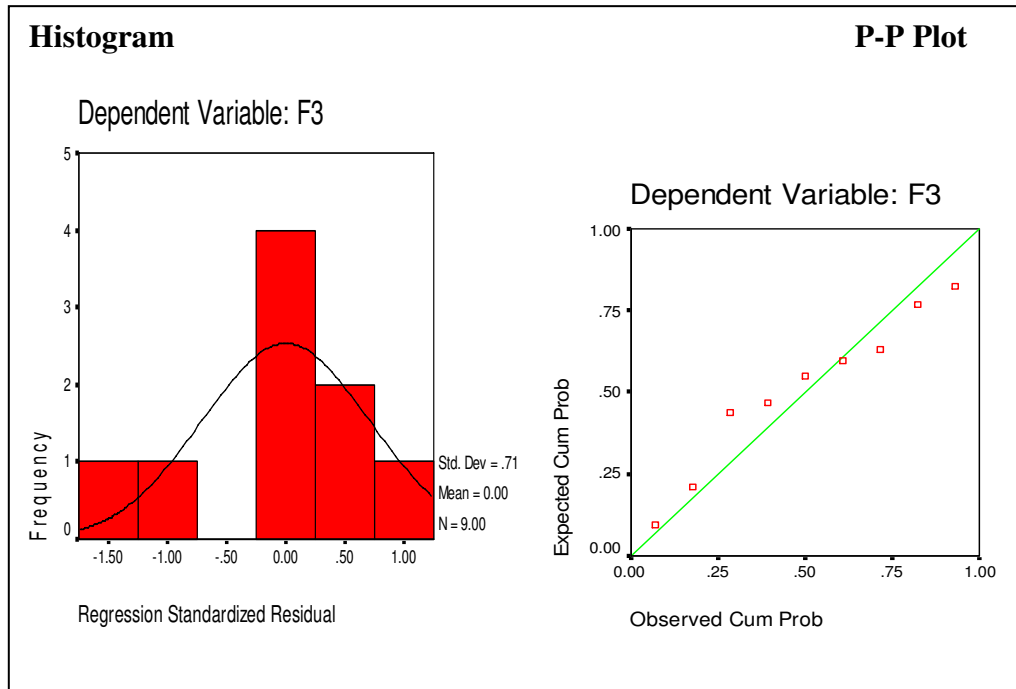
Figure 4.3: Histogram and P-P Plot - Zero mean and normality of the residuals (2013)

It is evident from the histogram and the P-P plot that the distribution of the residuals is normal with a mean of zero. Further, the data points appear to be balanced on the sides of the line of equal distribution in the P-P plot indicating approximately constant variance i.e. homoscedasticity.

4.4.3 Multiple Linear Regression for Year 2014

Table 4.46 shows a segment of the multiple linear regression output indicating the model summary, Analysis of Variance (ANoVA) and the regression coefficients of the model for year 2014.

Table 4.46: Multiple Linear Regression Output Year 2014

Dependent Variable: Y	Coeff. (B)	Std. Error	t-statistic	Sig.	VIF
(Constant)	4.822	15.187	0.317	0.767	
X_1	0.822	0.195	4.222	0.013	6.123
X_2	-0.661	0.206	-3.209	0.02	2.815
X_3	0.139	0.054	2.574	0.031	16.234
X_4	-61.761	24.066	-2.566	0.028	16.466
R-Square	**0.978**				
F-Value	**91.445**	**Sig.**	**0.000**		
Durbin Watson	**2.059**				

The output yields the model;

$$Y = 4.822 + 0.822X_1 - 0.661\beta_2 X_2 + 0.139X_3 - 61.761X_4$$

In year 2014, the net income that was not influenced by the financial performance determinants captured in the model is Sh. 4.822 Million. Further, net income increased by Sh. 0.822 Million for every Sh. 1 Million increase in the EBIT (financial leverage), decreased by Sh. 0.661 Million shillings for every Sh. 1 Million in the non-performing loans, increased by Sh. 0.139 Millions for every Sh. 1 Million in the total risk weighted assets (capital structure) and decreased by Sh. 61.761 Millions for every 1% increase in the market share (market structure).

4.4.4 Goodness of fit of the model

(a) Explanatory power

The multiple correlation value R = 0.995 indicating a very strong direct association between the determinants of the financial performance and the financial performance. The adjusted coefficient of determination, R^2 = 0.978 = 97.8% indicating a very high

explanatory power of the model. The determinants of financial performance involved can explain 97.8% of the variation observed in the financial performance of the DTMIs.

(b) Serial/Auto correlation

The Durbin-Watson statistic was obtained as d = 2.059 (i.e. d $\simeq$ 2) indicating the absence of serial correlation/autocorrelation. Therefore the observations were statistically independent.

(c) F-test

The obtained F-statistic = 91.445 is greater than the critical F-statistic obtained from the F-distribution table; $F_{0.05,4,4}$ = 6.3882. Also, the P-value obtained, sig = 0.000 is much less than the significance level, α = 0.05. The null hypothesis is rejected implying that the model is statistically significant.

(d) t-tests and collinearity diagnostics

Table 4.47 shows the results, decisions and conclusions of the t-tests as well as the collinearity diagnostics.

Table 4.47: t-test and collinearity diagnostic results (Year 2014)

Explanatory Variable	Computed |t-statistic|	Critical t-statistic	P-value (sig)	Decision	VIF	Conclusion
Financial Leverage	4.222	2.776	0.013	Reject H_0	6.123	Significant and Non-collinear
Non-performing loans	3.209	2.776	0.020	Reject H_0	2.815	Significant and Non-collinear
Capital structure	2.574	2.776	0.031	Fail to reject H_0	16.234	Non-significant and collinear
Market structure	2.566	2.776	0.028	Fail to reject H_0	16.466	Non-significant and collinear

Financial leverage and non-performing loans are statistically significant predictors of financial performance while capital structure and market structure are not. On the other hand, financial leverage and non-performing loans do not suffer collinearity as predictors, but capital structure and market structure do. Consequently, just like in the year 2013, the model is very powerful in description, but weak in prediction due to presence of collinearity.

Simple linear regression analysis for capital structure as a sole predictor of financial performance of a DTMI using year 2014 data yielded the output in table 4.48.

Table 4.48: Simple Linear Regression Output Year 2014 – Financial performance against capital structure

Dependent Variable: Y	Coeff. (B)	Std. Error	t-statistic	Sig.	R-Square
(Constant)	-35.0525	21.2153	-1.6522	0.1425	0.9310
X_3	0.0250	0.0024	10.4461	0.0000	
F-Value	**109.1200**				
Durbin Watson	**1.8380**				

The output yields the model;

$$Y = -35.0525 + 0.025X_3$$

The model indicates an increase of sh. 0.025 million per sh. 1 million increase in the capital structure. The model is associated with 0.931 adjusted coefficient of determination indicating a very powerful model, and a high F-value (109.12) indicating that the model is statistically significant. The Durbin Watson statistic is 1.838 indicating absence of autocorrelation, while the t-statistic for capital structure as a predictor is high (10.4461) indicating that it is a statistically significant and strong predictor of financial performance of the DTMIs. This confirms again that using the year 2014 data, capital structure is a significant determinant of financial performance of a DTMI, though it is significantly correlated with other determinants.

Table 4.49 shows the regression output for market structure (F16) as a determinant/predictor of financial performance using year 2013 data.

Table 4.49: Simple Linear Regression Output Year 2014 – Financial performance against market structure

Dependent Variable: Y	Coeff. (B)	Std. Error	t-statistic	Sig.	R-Square
(Constant)	-35.6867	21.4008	-1.6675	0.1393	0.9390
X_4	11.0502	1.0658	10.3684	0.0000	
F-Value	**107.5040**				
Durbin Watson	**1.9200**				

The output yields the model;

$$Y = -35.6867 + 11.0502X_4$$

The model indicates an increase of sh. 11.0502 million per 1% increase in the market structure. The model is associated with 0.939 adjusted coefficient of determination indicating a very powerful model, and a high F-value (107.504) indicating that the model is statistically significant. The Durbin Watson statistic is 1.92 indicating absence of autocorrelation, while the t-statistic for market structure as a predictor is high (10.3684) indicating that it is a statistically significant and strong predictor of financial performance of the DTMIs. This again confirms that using the year 2014 data, market structure is a significant determinant of financial performance of a DTMI, though it is significantly correlated with other determinants.

(e) Zero mean, normality and homoscedasticity of the regression residuals

Figure 4.4 shows the distribution of the standardized residuals from the year 2014 data.
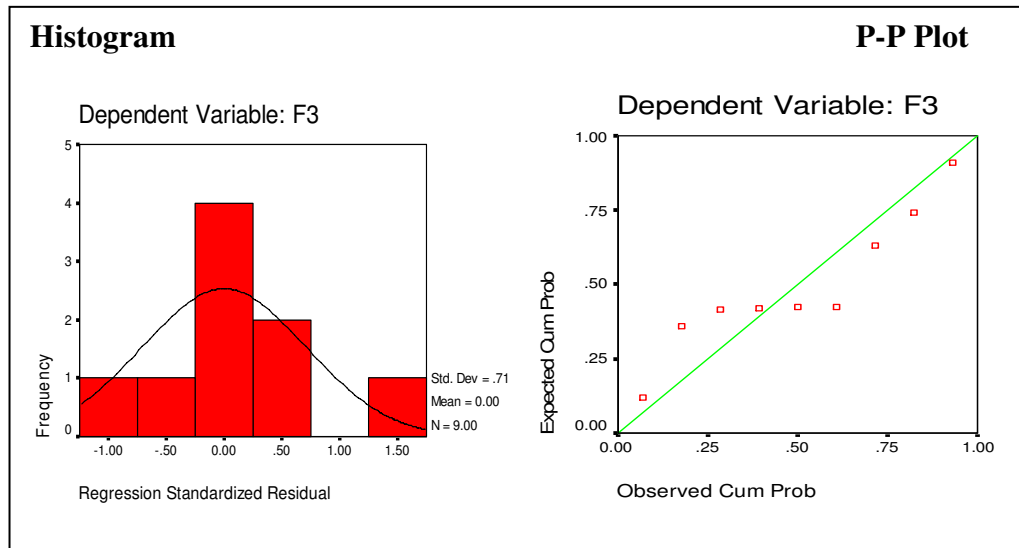
Figure 4.4: Histogram and P-P Plot - Zero mean and normality of the residuals (2014)

The distribution of the residuals is normal with a mean of zero. Further, the data points appear to be balanced on the sides of the line of equal distribution in the P-P plot indicating approximately constant variance i.e. homoscedasticity.

4.4.5 Multiple Linear Regression for Years 2013 and 2014 average data

The multiple linear regression results for years 2013 and 2014 differ in certain details. To obtain a general and average indication of the regression of financial performance on its determinants over the two years period, the data for the two years was merged using arithmetic mean and geometric mean, and regression analysis performed on the average data. Table 4.50 shows a segment of the multiple linear regression output indicating the model summary, Analysis of Variance (ANoVA) and the regression coefficients of the model for the average data.

Table 4.50: Multiple Linear Regression Output for the average data

Dependent Variable: Y	Coeff. (B)	Std. Error	t-statistic	Sig.	VIF
(Constant)	1.908	11.504	0.166	0.876	
X_1	0.355	0.123	2.882	0.021	2.51
X_2	-0.493	0.167	-2.943	0.012	8.556
X_3	0.077	0.029	2.624	0.059	11.783
X_4	-2369.639	1156.727	-2.049	0.11	12.866
R-Square	**0.986**				
F-Value	**143.702**	**Sig.**	**0.000**		
Durbin Watson	**2.428**				

The output yields the model;

$$Y = 1.908 + 0.355X_1 - 0.493\beta_2 X_2 + 0.077X_3 - 236964X_4$$

Using the average data, it was found that the net income that was not influenced by the financial performance determinants captured in the model is Sh. 1.908 Million. Further, net income increased by Sh. 0.355 Million for every Sh. 1 Million increase in the EBIT (financial leverage), decreased by Sh. 0.493 Million shillings for every Sh. 1 Million in the non-performing loans, increased by Sh. 0.077 Millions for every Sh. 1 Million in the total risk weighted assets (capital structure) and decreased by Sh. 2369.64 Millions for every 1% increase in the market share (market structure).

4.4.6 Goodness of fit of the model

(a) Explanatory power

The multiple correlation value R = 0.997 indicating a very strong direct association between the determinants of the financial performance and the financial performance. The adjusted coefficient of determination, R^2 = 0.986 = 98.6% indicating a very high explanatory power of the model. The determinants of financial performance involved can explain 98.6% of the variation observed in the financial performance of the DTMIs.

(b) Serial/Auto correlation

The Durbin-Watson statistic was obtained as d = 2.428 (i.e. d $\simeq$ 2) indicating the absence of serial correlation/autocorrelation. Therefore the observations were statistically independent.

(c) F-test

The obtained F-statistic = 143.702 is greater than the critical F-statistic obtained from the F-distribution table; $F_{0.05,4,4}$ = 6.3882. Also, the P-value obtained, sig = 0.000 is much less than the significance level, α = 0.05. The null hypothesis is rejected implying that the model is statistically significant.

(d) t-tests and collinearity diagnostics

Table 4.51 shows the results, decisions and conclusions of the t-tests as well as the collinearity diagnostics.

Table 4.51: t-test and collinearity diagnostic results (average data)

Explanatory Variable	Computed |t-statistic|	Critical t-statistic	P-value (sig)	Decision	VIF	Conclusion
Financial Leverage	2.882	2.776	.021	Reject H_0	2.510	Significant and Non-collinear
Non-performing loans	2.943	2.776	.012	Reject H_0	8.556	Significant and Non-collinear
Capital structure	2.624	2.776	.059	Fail to reject H_0	11.783	Non-significant and collinear
Market structure	2.049	2.776	.110	Fail to reject H_0	12.866	Non-significant and collinear

Financial leverage and non-performing loans are statistically significant predictors of financial performance while capital structure and market structure are not. On the other hand, financial leverage and non-performing loans do not suffer collinearity as predictors, but capital structure and market structure do. Consequently, the model is very powerful in description, but weak in prediction due to presence of collinearity.

Simple linear regression analysis for capital structure as a sole predictor of financial performance of a DTMI using year 2014 data yielded the output in table 4.52.

Table 4.52: Simple Linear Regression Output using the average data – Financial performance against capital structure

Dependent Variable: Y	Coeff. (B)	Std. Error	t-statistic	Sig.	R-Square
(Constant)	-23.5856	11.4590	-2.0583	0.0786	0.9700
X_3	0.0239	0.0015	16.1216	0.0000	
F-Value	**259.9060**				
Durbin Watson	**1.9020**				

The output yields the model;

$$Y = -23.5856 + 0.0239X_3$$

The model indicates an increase of sh. 0.0239 million per sh. 1 million increase in the capital structure. The model is associated with 0.97 adjusted coefficient of determination indicating a very powerful model, and a high F-value (259.906) indicating that the model is statistically significant. The Durbin Watson statistic is 1.902 indicating absence of autocorrelation, while the t-statistic for capital structure as a predictor is high (16.1216) indicating that it is a statistically significant and strong predictor of financial performance of the DTMIs. This confirms again that using the average data, capital

structure is a significant determinant of financial performance of a DTMI, though significantly correlated with other determinants.

Table 4.53 shows the regression output for market structure as a determinant/predictor of financial performance using the average data.

Table 4.53: Simple Linear Regression Output using the average data – Financial performance against market structure

Dependent Variable: Y	Coeff. (B)	Std. Error	t-statistic	Sig.	R-Square
(Constant)	-26.8289	12.3545	-2.1716	0.0665	0.9660
X_4	931.3435	61.7757	15.0762	0.0000	
F-Value	**227.2920**				
Durbin Watson	**1.8780**				

The output yields the model;

$$Y = -26.8289 + 931.3435 X_4$$

The model indicates an increase of sh. 931.3435 million per 1% increase in the market structure. The model is associated with 0.966 adjusted coefficient of determination indicating a very powerful model, and a high F-value (227.292) indicating that the model is statistically significant. The Durbin Watson statistic is 1.878 indicating absence of autocorrelation, while the t-statistic for market structure as a predictor is high (15.0762) indicating that it is a statistically significant and strong predictor of financial performance of the DTMIs. This again confirms that using the average data, market structure is a significant determinant of financial performance of a DTMI, though significantly correlated with other determinants.

(e) Zero mean, normality and homoscedasticity of the regression residuals

Figure 4.5 shows the distribution of the standardized residuals from the year 2014 data.
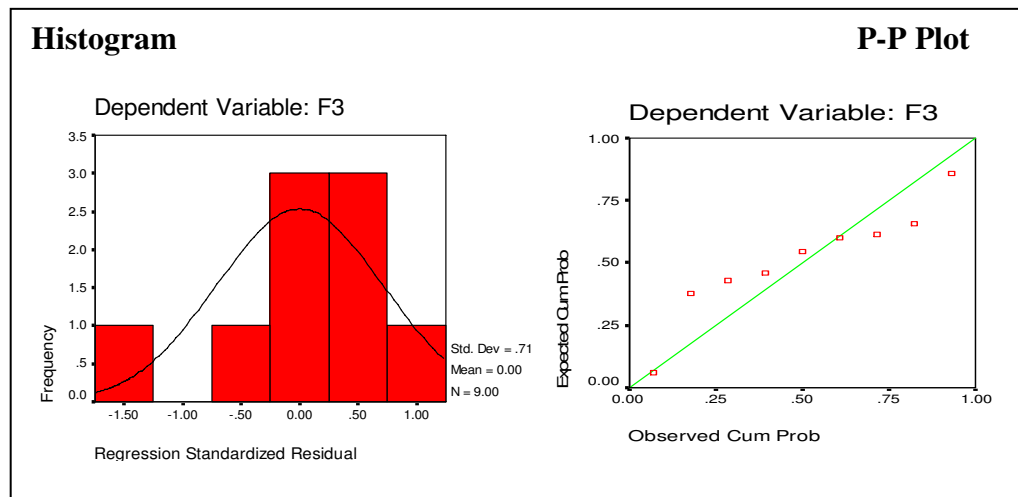
Figure 4.5: Histogram and P-P Plot - Zero mean and normality of the residuals (average data)

The distribution of the residuals is normal with a mean of zero. Further, the data points appear to be balanced on the sides of the line of equal distribution in the P-P plot indicating approximately constant variance i.e. homoscedasticity.

4.5 Discussion of the key findings

The findings helped in among other achievements, description of the variables, evaluation of the relationships between the variables and testing the significance of the research hypotheses.

Research hypothesis One:

H_0: The level of financial leverage has no significant effect on financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya.

Against,

H_1: The level of financial leverage has significant effect on financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya.

The study findings indicated that there is overreliance on debt financing when extra funding is needed by majority of the DTMIs and that DTMIs use reserves to pay interest and debts at maturity. However, it must be noted that use of debts does not always lead to increased cash flow for the DTMIs. Also, it was confirmed that no asset or liability stated in the balance sheet is offset by deduction of another liability or asset except inter-branch balances and items in transit or where a legal right of set-off exists. As much as there is over reliance on debts as alternate sources of funds, borrowing in the money market is highly discouraged within the DTMIs, and if it has to be done, it has to be less than six times per annum. In conclusion, it was found that the market value of a DTMI is not determined by the financial leverage of the DTMI.

The study had hypothesized that financial leverage has no significant effects on the financial performance of the DTMIs. Correlational analysis indicated that there is a strong direct relationship between EBIT as a measure of financial leverage and Net income, a measure of financial performance. Further, regression analysis showed that financial leverage is a statistically significant determinant of financial income. A rise in the level of financial leverage causes a rise in the financial performance of a DTMI. As such, the hypothesis that the level of financial leverage has no significant effect on financial performance of DTMIs in Nairobi City County is rejected.

Research hypothesis Two:

H$_0$: The non-performing loans have no significant effect on financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya.

Against,

H$_1$: The non-performing loans have significant effect on financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya.

It was found that within the DTMIs, there exist lending policies that are geared towards the minimization of NPLs, although there does not exist a thorough loan documentation systems that leaves no loophole for exposure to loan defaulting. However, loan repayment adjustments are usually done according to the terms of agreement between the DTMIs and the customers, and there is a constant contact between the customers and the DTMI personnel that establishes the customer's ability to repay loans. This is with the aim of making sure that the customers are able to repay their loans without defaulting. Further, the cleanliness of loan collateral is usually scrutinized thoroughly and ascertained in the DTMIs and provision for NPLs is actually done at the branches.

Correlational analysis indicated that there exist a strong inverse relationship between financial leverage and financial performance. On the other hand, regression analysis results indicated that NPLs are statistically significant determinants of the financial performance of a DTMI. An increase in the NPLs leads to a significant fall in the financial performance of a DTMI. Consequently, the research hypothesis that NPLs have no significant effect on financial performance of DTMIs in Nairobi City County is rejected.

Research hypothesis Three:

H$_0$: The capital structure has no significant effect on financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya.

Against,

H$_1$: The capital structure has significant effect on financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya.

Results indicated that that the DTMIS have effective policies to have an optimum capital structure. Specifically, results indicated that the respondents agreed statutory capital requirements are strictly adhered to and the recommended capital base maintained. In addition the respondents disagreed that managers always have their vested interests considered while making decisions concerning capital structure and the funds were always utilized for the purposes they are acquired for.

Correlation analysis revealed that there exist a strong direct relationship between Capital Structure and the financial performance of DTMIs in Kenya. However, multiple linear regression analysis indicated that capital structure is not a statistically significant determinant in explaining financial performance of DTMIs. This was attributed to the significant correlation between capital structure and other determinants of financial performance of the DTMIs causing collinearity among them. A further investigation involving simple linear regression analysis with capital structure as the only determinant of the financial performance of the DTMIs showed that capital structure is actually a very statistically significant determinant of the financial performance of the DTMIs. An improvement in the capital structure of a DTMI leads to a significant rise in its financial performance. Therefore, the research hypothesis that capital structure has no significant effect on financial performance of DTMIs in Nairobi City County is rejected.

Research hypothesis Four:

H$_0$: Market structure has no significant effect on financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya.

Against,

H$_1$: Market structure has significant effect on financial performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya.

Results indicated that there were effective policies that guided the operations of DTMIs in relation to the competition from the other DTMIs. Specifically, the DTMIs have differentiation of products in the market, pricing is determined by the market forces and research and development is an integral part in the operations of the DTMIs

Correlation analysis indicated that there exist a strong direct relationship between market structure and financial performance of the DTMIs. However, multiple linear regression analysis that involved all the four determinants as the predictors of financial performance of DTMIs indicated that market structure is not a statistically significant determinant of the financial performance. This was attributed to the collinearity that existed between market structure and the other determinants of financial performance. This led to a further relationship investigation, where financial performance was regressed against market structure in a simple linear regression analysis. The results of the simple regression showed that market structure is actually a statistically significant determinant of the financial performance of the DTMIs, where an increase in the market structure causes a significant increase in the financial performance of a DTMI. This implied that the null hypothesis that market structure has no significant effect on financial performance of DTMIs in Nairobi City County is rejected.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of major findings of the study, relevant discussions, conclusions and the necessary recommendations. The study sought to determine the effect of financial leverage, Non-performing Loans, Capital Structure and Market Structure on the financial performance of DTMIs in the banking sector in Kenya. Each recommendation traces directly to each conclusion in line with practice and policy.

5.2 Summary of the findings

The study evaluated the effects of the independent variables; Level of financial leverage, Non-performing loans, Capital structure and Market structure on the financial performance of DTMIs in Nairobi City County based on the findings of the study. Results indicated that there was increased financial performance of DTMIs across the years of study. Specifically, the results indicated that there was increased number of customer deposit accounts, profit before tax, increased total assets and increased number of market share.

5.2.1 Financial leverage and Financial Performance

The study found that the level of financial leverage has a very significant effect on the performance of DTMIs in Kenya. This means that the debt load must be well managed to avoid it escalating to levels where the performance of the firm is compromised. Increased debt levels leave companies exposed to the vulnerabilities of cash trapped operations which can damage rather than build.

It was further concluded from the study that when holding other factors constant, financial leverage was found to have a positive and significant relationship with financial performance. This implies that managing financial leverage in DTMIs is statistically significant in explaining financial performance of DTMIs in Kenya.

5.2.2 Non-Performing loans and Financial Performance

From the study findings, it was deduced that DTMIs had effective policies to manage non-performing loans. Further, there exists a significant inverse relationship between non-performing loans and financial performance of DTMIs. The results reveal that management of non-performing loans with the aim of minimizing them can go a long way in lifting the financial performance of the DTMIs.

5.2.3 Capital structure and Financial Performance

The study indicated that there were effective policies at the DTMIs to govern the optimization of capital structure. This is because employees agreed that the minimum capital requirements were strictly adhered to as set by the regulator. The strength derived from a capital base forms a foundation that propels the DTMI to greater financial performance. It was possible to infer that the relationship between capital structure and financial management is positive and significant. Managing the capital structure well is key in enhancing the financial performance of DTMIs.

5.2.4 Market Structure and Financial Performance

The study found that there were effective policies that guided the management of competition faced by the DTMIs. This is because DTMIs have policies that govern how pricing of products is done, and how research and development is used in decision making. There exists a positive and significant relationship between market structure and financial performance. This implies that managing the market structure of DTMIs is one of the core drivers of better financial performance of DTMIs in Kenya.

Results indicated that there was increased financial performance of DTMIs across the years of study. Specifically, the results indicated that there was increased number of customer deposit accounts, profit before tax, increased total assets and increased number of market share.

5.3 Conclusions

The ultimate aim of the study was to investigate and determine the effects of the hypothesized determinants of financial performance on the financial performance of DTMIs in Nairobi City Council. It was revealed by the findings that there is overreliance on debt financing when extra funding is needed by majority of the DTMIs and that DTMIs use reserves to pay interest and debts at maturity. However, it is noted that use of debts does not always lead to increased cash flow for the DTMIs.

The study also revealed that there were no thorough loan documentation systems that leave no loophole for exposure to loan defaulting at the DTMIs. This leads to the increased net non-performing loans that significantly impact negatively on the financial performance of the DTMIs. Another finding indicated that rarely do DTMI managers pursue their own objectives; rather they pursue the objectives of the DTMI more so on matters concerning capital structure. This is an excellent managerial virtue that other studies have found to be lacking in the management of other institutions. It was also found that most of DTMIs operate on low-cost short term financing. This is speculated to be one of the reasons as to why DTMIs are unable to set-up firm long-term capital base structures. This results to the overreliance on debts as sources of funds.

On the market structure as a determinant of financial performance of DTMIs, the study found that market research and development is usually an integral part of the DTMI's operations. This goes a long way in informing the management about the actual feeling of the target customers about the products offered by the DTMI. Further, this informs the management's decisions on advertisement and marketing as well as the new grounds to explore to widen the market scope. However, it was found that advertising for product

116

differentiation is not given the priority it deserves. This leads to reduced awareness levels on the products offered by the DTMIs as well as the varieties and their benefits.

5.4 Recommendations

5.4.1 Policy Recommendations

The CBK should consider reviewing the regulatory framework to allow for more ways of resource mobilization by the DTMIs. It might lead to performance improvement generating more funds that will allow for cheaper funds to the clients. The increase in non-performing loans as witnessed will go down and customers assets used as collateral will not be at risk. Financial inclusion for everyone is the ultimate goal for all players involved and therefore the supervision framework should be supportive and not put thresholds difficult to maintain by the DTMIs at the expense of the depositors.

The risk of illiquidity in DTMIs is very high due to their overreliance on debt and therefore prudent on and off site supervision should be enhanced by the regulator. It will ensure there is an easy way to ascertain that the data fed into the system is up to date and authentic. Similarly all DTMIs should be mandatory members of the Deposit Protection Funds Board so as to cushion the depositors in case of illiquidity issues.

5.4.2 Managerial Recommendations

It is recommended that DTMIs managers must develop systems and operational strategies that will minimize overreliance on debt to safeguard the equity at risk. It is recommended that they should establish proper and seamless loan documentation systems that will thoroughly scrutinize the authenticity of clients' collateral to minimize the rates of loan defaults by the customers. It is recommended that one, the DTMI managers should keep up pursuing the objectives of the DTMIs and not their own objectives. Two, DTMIs should seek to establish long-term and firm cost efficient capital structures that will effectively reduce the reliance on debts as sources of funds. An optimal capital structure should be the baseline for all DTMIs. It is recommended

that the DTMIs keep up regular activities related to market research and development, and that they prioritize and actualize advertising for product differentiation. This will go a long way in creating awareness about their products and widening of market scopes. This will result in enhancement of a reliable market structure which will significantly impact positively on the financial performance of the DTMIs.

5.5 Areas of Further Research

Arising from the findings and the gaps in the study, a similar study can be carried out for DTMIs in other counties in order to test whether the conclusions of this study will be valid. Future studies could also focus on a comparative analysis on the financial performance determinants of DTMIs with those of related institutions such as Commercial Banks and SACCOs. Finally, as the current DTMIs grow and expand, it is recommended that follow up studies be carried out using different research instruments to keep track on the financial performance of the all DTMIs from the year 2015.

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APPENDICES

Appendix 1: Questionnaire

S/No: ……………

THIS QUESTIONNAIRE IS ON THE SUBJECT: DETERMINANTS OF FINANCIAL PERFORMANCE OF DEPOSIT TAKING MICROFINANCE IN NAIROBI CITY COUNTY, KENYA.

Your response to these questions will be treated with utmost confidentiality. Your honest and objective answers to the following questions will be highly appreciated and acknowledged.

SECTION A: DEMOGRAPHIC INFORMATION

1. Name of the Microfinance Institution ……………………………………..

2. Highest Level of Academic/Professional Education:

    PhD ☐ Master's Degree ☐

    Bachelor's Degree ☐ Ordinary/Higher National Diploma ☐

    Other ……………………………………………………………….

3. Rank in the Institution:

    Portfolio Manager ☐

    Credit Officer ☐

4. Peer group of institution:

    Large

    Medium

    Small

SECTION B: FINANCIAL LEVERAGE

How much do you agree on the following statement concerning the DTMI you work in?

	Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	The DTMIs first preferable option for additional financing is always debt					
2	The use of debt as a source of finance does not always lead to increased cash flow for the institution.					
3	The market value of the institution is determined by its financial leverage					
4	The institution does not use reserves to pay interest and debt at maturity.					
5	No asset or liability stated in the balance sheet is offset by deduction of another liability or asset except inter-branch balances and items in transit or where a legal right of set-off exists					
6	Borrowing in the money market is highly discouraged and if it has to be done, it has to be less than six times annually					

Section C: Non Performing Loans (NPLs)

Tick where necessary depending on how much you agree on the following statement concerning the DTMI you work for.

	Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	We have a lending policy geared towards minimizing NPLs					
2	Provision for NPLs is done at our branches					
3	There is constant touch between our customers and the DTMI that establishes the customer's ability to repay loans					
4	Loan repayment adjusters are done to terms earlier agreed with the clients to help them repay their loans without defaulting					
5	We have a thorough loan documentation process which leaves no loophole for exposure to loan defaulting					
6	The cleanliness of the loan collateral is thoroughly ascertained to ensure no loophole for exposure.					

Section D: Capital structure

How much do you agree with the following statements about the DTMI you work for?

	Statement	Strongly agree	agree	Neutral	Disagree	Strongly disagree
1	Managers rarely pursue their own objectives in making capital structure decisions					
2	The DTMI presently operates on low-cost short term financing					
3	The company's capital structure is in line with the competitive structures existing in the industry at present.					
4	Funds are always used for the intended purposes					
5	We maintain the prescribed minimum capital requirements.					

Section E: Market structure

How much do you agree with the following statements about the DTMI you work for?

	Statement	Strongly agree	agree	Neutral	Disagree	Strongly disagree
1	Market research and development is an integral part of the DTMIs operations					
2	The financial products are designed with reference to the markets demands					

3	Advertising for product differentiation is given priority					
4	Innovation of new products is driven by market forces					
5	The pricing of products is determined by the market forces.					

Section E: Financial performance

How much do you agree on the following statement s about the DTMI you work for?

	Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	Regardless of the changes in the operating environment, the DTMI will still grow in its profits					
2	The DTMI has no plans to close any of its branches due to financial constraints now or in the future.					
3	The DTMI will increase its investments in new technologies now and in the future to aid its operations					
4	The DTMI will always have enough cash flow to finance any of its client's projects.					
5	Net income increases every financial year					

Appendix 2: Secondary Data Collection Sheet

	Century			Faulu			KWFT			Rafiki			REMU			SMEP			SUMAC			U & I			Uwezo		
	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014
Net Income																											
EBIT																											
Total Assets																											
Total Liabilities																											
Equity																											
No. of Active Accounts																											
No. of Branches																											
Core Capital																											
Total Risk Weighted Assets																											
Net Non-Preforming Loans																											
Share Capital and Reserve																											

Appendix 3: Year 2013 secondary data source 1- Extract

Central Bank of Kenya

Table 4: Asset Base of MFBs (Ksh. M)

ASSETS	2012	% of Total	2013	% of Total
Cash Balance (Local & Foregin notes & coins)	1,245	4%	1,193	3%
Deposit balances at banks and financial institutions	6,741	21%	6,440	16%
Government securities	411	1%	882	2%
Net Advances	19,908	61%	27,477	66%
Accounts Receivables	836	3%	341	1%
Net Fixed Assets	2,983	9%	3,895	9%
Other Assets	285	1%	1,122	3%
TOTAL NET ASSETS	**32,409**	**100%**	**41,350**	**100%**
LIABILITIES & EQUITY FUNDS				
Deposits	15,409	48%	24,745	60%
Borrowings	11,082	34%	8,969	22%
Other Liabilities	2,084	6%	2,306	6%
Capital and Shareholders Funds	3,834	12%	5,330	13%
TOTAL LIABILITIES AND EQUITY FUNDS	**32,409**	**100%**	**41,350**	**100%**
Source:CBK				

1.7 Microfinance Banks Market Share Analysis

The microfinance banks market share is based on a weighted composite index comprising assets, deposits, capital , number of deposit accounts and loan accounts. The microfinance banks are classified into three peer groups namely large, medium and small. Based on the weighted composite index, a microfinance bank is classified large if it has a market share of 5 percent and above; medium if it has a market share between 1 percent and 5 percent and small if its market share is less than 1 percent.

As at 31st December 2013, there were 4 large microfinance banks with an aggregate market share of 95.44 percent, 2 medium microfinance banks with a market share of 2.85 percent and 3 small Microfinance Banks with a market share of 1.71 percent.

Table 5: MFBs Market Share Analysis (Ksh. '000') - December 2013

	Market Size Index	Net Assets	Total Deposits	Share Capital & Reserves	Number of Deposit Accounts 000'	Number of Loan Accounts 000'
Weighting		0.33	0.33	0.33	0.005	0.005
Kenya Women Finance Trust Ltd	53.19%	21,752,092	12,953,673	2,897,378	1,041.4	315.8
Faulu Kenya Ltd	26.64%	12,434,401	8,683,834	797,794	465.5	74.6
Rafiki Ltd	7.73%	3,678,751	1,419,271	465,969	57.4	4.8
SMEP Ltd	7.88%	2,490,447	1,274,274	651,827	362.3	58.2
Large	**95.44%**	**40,355,691**	**24,331,052**	**4,812,968**	**1,926.6**	**453.4**
Sumac Ltd	1.51%	307,013	98,859	182,397	0.9	0.4
Remu Ltd	1.34%	336,681	182,901	132,849	6.6	0.7
Medium	**2.85%**	**643,694**	**281,760**	**315,246**	**7.4**	**1.1**
Century Ltd	0.78%	163,608	66,006	90,383	4.4	0.9
Uwezo Ltd	0.54%	106,669	32,192	66,611	2.2	0.2
U &I Ltd	0.39%	80,187	34,070	45,127	6.3	0.8
Small	**1.71%**	**350,464**	**132,268**	**202,120**	**12.8**	**1.9**
GRAND TOTAL	**100.0%**	**41,349,849**	**24,745,080**	**5,330,334**	**1,946.9**	**456.5**
Source: CBK						

9

Appendix 4: Year 2013 secondary data source 2- Extract

Central Bank of Kenya

MFBs BALANCE SHEET AND PROFIT & LOSS ACCOUNT-DECEMBER 2013- Ksh. M		FAULU KENYA	KWFT	SMEP	REMU	RAFIKI	UWEZO	CENTURY	SUMAC	U & I	TOTAL
A	STATEMENT OF FINANCIAL POSITION										
1.0	ASSETS										
1.1	Cash Balances (Both Local and Foreign)	480	1,032	71	12	212	1	9	24	9	1,850
1.2	Short term deposits with banks	971	3,398	290	131	965	9	7	-	12	5,783
1.3	Government securities	753	116	-	-	-	-	-	-	13	882
1.4	Advances to customers	8,725	14,530	1,799	161	1,866	73	82	204	36	27,476
1.5	Due from related organisations	-	-	-	-	-	-	-	6	1	7
1.6	Other receivables	557	233	71	10	188	6	16	20	2	1,103
1.7	Deferred Tax	2	241	-	6	21	4	31	4	1	310
1.8	Other investment	-	-	-	4	-	-	-	-	-	4
1.9	Investment in associate companies	38	-	-	-	-	0	1	0	0	39
1.10	Intangible assets	178	37	12	2	26	3	-	7	-	265
1.11	Property and equipment	730	2,165	247	11	401	11	18	42	6	3,631
	TOTAL ASSETS	12,434	21,752	2,490	337	3,679	107	164	307	80	41,350
2.0	LIABILITIES										
2.1	Cash collaterals held	1,486	7,498	21	9	7	8	11	-	-	9,040
2.2	Customer deposits	7,198	5,456	1,253	174	1,412	24	55	99	34	15,705
2.3	Borrowings	2,090	4,995	511	16	754	5	-	8	-	8,379
2.4	Deferred income	15	-	-	-	568	-	-	-	-	583
2.5	Deferred tax liability	-	30	17	-	8	-	-	-		55
2.6	Due to related organisations	1	686	5	-	364	-	-	-	-	1,056
2.7	Other liabilities	846	190	31	6	100	3	8	17	1	1,202
	TOTAL LIABILITIES	11,636	18,855	1,838	205	3,213	40	74	124	35	36,020
3.0	SHARE CAPITAL & RESERVES										-
3.1	Share capital	120	146	464	158	500	83	165	150	45	1,831
3.2	Share premium	274	1,558	80	6	-	-	-	33	-	1,951
3.3	Retained earnings	58	992	46	(33)	(34)	(16)	(75)	(3)	-	935
3.4	Revaluation reserve	104	-	42	-	-	-	-	3	-	149
3.5	Statutory reserve	242	201	20	1	-	-	-	-	-	464
	TOTAL SHAREHOLDERS' FUNDS	798	2,897	652	132	466	67	90	183	45	5,330
	TOTAL LIABILITIES AND EQUITY	12,434	21,752	2,490	337	3,679	107	164	307	80	41,350
B	STATEMENT OF COMPREHENSIVE INCOME										
1.0	Income										-
1.1	Interest on Loan Portfolio	1,624	4,708	477	27	304	19	7	56	9	7,231
1.2	Fees and Commission on Loan Portfolio	376	852	77	7	53	4	4	22	4	1,399
1.3	Government Securities	55	8	-	-	111	-	-	-	2	176
1.4	Deposit and Balances with other institutions	102	173	46	9	-	-	2	-	-	332
1.5	Other Investments	-	-	-	1	78	-	-	-	-	79
1.6	Other Operating Income	197	72	18	2	9	1	1	2	-	302
1.7	Non-Operating Income	8	-	-	-	-	-	-	-	1	9
	Total Income	2,362	5,813	618	46	555	24	14	80	16	9,528
2.0	Expenses										-
2.1	Interest and Fee Expense on Deposits	378	413	17	9	49	1	3	1	-	871
2.2	Other Fees and Commissions expense	101	56	-	2	16	-	1	2	-	178
2.3	Provision for Loan Impairment	70	106	36	1	24	-	3	12	1	253
2.4	Staff Costs	606	2,132	229	22	168	14	21	12	5	3,209
2.5	Director's Emoluments	8	73	9	-	1	1	1	3	-	96
2.6	Rental Charges	90	193	47	5	52	2	3	7	2	401
2.7	Depreciation Charges	80	255	12	2	25	2	2	7	1	386
2.8	Amortization Charges	17	7	5	1	4	1	1	2	-	38
2.9	Other Administrative Expense	557	1,266	170	12	119	6	17	35	4	2,186
2.1	Non-Operating Expense			1	-	-	-	-	-	1	2
	Total Expenses	1,907	4,501	526	54	458	27	52	81	14	7,620
3.0	Operating Profit	455	1,312	92	(8)	97	(3)	(38)	(1)	2	1,908
4.0	Interest and Fee Expense on Borrowings (Finance Costs)	218	741	(65)	-	82	-	-	15	-	991
5.0	Profit/(Loss) before tax	237	571	27	(8)	15	(3)	(38)	(16)	2	787
6.0	Current Tax	72	200	8	-	6	-	(11)	-	1	276
6.1	Deferred Tax		(24)	13	2		(1)	-	(5)	-	(15)
7.0	Net Profit (After Taxes and Before Donations)	165	395	6	(6)	9	(2)	(27)	(11)	1	530
8.0	Donations for Operating Expense	-	4								4
9.0	Net Profit After Taxes	165	391	6	(6)	9	(2)	(27)	(11)	1	526
10.0	Surplus on revaluation of building	25	-	60	-	-					85
11.0	Deferred tax on revaluation surplus	(7)	-	(18)	-	-					(25)
	Total Comprehensive Income	183	395	48	(6)	9	(2)	(27)	(11)	1	590
	Source: MFBs Published Financial Statements										

79

Appendix 5: Year 2013 secondary data source 3- Extract

Central Bank of Kenya

MFBs OTHER DISCLOSURES-DECEMBER 2013- Ksh. M	FAULU KENYA	KWFT	SMEP	REMU	RAFIKI	UWEZO	CENTURY	SUMAC	U & I	TOTAL
1 NON-PERFORMING LOANS AND ADVANCES										
(a) Gross Non-Performing Loans and Advances	467	1089	219	33	187	22	6	21	3	2,047
Less:										-
(b) Interest in Suspense	135	96	16	4	4	3	-	3		261
(c) Total Non-Performing Loans and Advances (a-b)	332	993	203	29	183	19	6	18	3	1,786
(d) Impairment Loss Allowance	141	402	155	5	36	5	5	12	2	763
(e) **Net Non-Performing Loans (c-d)**	191	591	48	24	147	14	1	6	1	1,023
(f) Realizable Value of Securities	191	591	47		134	216	1	6	1	1,187
(g) Net NPLs Exposure (e-f)	-	-	1	24	13	(202)	-	-	-	(164)
2 INSIDER LOANS AND ADVANCES										
(a) Directors, Shareholders and Associates	5	38	199	12		-	-	13	8	275
(b) Employees	110	232	80	1		2	2	1	1	429
(c) Total Insider Loans, Advances and Other Facilities	115	270	279	13	2	2	2	14	9	706
3 OFF-BALANCE SHEET ITEMS										
(a) Guarantees and Commitments	300	-		-	-	-	-	-	-	300
(b) Other Contingent Liabilities	10	32		-	-	-	-	-	-	42
(c) Total Contigent Liabilities	310	32	-	-	-	-	-	-	-	342
4 CAPITAL STRENGTH										
(a) Core Capital	453	2,696	610	133	466	62	90	176	45	4,731
(b) **Minimum Statutory Capital**	60	60	60	60	60	20	60	60	20	460
(c) Excess/(Deficiency) (a-b)	393	2,636	550	73	406	42	30	116	25	4,271
(d) Supplementary Capital	375	816	20	-	221	-	-	3	-	1,435
(e) **Total Capital (a+b)**	828	3,512	630	133	687	62	90	179	45	6,166
(f) Total Risk Weighted Assets	8,541	17,759	1,570	219	2,527	94	150	287	15	31,162
(g) Core Capital/ Total Deposit Liabilities	5.0%	20.8%	49.0%	73.0%	33.0%	193.0%	137.0%	177.0%	132.0%	19.1%
(h) **Minimum Statutory Ratio**	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
(i) Excess/(Deficiency) (g-h)	-3.0%	12.8%	41.0%	65.0%	25.0%	185.0%	129.0%	169.0%	124.0%	11.1%
(j) Core Capital/ Total Risk Weighted Assets	5.0%	15.8%	39.0%	60.0%	18.0%	66.0%	60.0%	61.0%	310.0%	15.2%
(k) **Minimum Statutory Ratio**	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
(l) Excess/(Deficiency) (j-k)	-5.0%	5.8%	29.0%	50.0%	8.0%	56.0%	50.0%	51.0%	300.0%	5.2%
(m) Total Capital/ Total Risk Weighted Assets	10.0%	19.8%	41.0%	60.0%	27.0%	66.0%	60.0%	62.0%	310.0%	19.8%
(n) **Minimum Statutory Ratio**	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%
(O) Excess/(Deficiency) (m-n)	-2.0%	7.8%	29.0%	48.0%	15.0%	54.0%	48.0%	50.0%	298.0%	7.8%
5 LIQUIDITY										
(a) Liquidity Ratio	23.0%	27.0%	26.0%	67.0%	42.0%	25.0%	24.4%	21.0%	63.4%	36.0%
(b) **Minimum Statutory Ratio**	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
(c) Excess/(Deficiency) (a-b)	3.0%	7.0%	6.0%	47.0%	22.0%	5.0%	4.4%	1.0%	43.4%	16.0%

Source: MFBs Published Financial Statements

Bank Supervision Annual Report 2013

Appendix 6: Year 2014 secondary data source 1- Extract

Table 5: Microfinance Banks Market Share Analysis (Ksh. M) - December 2014						
	Market Size Index	Net Assets	Total Deposits	Total Capital	Number of Active Deposit Accounts	Number of Active Loan Accounts
					000'	000'
Weighting		0.33	0.33	0.33	0.005	0.005
Large						
Kenya Women MFB	47.92%	26,985	17,119	5,236	690.9	234.4
Faulu MFB	35.36%	20,320	13,987	3,486	164.8	55.0
Rafiki MFB	9.46%	5,975	2,877	1,093	55.3	7.8
Sub-total	92.74%	53,280	33,984	9,815	911	297
Medium						
SMEP MFB	4.08%	2,378	1,325	452	132.7	32.4
Remu MFB	1.01%	395	175	206	2.0	0.6
Sub-total	5.09%	2,773	1,500	658	135	33
Small						
Sumac MFB	0.91%	390	128	185	1.8	0.5
Century MFB	0.50%	231	135	76	8.6	1.5
Uwezo MFB	0.39%	160	64	78	2.6	0.3
U&I MFB	0.38%	137	52	83	4.0	0.6
Sub-total	2.17%	919	378	422	17	3
GRAND TOTAL	100.0%	56,972	35,862	10,895	1,063	333
Source: CBK						

The large microfinance banks accounted for Ksh.53.3 billion of the total net assets, customer deposits of Ksh. 34.0 billion and total capital of Ksh. 9.8 billion.

1.8. Distribution of Foreign Exchange Bureaus

There were eighty seven (87) forex bureaus in business as at 31st December 2014 having declined from one hundred and one (101) in December 2013. The decline in the number of forex bureaus was attributed to voluntary closure of fifteen (15) forex bureaus and the licensing of one new forex bureau during the year. Out of the fifteen (15) forex bureaus that wound up voluntarily in 2014, nine (9) converted to money remittance providers (MRPs).

Most of the forex bureaus are located in Nairobi as shown in Table 6.

Table 6: Distribution of Forex Bureaus		
City/Town	Number of bureaus	% of Total
Nairobi	70	81%
Mombasa	9	10%
Nakuru	2	2%
Kisumu	2	2%
Eldoret	2	2%
Namanga	1	1%
Busia	1	1%
Total	87	100%

Appendix 7: Year 2014 secondary data source 2- Extract

Central Bank of Kenya

Appendix X

MICROFINANCE BANKS BALANCE SHEET - DECEMBER 2014

		KWFT	FAULU	RAFIKI	SMEP	REMU	SUMAC	CENTURY	UWEZO	U & I	TOTAL
	STATEMENT OF FINANCIAL POSITION										
1.0	ASSETS	Ksh.M	Ksh.M	Ksh.M	Ksh.M	Ksh.M	Ksh.M	Ksh.M	Ksh.M	Ksh.M	Ksh.M
1.1	Cash and bank balances	2,148	297	207	77	17	31	22	10	30	2,839
1.2	Short term deposits with banks	2,594	2,544	1,318	309	150		13	-	11	6,940
1.3	Government securities	224	780		-	-			-	-	1,004
1.4	Advances to customers	18,854	14,488	3,418	1,635	184	289	107	125	84	39,184
1.5	Due from related organisations	-	-	402	-	-	8		-	2	412
1.6	Other receivables	374	634	362	45	14	12	14	6	2	1,462
1.7	Tax recoverable	13	13	17	25	-		36	-		103
1.8	Deferred tax Asset	251		14	4	7	5		4	1	287
1.9	Other investment	-	0		-	3	0		-	-	3
1.10	Investment in associate companies	1	42		-	-			-	-	43
1.11	Intangible assets	64	156	22	12	4	6	21	7	2	293
1.12	Property and equipment	2,463	1,366	214	271	14	40	19	8	6	4,401
	TOTAL ASSETS	26,985	20,320	5,975	2,378	395	390	231	160	137	56,972
2.0	LIABILITIES										
2.1	Cash collaterals held	-	1,341	4	-	8	-	7	-	16	1,376
2.2	Customer deposits	17,119	12,646	2,873	1,325	166	128	127	64	36	34,486
2.3	Borrowings	4,216	1,339	958	396	5	68		11	-	6,994
2.4	Deposit & balances due to banking institutions	-	-	523	-	-	-		-	-	523
2.5	Deferred tax liability	-	69	-	-	-			-	-	69
2.6	Due to related organisations	476	-	489	3	-			-	-	969
2.7	Other liabilities	568	1,136	116	99	6	6	20	3	2	1,956
	TOTAL LIABILITIES	22,379	16,533	4,962	1,823	186	202	155	78	55	46,372
3.0	SHARE CAPITAL & RESERVES										-
3.1	Share capital	186	480	1,000	464	222	151	185	99	80	2,868
3.2	Share premium	2,851	2,503		80	14	36		-	-	5,484
3.3	Retained earnings	1,326	257	(34)	(52)-	31	1	- 109	(17)	2	1,344
3.4	Revaluation reserve	-	205		42	0			-	-	248
3.5	Statutory reserve	243	342	47	22	2			-	-	656
3.6	Total Shareholders' funds	4,606	3,787	1,013	555	208	189	76	82	83	10,600
	TOTAL LIABILITIES AND EQUITY	26,985	20,320	5,975	2,378	395	390	231	160	137	56,972

68

Bank Supervision Annual Report 2014

Appendix 8: Year 2014 secondary data source 3- Extract

Appendix XI

MICROFINANCE BANKS STATEMENT OF COMPREHENSIVE INCOME - DECEMBER 2014

		KWFT	FAULU	RAFIKI	SMEP	REMU	SUMAC	CENTURY	UWEZO	U & I	TOTAL
1.0	Income	Ksh.M	Ksh.M	Ksh.M	Ksh.M	Ksh.M	Ksh.M	Ksh.M	Ksh.M	Ksh.M	Ksh.M
1.1	Interest on Loan Portfolio	5,092	2,753	605	530	42	84	20	25	17	9,169
1.2	Fees and Commission on Loan Portfolio	865	594	86	81	8	18	8	10	8	1,678
1.3	Government Securities	34	79			-		-	-	1	114
1.4	Deposit and Balances with Banks and Financial	238	364	131	23	13	0	2	-	-	771
1.5	Other Investments		-			0		-	-	-	0
1.6	Other Operating Income	204	87	148	19	4	4	2	-	-	469
1.7	Non- Operating Income		5	0		-			1	1	7
	Total Income	6,433	3,882	970	654	69	108	32	37	27	12,210
2.0	**Expenses**										-
2.1	Interest and Fee Expense on Deposits	635	919	133	55	11	20	10	3	0	1,786
2.2	Other Fees and Commissions expense	71	163	24		2	2	2	-	-	264
2.3	Provision for Loan Impairment	231	132	38	102	2	6	8	0	2	521
2.4	Staff Costs	2,370	1,057	300	262	29	14	22	15	8	4,076
2.5	Director's Emoluments	84	8	1	10	-	4	2	1	1	110
2.6	Rental Charges	244	113	109	61	6	6	4	3	2	546
2.7	Depreciation Charges	312	81	6	25	2	6	2	2	1	437
2.8	Amortization Charges	12	22	6	6	1	2	5	2	0	57
2.9	Other Administrative Expense	1,333	638	242	205	13	35	17	9	8	2,500
2.10	Non-Operating Expense		-		4	-		-		2	6
	Total Expenses	5,292	3,134	858	729	65	96	71	35	23	10,304
3.0	**Operating Profit**	1,140	748	112	(76)	3	12	(39)	2	3	1,906
4.0	Interest and Fee Expense on Borrowings(Finance	443	316	93	- 42	1	8	0	-	-	821
5.0	**Profit/(Loss) before tax**	697	432	19	(117)	2	4	(39)	2	3	1,002
6.0	Current Tax	251	133	2	-	-	-	-	(1)	- 2	383
6.1	Deferred Tax	(11)	-		- 20	1	0	5		1	- 24
7.0	**Net Profit (After Taxes and Before Donations)**	456	299	21	(97)	3	4	(34)	1	2	655
8.0	Donations for Operating Expense	18	-			-				-	18
9.0	**Net Profit After Taxes**	474	299	21	(97)	3	4	(34)	1	2	674
9.1	Other Comprehensive Income										-
9.2	Surplus on revaluation of building	-	145		-	-	-	-		-	145
9.3	Deferred tax on revaluation surplus	-	- 44		-	-	-	-		-	- 44
	Total comprehensive income	474	401	21	(97)	3	4	(34)	1	2	775