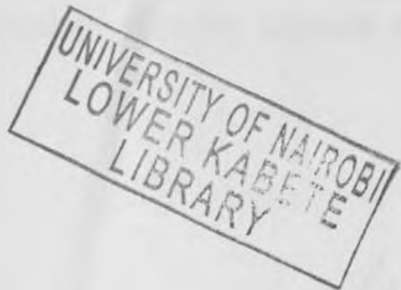


**THE IMPACT OF MICROFINANCE ON FORMAL FINANCIAL SECTOR
DEVELOPMENT IN KENYA**

BY

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D61/7066/2006

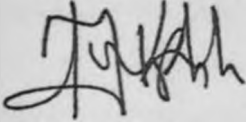


**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF
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DECLARATION

This management research project is my original work and has not been submitted for moderation in any other University.



18th October 2011

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

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ABSTRACT

The importance of the financial system to economic development is well understood and Kenya's long-term national strategy, Vision 2030, identified the sector as one of the country's core growth pillars. Key to the success of the Kenya's financial system is the microfinance. Its contribution in the economic development of Kenyan economy through the promotion of micro and small enterprises is now widely recognized as a viable and dynamic strategy for achieving national goals, including employment creation and poverty alleviation.

Despite the grandeur role played by this sector, studies are limited in terms of showing the impact of microfinance on the financial sector development. This research sought to evaluate the contributions of microfinance towards financial sector development in Kenya.

Key words: Microfinance, Financial Sector Development, Macroeconomic impact.

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LIST OF ABBREVIATIONS

MFI	Microfinance Institutions
BRI	Bank Rakyat Indonesia
IMF	International Monetary Fund
GDP	Gross Domestic Product
NGO	Non Governmental Organizations
KWFT	Kenya Women Finance Trust
SMEP	Small and Medium Enterprise Programme
KSTES	Kenya Small Traders and Entrepreneurs Society
ECLOF	Ecumenical Loans Fund
KPSOB	Kenya Post Office Savings Bank
AMFI	Association of Microfinance Institutions
FSD	Financial Sector Development
lnNAB	Natural Logarithm of Active Borrowers
lnTLP	Natural Logarithm of Total Loan portfolio
OSS	Operational Sustainability
ROA	Return on Assets
ROE	Return on Equity
POPDENS	Population Density
RURPOP	Rural Population
FDI	Foreign Direct Investment
AID	Aid Per Capita
GNI	Gross National Income
SPSS	Statistical Package for Social Sciences

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CHAPTER ONE

INTRODUCTION

1.1 Background

Recently, microfinance has received a lot of attention, both from policy makers as well as from academics. In particular, it has been mentioned as an important instrument to combat poverty. To support this view, the UN declared 2005 as the international Year of Microcredit. In 2006, the attention for microfinance and its role in reducing poverty was further increased when Mohammad Yunus received the Nobel Peace prize. These developments led to high expectations among policy makers and aid organizations about the potential poverty reducing effects of microfinance.

This section presents the background of the study. The section shows a brief discussion on the relationship between microfinance and formal financial sector development and also presents a brief review on the microfinance sector in Kenya.

1.1.1 Microfinance and Formal Financial Sector Development

Development policy is increasingly concerned with expanding financial services to the poorer sections of the population. In a recent World Bank book, Demirgüç-Kunt et al. (2008) investigated what hinders and stimulates financial access and development. A policy for increasing access to financial services for the poor that receives a lot of attention is microfinance. Microfinance is the provision of small financial services to the poorer sections of the population. It is thought of as having a positive impact on the life of the poor by providing them access to something they previously did not have, namely access to financial services (Morduch, 1999). Consequently, through serving more people, the providers of microfinance services increase their societal impact.

The microfinance movement has known an important growth during the last couple of decades. However, growth seems unequally dispersed among countries and institutions. Microfinance institutions (MFIs) have known different levels of success:

some have become very significant in size and serve a lot of clients, like the Grameen Bank in Bangladesh, or Bank Rakyat Indonesia (BRI) in Indonesia, while other MFIs remain small or even cease to exist (Ahlin et al., 2008). The literature has mainly focused on MFI-specific characteristics such as governance and management-related issues in explaining these differences in success. For instance, Hartarska (2005) explored the relation between managers' experience and compensation schemes on MFI-performance. Along the same lines, Mersland and Strøm (2009) analyzed the relation between board-structures and MFI-performance. Recently, a number of studies have explicitly investigated the relationship between microfinance institutions' performance and changes in the macro-environment of the country in which the institution operates. These studies recognized that the macro-economic environment in which the MFI is active is an important determinant for MFI-performance in addition to institution-specific characteristics. Or as Ahlin et al. (2008) put it, any assessment that does not take into account the macro-economic and macro-institutional environment is incomplete.

Financial sector development refers to changes in the characteristics of financial systems of a country over time. A financial system consists of financial institutions such as commercial banks, development banks, stock exchanges, pension funds, etc., regulatory and supervisory institutions such as central banks, and financial instruments such as debt and equity. Financial systems and instruments exist because they help allocating resources across space and time. Financial sector development can be described in terms of the existing variety of financial institutions and instruments, as well as their contribution with respect to improving the efficient allocation of scarce resources. Financial development improves macroeconomic performance, since it helps allocating scarce financial sources to the most profitable and efficient investment projects (Levine, 2005). Thus, well developed financial institutions and instruments provide a growth-stimulating environment.

According to the IMF (2011), indicators of financial structure include system-wide indicators of size, breadth, and composition of the financial system; indicators of key attributes such as competition, concentration, efficiency, and access; and measures of the scope, coverage, and outreach of financial services. The indicators of financial sector development are the size, access, efficiency, and stability of banking and capital markets (World Bank, 2011). On the other hand, the IMF (2011) broadens the scope of financial sector development indicators to include other sub-sectors such as insurance, pensions, mortgage, leasing, money markets, foreign exchange markets, and collective investment funds. The World Bank (2011) indicators were used in this study.

1.1.2 Microfinance Sector in Kenya

The contribution of the microfinance sector in the economic development of Kenyan economy cannot be overlooked. It is now widely recognized in Kenya that the promotion of micro and small enterprises is a viable and dynamic strategy for achieving national goals, including employment creation and poverty alleviation. According to a baseline survey conducted in 1999, the micro finance industry contributes at least 13.8% of Kenya's Gross domestic product (GDP) (Mullei & Bokea, 1999).

The Kenyan micro finance industry emerged in the past 20 years in response to the lack of access to formal financial services for most of Kenya's low-income people. The industry is the pillar to development of the informal sector of the Kenya's economy by promoting the small and micro enterprises. Ratemo (2004) noted that the industry helps mitigate information asymmetry between lenders and borrowers, and increases access to financial services. While micro finance institutions (MFIs) serve an ever-increasing number of low-income clients, the demand for such financial services still far outstrips their capacity (Maru 2004).

Many Non Governmental Organizations (NGO) micro finance institutions, with donor funding have started to fill some of this financial gap with credit facilities to poor

people, mainly based on the Grameen Bank group-based collateral model. Most of the programs, however, because of the restrictions in the Banking Act and limited funding, have developed as credit-led programs, thus limiting the extent to which these institutions can mobilize deposits and build clients' capacities through education to ensure the program's sustainability (Dondo 2003).

Currently, most micro finance institutions offer a single product (credit only) to a single market segment comprising of operators of Micro and Small Enterprises. They use a single methodology of delivering the service (that is group-based lending), thus reaching a limited segment of the MFI market (Ledgerwood and White 2006).

Kenya's MFIs vary in formality, commercial orientation, professionalism, visibility, size, and geographical coverage. The legal form of the micro finance industry is quite diverse. Micro finance institutions can be registered under 9 different Acts of Parliament, namely the Banking Act, the Company Act (limited liability), Non Governmental Organizations (NGOs) Coordination Act, Building Society Act, Cooperative Act, Trustees Act, Kenya Institute of Education Act, and the Societies Act. These fall under the registrar of Societies office. Other organizations such as the Self Help Groups, the rotating savings and credit associations, the accumulated savings and credit associations are registered with the relevant ministries and they too practice micro finance (Dondo, 2003).

The micro finance deposit taking Act 2006 is a government effort to regulate the industry. The Act has proposed regulation of micro finance on two-tier based on the capital requirements. These are the community banks and the micro finance deposit-taking banks. The micro finance Act 2006 is an Act of parliament that makes provision for the licensing, regulation and supervision of micro finance business and for connected purposes. It provides a regulatory framework for MFIs and pro poor programs. The Act applies to every deposit taking micro finance business and specialized non-deposit taking micro finance business providing loans or other facilities to micro or small enterprises and low-income households. The Act does not

apply to companies licensed under the banking Act Cap 488, building societies Act Cap 489 and the Kenya post office savings bank Act cap 493 B.

The Act addresses a number of issues such as licensing, governance, supervision, and protection of depositors. The Act sets out the minimum capital requirements and provides for a two-tier regulation for the deposit taking micro finance organizations. Governance issues relate to maintenance of minimum capital requirements, maintenance of minimum liquid assets, declaration of dividends, prohibited activities, insider lending, limits in shareholding, and management of institutions. Supervision aims at ensuring compliance by institutions. The Act provides for inspection of institutions for breach/ contravention of the law, irregularities, mismanagement and periodic reporting (Micro finance Act 2006).

The emergence of the microfinance sector presents an unprecedented opportunity to extend financial services to the vast majority of the economically active population. The World Bank estimates that the potential global market for micro enterprise credit currently stands at 100 million clients. In many developing economies small and micro businesses comprise of nearly ninety percent (90%) of all firms (Berenbach & Churchill, 1997).

1.1.3 Informal Financial Sector in Kenya

According to a FinAccess Survey report in 2009, half the Kenyan population (50.6%) make use of various forms of informal financial service. The most common of these are rotating savings and credit associations (ROSCAs), often referred to as merry-go-rounds. These provide a simple means through which to save and accumulate a lump sum through the regular pooling of usually small contributions in a group which is taken by each group member in turn. More sophisticated arrangements allow for a less regimented approach with members contributing and borrowing from a group more according to their needs rather than the dictates of their turn.

Interestingly a significant proportion of those with access to the formal providers also use informal mechanisms. Over a third of those with a bank account also use an informal service. The use of informal systems increases the level of total financial inclusion in Kenya.

1.2 Statement of the Problem

The importance of the financial system to economic development is well understood and Kenya's long-term national strategy, Vision 2030, identified the sector as one of the country's core growth pillars. While generally more developed than others in the region, Kenya's financial sector has remained far from achieving its full potential. Despite considerable progress in the last decade, the financial sector in Kenya had only met a modest fraction of the growing demand from poorer households and micro, small and medium enterprises. Key to the success of the Kenya's financial system is the microfinance. Despite the growth of this sector, studies are limited in terms of showing the impact of MFIs on the financial sector development. This research sought to evaluate the contributions of microfinance towards financial sector development in Kenya.

Over one hundred organizations, including about 50 NGOs, practice some form of microfinance business in Kenya (Aduda, 2009). About 20 of the NGOs practice pure micro-financing, while the rest practice micro-financing alongside social welfare activities. Major players in the sector include Faulu Kenya, Kenya Women Finance Trust (KWFT), Pride Ltd, Wedco Ltd, Small and Medium Enterprise Programme (SMEP), Kenya Small Traders and Entrepreneurs Society (KSTES), Ecumenical Loans Fund (ECLOF) and Vintage Management (Jitegemee Trust). The Kenya Post Office Savings Bank (KPSOB) is also a major player in the sector but only to the extent of providing savings and money transfer facilities. Many microfinance NGOs have successfully replicated the Grameen Bank method of delivering financial services to the low-income households and MSEs (Omino, 2005).

Recently, research has focused on the possible determinants of financial sustainability of MFIs. In particular, researchers have looked at micro-institutional, as well as macro-institutional and macroeconomic determinants of sustainability. Micro-institutional factors that have been discussed are, among other things, the type of borrowers, the costs of operation, the type of loans offered, etc. (Cull et al., 2007; Gutiérrez-Nieto et al., 2007; Hermes et al., 2009). Macro-institutional factors that have been investigated are regulation and economic freedom (Hartarska and Nadolnyak, 2007; Cull et al. 2008; Crabb, 2008); macroeconomic factors that have been studied are general macroeconomic performance and inflation (Ahlin and Lin, 2006). One potentially important macro-institutional issue that has not been explicitly researched is the effect that microfinance has on a country's formal financial system. This issue is the focus of the current study.

A number of studies have been done on MFIs in Kenya. For instance, Magiri (2002) studied the relationship between credit models used by MFIs in Kenya and the attainment of outreach, Mutua (2006) studied the linkages between MFIs and commercial banks in Kenya, Ogindo (2006) assessed the performance of MFIs in Kenya, Wambugu (2007) did a study to determine the financial and social impact of microfinance lending in Kawangware, Kamau (2008) and Mulandi (2010) studied the determinants of profitability of microfinance institutions in Kenya and Karuri (2010) studied the impact of microfinance services on poverty alleviation. As seen, these studies were basically focusing on the micro-economic effects of the MFIs despite the important role the sector plays in the Kenyan economy. Nothing had been done on the macroeconomic impact of MFIs on financial sector development in Kenya. This is the gap the present study sought to bridge by answering the question: what is the impact of microfinance on formal financial sector development in Kenya?

1.3 Objective of the Study

To assess the impact of microfinance on formal financial sector development in Kenya.

1.4 Importance of the Study

This study fills a knowledge gap in regard to the impact of microfinance on formal financial sector development in Kenya thus add to the body of knowledge that exists in regard to the development of financial systems.

This study is also be invaluable to the government: There is no question concerning the contribution of micro finance industry to national development as the Government expects to have the highest number of job creation to occur in this sector. This is depicted in the government's inclusion of the micro finance sector in its strategic papers such as the Poverty Reduction Strategy Paper (2001), the Economic Recovery Strategy for Wealth and Employment Creation (2003-2007), and the economic blue-print vision 2030. The findings of this study is of interest to the government in understanding what impact on financial sector development microfinance has.

Micro practitioners in Kenya also have immense benefits to derive from the study. This study is important to microfinance practitioners because it helps them understand the industry, the expected changes and be able to position themselves strategically in the long run. It also benefits the management consultants who advice their clients on what impact the development of MFI has on the performance of the formal financial sector and how to strategize on the same.

To the academicians, this study offers more avenues for discussions and future research on the same. This study can be applied in other countries by future researchers.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of related literature in the area of microfinance lending and small medium enterprises. First, the chapter presents a review on MFI lending approaches. This is followed by a review on the impact of MFIs on growth of SMEs. The chapter wraps up with a conceptual framework of the study.

2.2 Theoretical Literature

This section presents a review of the microfinance lending models as well as a review of organisation of microfinance institutions.

2.2.1 Microfinance Lending Models

There are two broad microfinance lending approaches towards small and medium enterprises. These are financial systems models and poverty lending models. Following is an explanation of each of the models.

2.2.1.1 Financial Systems Model

The financial systems approach aims to achieve maximum outreach of microfinance services through financially sustainable institutions that focus on a financial intermediation model (Robinson, 2003). The microfinance institutions under this approach provide finance to the public e.g. commercial banks; or serve only their members such as village banks. They finance their loan portfolios from locally mobilized savings, commercial debt and for-profit investment, or retained earnings such as micro lenders.

Microfinance institutions under this approach are differentiated from informal money lenders, from unregulated institutions such as NGOs and from subsidized formal micro credit – where a regulated institution such as a state-owned bank channels government or donor funds to borrowers at subsidized interest rates (Robinson, 2003). The proponents of the financial systems approach argue that donors and

governments should shift the allocation of their scarce resources from direct financing of loan portfolios, to promoting the replication of this model by disseminating lessons from the best practices of fully sustainable microfinance institutions and financing the development of more microfinance institutions of this type. One challenge of the financial systems approach is that it relies on market approaches, which may be thin and weak in marginal areas (Pralahad, 2004). However, even in these areas, market solutions can be found to overcome any obstacles (Hitchins, Elliot & Gibson, 2005).

2.2.1.2 Poverty Lending Model

The poverty lending approach focuses on reaching the poorest of the poor, who are typically engaged in pre-entrepreneurial activities that are more focused on consumption-smoothing than productivity enhancing activities (Honohan, 2004). This group requires assistance in the form of income transfers to meet their basic needs, because any credit extended to them is most probably consumed rather than invested in something that generates a return sufficient to repay the debt (Rosengard, 2001).

The poverty lending approach differs from the minimalist financial services model characterized by the financial systems approach. In addition to microfinance services, it provides ancillary services such as training on nutrition, better farming techniques, family planning, health and basic financial management skills aimed at reducing the target group's vulnerability to avoidable risk. The funding for these ancillary services is typically provided by governments, donor grants and other subsidized funds. Previously, loan portfolios used to be funded by donors and governments and loan provision was subsidized at below market interest rates. However, increasing evidence that the microfinance target group repayment rates are not affected by market related interest rates has changed the practice of subsidizing interest rates. In addition the use of 'forced savings' has reduced the

extent to which donors and governments are required to fund loan portfolios, even if the microfinance target group is not able to save, initially.

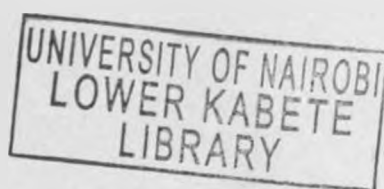
Practices have been adopted to ensure that the provision of ancillary services that target those in the pre-entrepreneurial group is done without compromising the financial sustainability of the microfinance function of the institution. This is done by making a clear distinction between the funds allocated to services. Member savings are used to fund the former, while government and donors support is used to fund the latter.

2.2.2 Theories of Financial Intermediation

The theories of financial intermediation discussed here are the traditional theories of perfect market and the modern theories of banks as delegated monitors, regulatory factors theory, transaction cost theory, liquidity insurance theory, and information asymmetry theory.

2.2.2.1 Traditional Theories

One of the traditional theories of financial intermediation is the perfect model theory. Market based theories of resource allocation contends that firms and households interact through markets and financial intermediaries play no role. They maintain that when markets are perfect and complete, allocation of resources is Pareto optimal efficient and there is no scope for intermediaries to improve welfare. One such theory is the Arrow-Debrew theory (1954). Named after American economist Kenneth Arrow and French-born economist Gerard Debreu (1921), who examined the dynamics of the whole economic system and were able to prove the existence of a multimarket equilibrium in which no excess demand or supply exists. The theory is based on assumptions that a competitive equilibrium exists if each person in the economy possesses some quantity of every good available for sale in the market and that exploitable labour resources exist which are capable of being used in the production of desired goods / services.



The existence of financial intermediaries needs to be justified in economic terms because in the Arrow-Debreu world, the financing of firms (and governments) by households occurs via financial markets in a frictionless manner - there are no transactions costs - which leaves no role for financial intermediaries. However traditional theories of financial intermediation are based on transaction costs and asymmetric information. They are designed to account for institutions which take deposits or issue insurance policies and channel funds to firms. The traditional theory of financial intermediation is focused on the real-world market features of transactions costs and asymmetric information (Allen and Santomero, 1998). These are central to the activity of banks and insurance companies.

The idea of transactions costs, first developed in the context of the theory of the firm (Coase, 1937), was introduced as a key form of friction in financial markets (Gurley & Shaw, 1960). Economies of scale which benefit intermediaries result from indivisibilities and non convexities in transactions technology which restrict diversification and risk sharing under direct financing. Examples include fixed costs of evaluating assets, and declining average trading costs which mean intermediaries may diversify more cheaply than individuals. The "liquidity insurance" banks provide to depositors and borrowers (whereby deposits can be cashed on demand while banks' assets are mainly long-term and illiquid) also results from scale economies in risk pooling (Diamond and Dybvig, 1983).

The General equilibrium theory, attributed to Walras (1910-1934) who studied a theoretical economic system in which all consumers were utility maximizers and firms were perfectly competitive, shows that a unique stable equilibrium can exist under such conditions. In addition, (employing Modigliani-Miller theory), financial structure is irrelevant as in a world such as that described; households can construct portfolios which offset the actions of an intermediary and intermediation cannot add any value (Fama, 1980). The views above seem to be supported by the fact that increasingly, financial markets have been and continues to be highly liberalized and

deregulated. According to Allen and Santomero (1998) all information on important macroeconomic and monetary data and on the quality and activities of market participants is available in 'real time', on a global scale, twenty-four hours a day, owing to the developments in information , communication technology and financial innovations.

Firms can now issue shares over the Internet and investors can put their order directly in financial markets. The communication revolution has also reduced information costs tremendously and improved investor information. The liberalization and deregulation give, moreover, a strong stimulus towards the securitization of financial instruments, making them transparent, homogeneous, and tradable in the international financial centers in the world. These imply that the traditional arguments are no longer sufficient to justify intermediaries' existence and continued growth. Insolvency and liquidity risks, however, still are an important source of heterogeneity of financial titles. Accordingly, a sound theory of intermediation should in their view also take into account the activity of risk transfer and risk control between and by intermediaries on the one hand, and facilitation of participation in markets by individuals on the other. Scholtens and Wensveen (1999) suggest in addition that dynamic aspects of financial innovation and adaptation of institutions to gain competitive advantage should play a central role.

The Arrow-Debreu world is based on the paradigm of complete markets. In the case of complete markets, present value prices of investment projects are well defined. Savers and investors find each other because they have perfect information on each other's preferences at no cost in order to exchange savings against readily available financial instruments. These instruments are constructed and traded costlessly and they fully and simultaneously meet the needs of both savers and investors. With complete information, it is expected that market parties have homogenous expectations and act rationally. In so far as this does not occur naturally,

intermediaries are useful to bring savers and investors together and to create instruments that meet their needs.

Therefore, intermediaries are at best tolerated and would be eliminated in a move towards market perfection, with all intermediaries becoming redundant: the perfect state of disintermediation. This model is the starting point in the present theory of financial intermediation. All deviations from this model which exist in the real world and which cause intermediation by the specialized financial intermediaries are seen as market imperfections. This suggests that intermediation is something which exploits a situation which is not perfect, therefore is undesirable and should be temporary (Scholtens and Wensveen, 2003).

2.2.2.2 Modern Theories

The following are theories that explain reasons of the existence of financial intermediation: banks as delegated monitors, regulatory factors theory, transaction cost theory, liquidity insurance theory, and information asymmetry theory. Transaction costs argument (approach) holds that financial intermediaries exist because they have a transaction costs advantage over individuals. This approach is being supported by the works of scholars like Benston and Smith (1976), Campbell and Kracaw (1980) and Fama (1980). This is based on non convexities in transaction technologies, whereby the financial intermediaries act as a coalition of individual lenders or borrowers who exploit economies of scale or scope in the transaction technology. The notion of transaction costs encompasses not only exchange or monetary transaction cost (Tobin, 1963; Towey, 1974; Fischer, 1983) but also search costs, monitoring and auditing costs (Benston and Smith, 1976).

The existence of asymmetries of information between borrowers and lenders gives rise to difficulties in screening the quality of entrepreneurs and firms to avoid adverse selection (Leland and Pyle 1977) and monitoring their performance to minimise moral hazard (Diamond, 1984). Lenders would benefit from knowing the true characteristics of borrowers. But moral hazard hampers the direct transfer of

information between market participants. Borrowers cannot be expected to be entirely straightforward about their characteristics, nor entrepreneurs about their projects, since there may be substantial rewards for exaggerating positive qualities. And verification of true characteristics by outside parties may be costly or impossible. Without information transfer, markets may perform poorly (Leland and Pyle, 1977). Intermediaries, which specialise in collecting information, evaluating projects and borrowers, and monitoring borrowers' performance, can help overcome the information problem. These asymmetries can be of ex ante nature, generating adverse selection, they can be interim, generating moral hazard, and they can be of ex post nature resulting in auditing or costly state verification and enforcement.

Regulation theory explains the reason of financial intermediaries' existence - which is based on regulation of money production and of saving in and financing of the economy as advanced by such scholars as Guttentag and Lindsay (1968), Fama (1980), Mankiw (1986) and Merton (1995b) among others. The above scholars maintain that regulation affects solvency and liquidity, with the financial institution as part of the monetary policy management of an economy. The financial history shows a clear interplay between financial institutions and markets and the regulators, be it the present-day specialized financial supervisors or the old-fashioned sovereigns (Kindleberger, 1993).

The role of the financial intermediaries in liquidity insurance theory is to transform particular financial claims into other types of claims (so-called qualitative asset transformation). This approach is attributed largely to the works of Pyle (1971), Diamond and Dybvig (1983), and Hellwig (1991). The liquidity insurance approach asserts that financial institutions enable consumers to alter their consumption patterns according to the influence of shocks. They argue that in the absence of perfect information, consumers are unsure of their future liquidity requirements in the face of unanticipated events and hence they maintain a pool of liquidity. Provided that shocks are not perfectly correlated across individuals, portfolio theory

suggests that total liquid reserves needed by financial institutions would be less than the aggregation of reserves required by individual consumers acting independently. As such, they offer liquidity (Pyle, 1971) and diversification opportunities (Hellwig, 1991). The provision of liquidity is a key function for savers and investors and increasingly for corporate customers, whereas the provision of diversification increasingly is being appreciated in personal and institutional financing. Holmström and Tirole (2001) suggest that this liquidity should play a key role in asset pricing theory.

Diamond (1984) offered the first coherent explanation for the existence of financial Intermediaries, also the reasons why borrowers must be “monitored” because there is an ex post information asymmetry in that lenders do not know how much the firm has produced. Only the individual borrower observes the realized output of his project, so contracts cannot be made contingent on the output. Consequently, a lender is at a disadvantage because the borrower cannot honour ex ante promises to pay unless there is an incentive to do so. Since monitoring is costly, it is efficient to delegate the task to a specialized agent, the bank.

2.3 Empirical Literature

The empirical review is divided into two sections. The first section reviews literature on the relationship between microfinance and financial sector development. The second reviews the moderating influence of other macro-economic factors on the performance of MFIs.

2.3.1 Microfinance and Financial Sector Development

Financial sector development is important because it fosters economic growth (Levine, 2004). Jalilian and Kirkpatrick (2005) show that financial sector development plays an important role in poverty reduction. Consequently, an important part of development policy is concerned with developing financial markets for the poor as a way to enhance economic growth (Demirgüç-Kunt et al. 2008). Indeed, formal financial institutions do not serve a significant fraction of the

population in developing countries. This is mainly due to market failures stemming from imperfect information and informational asymmetries (Stiglitz and Weiss, 1981; Barham et al., 1996).

The development and promotion of Microfinance Institutions (MFIs) has been viewed as a promising development policy able to address the market failures in the formal banking system. Therefore, in the last decade, microfinance has received increased attention as a tool for poverty-reduction (Barr, 2005). Many MFI-initiatives have been undertaken in order to serve the large number of people in developing countries that do not have substantial access to financial services.

In the start-up period during the early eighties, MFIs were mainly funded with donor money under an NGO status. Since the 1990s, however, the sector has been undergoing a process towards formalization and commercialization. This means that MFIs try to become independent from donor money forcing them to aim for financial sustainability. In that process towards self sustainability, MFIs become more formalized and often take another formal regulatory status (Robinson, 2001). Some have transformed completely into banks, like BancoSol in Bolivia and Compartamos in Mexico (Armendariz and Szafarz, 2009).

Due to this formalization process, modern MFIs are believed to serve a dual objective, this is: both to reach the unbanked poor as well as to become self-sustainable (Armendariz and Morduch, 2005; Hartarska, 2005). Consequently, an increasing number of MFIs need external commercial funding in addition to revenues from possible lending-activities once donors stop funding (de Crombrughe et al., 2008). Increasingly, commercial banks and international investors have become interested in funding microfinance activities, as MFIs seem to be an interesting way to diversify their portfolios (Krauss and Walter, 2008; Isern and Porteous, 2005). This process has led to a pressure on MFIs to perform better and to quantify their double objective.

The empirical relation between the development of the formal financial sector and the microfinance sector was a priori unclear. Different arguments were made that either predicted a positive or negative relation between performance of the microfinance sector and the development of the formal financial sector.

With respect to the negative relation between development of the formal financial sector and the microfinance sector, two arguments were made. First, one argued that microfinance and the formal system are substitutes. In fact, MFIs were thought of as one specific niche of the highly segmented financial sector focusing on the poorer, non-served parts of the population (Christen et al., 2004; Richter, 2004). In countries with well-developed financial systems, the part of the population that is served by formal financial institutions is quite big. For example, in the rich countries more than 80% of households have an account within financial institutions, while that fraction diminishes to 20 to 40% of the households in developing ones (Demirgüç-Kunt et al., 2008). In countries where financial markets are more developed the need for microfinance is less acute.

This argument is closely related to the market-failure theory of microfinance. Namely, microfinance is seen as a solution to market failures in the formal banking sector and solves it through the use of different lending methodologies. Tirole (2006) argued that it is through group lending that microfinance solves the informational asymmetries that hinder the formal financial sector. Armendariz and Morduch (2000) show that next to group liability, MFIs have developed additional methodologies and innovative contracts to overcome lending constraints. Thanks to these alternative methodologies MFIs are able to serve clients considered too risky by banks. MFIs thus concentrate on a clientele that is not served by banks.

A second and closely related argument predicting a negative relation between microfinance and development of the formal banking sector relates to competition between the two sectors (Hermes et al., 2009). Specifically, in well-developed banking systems, commercial banks are more efficient and profit from scale

advantages and diversification. In that sense, commercial banks were potentially seen to be very active and flexible in adapting credit contracts and serving different groups of people. They could efficiently adapt their credit contracts towards poorer sections of the population. This could lead to a crowding out-effect where the MFI clientele substitutes its MFI-loans for commercial bank loans at lower interest rates.

Both arguments predicted that microfinance would be less developed where formal financial system development was high, which would entail a negative relation between MFI and the development of the formal financial system. On the other hand, a number of arguments could be made that would predict a positive relation between formal financial sector development and microfinance. These arguments related to positive spillover effects between the formal banking system and microfinance (Hermes et al., 2009). First, MFIs could benefit from increased credit lines offered by the formal banking system. In that respect, the formal banking sector could reinforce the development of the MFI-sector by providing them the necessary external funding for expanding their activities (Isern and Porteous, 2005; Hermes et al., 2009). Similarly, McIntosh and Wydeck (2005) showed that interest rates are usually lower in well-developed banking systems due to competition. As a result, MFIs could have access to cheaper loans which would enable them to reach financial sustainability more easily. A second argument related to the more developed regulatory framework in countries with well-established formal banking system. This could also increase efficiency and performance of MFIs (Hermes et al., 2009).

The previous discussion shows that there were a number of potential interactions between microfinance and the formal financial sector development. This is the main hypothesis that was tested empirically by relating a number of formal financial sector development to MFI.

Aduda (2009) examined the depth of outreach and impact of micro-finance services on poverty alleviation and women empowerment in Kenya. The Study employed a

cross-sectional impact assessment, which used both the treatment and control groups. The Principal Components Analysis was used to isolate and measure the poverty component embedded in the various poverty indicators and to create a household specific poverty index. In addition two non-parametric tests, Kolmogorov Smirnov and Mann-Whitney, were performed to assess the impact of micro-finance services on women empowerment. The findings of the study confirm that micro-finance services have a positive impact on poverty alleviation in Kenya by helping the poor people to increase their sources of income which is an essential path out of poverty, hunger and deprivation. The micro-finance services have a positive impact on the empowerment of women because the access to savings and credit gives women a greater economic role in decision-making. The study, however, found that a majority of the poor households in Kenya did not have access to micro-finance services due to several factors, namely, physical and economic challenges, self-exclusion, sector risks, lack of awareness, negative publicity, cost structure of MFIs, capacity constraints as well as environmental factors. The study recommended that MFIs should intensify savings mobilization and establish strong partnerships with commercial banks in order to obtain sufficient funds for lending to the poor. The study also recommended the need for effective prudential supervision of MFIs by the CBK to ensure full compliance with the Micro-finance Act (2006). The Government could also implement stable macro-economic policies and develop infrastructure in the rural areas to enhance the capacity of MFIs to alleviate poverty.

2.3.2 Macro-economic Environment and MFI Performance

The development of the microfinance sector has also attracted increased attention from academics, trying to understand performance and development of MFIs. Within this research field, one strand of literature searches for the determinants for MFI-performance. Empirical research has mainly focused on institutional determinants and governance matters explaining differences in performance. Although these issues are very important, it seems that macro factors might also play a role (Ahlin et al., 2008). While the role of the macro-economic environment has been studied in

depth in the formal financial literature, the relationship between MFI and the macro environment has only recently received attention by a small but increasing number of authors.

The channels through which macro-economic variables may influence the performance of MFIs are multiple. Vanroose (2006) has done a first attempt to link microfinance and the macro-economic environment for the Latin American region through a literature study on the region. Honohan (2004) studied a number of macro-economic variables that may explain the variation in the development of microfinance markets on a global level. He found no more than weak correlations with the variables he investigated but took only around 50 countries into account. Vanroose (2008), in a later study that takes into account all developing countries, identified macro-economic factors that may explain why the microfinance sector is more developed in some countries while not in others. She studied the sector on an aggregated country-level and found a positive influence of population density, GNI and aid per capita on MFI-outreach.

Another part of the literature focuses on the performance of the individual MFI. Gonzalez (2007) studied different measures of MFIs' financial performance but concluded that macroeconomic developments do not influence them in a significant manner. Krauss and Walter (2008) investigated whether changes in the global capital markets influenced an MFI's portfolio and found no proof of that. Nevertheless, they did find a significant exposure of MFI performance to changes in the Gross Domestic Product. A possible explanation for the differences between these studies is that they concentrated on other financial measures. Ahlin et al. (2008), on their turn, investigated empirically the relationship between different sets of macro-economic variables and the performance of MFIs and found that several variables, like GDP growth and institutional design, are positively significant in explaining differences in MFI performance.

In a very recent study, Hermes et al. (2009) focussed on the relationship between MFI-efficiency and the development of the financial system and found that MFI-efficiency is positively correlated with overall financial sector development. This study is most closely related to the present paper, the main difference being the performance-measures that were used to measure MFI and also the direction of relationship. Hermes et al. (2009) looked at efficiency of the MFIs using stochastic frontier analysis. While efficiency is without doubt an interesting aspect, the present study looked at MFI in terms of both outreach and profitability. These two performance-measures have been extensively used in the literature (Hartarska, 2005; Mersland and Strøm 2008; Mersland and Strøm, 2009), since they reflect the dual purpose of MFIs: to reach the poorer segments of the population and reach financial sustainability.

2.4 Summary of Literature

The previous discussion shows that while an increasing number of authors recognize that the microfinance affects the macro-economic environment in which it is active, the existing empirical evidence is scarce and largely inconclusive. The present paper sought to resolve this by focusing on one important aspect of the impact: the development of the formal financial system.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methods that were used to carry out the study. It contains research design used in the study, the target population, data collection and analysis methods and tools.

3.2 Research Design

The study is a longitudinal survey design. The method was chosen because it allowed the collection of large amounts of data from a sizeable population in a highly economical way (Saunders et. al, 2008). People perceive the survey design as authoritative in general because it is easily understood.

3.3 Population

The target population for the study was all the 33 micro finance institutions that are members of the Association of the Micro Finance Institutions (AMFI). This was particularly important because the umbrella body maintained information about these institutions. The study also focused on the banking industry in Kenya with 45 commercial banks registered by the Central Bank of Kenya. The stock market was equally the focus of the study therefore focusing on the 58 listed companies at the Nairobi Stock Exchange. The total population was therefore 136 institutions from the banking, stock market and microfinance sectors. Being aware that some of the banks are also listed at the Nairobi Stock Exchange, the analysis models were designed and administered independent of each other. Given that the data was not collected individually from these institutions, sampling was not performed as macro-economic data was collected for the period of study.

3.4 Data Collection

The result of the research is highly dependent on the secondary sources. We have used several research books, journals and articles as secondary sources for our study. Internet sources were also used as a secondary source for our study. Since

the internet sources are less reliable, we have limited the use of those sources to the web pages of prominent organizations like AMFI, World bank and IMF. Most of the sources, we tried to use, are reliable and are acceptable almost everywhere. Further, we have also used the annual reports of some of the MFIs in Kenya.

Secondary data was collected in this study. These were collected from the IMF, the Central Bank of Kenya, the Kenya National Bureau of Statistics, the MFI websites and premises, and from AMFI. The data period was from 2000-2010. In line with previous studies focussing on the impact of MFI (Hartarska, 2005; Mersland and Strøm, 2008) the study related MFI to the variables of interest in addition to a wide set of control-variables. Specifically, the study related MFI impact to (a) variables measuring formal financial sector development and (b) macro-economic controls.

3.5 Data Analysis

The parameters of the panel data regression model presented in (1) were estimated using a multiple regression analysis using the SPSS version 19 software.

The model can be written as follows:

$$FSD_t = a + b_1(MFI)_t + b_2(MacroControls)_t \dots\dots\dots (1)$$

- Where
- FSD_t measures the formal financial sector development (FSD) in terms of the size, access, efficiency, and stability of (a) the banking sector and (b) the capital markets (equity and debt). These were the dependent variables and were collected from the World Bank Website (Appendix 1).
- MFI_t measures the MFI performance through profitability and outreach. Outreach is measured in terms of the (natural logarithm of) number of

active borrowers (lnNAB) as well as the (natural logarithm of) total loan portfolio (lnTLP). Profitability is measured in terms of operational sustainability (OSS) defined as the ability of an institution to cover its operational costs. Besides OSS the study also looked at return on assets (ROA) and return on equity (ROE). These variables were collected from MIX market website database.

Controls the control variables were population density (POPDENS), foreign direct investment (FDI), lnGNI per capita (GNI) and inflation in line with previous studies focusing on the impact of the macro-economic environment on MFI-performance (Ahlin et al., 2008; Vanroose, 2008).

Time series data on financial sector development were the dependent variable from 2000-2010. Another time series data for MFI formed the independent variable for the same period. The following time series which is a model version from other studies was used (Armendariz and Morduch, 2000):

$$Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \alpha_2 Y_{t-2} + \dots + \alpha_p Y_{t-p} + \epsilon_t \dots \dots \dots (2)$$

$$X_t = \beta_0 + \beta_1 X_{t-1} + \beta_2 X_{t-2} + \dots + \beta_p X_{t-p} + \epsilon_t \dots \dots \dots (3)$$

Where Y and X were MFI performance metrics (outreach and profitability) and FSD metrics (banking and capital markets) for the period.

A trend analysis was performed for both variables. The results were interpreted accordingly based on descriptive statistics (mean, std. dev, min, max) correlation coefficients and p-values, and R². The results are shown in tables and charts. T-tests were performed to check for the significance of the relationships.

CHAPTER FOUR

DATA ANALYSIS AND RESULTS

4.1 Introduction

This chapter presents the results of the study. The data analysis was carried out for the period 2000-2010. This chapter is organized as follows. Section 4.2 presents the descriptive analysis results together with trend analysis of some of the variables relevant to the study. Section 4.3 presents the multivariate analysis results using a combination of statistical methods. Section 4.4 summarizes the chapter.

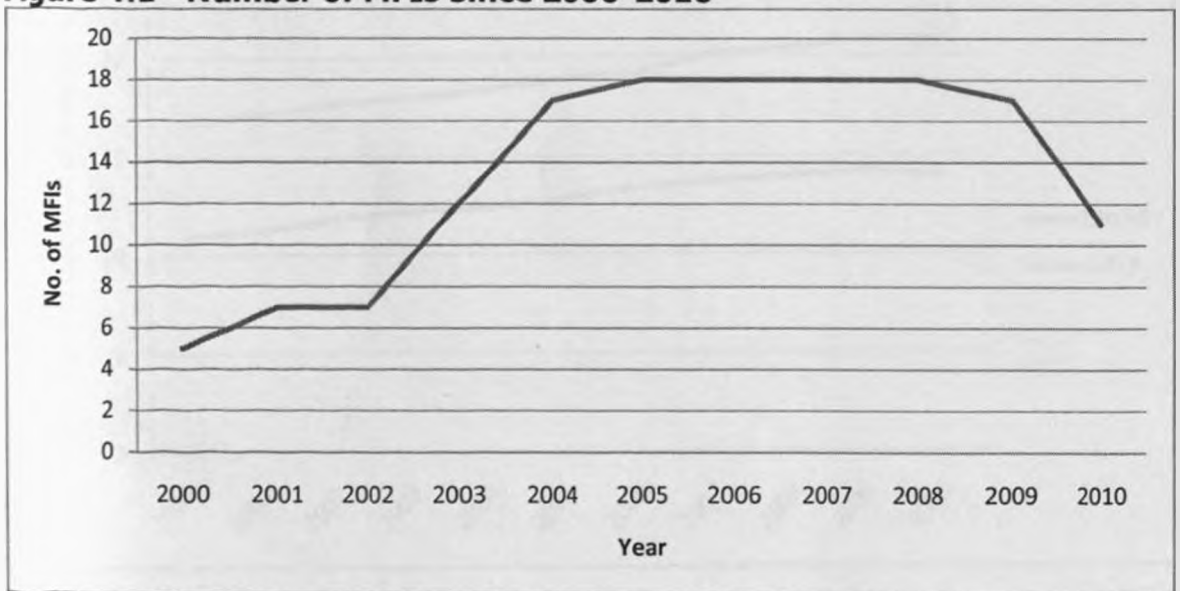
4.2 Descriptive Analysis

Figure 4:1 and table 4:1 below, shows the trend analysis on the number of microfinance institutions in Kenya since 2000.

Table 4:1 Number of MFIs since 2000-2010

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of MFIs	5	7	7	12	17	18	18	18	18	17	11

Figure 4:1 Number of MFIs since 2000-2010



As the chart shows, the number was lowest in 2000 (5 MFIs) and rose till 2005 (reaching 18 MFIs) and remaining the same then finally falling in 2009-2010 (to stand at 11 MFIs). The number of MFIs registered with AMFI was 33 but data is only available for the number shown in the trend graph below.

Figure 4:2 and table 4:2 below, show the results of the trend of number of active borrowers (NAB) and total loan portfolio (TLP). As shown, there was a steep rise in both the number of active borrowers and the total loan portfolio for the 11 year period under review.

Table 4:2 Trend analysis of NAB/TLP for MFIs from 2000-2010

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
LnNAB	10.93	11.29	11.89	12.24	12.43	12.89	13.41	13.73	13.97	14.20	13.95
LnTLP	16.72	17.20	17.70	18.00	18.43	18.91	19.28	20.15	20.48	20.83	20.91

Figure 4:2 Trend analysis of NAB/TLP for MFIs from 2000-2010

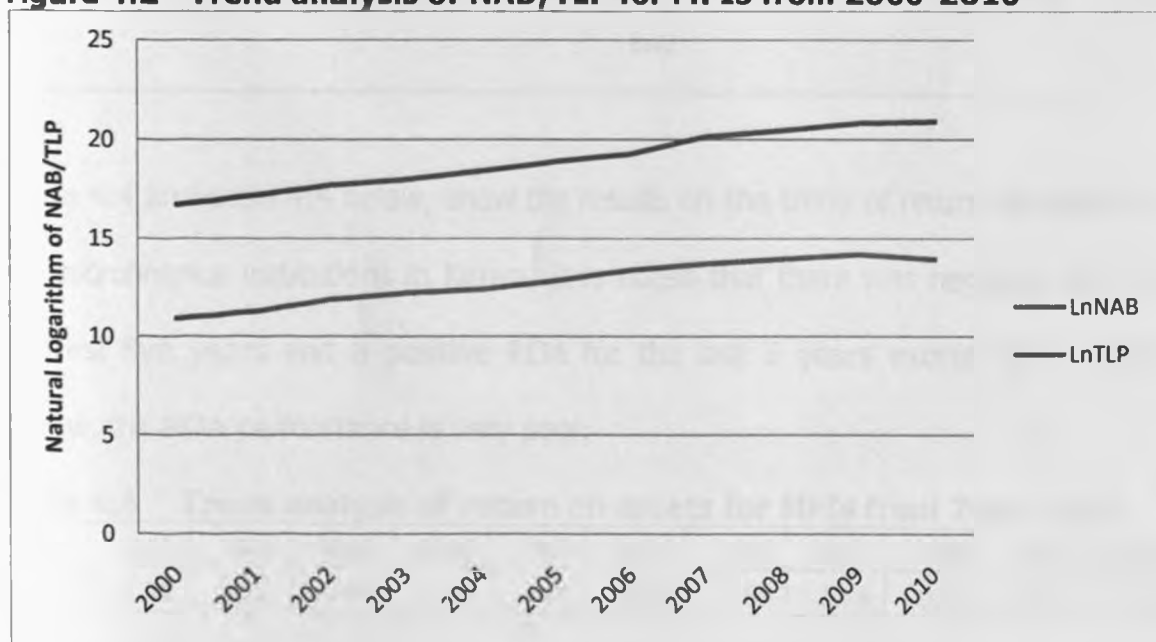


Figure 4:3 and table 4:3 below, show the trend analysis of the operational self-sufficiency of microfinance institutions in Kenya since 2000. As shown, all the MFIs were self-sustainable for the entire period of study.

Table 4:3 Operational self-sustainability of MFIs

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
OSS	101.28	85.25	98.29	113.50	112.38	111.93	107.99	112.79	127.21	114.01	127.62

Figure 4:3 Operational self-sustainability of MFIs

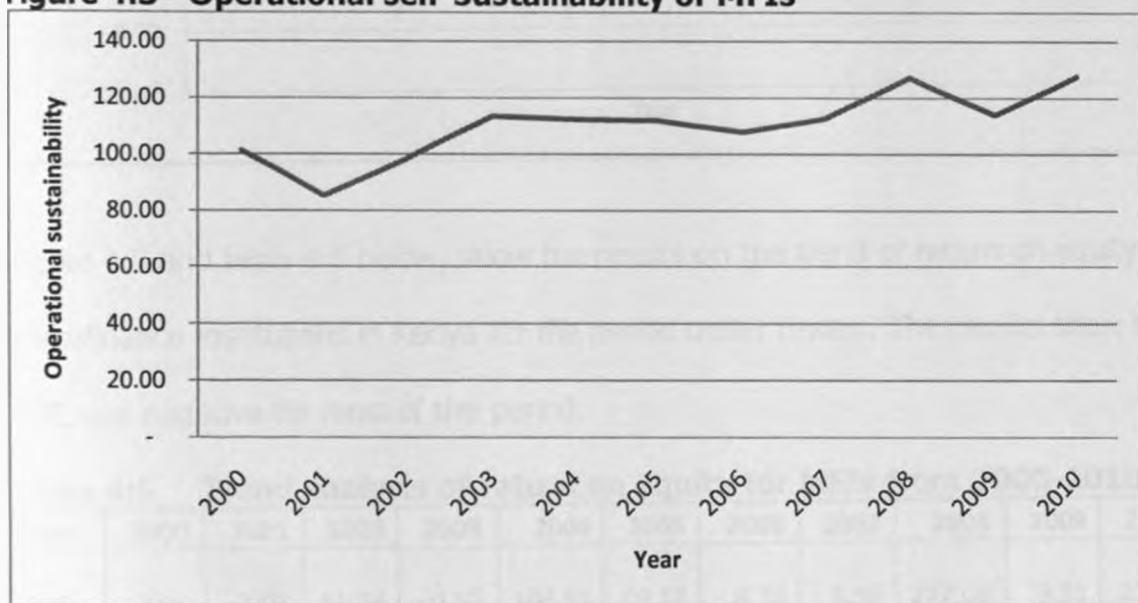


Figure 4:4 and table 4:4 below, show the results on the trend of return on assets for the microfinance institutions in Kenya. It is noted that there was negative ROA for the first five years and a positive ROA for the last 6 years except for in 2009. Overall, the ROA performance is very poor.

Table 4:4 Trend analysis of return on assets for MFIs from 2000-2010

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
ROA	-1.42	-2.02	-7.64	0.03	-7.67	4.58	0.02	1.73	0.93	-0.25	4.54

Figure 4:4 Trend analysis of return on assets for MFIs from 2000-2010

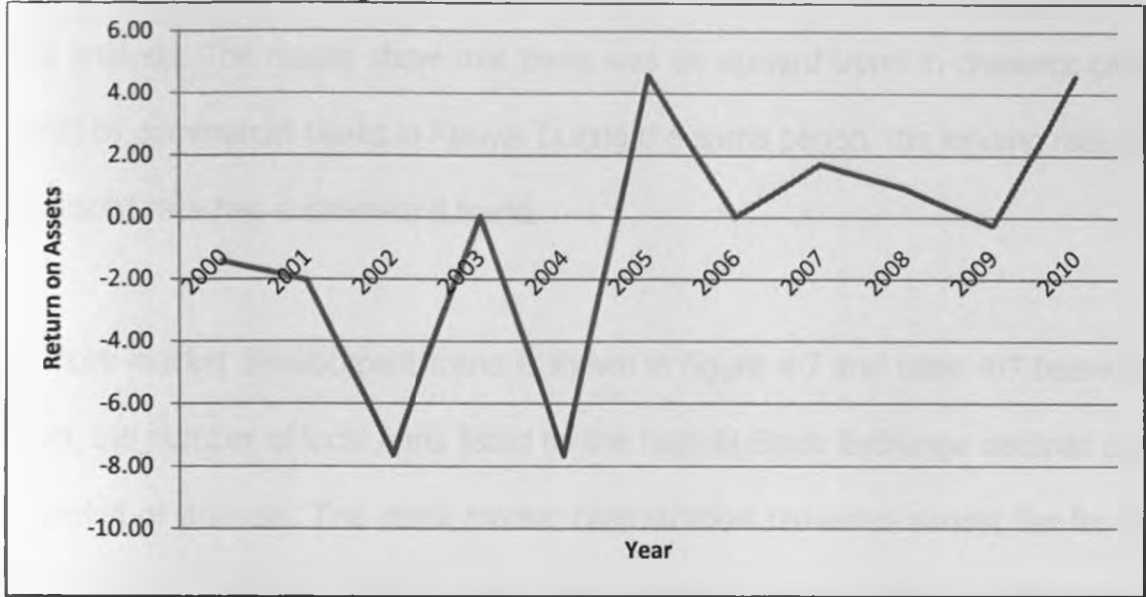


Figure 4:5 and table 4:5 below, show the results on the trend of return on equity for microfinance institutions in Kenya for the period under review. The results show that ROE was negative for most of the period.

Table 4:5 Trend analysis of return on equity for MFIs from 2000-2010

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
ROE	2.08	-2.07	11.74	0.10	103.90	19.17	8.78	4.56	277.08	9.91	21.55

Figure 4:5 Trend analysis of return on equity for MFIs from 2000-2010

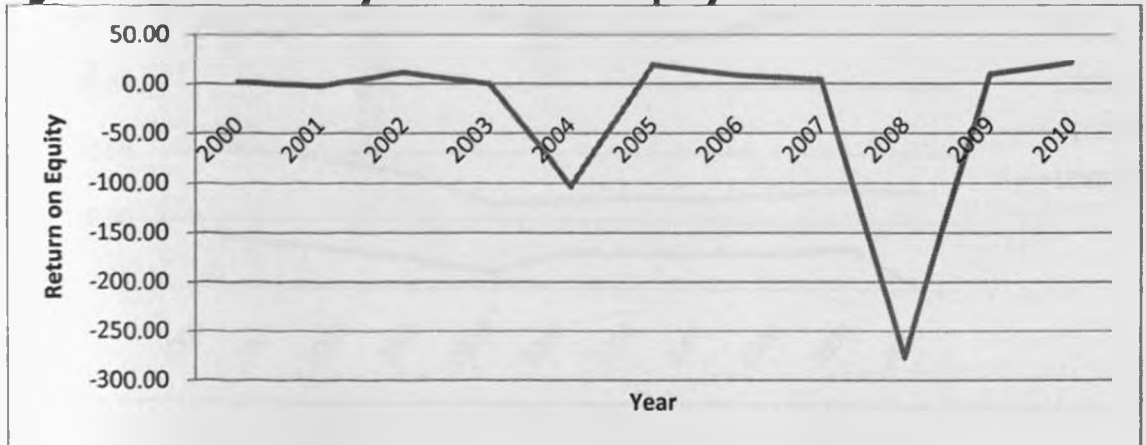


Figure 4:6 and table 4:6 below, show the results on the banking sector development trend analysis. The results show that there was an upward trend in domestic credit offered by commercial banks in Kenya. During the same period, the lending rate and the deposit rate had a downward trend.

The stock market development trend is shown in figure 4:7 and table 4:7 below. As shown, the number of local firms listed on the Nairobi Stock Exchange declined over the period of analysis. The stock market capitalization remained almost flat for the entire period of analysis while the stock return had an upward trend over the period.

Table 4:6 Banking sector development trend analysis

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
CREDIT	39.20	37.50	40.30	39.80	40.20	38.40	38.00	37.30	40.50	44.80	52.30
DEPRATE	8.10	6.60	5.50	4.10	2.40	5.10	5.10	5.20	5.30	6.00	-
LENDRATE	22.30	19.70	18.50	16.60	12.50	12.90	13.60	13.30	14.00	14.80	14.40

Figure 4:6 Banking sector development trend analysis

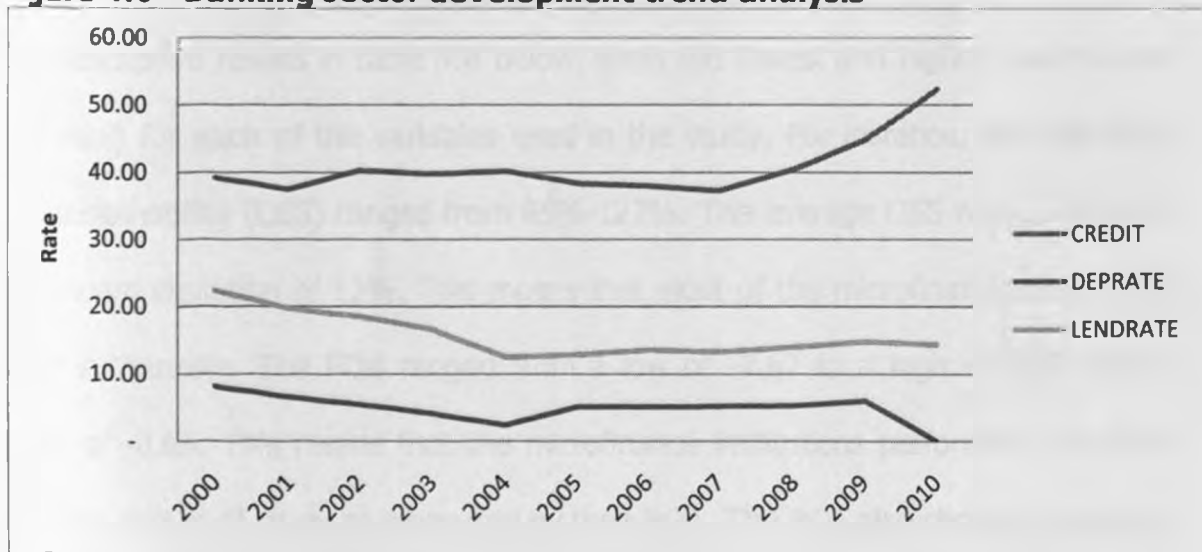
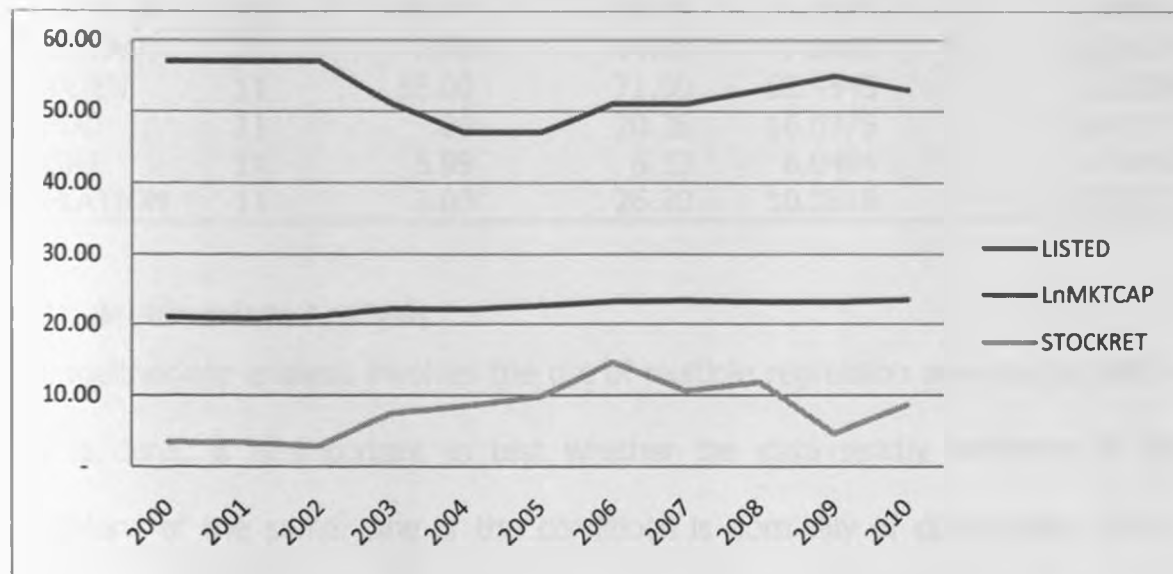


Table 4:7 Stock market development trend analysis

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
LISTED	57.00	57.00	57.00	51.00	47.00	47.00	51.00	51.00	53.00	55.00	53.00
LnMKTCAP	20.97	20.77	21.08	22.15	22.08	22.58	23.15	23.32	23.11	23.10	23.39
STOCKRET	3.50	3.40	2.90	7.50	8.50	9.80	14.60	10.60	11.80	4.60	8.60

Figure 4:7 Stock market development trend analysis



The descriptive results in table 4:8 below, show the lowest and highest values (min and max) for each of the variables used in the study. For instance, the operating self-sustainability (OSS) ranged from 85%-127%. The average OSS was 110% with a standard deviation of 12%. This means that most of the microfinance institutions were sustainable. The ROA ranged from a low of -7.67 to a high of 4.58 with a mean of -0.65. This means that the microfinance institutions performed very poor over the period of study as measured by their ROA. The ROE also showed very poor performance. This ranged from -277.08-21.55 with a mean of -27.74.

Table 4:8 Descriptive results

	N	Minimum	Maximum	Mean	Std. Deviation
LnNAB	11	10.93	14.20	12.8115	1.13955
LnTLP	11	16.72	20.91	18.9645	1.48411
OSS	11	85.25	127.62	110.2045	12.17151
ROA	11	-7.67	4.58	-.6518	4.05131
ROE	11	-277.08	21.55	-27.7418	89.59759
CREDIT	11	37.30	52.30	40.7545	4.35003
DEPRATE	11	.00	8.10	4.8545	2.14260
LENDRATE	11	12.50	22.30	15.6909	3.19138
LISTED	11	47.00	57.00	52.6364	3.66804
LnMKT CAP	11	20.77	23.39	22.3375	.99951
STOCKRET	11	2.90	14.60	7.8000	3.83927
POP DEN	11	55.00	71.00	62.4545	5.18389
LnFDI	11	.00	20.36	16.0375	5.47223
LnGNI	11	5.99	6.13	6.0494	.05456
INFLATION	11	2.00	26.20	10.2818	6.35355

4.3 Multivariate Analysis

The multivariate analysis involves the use of multiple regression analysis but before this is done, it is important to test whether the data strictly conforms to the conditions of the same. One of the conditions is normality of distribution. This is tested using Shapiro-Wilk statistic and presented in table 4:9 below. The Shapiro-Wilk statistic is interpreted because the sample is less than 50 in which case it is the most appropriate one to test. From the results, none of the variables is significant except for ROE, CREDIT, FDI and inflation. This means that the rest of the variables are insignificant thus show a normal distribution. The significant variables are not normally distributed. Further tests were then performed as outlined in the sections that follow.

Table 4:9 Tests of normality of distribution

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
LnNAB	.154	11	.200*	.929	11	.396
LnTLP	.152	11	.200*	.937	11	.490
OSS	.195	11	.200*	.926	11	.374
ROA	.186	11	.200*	.892	11	.149
ROE	.431	11	.000	.565	11	.000
CREDIT	.342	11	.001	.727	11	.001
DEPRATE	.273	11	.022	.900	11	.187
LENDRATE	.246	11	.061	.868	11	.073
LISTED	.156	11	.200*	.897	11	.168
LnMKTCAP	.231	11	.103	.859	11	.056
STOCKRET	.161	11	.200*	.939	11	.506
POPDEN	.111	11	.200*	.970	11	.889
LnFDI	.369	11	.000	.575	11	.000
LnGNI	.213	11	.177	.883	11	.114
INFLATION	.236	11	.088	.851	11	.044

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

The second test performed is to check the multicollinearity between the independent variables. These results are presented in table 4:10 below. As shown, there were high and significant correlations for NAB and TLP. OSS was highly correlated with NAB and TLP. These correlations were significant at both 5% and 1 % levels. Thirdly, the Durbin-Watson test was performed in order to test serial autocorrelation in the data. The test statistic was 2.946 which were high and therefore there was serial autocorrelation. Fourthly, outliers were checked using the standard deviations of residual statistics of predicted values. The standard deviation exceeded the benchmark of 3 and thus it was concluded that there were outliers in the sample. Given that most conditions for performing a Pearson regression analysis

were not fully met, a decision was made to transform the data and then perform a rank regression. The data was ranked using rank score and normal scores.

Table 4:10 Correlation matrix for independent variables

		LnNAB	LnTLP	OSS	ROA	ROE
LnNAB	Pearson Correlation					
	Sig. (2-tailed)					
LnTLP	Pearson Correlation	.987**				
	Sig. (2-tailed)	.000				
OSS	Pearson Correlation	.787**	.796**			
	Sig. (2-tailed)	.004	.003			
ROA	Pearson Correlation	.510	.533	.494		
	Sig. (2-tailed)	.109	.091	.122		
ROE	Pearson Correlation	-.240	-.235	-.422	.122	
	Sig. (2-tailed)	.477	.487	.196	.721	

** . Correlation is significant at both 0.05 and 0.01 levels (2-tailed).

A correlation analysis was also run for the dependent variables together with independent variables in order to show the individual relationships between the dependent and independent variables. These results are shown in table 4:11 below.

As shown, population density and FDI were significantly correlated with domestic credit offered by commercial banks. It is also noted that OSS and FDI were significantly correlated with deposit rate; NAB, TLP, OSS, and population density were significantly correlated with lending rates; NAB, TLP, OSS, ROA, POPDEN, and GNI were significantly correlated with stock market capitalization; and NAB and inflation were significantly correlated with stock return.

Table 4:11 Correlation between independent and dependent variables

		CREDIT	DEPRATE	LENDRATE	LISTED	CAP	STOCKRET
LnNAB	Pearson Correlation	.455	-.448	-.792**	-.350	.957**	.620*
	Sig. (2-tailed)	.160	.167	.004	.292	.000	.042
LnTLP	Pearson Correlation	.554	-.481	-.733*	-.274	.930**	.536
	Sig. (2-tailed)	.077	.134	.010	.415	.000	.089
OSS	Pearson Correlation	.569	-.613*	-.663*	-.462	.828**	.583
	Sig. (2-tailed)	.068	.045	.026	.152	.002	.060
ROA	Pearson Correlation	.288	-.166	-.299	-.218	.613*	.446
	Sig. (2-tailed)	.390	.625	.372	.519	.045	.169
ROE	Pearson Correlation	.085	.030	.252	.133	-.175	-.332
	Sig. (2-tailed)	.804	.930	.456	.696	.608	.319
POPDEN	Pearson Correlation	.645*	-.570	-.729*	-.306	.922**	.502
	Sig. (2-tailed)	.032	.067	.011	.360	.000	.116
LnFDI	Pearson Correlation	-.840**	.728*	.092	-.049	-.237	-.025
	Sig. (2-tailed)	.001	.011	.787	.885	.482	.941
LnGNI	Pearson Correlation	.523	-.372	-.578	-.124	.871**	.508
	Sig. (2-tailed)	.099	.259	.062	.716	.000	.111
INFLATION	Pearson Correlation	-.261	.148	-.363	-.297	.404	.625*
	Sig. (2-tailed)	.438	.665	.272	.375	.218	.040

4.3.1 Influence of Microfinance on Banking Sector Development

Table 4:12 and 4:13 below, show the results on the impact of microfinance on domestic credit advanced by commercial banks in Kenya using rank score and normal score regression models. From table 4:12, the ranked score regression of domestic credit explained 93.7%, measured by adjusted R^2 with an F ratio of 6.716 which was not significant at 5% level. The regression model accounted for 98.4% of the variance in domestic credit advanced by commercial banks. None of the independent variables was significant at 5% level meaning that domestic credit as a measure of banking sector development was not influenced by microfinance.

The tolerance values are a measure of the correlation between the predictor variables and can vary between 0 and 1. The closer to zero the tolerance value is for a variable, the stronger the relationship between this and the other predictor variables. One should worry about variables that have a very low tolerance. VIF is an alternative measure of collinearity (in fact it is the reciprocal of tolerance) in which a large value indicates a strong relationship between predictor variables.

Table 4:12 Full rank score regression model for domestic credit

	R	R ²	Adjusted R ²	SE of estimate	R ² change	F change	Sig. F
Coefficients	B	Std. Error	Beta	t-value	Sig.	Tolerance	VIF
Constants	1.931	2.059		.934	.522		
LnNAB	.008	1.373	.008	.005	.996	.009	115.865
LnTLP	4.036	3.420	4.036	1.180	.448	.001	718.862
ROSS	1.076	.576	1.076	1.867	.313	.049	20.393
ROA	-.675	.234	-.675	-2.886	.212	.297	3.365
ROE	.641	.293	.641	2.190	.273	.190	5.265
POPDEN	-4.44	1.870	-4.44	-2.377	.254	.005	241.891
LnFDI	.031	.330	.031	.093	.941	.150	6.674
LnGNI	.148	.496	.148	.299	.815	.066	15.132
INF	-.141	.205	-.141	-.688	.616	.388	2.577

From table 4:13, the normal score regression of domestic credit explained 94.7%, measured by adjusted R² with an F ratio of 20.659 which was not significant at 5% level. The regression model accounted for 99.5% of the variance in domestic credit advanced by commercial banks. None of the independent variables was significant at 5% level meaning that domestic credit as a measure of banking sector development was not influenced by microfinance.

Table 4:13 Normal score regression model for domestic credit

	R	R ²	Adjusted R ²	SE of estimate	R ² change	F change	Sig. F
Coefficients	B	Std. Error	Beta	t-value	Sig.	Tolerance	VIF
Constants	2.199E-5	.059		0.000	1.000		
LnNAB	.41	.582	.412	.708	.608	.016	63.28
LnTLP	3.78	1.93	3.78	1.95	.301	.001	700.28
ROSS	1.07	.294	1.07	3.65	.170	.062	16.12
ROA	-.60	.119	-.605	-5.06	.124	.376	2.633
ROE	.62	.144	.627	4.36	.143	.260	3.85
POPDEN	-4.64	1.27	-4.64	-3.65	.170	.003	302.23
LnFDI	-.07	.212	-.075	-.352	.784	.119	8.37
LnGNI	.16	.203	.164	.811	.566	.130	7.68
INF	-.20	.119	-.20	-1.75	.330	.380	2.63

From table 4:14 below, the ranked score regression of bank deposit rate explained 99.4%, measured by adjusted R² with an F ratio of 187.789 which was not significant at 5% level. The regression model accounted for 99.9% of the variance in deposit rate. Population density and inflation were negatively and significantly correlated with deposit rate while gross national income was positively and significantly correlated with deposit rate at 5%. None of the other independent variables was significant at 5% level meaning that deposit rate as a measure of banking sector development was only influenced by population density, inflation, and GNI. MFI specific variables did not significantly influence bank deposit rate.

Table 4:14 Full rank score regression model for bank deposit rate

	R	R ²	Adjusted R ²	SE of estimate		R ² change	F change	Sig. F
Coefficients	B		Std. Error	Beta	t-value	Sig.	Tolerance	VIF
Constants	7.347		.393		19.438	.033		
LnNAB	1.638		.261	1.641	6.271	.101	.009	115.865
LnTLP	3.987		.651	3.996	6.128	.103	.001	718.862
OSS	-.829		.110	-.831	-7.564	.084	.049	20.393
ROA	.154		.045	.154	3.461	.179	.297	3.365
ROE	.144		.056	.144	2.582	.235	.190	5.265
POPDEN	-6.54		.356	-6.56	-18.40	.035	.005	214.891
LnFDI	.702		.063	.704	11.207	.057	.150	6.674
LnGNI	1.235		.094	1.238	13.088	.049	.066	15.132
INF	-.758		.039	-.758	-19.42	.033	.388	2.577

From table 4:15 below, the normal score regression of bank deposit rate explained 98.9%, measured by adjusted R² with an F ratio of 98.863 which was not significant at 5% level. The regression model accounted for 99.9% of the variance in bank deposit rate. Of the independent variables, only population density and inflation were significant at 5% level meaning that deposit rate as a measure of banking

sector development was only influenced by population density and inflation rate. Both had a negative significant influence on bank deposit rate. None of the other independent variables and especially the MFI specific variables had a significant impact on bank deposit rate.

Table 4:15 Normal score regression model for bank deposit rate

	R	R ²	Adjusted R ²	SE of estimate	R ² change	F change	Sig. F
Coefficients	B	Std. Error	Beta	t-value	Sig.	Tolerance	VIF
Constants	.000	.027		.016	.990		
LnNAB	.802	.266	.804	3.015	.204	.016	63.285
LnTLP	6.026	.885	6.037	6.809	.093	.001	700.785
OSS	-.912	.134	-.914	-6.794	.093	.062	16.122
ROA	.172	.055	.173	3.156	.195	.376	2.663
ROE	.144	.066	.144	2.193	.272	.260	3.852
POPDEN	-7.50	.581	-7.52	-12.91	.049	.003	302.234
LnFDI	.816	.097	.817	8.433	.075	.119	8.370
LnGNI	1.049	.093	1.051	11.314	.056	.130	7.687
INF	-.717	.054	-.718	-13.20	.048	.380	2.633

Table 4:16 Full rank score regression model for bank lending rate

	R	R ²	Adjusted R ²	SE of estimate	R ² change	F change	Sig. F
Coefficients	B	Std. Error	Beta	t-value	Sig.	Tolerance	VIF
Constants	10.22	4.960		2.062	.287		
LnNAB	-2.041	3.293	-2.04	-.620	.647	.009	115.865
LnTLP	10.174	8.201	10.17	1.241	.432	.001	718.862
OSS	-.876	1.381	-.876	-.634	.640	.049	20.393
ROA	.300	.561	.300	.535	.687	.297	3.365
ROE	-.165	.702	-.165	-.235	.853	.190	5.265
POPDEN	-8.238	4.484	-8.23	-1.83	.317	.005	214.891
LnFDI	.986	.790	.986	1.248	.430	.150	6.674
LnGNI	.218	1.190	.218	.184	.884	.066	15.132
INF	-1.063	.492	-1.06	-2.15	.276	.388	2.577

From table 4:16 above, the rank score regression of bank lending rate explained 6.4%, measured by adjusted R^2 with an F ratio of 1.076 which was not significant at 5% level. The regression model accounted for 90.6% of the variance in bank lending rate. None of the independent variables was significant at 5% level. This therefore means that banking sector development as measured by the lending rate is not influenced by microfinance.

From table 4:17 below, the normal score regression of bank lending rate explained 37.8%, measured by adjusted R^2 with an F ratio of 0.695 which was not significant at 5% level. The regression model accounted for 86.2% of the variance in bank lending rate. None of the independent variables was significant at 5% level. This therefore means that banking sector development as measured by the lending rate is not influenced by microfinance.

Table 1 Normal score regression model for bank lending rate

	R	R ²	Adjusted R ²	SE of estimate	R ² change	F change	Sig. F
Coefficients	B	Std. Error	Beta	t-value	Sig.	Tolerance	VIF
Constants	.000	.297		.000		1.000	
LnNAB	-1.273	2.953	-1.273	-.431	.741	.016	63.285
LnTLP	10.070	9.822	10.070	1.025	.492	.001	700.28
OSS	-.668	1.490	-.668	-.448	.732	.062	16.122
ROA	.253	.606	.253	.418	.748	.376	2.663
ROE	-.015	.728	-.015	-.020	.987	.260	3.852
POPDEN	-9.270	6.453	-9.270	-1.43	.387	.003	302.23
LnFDI	.981	1.074	.981	.914	.529	.119	8.370
LnGNI	.537	1.029	.537	.522	.694	.130	7.687
INF	-1.063	.603	-1.062	-1.76	.329	.380	2.633

4.3.2 Influence of Microfinance on Stock Market Development

From table 4:18 below, the rank score regression of number of domestic listed firms explained 95%, measured by adjusted R^2 with an F ratio of 21.907 which was not significant at 5% level. The regression model accounted for 99.5% of the variance in number of domestic listed companies. None of the independent variables was significant at 5% level. This therefore means that banking sector development as measured by the number of domestic listed firms is not influenced by microfinance.

Table 4:2 Full rank score regression model for domestic listed firms

	R	R ²	Adjusted R ²	SE of estimate	R ² change	F change	Sig. F
Coefficients	B	Std. Error	Beta	t-value	Sig.	Tolerance	VIF
Constants	9.864	1.125		8.765	.072		
LnNAB	-2.131	.747	-2.18	-2.85	.215	.009	115.865
LnTLP	12.228	1.861	12.51	6.571	.096	.001	718.86
OSS	-1.386	.313	-1.41	-4.42	.142	.049	20.393
ROA	.143	.127	.146	1.122	.464	.297	3.365
ROE	-.203	.159	-.208	1.277	.423	.190	5.265
POPDEN	-9.764	1.017	-9.99	-9.59	.066	.005	214.891
LnFDI	1.098	.179	1.124	6.124	.103	.150	6.674
LnGNI	.546	.270	.559	2.022	.292	.066	15.132
INF	-1.175	.112	-1.20	-10.5	.060	.388	2.577

From table 4:19 below, the normal score regression of number of domestic listed firms explained 73.9%, measured by adjusted R^2 with an F ratio of 4.153 which was not significant at 5% level. The regression model accounted for 97.4% of the variance in number of domestic listed firms. None of the independent variables was significant at 5% level. This therefore means that banking sector development as measured by the number of domestic listed firms is not influenced by microfinance.

Table 4:3 Normal score regression model for domestic listed firms

	R	R ²	Adjusted R ²	SE of estimate	R ² change	F change	Sig. F
Coefficients	B	Std. Error	Beta	t-value	Sig.	Tolerance	VIF
Constants	-.004	.121		-.037	.977		
LnNAB	-1.779	1.205	-1.896	-1.47	.379	.016	63.285
LnTLP	13.104	4.007	13.969	3.270	.189	.001	700.28
OSS	-1.338	.608	-1.427	-2.20	.271	.062	16.122
ROA	.103	.247	.110	.418	.748	.376	2.663
ROE	-.155	.297	-.122	-.386	.765	.260	3.852
POPDEN	-11.01	2.632	-11.74	-4.18	.149	.003	302.23
LnFDI	1.224	.438	1.305	2.794	.219	.119	8.370
LnGNI	.637	.420	.679	1.517	.371	.130	7.687
INF	-1.165	.246	-1.240	-4.73	.133	.380	2.633

Table 4:20 Rank score regression model for stock market capitalization

	R	R ²	Adjusted R ²	SE of estimate	R ² change	F change	Sig. F
Coefficients	B	Std. Error	Beta	t-value	Sig.	Tolerance	VIF
Constants	-.809	.300		-2.691	.226		
LnNAB	-3.14	.199	-3.14	-15.76	.040	.009	115.865
LnTLP	5.928	.497	5.928	11.933	.053	.001	718.862
OSS	-1.07	.084	-1.07	-12.81	.050	.049	20.393
ROA	.436	.034	.436	12.818	.050	.297	3.365
ROE	-.386	.043	-.386	-9.080	.070	.190	5.265
POPDEN	-.439	.272	-.439	-1.617	.353	.005	214.891
LnFDI	.597	.048	.597	12.478	.051	.150	6.674
LnGNI	-.847	.072	-.847	-11.74	.054	.066	15.132
INF	.062	.030	.062	2.068	.287	.388	2.577

From table 4:20 above, the rank score regression of stock market capitalization explained 99.7%, measured by adjusted R² with an F ratio of 323.516 which was significant at 5% level. The regression model accounted for 100% of the variance in stock market capitalisation. The results show that number of active borrowers and

operating self-sufficiency had negative and significant impact on stock market capitalization at 5% level. Further, ROA had a positive and significant impact on stock market capitalization. This therefore means that stock market development as measured by the stock market capitalization is influenced by microfinance.

From table 4:21 below, the normal score regression of stock market capitalization explained 98.9%, measured by adjusted R^2 with an F ratio of 104.583 which was not significant at 5% level. The regression model accounted for 99.9% of the variance in stock market capitalization. The results show that none of the independent variables had a significant influence on stock market capitalization at 5% level. This therefore means that stock market development as measured by the stock market capitalization is not influenced by microfinance.

Table 4:21 Normal score regression model for stock market capitalization

	R	R ²	Adjusted R ²	SE of estimate	R ² change	F change	Sig. F
Coefficients	B	Std. Error	Beta	t-value	Sig.	Tolerance	VIF
Constants	-2.118E-5	.026		-.001	.999		
LnNAB	-2.416	.259	-2.41	-9.32	.068	.016	63.285
LnTLP	5.349	.862	5.349	6.204	.102	.001	700.285
OSS	-.768	.131	-.768	-5.87	.107	.062	16.122
ROA	.242	.053	.242	4.554	.138	.376	2.663
ROE	-.071	.064	-.071	-1.10	.469	.260	3.852
POPDEN	-1.144	.566	-1.14	-2.02	.293	.003	302.23
LnFDI	.721	.094	.721	7.648	.083	.119	8.370
LnGNI	-.498	.090	-.498	-5.50	.114	.130	7.687
INF	.201	.053	.200	3.788	.164	.380	2.633

From table 4:22 below, the rank score regression of stock market return explained 99.9%, measured by adjusted R^2 with an F ratio of 1124.944 which was significant at 5% level ($p = 0.023$). The regression model accounted for 100% of the variance in stock market return. The results show that NAB, OSS, ROE, and GNI had negative and significant impact on stock market return because their significance score was less than 0.05 while TLP, ROA, and inflation had positive and significant impact on stock market return. These correlations were significant at 5% level. This therefore means that stock market development as measured by the stock market return is influenced by microfinance.

Table 4:22 Full rank score regression model for stock market return

	R	R ²	Adjusted R ²	SE of estimate	R ² change	F change	Sig. F
Coefficients	B	Std. Error	Beta	t-value	Sig.	Tolerance	VIF
Constants	-1.98	.161		-1.226	.436		
LnNAB	-2.42	.107	-2.42	-22.69	.028	.009	115.865
LnTLP	3.850	.266	3.850	14.449	.044	.001	718.862
OSS	-1.07	.045	-1.07	-23.94	.027	.049	20.393
ROA	.536	.018	.536	29.375	.022	.297	3.365
ROE	-.513	.023	-.513	-22.49	.028	.190	5.265
POPDEN	.554	.146	.554	3.802	.164	.005	214.891
LnFDI	.300	.026	.300	11.681	.054	.150	6.674
LnGNI	-.801	.039	-.801	-20.70	.031	.066	15.132
INF	.610	.016	.608	38.129	.017	.388	2.577

From table 4:23 below, the normal score regression of stock market return explained 90.2%, measured by adjusted R^2 with an F ratio of 11.24 which was not significant at 5% level. The regression model accounted for 99% of the variance in stock market return. The results showed that none of the independent variables had

a significant influence on stock market return at 5% level. This therefore means that stock market development as measured by the stock market return is not influenced by microfinance.

Table 4:23 Normal score regression model for stock market return

	R	R ²	Adjusted R ²	SE of estimate	R ² change	F change	Sig. F
Coefficients	B	Std. Error	Beta	t-value	Sig.	Tolerance	VIF
Constants	-8.583E-5	.079		-.001	.999		
LnNAB	-1.851	.787	-1.85	-2.35	.256	.016	63.285
LnTLP	3.177	2.618	3.177	1.213	.439	.001	700.28
OSS	-.874	.397	-.874	-2.19	.272	.062	16.122
ROA	.333	.161	.333	2.064	.287	.376	2.663
ROE	-.219	.194	-.219	-1.12	.462	.260	3.852
POPDEN	.137	1.720	.137	.080	.949	.003	302.23
LnFDI	.394	.286	.394	1.378	.400	.119	8.370
LnGNI	-.444	.274	-.444	-1.61	.352	.130	7.687
INF	.813	.161	.812	5.055	.124	.380	2.633

4.4 Chapter Summary

A summary of the results on ranked and normal OLS regression are shown in table 4:24 below.

Table 4:24 Summary of ranked and normal OLS regression results

Table No.	Banking sector development						Stock market development					
	Domestic credit		Deposit rate		Lending rate		Listed firms		Capitalisation		Stock return	
	R	N	R	N	R	N	R	N	R	N	R	N
	5	6	7	8	9	10	1	12	13	14	1	16
NAB							1		X			5
TLP												X
OSS									X			X
ROA									X			X
ROE												X
POPDE			X	X								
N												
FDI												
GNI			X									X
INF			X	X								X

As shown using 'x' marks, deposit rate was significantly influenced by population density, GNI, and inflation when the ranked score model was used while it was significantly influenced by population density and inflation when normal score model was used. These were the only significant influences on banking sector development.

As regards the stock market development, the results showed that capitalisation was significantly influenced by number of active borrowers, operational sufficiency and return on assets using the ranked score model. Further, stock market return was significantly influenced by number active borrowers, total loan portfolio, operational sufficiency, return on assets, return on equity, GNI and inflation using the ranked score model. The positive effects are shown in bold while the negative effects are un-bolded.

It is also important to note that microfinance had a significant impact on stock market capitalization and stock market return (stock market development) yet no such direct effect was noted on the banking sector development.

The findings from this regression analyses which set out to determine the impacts of MFIs on financial sector development, therefore show that MFIs, as measured by their profitability and outreach metrics of number of active borrowers, total loan portfolio and operational sustainability, have a significant impact on stock market development and capitalization only. A synopsis of the steps followed to arrive at that result involved collection of secondary data on financial sector performance over an eleven year period from various different sources. The data, which is summarized in appendix 1, was then analyzed using multiple regression to arrive at the outcome described above.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary and discussion of findings in section 5.2, conclusions of the study in section 5.3, recommendations for policy and practice in section 5.4, limitations of the study in section 5.5 and suggestions for further research in section 5.6.

5.2 Summary and Discussion of Findings

The study sought to assess the impact of microfinance on financial sector development in Kenya. Using data from World Bank and MIX market websites, data was analysed and results presented in chapter four using descriptive and multivariate analyses.

The results showed that bank deposit rate was negatively and significantly influenced by population density and inflation while it was positively influenced by GNI when the ranked score model was used. When the normal score model as used, it was noted that bank deposit rate was negatively and significantly influenced by population density and inflation.

The study found that stock market capitalization was negatively and significantly influenced by the number of active borrowers and operational sufficiency while it was positively and significantly influenced by return on assets when the ranked score model was used.

The study also found that stock market return was negatively and significantly influenced by the number active borrowers, operational sufficiency, return on equity, and GNI. On the other hand, stock market return was positively and significantly influenced by total loan portfolio, return on assets, and inflation. These results were true for the ranked score model.

5.3 Conclusions

The study concludes that microfinance has had a significant influence on stock market development and not on banking sector development. This effect is more pronounced on stock market capitalization and stock market return. Thus microfinance has a partial influence on financial sector development in Kenya.

On the banking sector development, only population density, gross national income and inflation influence the deposit rates. The domestic credit advanced by banks and the lending rates are not influenced by the microfinance. The lack of influence of microfinance on domestic credit can be attributed to the fact that the domestic credit offered by commercial banks has continued to rise over the years despite the existence of microfinance institutions. The lack of influence on lending rate is attributed to the growth in domestic credit which has kept the lending rates almost constant.

There was no effect of microfinance on the number of listed domestic firms. This can be attributed to the fact that the number of domestic firms listed on the NSE has remained almost constant and thereby not much variance to enable a significant impact from microfinance growth.

5.4 Recommendations

The study makes a number of recommendations based on the findings of the study. First, the study recommends that there is need for policies to be put up that will enhance the impact of microfinance on the financial sector development. As it stands, it seems that this role has not been well played by the microfinance in Kenya. Chief among the reasons for this is the low profitability of these institutions as most operate negative ROA, OSS, and ROEs. Policies that can improve sustainability of these institutions would be beneficial.

There is also need for improvement in the outreach of microfinance institutions increasing the number of loans extended to the clients. But given the high interest rates on such loans, it has been hard for the loans to penetrate a large population. If the rates of borrowing such loans would be reduced, say to about 12% p.a, the loans would increase and thereby the effect would be more pronounced on the financial sector development. Currently, the microfinance loans attract an interest of about 18%.

5.5 Limitations of the study

There are a number of limitations that this study experienced in the course of achieving the ultimate goal. First, the study had intended to use number of ATMs per 100,000 people for banking sector development as an independent variable but it was impossible given that such data for Kenya was only available for year 2009 from the World Bank website. The study therefore opted for other measures of banking sector development.

Secondly, the effect of microfinance was analysed for the period 2000-2010 using six dependent variables for financial sector development as opposed to a single measure of the same. This way, the results of the impact relate to specific financial sector development and not FSD as a whole.

Most of the models used in the study were not fit as the F ratios failed significance tests. But the few models that were significant explained majority of the variance. The inclusion of more control variables would improve the significance of some of the models.

5.6 Suggestions for Further Research

There is need for more research on the effect of microfinance on financial sector development. This study should be performed with the inclusion of more independent variables and a different set of dependent variables in order to test the same.

The use of a longer time series data would be beneficial in improving the quality of data especially the normality of distribution in order to enable the use of Pearson's regression analysis without having to transform the data before analysis.

A study should also be done by separating the period of analysis into two: a period before microfinance and a period of microfinance in order to determine whether the financial sector (bank and capital market) has performed differently in terms of the two periods.

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APPENDICES

Appendix 1: Financial Sector Development Data from World Bank

Year	MFIs	NAB	TLP	OSS	ROA	ROE	DOM CREDIT	DEP RATE	LENDRATE	LISTED	MKTCAP	STOCK TURN	POPDEN	FDI	GNI	INFL
2000	5	55,604	18,286,167	101.28	(1.42)	2.08	39.20	8.10	22.30	57.00	1,283,090,000.00	3.50	55.00	110,904,550.00	402.00	10.00
2001	7	80,164	29,480,704	85.25	(2.02)	(2.07)	37.50	6.60	19.70	57.00	1,049,800,000.00	3.40	56.00	5,302,623.00	407.00	5.70
2002	7	145,234	48,548,596	98.29	(7.64)	11.74	40.30	5.50	18.50	57.00	1,423,070,000.00	2.90	58.00	20,202,582.00	398.00	2.00
2003	12	205,902	65,588,736	113.50	0.03	0.10	39.80	4.10	16.60	51.00	4,178,210,000.00	7.50	59.00	79,662,931.00	400.00	9.80
2004	17	251,305	101,181,052	112.38	(7.67)	(103.90)	40.20	2.40	12.50	47.00	3,890,970,000.00	8.50	61.00	41,647,828.00	408.00	11.60
2005	18	394,773	163,020,028	111.93	4.58	19.17	38.40	5.10	12.90	47.00	6,383,990,000.00	9.80	63.00	11,524,456.00	418.00	10.30
2006	18	665,136	236,899,919	107.99	0.02	8.78	38.00	5.10	13.60	51.00	11,378,040,000.00	14.60	64.00	26,717,028.00	432.00	14.50
2007	18	920,780	564,695,142	112.79	1.73	4.56	37.30	5.20	13.30	51.00	13,386,590,000.00	10.60	66.00	693,011,390.00	451.00	9.80
2008	18	1,170,374	781,084,765	127.21	0.93	(277.08)	40.50	5.30	14.00	53.00	10,916,560,841.00	11.80	65.00	51,819,059.00	445.00	26.20
2009	17	1,471,169	1,114,878,160	114.01	(0.25)	9.91	44.80	6.00	14.80	55.00	10,755,988,305.00	4.60	69.00	94,534,839.00	448.00	9.20
2010	11	1,145,588	1,201,640,016	127.62	4.54	21.55	52.30		14.40	53.00	14,460,867,410.00	8.60	71.00		460.00	4.00