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The Relationship between Firm Size and Profitability of Microfinance Institutions in Kenya

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Abstract

Purpose: *Firm size determines the kind of relationship that a firm enjoys outside and within its operating environs. Hence, the study sought to determine the relationship between firm size and profitability of microfinance institutions in Kenya.*

Methodology: *The study used a descriptive research. The population for the study included 27 microfinance institutions, which are licensed and operating in Kenya. The research considered five years (2016-2020). The variables were examined using percentages, mean, as well as standard deviation. A multiple linear regression model was used to find out the relationship between firm size and profitability of microfinance institutions in Kenya.*

Findings: *The findings indicated that there is a direct relationship between deposit accounts, loan accounts, branch networks, liquidity and capital adequacy with profitability of microfinance institutions in Kenya. On the other hand, there exists an inverse relationship between asset quality and profitability of microfinance institutions. The study concludes that most microfinance institutions are small in size and however most of them have experienced growth over the years in terms of deposit accounts, loan accounts, branch network, liquidity and capital adequacy. The study concluded that deposit accounts, loan accounts, branch network, liquidity and capital adequacy have a positive and significant relationship with profitability of microfinance institutions. However, asset quality has a negative and significant relationship with profitability of microfinance institutions.*

Recommendation & Implications: *The study recommended that microfinance institutions should identify their geographic market, including any exceptions or specific restrictions. The study recommended that microfinance institutions should make substantial expenditure in undertaking their due diligence before issuing loans. This can be drawn from the fact that large microfinance institutions have a lower ratio of non-performing loans than smaller microfinance institutions. Lastly, the study recommended that the microfinance institutions should develop comprehensive strategic plans detailing on how they will deal with NPLs in their occurrence in a systematic way.*

Keywords: firm size, profitability, liquidity, branch networks, capital adequacy and microfinance

Introduction

Firm size determines the kind of relationship that a firm enjoys outside and within its operating environs. Larger firms are able to enjoy the benefits of economies of scale and are likely to achieve higher profitability. Growth of multinational firms and conglomerates in today world economy including the local economies where they operate shows the role that size plays in enhancing profitability in the corporate setting. This emphasis has also been made by Kumar et al. (2001) who argues that an interesting feature of a growing economy is that much of it is realized via size increase of firms in existence. Rajan and Zingales

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(1995) examined 43 nations in their study and showed that seventy five percent of industry growth was as a result of increase in size of the existing establishments, but only fifteen percent was a consequence of creation of new businesses.

The theories guiding this study include Growth of the Firm Theory, Tradeoff Theory (TT) and Pecking Order Theory (POT). The anchor theory is Penrose's (1959) Growth of the Firm Theory, which states that growth is mainly driven by managers' perceptions of prospects to exploit under-leveraged assets. By utilizing the available firm assets, the growth of the firm is maximized. The theory hypothesizes a positive relationship between firm size and profitability. Trade-off Theory maintains that the impact that a financing option have on the general cost of capital ought to be considered with the goal of minimizing the overall cost of capital or maximization of firm value (Jensen & Meckling, 1976). Pecking Order Theory is built on the tenets that the management can easily get the required information about the company compared to the investors. This inequality of information is regarded as asymmetric information (Myers, 2001).

Due to severe competition in the microfinance institutions, most institutions prefer to finance their investments using debt so as to benefit from tax deduction. Smaller companies are extra vulnerable to financial restrictions and this hinders them from accessing credit facilities from other financial institutions. Large and more stable firms might project the future since they have access to information unlike smaller firms. Thus, it is easier for such companies to get loans because they can strategize for it and the future (Njoroge, 2014).Reid (2010) defines firm size based on the average assets held by the firm. Abel (2008) defines firm size in terms of the scale of operations. In this case, firms with more branches are considered to be large than firms with few branches. Kimani (2014) defines firm size in terms of the number of employees. The more the employees in a firm, the bigger it is. Large corporations benefit from economies of scale thus offering more efficient financial services to local organizations. This creates opportunities for employment and income. Because of their vast network of branches, large companies are able to satisfy their clients' financial demands; it seems to have a greater effect on large microfinance institutions than on small microfinance institutions that do not serve these markets (Ramezani & Alan, 2012).

There are several reasons why firm size is hypothesized to affect firm performance: First, a large firm is more stable and might invest in long-term projects that are risky in the process of trying to gain high returns. Secondly, firms that are large in size diversify their investment portfolios and this might prompt them to

take more risky investments because if one investment fails the others will not fail. Thirdly, large firms invest in modern technologies which are too expensive; this might expose the firm to risks of fraud, however, if proper controls are put in place, it can accrue many benefits to the firm such as increased efficiency. Fourthly, large firms attract competent and talented staffs who are an invaluable asset to the firm, paying and retaining such employees in the firms can be very expensive for the firm. However, this is risky because the firm is not guaranteed the benefit that will be derived from innovations, financial decisions, efficiency and skills from a competent team of employees who will exceed the cost of remunerating and sustaining such employees.

Willison, Dimitris and Hong (2013) argue that efficiencies induced by institution's profit increase depending on the size of the firm, because economies of scale vary depending on the size of the institution's activities. The reasons that might expose a company to risks could be proportional to its size. In fact, it is expected that one common reason for these risks is because large and stable firms engage in risky ventures that are long-term in nature, in so doing these firms might be exposed to liquidity risks leading to financial losses in the short-term. On the other-hand, smaller firms avoid long-term investments that are risky hence such firms are profitable and more liquid in the short-term (Kiragu, Gikiri & Iminza, 2015). Under this study, firm size was assessed by determining the number of branches, deposit accounts and loan accounts. Profitability, according to Charlene (2005), is the difference between revenues and expenditures of a long-term activity. The profit realization capacity of a company from its activities is referred to as profitability. Profitability is a measure of how effectively a company's management can earn profit by maximizing the use of existing resources (Eljelly, 2004). One can also define profitability as the ability of an investment to make a return from its use of resources (Chakraborty, 2008). Consequently, profitability is perceived as an index of efficiency; it is also regarded as an indicator of efficiency (Davidsson, Steffens, & Fitzsimmons 2009). 'Earnings,' 'income,' as well as 'margin' are other words that have a similar meaning to profitability.

The ultimate goal for any organization that engages in commercial business is to make profit. A firm that is able to make adequate profits is probable to expand as well as long run survival. A profitable firm is able to survive in the long-term since it has excess money to invest in huge and profitable investments which promise high returns in the long-term. The top management should maximize their profitability to realize shareholders wealth which is a key corporate goal of the firm. Operational efficiency is regarded as an

important determinant of the profitability of a firm. Moreover, there are other factors that affect a firm's profitability besides efficiency (Claeys &Vennet, 2008).

The firm's profitability is measured by examining the firm's expenditures and revenues. Revenue is income earned from the sale of goods and services, whereas expenses are the costs incurred by the company during its activities. Return on Assets (ROA) and Return on Equity (ROE) are two common metrics used by businesses to assess profitability. ROA is an indicator of how profitable a company is in relation to its total assets. It is a representation of management's efficiency in generating income from assets. A proportion of net profit to total assets is used to calculate this metric. The return on equity (ROE) is calculated by dividing net profits by the stakeholder equity. This metric uses disclosures to assess a company's profitability by calculating the amount of profit produced in comparison to the shareholder supplied funds (Penman, 2007). The current study used ROA as a measure of profitability.

The Microfinance Institutions Supervisory and Regulatory Framework in Kenya is outlined in the Microfinance Act of 2006. The Microfinance Act was postulated on 22nd May, 2008, its main roles include licensing, supervisory and governance provisions needed for the appropriate establishment of microfinance institutions. This Act empowers microfinance institutions to mobilize client deposits and expand credit availability. This makes it simple for microfinance institutions to lend money and earn interest, which is their primary source of income.

AMFI is a member-based institution that is registered under the Societies Act by lending MFIs in Kenya. Its main responsibility is to increase the capacity of the Microfinance industry in order to improve access to deposits for low-income earners. The need for a binding voice to lobby the Kenyan government and negotiate for better policy making to improve information access and experiences, as well as to create a network with both local and global actors, drove the creation of this institution. AMFI currently has 62 member institutions that provide financial solutions to more than 6.5 million middle and low-income families (AMFI, 2014).

Recently, there has been tremendous increase especially in Microfinance Institutions in Kenya, this has been as a result of competition, adoption of modern technology and financial innovation as well as the changing needs of the customers, these had forced Microfinance Institutions to integrate their systems and

adopt more efficient and effective strategies to boost performance in operations and reduce cost (Mwangi, 2014). The growth of microfinance institutions in Kenya in terms of customer base, number of branches, asset base, deposits among others offers a good context to investigate how the size of a firm influences profitability.

Research Problem

Large firms are complex and diversified. They have different product lines and integrated services that enable them to be more efficient and to invest in huge investments that are risky and long-term in nature. Such firms benefit from economies of scales as compared to smaller firms because their average production costs are less and while their operational activities are efficient. This gives them a platform to grow and expand (Berger, 1997). In spite of these advantages that accrue from large firms, arguments have been raised on whether firm size contributes towards profitability of the firm. According to Hirtle and Stiroh (2007), larger firms easily access credit facilities from financial institutions since they have a large capital base and they attract more qualified and competent human capital which gives them an opportunity to invest and grow. Small businesses, according to Ezeoha (2008), offer customized services because their roles as well as procedures are less complex than those of bigger companies. This boosts customer trust leading to sales profitability. The debate on the effect of firm size on profitability is therefore ongoing.

Microfinance institutions in Kenya have experienced rapid growth in the last two decades. The country has experienced an increase in the number of institutions and a significant increase in size in terms of asset base, deposits, branches and loan volumes among the existing microfinance institutions. This increase in size of MFIs offers a good context to investigate the hypothesized relationship between firm size and profitability as the sector comprises of firms in different sizes and their profitability has also been different with some posting increased profitability over the years while others have struggled.

The correlation between a firm's size and its profitability has been a topic of philosophical and empirical debate: Symeou (2012) investigated the association between a firm's size and its profitability. The results revealed a statistically significant connection between the size of a company and its profitability. De Haan and Scholtens (2013) found no statistical significant relationship between growth and financial institution profitability in their research. Mwangi (2016) focused on the effect of firm size on profitability of microfinance banks in Kenya and revealed that size has a positive effect on profitability of the 9

microfinance banks in Kenya. Kimani (2014) examined the link between a firm's size and the profitability of manufacturing firms in Kenya, firm size was found to be negatively related to profitability. Kithuka (2013) concluded that firm size was statistically insignificant to asset growth of Nairobi Securities Exchange.

From the foregoing, there exists prior studies on firm size and profitability but there exists conceptual, contextual and methodological gaps. Conceptually, the previous studies have arrived at contradictory findings and this can be explained by the difference in the operationalization method used. Contextually, most of the previous studies were conducted in other contexts and due to differences in economic, social and other contextual differences; the findings cannot be generalized among microfinance institutions in Kenya. Although, Mwangi (2016) focused on microfinance banks in Kenya, the study reveals a methodological gap as it focused on only 9 microfinance banks which might not provide adequate data points for robust regression analysis. This research thus, therefore aimed at closing the existing knowledge gap by attempting to provide an answer to the question: What is the relationship between firm size and profitability of Microfinance Institutions in Kenya?

Research Objective

The objective of the study was to determine the relationship between firm size and profitability of Microfinance Institutions in Kenya.

Literature Review

Various theories have been put forward by scholars to explain the nexus between size of the firm and financial leverage. However, the theories that the researcher used in guiding this study include Growth of the Firm Theory, Trade-off Theory (TT) and Pecking Order Theory (POT), this have been discussed in line with the research objective.

Growth of the Firm Theory

The theory of the growth of the firm was formulated by Penrose (1959). The theory of firm growth exemplified internal incentives to expand beyond external factors. More specifically, while Penrose acknowledged the position of external factors, like demand, she also contended that growth stems mainly from the perception of managers to utilize the resources that are under leveraged. The heterogeneity of

resources between firms has been emphasized by Penrose through concentrating on the internal determinants of growth.

It is also argued that the heterogeneity of such firms result to the different firms seeking diversified opportunities for expansion. Penrose (1959) and (Garnsey, Stam, & Heffernan, 2006) asserted that conducting various activities required different types of resources and amounts. Penrose (1959) perceived growth to be originating for the voluntary decisions of firm to grasp expansion opportunities and by doing so they needed to acquire more resources. These resources for growth and expansion could be obtained through corporate acquisitions. Penrose basically believed that a company either upholds an expansion opportunity by itself or forgoes that opportunity entirely.

Penrose (1959) observed that growth was an intrinsic process that is embedded in the firm's statement of intent. The firm is assumed to be in a state of permanent flux, driven by the need to maximize value. This then motivates the urge to grow through increasing assets such as branch network, deposit accounts, and loan accounts among others. As such, this theory has been used to hypothesize the relationship between firm size and profitability of Microfinance Institutions.

Trade-off Theory

Kraus and Litzenberger, (1973) first coined trade-off theory, it holds that optimal financing mix of the firm is influenced by the balancing losses and gains from financing debt. The theory was derived from Modigliani and Miller's (1963) work, which was subsequently criticized by critics of their irrelevance theory due to perfect market assumptions. Through accepting the fact that arbitrage activities are not sustainable, the authors depict that capital structure has an impact on the corporate market value.

Fama and French, (2002) assert that through taking into account the impact of corporate taxes and holding the assumption on the existence of arbitrage, it can be argued that interest on debt which is tax deductible provides extra cash flows to a levered firm in form of interest tax savings. This improves the firm's market value. The theory argues that in cases of permanent debt, constant marginal tax rate and costs of debt, levered firms have high market values as compared to unlevered firms. This is as a result of present value of interest tax shield related to debt financing. Jensen and Meckling (1976) first introduced agency costs by indicating that debt accrues several advantages to the firm. It also enhances the associated agency costs.

Agency costs originate from the principal-agent conflict that is present between debt- holders, shareholders and managers. It was argued that managers might not entirely focus on maximizing the wealth of the shareholder however; they might cater for their own interests; which might result into depletion of free cash flow through gains.

The importance of this theory to the research is that it explains how debt financing increases firm value through the tax-deductibility feature that is linked with borrowing. Moreover, the theory presents the costs of agency and financial distress cost, the concept of capital structure and how it impacts negatively on the firm through increasing the costs of agency related to borrowing.

Pecking Order Theory

The information asymmetry feature of Donaldson's (1961) pecking order theory was adopted by (Myers & Majluf, 1984). According to the theory, information asymmetries between capital providers and the company cause variation in the costs of funding from various sources. For example, an internal source of funding in which the company provides the funds has more information about the company than external financiers such as equity and debt investors, so outsiders would expect a high return rate on their investments. This means that obtaining external capital would cost the company more money than using internal financing.

Another way to explain the information asymmetry impact on funding is, in normal conditions, insiders, such as executive management, have more information about the business than outsiders about the firm's earnings potential. Assuming that the management represents stakeholder interests, they might opt to decline issuing shares which are undervalued unless transfer of value from existing to new stakeholders is higher as compared to the growth opportunity net present value. Equity issue by the firm could be seen as a sign of overpricing by investors. If external funding is unavoidable, a company may choose secured debt over unsecured debt, and as a last resort, companies may issue ordinary shares.

The existence of a simple financing hierarchy without a well-defined goal ratio, as shown by the trade-off theory, is the theoretical importance of pecking order theory. Internal funds are preferred over external funds in this principle, which consolidates debt and equity in an effort to preserve the firm's stability and

value. This has the effect of increasing the use of external sources of capital, such as debt and equity, which has a negative impact on the firm's value while increasing the risk of financial distress.

Determinants of Microfinance Institution Profitability

A discussion on the determinants of a Microfinance Institution's profitability is provided in this section which was discussed in conformity to the study objective which sought to bring out an understanding of how these determinants affect profitability of Microfinance Institutions.

Firm size determines amount of debt that a firm gets to finance its projects. Larger firms enjoy economies of scale and an average production costs. Large firms are efficient in their operations since they can afford advanced technology. Gonenc (2005) argues that larger firms easily access debt as compared to smaller firms since they have a good corporate reputation from their stakeholders.

Smaller firms are unstable and hence most financial institutions are reluctant to provide them with debt. Smaller firms exhibit a high rate of growth; these firms require debt to finance their growth and expansion strategies as opposed to large firms that are established and stable. A lot of money and resources is invested in research and development to attract customers and boost their sales. Size of the firm was evaluated with the help of natural logarithm of total assets (Petersen & Kumar, 2010).

Asset quality indicates a Microfinance Institution's asset risk and stability. It estimates the asset quality magnitude among the characteristics that impact Microfinance Institution health. The value of assets under the control of Microfinance Institution is heavily dependent on credit risk, and the quality of the assets owned by the Microfinance Institution heavily relies on specific risks, level of NPLs, and debtors cost to the microfinance. This ratio should be at the lowest level. If lending is susceptible to risk in a well-functioning Microfinance Institution, the indicator in this case would be the applied interest margins. A low ratio shows an insufficient risk cover by the margins (Mehrjardi, 2014).

Microfinance Institution's assets primarily consist of a loan portfolio, current as well as fixed assets, and other investments. The quality of assets mostly improves with the age and Microfinance Institution size (Mehrjardi, 2014). The primary assets that generate income for Microfinance Institutions are loans. The

loan portfolio quality hence determines Microfinance Institution performance. Good quality assets reduce losses arising from NPLs, and this subsequently impacts performance (Gatete, 2015).

Eljelly (2004) explains liquidity as the firm's capability to trade an asset, such as stock or bond at its market price. Raheman and Mohamed (2007) posit that financial institutions can be assessed according to their liquidity position. Liquidity is defined as the capacity of a firm to satisfy its financial compulsions without sustaining substantial losses. Liquidity management is exertion by managers to minimize exposure to liquidity risk.

Large firms are more liquid when comparing them to smaller firms since they can easily access debt from financial institutions. Smaller firms invest most of their finances and resources to growth and expansion of their business. Liquidity was measured using financial ratios known as liquidity ratios. This set of ratios will examine the firm's ability to fulfill its financial obligations (Liabilities). This ratio includes current ratios which were calculated through division of current assets with the current liabilities (Raheman & Mohamed, 2007).

Capital adequacy which is also called the capitalization ratio. The adequacy ratio shows how equity and total assets are related. It shows the ability of a firm to remain solvent by regulating risks. Berger and DeYoung (2010) in an investigation showed a negative relation between capital adequacy and performance in imperfect capital markets, firms with sufficient capital ought to reduce borrowing to back a specific asset class, hence lowering the predicted bankruptcy costs hence incur less financing costs. A firm with sufficient capital signals the market that a superior performance is to be expected. The results of Mehrjardi (2014) revealed that capital holdings are positively related to firm's profitability. In addition, Berger and DeYoung (2010) showed a positive causality between capital contributions and profitability.

Abdussalam (2010) tested the link between profitability and the structure of the firm. An explorative form of research was implemented to detect the link between study parameters. The study considered key traits such as size of the firm, age of the firm, debt ratio and ownership structure of forty eight industrial companies in Jordan in the Amman Stock Exchange. The study covered a decade (1995-2009). This study applied two model specifications to carry out a hypothesis test. Profitability was measured using ROE and ROI. The empirical results depicted that the structure of the firm was a key factor in influencing

profitability. The findings revealed a positive association between firm size and profitability. Symeou (2013) studied the link between a firm's size and profitability of German service firms. The study adopted an exploratory approach to determine the relationship between firm size and profitability. The study used panel data for a period of fifteen years. Data was analysed using ordinary least square and the results established a statistically significant correlation between firm size and profitability.

Kithuka (2013) examined the nexus between size of the firm and investment in financial innovation of NSE listed firms. The study applied a descriptive survey research design by sampling 40 firms which were chosen with the help of a stratified random sampling technique. A regression equation was chosen for carrying out analysis and the results revealed existence of a positive correlation on financial innovation and firm size. Mahfoudh (2013) investigated the impact of company characteristics on the financial performance of publicly traded agricultural firms. To determine the relationship between the variables, a descriptive survey was used. The study was carried out on a total of 25 sampled firms using a regression equation. The results revealed a positive relationship between financial performance and firm characteristics (size, age, as well as growth). Shehzad, De Haan and Scholtens (2013) assessed the link between size and profitability of the bank. The study adopted a longitudinal research design to establish relationships between size and profitability. The study used panel data for a period of fifteen years. The findings revealed that changes in profitability are subjected to the increase in the size of the firm. Consequently, the volatility of banks' profit depends on its size and profitability.

Pagano (2014) assessed the link between firm size distribution and profitability in European Countries. The study examined the industry level and size structure. Panel data was used for fifteen years. An exploratory research design was used, and a positive and robust relationship was established between the average size of a firm and its profitability. The results indicate that larger size fosters productivity and firm profitability."A descriptive research design was used in all of the listed firms at the NSE in Marete's (2015) investigation into the relation between firm size and financial leverage of listed firms in Kenya. Over the course of five years, data from published sources was used (2010-2014). The data was analyzed using inferential statistics, and the findings revealed that firm size and financial leverage were statistically significant. The relationship between firm size and financial leverage was discovered to be substantial and positive.

Tale (2014) evaluated the contribution that capital structure had on financial performance of listed non-financial firms at NSE in Kenya with firm size as a control variable. A descriptive survey design was implemented in a population of 40 non-financial firms. Published data sources were derived from Capital Markets Authority. Analysis was done using a regression equation and the results depicted that size of the firm was negatively connected to financial performance. Kinuthia (2015) tested the link between size and financial performance of commercial banks in Kenya. The researcher adopted a descriptive research design to determine the link between size and financial performance of banks. The study population involved a sample of 35 commercial banks in Kenya. The findings revealed a positive correlation between profitability of banks with the customer base, deposits, liabilities, number of branches, and market share. Mwangi (2016) tested the firm size contribution on microfinance banks profitability in Kenya. A census survey was conducted involving a total of 9 microfinance banks. This study was covered in duration between 2011 and 2015 (5 years). A regression equation was chosen to find out the nexus between firm size and profitability. Firm size and operating efficiency were all found to have a substantial and positive effect on profitability of microfinance institutions in Kenya.

Conceptual Model

It is hypothesize that firm size has a significant relationship on profitability. Further, the control variables: Liquidity, asset quality and capital adequacy were also expected to have a significant relationship with profitability. This was also supported by theories anchoring this study that predicts a significant relationship of the size of the firm on profitability.

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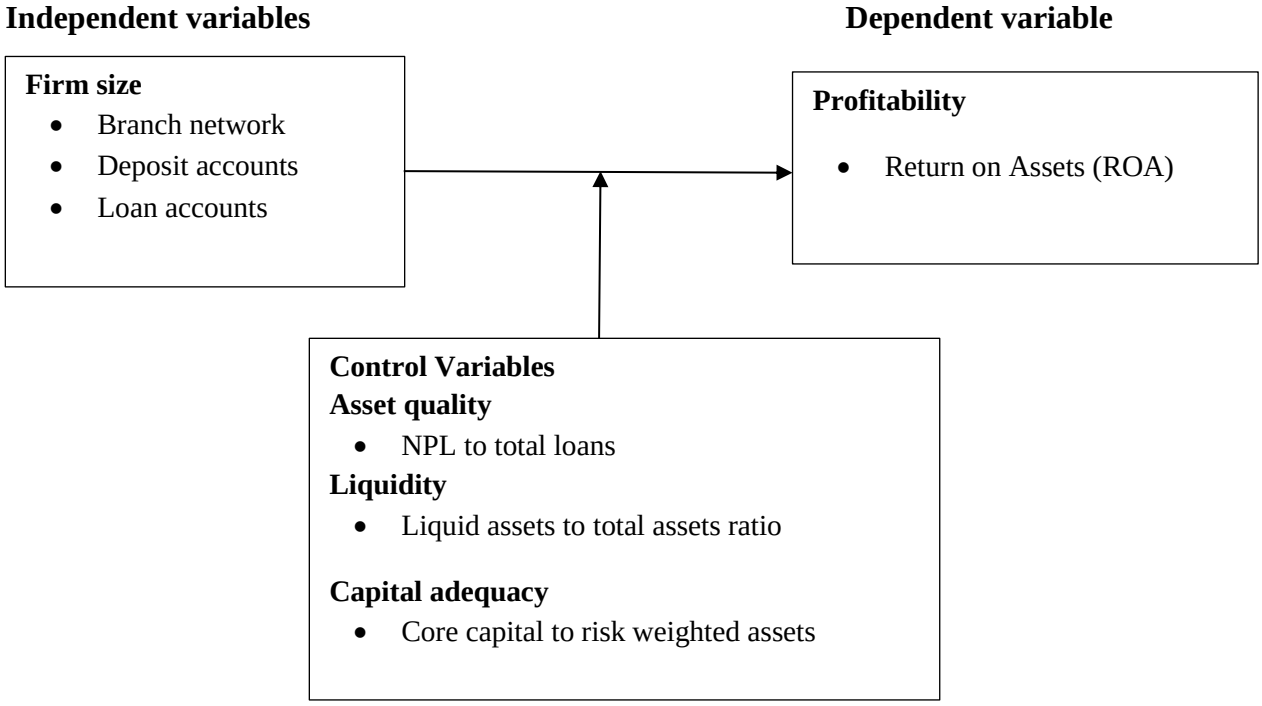

Figure 2.1: Conceptual Model

Methodology

The study used a descriptive research design and hypothesis testing to determine the nature of the relation between firm size and profitability in microfinance institutions. Mwangi (2014) used a descriptive research design to investigate the connection between bank size and financial performance in Kenyan commercial banks. Since the research revealed hypothetical association between the variables, it used a descriptive research design (Firm size and profitability). The population for the study included 27 microfinance institutions which are licensed and operating in Kenya. Secondary sources of data were utilized because the study is quantitative in nature. The research considered five years (2016-2020), and the data was gathered from the Central Bank of Kenya's website's annual reports. The researchers' analyzed data using analytical and logical reasoning to analyze each portion of the information provided (Frankfort-Nachmias et al, 2008). The variables were first summarized using mean, standard deviation, maximum and minimum values. A linear regression model was used to find out the relationship between firm size and profitability of microfinance institutions in Kenya. The analytical model was built on six independent variables in the regression model (Microfinance branches, customer deposits, loan accounts, asset quality, liquidity and capital adequacy) which affects the Microfinance Institutions profitability. The dependent variable was profitability which is measured using operating expenses divided by total income. The regression model was as follows:

$$Y=\alpha+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\beta_6X_6+\varepsilon$$

Where:

Y= Profitability which was measured using ROA which was computed by dividing net income by total assets.

X_1=Branch network which was measured using the total number of branches per microfinance

X_2=Deposit accounts which was measured using the total number of deposit accounts per microfinance

X_3= Loan accounts which was measured using the total number of loan accounts per microfinance

X_4= Asset quality which was assessed through division of the non-performing loans total number divided by total gross loans and advances.

X_5= Liquidity which was evaluated by dividing liquid assets by total assets.

X_6= Capital adequacy which was measured utilizing the core capital to risk weighted assets ratio

α= Regression constant

ε = Standard error term (distributed about the mean of zero).

Using the Analysis of Variance (ANOVA), this study measured the degree of statistical significance of the results at 95% to see whether the model was a good predictor. The ANOVA was utilized to examine the significance of the study with the help of either f-test or t-test, if the results of the test were below 5 percent; this indicated that the study variables being tested are statistically significant. According to Mutandwa, Gala and Grebner (2016), the data collected was first assessed before the actual estimation of the model. The tests was conducted to find out whether the data has met the assumptions of regression models since any data contravening the presumptions of the panel regression would yield spurious outcomes. This study used serial correlation tests, heteroscedasticity tests and multicollinearity test to evaluate the data collected before the actual analysis.

Data Analysis and Presentation of Results

The descriptive statistics provides a summary of the variables under investigation. It gives the mean, standard deviation, maximum and minimum values as per the trend in a period of five years (2016-2020). Below are the results of the findings in the Table 1.

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Table 1 Descriptive Statistics

Variable	N	Mean	Std. Deviation	Minimum	Maximum
Profitability (ROA)	135	1.40	0.531	-0.15	3.60
Deposit accounts	135	104,256	953	1,168	994,701
Loan accounts	135	58,022	137	1,013	144,718
Branches	135	5.00	2	2.00	37.00
Asset Quality	135	7.56	7.56	5.00	9.99
Liquidity	135	26.35	0.54	1.00	138
Capital Adequacy	135	16.60	1.71	8.18	26.00

From the findings in Table 1, the findings depict that most microfinance institutions attained 1% of their financial performance. This means that the income generated from assets was relatively low. However, the level of income generated from assets varied over time with a margin of 0.53%. Deposit accounts had a mean of 104,256 with standard deviation of 953. The minimum was 1,168 deposit accounts while the maximum was 994,701 deposit accounts. This implies that there has been a tremendously growth in customer deposits over the years (2016-2020). The growth in deposits was as a result of increased usage of alternative delivery channels and customers' choice of deposits as a savings method. This could be attributed to adoption and use of modern technologies and financial inclusivity. Loan accounts had a mean of 58,022 with standard deviation of 137. The minimum was 1,013 loan accounts while the maximum was 144,718 loan accounts, which depicted an increase. The increase is attributable largely to enhanced marketing among MSMEs as they compete for greater shares of the MSME market segment.

Branches had a mean of 5 with a minimum was 2 branches and a maximum was 37 branches. The microfinance sector's branch network declined in the year under review, with the number of branches standing at 120. Kenya Women MFB closed four (4) branches during the period under study. The sector established two marketing offices and closed 32 marketing offices during the period under review, bringing down the total marketing offices from 119 in 2019 to 89 in 2020. On asset quality, the results indicate that nonperforming loans to total loans had a mean of 7.56% and a standard deviation of 1.487. This indicated that on average, the microfinance institutions had an asset quality that is below the maximum set rate of

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12% by Central Bank. Liquidity had a mean of 26.35 with standard deviation of 0.54. The minimum ratio was 1 while the maximum ratio was 138. The microfinance institutions liquidity ratio was above the statutory minimum of 20 percent. Capital adequacy had a mean of 16.60 with standard deviation of 1.71. The minimum ratio was 8.18 while the maximum ratio was 26. Capital adequacy was also above the statutory minimum capital adequacy ratio of 14.5 percent. However, some microfinance institutions did not meet that requirement. The trend for the Microfinance profitability is as shown in Figure 1.

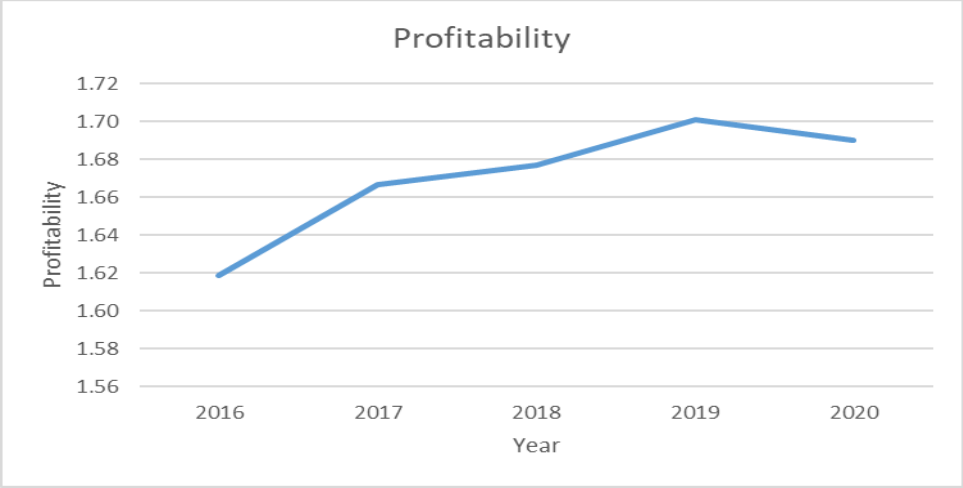

Figure 1: Trend for profitability

The trend analysis shows that the profitability of the microfinance institutions had a sharp increase trend 2016 to 2017 where it became steady. The trend increased towards 2019 where the maximum was recorded. There was a drop in 2020. This implies that there was a general increase in profitability. However, this was not the case for all the microfinance institutions.

The study used Pearson correlation coefficient to measure linear correlation between two variables X and Y, giving a value between +1 and −1 inclusive, where 1 is total positive correlation, 0 is no correlation, and −1 is the total negative correlation. The correlation results have been presented in the Table 2.

The results in Table 2 show that deposit accounts (r= 0.751, p=0.000) had a positive and significant association with profitability of microfinance institutions. Loan accounts (r=0.750, p=0.000) had a positive and a significance association with profitability. Further, the results indicated that microfinance institution branches (r=0.753, p=0.000) had a positive and a significance association with profitability. Asset quality (r= -0.719, p= 0.000) had a negative and significance association with profitability. Liquidity (r=0.633,

p=0.000) had a positive and a significance association with profitability. Lastly, capital adequacy (r= 0.732, p=0.000) had a positive and a significance association with profitability.

Table 2 Pearson's Correlation Coefficient

	Profitability (ROA)	Deposit accounts	Loan accounts	Branches	Asset Quality	Liquidity	Capital Adequacy
Profitability (ROA)	1.000						
Deposit accounts	.751**	1.000					
	0.000						
Loan accounts	.750**	.445**	1.000				
	0.000	0.000					
Branches	.753**	.419**	.352**	1.000			
	0.000	0.000	0.000				
Asset Quality	-.719**	-.467**	-.445**	-.367**	1.000		
	0.000	0.000	0.000	0.000			
Liquidity	.633**	.487**	.457**	.471**	-.411**	1.000	
	0.000	0.000	0.000	0.000	0.000		
Capital Adequacy	.732**	.494**	.329**	.382**	-.418**	.429**	1.000
	0.000	0.000	0.000	0.000	0.000	0.000	

The positive association of deposit accounts, loan accounts, branches, liquidity and capital adequacy implied that an increase leads to an increase on profitability of microfinance institutions. However, the negative coefficient of asset quality implied that an increase leads to a decrease on profitability of microfinance institutions. The results also indicated a high association between the independent and the dependent variables.

The study conducted out different diagnostic tests to make sure that the postulations of Classical Linear Regression Model (CLRM) are not contravened and to select the appropriate models for investigation in the event (CLRM) postulations are violated. These diagnostic tests were also conducted to avoid spurious regression results. Thus, prior to running regression model pre-estimation and diagnostic tests were conducted. The diagnostic tests conducted in this case were the Normality test, Multicollinearity, Test for Fixed or Random Effects, Wooldridge Test for Serial Correlation and Heteroscedasticity Test.

Multicollinearity was assessed in this study using the variance inflation factors (VIF). According to Field (2009) VIF values in excess of 10 is an indication of the presence of Multicollinearity. The results are illustrated in Table 3.

Table 3: Multicollinearity

Variable	VIF	1/VIF
Loan accounts	3.23	0.309
Deposit accounts	2.93	0.341
Branches	2.92	0.342
Capital Adequacy	2.89	0.346
Asset Quality	2.46	0.406
Liquidity	1.38	0.725

The results indicate that the variables had a VIF value of less than 10 and thus there was no multicollinearity.

Autocorrelation Test was conducted to determine if the data contravenes the attributes of the Ordinary Least Square (OLS), which culminates to wrong outcomes in hypothesis testing. The study used Wooldridge Test for Serial Correlation to ascertain whether the data collected has a serial autocorrelation.

Table 4: Serial Correlation Tests

Wooldridge test for autocorrelation in panel data
H_0: no first-order autocorrelation
F(1, 6) = 2.64
Prob > F = 0.6102

The results for the Wooldridge test for autocorrelation indicated that the F-test value was 2.64 and the P-value was 0.6102 indicating that the F-test is not statistically significant at 5% level. Hence, the null hypothesis of no autocorrelation was supported and the study concluded that residuals are not auto correlated.

To test for normality, the study applied the Jaque Bera test method. The Jarque–Bera test is a goodness-of-fit test of whether sample data have the skewness and kurtosis matching a normal distribution. Normality was checked on the residuals of a model, because those assumptions apply to the unexplained variance of a model. The hypothesis was that the data was normally distributed. The results are as shown in Table 5.

Table 4.5: Normality Test

JB residuals		
Jarque-Bera	normality test: 24.98 Chi(2)	0.063
Jarque-Bera	test for Ho: normality:	

The results in Table 5 indicated that the Chi-square value was 24.98 and the P-value was 0.063 that was larger than the 0.05. We thus concluded that the data was normal since the p-value was larger than the critical 0.05.

In regression models, the error term difference or variance is assumed to be constant across observations. If this assumption is violated, the random variable is called heteroscedasticity. If the control model is heteroscedasticity, then the analysis is not correct. This study used Breusch-Pagan test to check for existence of heteroscedasticity in the data collected with the hypothesis that the data was homoscedastic.

Table 6: Heteroscedasticity Test Results

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity
Ho: Constant variance
Variables: fitted values of Profitability
chi2(1) = 3.32
Prob > chi2 = 0.5744

The hypothesis was therefore not rejected at a critical p value of 0.05 since the reported value for the chi2 (1) was 3.32 with a p-value of 0.5744 which was larger than the critical 0.05. Thus, the data did not suffer from statistically significant heteroscedasticity.

The Hausman specification test was carried out to check for consistency of the estimator when compared to an alternative and less efficient estimator. Green (2008) opines that for one to decide between random effects and fixed effects, it was important to run a Hausman specification test whereby the null hypothesis is the random effects. Durbin – Wu –Hausman Test, was conducted to test on the data to determine the most appropriate estimation model between the random effects and the fixed effects models. The hypothesis was that random effect is preferred to fixed effect and the results are as shown in Table 7.

Table 7: Hausman Test

	(b) fixed	(B) random	(b-B) Difference	Sqrt (diag (V_b-V_B)) S.E.
Deposit account	0.039	0.0343	0.00480	0.055
Loan accounts	0.073	0.0825	-0.00955	0.065
Branches	0.226	0.1945	0.03123	0.065
Asset Quality	-0.521	-0.5232	0.00238	0.062
Liquidity	0.281	0.3855	-0.10474	0.090
Capital Adequacy	0.262	0.1359	0.12590	0.086
chi2(4)	5.83			
Prob>chi2	0.071			

The Hausman test revealed a chi-square of 5.83 with a p-value of 0.071 indicating that at 5 percent level, the chi-square value obtained is statistically insignificant. Thus, the researcher did not reject the hypothesis that random effects model is preferred to fixed effect model and random model was adopted.

A linear regression model was used to determine the relationship between the study variables. This was meant to confirm the hypothesis for this study which had predicted a positive relationship between firm size and profitability of microfinance institutions in Kenya. The findings are presented in the Table 8.

Table 8: Model Coefficients

Profitability	Coef.	Std. Err.	t	P>|t|
Deposit accounts	0.041	0.01900	2.14	0.034
Loan accounts	0.066	0.03240	2.04	0.043
Branches	0.239	0.09612	2.49	0.014
Asset Quality	-0.513	0.18483	-2.78	0.006
Liquidity	0.254	0.04727	5.37	0.000
Capital Adequacy	0.313	0.15576	2.01	0.047
_cons	9.850	3.70024	2.66	0.009
Wald chi2(6) 72.555				
Prob>chi2 0.000				
Rsquared =0.773				

The fitted model was;

$Y = 9.850 + 0.0408X_1 + 0.0660X_2 + 0.2390X_3 - 0.5130X_4 + 0.2540X_5 + 0.3130X_6$

The findings indicated that the coefficient of determination (R2) explained 77.3% variance in the dependent variable which is profitability (ROA). This means that the model is a good predictor. The ANOVA probability value was 0.000; this is an indication that the regression model is significant in predicting the

relationship between firm size and profitability of microfinance institutions in Kenya. The study tested the model coefficients to know the direction of the variables under investigation.

From the regression model obtained, the constant of 9.850 showed that when deposit accounts, loan accounts, branches, asset quality, liquidity and capital adequacy are held constant, on profitability will remain at 9.850 units. The regression results indicate a positive and significant relationship between deposit accounts and profitability (β= 0.0408, p=0.034). Loan accounts had a positive and significant relationship with profitability (β= 0.0660, p=0.043). Microfinance institution branches had a positive and significant relationship with profitability (β= 0.2390, p=0.014). Asset quality had a negative and significant relationship with profitability (β= -0.5130, p=0.006). Liquidity had a positive and significant relationship with profitability (β= 0.2540, p=0.000). Capital adequacy had a positive and significant relationship with profitability (β= 0.3130, p=0.047).

This is an indication that there is a direct relationship between deposit accounts, loan accounts, branches, liquidity and capital adequacy with profitability of microfinance institutions in Kenya. On the other hand, there is there exists an inverse relationship between asset quality and profitability of microfinance institutions. The regression analysis was undertaken at 5% significance level. The criteria for comparing whether the predictor variables were significant in the model was through comparing the corresponding probability value obtained and α=0.05. If the probability value was less than α, then the predictor variable was significant. From the analysis it was revealed that the deposit accounts, loan accounts, branches, liquidity and capital adequacy were statistically significant since their p-values were less than 5%. Therefore, the entire null hypothesis was rejected.

Discussion of Findings

The objective of this study was to determine the relationship between firm size and profitability of microfinance institutions in Kenya. The independent variables were deposit accounts, loan accounts, branches, asset quality, liquidity and capital adequacy. The dependent variable was profitability of microfinance institutions.

Under deposit accounts, correlation results indicated that deposit accounts had a positive and significant association with profitability of microfinance institutions. Regression results indicated that a positive and

significant relationship between deposit accounts and profitability. The regression coefficients implied that holding all the other factors constant, a unit increase in deposit accounts will lead to a unit increase in profitability by 0.0408. The null hypothesis was rejected that deposit accounts has no significant relationship on profitability of microfinance institutions in Kenya. The findings are consistent with Abdussalam (2010) findings revealed a positive association between firm size and profitability. The study by Symeou (2013) established a statistically significant correlation between firm size and profitability. Kithuka (2013) results revealed existence of a positive correlation on financial innovation and firm size.

Under loan accounts, correlation results indicated that loan accounts had a positive and significant association with profitability of microfinance institutions. Regression results indicated that a positive and significant relationship between loan accounts and profitability. The regression coefficients implied that holding all the other factors constant, a unit increase in loan accounts will lead to a unit increase in profitability by 0.0660. The null hypothesis was rejected that loan accounts has no significant relationship on profitability of microfinance institutions in Kenya. The results are in line with Mahfoudh (2013) who established a positive relationship between financial performance and firm characteristics (size, age, as well as growth). Shehzad, De Haan and Scholtens (2013) findings revealed that changes in profitability are subjected to the increase in the size of the firm. Consequently, the volatility of banks' profit depends on its size and profitability.

Under branches, correlation results indicated that branches had a positive and significant association with profitability of microfinance institutions. Regression results indicated that a positive and significant relationship between branches and profitability. The regression coefficients implied that holding all the other factors constant, a unit increase in branches will lead to a unit increase in profitability by 0.2390. The null hypothesis was rejected that branches have no significant relationship on profitability of microfinance institutions in Kenya. Pagano (2014) established a positive and robust relationship was established between the average size of a firm and its profitability. The results indicate that larger size fosters productivity and firm profitability. Mwangi (2016) established that firm size and operating efficiency were all found to have a substantial and positive effect on profitability of microfinance banks in Kenya.

Under asset quality, correlation results indicated that asset quality had a negative and significant association with profitability of microfinance institutions. Regression results indicated that a negative and significant

relationship between asset quality and profitability. The regression coefficients implied that holding all the other factors constant, a unit increase in asset quality will lead to a corresponding decrease in profitability by -0.5130 units. The null hypothesis was rejected that asset quality has no significant relationship on profitability of microfinance institutions in Kenya. These findings are consistent with a study by Tale (2014) who investigated on the relationship between capital structure and financial performance of non-financial firms listed at the Nairobi securities exchange in Kenya. The study concluded that asset quality was negatively related to financial performance of listed firms.

Under liquidity, correlation results indicated that liquidity had a positive and significant association with profitability of microfinance institutions. Regression results indicated that a positive and significant relationship between liquidity and profitability. The regression coefficients implied that holding all the other factors constant, a unit increase in liquidity will lead to a unit increase in profitability by 0.2540. The null hypothesis was rejected that liquidity has no significant relationship on profitability of microfinance institutions in Kenya. Marete's (2015) findings revealed that firm size and financial leverage were statistically significant. The relationship between firm size and financial leverage was discovered to be substantial and positive.

Lastly, correlation results indicated that capital adequacy had a positive and significant association with profitability of microfinance institutions. Regression results indicated that a positive and significant relationship between capital adequacy and profitability. The regression coefficients implied that holding all the other factors constant, a unit increase in capital adequacy will lead to a unit increase in profitability by 0.3130. The null hypothesis was rejected that capital adequacy has no significant relationship on profitability of microfinance institutions in Kenya. Kinuthia (2015) findings revealed a positive correlation between profitability of banks with the customer base, deposits, liabilities, number of branches, and market share. However, Tale (2014) size of the firm was negatively connected to financial performance.

Summary, Conclusions and Recommendations

Most microfinance institutions attained 1% of their financial performance. This means that the income generated from assets was relatively low. Further, asset quality indicated that most microfinance institutions sustained higher amounts of gross loans and advances which contributed to high amounts of non-performing loans. There was an increase in customer deposits attributed to increased usage of alternative delivery

channels and customers' choice of deposits as a savings method. Loan accounts, which depicted an increase was attributable largely to enhanced marketing among MSMEs as they compete for greater shares of the MSMEs market segment. Capital adequacy was also above the statutory minimum capital adequacy ratio of 14.5%. However, some microfinance institutions did not meet that requirement.

Pearson correlation indicated a positive association between deposit accounts, loan accounts, branches, liquidity and capital adequacy on profitability. The positive association of deposit accounts, loan accounts, branches, liquidity and capital adequacy implied that an increase leads to an increase on profitability of microfinance institutions. However, the negative coefficient of asset quality implied that an increase leads to a decrease on profitability of microfinance institutions. The results also indicated a high association between the independent and the dependent variables.

The regression findings indicated that there is a direct relationship between deposit accounts, loan accounts, branches, liquidity and capital adequacy with profitability of microfinance institutions in Kenya. On the other hand, there exists an inverse relationship between asset quality and profitability of microfinance institutions. The regression analysis was undertaken at 5% significance level. The criteria for comparing whether the predictor variables were significant in the model was through comparing the corresponding probability value obtained and α=0.05. If the probability value was less than α, then the predictor variable was significant. From the analysis it was revealed that the deposit accounts, loan accounts, branches, liquidity and capital adequacy were statistically significant since their p-values were less than 5%.

The study concludes that most microfinance institutions are small in size and however most of them have experienced growth over the years in terms of deposit accounts, loan accounts, branches, liquidity and capital adequacy. This could be attributable to improved financial performance and growth in asset base in the period of study. The study concludes that deposit accounts, loan accounts, microfinance institution branches, liquidity and capital adequacy have a positive and significant relationship with profitability of microfinance institutions. However, asset quality has a negative and significant relationship with profitability. Therefore, the study concludes that deposit accounts, loan accounts, microfinance institutions branches, liquidity and capital adequacy have a direct relationship with profitability of microfinance institutions in Kenya. However, asset quality has an inverse relationship with profitability of microfinance institutions. In addition, most microfinance institutions attained 1% of their financial performance. There

was an increase in customer deposits attributed to increased usage of alternative delivery channels and customers' choice of deposits as a savings method. Capital adequacy was also above the statutory minimum capital adequacy ratio of 14.5%.

The study recommends that microfinance institutions should identify their geographic market, including any exceptions or specific restrictions. Geographic limits are consistent with the objective of serving the credit needs of the microfinance community. They also help to ensure that the lending staff can supervise the loan portfolio effectively. Such supervision is especially important for new microfinance institutions. The study recommends that microfinance institutions should make substantial expenditure in undertaking their due diligence before issuing loans. This can be drawn from the fact that large institutions have a lower ratio of non-performing loans than smaller institutions. This indicates that the large microfinance institutions are able to reduce their non-performing loans to total loans ratio. The most practical explanation for such a result would be the big institutions are able to employ advanced technology and more resources in scrutinizing their clients before issuing loans.

The study recommends on balancing of the liquidity for the microfinance institutions above the statutory level. Liquidity and capital adequacy are crucial factor in microfinance institutions. Inability to meet the short-term liabilities may affect their operations and in many cases, it may affect its reputation too. Lack of adequate cash or liquid assets on hand may lead to low loan disbursements. Lastly, the study recommends microfinance institutions should develop comprehensive strategic plans detailing on how they will deal with NPLs in their occurrence in a systematic way. The strategy must be adapted for each loan product and be realistic and achievable by creating sustainable long-term work-out solutions in a capital-efficient and cost-effective manner. "The study aimed to determine the relationship between firm size and profitability of microfinance institutions in Kenya. The study was limited to deposit accounts, loan accounts, microfinance branches, asset quality, liquidity and capital adequacy as the study variables. The study was also limited to the 27 microfinance institutions licensed in Kenya with a 5 year period from 2016 to 2020. Time was limited and resources were not enough. The study focused on Kenyan sector and the findings of this study are applicable, mainly in Kenya and for the covered period."

The findings of this study can be improved if the study is expanded to cover a longer time. A future research can be carried out on the same topic, but using data for an extended period of time. This is with the

assumption that the data for a longer time would provide results that are better than those provided by the data used in this study. The possible higher objectivity that arises based on the sample period may be settled covering a longer period. In addition, given that Kenya is a key player in the East African community, the study can be expanded to cover other East African microfinance institutions within the East African community in order to provide results that are useful in that context.

References

Abel, E. E. (2008). Firm size and corporate financial- leverage choice in a developing economy: Evidence from Nigeria, *The Journal of Risk Finance*, 9, I, 4,351 – 364

Abreu, M. & Mendes, V. (2003). Commercial Bank interest margins and profitability: evidence for some E.U countries; victor Mendes and European integration and banking efficiency, *http://pascal.iseg.utl.pt/~cief/uk/conf/session2_CIEF2.pdf pp. 1-19*

Allen, L. & Rai, A. (2009). Operational efficiency in banking: An international comparison, *Journal of Banking and Finance* 20: 655-672.

Altunbas, Y., & Seth, R.R. (2000). Efficiency and risk in Japanese banking, *Journal of Banking and Finance* 24:1605-1628.

AMFI (2015). Association of Microfinance institutions in Kenya *http://amfikenya.com/,1458641065626-f130b807-9c2a*

Ammar, A., & Russell, J.S. (2003). Indicator variables model of firm's size- profitability relationship of electrical contractors using financial and economic data, *Journal of Construction Engineering and Management*, 129(2), 192-197

Archarungroj, P. & Hoshino, Y. (2012). The impact of firm size on export performance and attitudes: an empirical study on Thailand exporters, *Japanese Journal of Administrative Science*, 12(2), 79 - 88.

Babalola, Y.A. (2014). The relationship between bank size and financial performance, *Journal of Money Investment and Banking*, 24, 1, 1-5

Batiz-Lazo, B., & Barrie, A. (2005). The business and technological history of automated teller machines in the UK, 1967-2005, a *Primer. Conference Abstracts, 16-17th June. Queen Mary, University of London*, 567-570.

Berger, A.N. & R. De Young, (2010). Problem loans and cost efficiency in commercial banks. *Journal of Banking and Finance*, 21: 849-870.

Boerner, C. S. & Macher, J. T. (2002). Transaction cost economics: An assessment of empirical research

in the social sciences. Working paper, *Haas School of Business*, University of California, Berkeley.

Brouthers, K. D., &Brouthers, L. E. (2004). Transaction costs, risk behaviour, and international entry mode choice. Working paper, Temple University Fox School of Business, Philadelphia

Chakraborty, T. (2008). Working Capital and profitability: an empirical analysis of their relationship with reference of banks, *Journal of Management Research*, 3(4), 1-2

Coase, R. H. (1937). *The nature of the firm, Economica*, N.S., 4: 386 – 405.

Deis, D., & Guffey, W. (2005). Further Evidence on the Relationship between Bankruptcy Costs and Firm Size, *Quarterly Journal of Business & Economics*, 69-79.

Donaldson, T. J., & L. E. Preston. (1995). the Stakeholder Theory and the Corporation: Concepts, Evidence, and Implications, *Academy of Management Review*, 20 (1995).

Drake, L. & Hall, M.J.B (2013). Efficiency in Japanese banking: An empirical analysis, *Journal of Banking and Finance*, 27: 891–917.

Duckworth, H. A. & Moore, R. A. (2010). *Social responsibility: failure mode effects and analysis*, 10. ISBN, 1439803749.

Dutta, S., & John, G. (1995). Combining lab experiments and industry data in transaction cost analysis: The case of competition as a safeguard, *Journal of Law, Economics, and Organization*, 11: 87–111.

Dyer, J. H., & Chu, W. (2003). The role of trustworthiness in reducing transaction costs and improving performance: Empirical evidence from the United States, *Japan, and Korea, Organization Science*, 14: 57– 68.

Eljelly, A. (2004). Liquidity-Profitability Trade-off, an empirical investigation in an emerging market, *International Journal of Commerce & Management*, 14(2), 48-61

Emery, T. (1991). The link between bank growth and profitability of Pakistanian banks, *Journal of finance risk*, 1(5), 19-21

Feng, G. & A. Serlitis, (2010). Efficiency, technical change and returns to scale in large U.S. Banks: Panel data evidence from an output distance function satisfying theoretical regularity'. *Journal of Banking and Finance*, 34: 127- 138.

Frankfort-Nachmias, C., &Nachmias, D. (2008). *Research methods in the social sciences*, London. u.a., Arnold.

Friedman, A. L., & Miles, S. (2002). Developing stakeholder theory, *Journal of Management Studies*, 39 (1), 1–21.

Fukuyama, W., (2007). Technical and scale efficiency of Japanese commercial banks: A non-parametric

approach, *Applied Economics,* 25, 1101-1112.

Garnsey, E., Stam, E., & Heffernan, P. (2006). New Firm Growth: Exploring Processes and Paths. *Industry & Innovation, 13*(1), 1–20.

Gatete A. (2015). Effect of bank size on profitability of commercial banks in Kenya, *MBA Project*, University of Nairobi

Goldberg, L.G. & Rai, A. A. (1996). The structure-performance relationship for European banking, *Journal of Banking and Finance* 20 745-771

Hasan, I., &Marton, K. (2009). Development and efficiency of the banking sector in a transitional economy: Hungarian experience, *Journal of Banking and Finance* 27:2249-2271.

Isik, I. & M.K. Hassan, (2002). Technical, scale and allocative efficiencies of Turkish banking industry, *Journal of Banking and Finance*, 26: 719-766.

Jensen, M. &Meckling, W. (1976). Theory of the firm, managerial behaviour, agency costs and ownership structure, *Journal of Financial Economics*, 3, 305–360.

Jensen, M. (1976), Agency costs of free cash flow, corporate finance and takeovers, *American Economic Review*, 76(2), 323-329

Kariuki, A. (2012). The relationship between bank size, growth and profitability of listed firms in NSE, *MBA Project*, Kenyatta University

Karray, S.C. &Chichti, J.E. (2013). Bank size and efficiency in developing countries: intermediation approach versus value added approach and impact of Non- Traditional Activities, *Asian Economic and Financial Review*, 3, 5,519-613

Kimani, A. (2014). The relationship between firm size and profitability of manufacturing firms in Kenya, *MBA Project*, Kenyatta University

Kithuka, M. (2013). The link between organisational size and asset growth of firms listed at the Nairobi Securities Exchange, *MBA Project*, and University of Nairobi

Kothari, C. R. (2006). *Research methodology: techniques and methods.* New Delhi: New Age International (P) Ltd.

Laffont, J., & David, M. (2008). *The theory of incentives, the principal Agent Model* Princeton, Princeton University Press

Lamont, O.A. & Polk, C. (2002). Does diversification destroy value, evidence from the industry shocks, *Journal of Financial Economics* 63, 51-77?

Lang, G. & P. Welzel, (1996). Efficiency and technical progress in banking: Empirical results for a panel

of German cooperative banks, *Journal of Banking and Finance*, 20:1003-1023.

Maksimovic, V. & Phillips, G. (2002). Do conglomerate firms allocate resources inefficiently across Industries, *Theory and Evidence, the Journal of Finance*, 57, 721-767?

McIntosh, C., A. De Janvry, T., & Sadoulet, E. (2005). Rising competition among microfinance institutions affects incumbent lenders, *Economic Journal*, 115: 987-1004

Mehrjardi, M.S. (2014). Size and profitability of banks in Kenya, *Unpublished MBA Project*, University of Nairobi

Mendes, V. &Rebelo, J. (1999). Productive efficiency, technological change and productivity in Portuguese banking, applied financial economics. 1999, (9), 513-521, *Retrievedon19thofMarch, 2016.Http.Web.ebscohost.com*

Mitchell, K. &Onvural, N.M. (2014). Economies of scale and scope at large commercial banks: Evidence from the Fourier flexible form, *Journal of Money, Credit and Banking*, 28:178-199.

Muhammad, A.M. (2015). The effect of bank size and financial performance of commercial banks in Dar es Salaam, *published thesis*, University of Dar es Salaam

Mwangi, A. (2014). Factors affecting growth of commercial banks in Kenya, *MBA Projects*, Kenyatta University

Olatokun, W. M. &Igbinedion, L. J. (2009). *The Adoption of Automatic Teller Machines JIBC*, 2013, 18, 3 – 21

Pandey, M. (2005). Capital structure, profitability and market structure: evidence from Malaysia, *Asia Pacific Journal of Economics and Business*, 8, 2

Penrose, E.T. (1959). *The Theory of the Growth of the Firm.* Oxford: Oxford University Press. Also available in 2009 as the 4th edition.

Rasiah, D. (2010). Theoretical Framework of Profitability as Applied to Commercial Banks in Malaysia written by *published in European Journal of Economics, http://www.eurojournals.com*

Saliha, T. &Abdessatar, A. (2011). The Determinants of financial performance: an empirical test using the simultaneous equations method, *Economics and Finance Review* 10(1), 0-19.

Salim, S. B. (2012). The relationship between size and financial performance of commercial banks in Kenya, *MBA Project*, University of Nairobi

Scholterns, Bert. (2000). Competition, growth, and performance in the banking industry, applied financial economics, *Feb, 254-275. Retrieved September, 2016. http://web.ebscohost.com/ehost/pdf viewer.*

Sekaran, U. (2008). *Research methods for business: a skill building approach. (4thEd.).* London: John

Wiley & Sons.

Singh, J. P. (2008). Impact of working capital management and profitability of banks, *Journal of Financial Economics*, 3(6), 1-2

Srivastava, P., (1999). Size, *efficiency and financial reforms in Indian banking.*

Tanna, S., Pasiouras, F. & Nnadi, M. (2011). The effect of board size and composition on the efficiency of UK banks, *International Journal of the Economics of Business*, volume 18, 3, 441-462

Vong, P.I. & Chan, H.S. (2009). Determinants of Bank Profitability in Macao, published by Macao monetary research bulletin available at: *http://www.amcm.gov.mo/publication/quarterly/July2009/macaoprof_en.pdf*