RELATIONSHIP BETWEEN FINANCIAL RISK MANAGEMENT SYSTEMS AND FINANCIAL PERFORMANCE OF MICRO FINANCE INSTITUTIONS IN KENYA

BY

WINFRED NYAMBURA KINUTHIA

REG. NO. D61/62699/10

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE MASTER OF BUSINESS ADMINISTRATION DEGREE

UNIVERSITY OF NAIROBI

OCTOBER 2013

DECLARATION

I declare that this project is my original work and has not been presented for an award of a degree in any other University.

Signature: _____ Date _____

WINFRED NYAMBURA KINUTHIA

REG. NO. D61/62699/10

This research project report has been submitted for examination with my approval as the University Supervisor.

Signature:…… Date:…….

SUPERVISOR: MR. MIRIE MWANGI

Lecturer, Department of Finance and Accounting

ACKNOWLEDGMENTS

I give thanks to God because without him none of this would have been possible. To my supervisor Mr. Mirie for his exemplary guidance and support without whose help this project would not have been a success. To my family and friends who are a constant source of motivation and for their never ending support and encouragement during this project. My deep appreciation to parents for setting my feet in the path to success and instilling in me the values that have seen me stand. My gratitude goes to the staff of University of Nairobi who touched my life in one way or another. In particular more thanks to the teaching staff in the department of Accounting & finance who taught me during my studies at the university.

DEDICATION

I dedicate this work to my three children Louis, Christine & Stephanie whose patience throughout my study was immeasurable

ABSTRACT

Micro Finance Institutions are defined as institutions whose major business is the provision of microfinance services. Proactive risk management is essential to the long-term sustainability of microfinance institutions (MFIs), but many microfinance stakeholders are unaware of the various components of a comprehensive risk management regimen. Credit risks, especially weakness in credit risk management have been identified one of the main reasons behind the failure of majority MFIs. If the microfinance institution does not manage its risks well, it will likely fail to meet its social and financial objectives. This study sought to establish the relationship between financial risk management systems and financial performance of micro finance institutions in Kenya. The research employed a survey research method as well as causal research design to show the relationship between financial performance and financial risk management systems. The study targeted 47 registered MFIs. The study used both primary and secondary data sources. A Likert scale and the use of Statistical Package for Social Sciences (SPSS version 17.0) were employed to aid in the coding, entry and analysis of the data obtained through the questionnaires.

The regression analysis was also performed to determine relationship between dependent and independent variables. From the findings of the study MFIs should institutionalize a risk management process. Management of microfinance institutions has often treated internal control and internal audits as peripheral to operations, focusing only on their ability to uncover past mistakes and wrongdoing. The risk management approach suggests a more integrated approach to internal control, placing a greater emphasis on its ability to proactively prevent loss and encourage efficiency. To be effective, MFIs must institutionalize the concepts of risk management into their organizational culture and environment. The board and management should play an active role in overcoming negative perceptions of internal control and internal audit by emphasizing to employees the positive results that can be achieved from their effective application. By developing control mechanisms that act as incentives rather than disincentives, management can create a positive control environment in which all employees have a stake in improving the internal control system. The use of performance-based incentives, profit centers, and a culture that focuses on solving problems rather than on placing blame are all measures that can reinforce a positive control environment and help to overcome past negative attitudes toward internal control.

TABLE OF CONTENT

LIST TABLES

ABBREVIATION

AMFI……..	Association of Microfinance institutions
CAMCCUL…….	Cameroon Cooperative Credit Union League
CAPM……..	Capital Asset Pricing Model
CBK…….	Central Bank of Kenya
CBN……	Central Bank of Nigeria
CIDA…….	Canadian International Development Agency
COSO……..	Committee of Sponsoring Organizations of the Tread way Commission
ERM……	Enterprise Risk Management
GDP……	Gross Domestic Product
FP……	Financial Performance
FRMS…….	Financial Risk Management Systems
FSS…….	Financial Self -Sufficiency
ICEG……...	African Centre for Economic Growth
ILO…….	International Labour Organization
LDCs……..	Lesser Developed Countries
MFI…….	Microfinance Institution
MSEs……...	Micro and Small Enterprises
MSMEs……	Micro, Small and Medium Enterprises
NGO…….	Non-Governmental Organization
ROA……..	Return on Assets
ROE……..	Return on Equity
SMEs…….	Small and Medium Enterprises
SPSS……..	Statistical Package for Social Sciences
SSA……	Sub-Saharan Africa

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

In today's business environment, managing risk is more challenging than ever with bankruptcy rate raising, the risk of incurring substantial losses are greater than ever. For any business entity to survive, it requires to be financially sound. While economic pressures and business practices are causing organizations to pay slower, there is a greater focus on managing credit risk. An important function of credit management is credit control. This is primarily a process of deciding how much credit should be given to customers or borrowers and ensuring compliance with the credit terms that are set. Poor credit control heightens the risks to liquidity and profitability (Graham, 2000).The core of risk management is making educated decisions about how much risk to tolerate, how to mitigate those that cannot be tolerated, and how to manage the real risks that are part of the business. For MFIs that evaluate their performance on both financial and social objectives, those decisions can be more challenging than for an institution driven solely by profit. A risk management framework allows senior managers and directors to make conscious decisions about risk, to identify the most cost-effective approaches to manage those risks, and to cultivate an internal culture that rewards good risk management without discouraging risk-taking.

As MFIs continue to grow and expand rapidly, serving more customers and attracting more mainstream investment capital and funds, they need to strengthen their internal capacity to identify and anticipate potential risks to avoid unexpected losses and surprises (Castello,1998). The business of a financial institution is to manage financial

risks, which include credit risks, liquidity risks, interest rate risks, foreign exchange risks and investment portfolio risks. Most microfinance institutions have put most of their resources into developing a methodology that reduces individual credit risks and maintaining quality portfolios. Microfinance institutions that use savings deposits as a source of loan funds must have sufficient cash to fund loans and withdrawals from savings (Bald, 2000). Those MFIs that rely on depositors and other borrowed sources of funds are also vulnerable to changes in interest rates. Financial risk management requires a sophisticated treasury function, usually centralized at the head office, which manages liquidity risk, interest rate risk, and investment portfolio risk. MFIs continue to face more choices in funding sources and more product differentiation among loan assets, it becomes increasingly important to manage these risks well (Bald, 2000).

Financial risk therefore is the most frequently addressed risk for MFIs, is the risk to earnings or capital due to borrowers' late and non-payment of loan obligations. Financial risk encompasses both the loss of income resulting from the MFI's inability to collect anticipated interest earnings as well as the loss of principle resulting from loan defaults. Financial risk includes both transaction risk and portfolio risk (Steinwand, 2000).

1.1.1 Financial Risk Management Systems

Common risk avoidance practices using FRMs include at least three types of actions. The standardization of process, contracts and procedures to prevent inefficient or incorrect financial decisions is the first of these. The construction of portfolios that benefit from diversification across borrowers and that reduce the effects of any one loss experience is another. The implementation of incentive-compatible contracts with

the institution's management to require that employees be held accountable is the third. In each case the goal is to rid the firm of risks that are not essential to the financial service provided, or to absorb only an optimal quantity of a particular kind of risk (Jorion, 1997). According to Fallon (1996), firms must apply a consistent evaluation and rating scheme to all its investment opportunities in order for credit decisions to be made in a consistent manner and for the resultant aggregate reporting of financial risk exposure to be meaningful.

To facilitate this, a substantial degree of standardization of process and documentation is required. This has leads to standardized ratings across borrowers and a credit portfolio report that presents meaningful information on the overall quality of the credit portfolio. In a single rating system, a single value is given to each loan, which relates to the borrower's underlying credit quality. At some institutions, a dual system is in place where both the borrower and the credit facility are rated. In the latter, attention centers on collateral and covenants, while in the former, the general credit worthiness of the borrower is measured. Some financial institutions prefer such a dual system, while others argue that it obscures the issue of recovery to separate the facility from the borrower in such a manner. In any case, the reader will note that in the reported system all loans are rated using a single numerical scale ranging between 1 and 10.8 for each numerical category, a qualitative definition of the borrower and the loan's quality is offered and an analytic representation of the underlying financials of the borrower is presented. Parrenas (2005), hold that such an approach, whether it is a single or a dual rating system allows the credit committee some comfort in its knowledge of loan asset quality at any moment of time.

It requires only that new loan officers be introduced to the system of loan ratings, through training and apprenticeship to achieve a standardization of ratings throughout the bank. Given these standards, the bank can report the quality of its loan portfolio at any time, along the lines of the report presented. According to Luck (1998), total receivables, including loans, leases and commitments and derivatives, are reported in a single format. Assuming the adherence to standards, the entirety of the firm's credit quality is reported to senior management monthly via this reporting mechanism. Changes in this report from one period to another occur for two reasons, loans have entered or exited the system, or the rating of individual loans has changed over the intervening time interval. The first reason is associated with standard loan turnover. Loans are repaid and new loans are made and the second cause for a change in the credit quality report is more substantive.

1.1.2 Financial Performance of Micro Finance Institutions

Today, microfinance institutions are seeking financial profitability and growth. Many MFIs were restructured in order to achieve financial sustainability and finance their growth. Profitability is defined as the capacity of a program to stay financially viable even if subsidies and financial aids are cut off (Woodcock,1999). It embraces "generating sufficient profit to cover expenses while eliminating all subsidies, even those less-obvious subsidies, such as loans made in hard currency with repayment in local currency (Tucker and Miles, 2004). Tucker and Miles (2004), studied three data series for the period between March 1999 and March 2001 and found that self-sufficient MFIs are profitable and perform better on return on equity (ROE) and return on assets (ROA), than developing-world commercial banks and MFIs that have not attained self-sufficiency. However, aggregate data of all MFIs in the sample show that MFIs are unprofitable and perform bad compared to their geographic commercial

peers. In order to optimize their performance, MFIs are seeking to become more commercially oriented and stress more on improving their profitability; therefore self-sustainable MFIs are not likely to be servicing the smallest and costliest loans to the poor.

Yet, the authors emphasize on the fact that most of MFIs will continue to require subsidies, and thus not to be self-sustainable, because their mission is not only to provide financial services and earn interest, they provide also non-financial services without requiring any gains in order to help their clients to better manage their living and their business. Tucker and Miles (2004) recalled the use of the Accion CAMEL rating system (a modification of the CAMEL's system used by U.S. commercial lenders) by the microfinance industry to report financial measures, such as capital adequacy, asset quality, management, earnings, liquidity management and sensitivity to market risk. The adoption of the Accion CAMEL rating model made the comparisons between MFIs possible based on standard accounting practices.

1.1.3 Financial Risk Management Systems and Financial Performance

The survival and success of an organization depends critically on the efficiency of managing financial risks (Khan and Ahmed, 2001). Risk management system is a repetitive process that constitutes steps that when taken will facilitate improved decision-making and performance. The system should involve: identifying, analyzing, evaluating, treating, monitoring and communicating risks. This process enables organizations to maximize the gains and minimize the losses (COSO, 2004). COSO's 2004 ERM framework comprises of eight interrelated components, that is: internal

environment, objective setting, event identification, risk assessment, risk response, control activities, information and communication and monitoring. In this framework, there is a direct relationship between the above eight ERM components and strategic, operations, reporting, and compliance objectives of a firm.

More importantly, good risk management system is highly relevant in providing better returns to the shareholders (Al-Tamimi and Al-Mazrooei, 2007). Drzik (2005), shows that bank investment in risk management systems during 1990s helped to reduce earnings and loss volatility during the 2001 recession. In the same vein, the study by Pagach and Warr (2007), examines factors that influence the firm level of risk management and finds that the more leveraged the firms are the more volatile are their earnings. In addition, prudent risk management by financial institutions is the hallmark to avoid financial distress that could lead to a full blown financial crisis. Kabiru (2010), established that risk management and the related practices are significantly important to the operations and financial performance of banks. He further established that some risk management practices do have significant effect on financial performance more than others i.e. the existence of a risk management policy and the integration of risk management in setting of organizational objectives were key risk management practices that had a direct effect on financial performance.

1.1.4 Micro-Finance Institutions in Kenya

Microfinance organizations came to prominence in Kenya in the 1980s, although early experiments date back 30 years in Bangladesh, Brazil and a few other countries. Most MFIs started as NGOs whose funding is from foreign donors and agencies (Wainana, 2002). The growth of Kenya's MFI industry has witnessed at least 100

non-governmental organizations (NGOs) offering services to clients. However, only 15 organizations can be classified as significant players. It has however been recognized widely in Kenya that promotion of the micro and small ~~FRMS~~ enterprise sector is a viable and dynamic strategy for achieving national goals, including employment creation, poverty alleviation and balanced development between sectors and sub sectors. All these together are essential for the achievement of the government vision of industrialization by the year 2020 (Mullei and Bokea, 1999).

The assets of microfinance institutions remain substantially less than those of formal providers of financial services, most notably banks, and thus they do not yet pose a risk to the stability of the overall financial system in most countries. However, an increasing share of microfinance institutions take deposits from the public, and many of the depositors are relatively poor as they target low-income communities, and most make loans without requiring collateral or are far more flexible than most mainstream commercial banks about the kinds of collateral required to secure loans (Wainana, 2002).

1.2 Research Problem

Micro Finance Institutions are defined as institutions whose major business is the provision of microfinance services. Proactive financial risk management is essential to the long-term sustainability of microfinance institutions (MFIs), but many microfinance stakeholders are unaware of the various components of a comprehensive risk management regimen. Credit risks, especially weakness in financial risk management systems have been identified one of the main reasons behind the failure of majority MFIs. If the microfinance institution does not manage its risks well, it will

likely fail to meet its social and financial objectives. Micro financial institutions must have a mechanism to ensure that they not only evaluate default risk that is unknown to them ex ante in order to avoid adverse selection, but also that can evolve ex post in order to avoid moral hazards. Much of the previous research into the credit regulation mechanism has concentrated on developed countries. The evidence is consistent with the money view (King, 1986). While support for the money view is confirmed in later studies by Ramey (1993), Romer and Romer (1990) and Thornton (1994), other research shows the credit channels to be important in explaining the variability in economic activity (Gertler and Gilchrist, 1994).

In other studies credit policy is found to have a particular impact on the lending behavior of relatively small financial institutions with less liquid balance sheets (Kashyap and Stein, 1993; Lougani and Rush, 1995; Oliner and Rudebusch, 1996).

In Kenya, the micro financial sector faced major crises, attributed to poor financial risk management systems and the consequent increase in loan non-performance in the mid-1980s, (Waweru and Kalani, 2009). According to Waweru and Kalani, other factors attributed to the micro financial sector crisis include: undercapitalization, over investment in speculative property market, which saw a decline in prices, insider lending to directors, loans to non-viable projects under the influence of officials, difficulties in recovering financial performance through the judiciary, and conflict of interest in those cases where shareholders participate in day-to-day management of their micro financial institutions. Studies done in Kenya are incomprehensive as they generalize the causes of financial performance with few specifying how FRMS contribute to the same or how loan defaults can be minimized through financial risk analysis (Kabiru, 2002). Kabiru (2002) for instance seek to establish the relationship

between financial risk assessment practice and the financial performance of Kenyan micro financial institutions and found that there exists a strong relationship between net profit level and credit portfolio diversification as vindicated by higher co-efficient of correlation values. Recognizing this importance, this paper therefore seeks to answer the question what is the relationship between FRMS and financial performance of micro financial institutions in Kenya?

1.3 Research Objective

The study will seek to establish the relationship between financial risk management systems and financial performance of micro financial institutions in Kenya.

1.4 Value of the Study

Study provides deeper insight into how financial risk management systems contributed to the financial performance of MFIs, thus, allow for improvement in MFIs strategies to enhance lending and therefore this study will be beneficial to the micro financial institutions managers as its focus is on financial risk management which is the core source of business for many MFIs.The research information would also provide vital data to assist and benefit researchers, policy makers, and planners and programme implementers to monitor and evaluate existing facts on how financial risk management systems contributed to the financial performance of MFIs.

This would catalyze policy thus, influencing decision-making processes through present varied practices which can be shared by all financial institutions in the industry and the regulatory board in general. Future researchers and students may use

the study as a source of empirical information on the impact of financial risk management systems as well as a source of areas for further research on areas not covered by the study. Overall, the study will contribute to the academic pool of knowledge.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter contains the relevant literature. It is structured into three sections: theoretical review, literature and empirical review.

2.2 Theoretical Framework

2.2.1 Portfolio Theory

Portfolio theory of investment tries to maximize portfolio expected return for a given amount of portfolio risk, or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of various assets. Although Portfolio Theory is widely used in practice in the financial industry and several of its creators won a Nobel Prize for the theory, in recent years the basic Portfolio Theory have been widely challenged by fields such as behavioral economics (Markowitz,1952). Portfolio Theory is a mathematical formulation of the concept of diversification in investing, with the aim of selecting a collection of investment assets that has collectively lower risk than any individual asset. That this is possible can be seen intuitively because different types of assets often change in value in opposite ways. For example, when prices in the stock market fall, prices in the bond market often increase, and vice versa. A collection of both types of assets can therefore have lower overall risk than either individually. But diversification lowers risk even if assets' returns are not negatively correlated indeed, even if they are positively correlated (Markowitz,1952).

More technically, portfolio theory models assets return as a normally distributed (or more generally as an elliptically distributed random variable), define risk as the standard deviation of return, and model a portfolio as a weighted combination of assets so that the return of a portfolio is the weighted combination of the assets' returns. By combining different assets whose returns are not perfectly positively correlated, portfolio theory seeks to reduce the total variance of the portfolio return. Portfolio theory also assumes that investors are rational and markets are efficient (Sharpe, 1964). Portfolio Theory will be developed in the 1950s through the early 1970s and will be considered an important advance in the mathematical modeling of finance. Since then, many theoretical and practical criticisms have been leveled against it. These include the fact that financial returns do not follow a Gaussian distribution or indeed any symmetric distribution, and those correlations between asset classes.(Micheal & Sproul 1998).

2.2.2 Capital Asset Pricing Theory

William Sharpe (1964), published the capital asset pricing theory (CAPM). Parallel work will be also performed by Treynor (1961) and Lintner (1965). CAPM extended Harry Markowitz's portfolio theory to introduce the notions of systematic and specific risk. For his work on CAPM, Sharpe shared the 1990 Nobel Prize in Economics with Harry Markowitz and Merton Miller. Tobin’s (1958), super-efficient portfolio used the market portfolio. According to him, all investors will hold the market portfolio, leveraging or de-leveraging it with positions in the risk-free asset in order to achieve a desired level of risk. CAPM decomposes a portfolio's risk into systematic and specific risk. Systematic risk is the risk of holding the market portfolio. As the market moves, each individual asset is more or less affected. To the extent that any asset participates

in such general market moves, that asset entails systematic risk. Specific risk is the risk which is unique to an individual asset. It represents the component of an asset's return which is uncorrelated with general market moves (Lintner, 1965).

No matter how much we diversify our investments, it's impossible to get rid of all the risk. As investors, we deserve a rate of return that compensates us for taking on risk. The capital asset pricing model (CAPM) helps us to calculate investment risk and what return on investment we should expect. Here we look at the formula behind the model, the evidence for and against the accuracy of CAPM, and what CAPM means to the average investor (Sharpe, 1964). When the CAPM will be first introduced, the investment community viewed the new model with suspicion, since it seemed to indicate that professional investment management will be largely a will sequence of time. It will be nearly a decade before investment professionals began to view the CAPM as an important tool in helping investors understands risk. The key element of the model is that it separates the risk affecting an asset's return into two categories. The first type is called unsystematic, or company-specific, risk. The long-term average returns for this kind of risk should be zero. The second kind of risk, called systematic risk, is due to general economic uncertainty. The CAPM states that the return on assets should, on average, equal the yield on a risk-free bond held over that time plus a premium proportional to the amount of systematic risk the stock possesses (Markowitz, 1952).

The treatment of risk in the CAPM refines the notions of systematic and unsystematic risk developed by Harry M. Markowitz (1950s). Unsystematic risk is the risk to an asset's value caused by factors that are specific to an organization, such as changes in senior management or product lines. For example, specific senior employees may make good or bad decisions or the same type of manufacturing equipment utilized may have different reliabilities at two different sites. In general, unsystematic risk is present due to the fact that every company is endowed with a unique collection of assets, ideas and personnel whose aggregate productivity may vary. A fundamental principle of modern portfolio theory is that unsystematic risk can be mitigated through diversification. That is, by holding many different assets, random fluctuations in the value of one will be offset by opposite fluctuations in another. For example, if one fast food company makes a bad policy decision, its lost customers will go to a different fast food establishment. The investor in both companies will find that the losses in the former investment are balanced by gains in the latter (Markowitz, 1952).

Systematic risk is risk that cannot be removed by diversification. This risk represents the variation in an asset's value caused by unpredictable economic movements. This type of risk represents the necessary risk that owners of a firm must accept when launching an enterprise. Regardless of product quality or executive ability, a firm's profitability will be influenced by economic trends. In the capital asset pricing model, the risk associated with an asset is measured in relationship to the risk of the market as a whole (Sharpe, 1964). Kabiru (2002), indicated that the principles of portfolio analysis play a great role in the management of credit risk. The effect of financial risk management practices adopted by micro financial institutions has led to diversifying

their exposure limits across the borrowers and among various types of debt facilities. Capital asset pricing model (CAPM) developed by William Sharp is well applicable in investment decisions. It describes the identification of an investment's return and diversification of risk on the investments at hand. Micro financial institutions can lend money with rate of interest or buy bond. In this regards, management of the micro financial institutions including SACCOs needs to seek ways of managing credit risks they are exposed to minimize on the credit loss and maximize on financial returns (Kabiru, 2002).

2.2.3 Arbitrage Pricing Theory

The Arbitrage Pricing Theory (APT) was developed primarily by Ross (1976). It is a one-period model in which every investor believes that the stochastic properties of returns of capital assets are consistent with a factor structure. The Arbitrage Pricing Theory (APT) describes the price where a mispriced asset is expected to be. It is often viewed as an alternative to the capital asset pricing model (CAPM), since the APT has more flexible assumption requirements. Whereas the CAPM formula requires the market's expected return, APT uses the risky asset's expected return and the risk premium of a number of macro-economic factors. Arbitrageurs use the APT model to profit by taking advantage of mispriced securities. A mispriced security will have a price that differs from the theoretical price predicted by the model. By going short an overpriced security, while concurrently going long the portfolio the APT calculations will be based on, the arbitrageur is in a position to make a theoretically risk-free profit (Ross,1976). The basis of arbitrage pricing theory is the idea that the price of a security is driven by a number of factors. These can be divided into two groups: macro factors, and company specific factors.

The APT is a substitute for the Capital Asset Pricing Model (CAPM) in that both assert a linear relation between assets' expected returns and their covariance with other random variables. (Ross, 1976). The difference between CAPM and arbitrage pricing theory is that CAPM has a single non-company factor and a single beta, whereas arbitrage pricing theory separates out non-company factors into as many as proves necessary. Each of these requires a separate beta. The beta of each factor is the sensitivity of the price of the security to that factor. Arbitrage pricing theory does not rely on measuring the performance of the market. Instead, APT directly relates the price of the security to the fundamental factors driving it. The problem with this is that the theory in itself provides no indication of what these factors are, so they need to be empirically determined. Obvious factors include economic growth and interest rates. For companies in some sectors other factors are obviously relevant as well - such as consumer spending for retailers. The potentially large number of factors means more betas to be calculated. There is also no guarantee that all the relevant factors will be identified.

2.3 Empirical Review

Hudon (2010) analyzes the relationship between financial performance of MFIs and their management mechanisms. 83 MFIs of three types (non-profit institutions and NGOs, non-banking financial institutions, for-profit institutions and cooperatives), from Latin America, Africa, Central Asia and NIS, North Africa and the Middle East, and Asia, constitute the dataset provided by Planet Rating. All these MFIs are evaluated based on three financial indicators (ROA; AROA; Financial self-sufficiency FSS) and four management dimensions (Decision making: board governance

competencies; Accounting and control: planning budgeting and reporting competences, competencies; Top management: competencies of the top managers; Human resources: competencies of HR management). The results of Hudon (2010)'s analysis show that management ratings influence drastically the MFI financial performances. However, except for the cooperatives where the management variable (specifically HR human resources management) has a negative impact on the ROA, no organizational structure exhibits better results for the three financial indicators.

The author underscores that regulated MFIs have significantly better management ratings than non-regulated ones. It is also the case for larger MFIs, in terms of loan portfolio, total assets or borrowers. Conversely, younger MFIs may be more financially profitable, as suggested by Stephens (2005), but not particularly better managed. According to this study, the top management is a key indicator of financial success among the four management dimensions, and seems to have also a positive influence on the amount of received subsidies. Cull et al. (2006), studied the possibility for MFIs to earn profits while serving the poor. They used a data set of 124 MFIs (village banks, individual-based lenders, and group-based lenders) from 49 developing countries for the period, between 1999 and 2002, to search patterns of the relationship between financial performance and outreach of MFIs. Cull et al. (2006), used three dependent variables: FSS, unadjusted measure of OSS and ROA. The evidence demonstrates that raising interest rates to very high levels does not ensure greater profitability, nor does cost minimization.

This evidence is coherent with Stiglitz and Weiss (1981)'s assumption, which says that raising interest rates will undermine portfolio quality due to adverse selection and

moral hazard. The researchers found that individual-based lenders that charge higher interest rates are more profitable than others, but only up to a point. Beyond threshold interest rates, profitability tends to be lower. In contrast, for solidarity group-lenders, financial performance tends not to improve as yields increase. Consistent with the economics of information, they also found that individual-based lenders with higher labor costs (as a fraction of total assets) are in fact more profitable. For solidarity groups, who exploit local information to select and monitor customers, they found no significant relationship between labor costs and profitability. Moreover, Cull et al. (2006), found that institutions that make smaller loans are not necessarily less profitable. Larger loan sizes are associated with lower average costs for both individual-based lenders and solidarity group lenders.

Tchakoute-Tchuigoua (2010), studied the relationship between the performance of MFI and their legal status. For that, he compared the performance of 202 MFIs between 2001 and 2006. Three forms of ownership were chosen: cooperatives, private microfinance cooperatives and non-profit making organizations (NGOs). He analyzed five types of performance: financial performance, social performance, and organizational efficiency, quality of portfolio and size and solvency. To assess financial performance of microfinance institutions, the author chose to measure the following ratios: ROA, OSS and profit margin (PM). Regarding sustainability, Tchakoute-Tchuigoua (2010) found no significant difference between NGOs and cooperatives, and that private microfinance corporations have better financial performance than NGOs and better portfolio quality than cooperatives and NGOs.

Locally, Chege (2010), evaluate the relationship between credit risk management practices and financial performance among microfinance institutions in Kenya. The authors build microfinance indices: one microfinance index per country and one global microfinance index. These indices differ from the LIFI index developed by JP Morgan that includes microfinance institutions and other financial institutions serving the same public. The authors choose to analyze only listed microfinance institutions, thus the results of their study should be analyzed with precaution. Chege found that investing in microfinance is very profitable, since as at December 31, 2010, the majority of listed microfinance institutions have high returns (profitability), except a few MFIs. Volatilities of MFIs in the Emerging markets are very excessive, ranging from 39.41% to 106.8%, while the average volatility on these markets is of 28%. The authors found that starting 2001, the correlation between financial markets and listed MFIs is getting stronger. This suggests that MFIs, especially those listed on a stock market, are becoming more like commercial banks.

Nevertheless, according to a study by Opundo (2010), microfinance institutions have a discount of between 13 and 23% compared to traditional commercial banks according to the multiple capitalization retained. In 2010, price earnings ratios were estimated 16,2 for commercial banks while investors 12.4 times earnings for MFIs. Moreover, although the return on equity displayed by them is higher than traditional banks (22% vs 19%), the ratio of market value to book value was 2.6 times for MFIs against 3 times for traditional banks. In terms of risk analysis based on the CAPM leads to a higher sensitivity of MFIs. In contrast, exposure to currency risk is similar for both types of assets. Chege and Wambua (2010) conclude that a reduction of the

effect of MFI diversifier. Simulations generate different portfolios consisting of 10 to 30% of MFI after risk aversion of the investor.

2.4 Summary of Literature Review

Until the beginning of the 1990s, microfinance institutions in developing countries were still very reliant on subsidies, donations and grants from development agencies and public and private donors. MFIs began seeking self-sufficiency and financial profitability. Later, profitable ones started restructuring their business and their organization, in order to attract and raise commercial investments from both public and private sectors. Their argument was that bankers and investors would not accept to lend money to operationally non-sustainable, subsidy-dependent and financially unprofitable MFIs. Hence, MFIs have to concentrate their efforts on improving their financial situation, in order to grow and have access to new sources of funding. Besides borrowing from banks, such new funding can come through opening their capital hence seeking for a proactive risk management using financial risk management system is essential to the long-term sustainability of microfinance institutions (MFIs).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research design and methodology that was used to carry out the research. It presents the research design, the population, sample size and sampling procedure, data collection and analysis.

3.2 Research design

This research study employed a survey research method as well as causal research design to show the relationship between financial performance and financial risk management systems. Causal research design is chosen because it enables the researcher to generalise the findings to a larger population. This study generalised the findings to all the micro financial institutions in Kenya.

3.3 Target Population

The study population consisted of all the 47 registered MFIs and are members of Association of Micro finance Institutions of Kenya (AMFI). This study comprised of data collected through both, primary as well as secondary sources. Primary data was collected through the use of a questionnaire. As for inferential statistic, regression analysis was sued to establish the relationship between financial risk management systems and the financial performance of MFIs.

3.4 Sample design

The study sample was the 47 MFIs registered and are members of Association of Microfinance Institutions of Kenya (AMFI). The target population was stratified into

all the 47 MFIs. The technique is appropriate as it was to ensure that all the targeted registered MFIs are captured. This enhanced representation and ensures that holistic view is obtained. To actualize this, the study considered and selects all the MFIs since they are few in number.

3.5 Data Collection

The study used both primary and secondary data sources. The questionnaire contained the questions which were structured of closed-ended question and also a few open ended. These types of questions accompanied by a list of possible alternatives from which respondents required to select the answer that best describes their situation. The main advantage of close ended questions is that they are easier to analyse since they are in an immediate usable form. They was also easy to administer because each item followed by an alternative answers and was be economical to use in terms of time saving. The questionnaires was administered using drop and pick method. The questionnaires was used because they allow the respondents to give their responses in a free environment and helps the researcher get information that would not have been given out had interviews been used. Secondary data was collected from the financial statements of the MFIs and books.

3.6 Data Analysis

For data analysis, the researcher used qualitative and quantitative technique (descriptive analysis technique) in analyzing the data. The data then is coded to enable the responses to be grouped into categories. Descriptive statistics was used mainly to summarize the data. This included percentages and frequencies. Descriptive statistics involved the use of absolute and relative (percentages) frequencies, measures of central tendency and dispersion (mean and standard deviation respectively). A Likert

scale and the use of Statistical Package for Social Sciences (SPSS version 17.0) was employed to aid in the coding, entry and analysis of the data obtained through the questionnaires. Tables, Pie charts and other graphs was used as appropriate to present the data collected for ease of understanding and analysis. The regression analysis was of the form:

$FP = \beta 0 + X_1 + X_2 + X_3 + X_4 + \varepsilon$

Where:

$\beta 0$ - regression constant (y-intercept);

$\beta 1$- $\beta 4$ are the regression coefficients;

Y- Finance Performance;

β_1= Beta coefficients

X_1= Collateral Management Systems

X_2= Behavioral Detection and Predictive Analysis Systems

X_3=. Structured Finance Systems

X_4= Risk Management Systems

ε - Error Term.

Whereby Y represent the Finance Performance as proxied by the ROA, β_0 is regression model constant, β_1 is the regression mode coefficient.Risk management systems helps an organization identify the risks and security issues associated with their business and assets. Once these threats have been established, the RMS should endeavor to measure the risks and prepare strategies to minimize them. These strategies should be carried out and continuously monitored to ensure that they are effective and still required. Collateral management systems that concentrate on the mitigation of credit risk with counterparts through regular collateralization. Behavior

pro-actively identifies trends that may lead to unacceptable risks or non-compliance. Structured financial systems are a field of risk management systems that incorporates a variety of software, systems and tools that convert cash flows into secure financial instruments that work together to calculate, measure and analyze an organization's threats and to store the information for further examination

This study sought to measure the financial risk management systems by computing the attributes and proxies of the financial risk management systems which are Collateral Management Systems, Behavioral Detection and Predictive Analysis Systems, Structured Finance Systems and Risk Management Systems thereafter, the test for significance was tested as well. The study also determined to find the measurement of financial performance using ANOVA whose model's significance was tested using analysis of variance ANOVA test conducted at 95% confidence level ($\alpha \leq 0.05$. T-test significance was further tested the significance of variables included in the model. Since the study was dealing with the total population. FP is financial performance which is measured by return on assets. Financial performance was measured by, undertaking a statistical analysis on financial performance using a dataset of all the MFIs referenced in the AMFI, over the period 2008-2013.

3.7 Data Validity and Reliability

A pilot survey was carried out to determine the changes that would need to be made in the instruments. Further, the questionnaires were sent to as many respondents as possible in order to reduce any bias.

3.7.1 Data Validity

Validity measures the accuracy of the research instrument methods according to the purpose of the study. The instrument was tested to verify that it measures what it is supposed to. The self-administered questionnaire was validated using the content validity, which is a process of logical analysis that involves careful and critical examination of items in the questionnaire. The officers of the selected respondents were interviewed to validate the questionnaire.

3.7.2 Data Reliability

Reliability implies that a measuring instrument should be able to give reliable and stable results. If it is reliable other researchers should be able to come to the same results if they use the same method. To test reliability a researcher used test retest method. The result obtained was tested for correlation co-efficient the higher the correlation co-efficient the test retest reliable. (Z) Pearson's product moment correlation co-efficient and Spearman's formula was used to test the reliability of the questionnaire. To obtain (r) the formula used was

$$R = \frac{N\sum XY - (\sum X)(\sum Y)}{[\sum X^2 - \sum X^2][N\sum X^2 - \sum Y^2]}$$

Where

X = odd scores

Y = sum scores

$\sum X$ – sum of x scores

$\sum Y$ – sum of Y scores

$\sum X^2$ – sum of squares of X scores

$\sum Y^2$ – sum of squares of Y scores

$\sum XY$ – sum of products of X and Y scores

W – Sum of parallels scores

r – Correlation co efficient

The correlation co efficient of (r) was arrived at to give the reliability co-efficient of the pilot study and the main study.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the result of the analysis of both primary and secondary data. Primary data was collected through questionnaires targeting 47 registered MFIs. A Likert scale and the use of Statistical Package for Social Sciences (SPSS version 17.0) was employed to aid in the coding, entry and analysis of the data obtained through the questionnaires based on meanings and implications emanating from respondents information and documented data. Specifically, it starts with the analysis of the general information of the respondent and then proceeds to results regarding to the relationship between financial risk management systems and financial performance of micro finance institutions in Kenya. The regression analysis was also performed to measure financial risk management systems.

4.2 Descriptive Statistics

The study targeted 47 respondents in collecting data with regard on the relationship between financial risk management systems and financial performance of micro finance institutions in Kenya. From the study, 43 respondents out of the 47 filled and returned questionnaires, making a response rate of 91%. All these MFIs were evaluated based on three financial indicators (ROA; AROA; Financial self-sufficiency FSS) and four management dimensions (Decision making: board governance competencies; Accounting and control: planning budgeting and reporting competences, competencies; Top management: competencies of the top managers; Human resources: competencies of HR management).

Table 4.1: Descriptive Statistics for model 1

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	43	.01	.22	.0494	.04721
C M S	43	6.00	19.00	13.2381	2.48034
B D P A S	43	.45	.83	.6300	.08968
SFS	43	.53	.91	.6606	.09043
RM S	43	.01	.39	.1114	.08173
Valid N (listwise)	43				

Source: computed by researcher using data extracted from annual from MFIs (2012)

Generally, from the 43 observations as seen in table 4.1, financial performance has a minimum of 53% recorded. This implies that the firm with the least performance has a perfomance index of 53% while the maximum of 91% was achieved by First MFI in one of the years reviewed. This further compliments the result of average for the mfis . The mean disclosure is about 66% with standard deviation of approximately 9%. This means that the ROA can deviate from mean to both sides by 9%. The study findings further revealed that on average, the MFIs included in our sample generates Return on Equity (ROE) of about 5% and a standard deviation of 4.7%. This means that the value of the ROE can deviate from mean to both sides by 4.7%. The maximum and minimum values of ROE are 1% and 22% respectively. However, a Return on Asset (ROA) of 7% was generated on the average, with a minimum and maximum percentage of 1% and 31% respectively. For the two models, the average the system from the 43 observations is about 13 suggesting that MFIs in Nairobi have relatively moderate board sizes as suggested by Kyereboah-Coleman and Biekpe (2006) with a maximum system and deviation of 2.48. The implication is clear that

MFIs in Nairobi have relatively similar this sytem. In addition, the average proportion of the outside directors sitting on the board is 63%. Also on average, about 11% of the systems

4.2.1 Extent Utilization of Financial Risk Management Systems

The study further probed extent utilization of financial risk management systems increases profitability. This question was further of importance forecast the future benefits in extent utilization of financial risk management systems. It was observed that 52% said to a great extent, 34% indicated to a great extent. The findings of the study also further revealed that 9% and 5% said least extent and very least extent respectively. It can be therefore concluded that utilization of financial risk management systems increases profitability to a great extent as in illustrated in the below tables.

4.2.2 Parties Involved in Risk Identification

The researcher further determined parties involved in risk identification process for effective financial risk management. The results were illustrated by means and standard deviation as in table 2.To great extent is by internal system auditors with a mean of 4.2 and standard deviation of 1.2761, Senior ICT employees with a mean of 4.0 and standard deviation of 0.5137 and external system of auditors with a mean of 3.5 and standard deviation 0.9134. However, the respondents revealed that middle and lower level employees were considered to a moderate extent. Whether the institution has a financial risk management department that handles collection of credit in default. The researcher required the respondents to indicate if whether the institution had a financial risk management department that handles collection of credit in default. The results are where by 53% said yes and the remaining 47% said no

respectively. The results show that most respondents indicated that there is financial risk management department that handles collection of credit in default. The respondents were further probed to indicate if whether organizations offer training on the utilization of financial credit risk management systems. It is interestingly enough to note that 44% said no while the remaining 56% said yes.

The study sought to further investigate some of the risk mitigation techniques of managing financial risk employed by MFIs.48% indicated collateralization who were the majority,35% is through guarantors,15% secularization and the remaining 13% is through insurance. Therefore according to the analysis of the findings, risk mitigation by MFIs is mostly done through collateralization. One of the objectives of the study was to find out the key components of financial risk management strategies. So the researcher found it of importance to ask a question on the key components of financial risk management strategies. The results revealed 40% indicated risk mitigation who was majority of the respondents, 21% Credit criteria, 13% Credit reminder, 11% Guideline for loan, 10% Training and the remaining 2% indicated credit culture as a component. 4.1.3 Level of effectiveness of financial risk management practices and their effectiveness on the organization performance.

The researcher further determined the level of effectiveness on financial management practices and their effectiveness on the organization performance. On risk analysis and assessment with mean 3.5 and standard deviation of .6942, risk monitoring with mean of 3.9 and standard deviation of .8743, risk management systems with mean of 3.7 and standard deviation of .5972, credit risk management procedures with a mean of 4.0 and standard deviation of .7314 and risk mitigation with a mean of 4.2 and

standard deviation of .9412. According to the analysis of the findings all the respondents indicated yes indeed financial risk management practices brings effectiveness to organization performance.

The study sought to establish if whether there is a follow up to borrowers to ensure that credit is used for intended purposes. It was observed that most respondents indicated yes who accounted for 68% while 32% said no follow-up to borrowers. The respondents were requested to indicate extent to which financial risk assessment and management ensures effectiveness of financial performance in a five point Likert scale. The range was strongly agreeing (5), Strongly disagree '(1). The scores of 'disagree and strongly disagree have been taken to present a variable which had an impact to a small extent (S.E) (equivalent to mean score of 0 to 2.5 on the continuous Likert scale ;(0≤ S.E <2.4). The score of 'moderate extent;' has been taken to represent a variable that had an impact to a moderate extent (M.E.) (equivalent to a mean score of 2.5 to 3.4 on the continuous Likert scale: 2.5≤M.E. <3.4). The score of 'strongly agree and agree, have been taken to represent a variable which had an impact to a large extent (L.E.) (equivalent to a mean score of 3.5 to 5.4 and on a continuous Likert scale; 3.5≤ L.E. <5.4). A standard deviation of >1.5 implies a significant difference on the impact of the variable among respondents.

According to results tabulated in table 3, it is a clear indication that all respondents agreed that financial risk assessment and management ensure that loan are channeled to intended purposes, Ensures that credit facilities are allocated to only those who qualify/can repay, Ensures that the security/collateral is enough to cover loan, Assess the character of the loan candidate, and also Ensures that there is sufficient margin to

cover loan as been indicated by means and standard deviations in table .FRMS resource planning affects duties of accountants to a great extent as shown by means and standard deviations except mean 3.21 and standard deviation of 1.166 and mean 3.07 and standard deviation 1.331 who revealed that they were to moderate extent respectively.

4.2.3 Level of Importance of Financial Risk Management System

The respondents were further probed to indicate the level of importance in the various features pertaining to the relationship between financial risk management systems and financial performance of micro finance institutions in Kenya. The analysis of the finding revealed that all of the respondents agreed yes indeed the factors into consideration are important. On Character (Integrity) with mean 4.3 and standard deviation of .9477, Capacity (Sufficient cash flow to service the obligation) with mean 3.8 and standard deviation of .5984, Capital (Net worth) with mean of 4.2 and standard deviation of .8731, Collateral (Assets to secure the debt) with mean of 3.9 and standard deviation of .9425 and Condition (of the borrower and the general economy) with mean of 4.0 and standard deviation of .7648.

The researcher determined on the recommendations MFI for financial risk management system in the various institutions. According to results, MFIs need to be more willing to discuss fraud, to learn from their experiences and to learn from the experiences of other MFIs. MFIs should find and share innovative methods to mitigate risks. In addition, the microfinance industry should attract more private investors only once MFIs demonstrate their ability to effectively mitigate all significant risk exposures.

4.3 Inferential Analysis

Under the advance analysis, correlation analysis was first used to measure the degree of association between different variables under consideration. While the regression analysis was used to determine the impact of implementation of (FRMS) system and Financial performance of MFIs, the Chi-square test statistics was used to ascertain whether there is a significant difference in the implementation of (FRMS) system and Financial performance of MFIs. Finally, the t-test statistics was also used to find out if a significant difference occurred in the Financial Performance of MFIs and those without (FRMS)

4.3.1 Pearson's Correlation Coefficient Analysis for the relationship between (FRMS) system and financial performance of MFIs

In this section, the study measured the degree of association on relationship between the (FRMS) system and financial performance of MFIs i.e. Collateral Management Systems, Behavioral Detection and Predictive Analysis Systems, Structured Finance Systems and Risk Management Systems will increase financial performance of MFIs. From the prior studies, the research findings stated in the previous chapter, a positive relationship is expected between the measures of (FRMS) system and financial performance of MFIs. Table 4.4 and 4.5 present the correlation coefficients for all the services considered in this study.

Table 4.2: Pearson's Correlation Coefficients Matrix for the Model (Financial Performance of MFIs)

		Collateral Management Systems	Behavioral Detection and Predictive Analysis Systems	Structured Finance Systems	Risk Management Systems	Financial Performance
Collateral Management Systems	Pearson Correlation	1	-.681(**)	-.486(**)	-.681(**)	.539(**)
	Sig. (2-tailed)		.000	.000	.000	.000
	N	53,677	53,677	53,677	53,677	53,677
Behavioral Detection and Predictive Analysis Systems	Pearson Correlation	.681(**)	1	.609(**)	1	.596(**)
	Sig. (2-tailed)	.000		.001		.000
	N	53,677	53,677	53,677	53,677	53,677
Structured Finance Systems	Pearson Correlation	.486(**)	.409(**)	1	.409(**)	.525
	Sig. (2-tailed)	.000	.001		.001	.076
	N	53,677	53,677	53,677	53,677	53,677
Risk Management Systems	Pearson Correlation	.486(**)	.409(**)	1	.409(**)	.525
	Sig. (2-tailed)	.000	.001		.001	.076
	N	53,677	53,677	53,677	53,677	53,677
Financial Performance	Pearson Correlation	.639(**)	.696(**)	.625	.696(**)	1
	Sig. (2-tailed)	.000	.000	.066	.000	
	N	43,677	55,677	63,677	55,677	53,677

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

Source: computed by researcher using respondent data (2013)

From the correlation result for model, volume of accounting duties done through FRMS has a strong positive correlation of 0.625 with financial performance which is significant at 1% and 5%. This implies that volume of through the FRMS have a positive effect on the level of Financial performance MFIs due to increased risk aversion .The outcome from the statistics is consistent with earlier studies by Lipton and Lorsch (1992); Jensen (1993); Yermack (1996); Bennedsen et al (2006); Harris and Raviv (2005).

Table 4.3: Chi-Square Test: Two-Sample Assuming Equal Variances FRMS implementation

	(MFIs rolled up FRMS implementation)	**(MFIs without FRMS implementation)**
Mean	0.062177643	0.023739
Variance	0.00233563	1.38085E-05
Observations	8	4
Hypothesized Mean Difference	0	
Df	7	
t Stat	2.958540189	
P(T<=t) one-tail	0.00554419	
t Critical one-tail	1.770933383	
P(T<=t) two-tail	0.01108838	
t Critical two-tail	2.160368652	
Mean	0.062177643	0.023739

Source: *Computed by the researcher from annual reports MFIs (2013)*

From the Chi-square results, the FRMS implementation rolled up by MFIs recorded a mean of 0.0621 while the non- FRMS implementation recorded a mean of 0.0237. However, the variance for the performance efficiency of FRMS implemented and the non- FRMS implemented are 0.0023 and 1.3808 respectively. Furthermore, at two-tailed, the t- calculated of 2.9585 is seen to be greater than the t-tabulated of 2.1603. Further the study carried out the hypothesis testing between FRMS implementation and voluminous performance activities. The study findings are as shown below.

Table 4.4: FRMS implementation Vs Financial performance duties in MFIs

	Financial performance
MFIs Performance Correlation	0.980
Sig. (2-tailed)	0.000
N	8

A Pearson coefficient of 0.980 and p-value of 0.000 shows a strong, significant, positive relationship between FRMS implementation and financial performance in MFIs in Kenya.

4.4 Summary & Interpretation of the Findings

This study sought to establish the relationship between financial risk management systems and financial performance of micro financial institutions .Generally, from the 43 observations as seen in table 4.1, financial performance has a minimum table of 53% recorded. This implies that the firm with the least performance has a performance index of 53% while the maximum of 91% was achieved by First MFI in one of the years reviewed. This further compliments the result of average for the MFIs . The mean disclosure is about 66% with standard deviation of approximately 9%. This means that the ROA can deviate from mean to both sides by 9%.The table further revealed that on average, the MFIs included in our sample generates Return on Equity (ROE) of about 5% and a standard deviation of 4.7%. This means that the value of the ROE can deviate from mean to both sides by 4.7%.

The maximum and minimum values of ROE are 1% and 22% respectively. However, a Return on Asset (ROA) of 7% was generated on the average, with a minimum and

maximum percentage of 1% and 31% respectively. For the two models, the average the system from the 43 observations is about 13 suggesting that MFIs in Nairobi have relatively moderate board sizes as suggested by Kyereboah-Coleman and Biekpe (2006) with a maximum system and deviation of 2.48. The implication is clear that MFIs in Nairobi have relatively similar this sytem. In addition, the average proportion of the outside directors sitting on the board is 63% and also on average, about 11% of the systems. Moreover, the study findings established that the degree of association on relationship between the (FRMS) system and financial performance of MFIs i.e. Collateral Management Systems, Behavioral Detection and Predictive Analysis Systems, Structured Finance Systems and Risk Management Systems will increase Financial performance of MFIs. From the a priori stated in the previous chapter, a positive relationship is expected between the measures of (FRMS) system and financial performance of MFIs. The study findings presented the correlation coefficients for all the services considered in this study.this is in line with William Sharpe (1964), published the capital asset pricing theory (CAPM).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

As more microfinance institutions grow and become formal financial institutions, the need for internal control systems increases. While each MFI has a unique risk profile and operational structure that determine which types of controls are appropriate, this chapter presents summaries conclusions and recommendations in regard with relationship between financial risk management systems and financial performance of micro finance institutions in Kenya.

5.2 Summary of the Findings

On demographics the researcher explored on the designation and numbers of years worked in the industry. It was evidently shown that most respondents are credit officers and many of them have worked in the industry between 6-10 years. The study also sought to determine the extend FRMS aids in the utilization using collateral management systems, behavioral detection and predictive analysis systems, structured finance systems and risk management systems. The analysis of the findings revealed that most participants indicated most extent and on the extent of utilization of financial risk management systems increases profitability, also most respondents revealed that it is to great extent.

The study determined the parties involved in risk identification process. The findings revealed that internal system auditors, external system auditors, senior ICT employees are involved to a great extent while middle and lower level employees being involved

to a moderate extent. The study further determined on whether the institution has a financial risk management department that handles collection of credit in default whereby most respondents indicated yes the results further noting that there exist standardized procedures for handling financial risk management systems. Also further the results pointed out that credit criteria adopted by institutions to test the credit worthiness of clients was employed through character, reputation and credit history of the applicants. On whether organizations offer training on the utilization of financial credit risk management systems, most respondents said no and mostly risks were mitigated through collateralization. On the securities used, the results revealed that it is land and mostly credit reminders were after 3 to 6 months.

The study inquired on the actions taken in case a customer defaults the loan. The results further revealed that mostly is through public auction and the most key component of financial risk management strategies is risk mitigation. Further, the study determined the level of effectiveness of financial risk management practices and their effectiveness on the organization performance. According to the analysis of the findings all the respondents indicated yes indeed financial risk management practices brings effectiveness to organization performance and one is required to be a financial analyst to hold credit risk managers' office. The researcher inquired if whether the MFIs has credit risk management committee who is empowered to oversee credit risk management functions. Most respondents said no and the MFIs has not yet established mechanism of independent ongoing assessment of credit risk management process.

On frequency of assessment mechanisms, most of them are reviewed annually and mostly risk and credit managers are responsible for credit risk sanctions. The study also inquired if whether there is a monitory system reviewed for reporting in MFI. The analysis of the findings revealed that most respondents said yes and the monitory system is reviewed annually. If whether there is a follow up to borrowers to ensure that credit is used for intended purposes, the results further revealed that most respondents said yes and financial risk assessment and management credit ensure reduction of financial performance. The study also identified that Condition (of the borrower and the general economy), Collateral (Assets to secure the debt), Capital (Net worth), Capacity (Sufficient cash flow to service the obligation), Character (Integrity) are important.

5.3 Conclusion

The study determined the extend FRMS aids in the utilization using collateral management systems, behavioral detection and predictive analysis systems, structured finance systems and risk management systems. The results concludes that most participants indicated that it affects FRMS to most extent and on the extent of utilization of financial risk management systems increases profitability, also the results concluded it is to great extent. The sought to find the parties involved in risk identification process. The findings concluded that internal system auditors, external system auditors, senior ICT employees are the ones involved to a great extent while middle and lower level employees being involved to a moderate extent. In establishing on whether the institution has a financial risk management department that handles collection of credit in default, the results concluded that most respondents indicated yes and further noted that there exist standardized procedures for handling

financial risk management systems. Also further the results concluded that credit criteria adopted by institutions to test the credit worthiness of clients was employed through character, reputation and credit history of the applicants. The study found it important to determine if whether organizations offer training on the utilization of financial credit risk management systems. Analysis of the findings concluded that most respondents said no and risks were mostly mitigated through collateralization. On the securities used, the results revealed that it is land and mostly credit reminders were after 3 to 6 months.

The study also further inquired on the actions taken in case a customer defaults the loan. The results concluded that mostly is through public auction and the most key component of financial risk management strategies is risk mitigation. The study determined the level of effectiveness of financial risk management practices and their effectiveness on the organization performance. According to the analysis of the findings it was concluded that most respondents indicated yes indeed financial risk management practices brings effectiveness to organization performance and one is required to be a financial analyst to hold credit risk managers' office. The researcher explored if whether the MFIs has credit risk management committee who is empowered to oversee credit risk management functions. The study results concluded that most respondents said no and the MFIs has not yet established mechanism of independent ongoing assessment of credit risk management process.

The study established on the frequency of assessment mechanisms, it was concluded that most of them are reviewed annually and risk and credit managers are the one mostly responsible for credit risk sanctions. The researcher further required the

respondents to indicate if whether there is a monitory system reviewed for reporting in MFI. The analysis of the findings concluded that most respondents said yes and the monitory system is reviewed annually. If whether there is a follow up to borrowers to ensure that credit is used for intended purposes, the results also concluded that most respondents said yes and financial risk assessment and management credit ensure reduction of financial performance. The study also concluded that Condition (of the borrower and the general economy), Collateral (Assets to secure the debt), Capital (Net worth), Capacity (Sufficient cash flow to service the obligation), Character (Integrity) are important to be considered alongside other factors.

5.4 Recommendations

MFIs need to be more willing to discuss fraud, to learn from their experiences and to learn from the experiences of other MFIs. The entire field of microfinance will benefit as more MFIs implement improved internal controls and share their experiences. MFIs should institutionalize a risk management process. Management of microfinance institutions has often treated internal control and internal audits as peripheral to operations, focusing only on their ability to uncover past mistakes and wrongdoing. The risk management approach suggests a more integrated approach to internal control, placing a greater emphasis on its ability to proactively prevent loss and encourage efficiency.

To be effective, MFIs must institutionalize the concepts of risk management into their organizational culture and environment. The board and management should play an active role in overcoming negative perceptions of internal control and internal audit by emphasizing to employees the positive results that can be achieved from their

effective application. By developing control mechanisms that act as incentives rather than disincentives, management can create a positive control environment in which all employees have a stake in improving the internal control system. The use of performance-based incentives, profit centers, and a culture that focuses on solving problems rather than on placing blame are all measures that can reinforce a positive control environment and help to overcome past negative attitudes toward internal control.

5.5 Limitations of the Study

The research met with various challenges when conducting the research that included the fact that the MFIs ordinarily do not want to give information due to client confidentiality. In addition, some of the respondents would not find the subject to be of interest. Additionally, some respondents would not want to give the information as they considered it of competitive importance. The respondents being normally very busy people may not have found a lot of time to respond to questions. Time limitation made it impractical to include more respondents in the study. This study was also limited by other factors in that some respondents may have been biased or dishonest in their answers. However, the researcher did look for contradictions in the information given and no inconsistency were found.

5.6 Recommendations for policy consideration

This study focused on the relationship between financial risk management systems and financial performance of micro finance institutions in Kenya. It is therefore recommended that similar researches should be replicated in other organizations and

the results be compared so as to establish whether there is consistency on relationship between financial risk management systems and financial performance of institutions.

5.7 Suggestions for Further Research

There is need for further research to be undertaken which may include studies on the factors affecting the financial performance of the MFIs; the role of the government or regulatory framework in supporting the adoption of FRMS and the impact of FRMS to the financial sector deepening or financial inclusion and other related studies. This would help establish effect of FRMS on financial performance. It further suggested that further research should be done on the challenges facing implementation of FRMS. Studies can also be conducted on the effectiveness of FRMS in Kenya. It is also recommended that, as roadmap to FRMS in Kenya. Moreover, studies can be done on the economic impact of FRMS model performance in Kenya.

REFERENCES

Akkizidis, I., & Khandelwal, S. K. (2008). Financial Risk Management for. *Journal of Risk and Insurance*, June.

Allen, F., & Santomero, A. (1997). The Theory of Financial Intermediation. *Journal of Banking and Finance*.

Al-Tamimi, H. (2002). Risk Management Practices: An Empirical Analysis of the UAE Commercial Banks. *Finance India*, XVI(3), 1045-1057.

Al-Tamimi, H., & Al-Mazrooei, M. (2007). Banks' Risk Management: A Comparison Study of UAE National and Foreign Banks. *The Journal of Risk Finance*, 8(4), 394-409.

Altman, E. (1993). Valuation, Loss Reserves and the Pricing of Corporate Bank Loans. *Journal of Commercial Bank Lending*, August, 8-25.

Archer, S., & Karim, R.A. (2007). *Finance: The Regulatory Challenge*. John Wiley & Son (Asia) Pte Ltd.

Babbel, D., & Santomero, A. (1997). Financial Risk Management by Insurers: An Analysis of the Process. *Journal of Risk and Insurance*, June.

Baldoni, R.J. (1998). A Best Practices Approach to Risk Management. *TMA Journal*, Jan/Feb, 30-34.

Barton, T. L., Shenkir, W.G., & Walker, P.L. (2002). Making EntFRMSrise Risk.

BCBS (2001). Consultative Document: Principles for the Management and Supervision of Interest Rate Risk. Bank for International Settlements.

BCBS (2006). Core Principles Methodology, Basel Committee on Banking Supervision. Bank for International Settlements.

Berger, A., & Udell, G. (1993). Securitization, Risk, and the Liquidity Problem in Banking. In Klausner M., & White, L., ed, *Structural Change in Banking*. Illinois: Irwin Publishers.

Berger, A., & Udell, G. (1995). Relationship Lending and Lines of Credit in Small Firm Finance. *Journal of Business*, July.

Bhattacharya, S., & Thakor, A. (1993). Contemporary Banking Theory. *Journal of Financial Intermediation*.

Boston Consulting Group (2001), "From Risk Taker to Risk Manager: Ten Principles for Establishing a Comprehensive Risk Management System for Banks.

Chege, S.M. (2010). The Relationship between Credit Risk Management Practices and Financial Performance among Microfinance Institutions in Kenya. *MBA Project*, University of Nairobi

COSO. (2004). EntFRMSrise Risk Management- Integrated Framework.

Drzik, J. (1995), "CFO Survey: Moving Towards Comprehensive Risk Management", *Bank Management*, 71, 40.

Economist, (1993). A Survey of International Banking. *Environmental Management and Health*, 13(3), 290-297.

Fallon, W. (1996). Calculating Value-at-Risk. Working Paper 96-49, Wharton Financial Institutions Center, The Wharton School, University of Pennsylvania.

Froot, K., Scharfstein, D., & Stein, J. (1993). Risk Management: Coordinating Investment and Financing Policies. *Journal of Finance*, December, .

Furash, E. (1994). Organizing the Risk Management Process In Large Banks. *Risk Management Planning Seminar*, Federal Financial Institutions Examination Council, Washington, D.C., September 29, 1994.

Fuser, K., Gleiner, W., & Meier, G. (1999). Risikomanagement (KonTraG) – Erfahrungen aus der Praxis. *Der Betrieb*, 52, No. 15, 753-758.

Graham, (2000). Value at Risk: Implementing a Risk Measurement Standard. *Working Paper 96-47*, Wharton Financial Institutions Center, The Wharton School, University of Pennsylvania, 1996.

Grais, W., & Kulathunga, A. (2007). Capital Structure and Risk in Financial Services. In Archer, S. & Karim, R. A. *Finance: The Regulatory Challenge*. John Wiley & Son (Asia) Pte Ltd.

Greuning, H., & Iqbal, Z. (2007). Banking and Risk Environment. in Archer, S. and Karim, R. A. A. 2007, " Finance: The Regulatory Challenge", John Wiley & Son (Asia) Pte Ltd.

Haron, A., & Hin Hock, J.L. (2007). Inherent Risk: Credit and Market Risks. in Archer, S. and Karim, R. A. A. 2007, *Finance: The Regulatory Challenge*, John Wiley & Son (Asia) Pte Ltd.

Harrington, S.E., & Niehaus, G.R. (1999). *Risk Management*. New York, N.Y: Irwin/McGraw-Hill.

Harry M. Markowitz (1950s), Capital Structure and Risk in Financial Services. In Archer, S. & Karim, R. A. *Finance: The Regulatory Challenge*.

IFSB (2005). Guiding Principles of Risk Management for Institutions (Other than Insurance Institutions) Offering only Financial Services. Financial Services Board.

Iqbal, Z., & Mirakhor, A. (2007). *An Introduction to Finance: Theory and IRM*. AIRMIC and ALARM, (2002), A Risk Management Standard.

Jackson-Moore, E. (2007). Measuring Operational Risk. in Archer, Simon and Karim, R.

Jensen, M., & Meckling, W. (1997). Theory of the Firm: Managerial B ehavior Agency Costs and Ownership Structure. *Journal of Financial Economics*, 3, 305-60.

Jorion, P. (1997). *Value at Risk: The New Benchmark for Control Market Risk.* Illinois: Irwin Professional Publications.

Kabiru, A.M. (2010). The effect of risk management practices on the financial performance of commercial banks in Kenya. *MBA Project*, University of Nairobi

Khan, T., & Ahmed, H. (2001). Risk Management: An Analysis of Issues in Islamic Financial Industry. *IRTI/IDB Occasional Paper*, No. 5.

Kim, D., & Santomero, A. (1993). Forecasting Required Loan Loss Reserves. *Journal of Economics and Business,* August, 1993.

KPMG (2003). Basel II – A Closer Look: Managing Economic Capital. Management Pay Off. Prentice Hall PTR, Financial Times.

Moody's Investor Service, (1996). Corporate Bond Defaults and Default Rates 1970-1995, *Moody's Special Report,* 1996.

Morsman, E. (1993). *Commercial Loan Portfolio Management*. Philadelphia: Robert Morris Associates.

Parrenas, J.C. (2005). Bank's Risk Management Practices: A Survey of Four Asian Emerging Markets.

Pausenberger & Nassauer, (2000). Governing the Corporate Risk Management Function. in Frenkel, M., Hommel, U., & Rudolf, M. (2005). Risk Management: Challenge and Opportunity. Springer.

Pagach, D.P., & Warr, R.S (2007). An Empirical Investigation of the Characteristics of Firms Adopting EntFRMSrise Risk Management.

Sundarajan, V. (2007). Risk Characteristics of Products: Implications for Risk

Tchankova, L. (2002). Risk Identification – Basic Stage in Risk Management, 1970-1995. *Moody's Special Report*, 1996.

Wainana, (2002). Kenya Monthly Economic Review. *Central Bank of Kenya, November 2008.*

APPENDICES

APPENDIX I: LIST OF MICROFINANCE INSTITUTIONS OF KENYA

This section contains 47 of 53 members that make up the Association of Microfinance Institutions of Kenya (AMFI-K) operating in Nairobi:

1. AAR Credit Services
2. Agakhan First Microfinance Agency
3. Blue Limited
4. Canyon Rural Credit Limited
5. Century DTM LTD(Interim)
6. Chartis Insurance
7. CIC Insurance
8. Co-operative Bank
9. ECLOF Kenya
10. Equity Bank
11. Faulu Kenya DTM Limited
12. Fusion Capital Ltd
13. Greenland Fedha Limited
14. IndoAfrica Finance
15. Jitegemea Credit Scheme
16. Jitegemee Trust Limited
17. Juhudi Kilimo Company Limited
18. K-rep Bank Ltd
19. K-rep Development Agency
20. KADET
21. Kenya Entrepreneur Empowerment Foundation (KEEF
22. Kenya Post Office Savings Bank
23. Kenya Women Finance Trust
24. Kilimo Faida
25. Micro Africa Limited
26. Micro Enterprises Support Fund(MESPT)
27. Microensure Advisory Services

28. Molyn Credit Limited
29. Musoni
30. Ngao Credit Ltd
31. Oikocredit
32. One Africa Capital Limited
33. Opportunity International
34. Platinum Credit Limited
35. Rafiki Deposit Taking Microfinance Ltd
36. Remu DTM Limited
37. Renewable Energy Technology Assistance Programme (RETAP)
38. Rupia Limited
39. Select Management Services Limited
40. SISDO
41. SMEP DTM Limited
42. Sumac Credit Ltd
43. Swiss Contact
44. U & I Microfinance Limited
45. Uwezo DTM Ltd
46. Women EntFRMSrise Fund
47. Youth Initiatives - Kenya (YIKE)

APPENDIX II: QUESTIONNAIRE

SECTION A: GENERAL INFORMATION

Note: The information in this questionnaire will be treated confidentially and will not be used for any other purpose other than academic:

1. What is your current designation within the MFI?

Credit Manager [ ]

Head of Department [ ]

Credit Officer [ ]

2. How many years have you been in the industry?

1 – 5 years [ ] 6 – 10 years [ ] 11 – 15 years [ ]

16– 20 years [ ] above 21 years [ ]

SECTION B: FINANCIAL RISK MANAGEMENT SYSTEMS

3. Does your organization have the following financial risk management systems for managing loan risks; *Collateral Management Systems; Behavioral Detection and Predictive Analysis Systems; Structured Finance Systems; Risk Management Systems*?

Yes [ ] No [ ]

If yes, to what extent do your MFI use the below financial risk management systems? Use a scale of 1 to 5 where 1 is the least extent and 5 is to the most extent.

Extend of Utilization of each FRMS	**1**	**2**	**3**	**4**	**5**
Collateral Management Systems					
Behavioral Detection and Predictive Analysis Systems					
Structured Finance Systems					
Risk Management Systems					

4. To what extent does the utilization of these financial risk management systems increases your profitability in your line of business?

Very Great extent [ ]

Great extent [ ]

Least extent [ ]

Very least extent. [ ]

5. To what extent does your organization involve the following parties in the risk . Identification process for effective financial risk management? Use a scale of 1 to 5 where 1 is the least extent and 5 is the most extent.

Parties involved in risk identification	**1**	**2**	**3**	**4**	**5**
Internal system auditors					
External system auditors					
Senior ICT employees					
Middle and Lower Level Employees					
Other, Please Specify					

6. (a) Does your institution have a financial risk management department that handles collection of credit in default?

Yes [ ] No [ ]

(b) Are there any standardized procedures for handling financial risk management systems?

Yes [ ] No [ ]

7. Kindly select the credit criteria (s) your institution adopts to test the credit worthiness of your clients.

The character, reputation and credit history of the applicants [ ]
Amount of outstanding debt [ ]
Bankruptcies [ ]
Inspecting late payments [ ]
Length of credit history [ ]

8. Does your organization offer training on the utilization of financial credit risk management systems?

Yes [ ] No [ ]

9. Which of the following risk mitigation techniques of managing financial risk does your institution use?

Collateralization	[ ]
Guarantor	[ ]
Insurance	[ ]
Securitization	[ ]

10. Which of the following types of securities does your institution use?

Jewelry	[ ]	Debentures	[ ]
Cash deposit	[ ]	Land	[ ]
Assets	[ ]	Shares	[ ]
Life insurance policy	[ ]		

11. Credit reminders are part of credit monitoring procedures of financial risk management systems. How often does your institution provide credit reminders to your clients?

After 1 to 3 months	[ ]
After 3 to 6 months	[ ]
After 6 to 9 months	[ ]
After one year	[ ]

12. What actions does your institution take in case a customer defaults the loan

Sue customer in court	[ ]
Public auction	[ ]
Claim with insurance	[ ]
Ask customers to pay loan without interest	[ ]
Use collateral as security	[ ]

13. Which of the following are the key components of financial risk management strategies?

Credit reminder	[ ]

Guideline for loan	[ ]
Credit criteria	[ ]
Credit recipe ration loan and agreement	[ ]
Risk mitigation	[ ]
Training	[ ]
Credit culture	[ ]

14. Kindly rate the effectiveness of the following financial risk management practices and their effectiveness on the organization performance

Risk analysis and Assessment	[ ]
Risk Monitoring	[ ]
Risk management systems	[ ]
Credit Risk management procedures	[ ]
Risk mitigation	[ ]

CREDIT RISK MANAGEMENT SYSTEM

15. What is the professional requirement for one to hold credit risk managers' office?

An accountant	[ ]	Financial analyst	[ ]
Economist	[ ]	Banking Specialist	[ ]
Any two	[ ]	any three	[ ]
All the above	[ ]		

16. Does the your organization have credit risk management committee who is empowered to oversee credit risk management function?

Yes [ ] No [ ]

a. If yes who comprises the committee?

i. ……
……

ii. ……
……

iii. ……
……

iv. ……
……

17. Does your bank have an established mechanism of independent ongoing assessment of credit risk management process?

Yes [ ] No [ ]

18. If yes how frequently are such assessment mechanisms reviewed?

Continuously	[ ]	Monthly	[ ]
On quarterly basis	[ ]	Semi-annually	[ ]
Annually	[ ]	Never Happens	[ ]

19. Who is responsible for credit risk sanctions and approval of credit in your MFI?

Board of directors [ ]

Senior management [ ]

Risk and credit managers [ ]

20. Do you have monitory and control system to reduce financial risks?

Yes [ ] No [ ]

a. If yes how often is the monitory system reviewed for reporting in your MFI?

Continuously	[ ]	Monthly	[ ]
On quarterly basis	[ ]	Semi-annually	[ ]
Annually	[ ]	Never Happens	[ ]

21. State the limitations associated with the financial risk monitory and control system you have mentioned above?

……
……
……

……
……
……..

22.Do you follow borrowers to ensure that credit is used for intended purposes?

Yes [ ] No [ ]

a. If no what are the methods you use to update yourself with credit information?

……
……
……
……
……..

23. How does information asymmetry lead to loan defaults?

i. ……
……
ii. ……
……
iii. ……
……
iv. ……
……

24. To what extent does financial risk assessment and management ensure that FRMS ensured reduction of risk to financial performance?

	1	**2**	**3**	**4**	**5**
Ensures that loan are channeled to intended purposes					
Ensures that credit facilities are allocated to only those who qualify/can repay					
Ensures that the security/collateral is enough to cover loan					
Assess the character of the loan candidate					
Ensures that there is sufficient margin to cover loan					

25. What level of importance is attached to the following factors by your organization, when performing credit assessment?

Key:

1. Very important; without it no credit can be approved, and in **SOME** cases used as the only deciding factor.
2. Important; has to be considered alongside other factors, not independently
3. Less important; may or may not be considered
4. Not important; never considered

	1	**2**	**3**	**4**
Character (Integrity)				
Capacity (Sufficient cash flow to service the obligation)				
Capital (Net worth)				
Collateral (Assets to secure the debt)				
Condition (of the borrower and the general economy)				

26. What would you recommend for financial risk management system in the institution?.....
.....
.....
...

THANKS FOR YOUR TIME

APPENDIX III

MFIS LEVEL OF FINANCIAL PERFORMANCE 2008-2012

MFIs	Year	X_1	X_2	X_3	X_4	Net Profit	Total Assets	ROA
INS001	2008	3,514,650,000	17,371,966,500	536,894,000	1,572,287,000	7.70E+08	1.12E+12	42.7
	2009	5,273,796,000	22,480,696,500	499,257,000	2,101,536,000	4.01E+08	5.82E+11	50.4
	2010	7,527,876,000	27,156,382,500	814,495,000	2,303,848,000	3.02E+09	4.38E+12	63.4
	2011	8,477,090,000	34,913,140,500	888,246,000	2,895,322,000	6.40E+08	9.28E+11	66.5
	2012	9,430,394,000	28,293,478,500	353,108,000	3,746,777,000	2.40E+10	3.49E+13	45.9
INS002	2008	359,889,723	1,218,586,902	-5,059,261	79,437,444	3.89E+09	5.64E+12	40.2
	2009	514,538,262	878,294,772	326,044,970	83,531,340	5.08E+09	7.36E+12	25.4
	2010	598,027,045	1,054,755,756	9,772,037	124,851,067	8.92E+08	1.29E+12	41.8
	2011	683,189,948	1,261,909,032	-100,046,480	203,092,067	4.02E+08	5.83E+11	37.8
	2012	604,832,412	1,823,579,862	79,169,058	146,376,712	1.90E+09	2.76E+12	41.8
INS003	2008	2,494,126,834	2,928,426,702	27,447,716	354,641,338	1.71E+10	2.48E+13	8.3
	2009	2,645,281,844	1,476,542,442	80,244,021	403,833,220	5.50E+08	7.98E+11	9.5
	2010	2,764,905,999	1,570,904,190	111,583,004	494,591,606	1.89E+09	2.74E+12	12
	2011	2,798,244,340	2,541,041,220	64,047,159	488,065,367	1.83E+09	2.65E+12	13.3
	2012	2,449,305,792	4,476,439,566	27,668,038	246,084,657	1.52E+09	2.20E+12	15
INS004	2008	7,544,805,000	17,379,658,500	-426,000	2,975,076,000	6.24E+09	9.04E+12	21.6
	2009	8,098,965,000	24,543,640,500	285,237,000	2,262,207,000	1.14E+09	1.66E+12	9.4
	2010	10,678,305,000	28,669,366,500	421,782,000	2,339,209,000	1.56E+10	2.26E+13	13.8
	2011	12,459,250,000	33,068,446,500	381,257,000	2,896,604,000	1.36E+09	1.98E+12	11.1
	2012	13,986,960,000	45,857,668,500	404,465,000	4,090,601,000	4.51E+08	6.54E+11	6.1
INS005	2008	3,477,048,000	9,938,260,500	151,737,000	1,153,705,000	2.47E+09	3.58E+12	30.3
	2009	3,854,526,000	10,850,164,500	183,626,000	1,215,788,000	6.71E+07	9.73E+10	33.2
	2010	4,477,799,000	11,782,432,500	236,839,000	1,409,622,000	5.21E+08	7.56E+11	41.3
	2011	4,522,164,000	13,821,748,500	281,454,000	1,656,371,000	2.88E+09	4.18E+12	38.7
	2012	4,467,270,000	19,288,474,500	145,871,000	1,808,355,000	4.57E+07	6.63E+10	29.2
INS006	2008	475,583,853	3,316,338,810	11,394,946	581,063,460	1.29E+08	1.88E+11	25.7
	2009	501,769,649	2,924,047,698	22,413,365	663,529,207	3.90E+08	5.66E+11	27.5
	2010	908,345,673	3,068,312,814	-34,868,853	681,264,380	4.05E+09	5.87E+12	15.4

	2011	948,941,291	3,325,672,866	2,016,118	552,717,385	2.73E+09	3.96E+12	15.1
	2012	1,080,408,446	3,687,793,806	12,169,665	487,335,533	1.71E+09	2.48E+12	13.1
INS007	2008	322,198,000	1,662,716,706	856,000	137,259,369	1.48E+08	2.15E+11	15.5
	2009	398,609,000	2,204,958,852	838,000	145,841,975	3.39E+10	4.92E+13	13
	2010	438,573,000	3,000,454,686	3,831,000	182,377,864	3.70E+09	5.36E+12	12.4
	2011	507,562,000	3,270,265,212	4,404,000	277,113,701	1.01E+08	1.47E+11	13.6
	2012	579,883,000	4,555,611,306	2,122,000	367,487,392	4.08E+09	5.91E+12	12.3
INS008	2008	1,076,242,000	12,422,632,500	91,007,000	1,065,885,000	4.54E+09	6.58E+12	26.2
	2009	1,045,343,000	15,060,226,500	175,345,000	1,168,582,000	1.19E+09	1.72E+12	25.2
	2010	1,199,466,000	18,150,940,500	451,307,000	1,396,908,000	9.38E+08	1.36E+12	27.8
	2011	1,394,909,000	22,984,192,500	203,608,000	2,070,433,000	1.74E+09	2.52E+12	23.2
	2012	1,099,124,000	21,890,986,500	-16,368,000	2,510,032,000	2.75E+09	1.64E+12	19.5
INS009	2008	3,159,695,000	2,868,322,500	40,326,000	518,612,000	7.65E+08	1.68E+12	50
	2009	3,969,070,000	2,733,082,500	-60,279,000	517,213,000	7.79E+08	3.17E+12	43.9
	2010	5,312,015,000	2,737,066,500	-1,188,627,000	453,795,000	1.48E+09	9.00E+11	26
	2011	6,447,461,000	3,325,666,500	-999,406,000	478,048,000	4.18E+08	4.52E+13	9.6
	2012	6,077,269,000	3,062,278,500	211,439,000	455,508,000	2.10E+10	1.39E+13	11.4
INS010	2008	603,801,000	4,444,908,318	3,670,000	460,958,600	6.45E+09	1.05E+13	20.6
	2009	577,405,000	5,247,220,614	21,159,000	446,480,525	4.86E+09	1.87E+12	22.6
	2010	678,693,000	6,168,238,950	26,119,000	606,573,803	8.72E+08	9.13E+11	22.1
	2011	842,234,000	6,735,568,500	62,513,000	740,812,303	4.25E+08	8.04E+11	23.3
	2012	907,223,000	7,657,600,956	96,242,000	874,531,019	3.74E+08	5.06E+12	29.2
INS011	2008	677,635,000	2,563,972,500	28,234,000	387,491,000	2.35E+09	2.64E+13	35.1
	2009	677,635,000	2,494,426,500	26,806,000	411,407,000	1.23E+10	2.58E+12	34.3
	2010	907,426,000	2,743,072,500	23,245,000	387,446,000	1.20E+09	4.88E+12	30
	2011	910,421,000	3,082,102,500	33,694,000	427,323,000	2.27E+09	4.07E+12	30.8
	2012	894,445,000	3,356,644,500	42,714,000	415,732,000	1.89E+09	2.46E+12	34.4
INS012	2008	2,367,010,000	6,838,222,500	6,400,000	1,550,768,000	1.14E+09	1.50E+13	12
	2009	2,463,320,000	6,306,724,500	28,105,000	1,335,831,000	6.96E+09	7.22E+12	16.2
	2010	2,380,794,000	7,076,374,500	37,990,000	1,230,140,000	3.36E+09	2.07E+13	20.2
	2011	2,741,737,000	8,646,520,500	40,531,000	1,139,698,000	9.63E+09	6.14E+12	18.8
	2012	2,888,064,000	10,179,112,500	22,816,000	1,051,115,000	2.85E+09	2.86E+12	18.3
INS013	2008	8,867,040,000	20,420,082,660	563,639,000	1,861,841,245	1.33E+09	6.51E+12	69

	2009	11,745,856	20,566,898,952	601,364,000	3,612,737,495	3.03E+09	1.51E+12	61.5
	2010	12,982,833,441	22,248,190,500	796,190,083	3,114,829,098	7.04E+08	1.39E+12	48.8
	2011	14,710,274,812	29,885,434,500	965,746,027	3,403,341,360	6.49E+08	3.51E+12	57.8
	2012	13,665,599,971	39,683,338,500	1,777,026,000	3,427,810,742	1.63E+09	9.81E+11	59.4
INS014	2008	6,430,251,000	19,586,446,500	119,278,000	2,213,893,000	4.56E+08	2.67E+11	18.8
	2009	7,282,311,000	19,760,752,500	143,026,000	2,905,903,000	1.24E+08	5.36E+11	17
	2010	8,285,918,000	21,866,662,500	21,221,000	3,466,303,000	2.49E+08	8.18E+12	16.8
	2011	9,039,057,000	24,384,424,500	-631,674,000	3,264,402,000	3.80E+09	5.95E+12	8.8
	2012	10,582,800,000	35,756,674,500	245,524,000	3,293,453,000	2.77E+09	4.29E+12	11
INS015	2008	743,817,000	2,417,464,716	17,303,000	377,975,468	1.99E+09	7.84E+13	18.4
	2009	729,983,000	2,776,836,942	22,015,000	361,346,150	3.64E+10	7.28E+12	19.5
	2010	769,776,000	3,012,816,240	32,342,000	361,355,657	3.38E+09	2.09E+11	20.6
	2011	855,534,000	3,358,565,256	26,746,000	402,905,036	9.70E+07	8.76E+12	30.2
	2012	853,202,000	4,030,126,500	15,877,000	462,800,407	4.07E+09	9.55E+12	28.9
INS016	2008	12,440,080,000	23,390,392,500	84,752,000	1,623,573,000	4.44E+09	2.12E+12	7.2
	2009	13,375,122,000	15,882,850,500	725,149,000	1,652,732,000	9.87E+08	2.46E+12	11.1
	2010	15,524,372,000	18,971,542,500	439,427,000	2,049,659,000	1.15E+09	3.76E+12	10
	2011	19,151,727,000	21,861,358,500	589,285,000	3,898,393,000	1.75E+09	5.47E+12	9.7
	2012	20,935,397,000	23,964,454,500	473,953,000	2,647,136,000	2.54E+09	8.46E+12	9.4
INS017	2008	6,295,923,000	9,405,862,500	201,328,997	1,276,922,938	8.48E+08	8.47E+12	24.2
	2009	5,880,805,000	10,371,424,500	289,099,993	1,354,109,222	5.36E+08	8.49E+12	26.4
	2010	5,123,246,000	10,441,462,500	208,317,000	1,480,658,000	1.26E+09	8.50E+12	25.8
	2011	4,572,935,000	11,012,896,500	178,618,000	1,567,638,000	7.17E+08	8.51E+12	24.3
	2012	3,721,983,000	14,485,000,500	601,595,000	1,728,565,000	2.65E+10	8.52E+12	25.2
INS018	2008	691,547,000	2,782,899,618	16,812,000	360,926,908	3.77E+09	8.53E+12	29.3
	2009	772,857,000	2,975,539,776	-2,082,000	377,798,799	9.81E+09	8.54E+12	32.3
	2010	895,164,000	3,505,649,490	20,092,000	418,444,243	7.58E+08	8.56E+12	28.5
	2011	982,020,000	4,351,156,896	23,192,000	463,810,853	4.05E+08	8.57E+12	27.5
	2012	1,023,455,000	5,184,925,236	30,222,000	495,917,546	2.08E+08	8.58E+12	26.4
INS019	2008	741,654,000	2,618,563,932	16,550,000	291,120,965	2.33E+09	8.59E+12	24.5
	2009	788,862,000	3,164,564,982	46,860,000	343,957,478	2.02E+10	8.60E+12	23.4
	2010	1,113,686,000	3,738,121,440	27,506,000	375,409,869	0.00E+00	8.62E+12	21.6
	2011	1,057,886,00	3,140,810,106	30,582,000	436,421,572	1.33E+09	8.63E+12	19

		0						
	2012	1,171,357,284	3,115,834,500	61,373,879	527,421,747	1.48E+09	8.64E+12	28.6
INS020	2008	892,363,670	4,093,507,956	18,866,000	352,733,209	1.51E+09	8.65E+12	43
	2009	1,162,700,712	5,327,474,082	61,468,444	469,084,730	6.85E+09	8.66E+12	40.8
	2010	1,443,186,260	6,719,433,624	21,494,302	553,774,136	5.23E+08	8.67E+12	31.9
	2011	2,212,378,300	8,469,542,562	215,816,462	682,245,576	1.19E+10	8.69E+12	31.4
	2012	2,436,458,685	10,906,080,606	162,836,952	887,906,597	1.25E+09	8.70E+12	27.8
INS021	2008	1,240,047,000	6,394,414,500	6,512,000	634,513,000	5.69E+08	8.71E+12	17.6
	2009	1,469,944,000	8,449,450,500	44,517,000	689,286,000	1.68E+09	8.72E+12	15.4
	2010	1,580,686,000	10,475,140,500	58,255,000	872,852,000	2.56E+06	8.73E+12	16.7
	2011	1,780,663,000	13,400,452,500	103,029,000	1,065,730,000	7.77E+08	8.74E+12	18.3
	2012	2,121,621,000	15,802,162,500	159,483,000	1,408,236,000	2.48E+09	8.76E+12	20.3
INS022	2008	687,576,000	3,962,980,500	25,790,000	460,853,000	8.39E+06	8.77E+12	26.3
	2009	737,493,000	4,172,512,500	26,720,000	568,030,000	1.29E+08	8.78E+12	23.9
	2010	827,387,000	4,754,248,500	79,728,000	566,601,000	3.99E+08	8.79E+12	28.3
	2011	973,895,000	5,107,906,500	98,440,000	660,491,000	4.24E+09	8.80E+12	32
	2012	1,020,996,000	5,752,996,500	30,265,000	695,413,000	3.73E+09	8.82E+12	30.8
INS023	2008	1,537,336,000	7,325,620,788	50,656,000	1,083,756,162	1.56E+09	8.83E+12	46.8
	2009	1,791,356,000	6,336,517,602	70,372,000	1,191,970,816	3.39E+10	8.84E+12	40.9
	2010	2,068,386,342	7,502,931,018	79,726,508	1,106,124,653	3.81E+09	8.85E+12	38.2
	2011	2,402,709,978	9,071,045,568	119,200,222	1,220,931,048	1.34E+08	8.86E+12	33.4
	2012	2,392,921,033	12,913,360,500	127,720,853	1,056,080,517	6.19E+09	8.87E+12	40
INS024	2008	603,801,000	4,444,908,318	3,670,000	460,958,600	3.63E+09	8.89E+12	20.6
	2009	577,405,000	5,247,220,614	21,159,000	446,480,525	1.17E+09	8.90E+12	22.6
	2010	678,693,000	6,168,238,950	26,119,000	606,573,803	8.03E+08	8.91E+12	22.1
	2011	842,234,000	6,735,568,500	62,513,000	740,812,303	1.70E+09	8.92E+12	23.3
	2012	907,223,000	7,657,600,956	96,242,000	874,531,019	3.84E+09	8.93E+12	29.2
INS025	2008	677,635,000	2,563,972,500	28,234,000	387,491,000	7.71E+08	8.94E+12	35.1
	2009	677,635,000	2,494,426,500	26,806,000	411,407,000	6.72E+08	8.96E+12	34.3
	2010	907,426,000	2,743,072,500	23,245,000	387,446,000	1.48E+09	8.97E+12	30
	2011	910,421,000	3,082,102,500	33,694,000	427,323,000	6.93E+08	8.98E+12	30.8
	2012	894,445,000	3,356,644,500	42,714,000	415,732,000	2.18E+10	8.99E+12	34.4
INS026	2008	2,367,010,000	6,838,222,500	6,400,000	1,550,768,000	3.76E+09	9.00E+12	12
	2009	2,463,320,00	6,306,724,500	28,105,000	1,335,831,000	1.00E+10	9.02E+12	16.2

		0						
	2010	2,380,794,000	7,076,374,500	37,990,000	1,230,140,000	1.40E+09	9.03E+12	20.2
	2011	2,741,737,000	8,646,520,500	40,531,000	1,139,698,000	4.23E+08	9.04E+12	18.8
	2012	2,888,064,000	10,179,112,500	22,816,000	1,051,115,000	2.26E+09	9.05E+12	18.3
INS027	2008	8,867,040,000	20,420,082,660	563,639,000	1,861,841,245	2.02E+10	9.06E+12	69
	2009	11,745,856	20,566,898,952	601,364,000	3,612,737,495	6.92E+08	9.07E+12	61.5
	2010	12,982,833,441	22,248,190,500	796,190,083	3,114,829,098	1.32E+09	9.09E+12	48.8
	2011	14,710,274,812	29,885,434,500	965,746,027	3,403,341,360	1.57E+09	9.10E+12	57.8
	2012	13,665,599,971	39,683,338,500	1,777,026,000	3,427,810,742	1.46E+09	9.11E+12	59.4
INS028	2008	6,430,251,000	19,586,446,500	119,278,000	2,213,893,000	8.60E+09	9.12E+12	18.8
	2009	7,282,311,000	19,760,752,500	143,026,000	2,905,903,000	5.66E+08	9.13E+12	17
	2010	8,285,918,000	21,866,662,500	21,221,000	3,466,303,000	1.10E+10	9.14E+12	16.8
	2011	9,039,057,000	24,384,424,500	-631,674,000	3,264,402,000	1.27E+09	9.16E+12	8.8
	2012	10,582,800,000	35,756,674,500	245,524,000	3,293,453,000	3.86E+08	9.17E+12	11
INS015	2008	743,817,000	2,417,464,716	17,303,000	377,975,468	1.70E+09	9.18E+12	18.4
	2009	729,983,000	2,776,836,942	22,015,000	361,346,150	2.95E+08	9.19E+12	19.5
	2010	769,776,000	3,012,816,240	32,342,000	361,355,657	9.77E+08	9.20E+12	20.6
	2011	855,534,000	3,358,565,256	26,746,000	402,905,036	2.62E+09	9.22E+12	30.2
	2012	853,202,000	4,030,126,500	15,877,000	462,800,407	0.00E+00	9.23E+12	28.9
INS029	2008	12,440,080,000	23,390,392,500	84,752,000	1,623,573,000	1.38E+08	9.24E+12	7.2
	2009	13,375,122,000	15,882,850,500	725,149,000	1,652,732,000	3.80E+08	9.25E+12	11.1
	2010	15,524,372,000	18,971,542,500	439,427,000	2,049,659,000	3.76E+09	9.26E+12	10
	2011	19,151,727,000	21,861,358,500	589,285,000	3,898,393,000	5.58E+09	9.27E+12	9.7
	2012	20,935,397,000	23,964,454,500	473,953,000	2,647,136,000	1.47E+09	9.29E+12	9.4
INS030	2008	6,295,923,000	9,405,862,500	201,328,997	1,276,922,938	7.70E+08	1.12E+12	24.2
	2009	5,880,805,000	10,371,424,500	289,099,993	1,354,109,222	4.01E+08	5.82E+11	26.4
	2010	5,123,246,000	10,441,462,500	208,317,000	1,480,658,000	3.02E+09	4.38E+12	25.8
	2011	4,572,935,000	11,012,896,500	178,618,000	1,567,638,000	6.40E+08	9.28E+11	24.3
	2012	3,721,983,000	14,485,000,500	601,595,000	1,728,565,000	2.40E+10	3.49E+13	25.2
INS031	2008	691,547,000	2,782,899,618	16,812,000	360,926,908	3.89E+09	5.64E+12	29.3
	2009	772,857,000	2,975,539,776	-2,082,000	377,798,799	5.08E+09	7.36E+12	32.3
	2010	895,164,000	3,505,649,490	20,092,000	418,444,243	8.92E+08	1.29E+12	28.5

	2011	982,020,000	4,351,156,896	23,192,000	463,810,853	4.02E+08	5.83E+11	27.5
	2012	1,023,455,000	5,184,925,236	30,222,000	495,917,546	1.90E+09	2.76E+12	26.4
INS032	2008	741,654,000	2,618,563,932	16,550,000	291,120,965	1.71E+10	2.48E+13	24.5
	2009	788,862,000	3,164,564,982	46,860,000	343,957,478	5.50E+08	7.98E+11	23.4
	2010	1,113,686,000	3,738,121,440	27,506,000	375,409,869	1.89E+09	2.74E+12	21.6
	2011	1,057,886,000	3,140,810,106	30,582,000	436,421,572	1.83E+09	2.65E+12	19
	2012	1,171,357,284	3,115,834,500	61,373,879	527,421,747	1.52E+09	2.20E+12	28.6
INS033	2008	892,363,670	4,093,507,956	18,866,000	352,733,209	6.24E+09	9.04E+12	43
	2009	1,162,700,712	5,327,474,082	61,468,444	469,084,730	1.14E+09	1.66E+12	40.8
	2010	1,443,186,260	6,719,433,624	21,494,302	553,774,136	1.56E+10	2.26E+13	31.9
	2011	2,212,378,300	8,469,542,562	215,816,462	682,245,576	1.36E+09	1.98E+12	31.4
	2012	2,436,458,685	10,906,080,606	162,836,952	887,906,597	4.51E+08	6.54E+11	27.8
INS034	2008	1,240,047,000	6,394,414,500	6,512,000	634,513,000	2.47E+09	3.58E+12	17.6
	2009	1,469,944,000	8,449,450,500	44,517,000	689,286,000	6.71E+07	9.73E+10	15.4
	2010	1,580,686,000	10,475,140,500	58,255,000	872,852,000	5.21E+08	7.56E+11	16.7
	2011	1,780,663,000	13,400,452,500	103,029,000	1,065,730,000	2.88E+09	4.18E+12	18.3
	2012	2,121,621,000	15,802,162,500	159,483,000	1,408,236,000	4.57E+07	6.63E+10	20.3
INS035	2008	687,576,000	3,962,980,500	25,790,000	460,853,000	1.29E+08	1.88E+11	26.3
	2009	737,493,000	4,172,512,500	26,720,000	568,030,000	3.90E+08	5.66E+11	23.9
	2010	827,387,000	4,754,248,500	79,728,000	566,601,000	4.05E+09	5.87E+12	28.3
	2011	973,895,000	5,107,906,500	98,440,000	660,491,000	2.73E+09	3.96E+12	32
	2012	1,020,996,000	5,752,996,500	30,265,000	695,413,000	1.71E+09	2.48E+12	30.8
INS036	2008	1,118,598,000	11,781,508,500	2,584,000	1,063,978,193	1.48E+08	2.15E+11	17.5
	2009	1,435,468,000	13,332,490,500	18,321,000	1,386,770,692	3.39E+10	4.92E+13	15.4
	2010	1,657,105,000	16,561,144,500	-5,834,000	1,635,683,000	3.70E+09	5.36E+12	13.1
	2011	2,438,669,000	27,337,846,500	31,653,000	1,963,579,000	1.01E+08	1.47E+11	23.5
	2012	3,028,650,000	40,414,360,500	145,504,000	2,222,076,000	4.08E+09	5.91E+12	25
INS037	2008	7,009,954,000	9,015,292,500	365,519,000	1,569,051,000	4.54E+09	6.58E+12	5.2
	2009	7,196,814,000	9,153,700,500	262,222,000	1,331,924,000	1.19E+09	1.72E+12	2.5
	2010	8,461,298,000	11,289,994,500	255,032,000	1,560,347,000	9.38E+08	1.36E+12	6.8
	2011	9,146,889,000	11,785,810,500	261,358,000	1,502,543,000	1.74E+09	2.52E+12	7.5

	2012	9,699,822,000	8,344,270,500	261,358,000	1,525,611,000	2.75E+09	1.64E+12	11.7
INS038	2008	1,196,577,000	3,767,301,132	45,422,000	203,377,951	7.65E+08	1.68E+12	28.4
	2009	1,327,129,000	4,059,512,694	76,950,000	324,537,264	7.79E+08	3.17E+12	34.3
	2010	1,639,452,000	5,246,372,934	14,671,000	336,427,071	1.48E+09	9.00E+11	34.5
	2011	1,995,073,000	6,112,858,728	73,906,000	627,877,772	4.18E+08	4.52E+13	32.1
	2012	2,455,316,000	8,549,971,236	11,352,000	676,579,699	2.10E+10	1.39E+13	26.3
INS039	2008	3,365,286,000	15,058,684,500	44,532,000	1,546,545,000	6.45E+09	1.05E+13	5
	2009	4,478,943,000	19,003,768,500	109,030,000	1,658,934,000	4.86E+09	1.87E+12	5.7
	2010	6,554,774,000	22,695,670,500	511,753,000	2,018,213,000	8.72E+08	9.13E+11	6.7
	2011	10,251,754,000	26,000,602,500	324,136,000	2,509,775,000	4.25E+08	8.04E+11	38.1
	2012	12,472,893,000	33,500,632,500	373,665,000	3,167,289,000	3.74E+08	5.06E+12	37.3
INS040	2008	927,787,000	969,190,500	21,846,000	99,512,000	2.35E+09	2.64E+13	37.6
	2009	1,470,410,000	1,102,726,500	289,463,000	167,917,000	1.23E+10	2.58E+12	47.8
	2010	1,902,189,000	1,013,374,500	224,740,000	205,140,000	1.20E+09	4.88E+12	51.7
	2011	1,774,343,000	1,287,568,500	-62,920,000	161,526,000	2.27E+09	4.07E+12	48.2
	2012	1,702,288,000	1,477,240,500	107,577,000	183,782,000	1.89E+09	2.46E+12	43.8
INS041	2008	360,751,207	3,382,563,600	5,841,500	210,401,912	1.14E+09	1.50E+13	42.6
	2009	416,996,086	5,859,606,318	25,927,080	240,493,965	6.96E+09	7.22E+12	41.1
	2010	478,170,441	8,324,539,038	34,007,679	330,819,263	3.36E+09	2.07E+13	40.9
	2011	673,853,928	10,413,738,306	29,963,751	563,754,850	9.63E+09	6.14E+12	33.5
	2012	924,410,398	10,624,625,070	80,821,101	976,595,303	2.85E+09	2.86E+12	36.2
INS042	2008	2,440,118,000	14,133,520,500	43,912,000	1,305,286,000	1.33E+09	6.51E+12	17.4
	2009	3,024,904,000	18,017,452,500	459,416,000	1,504,366,000	3.03E+09	1.51E+12	29
	2010	4,102,665,000	21,801,808,500	810,604,000	2,008,419,000	7.04E+08	1.39E+12	39.6
	2011	4,490,813,000	27,668,482,500	2,753,000	2,355,581,000	6.49E+08	3.51E+12	35.7
	2012	4,936,056,000	30,118,714,500	265,074,000	3,002,903,000	1.63E+09	9.81E+11	25.6