EFFECTS OF MORTGAGE FINANCING ON PROFITABILITY OF MICROFINANCE INSTITUTIONS IN KENYA

BY

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DECLARATION

This project is my original work that has not been presented for any award in any university.

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

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DEDICATION

This project is dedicated to my family.

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First is to give to thanks to God who enabled me to successfully pursue this course and accomplish all the achievements.

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ABBREVIATIONS AND ACRONYMS

AMFI:	Association of Micro-Finance Institutions
ANOVA:	Analysis of Variance
BIS:	Bank of International Settlements
CAHF:	Center for Affordable Housing Finance
CBK:	Central Bank of Kenya
LCR:	Liquidity Coverage Ratio
MBS:	Mortgage Backed Securities
MFBs:	Microfinance Banks
MFIs:	Microfinance Institutions
NPLs:	Non-Performing Loans
NSFR:	Net Stable Funding Ratio
PMS:	Propensity Matching Score
ROA:	Return on Assets
ROE:	Return on Equity
SACCOs:	Savings and Credit Cooperative Organizations
SPSS:	Statistical Package for Social Sciences
VIF:	Variance Inflation Factor

ABSTRACT

Housing demand has increased in Kenya which has resulted to a high demand for mortgage financing in recent years. However, as financial institutions seize this opportunity, the potential effect on profitability should be well monitored, given that profitability is critical to the sustainability of financial institutions. However, existing studies have not adequately explored the effect of mortgage loans in particular on profitability. The fundamental question that remains unanswered in the existing studies is what is the effect of mortgage financing on profitability of MFIs in Kenya? The objective of the study was to assess the effects between mortgage financing on profitability of microfinance institutions in Kenya from 2013-2017. The research design applied was the descriptive survey design. Targeted population included all the 13 microfinance institutions that offer mortgage financing in Kenya. Since the study population was relatively small, all the 13 MFIs constituted the study sample. The study used secondary data. In particular, the data collected included data on profitability and mortgage financing. The data was collected for a period of 5 years beginning from 2013 to 2017. First descriptive statistics of frequency, percentage and mean were used to analyze the data. To determine whether any significant relationship exists between mortgage financing and profitability of MFIs, inferential statistics were used, regression analysis, correlation analysis and Analysis of Variance. The findings indicated that there was a sharp increase in the offering of mortgage finance by MFIs from 2013 all through to 2017. During the five years' period, liquidity of the MFIs had a weak significant negative relationship with financial performance of MFIs. The operational efficiency of the MFIs had a strong significant relationship with MFIs.The value of R square from the regression analysis was 0.929 indicating that mortgage financing, liquidity, and operational efficiency collectively explain approximately 92.9% of the change in profitability of MFIs. The study concludes that even as the MFIs continue to venture into mortgage financing, their
liquidity has not been adversely affected over the period. Moreover, the study deduces that profitability of MFIs is negatively correlated with mortgage financing and liquidity. The study recommends among recommendations that, more MFIs should venture into mortgage financing since by so doing, they stand a chance to enhance their profitability. However, they have to do so cautiously ensuring that their liquidity is maintained at high. The management of MFIs should also consider business realignment by reviewing their business lines and products and exit those that are not profitable or cost effective. This can help to minimize their operational costs.

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

The contemporary continuous increment in urbanization worldwide has captured the interest of developers, financiers and investors altogether on the opportunities especially for housing. In their recent report, the Center for Affordable Housing Finance (CAHF) asserted that as the market players explores what to venture into, the changing focus towards affordable housing becomes apparent (CAHF, 2017). From the multiplier effect in housing, jobs are created whenever a house/housing unit is constructed. Therefore, enhancement of housing finance to unlock the housing sector results to diverse opportunities being created in the construction industry and other related industries as has been conspicuously witnessed across various countries worldwide like Colombia, India, and South Africa (World Bank, 2017). This is also evident in Kenya with the country's urbanization rate projected to be over 50% by 2030 (Fortune of Africa, 2016). This was also reflected in the recently launched Big Four agenda program where the government of Kenya has committed to construct 500 000 affordable homes as part of the solution to the housing challenge (Kenya Property Developers Association, 2018).

Mortgage financing therefore has a major role to play in the realization of Kenya's envisaged economic growth and development especially for the housing sector. However, while the opportunity to the financiers appears well calculated and the potential to succeed well comprehended, hurdles still remain across the whole value chain for housing (CAHF, 2017). This notwithstanding, Kenya's dynamic mortgage industry continues to get more competitive with several institutions seizing the niche including commercial banks, Savings and Credit Cooperative Organizations (SACCOs) and microfinance banks (Makori & Memba, 2015). However, any move that has the potential to affect the profitability of financial institutions is very critical given their fundamental role in the economy. It is thus imperative to bring to the limelight the effect of mortgage financing on profitability of these institutions. This was the gist of the study with a special focus on the case of microfinance institutions (MFIs).

1.1.1 Concept of Mortgage Financing

In simple terms, a mortgage refers to a loan given by a financial institution to a borrower to finance the purchase of property usually a house. In other words, they are structured as loans that are long term in nature, whose payment is periodic like annuities and computed on the basis of monetary time-value formulae (Nyanyuki & Omar, 2016). Investors buy mortgages in secondary markets as "mortgage backed securities" (MBS) and the role of the government is to regulate the securities (Makori & Memba, 2015). Usually, mortgage arrangements require a fixed repayment per month for a period of 10 to 30 years depending on the local conditions, with the principal amount paid gradually over the period through amortization (Nyanyuki & Omar, 2016).

While mortgages are of various types, fixed and adjustable rate mortgages are the most common. In a fixed rate mortgage, the mortgagor pays a fixed interest rate during the entire life (repayment period) of the mortgage. On the other hand, in an adjustable rate mortgage, the interest rate paid by the borrower varies with the shifts or changes in the market behavior (Renaud, 2009). Even so, a myriad of new mortgage products have cropped in the market with the high increment in institutions offering mortgage finance particularly in non-prime lending. The expansion has enhanced credit accessibility to persons initially excluded or not adequately served in the mortgage market (Makori & Memba, 2015).

The Central Bank of Kenya (CBK) highlights the increment in mortgage lending in the country. The average loan size for mortgage increased to Ksh.10.9 million in 2017 compared to Ksh.9.1 million in 2016. The value of the outstanding mortgage loan assets was Ksh.223.2 billion in December 2017 which was a 1.5% increase from Ksh.219.9 billion in December 2016. This apparent increment is attributed to increased preference for home ownership to rentals (CBK 2017).

1.1.2 Concept of Profitability

Among the fundamental aims or targets of financial management is profitability. This is particularly because maximizing owner's wealth is the major (Bosco & Faustin 2016). By definition, profitability is an institution's ability to earn returns from its respective investments in excess of the costs of the investments (Tulsian, 2014). According to Kipesha and Zhang (2013), profitability is realized when the firm is able to lower the cost of transactions, and provide

quality products/services which satisfies customer preferences hence generating more revenue. In their perspective, Bosco and Faustin (2016) asserted that firms attain profitability when their opportunity cost of capital and risk taking at least equals their income (net of subsidies and tax). Apart from donations, the survival of MFIs is largely dependent on the MFIs' profitability and their utilization of commercial sources to finance their operations (Kipesha & Zhang, 2013). This implies that profitability is fundamental in the expansion and growth of MFIs. It is no surprise that most financial institutions including commercial banks and MFIs use profitability to measure their performance (Ross, Westerfield & Jaffe, 2010; Gwaya & Mungai, 2015).

Profitability of financial institutions is usually measured in form of ratios. According to David and Muendo (2018), these ratios for measuring profitability of financial institutions mostly are Return on Assets (ROA) and Return on Equity (ROE). ROA indicates how capable the management of the institution to convert the institutions' assets into net earnings. Thus, it is derived by dividing the firm's annual income by the total assets (Sunday et al., 2013). On the other hand, ROE is the proportion of net income returned as a percentage of shareholders' equity. In other words, it measures the company's profitability by indicating the volume of profits generated by the firm from the shareholders' money. Thus, ROE is derived by dividing the net income by shareholder's equity (David & Muendo, 2018).

In this regard, the profitability of MFIs in Kenya declined in the year ended 31st December 2017 compared to their profitability in the year ended at 31st December 2016. The CBK (2017) reported an overall decline of MFIs performance, as reflected by a combined loss before tax of Ksh.622 million for the year ended 31st December 2017 compared to a loss before tax of Ksh.377 million. On the same note, the Return on Assets for MFIs decreased to negative 0.9% in 2017 compared to negative 0.5% in 2016. Similarly, their Return on Equity decreased from negative 3.2% in 2016 to negative 5.5% in 2017 (CBK, 2017).

1.1.3 Mortgage Financing and Profitability

Under normal circumstances, mortgage financing should have a positive effect on profitability. This is because financial institutions extend loans to borrowers with the intent to generate revenues from the interest charged on the loan (Moti et al., 2012). However, this is not always the case due to factors such as loan default by the borrowers and changes in macroeconomic factors among others (Owuor, Githii & Mwangi, 2018). To ensure they realize profitability, Moti

et al., (2012) cautioned that MFIs need to ensure that their credit management systems are constantly checked and kept effective. This implies that the effect of mortgage financing on profitability may vary from one institution to the other, subject to the differences in their credit management systems alongside the impact of the macroeconomic factors. This could possibly explain the lack of consensus in literature on how mortgage financing affects profitability.

For instance, a study by Ndururi (2013) revealed that the use of mortgage financing by commercial banks improved their profitability. However, in another study by Krainer and Laderman (2011) mortgage financing exerted no significant effect on banks' profitability. While these studies were however confined to commercial banks and not MFIs, they highlight the two possible outcomes on profitability that could result from use of mortgage financing in a financial institution. Thus, it is only by investigating the relationship between mortgage financing and profitability in different financial institutions over time that the real trend of the effect can be established for different periods.

1.1.4 Microfinance Institutions in Kenya

According to CBK (2014), an MFI is an institution offering financial services like savings, credit, and insurance among others to the low income and poor households and SMEs. Since 1990s, MFIs have been widely recognized in Kenya for their provision of financial services to the low income earners and their role in eradicating poverty (Kathomi, Kimani & Kariuki, 2017). Microfinance institutions are currently recognized as among the institutions offering readily accessible and affordable financial services in the country.

The Association of Micro-Finance Institutions (AMFI) categorizes MFIs into: Credit Only MFIs – under the supervision of the Ministry of Finance; non-deposit taking MFIs – under the supervision of the Ministry of Cooperatives and Marketing; and the microfinance banks and deposit taking MFIs – under the supervision of CBK (Kathomi, Kimani & Kariuki, 2017).

As at 30th June 2017, there were a total of 60 MFIs including 13 Microfinance banks, 43 Credit only Microfinance providers, 1 Sacco, 2 wholesaler funders, and 1 developmental organization (Association of Microfinance Institutions, 2018). The total outstanding loan portfolio of the MFIs was approximately Ksh.87.87 billion as at 30th June 2017.

The various categories of MFIs in Kenya, which have different outstanding gross loan portfolio as at June 2017, this includes: Microfinance banks with a gross loan portfolio of Ksh 46,349,857,577 representing a 53%, Credit Only MFIs with Ksh 20,494,177,123 representing a 23%, SACCO with a gross loan portfolio of Ksh 21,027,725,000 representing a 24% of the total gross outstanding loan (Association of Microfinance Institutions 2018).

1.2 Research Problem

Housing demand has increased in Kenya which has resulted to a high demand for mortgage financing in recent years (Makori & Memba, 2015). The Central Bank of Kenya (2017) reported 8.8% increase in the total number of mortgages in the market from 24,059 mortgages (valued at Ksh.219.9 billion) in 2016, to 26,187 mortgages (valued at Ksh.223.2 billion) in 2017. However, as financial institutions seize this opportunity, the potential effect on profitability should be well monitored, given that profitability is critical to the sustainability of financial institutions (Kipesha & Zhang, 2013). This can help to avoid the risk of the demand moving from a boom to a bubble and to a burst as it happened in the U.S housing sector, leading to millions of bad mortgage loans, and consequently a devastating global economic crisis (Nyanyuki & Omar, 2016).

Given their nature of operations, MFIs need to carefully monitor and understand the effect of mortgage financing on their profitability. MFIs mostly work with donors and development partners targeting low income earners and the poor to alleviate poverty (Kipesha & Zhang, 2013). Thus, their profitability is key to ensuring a sustainability that guarantees continuity in their operations even when funding from donors and development partners may cease. In 2017, CBK reported that while mortgage financing increased, there was also an increment in non-performing mortgages from Ksh.22.0 billion in 2016 to Ksh.27.3 billion in 2017 (CBK, 2017). It is thus critical to evaluate the effect of the mortgage financing on profitability especially for MFIs. However, this has not been adequately explored in existing studies.

In their study, van de Minne and Teppa (2015) explored the demand and supply of mortgage credit in Netherlands. However, this study was too general and provided little insights on the effect of mortgage finance on profitability. A study in Taiwan by Kuo et al (2010) investigated the relationship between loan policy and bank performance. This study indicated that loan

policies significantly affected the performance of commercial banks negatively. However, the study did not cover MFIs and also failed to investigate in the effect on profitability from mortgage financing in particular. Gyamerah and Amoah (2015) explored the determinants of profitability among Ghanaian banks. The study however did not assess mortgage financing as a determinant of profitability and also failed to include the MFIs in the investigation.

Kipesha and Zhang (2013) explored sustainability, profitability and outreach trade-offs among MFIs in East Africa. The study revealed that MFIs' focus on profitability has negatively affected their outreach to the poor. However, the study did not examine how the profitability is affected by mortgage financing in the MFIs. David and Muendo (2018) investigated how CBK regulations affect MFIs' financial performance. However, the study only covered the microfinance banks while excluding other MFIs and also failed to explore the effect of mortgage financing on profitability. Kathomi, Maina and Kariuki (2017) assessed the relationship between interest rate regulations and sustainability of MFIs and found a negative relationship between the variables. However, the study covered all loans in general and did not explore in details the effect of mortgage loans in particular on profitability. The fundamental question that remains unanswered in existing studies is what is the effect of mortgage financing on profitability of MFIs in Kenya? This study therefore adds on to the existing literature, knowledge about mortgage financing in MFIs and how it affects their profitability.

1.3 Research Objective

The objective of the study was to assess the effects between mortgage financing on profitability of microfinance institutions in Kenya from 2013-2017.

1.4 Value of the Study

The study findings may contribute greatly to ensuring the sustainability of MFIs in Kenya by providing insights to them on how mortgage financing affects their profitability. From the study findings, the managers of MFIs may be more informed in making their decisions while venturing into mortgage financing. This is important to ensure their good performance which has a significant contribution in the overall economic development in the country.

The study may be of importance to other financial institutions by providing useful insights on the effect of mortgage financing on profitability. It can assist the institutions in pointing out priority

areas that needs attention especially in their consideration to offer mortgage financing. The study findings may also help the financial institutions in formulating a policy on areas that necessitate strategic focus to ensure their profitability is enhanced.

The study may also be useful to the academia. This is because the study findings may be used by future scholars as a reference. This may especially be more useful to those that may be interested in conducting more research on related topic in mortgage finance and profitability.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature on the concepts under investigation. In particular, it presents a theoretical review of the study and reviews the literature on determinants of profitability. An empirical review of existing studies is presented and lastly the reviewed literature is summarized.

2.2 Theoretical Review

The study's theoretical foundation was grounded on the title and lien theory and loanable funds theory as discussed herein.

2.2.1 Title and Lien Theory of Mortgages

This theory was developed by Werner (1988). According to this theory, financial institutions treat mortgage under a title or lien principle. Under the title principle, the property's title is held by the mortgagee until the mortgagor fully pays the mortgage, and acquires the title. That is, in the title principle, the financial institution (mortgagee) withholds the property title with interest rights over it until the borrower (mortgagor) settles the loan in full (Akenga, Olang & Galo, 2015). According to Buckley and Kalarickal (2004), the financial institution keeps possession of the title for security reasons exclusively.

Under the lien principle, the mortgagee only has a lien and not a title in the property up to the time of full repayment of the mortgage when the lien is removed (Akenga, Olang & Galo, 2015). That is, the mortgagor (borrower) keeps the lawful rights over the property, and attaches an interest that only the lender can do a foreclosure after satisfying the requisite obligations. In other words, the lender has a future interest that permits them to apply the foreclosure process. According to Buckley and Kalarickal (2004), the lien is formed by this interest of security on the property. The financial institution can sue the borrower in case of interference with possession rights.

2.2.2 Loanable Funds Theory

This theory was proposed in 1934 by Robertson (Robertson, 1934). It posits that financial security varies with variations in interest rates by responding to other factors alongside the interest rates. An example of such factors is financial security risks that triggers the loanable funds supply curve to shift. Ceteris paribus, fund suppliers' are more attracted as financial security risks declines thus causing an increment in funds supply (Akenga, Olang & Galo, 2015). In contrast, as Saunders and Marcia (2001) asserts, increment in financial security risks deters funds suppliers hence a decline in funds supply. Thus, the implication in the theory is that when the mortgage risk is perceived to be high, few will offer it. This is because the fundamental concern of the lenders in offering the mortgage is the amount of expected returns relative to the risks attached (Brueggman & Fisher, 2008).

According to this theory, the equilibrium price of the supply and demand of the loanable funds is the interest rate. At this point, those investing and those saving maximize their satisfaction. Changes in interest rates result from changing demand or supply of loanable funds. The theory implies that both the mortgagee (financial institution) and the mortgagor (borrower) need to be adequately satisfied. From the theory therefore, interest rate spread should not exploit either party; rather, the institutions should structure interest rates in such a manner that is convenient to both parties (Akenga, Olang & Galo, 2015).

2.3 Determinants of Profitability in MFIs

2.3.1 Mortgage Financing

Financial institutions considers mortgage financing to be a diversification strategy that they normally expect to reduce the risks that arise from unsecured non-performing loans (NPLs) (Lipunga, 2014). Given that it puts an obligation to the borrowers to deposit a down payment of a certain amount, the prevalence of NPLs is significantly minimized, hence boosting the profitability of the institution (Kimeu, 2008). It has been established that financial institutions often venture into mortgage financing to enhance profitability and consequently their overall financial performance (Ndururi, 2013).

Mortgage financing is considered an important line of business for the financial institutions which contributes significantly to their profitability. As asserted by Biernet (2006), most of the

commercial banks and microfinance institutions have been known to depend on returns garnered from this venture for their growth and expansion.

2.3.2 Liquidity

Liquidity is a financial institution's ability to be in such a position that it can finance (without making any losses), its growth of assets and fulfill its obligations when they are due (Bank of International Settlements [BIS], 2008). BIS (2010) explained that the profitability of financial institutions is largely determined by its liquidity position. According to Vodova (2013), an institution could face a funding or a market liquidity risk. In the former type of risk, the institution is unable to accomplish foreseen and unpredicted collateral and cash flow demands efficiently, with minimal effect on the institution's financial position. On the other hand, the later kind of risk is whereby the institution is unable to effectively and efficiently come out of a certain position at a given market price due to insufficient market penetration or due to market abrasion. Financial institutions can pursue different avenues to generate liquidity like injecting more capital, sale of loans, inter-bank borrowing or borrowing from the central bank (BIS, 2010).

2.3.3 Operational Efficiency

The operational costs, usually derived as a percentage of the income often exert a negative effect on profitability. Operational cost is normally reflected in the operating expenses and it mostly reflects management's efficiency. It is thus no surprise that most scholars have found a negative relationship between operational costs and profitability. For example, Ayele (2012) revealed a strong relationship between banks' profitability and efficiency of the management among Ethiopian banks. Similarly, Amare (2012) revealed that poor management of expenses had a negative effect on profitability among Ethiopian commercial banks. Moreover, Swarnapalia (2014) affirmed that bank's profitability was strongly affected by operational costs. Even so, contrary results have been evidenced in some studies. Kamau and Were (2013) for instance did not find any significant effect of operational costs management on profitability of Kenyan commercial banks. Similar findings were reported in study among Ghanaian banks by Gyamerah and Amoah (2015). None of these studies however focused on MFIs.

2.3.4 Market Concentration

Industry/market concentration reportedly exerts a positive effect on most financial institutions' profitability. Kamau and Were (2013) revealed that one of the fundamental sources of enhanced profitability among commercial banks in Kenya was market structure. Nonetheless, there have been contrary findings reported in other studies. Among Tunisian commercial banks, Naceur (2013) found that market concentration negatively affected profitability of the institutions. In another study conducted in Korean banks by Karasulu (2001), market concentration did not have a significant effect on the profitability. It is therefore apparent that, there lacks consensus in literature on the effect of market concentration on profitability of a financial institutions. Few studies have also assessed the effect for the case of MFIs.

2.4 Empirical Studies

Khachatryan (2013) assessed link between micro-credit and micro-savings services and capital structure to profitability of MFIs in Eastern and Central Europe. Using Propensity Matching Score (PMS), the study analyzed the ability of micro-savings and lending services to promote profitability by reducing default rates. Findings indicated that deposit taking MFIs covered a larger customer base and were more profitable and cover wider outreach which concurred with the results from the study by Rossel-Cambier (2012).

Using a quantitative approach, Hartaska et al (2011) investigated how economies of scale of MFIs were impacted by the combined offering of microloans and micro-deposit services in more than fifty nations. The study used semi-parametric coefficient model in estimating the MFIs' cost function. From the results, more than 70% of the MFIs reduced their costs through their offering of both services. Findings further revealed that some of the MFIs offering micro-saving services did not have enhanced profitability. The study thus concluded that from a policy dimension, offering of micro-saving was vital, but it does not necessarily enhance MFIs' profitability in every context. These findings disagree with Rossel-Cambier (2012) and Khachatryan (2013) whose results deduced that joint services are likely to boost MFIs' profitability

A study by Clementina and Gabriel (2015) in Nigeria, indicated that Microfinance bank requirements such as engagement of external auditors and filling of monthly returns leads to increased operational costs which undermines profitability. Otieno et al., (2016) undertook a

study that investigated how microfinance banks' performance was linked to liquidity risk management. The independent variables were financial gap ratio and capital adequacy ratio while performance was measured by ROA and ROE. The study used longitudinal research design where data was collected for the period between 2011 and 2015 from the targeted institutions comprising the twelve registered Microfinance banks. Using purposive sampling, six microfinance banks were sampled. The findings revealed a moderate correlation and a significant positive relationship between both financial gap ratio and capital adequacy ratio and the performance measures that reflected profitability.

A study on Kenyan commercial banks carried out by Muriithi and Waweru (2017) also investigated how liquidity risk affected the banks' profitability from 2005-2014 for the entire 43 licensed commercial banks. Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR) were used to measure liquidity risk, while ROE measured the banks' profitability. The findings revealed a negative relationship between NSFR and profitability but no significant relationship between LCR and profitability. Nonetheless, the overall results indicated that liquidity risk negatively affected profitability and the overall financial performance.

Wangai, Bosire and Gathogo (2014) undertook a study that investigated how NPLs affect microfinance banks' (MFBs) financial performance in Kenya. MFBs in Nakuru town were covered in the study. The independent variable was credit risk while the dependent variable was financial performance. The study revealed a significant negative effect exerted on the MFBs' financial performance by credit risks.

A study by Belydah and Ondigo (2016) explored the determinants of financial performance among deposit taking MFBs and Cooperative Societies registered with the Sacco Societies Regulatory Authority (SASRA) in Kenya between 2009 - 2011. The study found that profit ratio was positively related to non-interest income ratio, interest income ratio, asset quality ratio and financing ratio. Moreover, the study found that non-interest expense ratio and profit ratio were negatively related to the liquidity ratio.

2.5 Summary of Literature Review

A review of exiting studies indicates that there is scarcity of studies that have assessed the effect of mortgage financing on profitability of microfinance institutions. Most of the studies have

assessed the effects of loans in general on the financial performance while others have explored other determinants of profitability apart from mortgage financing. The findings in a nutshell imply that there is no consensus on how mortgage financing affects profitability of MFIs. Moreover, the findings indicate that even the effect of other factors on profitability varies from one context to another. Even so, the findings in these studies do not explain how the various factors affect the interplay between mortgage financing and profitability of MFIs.

In this regard, the findings in existing studies cannot be generalized to the context of all MFIs. Moreover, given the limited research on the relationship between mortgage financing and profitability of MFIs, there is dearth of empirical information with adequate insights on how mortgage financing affects profitability of MFIs. Therefore, in order that these identified gaps in literature on how mortgage financing affects MFIs' profitability, the purpose of this research was to assess the impact of mortgage financing on profitability of Kenyan MFIs from 2008-2017.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the procedure and methods that were applied to carry out the research. The chapter describes the design that was adopted, the study population and the sample that was covered. It also describes the technique that was applied to collect data and the data analysis methods that were used.

3.2 Research Design

In this study, the research design applied was the descriptive survey design. According to Cooper and Schindler (2006), this design presents the study items' present status. Salaria (2012) elaborates that the descriptive survey design portrays the real status of a phenomenon in its natural occurrence. For this reason, use of this design was of great benefit in deriving solutions to the identified research problem. The design thus is considered suitable for the research because it can enable the researcher to get information to help in exploring how mortgage financing affects Kenyan MFIs' profitability.

3.3 Population

Targeted population included all the 13 microfinance institutions that offer mortgage financing in Kenya. These included: Rafiki Microfinance Bank Ltd; KWFT; Faulu Microfinance Bank Limited; U&I Microfinance Bank Ltd; Remu Microfinance; Uwezo ; Choice Microfinance; SMEP ; SUMAC; Maisha Microfinance Bank Ltd ; Caritas; Daraja Microfinance; and Select Management Services Ltd.

3.4 Sample

Since the study population was relatively small, all the 13 MFIs constituted the study sample. This was with reference to the recommendation by Mugenda and Mugenda (2003), that where the population is relatively small, there is no need for sampling; rather the entire elements in the population should be studied.

3.5 Data Collection

The study used secondary data. This data was obtained by extracting it from published documents including reports and financial statements from the MFIs as well as reports published by the AMFI and the CBK. In particular, the data collected included data on profitability and mortgage financing. The data collected entailed: ROE, ROA, total deposits, amount of mortgage advanced, net income, non-interest costs, and the total assets. The data was collected for a period of 5 years beginning from 2013 to 2017.

3.6 Data Analysis

All the collected data was cleaned and its completeness checked before being entered into a computer program - Statistical Package for Social Sciences (SPSS). It is from this program that various statistical techniques were applied to analyze the data.

First descriptive statistics of frequency, percentage and mean were used to analyze the data. Moreover, measures of dispersion including the variance were computed to further enhance the analysis of the data and derive more comprehensive findings.

To determine whether any significant relationship exists between the predictor variable (mortgage financing) and the dependent variable (profitability of MFIs) inferential statistics were used. In this regard, multiple regression analysis was done where the analytical model to be used was expressed as a regression model:

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

Where

Y = Profitability of MFIs measured by ROA

β_0 = Regression Constant

X_1 = Mortgage financing measured by percentage mortgage advanced to total assets

X_2 = Liquidity of MFIs measured by ratio of total deposits to total assets

X_3 = Operational efficiency of MFIs measured by ratio of net income to non-interest cost

$\beta_1, \beta_2, \beta_3$ = Regression Coefficients of Mortgage financing, Liquidity and Operational efficiency respectively

ε = The error term

Multi-collinearity and normality tests were conducted. For multi-collinearity testing, Variance Inflation Factor (VIF) was applied where according to Kutner, Nachtsheim and Neter (2004), the recommended threshold for VIF is ≤ 3. On the other hand, Shapiro-Wiki (S-W) test will be applied for normality test as recommended by Saunders et al., (2009). Field (2009) reveals that in the S-W test, if $p \leq 0.05$, the data is not normally distributed. Otherwise, normal distribution is indicated where $p > 0.05$.

The predictors in the model were regressed individually against the dependent variable and then jointly to ensure more comprehensive findings on the relationship between the predictors and the dependent variable. Moreover, Pearson's Correlation analysis and Analysis of Variance (ANOVA) were also computed to further assess the relationship between the variables.

Findings were presented in pie charts, bar graphs, line graphs and tables. The findings were then interpreted and discussed in line with the study objective and in the light of the research problem.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction

In this chapter, the findings are presented as derived from the data analysis. The findings are interpreted and discussed in line with the research objective. First, the results of the diagnostic tests are presented. The findings from the descriptive statistics are then presented before the correlation analysis results are discussed. Lastly, the regression analysis results are presented. These are consecutively presented in sections 4.2 through 4.5.

4.2 Response Rate

There were 13 licensed micro finance institutions as at November 2018. However, data for the period of five years was available from 9 institutions. This was a response rate of 69.2%. Mugenda & Mugenda (2003) argued that a response rate of 50% is considered good, while a response rate of 60% and above was considered satisfactory.

4.3 Diagnostic Tests

4.3.1 Multi-collinearity Test

Table 4. 1: Multicollinearity test results

Model		**Collinearity Statistics**	
		Tolerance	VIF
	Mortgage financing	.771	1.297
	Liquidity	.803	1.245
	Operational efficiency	.792	1.263
	Profitability of MFIs	.758	1.319

Sig.= 0.05
Dependent Variable: Profitability of MFIs

As indicated in Table 4.1, the Variance Inflation Factor (VIF) for mortgage financing, liquidity, operational efficiency and profitability of MFI was 1.297, 1.245, 1.263 and 1.319 respectively. According to Kutner et al., (2004), multicollinearity exists if the VIF is greater than 10. In this

regard, the findings imply that there was no mulitcollinearity since all the variables had a VIF of less than 10.

4.3.2 Normality Test

Table 4.2: Normality tests results

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Mortgage financing	.0674	9	.201*	.823	9	.215
Liquidity	.113	9	.105	.795	9	.170
Operational efficiency	.059	9	.073	.738	9	.153
Profitability of MFIs	.142	9	.088	.811	9	.109

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Using the Shapiro-Wilk (S-W) normality test method, the p-values (Sig.) for each of the variables assessed in the study was as illustrated in Table 4.2. The p-values were 0.215, 0.170, 0.153 and 0.109 for mortgage financing, liquidity, operational efficiency and profitability of MFIs respectively. For a normally distributed data, Field (2009) explains that the p-value in S-W test will be greater than 0.05 ($p>0.05$). Therefore, the findings indicates that all the data collected for each of the variables was normally distributed since the p-value for each of the variables was greater than 0.05.

4.4 Descriptive Statistics

Table 4.3: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic
Y = ROA	45	-.2944	.0710	-.012878	.0825552
X1= Mortgage Financing	45	.3576	2.1980	.678250	.3104408
X2 = Liquidity	45	.0313	.7708	.404103	.1878200
X3 = Operational Efficiency	45	-.7308	.3958	.013080	.2802679
Valid N (listwise)	45				

Source: Author, 2018

The descriptive statistics describes the distribution of each variable of data collected. It describes the data in a way that data is understood and the variables can be explained from the lay man point of view.

Financial performance was described by return on assets. It showed how much an institution is able to make in form of profits, for the assets it has on its disposal. The institution with the highest returns on assets had 7.1% returns against its assets, while the lowest recorded a loss of 29.44%. The mean for the entire population was loss of 12.88% with a standard deviation of 8.3%. This means that most institutions had a performance around the average performance of -12.9%. The performance is more inclined towards loss making than profit making.

Mortgage financing on the other hand was determined by total mortgage issued over total assets of the companies. The ratio showed how much mortgage a company issued compared to its size in form of the total assets at its disposal. The mean for this ratio was 0.68 with the maximum of

the ratio being at 2.2 and the minimum at 0.36. The data had a standard deviation of 0.31, which shows that there were more deviations from the mean for this variable than any other variable. There were huge discrepancies in total mortgages advanced among the different institutions as shown by the high level of standard deviations. This perhaps shows that different institutions specialized on issuing mortgages while others specialized in other financial services.

The other variable in the study was liquidity. Liquidity was determined by the ratio of total deposits received by the institutions over total assets. This implied that the institution that received higher number of deposits from clients against its total assets, has a higher liquidity than its counterpart institution with low deposits to its assets. The mean of this variable was 0.404 with a standard deviation of 0.188. The outliers were maximum of 0.771 and a minimum of .0313. The value from this variable was relatively close to the mean for each institution. There were no great deviations from the mean and as such the performance of liquidity for the institutions appear even for all the institutions.

Operational efficiency was measured by use of total net income before interest and tax over total operational costs. It showed how the institution was able to spend its financial resources in producing profits. A high of this value showed that the institution had a higher operational efficiency than an institution with a lower ratio. The mean for the population was 1.31% with a high standard deviation of 28%. The outliers were a maximum of 39.585 with the minimum being -99.1%. The high variations show that the institutions had huge variations on operational efficiency. There were those that operated optimally with high efficiencies and those that had negative efficiencies showing that they had operating losses instead of operating profits.

4.5 Correlation Analysis

Table 4.4: Correlation matrix

	Y = ROA	*X1= Mortgage Financing*	*X2 = Liquidity*	*X3 = Operational Efficiency*
Y = ROA	1			
X1= Mortgage Financing	-0.190301867	1		
X2 = Liquidity	-0.068020973	-0.186548919	1	
X3 = Operational Efficiency	0.949402987	-0.030130027	-0.069601169	1

Source: Author, 2018

The Pearsons' Correlation shows the relationship between variables. The correlation may either be positive or negative. A value of zero correlation means that there is no relationship between the variables. Values that are close to zero are explained to mean that they have weak correlation while values close to 1 are said to have a strong correlation.

The correlation of the independent variables against the dependent variable is of more concern to our study in order to determine how each variable influences the dependent variable. Mortgage financing has Pearson's correlation to the dependent variable of -0.1903. This is a negative but weak correlation. This means that increase in mortgage financing decreases financial performance of the microfinance institutions.

Increase in liquidity also decreases financial performance of micro finance institutions. This is because it has a negative correlation of -0.0680 against financial performance albeit in weak levels as it is closer to zero than it is closer to 1.

Operational efficiency however has a positive and strong correlation of 0.949. This means that increasing the operation efficiency of the institution, increases its financial performance. It is strong since it is closer to 1 than it is closer to zero.

4.6 Regression Analysis

A multiple linear regression model was used in order to determine the relationship between mortgage financing and financial performance. The regression analysis determines whether there exists an effect of mortgage financing on financial performance of micro finance institutions.

4.6.1 Regression Model Summary

Table 4.5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.964[a]	.929	.923	.0228467	1.183

Source: Author, 2018

The regression model summary shows the coefficient of determination (R squared) which shows how much the model predicts changes by the dependent variable. The coefficient of determination according to the table 4.5 shows a value of 92.9% which tells us the regression model is able to predict changes in the dependent variable to the extent of 92.9%. There is only a 7.1% chance that the change in Y is explained by other factors that are outside the model.

The Durbin Watson value calculates whether there are autocorrelations in the model or not. The standard practice shows that a Durbin Watson score of 4 and above indicates presence of autocorrelations and vice versa is true.

4.6.2 The F Test Statistic

The study used F test statistics in order to test the significance of the model. The F test helps us to either reject or fail to reject the null hypothesis and also tells us whether the negative effect of mortgage financing on financial performance is significant or not significant. The null hypothesis of this study is that there exists no effect of mortgage financing on profitability of microfinance institution in Kenya.

In order to decide whether to reject or fail to reject the null hypothesis we compare the calculated F value and the critical F value as per the F distribution table at an alpha value of 0.05. If the value of F calculated is greater than the F critical value, we reject the null hypothesis and the vice versa is true.

In order to determine whether the effect is significant or not, we compare the alpha value with the p value as shown in the table of ANOVA. A p value of less than the alpha value shows that the effect is significant and the vice versa is true.

Table 4.6: ANOVA Table

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.278	3	.093	177.836	.000[b]
	Residual	.021	41	.001		
	Total	.300	44			

Source: Author, 2018

The table 4.6 shows an F calculated value of 177.836. The critical F value as per the F distribution table with an alpha value of 0.05 and degrees of freedom 3 and 41 is 2.83. This shows that the calculated F value is greater than the F critical value. This leads us to reject the null hypothesis and conclude that the there is an effect of mortgage financing on financial performance. The p value is shown as 0.000 which is less than alpha of 0.05. We therefore conclude that the effect of mortgage financing on profitability of microfinance institutions in Kenya is statistically significant.

4.6.3 Regression Coefficients

The regression coefficient table 4.7 shows the coefficients for the variables that would be used to obtain the resulting predicting equation.

Table 4.7: **Coefficients Table**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.020	.012		1.621	.113
	X1= Mortgage Financing	-.045	.011	-.168	-3.958	.001
	X2 = Liquidity	-.015	.019	-.034	-.795	.431
	X3 = Operational Efficiency	.277	.012	.942	22.502	.000

Source: Author, 2018

According to table 4.7 the coefficients for the resulting equation for the model $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$ becomes a predicting equation for the dependent variable given by

$Y = 0.020 – 0.045\ X_1 – 0.015\ X_2 + 0.277\ X_3 + 0.012$

4.7 Discussion of Results and Findings

The main findings of the study is that there exists a negative but statistically significant effect of mortgage financing on profitability of micro finance institutions in Kenya. The negative effect was shown in the Pearson's correlation analysis that showed that mortgage financing was negatively correlated to financial performance. This means that increasing the value of mortgage financing in the micro finance institutions in Kenya leads to decrease in financial performance. This could be due to several reasons that would make mortgage financing in microfinancing institutions to have a negative effect on financial performance. The first instance would be as a result of default rate. The high default rate that is characterized by increasing non-performing loans among the microfinance institutions would be one of the reasons as to why there exists a negative effect of mortgage financing on financial performance.

The other reason would be low interest charges since mortgages are paid for long period of time at low rates. This means that they invest a lot of money, but they get low returns over a long period of time. This of course affects the liquidity of the microfinance and at the same time affects its financial performance. The micro finance company would be better off issuing loans which have shorter pay-back period.

The study also found a negative correlation between liquidity and financial performance of micro finance institutions in Kenya. When liquidity of the institutions increases, the financial performance decreases. This would be explained by the fact that excess cash means that the institution has not invested all the cash flows to investment projects that can yield positive NPV, which would increase financial performance. The Micro finance institutions would therefore be required to reduce their excess liquidity by making investments in projects with positive NPV.

Operational efficiency on the other hand is positively correlated to financial performance which means that institutions with good operational efficiency, then they get high returns on their assets.

There are various empirical studies that agree with the results of this study while others contradict the results of this study. Muriithi & Waweru (2017) investigated various factors in deposit taking organizations and Saccos regulated by SASRA. They found out that liquidity had negative effect on profitability. A study conducted by Belydah and Ondigo (2016) that looked at the determinants of financial performance of commercial banks in Kenya, found out that liquidity ratio as one of the factor which was investigated had a negative relationship with financial performance.

On the contrary a study that was conducted by Hartaska et. al. (2011) that investigated how economies of scale of MFI were impacted by combined effect of micro-deposit services showed that liquidity positively affected profitability. Kachatryan (2013) also found a contrary view on the study of MFIs where he concluded that MFIs covered a wider outreach and had a larger customer base and were more profitable.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

In this chapter, a summary of the findings from the data analysis is first presented. The, a conclusion is developed based on the study findings. Lastly, recommendations are drawn based on the study findings and suggestions provided for future research.

5.2 Summary of Findings

The objective of this study was to determine the effect of mortgage financing on profitability of microfinance institutions in Kenya. The objective was achieved by analyzing secondary data obtained from MFIs relating to mortgage financing and MFI profitability. The study made the major finding that there was a negative but statistically significant effect of mortgage financing on profitability of Micro Finance Institutions in Kenya. The findings were based on the fact that the Pearson's correlation between profitability and mortgage financing was negative. The F test had a greater value for F calculated than F critical which led the study to reject the null hypothesis and conclude there was an effect between mortgage financing and financial performance. On the other hand, the p value was less than the alpha value and therefore concluded that the effect was statistically significant. The overall findings were that there was a significant negative effect of mortgage financing on profitability of micro finance institutions in Kenya.

The study also found out that operational efficiency in micro finance institutions was positively correlated to financial performance. This meant that if the management increased their operational efficiency, then the institution's profitability would also increase significantly. The operational efficiency was determined by the ratio of the operating profit on the total costs less the financial costs element. It showed how the managers were able to make profits from general operations.

Liquidity of microfinance institutions was found to be negatively correlated. This means that increasing the liquidity of the microfinance institutions in Kenya would lead to a decrease in financial performance. Liquidity was determined by the ratio of total customers' deposit to total assets in the company. If the deposits by the customers increased to total assets of the institution, then the financial performance decreased.

5.3 Conclusion

From the findings, the study concludes that mortgage financing by MFIs has been increasing in the recent past years. However, even as the MFIs continue to venture into mortgage financing, there liquidity has not been adversely affected over the period. Therefore, liquidity risk is less in the MFIs offering mortgage financing. The study further concludes that, in the MFIs that offer mortgage financing, management of operational costs is quite a challenge. Moreover, the study found a negative correlation of liquidity and financial performance.

Maintaining high profitability and minimizing costs has been the major challenging areas even as the MFIs venture in to mortgage financing. Thus, the study infers that the MFIs offering mortgage finance have been having significant profitability challenges over the years. The study concludes that the MFIs have not been applying adequate measures to minimize the costs and as a result, most of their profits are usually spent in offsetting the costs.

Moreover, the study deduces that profitability of MFIs is positively correlated with operational efficiency, this meant that increasing the operational efficiency, increased the financial performance of the microfinance institutions in Kenya. These factors determine the most changes in the profitability of the MFIs. Thus, the study concludes that when MFIs increases their operational efficiency their profitability is likely to improve. Nevertheless, when the MFIs boost their liquidity position and increase mortgage financing, their profitability declines albeit in small margins. The study therefore concludes that mortgage financing in the MFIs leads to decrease in profitability.

5.4 Recommendations

Based on the study makes the following recommendations:

The study recommends that MFIs should reduce their venture into mortgage financing since by so doing, they stand a chance to enhance their profitability. However, they have to do so cautiously ensuring that their liquidity is maintained at an optimal position so as not to lose on profitability by increasing liquidity too much or increase their risk of bankruptcy if they decrease the ratio to a certain point of liquidity.

The study also recommends that CBK should enact good regulatory measures to ensure that MFIs are able to offer mortgage finance without major hurdles. Moreover, the regulatory framework should ensure that the MFIs do not engage in unhealthy business practices that could increase their liquidity risks.

The management of MFIs should also consider business realignment. That is, they should review their business lines and products and exit those that are not profitable or cost effective. This can greatly help to minimize their operational costs and increase their operational efficiency. Moreover, this can be supplemented by automating more processes to reduce the paper work. By so doing, operational efficiency is likely to be boosted which will in turn enhance profitability of the MFIs.

The study also recommends the management of MFIs to ensure that operational efficiency is maintained at a significant high position by ensuring that every expenditure incurred leads to increase in profitability of the firm. This would increase their operational efficiency which would incidentally lead to increase in profitability.

5.5 Limitations

Some of the data could not be obtained from the reports published in the public domain by the MFIs. Following up with the MFIs to get the data was a challenge since majority were hesitant to give out the data.

Moreover, the accuracy of the data cannot be ascertained since it was secondary data that was already documented. Hence, because of the possibility of organizations to manipulate data to publish appealing results, the data may also have some errors which may also contribute to some degree of error in the findings.

Since only a few MFIs that have ventured into mortgage financing were covered, the generalizability of the findings is also limited. When more MFIs venture into mortgage financing, there could be possibility of differences in the findings if a similar study is repeated after some period. Thus, the findings may not necessarily reflect the precise situation that will result from mortgage financing in the case of any MFI that may venture into it.

The study used multiple regression model to look at the effect of mortgage financing on financial performance of the MFIs. The model makes various assumptions and it therefore limits the findings to the ability of data collected to comply with the assumptions. In order to undertake the study, diagnostic tests were undertaken for this study so as to ensure that the study complied with these limitations. Perhaps another model would be less limiting on type of data and various conformity issues on the data.

The population of registered MFIs offering mortgage financing in Kenya are only 13 out of which only 9 had complete data for the 5 years under study. The data points were 45 but perhaps a larger population would enhance the findings of the study.

5.6 Suggestion for Further Studies

Taking into account the study limitations, more studies should be conducted focusing on the following areas:

Studies should be conducted to explore the factors influencing the liquidity of MFIs focusing on the entire MFIs in Kenya and not just those offering mortgage financing

It is also important that studies be done to investigate the challenges undermining the performance of MFIs.

A similar study may also be undertaken by using a different model which would perhaps not be limited by the various assumptions of the model. The results from the use of another model would be compared to the results in this study. The study also uses three independent variables. If the independent variables would be increased the predicting model that would result may be more accurate than the existing model. This would be appropriate in instances of forecasting.

Further research can be done on mortgage financing and MFIs profitability but without relying on secondary data alone and it includes also the primary data. Primary data can generate useful insights and perspective that may not be captured in secondary.

More research can be carried using commercial banks as opposed to MFIs since the size of commercial banks that offers services in mortgage financing is high and hence can provide more accurate results.

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APPENDICES

List of MFIs in Kenya

1. Kenya Women Finance Trust
2. Faulu Kenya
3. Rafiki
4. SMEP
5. Sumac
6. Remu
7. U & I
8. Uwezo
9. Century
10. Choice
11. Caritas
12. Daraja
13. Maisha

2. Data Used

Y = ROA	X1= Mortgage Financing	X2 = Liquidity	X3 = Operational Efficiency
0.035153	0.669662	0.568836	0.169162
0.043417	0.690107	0.533916	0.227956
0.039453	0.69345	0.302407	0.205863
0.042246	0.698684	0.634389	0.21542
0.060316	0.667985	0.595531	0.291491
0.02847	0.669615	0.621441	0.183367
0.017367	0.649626	0.593003	0.110625
0.017651	0.654873	0.119018	0.114381
0.036811	0.712992	0.622343	0.238673
0.036593	0.701705	0.698408	0.238595
-0.05143	0.424558	0.370001	-0.30351
-0.04504	0.499659	0.413266	-0.21318
0.020831	0.552465	0.279596	0.131001
0.018745	0.57205	0.480837	0.130536
0.026366	0.507203	0.385703	0.21179
-0.01975	0.613387	0.586686	-0.08766
-0.03535	0.630688	0.534788	-0.14178
0.012731	0.666667	0.298997	0.056314
-0.03196	0.687553	0.557191	-0.10425
0.036948	0.72249	0.511647	0.174905
0.057168	0.547933	0.363237	0.389222
0.070984	0.669988	0.290162	0.395833
0.055921	0.712171	0.03125	0.336634
0.030769	0.741026	0.328205	0.125
-0.00326	0.664495	0.322476	-0.01235
-0.04802	0.615819	0.350282	-0.19767
-0.02486	0.674033	0.292818	-0.10227
-0.0529	0.647355	0.088161	-0.21649
0.007595	0.465823	0.420253	0.046154
-0.02374	0.477745	0.543027	-0.14815
0.054187	0.800493	0.495074	0.275
0.045584	0.77208	0.592593	0.32
0.059783	0.771739	0.081522	0.366667
0.021898	0.613139	0.262774	0.130435
0.025	0.45	0.425	0.142857
-0.0566	0.59434	0.136792	-0.2069
0.014019	0.705607	0.135514	0.056604
0.00885	0.429204	0.09292	0.041667

0.0125	1.80625	0.4	0.057143
-0.02804	0.682243	0.299065	-0.11111
-0.21875	0.357639	0.770833	-0.62376
-0.18222	0.475556	0.64	-0.47126
-0.29442	2.19797	0.162437	-0.57426
-0.16883	0.463203	0.549784	-0.5493
-0.23171	0.5	0.402439	-0.73077