

**THE RELATIONSHIP BETWEEN CAPITAL STRUCTURE AND FINANCIAL
PERFORMANCE OF MICROFINANCE INSTITUTIONS IN KENYA**

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DECLARATION

This research project is my original work and has not been presented for examination in any other university.

Signed 

Date 23rd November 2009.

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This research project has been submitted for examination with my approval as the university supervisor.

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DEDICATION

This study is dedicated to my parents for teaching me the value of curiosity and thrill of its satisfaction. Greatest debt to my children whose encouragement and confidence in me kept me pursuing this program even when I did not want to; kept me doing it right when I wanted to settle for less and kept me challenging myself to become better. To my loving mum Mary Orua and my father William Orua who has endeavored through prayer and words of encouragement that has enabled me to go through the program. Above all to the almighty God who is and has been my provider throughout the program.

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LIST ABBREVIATIONS

CGAP	Consultative Group to Assist the Poor
D/E	Debt Equity Ratio
DCL	Degree of combined leverage
DFL	Degree of financial leverage
DOL	Degree of operating leverage
DPS	Dividends Per Share
EBIT	Earnings Before Interest and Tax
EPS	Earnings Per Share
MFI	Microfinance Institutions
MIX	Microfinance Information Exchange
MM	Modigliani and Miller
NGO	Non Governmental Organization
NPV	Net Present Value
ROA	Return on Assets
ROE	Return on Equity

ABSTRACT

This study examined the relationship between capital structure and performance of MFIs in Kenya. Capital structure theories predict that leverage level influences a firm's performance. In MFIs outreach levels and default rates are considered essential performance indicators that capture the success and sustainability of MFIs. Using these indicators the relationships between capital structure and performance of MFIs can therefore be measured in short term and long term. The objective of this study was to establish the relationship between capital structure and financial performance of MFIs in Kenya.

A survey that explores how capital structure relates to outreach level and default rate was carried on Nairobi based MFIs. The population comprised 36 MFIs registered by AMFI as at December 2008. Convenient sampling method was employed. The main source of data were the annual Financial and income statements from the MFIs gathered from the MFIs offices and websites. From the financial and income statements panel data covering five-year period from 2004 to 2008 was summarized using a secondary data collection form and analyzed using ratios, descriptive statistics and multiple regression analyses. The multiple regression models used considered performance as the dependent variable and was measured in terms of Outreach and default rate. The independent variables in the regression models included Short term debts, long term debts and total debts as a ratio of total assets while firm size, risk level and firm age were also used as control variables to make up for other omitted variables.

The findings showed that most of the MFIs employed high leverage. The mean total debt ratio was 76%. Further the results showed that MFIs financed their operations with long term as against short-term debts suggesting a considerable dependence on long-term debts by MFIs for their operations. The MFIs studied were also found to enjoy satisfactory performance recording mean values of 36% and 33% for ROA and ROE respectively. A few MFIs were also found to be doing well while most of them are not as suggested by standard deviation of 1.52 with respect to ROA hence overall mean could

be driven by a few MFIs. It was revealed that short-term debt significantly impacted MFI outreach positively. Long term debt however showed positive relationship with outreach but was not significant with regard to default rates, both short and long term debts showed expected results but were not significant indicating that maturity may not necessarily be of essence. Generally highly leveraged MFIs were found to perform better by reaching out to more clients. It was also revealed that such MFIs also enjoyed economies of scales and therefore were better able to deal with moral hazards and adverse selections which also enhanced their ability to manage risks.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

High performance is more than high returns. It is the ability to generate high returns for the level of risk assumed by a firm. Credit risk, liquidity risk market risk and so on are some of the risks firms assume in order to earn optimal returns. High performing institutions are those that manage and control their risk the best by employing effective trade –off between risk and returns.

Firms are constantly looking for ways to achieve high performance and therefore a lot of theories have been formulated and studies conducted by firms in efforts to determine the factors that influence performance of firms. A set of these theories and studies identify capital structure as one of the factors affecting a firm's performance on one hand and on the other hand these theories and studies contradict the view that Capital structure does affect a firm's performance arguing that capital structure is irrelevant to a firm's performance. The capital structure of a firm is basically the way a firm finances its assets through some combination of debt and equity that a firm deems as appropriate to enhance its operations.

1.1.1 Capital Structure Theories

According to the traditional theory of capital structure, there exists an optimal capital structure at which the value of the firm is maximized. This view was most prevalent before 1958. Modigliani and Miller (1958) however assumed a perfect market and argued in their seminal paper that value of a company is independent of its capital structure. Given the market imperfections in the real world, MM (1958) provided clues for what is required for capital structure to be relevant and affecting a firms value. Their paper therefore triggered capital structure research that relaxed MM's assumptions in order to

develop a more realistic theory of capital structure. Three main theories that address these imperfections emerged from these researches namely: trade off theory that allows bankruptcy costs to exist, pecking order theory that captures the costs of asymmetric information and agency costs theory which can help explain the relevance of capital structure through asset substitution effect, underinvestment problem and free cash flow factor.

Agency models have been among the most successful in generating interesting implications. In particular, these models predict that leverage is positively associated with a firm's value (Hirshleifer and Thakor (1989), Harris and Raviv (1990a), Stulz (1990) default probability (Harris and Raviv (1990a), extent of regulation (Jensen and Meckling (1976), Stulz (1990), free cash flow (Jensen (1986), Stulz (1990), liquidation value (Williamson (1988), Harris and Raviv (1990a), extent to which the firm is a takeover target (Hirshleifer and Thakor (1989), Stulz (1990), and the importance of managerial Reputation (Hirshleifer and Thakor (1989). Also, leverage is expected to be negatively associated with the extent of growth opportunities (Jensen and Meckling (1976), Stulz (1990), interest coverage, the cost of investigating firm prospects, and the probability of reorganization following default (Harris and Raviv (1990a).

1.1.2 Measurement of a Firm's performance

Performance is a yardstick, which indicates if an entity serves its purported reason for being (Kimuyu 2001). A number of different measures of a firm's performance can be used to test the agency cost hypotheses. These measures include: Financial ratios from balance sheets and income statements (Demsetz and Lehn 1985, Gordon and Rosen 1995, Mehran 1995, Ang, Cole and Lin 2000), Stock market returns and their volatility (Saunders, Strock and Travlos 1990, Cole and Mehran 1998) and Tobins q which mixes market values with accounting values (Morck, Shleifer and Vishny 1998, Mc Connell and Servaes 1990, Mehran 1995, Himmelberg, Hubbard, and Palia 1999, Zhou 2001)

According to Pandey (1999) in financial analysis, a ratio is used as an index or yardstick for evaluating the financial position and performance of a firm and that ratios help the analysts to make qualitative judgments about the firms' financial position and performance. He further argues that a single ratio is meaningless unless compared with some standard such as ratios calculated from past financial statements of the same firm, ratios developed using the projected or proforma financial statements of the same firm, ratios of some selected firms especially the most progressive and successful at the same point in time and ratios of industry to which the firm belongs. He also observes that ratio analyses have certain limitations and recommends use of ratios together with other performance measurements like statistical measurements jointly, to enable better judgment of performance.

Brealey Myers (2006) summarizes the key financial ratios into five categories. They include: Leverage ratios which measure the extent of borrowing, Liquidity ratios which measure the ability of the firm to meet its financial obligations falling due within a short period, efficiency ratios which measure how efficiently a firm uses its investment in current and fixed assets, profitability ratios which measure how profitable a firm is and finally Market -value ratios which measure how highly a firm is valued by investors.

According to CGAP 2003, Microfinance works best when it measures and discloses its performance and that accurate, standardized performance information is imperative, both financial information and social information. Further it states that the MFIs, donors, investors, banking supervisors and customers' need this information to judge their cost, risk and returns.

Ledgerwood (1998) highlights six major indicators of MFIs performance. They include: Portfolio quality, productivity and efficiency, financial viability, profitability, leverage and capital adequacy scale, outreach and growth. He also observes that the essence of calculating and analyzing performance indicators (ratios) is to provide information that may help improve MFIs financial performance.

1.1.3 Capital Structure and Performance

Modigliani and Miller (1958) argued on the basis of the following assumptions: Existence of perfect capital market, homogenous expectations, absence of taxes, and no transaction cost and concluded that capital structure is irrelevant to the value of a firm. This position has been supported by others such as Hamada (1969), and Stiglitz (1974). Much controversy however resulted from comparisons of the theory of capital structure originally developed by MM (1958) to real world situations. Studies by Jensen and Meckling (1976); Myers (1977); Williams (1987); Harris and Raviv (1990); Grossman and Hart (1982); and Jensen (1986) have debunked the assertion made by Modigliani and Miller.

Capital structure and a firm's performance issues continue to generate controversy in the capital structure realms. Studies on the impact of capital structure on a firm's performance have been few and have in most of the cases been carried out in developed economies on large and listed firms.

It is in this vacuum that this study is being carried out especially within Sub-Saharan region.

Majumdar and Chhibber (1999) examined the level of debt in the capital structure and performance of Indian firms and found a negative relationship contrary to existing theories. Berger and Udell (2006) examined US banking industry capital structure and its relationship to performance and concluded that leverage affects agency costs and thereby influences firms' performance. Akintoye (2008) observed that performance indicators used in studying Food and beverage companies in Nigeria were significantly sensitive to the capital structure. Abor (2005) on capital structure and profitability of SMEs in Ghana, showed that short-term debt ratio is positively correlated with return on equity. In a similar study, Chiang Yat Hung et al. (2002), on capital structure and profitability of the property and construction sectors in Hong Kong concluded that while high gearing is positively related to asset, it is negatively related to profit margins. Bogan (2007) observed that capital structure and funding instruments are

key determinants of MFIs financial sustainability on studying MFIs in six continents. Kyereboah –Coleman (2007) also found that highly leveraged microfinance institutions perform better in Ghana.

From the foregoing analyses, it is clear that agency cost and capital structure is an important research agenda particularly in Kenya where such a study would boost the vision 2030 initiative in line with the millennium development goal of poverty reduction.

1.1.4 Microfinance Institutions in Kenya

Microfinance institutions serve as important providers of credit to poorer borrowers and thus can play a significant role in programs to alleviate poverty and promote economic opportunity in nations around the world (Morduch 1999a, Zohir and Matin 2004).

Microfinance industry in Kenya started in earnest in the 1980's. Most of these institutions were set up as NGO's with donor support. There are more than 150 microfinance institutions operating in Kenya today. However, about 10 institutions dominate the industry. The industry is estimated to have an asset base of six billion and the industry continues to grow rapidly. (Central bank of Kenya 2008) Microfinance is the provision of financial services to the low-income poor and very poor self-employed people. These MFIs take three forms of ownership: Corporations, Firms registered under business names act and NGO's. Some MFIs have also graduated into banks in a process commonly referred to as transformation.

The government of Kenya, since the early 1990's, has shown an interest in the development of small scale and micro enterprise. It has been aided in this effort by assistance from donors such as the World Bank, the US Agency for International Development (USAID) the European Union, United Nations Development Program (UNDP) and Ford Foundation among others. Further, Kenya's own commercial banking sector has now started focusing on micro enterprises (World Bank, 1997). Recently, the government of Kenya established the Youth Development Funds, Women Enterprise Fund in recognition that MFIs are the engines for economic growth. While awarding a

prize to Equity bank for exemplary performance in Kenya, the judge summarized the Kenya MFI situation as follows: "For much of Kenya's population, the absence of bank branches means no access to finance. The result is widespread exclusion of rural areas from the formal banking system. Equity Bank's solution: "banks on wheels" - buses bringing 5,000 new banking accounts a day to the Kenyan rural poor. Equity Bank is one of the boldest and most dynamic financial institutions in Africa, with an embedded commitment to the unbanked married to a commercial approach - starting with the hardest segment, cracking it, and building up from there."(Financial Times June 11, 2009)

1.2 Statement of the Problem

MFIs face the challenge of sustainability and outreach. In recent years, there has been increased internal and external pressure for MFIs to decrease dependence on subsidized or grant funding. According to Michael Chu (2008) consistent and simultaneous provision of massive scale, permanence and continuous efficacy is only possible if MFIs would focus on earning above average returns through doing business. He revealed that this is the enduring lesson of 30 years successful performance of Banco Compartamos where he is a director. 20 years from now, he says, commercial profit driven organizations will be the majority providers of micro credit having set the path that has enabled the poor to become subjects of serious attention as clients to serve in the banking and Finance Industry. Recent transformation of Faulu Kenya in May 2009 and Global achievement of Equity bank in July 2009 attest to this trend.

From the foregoing discussions on capital structure theories and importance of MFIs in alleviating poverty and promoting economic opportunity in Nations around the world, it is clear that agency cost and capital structure is an important research agenda. While, it raises several research question regarding the banking sector, because of the sector's role as a financial intermediary for monetary policy, and due to their fundamental nature of being informationally opaque, (Berger and Bonaccorsi di Patti, 2006), it raises larger concerns in the microfinance sub-sector. The problem is compounded in this sub-sector

where information asymmetry is rampant. The sector, apart from being a critical component of the financial system, is also regarded as a poverty reduction strategy for developing countries such as Kenya. Ogindo (2007) assessed performance of MFIs in Kenya while Wanjau(2007) looked into the relationship between corporate governance and performance of MFIs.

An investigation therefore into their capital structure and subsequent linkage with firm performance is not only appropriate, but a necessity. One main motivation for this exercise is the shift of most MFIs from donor dependence to accessing capital from capital markets. This raises fundamental questions regarding organizational funding and with obvious implications for their capital structure necessitating this study.

This study attempted to answer the questions: Does capital structure affect financial performance of MFIs? And if so how? What are the short and long-term relationships?

1.3 Objective of the study

To establish the relationship between capital structure and financial performance of Microfinance Institutions in Kenya

1.4 Significance of the Study

(i) This study will help identify benchmarks for capital structure levels necessary for reasonable performance of Microfinance Institutions. This information can be helpful in regulating Microfinance Institutions.

(ii) This study will also help investors make informed decisions regarding investments in Microfinance Institutions, among other investment in their portfolios, in a manner that is most beneficial in enhancing performance of the Microfinance Institutions

(iii) Managers of Microfinance Institutions may use the finding of this study to improve the performance of their institutions thereby contributing to financial sustainability of

their institutions and ultimately wider and better outreach to the poor whom these institutions serve.

(iv) This study will make a contribution to the debate on capital structure and its application to a sector, which has not been exhaustively visited and will also recommend any areas of further research.

CHAPTER TWO

LITERATURE REVIEW

2.0

2.1 Introduction

Microfinance has been spread around the world as a popular poverty reduction strategy. In 1997, the Microcredit Summit Campaign was launched with the goal of serving 100 million of the world's poorest households. This is in line with the Millennium Development Goals, agreed to at the United Nations Millennium Summit, which set a challenging goal of halving the absolute poverty in the world by 2015. Micro-finance has a high potential to contribute to these Millennium Development Goals. As of December 2000, about 1600 microfinance institutions reported to the Microcredit Summit that more than 19 million of the poorest households around the world had access to financial services. However, this leaves 81 million of the world's poorest people to be reached before the Campaign target of 100 million is achieved. If only 10 percent of the 1580 Microfinance Institutions (MFIs) that reported to the Micro credit Summit could be scaled up to serve an average of 500,000 very poor households each, then the shortfall of 81 million could be overcome. However, without capital and capital structure management know how to cover its operations, to finance its lending operations, and to leverage financial resources from commercial institutions, it is unlikely that microfinance institutions would be able to achieve this objective.

Microfinance has also received significant attention from the donor community, based upon its potential as a powerful tool for poverty alleviation. As such, many millions of dollars have been spent on promoting microfinance programs around the world. For most MFIs, the principal source of funding is from grants and highly subsidized loans, or so-called soft loans. Soft loans are obtained from multilateral banks (e.g., the World Bank, Inter-American Development Bank alike), government aid agencies (e.g., United States

Agency for International Development (USAID), UK Department for International Development (DFID), foundations (e.g., Ford Foundation) and apex organizations (e.g., Women's World Banking, ACCION, FINCA). Usually such grants and soft loans include conditions and requirements as to how the funds should be spent and are in limited dollar amounts. However, most would agree that in order to achieve the goal of reaching the remaining 81 millions poorest households, MFIs would need to access capital above and beyond grants and soft loans just like any other profit making financial institution. Savings, Deposits, Private capital composed of debt and equity are some of the sources of funds.

One of the ways MFIs can overcome the challenges of sustainability and outreach is therefore to pay more attention to their capital structure, determine its affects on their performance with a view of optimizing positive performance.

2.1 Capital structure Theories

Modigliani and Miller (1958) seminal paper showed conditions under which capital structure is irrelevant. The following assumptions were made in this paper: A world without taxes, No bankruptcy costs, No transaction costs, No growth, All earnings were paid out as dividends and all individuals in the market were homogeneous. This paper formed a basis for examining real world reasons why capital structure is relevant. The other reasons include: bankruptcy costs, taxes, and information asymmetry. By relaxing the assumptions made in MM (1958) paper, several theories came up attempting to address the imperfections. They include: Trade-off theory, Pecking order theory, Agency costs theory etc.

MM (1958) second proposition and MM (1963) introduced the trade off theory. Trade off theory allowed bankruptcy costs to exist and stated that there was an advantage to financing with debt (namely the tax benefit of debts) and that there was a cost of financing with debt (the bankruptcy cost of debt) .The theorists further argued that marginal benefit of further increases in debt declined as debt increased while the

marginal cost increased so that a firm that was optimizing its overall value would focus on this trade-off when choosing how much debt and equity to use for financing. This theory explained D/E ratios between industries but did not explain differences within the industry.

Myers and Majluf (1984) argued that there was a pecking order theory. Pecking order theory maintained that businesses adhered to a hierarchy of financing sources and preferred internal financing when available and that debt was preferred over equity if external financing was required. Myers argued that equity was a less preferred means to raise capital because when managers who are assumed to know better about true condition of a company than investors issued new equity, investors believed that managers think that the firm is overvalued and that managers were taking advantage of this over-valuation. As a result investors would place a lower value to the new equity issuance.

According to Jensen and Meckling (1976), there existed three types of agency costs that explained the relevance of capital structure. Firstly, asset substitution effect which emphasized that as debt /equity ratio increased, management developed an increased incentive to undertake risky (even negative NPV) projects because if the project was successful, shareholders got all the upside, whereas if it was unsuccessful, debt holders get all the downside. If the projects were undertaken therefore, there was a chance of a firm's value decreasing and a wealth being transferred from debt holders to share holders. Secondly, there were underinvestment problems where if debt was risky (e.g. in a growth company) the gain from the project would accrue to debt holders rather than the shareholders hence management had an incentive to reject positive NPV projects even though they had the potential to increase the firm's value. Finally, the agency costs arising from the free cash flows which argued that unless free cash flow was given back to investors, management had an incentive to destroy firm value through empire building and perks etc. with cash that should have been paid back to shareholders. He further concluded that increasing leverage would impose financial discipline on management in such circumstances.

“The Problem”, Jensen says, “Is how to motivate managers to disgorge the cash rather than investing it below the cost of capital or wasting it in organizational inefficiencies” He further argued that if that’s the problem then may be debt is the answer since scheduled interest and principal payments are contractual obligations of the firm and debt forces the firm to pay out cash. The best debt level, according to him, would therefore leave just enough cash, after debt service, to finance all positive NPV projects. (Jensen 1986)

Myers (1977), points out another agency cost of debt. He observes that when firms are likely to go bankrupt in the near future, equity holders may have no incentive to contribute new capital even to invest in value-increasing projects. The reason is that equity holders bear the entire cost of the investment, but the returns from the investment may be captured mainly by the debt holders. Thus larger debt levels result in the rejection of more value-increasing projects. This agency cost of debt yields conclusions about capital structure similar to those of Jensen and Meckling

In Harris and Raviv (1990a) and Stulz (1990), argue that managers and investors disagree over an operating decision. In particular, in Harris and Raviv, managers are assumed to want always to continue the firm's current operations even if liquidation of the firm is preferred by investors. In Stulz, managers are assumed to want always to invest all available funds even if paying out cash is better for investors. In both cases, it is assumed that the conflict cannot be resolved through contracts based on cash flow and investment expenditure. Debt mitigates the problem in the Harris and Raviv model by giving investors (debt holders) the option to force liquidation if cash flows are poor. In Stulz, as in Jensen (1986), debt payments reduce free cash flow. Capital structure is determined by trading off these benefits of debt against costs of debt. In Harris and Raviv, the assertion of control by investors through bankruptcy entails costs related to the production of information, used in the liquidation decision, about the firm's prospects. The cost of debt in Stulz's model is that debt payments may more than exhaust "free" cash, reducing the funds available for profitable investment.

The optimal capital structure in Harris and Raviv trades off improved liquidation decisions versus higher investigation costs. The optimal capital structure in Stulz is determined by trading off the benefit of debt in preventing investment in value decreasing projects against the cost of debt in preventing investment in value increasing projects

Another approach that involves manager-investor conflicts is taken by Williamson (1988). In his view, the benefits of debt are the incentives provided to managers by the rules under which debt holders can take over the firm and liquidate the assets. The costs of debt are that the inflexibility of the rules can result in liquidation of the assets when they are more valuable in the firm. Thus, Williamson concludes that assets that are more redeployable should be financed with debt.

Emanating from the foregoing discussion, higher leverage is considered an appropriate method to employ in order to mitigate conflicts between shareholders and managers concerning the type of investment to undertake, (Myers, 1977), the amount of risk to undertake, (Jensen and Meckling, 1976; Williams, 1987), the conditions under which the firm is liquidated, (Harris and Raviv, 1990), and even decisions regarding dividend policy, (Stulz, 1990).

Though much of the debate on capital structure has centered on the determination of an optimal composition of debt and equity for firms, it lacks theoretical foundation and empirical results show that firms with diverse idiosyncrasies require what is considered an acceptable level of debt and equity mix taking into consideration their peculiar characteristics and the environment within which they operate for effective operation and to deal with agency cost.

There have been a number of studies investigating into the determinants of capital structure of firms in different businesses such as, joint venture ships (Boateng, 2004), manufacturing sector (Long and Malitz, 1985; Titman and Wessels, 1988), electricity and utility companies (Miller and Modigliani, 1966), the non-profit hospitals, (Wedig et al. 1988) and in agricultural firms (Jensen and Langemeier, 1996). In these studies, one of

the main findings is that industrial or sectoral classification is an important determinant of capital structure. Thus, firms in different sectors employ different mix of debt and equity for their operations. However, studies emphasizing on linkage between capital structure and performance have been scanty

2.2 Capital Structure and Performance of Non MFI Sector

Berger and Bonaccorsi di Patti (2006), using data on commercial banks in the USA found that higher leverage or lower equity capital ratio is related to higher profit efficiency. He further explained that at some point where bankruptcy and distress become more likely, the agency costs of outside debt overwhelm the agency cost of outside equity, and therefore further increases in leverage lead to higher total agency cost of outside debt from risk shifting or reduced effort to control risk that result in higher expected costs of financial distress, bankruptcy, or liquidation. Such agency costs leads to higher interest expenses from firms to be able to compensate debt holders for their expected losses. Thus, capital structure which is defined as total debt to total assets at book value, impacts on both the profitability and friskiness of a firm .One important conclusion that has emerged here is the fact that the structure of a firm's capital has implications for its operations and impacts on its performance

Bos and Fetherston (1993), also observes that when a firm exhibits greater gearing, it has a higher possibility for failure in the event that cash flows fall short of the required volume to honour debt obligations.

Abor (2005), studied the effect of capital structure on profitability of listed firms in Ghana. He found that short-term debt ratio is positively correlated with return on equity. His concluded that there was a strong positive correlation between debt and return on equity as a measure of a firm's performance

Chiang Yat Hung et al. (2002), on capital structure and profitability of the property and construction sectors in Hong Kong concluded that while high gearing is positively related

to asset, it is negatively related to profit margins. He further noted that the separation of ownership and management of any corporate entity' leading usually to divergent objectives, raises questions on how much debt and equity should be employed. A clear case of agency costs which could be viewed from different perspectives by management and owners

Majumdar and Chhibber (1997), examined the relationship between the levels of debt in the capital structure and performance for a sample of Indian short term and long term lending institutions and analysis of the data revealed the relationship for Indian firms to be significantly negative. This finding negated the viewpoint that the level of debt might have a non-neutral impact on a firm's performance as earlier proposed by agency costs theorists. They further concluded that corporate governance mechanisms, which work in the West, could not work in the Indian context unless the supply of loan capital was privatized.

Akintoye (2008) studied Food and Beverage Companies in Nigeria to establish the presence or otherwise of the responsiveness of EBIT, EPS and DPS as performance indicators to turnover, which are a measure of leverage, with respect to selected Food and Beverages companies in Nigeria. Degree(s) of Leverage(s) ratios – i.e. the DOL, DFL, DCL, as well as the percentage change in DPS relative to percentage change in EBIT were computed. The results revealed that performance indicators used in the study were significantly sensitive to the capital structure for most of the companies considered in the study.

2.3 Capital structure and Performance of Microfinance Institutions

Hartarska et al (2009) studied Microfinance Institutions in East Europe and Central Asia for the years 2003 and 2004 to determine which ones were becoming more cost effective with time. Cost functions for MFIs were estimated using translog form for all estimations. Regression analysis was then used to analyze findings. Their findings

revealed that larger MFIs offering deposits and those receiving lower subsidies operated more cost effectively over time and vice versa.

Bogan (2008), examined existing sources of funding for MFIs by geographic region, and explored how changes in capital structure could facilitate future growth and improve the efficiency and financial sustainability of the MFIs. Data over a period of three years in Africa, East Asia, Eastern Europe, Latin America, the Middle East between 2000 and 2003 were examined to explore the role that different sources play in determining the success of MFIs. They concluded that only by weaning off donor dependency and adopting a commercial orientation can MFIs truly attract the capital and savings base they need to scale up their micro loan portfolios, increase sustainability, lower lending rates, increase outreach and meet their demands. Further, they found that financing tools could be used to decrease transaction costs and increase liquidity in the MFIs.

Regarding Grameen's present sustainability, opinions are divided. Grameen Bank itself claims to have reached sustainability. The decision to become free of donor funds was made in 1995 when the last request for donor funds was issued. Grameen felt it would be increasingly able to raise funds from the commercial market and its own business. It wanted to improve its access to the capital market. Additionally, it did not want to be dependent on the policy prescriptions of donors (Yunus and Jolis, 1998). Grameen aims at funding its loans entirely from deposits one day. According to the bank's balance sheets, Grameen has run a profit in nearly every year since its start of operations (Grameen Bank, 2005).

Kyereboah-Coleman (2007), studied the impact of capital structure on performance of MFIs in Ghana. Data covering ten-year period from 1995 to 2004 were analyzed. Most of the microfinance institutions were found to have employed high leverage and financed their operations with long-term as against short-term debt. Further he observed that, highly leveraged microfinance institutions performed better by reaching out to more clientele, enjoyed scale economies, and therefore were better able to deal with moral hazard and adverse selection, enhancing their ability to deal with risk.

Kilonzo (2003) while studying performance of micro and small enterprise in Nairobi observed that MSE's financed by internal funds perform better than those with debt in their financial structure. He also concluded that a relationship exists between financial structure of SMEs and their performance. He observed that SMEs with high sales volume posted high profitability and that they used more internal funds. A survey method was used to study a sample of 60 SMEs based on Nairobi. The SMEs were classified into different sectors. These findings contradict the agency theorists arguments.

Mwaka (2006) studied the relationship between financial structure and growth of SMEs and observed that the growth of SMEs was related to their financial structure. Also there was a high positive correlation between proportion of capital/debt from MFIs and growth of SMEs in relation to assets. Similarly, a weak positive correlation was established between internal sources of initial capital and growth in terms of sales and employment. The study was carried out on a sample of 60 SMEs drawn from Central Business District of Nairobi. Sales, employees, assets and business branches were variables used to determine growth using survey method of a research.

Kitaka (2001) conducted a survey study on MFIs in Kenya and observed that performance indicators like arrears rate, delinquent borrowers' quick ratio, portfolio at risk, and average number of active loans, were commonly used by MFIs. He also observed that donors are the largest single source of finances to MFIs in Kenya, followed by self-help groups and deposit mobilization respectively. He concluded that there were a relationship between the financiers of the MFIs and the performance indicators the MFIs used and that the financiers determined the type of the financial performance indicators to be used in by a particular MFI.

Capital structure theories, as explained above show on one hand that capital structure is relevant to firm value and on the other hand capital structure is irrelevant. Empirical studies on capital structure and performance of Non MFI sector mostly show that capital structure does affect firms performance but not in all cases. In MFIs sector the studies

have mostly concentrated on SME's, which are financed by MFIs. Elsewhere cost effectiveness, Sustainability have been found to influence performance of large MFIs in the developed world Studies emphasizing linkages between capital structure and performance, however, have been scanty and the few studies still have not been carried out in developing world particularly in Africa. This study will there give insight into how capital structure relates to performance of MFI in a developing country that is Kenya.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Research Design

A survey method was employed in this study to ascertain how capital structure relates to MFIs performance.

Panel data covering five -year periods from 2004-2008 were analyzed within the framework of fixed- and random-effects techniques. Kyereboah -Coleman (2007) and Bogan (2008) used similar designs successfully in their studies on MFIs performance in Ghana and across six continents respectively.

3.2 The Population

The population comprised Microfinance Institutions registered by Association of Microfinance Institutions (AMFI), as at December 2008. 36 MFIs were reported to have been registered as at December 2008 by the AMFI website.

3.3 Sample and sampling Method

The research used convenient Sampling and concentrated on Nairobi based MFIs due to their availability and accessibility. Only MFIs that had been in operation for the last six years and were registered with AMFI as at December 2008 were considered in this study. The study was limited to events occurring from 2004 to 2008. The sampling adopted comprised institutions spread all over the country and which were dealing with different client base to minimize and eliminate the problem of biasness.

3.4 Data Collection Method

The main sources of data were the financial and income statements from the MFIs offices, AMFI office, MFIs websites and MIX market for the institutions that report to

the MIX market. To obtain data from MFI offices, information request letter addressed to Finance Managers and CEO's was sent out. Drop and pick later system was then used to gather the data. The data were annual in nature and covered a five year period from 2004 to 2008. A form for secondary data collection was then used to summarize relevant data on debt levels, type of assets, net income, Average equity and average assets, Portfolios at risk, proportion of leverage to total capital, rate of change of client base and Firm's size, risk and age from the Financial statements in order to calculate relevant ratios, descriptive measures and regression analysis.

The following set of data was then captured to represent both the dependent and the independent Variables.

Dependent variables: In this study we used unique data of Outreach and Default rate as the dependent variables. Both Outreach and Default rates are essential variables that capture the success and sustainability of microfinance institutions (Aryeetey, 1995).

Independent variables: With regards to the independent variables, the study employed short-term debts, long-term debts and total debts as a ratio of total assets. To make up for other omitted variables firm size, risk level, and firm age were used as control variables.

3.5 Data Analysis

Data analysis was conducted using regression analysis and descriptive statistics in order to identify and describe the relationship between capital structure and performance of the MFIs. The econometric model by Miyajima et al. (2003) was used because the model presented itself as the most appropriate in estimating the effect of capital structure on performance on the MFIs.

The multiple regression equation used was of the form:

$$\text{Performance}_{it} = a + b\text{DebtR}_{it} + c\text{Control}_{it} + d_{it}$$

Where $DebtR_{it}$ represents the debt ratio of firm i in time t , and $control_{it}$ represents the control variables of firm i in time t , a is a scalar, b is $K \times 1$ vector where k represent explanatory variables while d_{it} represents one way error component model for the disturbances with $d_{it} = d_i + e_{it}$; d_i represents the unobservable individual specific effect and e_{it} denotes the remainder of the disturbance

Descriptive statistics mainly the mean, standard deviation, minima and maxima were used to analyze the data summarized in the secondary data collection form with respect to both dependent and independent variables

Multiple regression was used to analyze the relationship between outreach and default rate as measures of performance on one hand and short term debt, long term debt, firm size, firms risk level and firm age as regressors influencing outreach level and default rates as measures of performance.

CHAPTER FOUR

4.0

DATA ANALYSIS AND INTERPRETATIONS

4.1 Introduction:

This chapter contains the summaries of the data findings together with their possible interpretations the secondary data collection form was divided into ten sections to represent the ten variables considered in the study and which were extracted from the financial and Income statements. The variables included: debts levels, assets, Return on assets, Return on Equity, Portfolio at risk, Leverage level, Outreach, Firm size, Firm risk and Firm's age in that order.

The response rate was 22 out of 36 this represented 61%. This compares with previous studies such as Ogindo's.

4.2 Regression Models

Regression models help to determine different relationships between variables. Multiple regression models incorporate several independent variables. Using the equation

$$\text{Performance}_{it} = a + b\text{DebtR}_{it} + c \text{Control}_{it} + d_{it}$$

Six other equations are developed to explain the linkages between the variables. Thus:

$$\text{DEF}_{it} = a_0 + a_1\text{SDR}_{it} + a_2\ln \text{SZE}_{it} + a_3\text{RSK}_{it} + a_4\ln \text{AGE}_{it} + d_{it}$$

$$\text{DEF}_{it} = a_0 + a_1\text{LDR}_{it} + a_2\ln \text{SZE}_{it} + a_3\text{RSK}_{it} + a_4\ln \text{AGE}_{it} + d_{it}$$

$$\text{DEF}_{it} = a_0 + a_1\text{TDR}_{it} + a_2\ln \text{SZE}_{it} + a_3\text{RSK}_{it} + a_4\ln \text{AGE}_{it} + d_{it}$$

$$\text{OUT}_{it} = a_0 + a_1\text{SDR}_{it} + a_2\ln \text{SZE}_{it} + a_3\text{RSK}_{it} + a_4\ln \text{AGE}_{it} + d_{it}$$

$$\text{OUT}_{it} = a_0 + a_1\text{LDR}_{it} + a_2\ln \text{SZE}_{it} + a_3\text{RSK}_{it} + a_4\ln \text{AGE}_{it} + d_{it}$$

$$\text{OUT}_{it} = a_0 + a_1\text{TDR}_{it} + a_2\ln \text{SZE}_{it} + a_3\text{RSK}_{it} + a_4\ln \text{AGE}_{it} + d_{it}$$

Where

DEF_{it} is annual amount of loan defaults divided by the annual amount of loan Disbursement of firm i in time t ;

OUT_{it} is outreach measured by the annual rate of change of clientele base for firm i at time t ;

SDR_{it} is short-term debt divided by total capital for firm i in time t ;

LDR_{it} is long-term debt divided by total capital for firm i in time t ;

TDR_{it} is leverage measuring total debt divided total capital for firm i in time t ;

$\ln SZE_{it}$ measures the size of the firm and it is the natural log of asset base of firm i in time t ;

RSK_{it} is risk of firm i in time t and it is measured by the deviation from mean Portability;

$\ln AGE_{it}$ is natural log of age of firm i in time t ; (age in this wise is measured by the number of years of operation using the year of incorporation as the reference point), and d_{it} is the error term.

4.2.1 Estimation dilemma and investigations

There exist a number of approaches for estimating any basic i.e. (panel model. However, the most appropriate technique for estimating the basic model is dependent on the structure of the components of the error term ($d_{it}=d_i + e_{it}$) and also the correlation between the error term and the observed explanatory variables. In considering a situation where there are no firm's specific and time effects, the basic pooled OLS is most appropriate because it ignores the panel nature of the data set, and treats observations as

being serially uncorrelated for a given firm with homoskedastic errors across individuals and time periods (Johnston and DiNardo, 1997).

Given that, unobservable effects can be accommodated using one of two techniques. The basic question to address remains “is it fixed or random effect?” Thus, in order to reduce the number of parameters to be estimated, it is recommended to justify treating the individual fixed effects as being drawn from some distribution. The estimation of the parameters of this distribution is based on the assumption that the unobservable effects are included in the error term. Thus, the variance-covariance matrix of the resulting errors is transformed to obtain consistent estimates of the standard errors. The random effects estimator under such circumstances is the most appropriate (Hsiao, 1989). Otherwise, the fixed effects are appropriate by including a dummy variable for each firm, though it is less efficient.

4.3 Descriptive statistics

Table II offers the descriptive statistics with respect to both dependent variables and regressors. While most of the microfinance institutions are highly leveraged, shown by the mean total debt ratio of 0.76, most of these debts are long term as against short term, suggesting a considerable dependence on long-term debt by MFIs for their operations. The standard deviation coupled with the minimum and maximum values of total debt ratio is an indication of a sector, which is widely spread and highly unevenly distributed with regards to leverage levels. Again, about 29 percent of all assets of microfinance institutions under this study constitute fixed. Thus, most of the microfinance institutions have a higher proportion of current and other forms of intangible assets. This is again shown by the minimum and maximum values of 0.03 and 0.85-asset structure respectively.

The institutions studied have enjoyed satisfactory performance recording mean values of 0.39 and 0.33 for ROA and ROE respectively. The standard deviation of 1.52 with respect to ROA suggests that while a few firms are doing well, most of them are not. This is given more credence with 6 percent and 3500 percent representing minimum and

maximum ROA respectively. Thus, it could be argued that though on the average these microfinance institutions are doing well in terms of ROA, the performance is rather widely dispersed suggesting that the over all mean performance could be driven by a few MFIs. Indeed, this story is not substantially different in the case of ROE. Other performance variables such as outreach, risk, and default rates are relatively encouraging suggesting that the institutions are evenly matched. With noticeable different sizes measured by their assets base, these intuitions have been operating for the past 18 years with average age of operation of about 6 years.

Table I capital structure at performance of MFIs descriptive statistics

Variable	Obs	Mean	Std dev.	Min.	Max
ROA	110	0.3916346	1.524334	0.06	35
ROE	110	0.3343462	0.4211618	0.14	6.3
OUT	110	0.2643846	0.0792669	0.12	0.45
DEF	110	0.3413846	0.1008156	0.2	0.63
RSK	110	0.2087692	0.3760601	-0.6	0.7
AST	110	0.2864808	0.1986819	0.03	0.85
SDR	110	0.3549616	0.2872885	0.0003996	0.9929561
LDR	110	0.413822	0.3033911	0.0000435	0.8830535
TDR	110	0.7687836	0.2372909	0.0128895	1.717564
LNSZE	110	14.51752	1.901209	11.7712	18.72227
AGE	110	5.82692	2.024875	6	18

Table II: Capital structure and performance of MFIs detail descriptive statistics

Variable	Mean	Std dev.	Min	Max	Observations
<i>ROA</i>					
Overall	0.3916346	1.524334	0.06	35	N=110
Between		0.2089866	0.3094231	0.9853846	n = 22
Within		1.51136	-0.44375	34.406625	T = 5
<i>ROE</i>					
Overall	0.3343462	0.4211618	0.14	6.3	N=110
Between		0.0558842	0.2828846	0.4213462	n = 22
Within		0.4178051	0.0599231	6.213	T = 5
<i>OUTREACH</i>					
Overall	0.2643846	0.0792669	0.12	0.45	N = 110
Between		0.0084929	0.2490385	0.2780769	n = 22
Within		0.0788556	0.1353462	0.4524615	T = 5
<i>DEF</i>					
Overall	0.3413846	0.1008156	0.2	0.63	N=110
Between		0.0095135	0.32733077	0.3546154	n = 22
Within		1.10041	0.1867692	0.6433077	T = 10
<i>RISK</i>					
Overall	0.2087692	0.3760601	-0.6	0.7	N=110
Between		0.0592046	0.125	0.3096154	n = 22
Within		0.3718339	-0.7008462	0.7576154	T = 5
<i>AST</i>					
Overall	0.2864808	0.1986819	0.03	0.85	N = 110
Between		0.0090845	0.2730769	0.2988462	n = 22
Within		0.1984945	0.0176346	0.8634039	T = 5
<i>SDR</i>					
Overall	0.3549616	0.2872885	0.0003996	0.9929561	N = 110
Between		0.0383253	0.2907966	0.415901	n = 22
Within		0.284974	-0.057047	1.035222	T = 5
<i>LDR</i>					
Overall	0.413822	0.30333911	0.0000435	0.8830535	N = 110
Between		0.0447416	0.367103	0.4949345	n = 22
Within		0.3004015	-0.0807664	0.9182805	T = 5
<i>TDR</i>					
Overall	0.7687836	0.2372909	0.0128895	1.717564	N = 110
Between	*	0.0288348	0.7296816	0.8327454	n = 22
Within		0.2357058	0.0314853	1.653603	T = 5
<i>LNSZE</i>					
Overall	14.51752	1.901209	11.7712	18.72227	N = 110
Between		0.0146152	14.49912	14.53508	n = 22
Within		1.901159	11.75364	18.7047	T = 5
<i>LNAGE</i>					
Overall	2.844473	0.2662127	2.302585	3.713572	N = 110
Between		0.180451	2.553095	3.091751	n = 22
Within		0.2037312	2.593963	3.757113	T = 5
<i>AGE</i>					
Overall	5.8269	3.024875	6	18	N = 110
Between		1.502765	8.32692	19.32692	n = 22
Within		2.121101	9.5	12.5	T = 5

Notes: N is the overall observation (= nxT) where n is the cross-sectional observation (microfinance institutions) and T is the time frame

4.4 Regression results

As per the regression results, presented in Table III (Appendix 4) and Table IV Appendix 3), debt has a positive impact on performance consistent with studies by Michaelas et al. (1999). Short-term debt exerts pressure on management to increase MFIs outreach. Long-term debt equally shows an insignificant positive relationship with outreach. This could be explained by the fact that with long-term debts, the pressure for repayment is relaxed.

Leverage, as expected, impacts positively on outreach. This could mean that with microfinance institutions, the higher the leverage, the greater the outreach level, and the higher the premium that is extractable from the credit advanced.

With default rates as the performance variable, both short- and long-term debts showed the expected signs but are not significant essentially suggesting that maturity may not necessarily be of essence. However, total debt to total assets as a measure leverage is significant in explaining defaults rates.

The size of a microfinance institution has a negative impact on default rates. This is because as the firm expands, it is able to put in place structures to ensure repayment of loans advanced and also are better placed to deal with problems of moral hazard and adverse selection.

Risk level is negatively related to default rate implying a higher deviation from mean profitability leads to a lower default rate. However, this could also mean that a higher risk level could influence management to work at reducing default rates.

Age has a higher impact on default rate, which suggests that as a microfinance institution expands, it encounters more repayment problems leading to defaults.

CHAPTER FIVE

5.0 SUMMARY OF FINDINGS, CONCLUSIONS AND COMMENDATIONS

5.1 Introduction

The study aimed at establishing the relationship between capital structure and performance of MFIs in Kenya the study laid emphasis on performance as measured by default rate and outreach. The determinants of outreach and default rate were then investigated to ascertain their effects.

5.2 Summary of Findings and Conclusions

The aim of the study was to determine the relationship between capital structure and performance of MFIs. Finance such relationship could not be directly observed they were inferred from the capital structures of MFIs that were perceived to perform well. It is therefore necessary that this paper assesses how capital structure relates to outreach and Default rates in MFIS.

The study looked at Default rate as a function of short-term debts, firm size firm risk and firm age. It was revealed that short-term debt exerts pressure on management to deepen a MFI outreach. Long-term debt equally showed a positive relationship with outreach but it is not significant. This could be explained that with long-term debts, the pressure for repayment is relaxed giving the management time to strategize their operations towards achieving more profitability.

Leverage, as expected, impacts positively on outreach. This could mean that with microfinance institutions, the higher the leverage, the greater the outreach level, and the higher the premium that is extractable from the credit advanced. This premium then translates into the firm's income flow and profitability, which could be used to service the debt. Again, greater outreach enables MFIs to enjoy economies of scale essentially as a result of reduction in average cost of operation. Furthermore, an increase in outreach

could also lead to product diversification for different clientele base and this enables an MFI to cushion itself against risk. These findings are consistent with Bos and Fetherston (1993) who argue that the level of total debt to total assets of a firm has influence on profitability of the firm. With the control variables, while risk, showed the expected sign, the age of the firm, a measure of reputation, showed otherwise. Thus, when outreach increases leading into higher income flow, mean profitability deviation, measuring risk level reduces and enhances the total profitability outlook of the firm. With age, the reason could be that, the poor do not necessarily need a firm's reputation to enjoy small credit. Though, the size of the firm showed a negative relationship with outreach, this variable is not significant.

With default rates as the performance variable, both short- and long-term debts showed the expected signs but are not significant essentially suggesting that maturity may not necessarily be of essence. However, total debt to total assets, measuring leverage is significant in explaining default rates. The results shows that a highly leverage microfinance institution compels management to put in measures and mechanisms to reduce annual default rates in order to improve on the institution's profitability and to be able to honour its debt obligations. Once again, this is in tandem with Bos and Fetherston (1993) who indicated that a high leverage firm influences the riskness of a firm and that if a firm exhibits greater gearing, it has a higher potential to fail if cash flows fall short of the needed levels to service outstanding debts. This is also consistent with findings by Petersen and Rajan (1994) who find a positive association between profitability and leverage. However, some studies find a negative relationship between capital structure and profitability, (Friend and Lang, 1988; Barton et al., 1989; Shyam-Sunder and Myers, 1999; Van de Wijst and Thurik, 1993; Chittenden et al., 1996; Jordan et al., 1998; Mishra and McConaughy, 1999; Michaelas et al., 1999). Expectedly, the size of a microfinance institution has a negative impact on default rates. This is because as the firm expands, it is able to put in place structures to ensure repayment of loans advanced and also are better placed to deal with problems of moral hazard and adverse selection. Surprisingly, risk level is negatively related to default rate implying a higher deviation from mean profitability leads to a lower default rate. However, this could also mean that a higher risk

level could influence management to work at reducing default rates. There seems to be a bi-causality in this regard. Age has a higher impact on default rate, which suggests that as a microfinance institution expands, it encounters more repayment problems leading to defaults. Indeed, the age variable could have either effect depending on other factors and measures put in place by the firm to deal with repayment. Hence, if a firm is unable to ensure repayment as it grows and reaches out to more clients, default rates are likely to increase.

From the results discussed above, it is evident that capital structure influences performance of corporate entities. The Microfinance sub-sector has woefully been neglected in this whole exercise. As an evolving and a critical sector especially as a development tool, an understanding of the linkage between capital structure and performance is not only an appropriate addition to the ongoing debate for effective policy formulation, but long over due. The main contribution of this study is its bold attempt to examine this sector in Kenya. The results show that most MFIs are highly leveraged, and have about 71 percent of their assets in current form. Again, the regression results point to the fact that highly leveraged microfinance institutions perform better by reaching out to more clientele base and reducing default rates consistent with other studies. Furthermore, the study shows that highly leveraged MFIs enjoy scale economies and therefore are better able to deal with moral hazards and adverse selections as well as risks.

From the findings of the study we recommend the development of appropriate policies to enable MFIs to have access to long-term debt to enhance their operations. In this regard, the Nairobi Stock Exchange should have a look at their listing requirements and work towards designing mechanisms that would enable MFIs to get listed and to offer them the opportunity to access equity capital. Also, government and donor agencies should consider developing a unique financial package for MFIs, taking into consideration the peculiar rampant information asymmetry in the sector which hampers their sustainability due to excessive exposure to default. Do the findings of this study help us to understand optimal capital structure issues especially in MFIs? Well, the obvious implication of our

findings is that MFIs use more debt relative to equity for financing their operations. Nonetheless, issues relating to capital structure still remain contentious and a puzzle.

5.3 Limitations to the study

In a study of this nature it would have been more appropriate to examine all MFIs in Kenya and not only the ones based in Nairobi. However, data availability and accessibility was a limitation. Equally a study that covers a longer period of time than the five years could have yielded different results. In addition to this performance in MFIs can be measured in other ways other than the outreach levels and default rates and these could also lead to different results. Again although the independent variables used gave consistent results with other previous studies a different choice of independent variables in terms of number and varieties could have yielded different conclusions. It should also be noted that in some cases data could not be released due to the perceived nature of its confidentiality but in spite of this, we would want to indicate that findings of the study are not compromised

5.4 Suggestions for Further Study

Recognizing the study limitations, we are of the opinion that this study could serve as a framework for further studies in this area. As a subsequent study, we propose to look at other MFIs together with those based in Nairobi and also carry out the study for a longer period of time like 10 years. Again there are other factors that determine performance of MFIs eg corporate governance which can be studied as a function of performance in MFIs. Also further studies could look into performance as measured in terms of financial sustainability in MFIs.

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APPENDICES

Appendix 1: SECONDARY DATA COLLECTION FORM

The purpose of this table is to collect data regarding the various financial measures of performance over the five-year period from 2004-2008 from the MFIs financial reports

Variable	Description	Years				
		2004	2005	2006	2007	2008
Debts	Short term Debt					
	Long term debt					
	Total Debts					
Assets	Current Assets					
	Fixed assets					
	Total assets					
Return on Assets	Net Income					
	Average Assets					
	ROA ratio					
Return on Equity	Net Income					
	Average Equity					
	ROE ratio					
Portfolio at risk	Annual Amount of loan defaults					
	Annual amount of Loan disbursements					
	PAR ratio					
Leverage	Total Capital					
	Short term debt/Total Capital Ratio					
	Long term debt/Total Capital ratio					
	Total Debt/Total capital ratio					
Outreach	Rate of change of client base p. a					
Firm size	Natural log of firms asset base					
Firm Risk	Deviation from Mean					
	Profitability					
Firm's age (No of years of operation)	Natural Log of firm age					

Appendix 2: Letter of Introduction

Emmah Orua
School of Business
C/O MBA Office
Dept. of finance and Accounting
University of Nairobi
P.O Box 30197
Nairobi.

1st October 2009

Dear Sir/Madam,

Re: Collection of Survey Data

I am a postgraduate student at the University of Nairobi - School of Business. In order to fulfill the degree requirement, I am undertaking a management Research project to investigate the Relationship between Capital Structure and Performance of Micro finance Institutions in Kenya.

Your organization has been chosen to be part of this study. I would therefore like to request you to kindly assist me collect the data by providing me with your organizations Financial Statements for the periods 2004 to 2008 being the period this study will cover.

The information you will provide will be used exclusively for academic purposes. My supervisor and I assure you that the information received will be treated with strict confidence and that at no time will your name appear in my report. Kindly also note that a copy of the final report will be availed to you upon request.

Your co-operation will be highly appreciated and many thanks for your help with the requested information.

Yours faithfully,

Emmah Orua
MBA Student

APPENDIX III

Table III: Capital structure and performance of MFIs; correlation matrix (between both dependent and independent variables indicating the direction and level of correlation)

OUT	ROA	ROE	RSK	DEF	AST	LDR	SDR	TDR	LNSZE	LNAGE	
OUT	1000										
ROA	0.0500	1.0000									
ROE	0.0500	0.0075	1.0000								
RSK	-0.0751	0.0111	0.0387	1.0000							
DEF	-0.0267	0.0077	0.0221	0.0668	1.0000						
AST	0.0035	0.0035	0.0078	-0.1149	-0.0268	1.0000					
LDR	0.0015	0.0144	0.0632	0.0370	-0.0800	0.0715	1.0000				
SDR	0.0559	0.0056	-0.0445	-0.0734	0.0104	0.0426	-0.6785	1.0000			
TDR	0.0696	0.0117	0.0269	-0.0415	-0.0898	0.1430	0.4571	0.3432	1.0000		
LNSZE	-0.1014	0.0421	-0.0064	-0.0926	-0.0635	0.6471	0.1988	-0.1242	0.1038	1.000	
LNAGE	-0.0749	0.0718	-0.0401	-0.0362	0.00463	0.3150	-0.1471	0.2170	0.0746	0.4070	1.0000

Notes: OUT is the rate of outreach measured by the rate of change in clientele base on yearly basis; ROA is the return on assets measured by EBIT/Total assets; ROE is profit after interest and taxes/Equity; RSK is the risk level measured by deviation from mean profitability; DEF is the default rate SDR is the short-term debt ratio calculated by Total Short term debts /Total capital; LDR is long –term ratio which is calculated by Total long term representing size; and LNAGE is the natural log of an institution’s age

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APPENDIX 4

Table IV: Capital structure and performance of MFIs regression results

Repressors	Dependent variable: outreach fixed effect estimates			Dependent variable: default rates random effect estimates		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Risk (RSK)	-0.174 (-1.86)**	-0.187 (-2.00)**		-0.0204(-1.72)**	-0.0189(-1.61)**	-0.0205(-1.74)**
Short-term debt (SDR)	0.0199 (1.53)**		-0.0183(-1.96)**	-0.0106(-0.65)		
Long-term debt (LDR)		0.0017 (0.14)			-0.0161(-1.06)	
Total Debt (TDR)			0.0281 (1.91)**			-0.0380(-2.04)**
Log of firm size (LNSZE)	-0.0012 (-0.53)	-0.0023 (-1.01)	-0.0025(-1.15)	-0.0060(-2.29)**	-0.0048(-1.80)**	-0.0052(-2.04)**
Log of firm age (LNAGE)	-0.0531 (-2.52)**	-0.0416(-1.99)**	-0.0439(-2.20)**	0.0365(1.92)**	-0.0278(1.48)	0.0341(1.89)**
Constant	0.4294 (8.77)**	0.4191(8.39)**	0.4072(8.30)**	0.3330(6.64)**	0.3425(6.73)**	0.3532(6.94)**
R-squared	12.2	12.3	12.2	14.5	9.04	12.4
No. Of obs	110	110	110	110	110	110
				Wald Chi ²	Wald Chi ²	
Test of probability	F (4,506)=4.02 [0.0032]	F (4,506)=4.02 [0.0089]	F (4,506) [0.0018]	(4)=8.60 [0.0718]	(4) = 9.30 [0.0540]	
Hausman test	Chi ² (4) = 5.88 [0.2082]	Chi ² (4)= 4.82 [0.3063]	Chi ² (4) = 5.43 [0.2460]	Chi ² (4) = 1.34 [0.8543]	Chi2 (4) =0.90 [0.9241]	Chi2 (4) = 0.61 [0.9616]

Notes: All regressions include a constant. T-Statistics are in parentheses and P-values in square bracket; **Significant at 5 percent level