DETERMINANTS OF MORTGAGE UPTAKE AMONG FINANCIAL INSTITUTIONS IN KENYA

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DECLARATION

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

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ABBREVIATION AND ACRONYMS

CAHF: Center for Affordable Housing Finance in Africa

CBK: Central Bank of Kenya

FE: Fixed Effect

GDP: Gross Domestic Product

RE: random effects

ROA: Return on Asset

ROE: Return on Equity

DEFINITION OF OPERATIONAL TERMS

Asset quality: is a measure of the price at which a bank or other financial institution can sell a loan or lease to a third party, as determined by the borrower or lessee.

Capital adequacy: refers to the statutory minimum reserves of capital which a bank or other financial institution must have available.

Liquidity: refers to the availability of liquid assets to a market or company.

Mortgage: is a transfer of a legal or equitable interest in a specific immovable property for the payment of debt.

ABSTRACT

There is a need to seriously consider the accessibility and eligibility of mortgages if home ownership is to be increased to a wider band of Kenyans. This is due to the fact that size of the mortgage portfolio in Kenya is low with only a few lenders holding more than 70% in their portfolio, with a total mortgage value of Kshs 61.4 billion and 13803 mortgage accounts WHICH is far below expectation of bridging the housing gap of 156,000 units per annum. Even after the government increased the number of lenders from 25% to 40% with an intention of enhancing the growth of mortgage market, the mortgage market has remained low in Kenya. The purpose of this study was to establish the determinants of mortgage uptake among financial institutions in Kenya. The objectives of the study were to determine the influence of capital adequacy on the volume of mortgage loans, establish the influence of asset quality on the volume of the mortgage loans, assess the influence of liquidity on the volume of the mortgage loans and to find out how earnings ability influence the volume of the mortgage loans in Kenya. The study adopted a descriptive research design in which the target population was the 28 commercial banks licensed to carryout mortgage lending business in Kenya. Data was collected from secondary sources from individual banks while the data on the volume of mortgage was obtained from the Central Bank of Kenya for the period of study (2010-2017). The study applied descriptive statistics and panel data analysis model. The findings were presented in tables. The study established that the variables asset quality, liquidity and capital adequacy affect the mortgage uptake. The study established that only on predictor variable was positive. The results further revealed that liquidity had a positive effect in the mortgage uptake by the financial institutions in Kenya even though this was not significant. The study also established that the capital adequacy had a negative and significant effect on the mortgage uptake among the financial institutions in Kenya. The study therefore concludes that among all the variables, it was the capital adequacy that had a significant effect on the mortgage uptake among the financial institutions in Kenya. The study also concludes that there seem to be other variables that affect the mortgage uptake among the financial institutions in Kenya which were not under study. Based on the findings of the study the study recommends that the management of the financial institutions should focus on the capital adequacy of their institutions with the aim of enhancing the mortgage uptake. The findings further recommends that the government though the Ministry of Finance should formulate policies on the capital adequacy of the financial institutions so as to enhance the mortgage uptake among the financial institutions so as the achieve one of the governments' agenda four of housing for majority of Kenyans.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Over the last few years, considerable effort from all over the world has been made in the mortgage market in order to facilitate ordinary people access affordable housing in their countries. This is because an efficient housing finance system has significant importance both in meeting the housing needs of individuals and in reinforcing the development of the construction, finance and other related sectors of an economy (Erbas & Nothaft, 2005). In developed countries mortgage financing is more available and has gained recognition. The funds flow from people with fund surpluses to the ones that are in need of them by the aid of mortgage markets (Hahm, 2004). However, according to Hassler, Chiquer and Lea (2004), the development of mortgage markets in most African countries is still at infancy. According to African Development Bank (2011) only three percent of the entire African population can afford a mortgage. Most financial institutions are limited by high interest rates and the mismatch between the short term nature of deposits and the long term nature of mortgage lending (Arvantis, 2013). The housing finance often remains under-developed in developing countries and the sub-Saharan Africa despite its recognized economic and social importance, mainly due to the lack of macroeconomic stability, and the impact of variations in commercial mortgage rates on banks' profitability is largely dependent on the degree of responses of asset and liability rates.

The mortgage crediting in Kenya compared to European and other advanced countries is relatively underdeveloped standing at merely 11% compared to the international rate of

50% (Kariuki, 2013). This was echoed by the World Bank (2011) who described the Kenyan mortgage market as underdeveloped because the mortgage financing is unaffordable, inaccessible and unpopular although there has been a remarkable increase in demand for real estate investment in Kenya mortgage uptake is low (Arvantis, 2013). The size of the mortgage portfolio is low with only a few lenders holding more than 70% in their portfolio, with a total mortgage value of Kshs 61.4 billion and 13803 mortgage accounts. This is far below expectation of bridging the housing gap of 156,000 units per annum (World Bank, 2011). The average mortgage amount is Kshs 6.6 million and requires a repayment of Kshs 90,000 per month for over 20 years at 12% interest rate, thus it is affordable only to those earning over Sh100,000 per month (Arvantis, 2013).

1.1.1 Concept of Mortgage

Mortgage financing as defined by Mehdian (2001) is the process of underwriting and extending a home loan or mortgage on commercial property to a qualified applicant. Some mortgage loans are secured by real property and provide a schedule for payments of interest and repayment of the principal bank. Most mortgage contracts arrange for loans to be fully amortized with adjustable mortgage interest rates and either payments or maturity is fixed for the term of the loan. The mortgage market is important for housing because it makes the investment of real property divisible thereby allowing households more flexibility in adjusting inter-temporal allocation of saving and housing consumption between the present and the future as desired.

In a typical mortgage contract, the mortgage company provide funds against property to earn interest income, and generally borrow these funds themselves. The price at which the lenders borrow money therefore affects the cost of borrowing. Lenders may also, in many countries, sell the mortgage loan to other parties who are interested in receiving the stream of cash payments from the borrower, often in the form of a security (by means of a securitization (The World Bank,2006). the financing strategy also takes into account the perceived riskiness of the mortgage loan, that is, the likelihood that the funds will be repaid usually considered a function of the creditworthiness of the borrower, that if they are not repaid, the lender will be able to foreclose and recoup some or all of its original capital; and the financial, interest rate risk and time delays that may be involved in certain circumstances (Stiglitz & Weiss, 2005).

The arrangement is such that the property that is purchased with the financing is used as collateral for the debt. For the duration of the mortgage, the lender functions as the mortgage holder on the property (Asare& Whitehead 2006). In the event that the owner of the mortgaged property defaults on the loan, the mortgage company has the right to secure full ownership of the property and offer it for resale to another party. The traditionally role of mortgages was always a predominant form of borrowing in rural economies because land was the most important asset. Landowners borrowed against future rents to finance current consumption or the development of their estates. The traditional form of mortgage lending was a direct loan from one individual to another, both of them usually wealthy (Miller, 2000).

1.1.2 Mortgage Uptake in Kenya

According to Kaimenyi (2016), the annual shortfall in the urban housing is in excess of 250,000 units and the current provision of 50,000 per annum, resulting into a deficit of approximately 200,000 units per annum. While developed countries have advanced housing finance systems in which funds flow from savers to home-buyers by the mortgage markets, Wahome (2010) further asserts that housing finance in developing countries often remains underdeveloped, despite its recognized economic and social importance, mainly due to the lack of macroeconomic stability, and the impact of variations in commercial mortgage rates on banks' profitability is largely dependent on the degree of responses of asset and liability rates.

The mortgage industry has increasingly grown and has become competitive. According to a Survey by the CBK (2015), the value of mortgage loans stood at Kshs 203.3 Billion in December 2015 up from Kshs 164.0 Billion in December of 2014, representing a growth of Kshs39.3 Billion (23.4%). About 71.6% of lending to mortgage market was carried out by 5 institutions (one medium sized bank with 23.4%, and four banks from large peer group with 48.2% as compared to 68% lending by 4 institutions by end of December 2014. The report further notes that there were 24,458 mortgage loans in the Kenyan market by end of December 2015 compared to 22,013 mortgage loans in December 2014, an increase of 2,445 mortgage loans (11.11% growth). The report further asserts that the outstanding value of non-performing mortgages increased from Kshs 10.8 billion in December 2014 to Kshs 11.7 Billion in December 2015 (CBK 2015). The main obstacles as noted by the CBK Mortgages Survey of 2015 were high cost of properties, high

interest rates, high incidental fees, low income levels, difficulties with property registration and titling, stringent land laws, access to long term finance, high construction costs, lengthy charge process timelines, startup costs, high cost of funds and credit risk.

The main providers of mortgages in Kenya are Housing Finance, Savings & Loan (KCB mortgage arm), Standard Chartered Bank, Barclays Bank and Stanbic Bank. A report by Center for Affordable Housing Finance in Africa (CAHF, 2011), indicated that mortgage industry value as of 2010 stood at KES 61.4Bn (USD 655Mn), this includes 13 803 mortgage loans. The industry has grown to KES 91.2Bn as of December 2011 representing a growth of 48.5%. However, mortgage lending is still accessible to only a tiny minority – mortgage lending as a percentage of GDP stood at 2.6% in 2012.

There have been some efforts to expand this reach by the industry. New entrants and aggressive marketing has resulted in some newer products. For example, fixed rate mortgages have been made available for between 10 and 20 year terms. Some banks have recently introduced 100% financing for the full value of a house. One lender has also introduced mortgage insurance against the risk of a loss of income. The Retirement Benefit Authority in 2009 allowed that pension contributions of up to 60% could be used to secure a mortgage. This has the potential to leverage assets worth KES 290 billion (USD3.625 billion) and increase access for lower-earning people who have accumulated substantial pensions.

1.1.3 Financial Institutions in Kenya

The financial sector in Kenya is mainly dominated by the banking sector. The Banking industry in Kenya is governed by the Companies Act, the Banking Act, the Central Bank of Kenya Act, and the various prudential guidelines issued by the Central Bank of Kenya (CBK). The banking sector was liberalized in 1995 and exchange controls lifted. The Central Bank of Kenya, which falls under the Ministry of National Treasury, is responsible for formulating and implementing monetary policy and fostering the liquidity, solvency and proper functioning of the financial system. Central Bank of Kenya publishes information on Kenya's commercial banks and non-banking financial institutions, interest rates and other publications and guidelines (CBK, 2011) Banks represent a significant and influential sector of business worldwide that plays a crucial role in the global economy.

Commercial banks are financial intermediaries that serve as financial resource mobilization points in the global economy. They channel funds needed by business and household sectors from surplus spending to deficit spending units in the economy. A well-developed efficient banking sector is an important prerequisite for saving and investment decisions needed for rapid economic growth. A well-functioning banking sector provides a system by which a country's most profitable and efficient projects are systematically and continuously funded. The role of banks in an economy is paramount because they execute monetary policy and provide means for facilitating payment for goods and services in the domestic and international trade (Government of Kenya, 2007). Commercial banks are custodians of depositor's funds and operate by receiving cash

deposits from the general public and loaning them out to the needy at statutorily allowed interest rates. Loans are based on the credit policy of the bank that is tightly coupled with the central bank interest rate policy. These in effect determine the level of financial risk in a particular bank (CBK, 2010). Mortgage loans in Kenya comprises of 90% of the outstanding loan assets portfolio.

1.2 Statement of the Problem

According to Kariuki (2013) there is a need to seriously consider the accessibility and eligibility of mortgages if home ownership is to be increased to a wider band of Kenyans. This is due to the fact that size of the mortgage portfolio in Kenya is low with only a few lenders holding more than 70% in their portfolio, with a total mortgage value of Kshs 61.4 billion and 13803 mortgage accounts (Akinwunmi, 2009). This is far below expectation of bridging the housing gap of 156,000 units per annum (World Bank, 2011). Even after the government increased the number of lenders from 25% to 40% with an intention of enhancing the growth of mortgage market (Njuguna 2011), the mortgage market has remained low in Kenya. The amount of mortgage lending in Kenya still is considered low by the international standard and with a 2.5% contribution to GDP as compared to South Africa whose contribution is at 26.4% (Central Bank; World Bank, 2013). While Kenya's mortgage market is growing, the industry is dominated by the bigger commercial banks indicating barriers to entry or high risks for medium and smaller banks (Ndungu, 2010). This study seeks to determine the factors influencing the mortgage uptake in Kenya with regard to supply side.

Several studies have been done on the factors influencing mortgage uptake in Kenya. For instance, Macharia and Wanyoike (2016) did a study on the determinants of mortgage uptake from financial institutions in Nakuru Town, where he found that the factors such as fee charged, the interest rate, government regulations and income levels influenced the mortgage uptake in the town. Also, Akenga, Olang and Galo (2015) looked at the effect of mortgage market risk on the mortgage uptake focusing on mortgage lenders in Kenya. They found a significant relationship between credit risk, price risk, interest rate risk and liquidity risk and the mortgage uptake in Kenya. Mburu and K'Akumu (2015) studied the determinants of mortgage uptake in Kenya using the capital markets approach where they found that inflation, return on savings, bonds rate and stock returns influenced the mortgage uptake in Kenya.

While these studies seem beneficial to the researcher, they looked at various combination of factors. However, none seemed to have been done on the effect of capital adequacy, asset quality, liquidity and earnings ability as factors affecting the mortgage uptake from the supply side. This study therefore seeks to fill this gap by investigating the factors that influence the mortgage uptake in Kenya from the supply side.

1.3 Objectives of the Study

The general objective of the study is to establish the determinants of mortgage uptake among financial institutions in Kenya.

1.3.1 Specific Objectives

The following are the specific objectives of the study:

i. To determine the influence of capital adequacy on the total amount of mortgage issued in Kenya.

ii. To establish the influence of asset quality on the total amount of mortgage issued in Kenya.

iii. To assess the influence of liquidity on the total amount of mortgage issued in Kenya.

iv. To find out how earnings ability influence the total amount mortgage issued in Kenya.

1.4 Research Questions

The following are the research questions:

i. What is the influence of capital adequacy on the total amount of mortgage issued in Kenya?

ii. What influence has the asset quality had on the total amount of mortgage issued in Kenya?

iii. What is the influence of liquidity on the total amount of mortgage issued in Kenya?

iv. How earnings ability has influences the total amount of mortgage issued in Kenya?

1.5 Significance of the Study

The study will be beneficial to the following category of persons:

The study will be beneficial to the management of financial institutions in Kenya as they will be in a position to understand how various factors affect the mortgage uptake in Kenya. They will therefore develop strategies which will help either overcome that challenges emanating from these factors or strengthen those that seems to be working for their benefits.

The study will also be beneficial to the government and policy makers in particular as they will formulate policies which are informed by the findings of the study with the view of expanding the mortgage uptake in Kenya to alleviate the problem of home ownership in Kenya and property ownership.

The study will be beneficial to the academicians and future researchers as it will add to the existing body of knowledge in the area of factors influencing the uptake of mortgage in Kenya. It may also for a basis for further research in the area of the study.

1.6 The Scope of the Study

The scope of this study is limited to the financial institutions offering mortgage in Kenya. The study will focus on the factors as capital adequacy, asset quality, liquidity and earnings ability. The study will be conducted between the months of August and September 2018.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter the researcher reviews related literature in line with the research objectives. Also presented in the theoretical framework of the study where the theories upon which the study is anchored are presented.

2.2 Theoretical Framework

This study is anchored on three theories namely the Credit Theory of money, The Loanable Fund Theory and the Institutional Theory.

2.2.1 Credit Theory of Money

Credit theory of money is an extension of quantity theory' of money. Most post-Keynesian economists emphasize that money is created by the internal workings of the financial system, rather than by external forces, such as policy actions of the central bank. Credit theory of money approach by Schumpeter (1954), asserts the central role of banks as creators and allocators of money supply, and distinguishes between 'productive credit creation' (that allows non- inflationary economic growth even at full employment, in the presence of technological progress) and 'unproductive credit creation' (resulting in inflation of either the consumer-or asset-price variety).

Thontom (1802) extended the quantity theory to include not only outside money (the monetary base), but also inside money (the fiduciary issue of banks minus their reserves).

He used the term "paper credit" for inside money. The incentive to paper money came from economizing on the real resource costs of commodity money. This issue of paper money is what he referred to as fiduciary issue. The issue of paper money facilitates creation of credit for profit purposes arising from interest earned while real notes are kept in store as a provision for the current payments. Thornton (also referred to as a monetary theorist and father of modem central bank), was the first economist to assert that checking accounts formed part of the money stock. It is equivalent to when a person deposits 100 pounds in money with the bank, taking no note, but obtaining a right to draw a draft on a banking account which is opened in his name, and when he deposits the same 100 pounds and receives for it a bank note.

Hetzel (1987) stated that it is true; an article on the credit side of the books of some men; but it forms an exactly equal item on the debit side of the books of others. It constitutes, therefore, on the whole, neither a debit nor a credit. The case of gold, on the other hand, differs from that of paper in as much as the possessor of gold takes credit for that which no man debits himself."

2.2.2 The Loanable Fund Theory

This study is premised on the loanable funds theory; it is a classical theory developed by Wicksell Robertson in 1934. This theory states that the quantity of a financial security supplied changes at every given interest rate in response to a change in another factor besides the interest rate. One of these factors is the risk of a financial security, which causes a shift in the supply curve of loanable funds. Holding all other factors constant, as

the risk of financial security decreases it becomes more attractive to suppliers of fund, hence the supply of funds increases.

The theory observed that the demand for loanable funds comes from foreign borrowers, governments, consumers, and governments. On the other hand, the theory argues that the supply of loanable funds emanates from foreign lending, money balances in the banking system, and domestic savings. The aforementioned factors determine the level of interest rates in the long-term while monetary and financial conditions in the market determine the level of interest rates in the short term. McGibany and Nourzad (2004) point out that the factors that affect loanable funds will reach the equilibrium point when all the aforementioned factors separately are at the equilibrium point. Debelle (2004) argues that consumers in economies with variable mortgage rates are very sensitive to the variations in the interest rates.

Conversely, as the risk of financial security increases it becomes less attractive to suppliers of funds hence the supply of funds decreases (Saunders & Marcia, 2001). This theory proposes that supply of loans will decrease if the mortgage loan is considered to be risky. Brueggeman and Fisher (2008) noted that, when lenders are supplying funds to the mortgage market they consider the returns and the associated risks in lending.

Vries and Boelhouwer (2005) argue that expected prices and income, and interest rates are the major determinants of prices of houses. Owing to the risk averseness of many commercial banks, these banks are not sensitive to the variations of monetary stance. It is

argued that the increase in the interest rates in the east Africa region has translated to many financial institutions investing in other markets as an approach to evading risks posed in the money market. Accordingly, this has translated to reduction of expected returns, as people are discouraged from taking up mortgage financing.

2.2.3 Institutional Theory

Institutions have a wide scope of operations. This theory presumes that the organizations' processes take into account the activities based on the structures, such as norms, schemes, routines, as well as rules which are put in place through guidelines in authority controlling social behavior in organization (Scott, 2004). They tend to have different levels of justification from a world with systems to one with localized interpersonal relationship (Lounsbury, 2008). Banks control asset quality in order to remain competitive and provide services to many clients.

According to Knetter (1989) institutions in different economies tend to respond in different ways as per same problems brought about by economic, political as well as social aspects constituting the structure of institutions and its business environment that provide the benefits which are realized through engagement in particular activities. Firms in the banking sector of Kenya are expected to adhere to prudential regulations formulated by the Central Bank to ensure that they observe the requirements of the Banking Act and the Central Bank Act which includes definition of the loan limit that a single borrower can borrow from financial institution.

2.3 Empirical Review

2.3.1 Asset Quality and Mortgage Uptake

The Asset quality also referred to as loan quality has been defined as the overall risk attached to the various assets held by an individual or institution. It measures how well a financial institution predicts the credit risk of their assets and how well they manage them (Nzoka 2015). It is measured by comparing non-performing loans to total loans. The bank's asset is a specific variable that affects the profitability of a bank. The bank asset includes among others current asset, credit portfolio, fixed asset, and other investments. Often a growing asset (size) related to the age of the bank (Athanasoglou et al., 2005). In most cases, the loan of a bank is the major asset that generates the major share of the banks income and this is a positive relationship.

Khalid (2012) examined the impact of asset quality on profitability of private banks in India, of which a multiple regression model was employed to examine if bank asset quality and operating performance are positively correlated. The results showed that a bad asset ratio is negatively associated with banking operating performance, after controlling for the effects of operating scale, traditional banking business concentration and the idle fund ratio. The results further supported the hypothesis that the higher the quality of the loan processing activities before loan approval, the lower the non-value-added activities that is required to process problematic loans, and thus the higher the banking operating performance will be.

Adeolu, (2014) carried out a study on asset quality and bank performance on commercial banks in Nigeria and with the use of the Pearson correlation and regression tool of the SPSS for data analysis and concluded that that asset quality had a statistically strong positive relationship and influence on bank performance. However, he also shows that there exists no relationship between bank loans and its profitability though this contradicts Khalid (2012) which reported that asset quality and profitability are negatively correlated in the banking industry.

Ezeoha (2011) investigated Banking consolidation, credit crisis and asset quality in a fragile banking system in Nigeria. The paper made use of panel data from 19 out of a total of 25 banks operating in Nigeria. A multivariate constant coefficient regression model was adopted as the estimation technique. The study reveals that deterioration in asset quality and increased credit crisis in the Nigerian banking industry between the periods 2004 and 2008 were exacerbated by the inability of banks to optimally use their huge asset capacity to enhance their earnings profiles. The findings showed that excess liquidity syndrome and relatively huge capital bases fueled reckless lending by banks; and that increase in the level of unsecured credits in banks' portfolios ironically helped to mitigate the level of Non-Performing Loans within the studied period.

Alhassan, Coleman and Andoh (2014) investigated the factors that account for the deterioration in the asset quality of Ghanaian banks during a period of financial crises using a dataset on 25 banks from 2005 to 2010. The study found that the persistence of non-performing loans in addition to loan growth, bank market structure, bank size,

inflation, real exchange rate and GDP growth are the significant determinants of banks asset quality in Ghana. The study further revealed the findings have implications for both bank management and regulators in emerging economies.

Alhassan, Brobbey, and Asamoah (2013) examined the persistence of bank asset quality on bank lending behaviour in Ghana. The study employed a random effects (RE) model to test the relationship between bank lending behaviour proxied as the ratio loans and advances to total asset and bank asset quality (ratio of nonperforming loans to gross loans and advances) while controlling for deposit mobilization, equity, management efficiency, intermediation spread and income diversification. The empirical estimation found that the effect of the deterioration of bank asset quality (high levels of non-performing loans) on bank lending behaviour is persistence and not contemporaneous. Additionally, bank deposit mobilization, intermediation spread and equity were also found to influence bank lending behaviour.

Swamy (2015) investigated the determinants of bank asset quality and profitability using panel data techniques and robust data sets for the period between 1997 and 2009. The study established that while capital adequacy and investment activity significantly affect the profitability of commercial banks, apart from other accepted determinants of profitability, asset size has no significant impact on profitability.

2.3.2 Liquidity and Mortgage Uptake

There have been varying reports on the relationship between bank liquidity and profitability. Some argue, per their research findings, that banks holding more liquid assets benefit from a superior perception in funding markets, reducing their financing costs and increasing profitability. Bourke (1989) finds some evidence of a positive relationship between liquid assets and bank profitability for 90 banks in Europe, North America and Australia from 1972-1981. On the other hand, other researchers argue that, holding liquid assets imposes an opportunity cost on the bank given their low return relative to other assets, thereby having a negative effect on profitability. For example, Molyneux and Thornton (1992) and Goddard (2004) find evidence of a negative relationship between the two variables for European banks in the late 1980s and mid-1990s, respectively. According to Eichengreen and Gibson (2001), the fewer the funds tied up in liquid investments, the higher we might expect profitability to be. In effect, various authors have found varying relationships between the liquidity and profitability of banks in various countries.

Lartey, Antwi, and Boadi (2013) sought to find out the relationship between the liquidity and the profitability of banks listed on the Ghana Stock Exchange. It was found that for the period 2005-2010, both the liquidity and the profitability of the listed banks were declining. Again, it was also found that there was a very weak positive relationship between the liquidity and the profitability of the listed banks in Ghana.

Moein, Nayebzadeh and Pour (2013) investigated the relationship between modern liquidity indices and stock return in companies listed on Tehran Stock Exchange. Results indicated that there was a positive and significant relationship between comprehensive liquidity index and stock returns while there was no significant relationship between the index of cash conversion cycle as well as net liquidity balance and sock returns.

Almazari (2014) investigated the internal factors that have an effect on profitability in Saudi and Jordanian banks. He found that there is a positive correlation between profitability measured by ROA of Saudi and Jordanian banks with some liquidity indicators, as well as there is a negative correlation with other liquidity indicators between profitability measured by ROA of Saudi and Jordanian banks.

Weersainghe and Ravinda (2013) conducted a research to observe the effects of bank-specific factors such as liquidity risk, bank size, capital adequacy, operating cost, credit risk and macroeconomic determinants such as GDP growth rate and interest rate on the profitability of commercial banks in Sri Lanka. The researchers utilized quarterly data relating to the bank-specific and macroeconomic indicators. The research took place between 2001 and 2011. Multiple panel regression was used to analyze the data and determine the relationship between the dependent and the independent variables. Additionally, the researchers used the ROA and the ROE as profitability indicators of the banks under the study. The empirical results indicated that the larger the commercial banks the more the profits recorded. This is because of the economies of scale as compared to the banks with a higher regulatory capital ratio. Additional findings from the

panel regression indicated that the liquidity was inversely proportional to the commercial banks profitability in the country.

Hadad (2013) in Ghana conducted a study whose main objective was to determine the factors that affected the financial performance of the Naara rural banks in the upper east region of the country. The researcher used the annual financial statements that covered an 11-year long period between 2000 and 2010. Multiple regression analysis was used as the main statistical tool to analyze the data collected from the bank under the study. The research sought to establish empirical relationship that existed between Naara rural banks financial performance on one hand and its credit portfolio, liquidity, non-performing loan and total assets on the other hand. The findings of the research indicated that liquidity and size were positively and related considerably to the performance of the bank.

2.3.3 Capital Adequacy and Mortgage Uptake

Capital adequacy is the measure of how well financial institutions can cope with shocks to their balance sheets. The bank monitors the adequacy of its capital using ratios established by The Bank for International Settlements. Capital adequacy in commercial banks is measured in relation to the relative risk weights assigned to different category of assets held both on and off the balance sheet items (Bank of Uganda, 2002). Capital adequacy measures the invested equity capital and reserves of the bank. It represents the net worth (assets minus liabilities) of the bank and represents the buffer that protects the deposit insurance fund against losses in the case of bank insolvency.

Capital refers to the amount of own funds available to support a bank's business and, therefore, bank capital acts as a safety net in the case of adverse development (Athanasoglou, Brissimis and Delis, 2005). It is measured by the ratio of capital and reserves of each commercial bank to total assets or as the ratio of equity to total assets of a bank. Generally banks with high capital ratio, if other factors are constant, will face relatively lower financial difficulties during general financial crisis within the economy and this will translate to high profits. Also well capitalized banks are able to meet the capital requirements set by central bank while the excess can be used to provide loans.

There is a general perception that stronger banks are likely to withstand financial turbulences and therefore increase banking sector stability. Capital adequacy thus aids banks to benefit from economies of scale and lower their transaction costs meaning that the higher the capital ratio the more profitable the bank will be. It is thus seen as an instrument limiting excessive risk taking of bank owners with limited liability and, thus, promoting optimal risk sharing between bank owners and depositors. On the other hand, capital adequacy regulation is often viewed as a buffer against insolvency crises, limiting the costs of financial distress by reducing the probability of insolvency of banks (Caggiano and Calice, 2011).

According to Attanasoglou et al., (2005) a bank with a sound capital position is able to pursue business opportunities more effectively and has more time and flexibility to deal with problems arising from unexpected losses thus achieving increased profitability. Naceur (2006) studied the effects of capital regulation on cost of intermediation and

profitability. According to him, capital adequacy ratio contributed positively to banks profitability. White and Morrison (2001) argued that capital requirements ensure that banks have enough of their capital at stake. Bichsel and Blom (2005) supported this proposition arguing that these regulations help in reducing negative externalities (e.g. general loss of confidence in the banking system) in addition to boosting the GDP.

A study by Hassan (2001) examined the performance of Islamic banks during 1994-2001. Variety of internal and external banking characteristics were used to predict profitability and the result indicated that high capital lead to high profitability. Abreu (2002) found that high capitalized banks face lower expected bankruptcy costs and thus lower funding costs resulting into better profitability.

Ifeacho and Ngalawa (2014) carried out a research study on the impact of bank-specific variables and selected macroeconomic variables on the South African banking sector between 1994 and 2011. The researcher considered capital adequacy, asset quality, management, earnings ability and liquidity under the CAMEL model of bank performance evaluation in the study. The Ifeacho and Ngalawa' s study employed data in annual frequency from South Africa's four largest banks, namely ABSA, First National Bank, Nedbank, and Standard Bank. The four banks account for over 70% of the South Africa's banking assets. The researcher investigated the banks using the return on assets (ROA) and return on equity (ROE) as measures of the bank performance. Findings indicated that capital adequacy exhibited a significant negative relationship with ROA, while its relationship with ROE is significant and positive as expected.

Goddard et al.'s (2004) study on capital adequacy as a determinant of profitability of banks revealed that a high capital adequacy ratio should signify that a bank is operating overcautiously and ignoring potentially profitable trading opportunities implying a negative relationship between the equity to asset ratio and a bank's performance. On the other hand, Pasiouras and Kosmidou (2007) show that banks with higher equity to asset ratios will normally have lower needs for external funding and therefore higher profitability. According to them the performance of domestic and foreign commercial banks in 15 EU countries during 1995-2001 were affected by bank specific characteristics. Their findings suggest that capital adequacy, credit risk, bank size and liquidity risk have a significant relationship with a bank's profitability, although their impact and relations are not always uniform for domestic and foreign banks. These mixed and conflicting results are not limited only to this research.

George and Dimitrios (2004) applied the non-parametric analytical technique (data envelopment analysis, DEA) for measuring the performances of the Greek banking sector with respect to capital adequacy. They prove that the data envelopment analysis can be used as either an alternative or as a complement to a ratio analysis for the evaluation of an organization's performance with attention to macroeconomic indicators.

Various studies suggest that banks with higher levels of capital perform better than their under-capitalized peers. Staikouras and Wood (2004) claim that there exists a positive link between greater equity and profitability among EU banks. Abreu and Mendes (2001) also trace a positive impact of the equity level on profitability. Goddard et al., (2004)

support a prior finding of a positive relationship between the capital/asset ratio and a bank's earnings. However, the direction of the relationship between bank capital and bank profitability cannot be unanimously predicted in advance.

2.3.4 Earnings Ability and Mortgage Uptake

Earnings ability represents the potential for a bank to realize profits that enable the organization to fund expansion remain competitive and increase its capital. From the bank's regulator viewpoint, earnings ability's essential purpose is to absorb losses and boost the bank's capital. Earning ability can be evaluated using a number of accounting rations namely return on assets (ROA), return on equity (ROE), and Net interest income margin (NIM), (Ongore & Kusa, 2013). Aziza and Sarkani (2014) reviewed the financial performance of Mellat bank using the CAMEL model. Mellat bank is a private bank in Iran that has existed since 1980 as a merger of ten pre-revolution private banks. Each of the CAMEL model dimensions were examined using trend analysis method and both mean and standard deviation statistics. In the process, the researchers determined all the model criteria and identified an ascending trend in the period under investigation. The researchers further investigated the relationship between the model variables and the financial performance of Mellat bank and examined the relationship using two linear and multiple regression as well as OLS method. The findings of the study show that there exist positive significant relationships between the indices of earnings ability with financial performance.

Earning quality is rated weak, which could be caused by the banks' rigid lending policies and strict lending criteria (Rozzani & Rahman, 2013; Sarwar & Asif, 2011). Besides, an assessment of the Lehman Brothers' earnings ratio reveals that its profits are low and insufficient. This ring a bell that the bank would face survival issues in periods of potential instability or unexpected risks should it not improve its profits and quality of profits (Christopoulos *et al.*, 2011).

Moreover, Christopoulos *et al.* (2011) report that the Lehman Brothers' liquidity ratio computed by total loans to total deposits is satisfactory. This means that its loans were less than its deposits. This could indicate that the bank issued part of its loans using the funds available from its deposits and was in a position to withhold part of these funds as a reserve. To the contrary, the liquidity ratio computed by circulating assets to total assets is low. Therefore, in the event of an emergency, the bank would not be able to directly liquidate 60% of its total cash reserves, claims against other banking institutions and transaction portfolios, as well as, its investments in derivatives. In total, it is apparent that the bank's liquidity status, as compared with its liabilities was poor while its management had no contingency plan that could produce the required flexibility when needed.

In a study on commercial banks in Uganda, Frederick (2014) finds that management efficiency (measured by operating costs to total income) and asset quality (measured by loan loss provision to total loan) have a statistically significant negative effect and earnings ability (measured by net interest margin to total assets) has a statistically significant positive effect on the performance of domestic commercial banks as measured

by the ROA. However, capital adequacy (measured by equity capital to total assets) has no statistically significant effect on the ROA. On the other hand, capital adequacy, asset quality and management efficiency have a statistically significant negative effect and earnings ability has a statistically significant positive effect on the performance of domestic commercial banks as measured by ROE. This study demonstrates an inconsistent result of the explanatory variables when applied to the ROA and ROE; for instance, capital adequacy has a significant negative effect on ROE, but not on the ROA.

Jha and Hui (2012), in their study on Nepal's commercial banks, explain that (1) capital adequacy (measured by Tier 1 capital + Tier 2 capital/risk weighted assets) and management efficiency (measured by interest expense/total loans) have a statistically significant negative impact, earnings ability (measured by net interest income/total earning assets) has a significant positive effect, and asset quality (measured by non-performing loans/total loans) and liquidity (credit/deposit) have no significant impact on ROA; and (2) capital adequacy has a statistically significant positive impact, but asset quality, management efficiency, earnings ability, and liquidity have no significant impact on ROE. This finding shows that CAMEL has different results when applied to ROA and ROE. For example, the management efficiency and earnings ability have a significant effect on ROA, but not on ROE.

2.4 Summary of Literature Review

The reviewed Literature has highlighted the relationship between the independent variables and the dependent variable. For instance, Khalid (2012) demonstrated that asset

ratio was negatively associated with banking operative performance, while Adeolu (2014) found a statistically strong positive relationship. In another study, Ezeoha (2011) found that distortion in asset quality negatively influenced the banks performance.

Lartey, Antwi and Boadi (2013) found a very weak positive relationship between liquidity and profitability of banks while Moein, Naabzadeh and Pour (2013) found positive and significant relationship between the banks liquidity and financial performance.

White and Morrison (2001) found that capital requirements assured that banks have enough capital at stake. Hassan (2001) found that high capital lead to high profitability. However, all these studies failed to show the extent of the effect of these variables to the mortgage uptake in Kenya, hence a gap.

2.5 Conceptual Framework

The following is the conceptual framework of the study showing the relationship of variables

Capital adequacy
- Debt to equity ratio

Asset quality
- Loan loss provisions to total loans ratio

Earnings ability
- Net income to total assets ratio

Liquidity
- Deposits to total assets ratio

Mortgage uptake
- Volume of mortgage loans
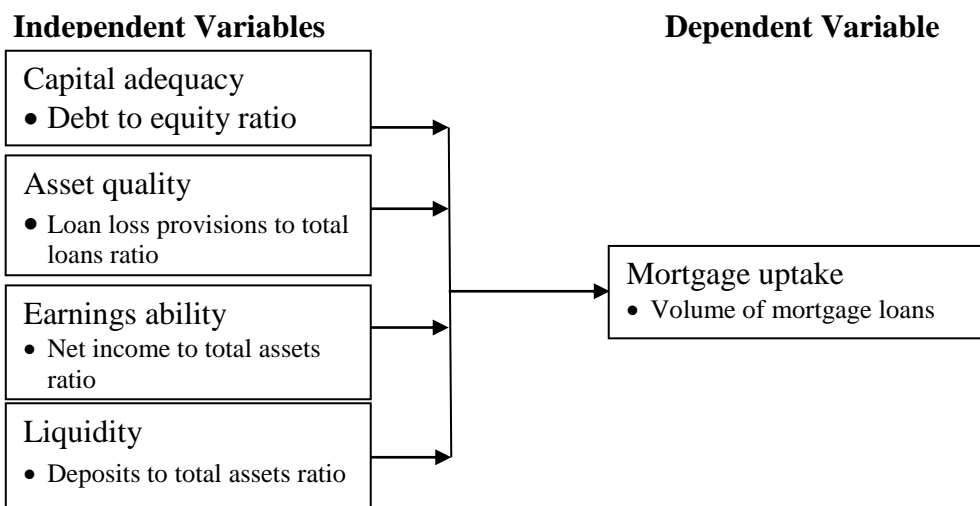
Figure 2.1: Conceptual Framework

2.6 Definition and Measurement of Variables

Variable	Definition	Measurement
Mortgage uptake	Number of mortgage	Number of mortgage accounts in the industry
Capital adequacy	the statutory minimum reserves of capital which a bank or other financial institution must have available	Total capital/Risk weighted asset
Asset quality	the measure of the price at which a bank would sell a loan to a third party as determined by the borrower	Total non-performing loans/Gross loans and advances
Liquidity	Bank's ability to meet its obligations, especially that of depositors	Current assets/Current liabilities
Earnings ability	refers to the potential of the bank to realize profits for funding expansion and increase its capital	Net profit/Total assets

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology that was used to conduct the study. It specifies the research design, what the target population was, how data was collected and the method of analysis.

3.2 Research Design

The study employed descriptive research designs. Descriptive research design determines and reports the way things are (Mugenda & Mugenda, 2003). The fact that descriptive research design involves fact finding and enquiries from the factors influencing mortgage uptake in Kenya. The design explored and evaluated in details the relationship between the variables. Descriptive survey can also be used to investigate a population by collecting sample to analyse and discover occurrences, this made it appropriate for this study are the researcher sought to discover the factors influencing the mortgage uptake in Kenya, supply side.

3.3 Target Population and Sample

The target population was the 28commercial banks registered to carry out mortgage lending business in Kenya under the banking act (cap 488) section (4) and (5) that were in operation as at 2009(Central Bank of Kenya, 2009): The study sought data of the mortgage uptake by mortgage firms and data on capital, asset quality, liquidity and earning ability of the mortgage firms.

3.4 Data Collection

This study employed secondary data obtained from individual banks. Data was obtained

from financial statements and other publications. The data on mortgage uptake was

obtained from the Central Bank of Kenya libraries. This enabled the researcher to obtain

information that assisted in making inferences towards the factors influencing mortgage

uptake in Kenya. The data on capital, asset quality, liquidity and earning ability from

individual banks. The period of study for which was obtained focuses on a 7-year period

between December 2010 and December 2017.

3.5 Analytical Model Specifications

The study applied descriptive statistics and panel data analysis model. Descriptive

statistics that was used to analyze the data include means, range, minima, maxima and

standard deviation.

Panel data analysis model was also applied due to the fact that the data collected was

longitudinal and cross sectional in nature as it related to 28 commercial banks offering

mortgage for 7 years (between 2010 and 2017). Panel data (also known as longitudinal or

cross sectional time-series data) is a dataset in which the behavior of entities is observed

across time. In the current study, these entities were the 28 commercial banks offering

mortgage facilities in Kenya. Panel data allows for the control for variables that the

researcher cannot observe or measure like management efficiency or variables that

change over time but not across entities (i.e. monetary policies, regulations, economic

condition etc.). This provided the study the ability to account for individual heterogeneity.

3.6 Diagnostic Tests

The diagnostic tests was carried out in this study are to check for the existence of autocorrelation,multicollinearity and heteroscedasticity. Further, Hausman and unit root tests were also carried out.

3.6.1 Auto Correlation Test

The term autocorrelation may be defined as correlation between members of a series of observations ordered in time [as in time series data] or space [as in cross-sectional data]. In the regression context, the classical linear regression model assumes that such autocorrelation does not exist in the disturbances ui. Symbolically, $E(uiuj) = 0$ i $\_= j.$ (Gujarati, 2004). Put simply, the classical model assumes that the disturbance term relating to any observation is not influenced by the disturbance term relating to any other observation. If the output shows Prob>F value lower than the critical value of 5%, then we fail to reject null hypothesis and conclude that there is no first order auto correlation in the panel data.

3.6.2 Multicollinearity Test

Multicollinearity is a phenomenon in which two or more predictor variables in a multipleregression model are highly correlated, meaning that one can be linearly predicted from the others with a substantial degree of accuracy. The basic problem is

multicollinearity results in unstable parameter estimates which makes it very difficult to assess the effect of independent variables on dependent variables. Fixing multicollinearity is by removing highly correlated predictors from the model. If you have two or more factors with a high VIF, remove one from the model and by use of Partial Least Squares Regression (PLS) or Principal Components Analysis, regression methods that cut the number of predictors to a smaller set of uncorrelated components. The primary concern is that as the degree of multicollinearity increases, the regression modelestimates of the coefficients become unstable and the standard errors for the coefficients can get wildly inflated. The researcher shall use VIF (variance inflation factor) to detect multicollinearity in the regression model (Ongore&Kusa, 2013). As a rule of thumb, a variable whose VIF values are greater than10 may merit further investigation (Gujarati, 2004).

3.6.3 Heteroscedasticity Test

Heteroscedasticity refers to the circumstance in which the variability of a variable is unequal across the range of values of a second variable that predicts it. If the errors have constant variance, the errors are called homoscedastic. Typically, residuals are plotted to assess this assumption. Standard estimation methods are inefficient when the errors are heteroscedastic or have non-constant variance. If the model is well-fitted, there should be no pattern to the residuals plotted against the fitted values.

The researcher used graphical method to detect heteroscedasticity by plotting residuals versus fitted (predicted) values. Other option available is to use the Breusch–Pagan test

which is designed to detect any linear form of heteroscedasticity. The test is done by running a regression model. The rule in establishing heteroscedasticity is when the requirement of a constant variance is violated.

3.6.4 Hausman Test

The Hausman test evaluates the consistency of an estimator when compared to an alternative, less efficient, estimator which is already known to be consistent. It helps one evaluate if a statistical model corresponds to the data. Hausman basically tests whether the unique errors are correlated with the regressors while the null hypothesis is that they are not correlated.

i)   Fixed Effect Model

In this study, Hausman test was used to differentiate between fixed effects model (FE) and random effects (RE) model in the panel data. Fixed effects (FE) is used whenever one is interested in analyzing the impact of variables that vary over time, and it explores the relationship between predictor and outcome variables within an entity. Fixed effects model explore the relationship between independent and dependent variables within an entity. It implies that each entity has its own individual characteristics that may or may not influence the independent variables. When using fixed effects model, the assumption is that something within the entity may impact or bias the independent or dependent variables and this needs to be controlled. The fixed effects model hence removes the effect of those time in variant characteristics so that the net effect of the independent variables on the dependent variable can be assessed. The fixed effect model given by:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + \mu_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \quad (i)$$

Where αi ($i = 1 \dots\dots\dots\dots n$) is the unknown intercept for each entity

Y_{it} = is the dependent variable (DV) where i = entity and t = time.

X_{it} represents one independent variable (IV)

$\beta 1$ is the coefficient of IV

μ_{it} is the error term

ii)   Random Effect Model

Random effects (RE) model unlike the fixed effects model, the variation across entities is assumed to be random and uncorrelated with the predictor or independent variables included in the model (Green, 2010). Random effects has the rationale that the entity's error term is not correlated with the predictors which allows for time-invariant variables to play a role as explanatory variables. In random-effects the researcher need to specify the individual characteristics that may or may not influence the predictor variables. The problem with this is that some variables (such as management efficiency and efficiency of processes) may not be available therefore leading to omitted variable bias in the model (Eriksson & Kovalainen, 2008). The model for the Random effect is given by:

$$Y_{it} = \beta_1 X_{it} + \alpha + \mu_{it} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots..ii$$

Where ε_{it} refers to the within-entity error

μ_{it} between-entity error

To establish whether to use a fixed effect or random effect model, run fixed effects and save the estimates and again run the random model and save the estimates then perform

the test. If the p-value is significant at >0.05 then use fixed effects, if not use random effects.

3.6.5 Unit root test

The unit root test is a test for whether a time series variable is non-stationary and possesses a unit root. The null hypothesis that there is unit root was tested using Levin-Lin-chu test to find out if a unit root is present in auto regression. The test assumes a common autoregressive parameter for all panels, so this test does not allow for the possibility that some banks mortgage loans contain unit roots while other banks' mortgage loans do not. Each test performed also made explicit the assumed behavior of the number of panels and time periods. Due to this characteristic, unit root processes are also called difference stationary. If the computed p-value is lower than the significant level alpha, then the null hypothesis should be rejected and accept the alternative hypothesis.

3.7 Model Specification

The reviewed theoretical and empirical literature indicate that there exists some form of relationship between capital, asset quality, liquidity and earning ability and mortgage uptake. To establish what kind of relationship that exists in the commercial banks, the study applied panel data analysis model (fixed effects) that was capable of establishing the influence of capital, asset quality, liquidity and earning ability on mortgage uptake. In the model, the t-tests was able to establish whether the four independent variables considered have a causal relationship with the dependent variable.

The analytical models was derived from the notation of Sola, Teruel and Solano (2008) and were depicted below.

$$Y_{it} = \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \alpha_i + u_{it}..(.iii)$$

Where;

α_i (i = 1….9) is the unknown intercept for each entity.

Y_{it} = the dependent variable (Mortgage uptake)

i = entity

t = time.

X_1 = Capital adequacy

X_2 = Asset quality

X_3 = Liquidity

X_4 = Earnings ability

B_i = The coefficients of independent variables

u_{it} = The error term

Each hypothesis was tested at 5% significance level. The coefficient and the R^2 of each of the independent variable in the whole model was applied to test its significance. This was used to test each hypothesis that related to each independent variable. The hypotheses was tested through the t-tests. Further, correlation was determined using the Pearson correlation coefficients for all the variables considered in the study.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents the results of the determinants of mortgage uptake among financial institutions in Kenya. It deals with the presentation and analysis of 224 annual observations from 2010 - 2017. Descriptive statistics including means and standard deviation of the variables are analyzed. The chapter also discusses their correlation. Regression results are analyzed including diagnostic tests and significance of the regression coefficients.

4.2 Descriptive Statistics

The study findings in Table 2 show that the distribution of the observations had minimal variance as none of the variables had the standard deviation greater than 1. However, mortgage loan had the greatest variation with standard deviation (0.8524867) and the least variance was seen in liquidity (0.0691094). The average of the mortgage was 7.236656, asset quality 0.0727857 and liquidity 0f 0.187388. The study findings show that the average capital adequacy was 0.2306696 while the earnings ability was 1.719078.

Table 4.1: Descriptive Statistics

```
. xtsum mortgageloan assetquality liquidity capitaladequacy earningsability
```

Variable		Mean	Std. Dev.	Min	Max	Observations	
mortga~s	overall	7.236656	.8524867	5.004	9.133	N =	224
	between		.6327296	5.405	9.106	n =	40
	within		.7544671	4.684656	9.143256	T-bar =	5.6
assetq~y	overall	.0727857	.0878251	.005	.981	N =	224
	between		.1478012	.02	.981	n =	40
	within		.0581969	-.0214143	.504668	T-bar =	5.6
liquid~y	overall	1.187388	.0691094	1.018	1.489	N =	224
	between		.0266026	1.120333	1.231667	n =	40
	within		.0652588	1.033013	1.483741	T-bar =	5.6
capita~y	overall	.2306696	.0907023	.07	.73	N =	224
	between		.0408219	.1622222	.33	n =	40
	within		.0828928	.0849554	.7070333	T-bar =	5.6
earnin~y	overall	1.710483	.2568174	.45593	2.69897	N =	224
	between		.3851588	.45593	2.69897	n =	40
	within			0	1.710483	1.710483	T-bar =	5.6

4.3 Correlation

In linear regression methodology, there should be no two variables with high correlation. The results in Table 4.2 show that there was positive relationship between the variables except mortgage loan and capital adequacy (-0.1799), liquidity and earnings ability (-0.0428) and capital adequacy and earnings ability (-0.1562). The findings however show that the relationships were very weak for all the variables.

Table 4.2: Correlation

```
. pwcorr mortgageloan assetquality liquidity capitaladequacy earningsability, sig
```

	mortga~s	assetq~y	liquid~y	capita~y	earnin~y
mortgagelo~s	1.0000				
assetquality	0.0220	1.0000			
	0.7431				
liquidity	0.0154	0.1435	1.0000		
	0.8191	0.0318			
capitalade~y	-0.1799	0.0917	0.0167	1.0000	
	0.0069	0.1714	0.8031		
earningsab~y	0.1075	0.0867	-0.0542	-0.1703	1.0000
	0.1087	0.1959	0.4194	0.0107	

4.4 Specification Tests for the Data

Before the regression analysis, it was necessary to perform specification tests.

4.4.1 Multicollinearity Test

Multicollinearity is a common problem when estimating linear or generalized linear models. It occurs when there are high correlations among predictor variables, leading to unreliable and unstable estimates of regression coefficients. Since in the model there are several variables it is best to test for multicolliniarity, in addition to the pair wise correlation test, the main problem is that the more variables are used in models the more the degree of the multicollinearity increases, as such the regression model estimate of the coefficient become unstable and the standard errors for the coefficients can get significantly inflated. This test was done with "Variance Inflation Factor" (VIF). Generally, VIF > 10 is a problem, however, VIF < 10 can be tolerated even though it does not indicate a good degree of inflation. The study performed a collinearity diagnostic test to check the presence and preclude multicollinearity. The findings are presented in Table 4.3

Table 4.3: Collinearity Diagnostics

Variable	VIF	1/VIF
assetquality	1.08	0.923044
earningsab~y	1.08	0.925499
capitalade~y	1.04	0.959921
liquidity	1.03	0.974060
Mean VIF	1.06	

The findings show that that mean VIF is 1.06. According to Basso (2007), a mean VIF > 5, is not good. From our test then, there is no multicollinearity since VIF < 5 hence no high correlation.

4.4.2 Testing for Stationary

In order to obtain reliable estimates of the mortgage uptake indicators, it is necessary to check for stationarity of the panel data since such data generally show evidence of non-stationarity characteristics. When panel data is non-stationary and regression analysis is performed, it will produce spurious results. As a result, a stationary test was carried out by conducting a unit root test on each of the variables. Levin-Lin-Chu root test of volatility was used to test the null hypothesis that there is unit root in the data. The findings are presented in Table 4.4.

Table 4.4: Levin-Lin-Chu unit-root test for Stationarity

```
. xtunitroot llc mortgageloans, trend lags(1)

Levin-Lin-Chu unit-root test for mortgageloans
────────────────────────────────────────────
Ho: Panels contain unit roots              Number of panels  =     28
Ha: Panels are stationary                  Number of periods =      8

AR parameter: Common                       Asymptotics: N/T -> 0
Panel means:  Included
Time trend:   Included

ADF regressions: 1 lag
LR variance:     Bartlett kernel, 6.00 lags average (chosen by LLC)
──────────────────────────────────────────────────────────────────────
                   Statistic      p-value
──────────────────────────────────────────────────────────────────────
 Unadjusted t      -26.7317
 Adjusted t*       -21.9529        0.0000
──────────────────────────────────────────────────────────────────────
```

From the above findings there is no presence of unit root–panel data are stationary. Since p-value < 0.05, reject null hypothesis

4.4.3 Testing for Serial Correlation

It was necessary to perform a serial correlation test because serial correlation in panel data biases the standard error and causes the result to be less efficient. The study therefore performed a Wooldridge test for autocorrelation, presented in Table 4.5. The study findings show that there is a first order serial correlation since the p-value < 0.05. This being a micro panel, we assume it.

Table 4.5: Testing for Serial Correlation

```
Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      37) =     26.030
           Prob > F =      0.0000
```

4.4.4 Test for Heteroskedasticity

To detect whether a phenomenon of heteroskedasticity is present in our data we can perform a test of Wald which tests the presence of heteroskedasticity between individuals. This tests the null hypothesis that the variance of the error is the same for all individuals. The findings are presented in Table 4.6.

Table 4.6: Test for Heteroskedasticity

```
Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (38)  =     379.85
Prob>chi2 =      0.0000
```

The results show there is a presence of heteroskedasticity since the p-value < 0.05, hence reject the null hypothesis. The researcher proceeded to use robust option to eliminate heteroskedasticity.

4.5 Diagnostic Test for Model Selection
4.5.1 Hausman fixed random

The next step was to choose between the FE and the RE. The most appropriate way to choose between these methods was through the Hausman test (Wooldridge, 2002). The main issue that is taken into consideration when choosing between the FE and the RE is whether the unobserved effects are correlated with the explanatory variables. The Hausman test takes into consideration the estimates from both FE and RE and checks if there is a systematic difference between them. The results are presented in Table 4.7.

Table 4.7: Hausman Test Results

```
. hausman fixed random, sigmamore

                  ──── Coefficients ────
                    (b)           (B)            (b-B)      sqrt(diag(V_b-V_B))
                   fixed        random        Difference          S.E.

assetquality     -1.801203      .0071638       -1.808367         .6751371
   liquidity      1.25586       .6060551        .6498046         .2521467
capitalade~y     -2.358276     -2.201225       -.157051          .1746472

                        b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

   Test:  Ho:  difference in coefficients not systematic

                 chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                         =        9.24
              Prob>chi2 =      0.0263
```

With a *p-value* >0.05, the Hausman test reject the null hypothesis that the difference in coefficients is not systematic, hence suggesting that the FE method is the most appropriate to estimate our model.

4.6.2 Regression Model with robust standard errors.

The results of the study show that there was a positive relationship between the asset quality and mortgage uptake. This mean that a unit changes in asset quality will result in to a 2.74×10^6 change in the same direction in the mortgage uptake. The findings also show that these tests not significant as the p-value > 0.05. The study findings further show a significant positive relationship between liquidity and mortgage uptake. This implies that a unit change in liquidity will result into an increase of 0.2261655 in the mortgage uptake. This effect was however statistically insignificant as p-value > 0.05. The findings show that there was a negative relationship between capital adequacy and mortgage uptake. This means that a unit increase in capital adequacy will result into a decline of 1.594815 in mortgage uptake. This test was statistically significant as the p-value < 0.5. Finally, the study findings show that there was a positive relationship between earnings ability and mortgage uptake. This means that a unit change in earnings ability will result into a 0.255965 positive change in the mortgage uptake. This test was however insignificant as the p-value > 0.05. These findings lead to a conclusion that the asset quality, liquidity and earnings ability have no significant effects on the mortgage uptake.

Table4.8: RE Model with robust standard errors

```
. regress mortgageloan assetquality liquidity capitaladequacy earningsability, vce(robust)

Linear regression                                  Number of obs =      224
                                                   F(  4,   219) =     2.78
                                                   Prob > F      =   0.0279
                                                   R-squared     =   0.0397
                                                   Root MSE      =   .84298
```

mortgageloans	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf. Interval]	
assetquality	.2743128	.7081479	0.39	0.699	-1.121344	1.66997
liquidity	.2261655	.5626289	0.40	0.688	-.8826947	1.335026
capitaladequacy	-1.594815	.5865699	-2.72	0.007	-2.75086	-.4387709
earningsability	.255965	.2304674	1.11	0.268	-.1982528	.7101828
_cons	6.878195	.7574364	9.08	0.000	5.385398	8.370993

The researcher then run a regression model without the asset quality, liquidity and earnings ability to establish their effect in the model. The findings presented in Table 4.9 show that there was no difference in the output as the coefficients remained the same are when the test was run with their inclusion.

Table 4.9:RE Model with robust standard errors without Firm size

```
. regress mortgageloan capitaladequacy, vce(robust)

Linear regression                                  Number of obs =      224
                                                   F(  1,   222) =     9.32
                                                   Prob > F      =   0.0025
                                                   R-squared     =   0.0324
                                                   Root MSE      =   .84046
```

mortgageloans	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf. Interval]	
capitaladequacy	-1.69099	.5538273	-3.05	0.003	-2.782421	-.5995581
_cons	7.626716	.131346	58.07	0.000	7.367872	7.885561

4.5.2 Regression Model

The study run a regression analysis to determine the relationship between the dependent and the independent variables. The findings are presented in Table 4.8.

44

Table 4.10: Regression Model

```
. xtreg mortgageloan assetquality liquidity capitaladequacy, fe

Fixed-effects (within) regression              Number of obs      =        224
Group variable: earningsab~y                   Number of groups   =         40

R-sq:  within  = 0.0940                         Obs per group: min =          1
       between = 0.0713                                        avg =        5.6
       overall = 0.0165                                        max =         17

                                                F(3,181)           =       6.26
corr(u_i, Xb)  = -0.3620                         Prob > F           =     0.0005
```

mortgageloans	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
assetquality	-1.801203	.9533872	-1.89	0.060	-3.682386	.0799793
liquidity	1.25586	.8478897	1.48	0.140	-.4171599	2.928879
capitaladequacy	-2.358276	.6467171	-3.65	0.000	-3.63435	-1.082202
_cons	6.420548	.9988651	6.43	0.000	4.44963	8.391465

sigma_u	.77154507	
sigma_e	.79712712	
rho	.48369624	(fraction of variance due to u_i)

```
F test that all u_i=0:      F(39, 181) =      1.68              Prob > F = 0.0129
```

The study established that the R-squared value for the test was 0.0940. This implies that 9.4% of the variance in the mortgage uptake is explained by the independent variables.

The panel regression results show that the constant was 6.420548 and that this value was significant at the 5% significant level. This implies that in the absence of the influence of the independent variable, the dependent variable is deemed to change with a value of 6.420548.

The results show that there was a negative relationship between the dependent variable and the independent variables except liquidity. The findings mean that a unit change in asset quality will result in a 1.801208 decline in the mortgage uptake by the financial institutions. This change is however not significant as p-value > 0,05. The findings

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further show that a unit change in liquidity will result into a 1.25586 increase in mortgage uptake by financial institutions in Kenya. This change was however not significant as the p-value > 0.05. Finally, the study established that a unit change in capital adequacy will result into a -2.358276 change in mortgage uptake by financial institutions. The change was found significant as the p-value was < 0.05. The relationship is presented in the model below:

$$\text{Mortgage uptake}_t = 6.420548 - 1.801203\text{Asset quality}_t + 1.25586\text{Liquidity}_t - 2.358276\text{Capital adequacy}_t \ldots (1)$$

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter discussion the study findings, conclusion and the recommendations given after considering the study results. The purpose of the study was to establish the determinants of mortgage uptake among financial institutions in Kenya. The specific objectives of the study were to determine the influence of capital adequacy on the total amount of mortgage issued in Kenya, establish the influence of asset quality on the total amount of mortgage issued in Kenya and to assess the influence of liquidity on the total amount of mortgage issued in Kenya.

5.2 Summary of the Findings and Discussions

The study established that there was a negative relationship between the asset quality and mortgage uptake among the financial institutions in Kenya. The results are consistent with Khalid (2012) who found that there were a negative relationship between asset quality and profitability of private banks. The findings also agree with Alhassan, Brobbey and Asamoah (2013) that asset quality had a negative effect on the lending behavior of commercial banks. It further agreed with Swamy (2015) who noted that asset quality had no significant effect on the profitability of commercial banks. The findings however, are inconsistent with Adeolu (2004) who found a positive and statistically strong relationship between asset quality and performance of banks in Nigeria.

The study further established that there was a positive relationship between the liquidity and the mortgage uptake by financial institutions in Kenya. The study findings are consistent with Bourer (1989) who found a positive relationship to exist between the liquidity and commercial bank profitability. The findings also agree with Lartey, Antwi and Boadi (2013) who found that liquidity had a weak positive relationship with profitability of commercial banks. They were equally in support of Almazari (2014) who found that liquidity had a positive relationship with profitability. However, the findings are inconsistent with Molyneux and Thornton (1992) and Goddard (2004) who noted that there was a negative relationship between liquidity and bank profitability.

The study found a negative relationship between capital adequacy and the mortgage uptake by the financial institutions in Kenya. The findings of the study contradict Naceur (2006) who noted that capital adequacy ratio contributed positively to bank profitability. The findings of the study however agree with Ifeacho and Ngalawa (2014) that capital adequacy exhibit significant negative relationship on the banks return on asset (ROA). The results are also in support of Goggard et al (2004) who noted that there was a negative relationship between the capital adaptability and the organization's profitability.

5.3 Conclusion

The study established that the variables asset quality, liquidity and capital adequacy affect the mortgage uptake. The study established that only on predictor variable was positive. The results further revealed that liquidity had a positive effect in the mortgage uptake by the financial institutions in Kenya even though this was not significant. The

study also established that the capital adequacy had a negative and significant effect on the mortgage uptake among the financial institutions in Kenya. The study therefore concludes that among all the variables, it was the capital adequacy that had a significant effect on the mortgage uptake among the financial institutions in Kenya. The study also concludes that there seem to be other variables that affect the mortgage uptake among the financial institutions in Kenya which were not under study.

5.4 Recommendations

Based on the findings of the study the study recommends that the management of the financial institutions should focus on the capital adequacy of their institutions with the aim of enhancing the mortgage uptake. The findings further recommends that the government though the Ministry of Finance should formulate policies on the capital adequacy of the financial institutions so as to enhance the mortgage uptake among the financial institutions so as the achieve one of the governments' agenda four of housing for majority of Kenyans.

5.5 Suggestions for Further Research

This study was done on the determinants of mortgage uptake among the financial institutions in Kenya. The study suggests that further studies be done on the factors affecting the consumer uptake of mortgage in Kenya.

REFERENCES

Abreu, M. and V. Mendes (2001). "*Commercial Bank interest margins and profitability: Evidence from E.U countries",* Porto, Working paper series, Available at:*http://www.iefs.org.uk/Papers/Abreu.pdf*.

Adeolu, A. M. (2014). Asset Quality and Bank Performance: A Study of Commercial Banks in Nigeria.*Research Journal of Finance and Accounting*,5(18), 39–44

Akenga, G. M., Olang, M.A. & Galo, N. M. (2015). Effect of Mortgage Market Risk on Mortgage Uptake: A Case Study of Mortgage Lenders in Kenya. *Journal of Investment and Management,* 4(6), 334-347

Akinwumwi, A.A. (2009). *An Investigation into Factors Affecting Housing Finance Supply in Emerging Economies. A Case of Nigeria*. A PhD Thesis for University of Wolverhampton.

Alhassan, A. L., Brobbey, F. O. and Asamoah, M. E. (2013), "Does Asset Quality Persist on Bank Lending Behaviour? Empirical Evidence from Ghana". *Global Journal of Management and Business Research Finance*, Vol.13.

Alhassan, A. L., Coleman, A. K. and Andoh, C. (2014). "Asset quality in a crisis period: An empirical examination of Ghanaian banks". *Review of Development Finance* 4, 50-62.

Almazari, A. A. (2014), "Impact of Internal Factors on Bank Profitability: Comparative Study between Saudi Arabia and Jordan". *Journal of Applied Finance & Banking*, 4(1), 125-140.

Arvanitis, Y. (2013) African Housing Dynamics: Lessons from the Kenyan Market,*Journalof Economics*, 4, 1–12.

Asare, E. & Whitehead. C. (2006). "Formal Mortgage Markets in Kenya: Nature and implications". RICS, *Research Paper Series, Vol* 6, No 13.

Athanasoglou Panayiotis P., Mathaios D. Delis and Christos K. Staikoura. (2006). *Determinantsof bank Profitability in the South Eastern European Region*. Working paper. Bank ofGreece. Economic Research Department.

Athanasoglou, P., Brissimis, S., & Delis, M. (2008). Bank-specific, industry-specific and Macroeconomic determinants of bank profitability. *Journal of International Financial Markets, Institutions and Money,* 18(2), 121--136.

Azizi.M and Sarkani.Y.A (2014) Review financial performance of MELLAT Bank According to CAMEL Model, *A journal of multidisciplinary research*, 3(1), 32-42.

Berger, N. A. and De Young R. (1997), "Problem Loans and Cost Efficiency in Commercial Banks, Washington DC". *Journal of Banking and Finance*, Vol. 21.

Bourke, P. (1989), "Concentration and other Determinants of Bank Profitability in Europe". *Journal of Banking and Finance*, pp 65-80.

Brueggeman, W., & Fisher, J. (2008). *Real Estate Finance & Investments*(11 ed.). New York: MCGraw-Hill.

CAHF. (2011). Year Book 2011. *Housing Finance in Africa-A review of some of Africa's Housing Finance Markets*. Finmark Trust.

Central Bank (2012). *Bank Supervision Annual Report.* Nairobi: Central Bank.

Central Bank of Kenya (2015). Bank Supervision Annual Report. Government Press, Nairobi.

Central Bank. (2010). *Banking Supervision Annual Report.* Nairobi: Central Bank.

Central Bank; World Bank. (2013). *Mortgage Finance in Kenya: Survey Analysis.* Nairobi.

Christopoulos, A.G., Mylonakis, J., & Diktapanidis, P. (2011). Could Lehman Brothers' collapse be anticipated? An examination using CAMELS rating system. *International Business Research*, 4(2), 11-19.

Debelle, G. (2004). "*Macroeconomic implications of rising household debt*", BIS working paperno. 153.

Eichengreen, B. and Gibson, H. D. (2001), "Greek banking at the dawn of the new millennium" CERP Discussion Paper 2791, London.

Erbas, S. N., & Nothaft, F. E. (2005). Mortgage markets in the Middle East and North African countries: Market development, poverty reduction, and growth.*Journal of Housing Economics*, 14(3), 212.

Eriksson, P. & Kovalainen, A. (2008). *Qualitative Methods in Business Research*. London: Sage Publications.

Eriksson, P. &Kovalainen, A. (2008). Qualitative methods in businessresearch.Sage, London.

Ezeoha, A. E. (2011), "Banking consolidation, credit crisis and asset quality in a fragile banking system: Some evidence from Nigerian data". *Journal of Financial Regulation and Compliance*, Vol. 19 Iss: 1, pp.33 – 44.

Fofack, H. (2005), "Non-Performing Loans in Sub-Saharan Africa: Causal Analysis and Macroeconomic Implications". World Bank Policy Research Working Paper No. WP 3769.

George, E. H. and S. S. Dimitrios (2004). "Efficiency measurement of the Greek commercial banks with the use of financial ratios: A data envelope analysis approach", *Management Accounting Research*, 15(2), 201-224.

Goddard, J., P. Molyneux, and J. Wilson (2004). "The profitability of European Banks: A Cross-sectional and dynamic panel analysis", *The Manchester School,* 72(3), 363-381.

Green W. (2010). *Models of Panel data*. New York University.

Gujarati, D. N. (2004), *Basic Econometrics*, The McGraw−Hill Companies

Hadad, F. (2013). Financial performance of Rural Banks in Ghana: A Case Study on Naara Rural Bank. *European Journal of Banking and Finance*, Vol.11.

Hahm, H. (2004). *Financial Firm Production of Monetary Services. A Generalised Systemic Barnnet Profit Function Approach*.New York: McGraw Hill.

Hassler, O.; Chiquer, L. & Lea, M. (2004). *Mortgage Securities in Emerging Markets.* Wasington.D.C: Financial SectorOperations & Policy Department.

Hetzel, R.L. (1987). *Henry Thornton: Seminal Monetary Theorist and Father of the Modern Central Bank*.Economic Review, July/August.

Ifeacho, H. & Ngalawa, H. (2014). "Performance of the South African Banking Sector since 1994" *Journal of Applies Business Research* Volume 30 Number 4.

Jha.S and Hui.X (2014) A Comparison of Financial Performance of Commercial Banks: A case study of Nepal, *African Journal of Business Management*, 6 (25), 7601-7611.

Kariuki, C. (2013). *Mortgage Special Report.* Kenya: The Mortgage Company.

Khalid, A. C. (2012), "The impact of Asset Quality on Profitability of Private Banks in India: A Case Study of JK, ICICI, HDFC & YES Banks". *Journal of African Macroeconomic Review* Vol. 2, No. 1.

Knetter, M. (1989) "Price Discrimination by U.S. and Germany Exporters." *American Economic review* 79(l): 198-210.

Lartey, V., Antwi, S., and Boadi, E. (2013), "The Relationship between Liquidity and Profitability of Listed Banks in Ghana". *International Journal of Business and Social Science*, 4(3), 48–56.

Lounsbury, M. (2008). Institutional Rationality and Practice Variation: New Directions in the Institutional Analysis of Practice. *Accounting, Organizations and Society*, 33: 349-361.

Macharia, P.C & Wanyoike, D.M. (2016). Determinants of Mortgage Uptake from Financial Institutions in Nakuru Town, Kenya. *International Journal of Economics, Commerce and Management*. 4(10) 568-598

Mburu, L.G. & Ka'kumu, O. (2016). *Determinants of Mortgage Uptake in Kenya using the Capital Market Approach*. Thesis of Jomo Kentatta university of Agriculture and Technology

McGibany, J. M., & Nourzad, F. (2004).Do Lower Mortgage Rates Mean Higher Housing Prices? *Applied Economics*, 36 (4), 305-313.

Mehdian, (2001). *Professor of Finance School of Management*. Oct. 2001. An Analysis of Stock Market Anomalies. 28 (7).

Miller, E. K. (2000). Task-specific neural activity in the primate prefrontal cortex. *Journal of Neurophysiol*. 84(1): 451–459.

Moein, A. M., Nayebzadeh, Sh., and Pour, M. A. (2013), "The Relationship between Modern Liquidity Indices and Stock Return in Companies Listed on Tehran Stock Exchange. Interdisciplinary". *Journal of Contemporary Research in Business*, 5(4), 352–360.

Molyneux, P. and Thornton, J. (1992), "Determinants of European Bank Profitability: A Note". *Journal of Banking and Finance*, Vol. 16, No. 6, 1173-8.

Ndungu, N. (2010). *A survey of Mortgage Financing by Commercial banks in Kenya*. Unpublished PhD thesis of Jomo Kenyatta Universityof Agriculture and Technology.

Njuguna, N. (2011). *Strengthening the Mortgage Market.* Nairobi: Government Printer.

Nzoka, F. K. (2015). *The effect of assets quality on the financial performance ofcommercial banks in Kenya*. College of humanities and social sciences. University ofNairobi. Unpublished research paper.

Ongore V. O. & Kusa G. B. (2013). Determinants of Financial Performance of Commercial banks in Kenya. *International journal of Economics and Financial Issues*. Vol, No.1.

Ongore, V. O., & Kusa, G. B. (2013). Determinants of financial performance of commercial banks in Kenya. *International Journal of Economics and Financial Issues*, 3(1), 237-252.

Pasiouras, F. and K. Kosmidou (2007). "Factors influencing the profitability of domestic and foreign commercial banks in the European Union", *Research in InternationalBusiness and Finance*, 21(2), 222-237.

Price Water-House Coopers (2009), "*Ghana Banking Survey*".

Rozzani, N., & Rahman, R.A. (2013). CAMELS and performance evaluation of banks in Malaysia: Conventional versus Islamic. *Journal of Islamic Finance and Business Research*, 2(1), 36-45.

Sarwar, A., & Asif, S. (2011). Safety & soundness of financial sector of Pakistan: CAMEL rating application. *Interdisciplinary Journal of Contemporary Research in Business*, 3(2), 624-630.

Scott, W. R. (2004). *Institutions and Organizations*. Thousand Oaks, CA, Sage

Staikouras, C. K. and G.E. Wood (2004). "The determinants of European bank profitability", *International Business and Economics Research Journal*, 3(6), 57-68.

Stiglitz, J.E.& Weiss, A. (2005), "Credit rationing in markets with imperfect information", *The American Economic Review*, Vol. 71 No.2, pp.393-410

Swamy, V. (2015), "Modelling Bank Asset Quality and Profitability: An Empirical Assessment". Economics Discussion Papers, No 27, Kiel Institute for the World Economy.

Vries, P.D. & Boelhouwer, P.P. (2005)."Local house price developments and housingsupply",*Property Management*, Vol. 23 Issue: 2, pp.80-96.

Wahome, M.W. (2010), *A survey of factors influencing mortgage financing in Kenya*, Unpublished MBA Project, University of Nairobi

Weersainghe, V and Ravinda, T. (2013). Determinants of profitability of Commercial Banks in Sri Lanka. *International Journal of Arts and commerce*. Vol.2 No.10.

World Bank. (2006). Making Finance Work for Africa.www-wds.worldbank.org

World Bank. (2011). *Developing Kenya's Mortgage Market.* Washington, DC: Office of the Publisher.

APPENDICES

APPENDIX 1: MORTGAGE LENDING INSTITUTIONS

1. KCB
2. HFCK
3. CFC Stanbic
4. Standard Chartered
5. Barclays Bank
6. Commercial Bank of Africa
7. I & M Bank
8. Equity Bank
9. National Bank of Kenya
10. Diamond Trust Bank
11. NIC Bank
12. Bank of India
13. Co-operative Bank of Kenya
14. Prime Bank
15. Imperial Bank
16. Bank of Africa
17. Bank of Baroda
18. Development Bank
19. Consolidated Bank of Kenya
20. Family Bank
21. Victoria Commercial Bank
22. Chase Bank
23. Fidelity Commercial Bank
24. African Banking Corp
25. Giro Bank
26. Eco Bank
27. Guardian Bank
28. First Community Bank

APPENDIX II: DATA COLLECTION SHEET

	2010	2011	2012	2013	2014	2015	2016	2017
African Banking Corp								
Bank of Africa								
Bank of Baroda								
Bank of India								
Barclays Bank								
CFC Stanbic								
Chase Bank								
Commercial Bank of Africa								
Consolidated Bank of Kenya								
Co-operative Bank of Kenya								
Development Bank								
Diamond Trust Bank								
Eco Bank								
Equity Bank								
Family Bank								
Fidelity Commercial Bank								
First Community Bank								
Giro Bank								
Guardian Bank								
HFCK								
I & M Bank								
Imperial Bank								
KCB								
National Bank of Kenya								
NIC Bank								
Prime Bank								
Standard Chartered								
Victoria Commercial Bank								