MORTGAGE FINANCING AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

CHEPKURUI CATHERINE

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MAY 2025

DECLARATION

This research project is my original work and has not been submitted to any other University

Signature……... Date……

Catherine Chepkurui

D53/ 39546/2016

I confirm that the work in this research project was done by the candidate under my supervision

Signature: ..... Date: .....

Dr. James Gatauwa, PhD.

Department of Accounting & Finance,

School of Business, Economics, and Tourism,

Kenyatta University.

DEDICATION

I dedicate my project to the All-Powerful God for his guidance and protection. To my late dad Augustine. You valued education and believed that it has no end. Continue resting in peace dad.

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Glory and honor to My Heavenly father for his faithfulness. For always giving me the strength and courage to move on even when it seemed challenging to balance between daily activities and study. His grace and faithfulness have kept me moving. To Him be the glory and honor. I thank my supervisor Dr. James Gatauwa. He guided me throughout my research process, gave me timely feedback and grounded my knowledge in the research field. My gratitude also goes to my husband Wesley for his financial support and encouragement and my sons MaxRyan and KarlMarx. I am grateful to my dear brother Ernest for his technical support, my sister Evaline and all my family members. I appreciate my colleagues and the whole fraternity of Kenyatta University for support and creation of a conducive learning environment. Last but not least my sister- in -law Magdalene for facilitating my learning process.

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OPERATIONAL DEFINITION OF TERMS

Commercial Banks Institutions dealing with mortgages as part of their income generating activities

Financial Performance Effectiveness of a commercial bank in utilizing revenue from its activities like mortgage lending to meet its needs over a given period of time

Income level Total amount of money that a borrower earns. It is quantified as the proportion of monthly income.

Interest Rate Interest charged on a mortgage loan**.** It is measured by the annual percentage rate on mortgage.

Mortgage Financing The process of granting loan to borrowers for the purchase and development of real property

Repayment period Time taken to fully pay back the total mortgage amount. It is measured by the amount to be repaid divided by the product of principal and time.

ABBREVIATIONS AND ACRONYMS

NIM: Net Interest Margin

ROA: Return on Assets

ROE: Return on Equity

SPSS: Statistical Package for Social Sciences

VIF: Variance Inflation Factor

ABSTRACT

There is a high demand for housing in Kenya. This is due to continuous growth in population. Mortgages from banks are crucial in fulfilling this demand. Financial performance of commercial banks has however, been declining. The main objective of this study was to investigate how mortgage financing influences the financial performance of commercial banks in Kenya. It specifically aimed to understand the impact of interest rates, borrower income levels, and repayment periods on the financial performance of Kenyan banks. It relied on Keynes's liquidity preference, absolute income, and title and lien theories. Causal research design was used. Thirty-one mortgage offering commercial banks were the data sources. Secondary data was used. The target commercial banks yearly financial data, Central Bank of Kenya, and Kenya Banker's Association provided the secondary data. No sampling was done since the study used all mortgage offering banks. The analysis involved using descriptive statistics to summarize the data and panel regression to explore relationships between variables. Diagnostic tests done included the bivariate correlation analysis, multicollinearity test, unit root test and heteroscedasticity test. STATA software was used for data analysis. The National Council of Science and Technology (NACOSTI) and the university both provided the researcher with a letter granting permission to gather data. Diagnostic tests done included bivariate correlation analysis, multicollinearity test, normality test, unit root test, heteroscedasticity test, the analysis of variance. The findings revealed that interest rate charged on mortgage loan, log of income level of borrowers and mortgage loan repayment period jointly explains forty three percent of the differences on how mortgage offering banks perform financially. They further showed a negative relationship between mortgage lending banks performance and interest rate; natural logarithm of income level of borrowers positively and significantly affected the financial performance of mortgage issuing Kenyan banks and mortgage loan repayment period had a positive impact on mortgage offering Kenyan banks. The study comes to the conclusion that the income level of borrowers and lending period positively impact the financial performance of banks while interest rate has a negative effect. Mortgage lending significantly improves Kenyan mortgage selling banks' financial performance. The ever-increasing demand for houses encourages individuals to take mortgages and improves the financial efficiency of Kenyan banks when default rate is low. This study thus recommends that Kenyan banks offering mortgages should increase mortgage repayment period and charge an affordable rate as this will increase the demand for mortgages which will in turn positively influence their financial performance. This research enriches the already existing work about the impact of mortgage financing on the performance of banks. Consequently, it suggests that the policy makers should enact a law capping interest charged on mortgage by Kenyan commercial banks. Moreover, future research studies should incorporate other managerial controllable variables like income diversification and branch size that can affect how Kenyan banks perform financially.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Kenya has an upsurge in population that has led to an upward trend in the demand for houses. This upward trend has made it necessary for investors to rely on commercial banks for mortgages (Abdulrehman & Nyamute, 2018). Mortgage financing by commercial banks plays a vital role in facilitating home ownership. Cities with many growing industries face larger housing demand and higher house prices. City-level differences in housing demand also correlate with supply elasticity. Housing consumption is mainly affected by the prices charged on real estate property (Liebersohn, 2017).

Financial performance is key in gauging the health of a firm. Capital adequacy, solvency, and liquidity show the financial performance of companies (Fatihudin, 2018). In Europe, reduced environmental, social, and governance risk boost the financial performance of listed firms (Agoraki et al., 2023). Due to advanced risk-management techniques that allow banks to profitably take advantage of rising inflationary trends, inflation has resulted in significant increases in UK commercial banks' profitability metrics, such as ROA and ROE (Eltweri et al., 2024).

According to Saha and Bishwas (2021), bank-specific factors have a significant influence on the financial performance of Bangladesh commercial banks. Green banking, liquidity, and capital adequacy have an impact on the financial performance of Indonesian banks (Ratnasari et al., 2021). According to Lian et al. (2022), Chinese commercial banks boost their financial performance with the issuance of green credit.

Monetary policies, credit risk, and gross domestic product affect the financial performance of commercial banks in Ghana (Kwashie et al., 2022). In Tanzania, factors like the location changes

of capital city affected the financial performance of commercial banks (Chindengwike & Mnyampanda, 2021) while in Kenya agency banking directly affects the financial performance of banks (Dulacha, 2025).

1.1.1 Mortgage Financing

Mortgage financing is essential for allowing people and companies to purchase real estate without having to pay the entire amount up front. It entails borrowing money to buy real estate from financial organizations, usually banks or mortgage lenders, with the loan being secured by the real estate. Principal and interest are paid back by borrowers over a certain time period, typically in monthly payments.

Although the Kenyan mortgage market is rapidly growing, the top tier banks dominate the industry with the medium and small banks taking a smaller market share

Interest rate charged on mortgages determine the degree of mortgage uptake. In Uganda, interest on mortgages is a major challenge for most homeowners and developers (Nakiwala et al., 2022). The interest rate discussed in this research is the interest rate that consumers of commercial banks pay on mortgage loans. It is determined using the interest on mortgage. Interest-only mortgages where an individual pays interest only for some period attracted many investors and homeowners in the US (Barlevy &Fisher 2021).

The potential to obtain a mortgage facility is influenced by income level. The study used the monthly earnings as it determines an individual’s capability to obtain a mortgage. Long-term financial commitments like mortgage facilities drastically reduce a person's income over time. Zator (2025) asserts that income levels influence the amount of money a person is eligible for in regards to mortgage facilities. When a household's floating-rate mortgage payments quasi-

exogenously rise or fall, they earn more (less). Households typically modify their income by 35% of the change in their mortgage payment, but the response is much larger after payments increase.

The duration of the repayment term has a significant impact on the loan application process, and borrowers favor lengthy repayment periods over short ones (Murage, 2021). Longer payback terms raise the likelihood of repayment (Warui, 2021). This study used the number of years taken to repay mortgage loan for the repayment since repayments are spread over long periods.

Mortgage financing is not as advanced in the African countries as it is globally. Home ownership and investment in real estate in less developed nations faces many obstacles. In Kigali Rwanda mortgage finance affordability is low. The low affordability is due to various factors like the type of model used for loan amortization schedule (Iyandemye, Barayandema & Gasheja 2018). Most households in Tanzania rely on funds from friends, family and revenue from business to purchase real property. Mortgages are the least utilized methods of financing (Millanzi, 2019).

From the yearly report of the Central Bank (2018), the Kenyan mortgage market is constrained by the increased cost of houses, high prices of land used to build houses, increased costs associated with the mortgage process and low accessibility to long term finance. The capability of those who borrow money to repay the loan and the security used to obtain the loan are also some of the factors limiting the growth of mortgage lending (CBK, 2019).

In Kenya, primary mortgage trading is the main activity in the industry. The primary mortgage in Kenya is made up of all the mortgage lending banks and the Housing Finance. The institutions are guided by prudential provisions from the regulating authority and their own exposure policy.

Secondary mortgage market involves the creation of a portfolio and securitization of mortgages. The mortgages are then sold on an open market. The investor that purchases the portfolio receives regular repayments from primary lenders. Secondary mortgage market in Kenya has not been fully explored. (Abdulrehman & Nyamute, 2018).

1.1.2 Financial Performance of Commercial Banks

Financial performance show how effective a commercial bank is in utilizing revenue from its activities like mortgage lending to meet its needs over a given period of time. Generally, the efficiency of a bank allocating resources to satisfy its obligations within a given time determines its financial performance. The main objective of any financial institution is maximizing shareholders' wealth and financial performance shows how this wealth is maximized. Financial ratios are the most common performance measures when dealing with financial performance (Farrah et al, 2016).

The measures that are most frequently used to gauge efficiency are return on assets (ROA), net income margin, and return on equity (ROE). NIM shows the discrepancy between interest paid to clients and interest earned by a certain bank (Nganga, 2017). ROA is the net to total asset ratio. and it shows how efficient an institution is in terms of utilizing its assets to generate income. ROE is the net profit or income on stockholders' equity and helps in determining how efficient an institution is in generating income using shareholders' equity. For one to know how a bank is performing financially, a thorough analysis of their financial statements is useful. Efficiency of banks is key in gauging profitability. The return on equity from 2016 to 2020 was 3.3%, 2.7%. 2.8%, 2.63% and 3.3% respectively (CBK, 2019).

Income of commercial banks went up by 4.2% in 2019 compared to 2018 (CBK, 2019). From CBK's annual report (2018), commercial banks 'efficiency went up with the total assets growing by ten percent between 2017 and 2018. Banks profit increased by 14.6%. The combined market shares of banks in the top tier moved to 70.28% from 65.98% due to the movement of I & M to the top tier level after merging with Giro commercial bank. This also translated to reduced combined market dominance of medium level banks from 26% to 21% in 2018. Customer deposits went up by 12.4% due to the increased use of agency banking and mobile phones. Total non-performing debts to the total debts increased. The rates were 12% in 2017 and 13% in 2018.

1.1.3 Commercial Banks in Kenya

In the global economy, commercial banks act as financial intermediaries and hubs for the mobilization of financial resources. They transfer money from the economy's surplus spending to its deficit spending units, which are needed by the household and corporate sectors. A strong, effective banking industry is a necessary precondition for making the investment and saving choices required for quick economic expansion. A robust banking industry offers a mechanism for consistently and methodically funding a nation's most lucrative and effective initiatives.

Banking institutions dominate Kenyan realty market. These banks operate in line with CBK guidelines. From an update by Central Bank (2019), there were 42 banking institutions including one mortgage finance company. Out of these, 14 are tier one commercial banks, 8 are tier 2 banks, and the rest are tier 3 banks. Three banks belonging to tier three started offering mortgages in 2018. From the annual bank supervision report of 2018, there was a 12 % increase in mortgage loan numbers. The mortgage loan value went down by 0.04 million. This resulted from the stricter lending policies on mortgages. From the same report, nine commercial banks do not offer mortgages.

The top tier banks take a large percentage in the mortgage market. They have a wider customer base compared to the smaller banks. The risks associated with mortgage lending and barriers to entry are the main constraints to new entrants (CBK, 2010). The study used all the 31-mortgage lending commercial banks. The other 9 non-mortgage lending banks were not included.

1.2 Statement of the Problem

Banks generate income through lending to individuals, companies, and the government. Mortgages are the major sources of revenue in the banking sector. According to the Central Bank of Kenya's annual reports, the sector has experienced fluctuations in profitability, asset quality, and liquidity Revenue from mortgages has been declining in the previous periods. This negatively affects the financial performance of commercial banks. For example, during 2017, there was a 3.1% reduction in the total income (CBK, 2017). ROE also declined has also from 2015-2019. The return on equity from 2015 to 2019 was3.86%, 3.99%. 3.33%, 3.5% and 3.3% respectively. Return on assets was at 24.4% in 2015, 24.7% in 2016, 20.68% in 2017, 22.5% in 2018 and 21.8% in 2019(CBK, 2019).

Various studies relating to mortgage financing and financial performance have been done throughout the world. They include Zhou, Xiong, Gu, and Fang (2016) who investigated the effect of mortgages on Chinese banks' financial health and found that macroeconomic factors significantly impacted the banks' general performance. In Africa, Asabere, McGowan and Lee (2016) researched how mortgage financing affect the economic development among the African countries. These studies were done outside Kenya and do not fully represent the Kenyan financial environment. Additionally, the studies focused on the size of the mortgage market and GNI per capita. This research considered additional economic factors, such as interest rate and income level of borrowers.

Studies on mortgage financing and financial performance have also been done locally. Karanja (2013) researched how mortgage financing affected profitability of banks. His research variables for mortgage financing were core savings, income, economic factors and portfolio diversification. The current study used other variables like interest rate and repayment period as the study variables. Mwendwa (2015) the correlation between banking institutions profitability and mortgage financing and used firm size, operating efficiency, and liquidity as the research variables. Financial institutions have control over these factors. The variables of the current study are not firm specific and the firm has little or no control over them.

Wandabusi (2019) studied the correlation between insurance companies' performance and their actual financing. The study widely covered real financing and targeted insurance companies only. The current study targeted commercial banks offering mortgages. Cyrille (2017) researched the macroeconomic factors' effects on banks and mortgage financing companies' mortgage uptake. This study targeted only commercial banks offering mortgages. Sheikh (2019) studied how mortgage financing impacts the efficiency of Islam-oriented banks. Its central focus was on Islamic banks. The current study used all mortgage-offering banks.

From these studies, there was none that researched on how these combined variables of income level, interest rate, and repayment period impact banks 'efficiency. This research dealt with the identified loopholes by analyzing the how mortgage financing affects financial performance of Kenyan mortgage lending banking institutions.

1.3 General Objective

To determine the effects of mortgage financing on the financial performance of commercial banks in Kenya.

1.3.1 Specific Objectives

I. To gauge the effect of interest rate on the financial performance among Kenyan commercial banks.

II. To analyse how the income level of borrowers affects the financial performance among Kenyan commercial banks.

III. To assess how repayment period affects the financial performance among Kenyan commercial banks.

1.4 Research Hypothesis

I. There is no statistically meaningful relationship between interest rate and Kenya's commercial banks' financial results.

II. There is no statistically significant correlation between borrower income and the financial performance of Kenya's commercial banks.

III. Repayment time has no statistically significant impact on Kenya's commercial banks' financial performance.

1.5 Significance of the Study

The outcomes, discoveries, and suggestions from this study could be greatly advantageous for financial regulators, particularly CBK. The regulator could utilize the results of this research to understand the correlation between mortgages and profitability of banking institutions. The recommendations could guide the central bank in formulating monetary policies that promote mortgage financing by commercial banks.

Commercial banks in Kenya, especially those offering mortgage products, could also benefit from this study. These banks could learn how different aspects of mortgage financing influence

their financial performance and even compare themselves with other banks. The results could inspire every banking institution to invent new ways to grow its mortgage market.

Real estate investors would find the research results useful as well. The results would provide them with a thorough understanding of the mortgage market and the adjustments needed to make informed investment decisions.

Supply of affordable housing especially is one of the government's objectives and the results of this research will enlighten the Kenyan government on how this can be fulfilled and whether interest rate and the other study variables contribute positively or negatively towards the achievement of the same.

Last but not least, scholars would gain immensely. The findings would be a reference for students and other scholars intending to do research which is related to this study. Scholars would also analyse this research and identify any gaps and carry out further research to fill the gaps.

1.6 Scope of the Study

This study scrutinized the 31 mortgage-lending banking institutions. The study dealt with mortgage financing and therefore used mortgage-lending banks only. The investigation spanned a five-year timeframe from 2016 to 2020. The research concentrated on how interest rates, borrowers' income levels, and the repayment period influence the financial performance of mortgage-offering banking institutions. Data was gathered using financial reports and financial statements.

1.7 Limitations of the Study

The researcher could not find some data online. Data which was not be available online was sought physically by the researcher. Some of the data providers were reluctant to provide information on

their financial performance. This was reduced by showing them the permission letter to research from the University. This assured them that the researcher is genuine and that the data is meant for academic purposes only.

1.8 Organization of the Study

This part gives the structure of the project. Chapter 1 introduces the study, including its objectives, background, hypothesis, scope, significance, and potential challenges. Chapter 2 presents empirical and theoretical reviews, summarizes the literature review, gives the study gaps, and outlines the conceptual framework. The third chapter details the design, including the target banks, sampling strategy, variable operationalization, data analysis and collection tools, and ethical issues considered. The fourth chapter provides the analysis of data and discussions. Finally, Chapter 5 concludes the proposal with summarized conclusions, findings, and recommendations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This part delves into both theoretical and practical analyses of mortgage financing and the financial outcomes of banking institutions. It elucidates theories pertinent to this research and provides an overview of past studies related to the subject. Additionally, it presents a literature summary to identify the research gap and outlines the conceptual framework that embodies the main concept.

2.2 Theoretical Review

This part presented the theories connected to the research. The study was rooted in Keynes's liquidity preference theory, the title and lien theory of mortgages, and the absolute income theory.

2.2.1 Liquidity Preference Theory

This theory, by Keynes (1936), posits that interest rate levels are influenced by individuals' inclination to hold money in cash or highly liquid states, as well as the total money supply in the economy. People are rewarded for not holding onto money but for foregoing liquidity. It further states that interest charges are determined in the money markets and the supply of money is externally determined whereas money demand is dictated by transaction, speculative, and precautionary motives.

Bibow (2013) revisited the theory and argued that Keynes's theory provides insights into real-world problems that go far beyond present Wicksellian orthodoxy, which is still mired in the delusion of money neutrality, and heterodox endogenous money approaches, such as expectations management and policy credibility.

The loanable funds theory supports this theory in the short-run. According to Loanable Funds, the intended level of saving and investing determines the interest rate. However, for the loanable funds theory, its application is broader because it provides for greater rate of interest influence than the liquidity preference theory does (Bertocco, 2013). A rise in spending reduces savings, which pushes up interest rates.

Just like how fluctuations in the marginal efficiency of capital (MEC) influence interest rates, an increase in MEC leads to a higher demand for investment capital, thereby raising interest rates. According to the liquidity preference theory, the wish to hoard money and its supply are the sole determinants of the interest rate (Culham, 2020). The theory posits that money markets control the interest rate levels. The supply of money dictates the interest levels and is determined by the CBK. The study considers the interest rate as a key factor influencing financial efficiency. This theory is therefore relevant to this research.

2.2.2 Title and Lien Theory of Mortgage

According to Werner and Kratovil (1981), there are two distinct ways a borrower can secure a mortgage, as outlined in the Title and Lien Theory of mortgages. When a borrower obtains a mortgage to purchase real property, the mortgage is considered a transfer of legal title from the borrower to the lender. The borrower has no access to the property's legal ownership document until the mortgage is fully repaid.

The lender holds the deed until the mortgage is completely paid off. This arrangement serves as a deterrent against borrower default and assures the lender that the loan will be repaid. In this theory, the borrower is the property owner, but the lender has the right to take possession and rents. If the borrower fails to meet their mortgage obligations, the lender has the right to reclaim the property.

In lien theory, the mortgage is considered a lien against the property rather than a transfer of title. The mortgage serves as a lien on the property, with the borrower pledging to meet all obligations associated with the mortgage loan and to make repayments as needed. Once full repayments have been made, the lender's lien is removed.

Financial institutions which use the title theory do so with the main aim being the protection of the firm given that repossession can be exercised. Medley (2011) states that mortgage loan signifies passage of title from the borrower to the lender. This creates an understanding that the mortgagor will only acquire the full title upon completion of repayment. As long as the mortgagor is repaying, the mortgagee cannot claim ownership of the mortgaged property. If the borrower sells the property before completing the repayment, the title is transferred to the new buyer as soon as the borrower fully settles the repayment. Medley (2011) further postulates that although the borrower retains the title in the lien theory, there are some encumbrances that ensure the lender is not taken advantage of by the borrower.

Mortgage financing brings together commercial banks and borrowers. This creates a relationship between the two parties. A commercial bank can use either the title or lien theory of mortgages to seal an agreement with the borrower. These theories ensure that the lender has a security to use in case a borrower fails to pay. Financial performance of commercial banks improves when the default rates are low. This theory of mortgages connects mortgage financing and profitability since it reduces the rate of default.

2.2.3 Absolute Income Theory

Keynes (1936) Absolute Income Theory states that as the income level of an individual goes up, the person tends to increase his/ her consumption though not as much as the increase in the level

of income. Baker (1998) asserts that savings and expenditure are a function of income. Based upon Keynesian usage feature, the Outright Revenue Theory, accumulation intake is a secure, but not always a straight feature of non-reusable revenue, $Ct = \alpha + \beta Yt$. Ct as well as Yt represent the values of the complete individual consumption expense as well as overall non-reusable revenue, at a given period, t. β, the degree of spending or saving when income increases (MPC) is expected to be continuous and also positive.

However, its value is below unity to make sure that increased earnings lead to more spending or saving (Carroll et al., 2017). The outright revenue theory asserts intake expenditure goes higher or lower with a boost or decline in income but not proportionally. This suggests that the ordinary tendency to consume (APC) is higher than the MPC at the beginning. This is because during the beginning, saving and spending do not change according to the changes in revenue. As revenue goes up the long-term result is a full adjustment in terms of saving and spending.

For an individual to take on a mortgage, income level has to be high since real estate investment is expensive. This theory blends with this study as it deals with the income level of borrowers which is one of the study variables. Before a bank grants any loan, the financial background of the borrower is analyzed especially when the amount to be borrowed is high. If a person's income is small, basic needs will be catered for first and investment in property will be the last to be budgeted for. The more earnings a person gets, the higher the chances of investing in real estate and being given a mortgage (Jorda et al., 2019).

2.3 Empirical Review

This section presents a review of existing research for the identification of gaps and building on previous works with new insights.

2.3.1 Interest Rate and Financial Performance

Interest rate is the interest charged on mortgages. Interest rates show how widely available credit is (Rosa, 2024). Significant fluctuations in financial markets are typically caused by either substantially positive or negative shifts in key factors like interest rates (Chatziantoniou et al., 2021). Mutemi and Makori (2019) did research to assess how interest rates affect financial institutions' ability to manage their finances in Kenya. They targeted forty Kenyan banks and used secondary data for analysis, employing the ordinary least squares technique. They concluded that capping positively affected banks' efficiency. They targeted all commercial banks and this does not reflect the financial performance of mortgage-lending banks alone.

However, Shawar and Siddiqui (2019) found that interest rates did not have any significant impact on the efficiency of companies offering insurance in Pakistan. This research was analyzing the determinants of financial efficiency of 5 insurance firms. Panel regression was used for analysis. The study was done in Pakistan and does not therefore reflect the financial performance of Kenyn mortgage lending banks.

Ahmed, Rehan, Chhapra and Supro (2018) researched on how interest changes affect the functions of Pakistan banks. Twenty banks were used for the study and the study period was seven years. Market share and return were used to choose the target group. The ones with the highest intake were prioritized. The analysis on how interest rate changes, advances and loans, earnings per share, and deposits with other banks affected profitability of banks was conducted using regression and correlation methods. Interest rate had a negative impact on profitability. The findings may not apply to the Kenyan banks as it was carried out outside Kenya.

Vervliet and Bikker (2018) concluded that reduced rates impact negatively on the performance of US banks and lowers net margins. The US financial environment is different from Kenyan environment and the findings are therefore not applicable in Kenya.

Egbunike and Ekerekeoti (2018) researched about the impact of macroeconomic elements and company characteristics on the efficiency of publicly traded companies dealing with manufacturing. Their research used non-probability sampling method. Multiple regression method was used for hypothesis. Interest and exchange rates had no consequential impact on banks' performance. It dealt with manufacturing companies in Nigeria. The current study was carried out in Kenyan with the target population being mortgage lending commercial banks.

Claessens, Coleman and Donnelly (2018) stated that any reduction of interest rate leads lower interest margin therefore reducing profitability margins of the commercial banks from forty-seven countries. The context is not applicable in Kenya since the study did not include Kenya as its target.

Umuro (2017) did research on interest rate charged and loan uptake that showed that there exists some connection between the interest charged and loan uptake. From his findings, interest capping led to a reduced loan uptake. During the first, second and third quarters of 2016, the loan growth was 17.65%, 4.61% and -1.72% respectively and -0.83%, 3.96% and 1.75% in 2017 during the same quarters. It found out that banks are shying away from clients who are considered to be high risk. This, consequently, negatively affected banks' profitability. The study dealt with loans in general and hence does not reflect the effect of mortgages as income generating activity of commercial banks.

For Aruwa and Musa (2014) who carried out a study in Nigeria on the various components of risks affecting profit levels of deposit taking banks, interest risk negatively affected profitability. All

deposit taking banks were the target population and ordinary least squares method with descriptive statistics were used. It dealt with risks and their effect on profits. Furthermore, the study was carried out outside Kenya. The current study was done in Kenya with the main variables being interest rate, income levels, and repayment period.

Obondy (2013) concluded that the rates of interest significantly affect mortgage sales. This research used regression method and targeted 30 financial institutions. Any change in the rate of interest directly impacts on mortgage sales and financial efficiency. The study used interest rate and did not incorporate other variables like income level of borrowers.

2.3.2 Income Level of Borrowers and Financial Performance

Income level is the total amount of money that a borrower earns. It is quantified as the proportion of monthly income. It determines whether an individual is granted a loan or not. According to Rashidi (2020) who researched how income source diversification affects financial efficiency of Lebanese banks, a positive correlation exists between non-interest income and profitability. This study was carried out between 2011 and 2015 using secondary data. ROE and ROA were used to measure financial efficiency. Herfindahl Hirschman Index was used for income source diversification. Hoang, Nguyen, Tran and Hoang (2020) analyzed how income diversification impacts financial efficiency and liquidity of Vietnamese banks. Secondary data from twenty-one commercial banks was collected from 2007-2017.

The results indicated that income diversification adversely influences the financial efficiency of privately-owned banking institutions, while it positively affected state-owned banking institutions' efficiency. Banks with long operation history benefited from diversification compared to banks which had been in the market for a shorter period. These two studies were done outside Kenya.

Mortgage financing is positively correlated with gross national income which implies that mortgage financing encourages an efficient financial system which in turn facilitates economic growth. This is according to a study done by Lee, McGowan, and Asabere (2016). The study aimed to explore how mortgage financing affects economic growth in Africa. It dealt with Africa in general and the findings may therefore not apply to Kenyan financial environment.

According to Makori and Memba (2015) who carried out research on the factors affecting mortgage financing, employment level of bank customers had an impact on mortgage financing of commercial banks in Kisii County. Higher income earners had a high probability of taking a mortgage than the low-income earners and the unemployed. The current study enhanced this study by suing income levels, interest rate, and repayment period.

Income of the clients significantly affects bank profitability. This is according to Karanja (2013) who researched on mortgage financing and profitability. The independent variables included core savings, income, and economic factors. The study aimed to ascertain if income influences the efficiency of Kenyan-banking institutions. Eighty six percent of the respondents agreed that income indeed impacts the profitability of these banks, while 14.1% held a differing view. The study did not used critical variables like interest rate which the current study incorporated.

2.3.3 Repayment Period and Financial Performance

Repayment period is the total time taken by a borrower to fully repay the loan. Murage (2021) studied how repayment period impacts the efficiency of SMEs in the Kenyan informal settlements. The study focused on SMEs located in the Mathare slums. Data was gathered from 120 such SMEs using questionnaires. Both descriptive and inferential statistics were used. The results indicated that the loan application process is significantly influenced by the repayment period, with

borrowers showing a preference for longer repayment periods over shorter ones. The study focused on SMEs and the results are not indicative of the financial performance of commercial banks.

Muthama and Warui (2021) analyzed the effects how lending conditions impact loan performance. The target population was Kenya Women microfinance banks in Kisii County. Credit period, loan standards, and collateral value were the research variables. Credit period positively affected loan performance. Longer repayment periods increase the probability of repaying. It however, did not include other variables like interest rate.

Worokinasih and Potipiroon (2019) researched on microfinance repayment levels of SMEs of Indonesia. Two hundred and fifteen SMEs were the target population. From the findings, loan terms and polies determine whether the entrepreneurs would repay the loan on the stipulated time. Flexible repayment periods encouraged increased the probability of borrowing. The study dealt with MSMEs in Indonesia which do not reflect the Kenyan status.

Duncan, Tirimba, and Njeru (2015) analyzed how loan repayment affects financial efficiency with the target population being Mount Kenya Saccos. Secondary and primary data were used. A strong relationship of 0.786 between the dependent and independent variable was found. The study used Saccos and not commercial banks as the target. This study targeted commercial banks.

Table 2.1 Summary of Literature Review

Researcher	**Topic**	**Results**	**Research gap**	**How this research filled the gap**
Karanja (2013)	Impact of Mortgage financing and	The study found that core savings,	While the study didn't analyze the	The study incorporated other variables and fully

	profitability of commercial banks	income, economic factors, and portfolio diversification positively influenced the banks' profitability.	impact of interest rates, it did incorporate other variables like income level and repayment period.	analyzed the effect that interest rate, income level and repayment period have on the efficiency of Kenyan mortgage offering banks.
Obondy (2013)	The effect of interest rates on the supply of real estate finance in Nairobi County.	Interest rate significantly affects mortgage sales	The study used interest rate and did not incorporate other variables like income level of borrowers.	The study used other variables including the income level of borrowers and repayment period.
Aruwa & Musa (2014)	Components of risk affecting the financial	interest rate risk negatively	Although the findings are	The research was done in Kenya thus

	performance of deposit-taking banks in Nigeria.	impacted the banks' financial performance	applicable to Nigerian banks, they may not fully represent the performance of Kenyan banks due to different financial sector policies.	reflecting the real performance of Kenyan banks.
Makori & Memba (2015)	Factors influencing mortgage financing among commercial banks in Kisii County	Interest rate, income level, and mortgage valuation fees affected the banks' financial performance	The study was specific to banks in Kisii County and didn't represent the overall state of commercial banks in Kenya.	All Kenyan mortgage lending banks were targeted.

Duncan, Njeru and Tirimba (2015)	Effects of loan repayment on the financial performance of deposit-taking Sacco's in the Mount Kenya Region.	There is a strong correlation between loan repayment and financial performance.	The findings, however, are not applicable to commercial banks.	Mortgage lending banks were targeted.
Asabere, McGowan & Lee (2016)	Mortgage financing and economic development among African countries	Mortgage financing and gross national per capita are positively correlated Mortgage financing encourages an efficient financial system which facilitates economic growth.	The study used all African countries	This research was done n Kenya.

Umuro (2017)	Impact of interest rate on loan uptake of commercial banks in Kenya	interest rate negatively impacted loan uptake	The study dealt with the general portfolio of loans provided by commercial banks.	This current research analyzed the effects of mortgage on performance of mortgage lending commercial banks
Ahmed, Rehan & Supro (2018)	Effects of interest rate changes on the financial performance of banks in Pakistan.	Frequent changes in the interest rate negatively affected the banks' financial performance	The research dealt with Pakistan banks.	This research was carried out in Kenya and the findings were applicable to the Kenyan financial environment especially the performance of mortgage lending banks
Egbunike & Ekerekeoti (2018	Effect of macroeconomic factors and firm characteristics on the	No significant impact of interest rate and exchange	The findings apply to the Nigerian economic	Kenyan mortgage offering banks were the target.

	financial performance of all manufacturing firms quoted in the securities exchange.	rate on financial performance.	environment. It used manufacturing firms.	
Bikker & Vervliet (2018)	Impact of interest rate on the financial performance of banks in the US	Low levels of interest rate negatively affected the banks' financial performance.	The research analyzed US banks which did not apply to the Kenyan environment. It also concentrated on interest rate as the main variable.	The banks were in Kenya and the findings depicted the state of the Kenyan banks, it took into consideration other variables of study which are the interest rate, income level and repayment period
Mutemi & Makori (2019)	Impact of interest rate capping on financial performance of commercial banks in Kenya	Capping interest rates positively influences the banks'	This research dealt with interest rate capping	This research incorporated other variables like the income level of

		financial performance.		borrowers and the repayment period.
Shawar & Siddiqui (2019)	Elements influencing the financial performance of the insurance sector in Pakistan	Interest rates do not significantly impact the industry's financial performance.	The study findings are only applicable to Pakistan financial environment. The study targeted insurance companies	This research was done in Kenya targeting mortgage offering banks.
Worokinasih and Potipiroon (2019)	Microfinance repayment performance of SMEs in Indonesia.	Flexible repayment periods increased the probability of borrowing.	The study dealt with SMEs in Indonesia	Mortgage offering banks were targeted.

Rashidi (2020)	Relationship between income source diversification and the financial performance of Lebanese commercial banks.	Non-interest income has a positive effect on the banks' financial performance	The findings are specifically applicable to Lebanese commercial banks	The current study addressed this contextual gap by focusing on mortgage lending commercial banks in Kenya.
Hoang et al (2020)	Impact of income diversification on the liquidity creation and financial performance of banking institutions in Vietnam.	Income diversification negatively affects the financial performance of privately-owned commercial banks, but it positively impacts on the efficiency of state-owned	The financial context of Vietnam is considerably different c compared to that of Kenya.	The results of this study are reflective of the performance of Kenyan banking institutions and are relevant to the Kenyan financial environment.

		banking institutions.		
Muthama and Warui (2021)	How loan conditions affect loan performance of microfinance firms in Kisii.	Longer repayments periods increase the probability of repayment	It did not consider other variables like the income level of borrowers	The study used interest rate, income level of borrowers, and the repayment period as the variables.
Murage (2021)	Repayment schedules and the financial performance of SMEs in urban informal settlements in Kenya.	Repayment period heavily impacts on the loan application process and borrowers prefer long repayment periods to short repayment periods.	This research focused on SMEs in Kenya's slums, and its results are not indicative of the performance of commercial banks.	This current research targeted mortgage lending commercial banks

Source: Researcher (2025).

2.5 Conceptual Framework

This framework graphically illustrates the correlation among study variables. The framework displays both dependent and independent variables.

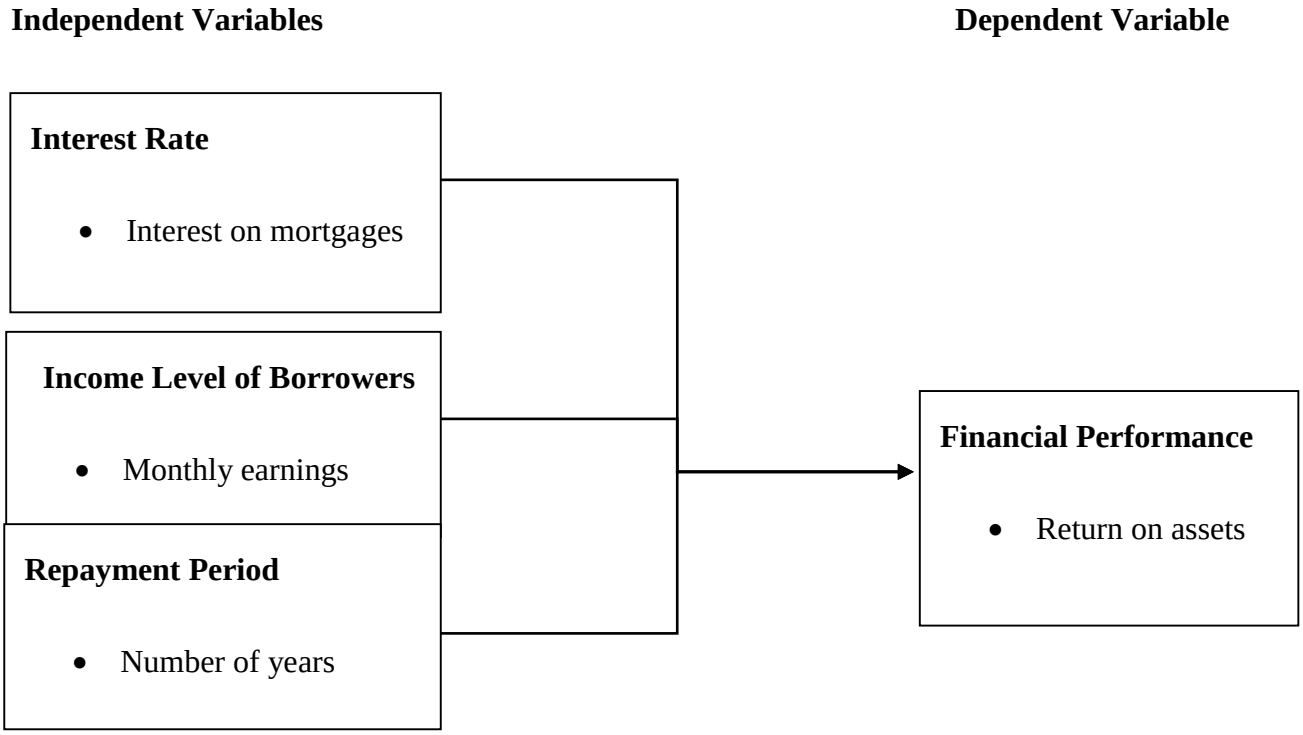

Figure 2.1: Conceptual Framework

Source: Researcher (2025)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section elucidates the adopted approaches. It has the design, target group, tools and methods used for gathering data, sample, and how data was analyzed. The section also gives the ethical issues taken into consideration during the process of collecting data from the target population.

3.2 Research Design

Some of the common designs include but not limited to quantitative, qualitative, applied, descriptive, causal, experimental, panel and longitudinal designs. The current study used causal design. This resulted from the fact that causal designs, which concentrate on the examination of a specific problem, reveal the patterns of interactions between variables (Kothari, 2004). The researcher used it as it helps determine cause and effect relationship between variables.

3.3 Target Population

The CBK report (2019) states that Kenya has a total of forty-two commercial banks. Among these, 31 banks provide mortgage services. A comprehensive study was conducted, focusing solely on the commercial banks that offer mortgages.

3.4 Sampling Design and Sample Size

This refers to techniques adopted in selecting a sample from a given population. (Kothari, 2004). This study targeted all the thirty-one commercial banks offering mortgages. The researcher used a census since all the banks offering mortgages were the target population therefore sampling was not be carried out.

3.5 Operationalization and Measurement of Variables

Ratio measurement scaling was used for the study. Ratio scaling has the element of order, comparison and absolute zero. The corresponding indicators of each variable are useful in measuring their effects.

Table 3.1 Operationalization and variable measurement

Variables	**Type of variable**	**Description of variable**	**Variable indicator**	**How it is measured**	**Scale of measurement**
Interest rate	Independent	Rate charged on mortgages	Interest income from mortgages	Total amount to be repaid/product of principal and repayment period	Ratio
Income level of borrowers	Independent	Total amount of money that a borrower earns from different sources	Monthly earnings	Percentage of monthly income used for repayment of mortgage.	Ratio
Repayment period	Independent	Time taken to fully pay	Time in years	Total amount to be repaid/	Ratio

		back the total mortgage amount		product of principal and interest rate	
Financial performance	Dependent	How a bank uses revenue generated from its activities including	Return on assets	Net income divided by the average total assets	Ratio

Source: Researcher (2025).

3.6 Data Collection Instruments

This research utilized data from secondary resources such as the annual summaries of the CBK, Kenya Bankers Association, and the target commercial banks. Piloting was done using five tier one commercial banks.

3.7 Data Collection Procedures

The procedures give the steps which were followed in collecting data. The investigator got an introduction letter from the university and research authorization from The National Commission for Science, Technology, and Innovation (NACOSTI). Panel data from 2016 to 2020 was then collected from the yearly summaries of CBK, Kenya Bankers Association, and target

commercial banks. The reports were analyzed, results tabulated, and summary and conclusion done.

3.8 Data Analysis and Presentation

Gathered data was organized into smaller categories and tables for evaluation. Symbols were used to code the data, simplifying the analysis process. The editing procedure enhances the data's quality for coding (Kothari, 2004).

The STATA software was utilized for the analysis of data. Descriptive analysis was used since data was quantitative. Descriptive analysis is characterized by measures of central tendency, correlation analysis, and standard deviation. They indicate points where items tend to gather.

Such a measure is viewed as the most representative figure for all the data (Kothari, 2004). This study, being quantitative, used the mean for analysis. Standard deviation was used to indicate the dispersion level, while correlation analysis revealed the relationship between variables.

A model was created using panel regression analysis. As the data was analyzed over a five-year period, panel regression was used. Analyzed data was displayed in graphs and tables. Here's the regression equation showing the correlation between independent and dependent variables:

$$Y_{it} = \alpha + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \varepsilon_{it}$$

Where;

Y_{it} is the financial performance given by the ROA at time t

t= time

α = Regression constant

β_1 β_2 and β_3 are the independent variable coefficients.

X_{1t} = Interest rate at time, t.

X_{2t} = Income level of borrowers at time, t.

X3t = Repayment period at time, t.

ε_{it} = Error term

3.9 Diagnostic Tests

3.9.1 Bivariate Correlation Analysis

Bivariate correlation is a statistical technique that aids in determining whether there is variable correlation. It demonstrates how a variable can change given a change in another variable (Allen, 2017). Collinearity is indicated when the bivariate Pearson correlation between the independent variables exceeds 0.7 (Pallant & Manual, 2007).

According to the Kent State University Library (2017), correlation values are between -1 and +1. A full negative association is shown by -1 while a perfectly positive relationship is shown by +1. Lack of any significant relationship is shown by 0. The variables are thought to be linear and regularly distributed in bivariate correlation.

3.9.2 Multicollinearity Test

Multicollinearity tests are tools for figuring out how closely two variables are correlated. The variance inflation factor (VIF), which can be found in SPSS Collinearity Diagnostics, is the indicator utilized to test for multi-collinearity. An indication of collinearity is a high VIF value. A variable is very collinear if its VIF is greater than 10, and if it is less than ten, which is the threshold, multicollinearity is absent (Gujarati, 2003). High correlation calls for the utilization of only one group of the independent variables for estimation (Kothari, 2004).

3.9.3Normality Test

A researcher can employ tests of normality to ascertain if the study's sample originates from a population with a normal distribution. If a test for normality is conducted, the outcome should exhibit a probability exceeding 0.05. If the probability falls below 0.05, it indicates the presence of non-normality.

If there is no normality, the researcher will conduct a critical examination to identify any outliers before applying a modification such as the square root to the data to restore normalcy. Non-parametric techniques can also be used to eliminate non-normality (Ghasemi & Zahedias, 2012). The Jargue- Bera normality test was used to perform the normality checks.

3.9.4 Unit Root Test

They are tests used to determine stationarity, which occurs when a change in time has no effect on the shape of a data distribution's distribution. The test was performed to understand if a change in timelines affects data distribution. To determine stationarity, the Dickey Fuller test was used. A P-value exceeding 0.05 depicts non-stationarity. Using non-stationary results is untrustworthy. The addition of lags allowed the researcher to mitigate the effects of non-stationarity.

3.9.5 Heteroscedasticity Test

Variability of error terms yields Heteroscedasticity. To determine whether the variance in error terms remains constant across observations, heteroscedasticity tests were performed. It is common in datasets with a wide range of observed values between the largest and smallest values. Using a non-constant variance, any P-value below 0.05 means there is heteroscedasticity.

The weighted regression method solves the problem of heteroscedasticity. This gives less weight to data with large variances. It can also be solved by rearranging the variables or changing the dependent variable.

3.9.6 Analysis of Variance (ANOVA)

ANOVA is a key analytical instrument that is used to test the homogeneity among various data groups. The fundamental concept of ANOVA is to segregate the total variation in a dataset into two parts: one part that can be credited to chance, and another part that can be credited to a certain cause. Variations may occur both between and within sample items (Kothari, 2004). ANOVA plays a significant role in determining whether the variables under study, which influence the dependent variable, exhibit substantial differences among the commercial banks that offer mortgages.

If the variation is due to specified causes and not chance, the researcher makes adjustments that minimize the variations.

3.9.7 Model Specification Test

Model specification is the process of deciding which independent variables to include and which to exclude from a regression equation. If the correct variables are not included, it results in a specification error.

A specification error also occurs when the independent variables and their functional forms do not accurately represent the actual relationship observed in the data. The bias that arises from such errors can exaggerate, diminish, or completely hide the real relationships (Zellner, 2001).

The research employed Hausman's specification test (1978) in deciding between random and fixed effect models. For Random Effects Model, the true impact estimated in each study varies and these effects follow a normal distribution.

The Fixed Effects Model is applicable when it is fair to presume that all studies share a single common effect.

3.10 Ethical Considerations

Moral guidelines on research were adhered to. This includes the acknowledgement of all information sources to avoid plagiarism. The researcher-maintained confidentiality by protecting the sensitive data to uphold privacy of the parties involved. Honesty and trust were maintained by reporting the findings accurately. Research findings were disseminated to the interested parties. Kenyatta University and NACOSTI approved and authorized the data collection process.

CHAPTER FOUR: DATA ANALYSIS AND DISCUSSION

4.0 Introduction

This part showcases trends in outcomes and their assessment regarding the study's goals and research inquiries. The discoveries are displayed through tables and narratives, aligned with the particular objectives. The section includes descriptive statistics, trend evaluations, estimation examinations, and regression analyses. Furthermore, the section reveals the outcomes of the models utilized to fulfill the aim of the study.

4.1 Response Rate

The response rate was 100% with all the mortgage lending commercial banks being used as data collection sources. The results therefore reflect the effect of mortgage financing on financial performance of Kenyan mortgage-lending banks.

4.2 Descriptive Statistics

Table 4.1 gives the analytical data related to how mortgage financing influences the financial outcomes for the Kenyan banking institutions during the period from 2016-2020.

Table 4.1: Descriptive Statistics

Variable	Obs.	Minimum	Maximum	Mean	Std. Deviation
ROA	155	-14.14000	7.550000	1.9718710	3.1043800
Interest Rate	155	.10100000	0.2455000	0.1364277	0.0210532

Level of Income	155	71,972.00	991,367.00	545,128.10	262521.40
Repayment Period	155	5.000000	30.000000	17.987100	6.3111810

Source: Researcher (2025).

The analytical data in the table above indicates there was a lowest return on assets observed by Kenyan banking institutions from 2016 to 2020 was -14.14, whereas the highest was 7.55. The average ROA was 1.9718710, and the standard deviation was 3.10438. There was a positive average profitability suggesting that the banking institutions offering mortgages had a higher stability during this period. Additionally, the lowest mortgage interest rate charged by the banks was 10.1%, while the highest was 24.6%. The average interest rate was 13.64%, and the standard deviation was 2.11%, suggesting that Kenyan banking institutions that offer mortgages were charging high interest rates on mortgage loans from 2016 to 2020. Furthermore, the data shows that the lowest income level for the borrowers was KES 71,972, while the highest was KES 991,367.

The mean income level was found to be KES 545,128.10, while the standard deviation was KES 262,521.40. Finally, the results depicts that the minimum loan repayment period set by the mortgage offering commercial banks between the year 2016 and 2020 was 5 years, while the maximum repayment period was 30 years. The mean repayment period was 18 years with standard deviation of 6.31 years.

4.1.2 Trend Analysis

This part of the study provides an examination of the variable trends. It shows the progression of variables from 2016 to 2020. Figure 4.1 displays the trend analysis for financial efficiency (ROA) for the mortgage offering commercial banks between the years 2016 and 2020.

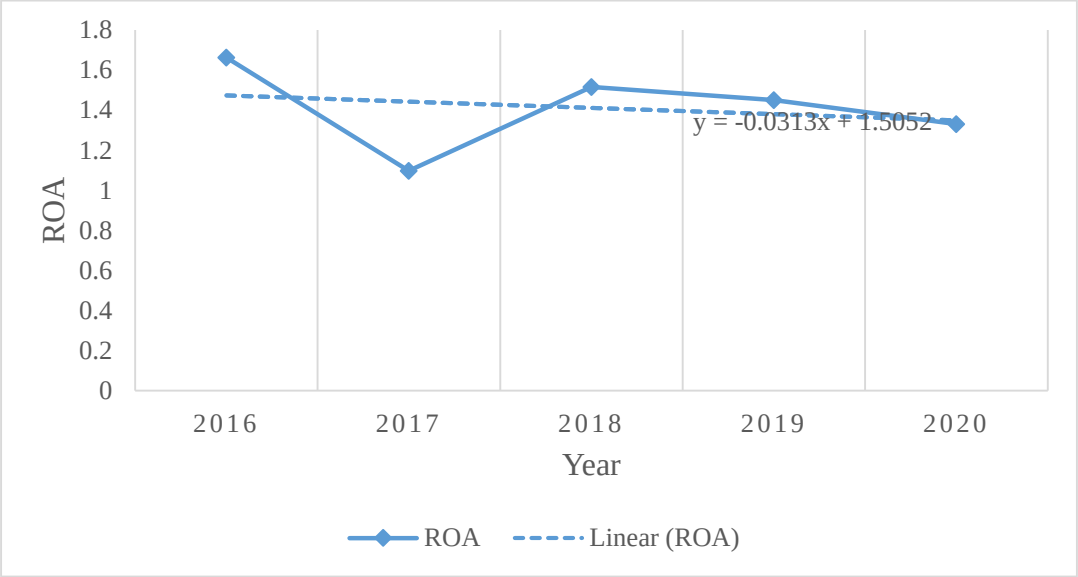

Figure 4.1: Trend Analysis for Financial Performance

From figure 4.1, banks exhibited an erratic financial performance between the years 2016 and 2020 as depicted by constantly fluctuating ROA. Commercial banks recorded an average ROA of 1.66323 in the years 2016, which dropped to 1.097 in the year 2017 before shooting to an average of 1.51613 in the years 2018. In the year 2019, the average ROA for mortgage issuing banks loan stood at 1.4503226, which then dropped slightly to 1.3301 in the year 2020. Figure 4.2 shows the trend analysis for interest rate charged on mortgages between the years 2016 and 2020.

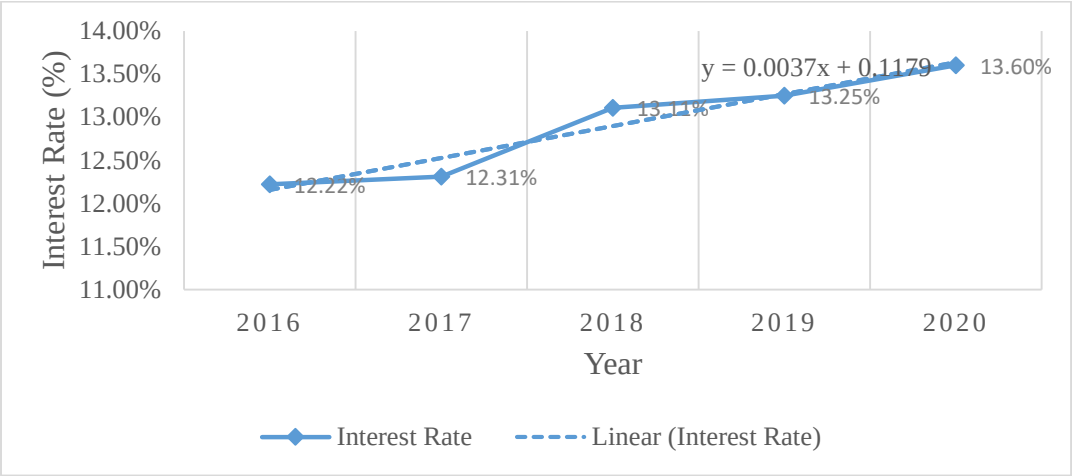

Figure 4.2: Trend Analysis for Interest Rate

As depicted by Figure 4.2, average mortgage interest stood at 12.22% in 2016, in 2017 the rate increased slightly to an average of 12.31% and increased further to an average of 13.11% in 2018. In the year 2019, the interest rate charged on mortgage stood at an average of 13.25% before shooting further to an average rate of 13.60% in the year 2020. The trend line analysis implies that between 2016 and 2020, commercial banks in Kenya offering mortgages kept increasing the interest rates charged on mortgage. Figure 4.3 shows the trend analysis for the income level of mortgage borrowers between the years 2016 and 2020.

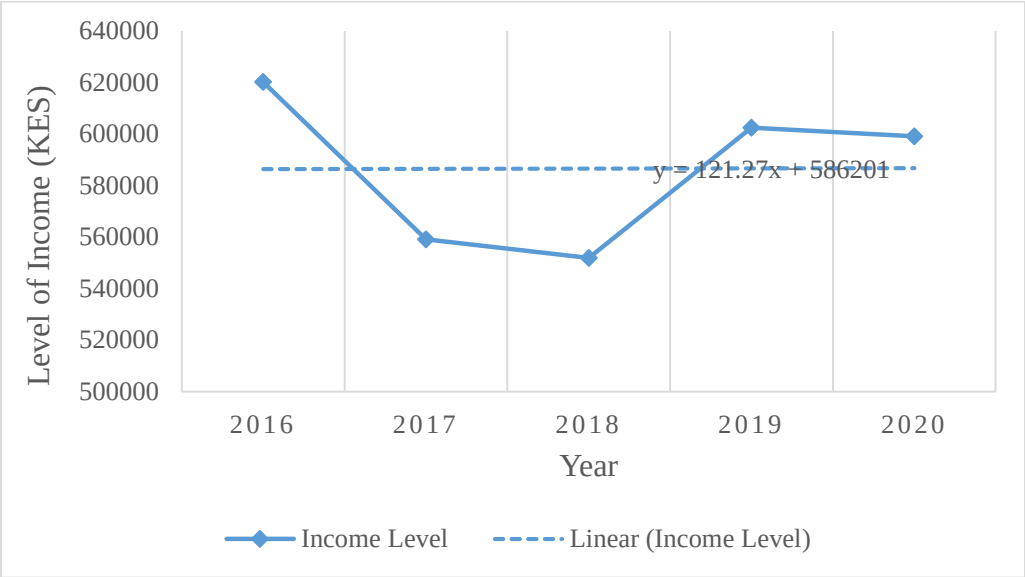

Figure 4.3: Trend Analysis for Income Level for Borrowers

As shown on Figure 4.3, the average income for clients seeking mortgages from commercial banks in 2016 was KES 620,172.40. This figure dropped in the following year 2017 to an average income of KES 559,130.82, which dropped further to an average of KES 551,953.29 in 2018. In 2019, the average income level was KES 602,445.50, which dropped slightly to an average of KES 599,121.40 in the year 2020. The results imply that the income levels for clients taking mortgages from commercial banks in Kenya between 2016 and 2020 was erratic. Figure 4.4 shows the trend analysis for mortgage loan repayment period among commercial banks issuing mortgage in Kenya between the years 2016 and 2020.

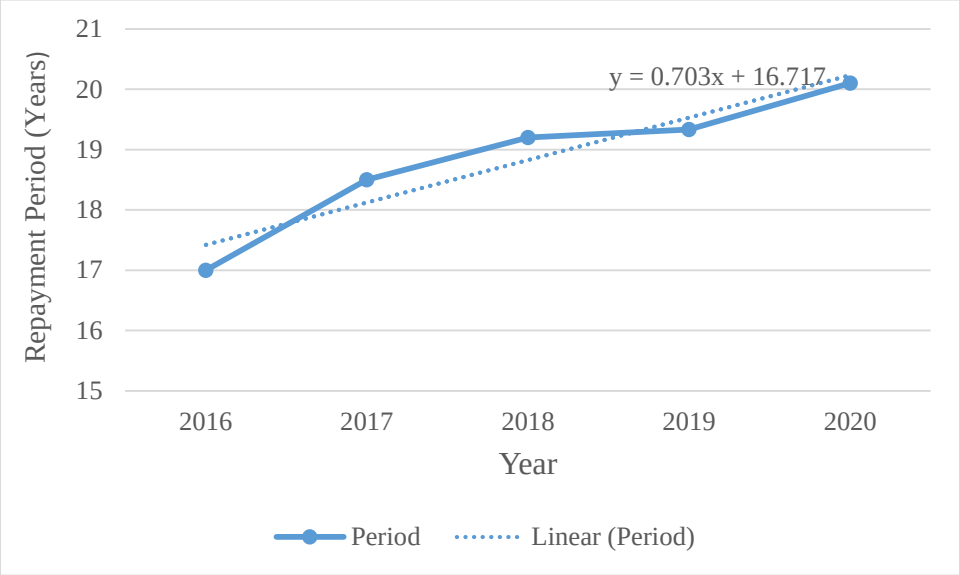

Figure 4.4: Trend Analysis for Loan Repayment Period

As depicted by trend analysis on Figure 4.4, mortgage loan repayment period was consistently on an upward trajectory between 2016 and 2020. In the year 2016 the average payment period was 17 years, went up to an average of 18.5 years in 2017 before shooting to an average of 19.2 years in the year 2018. The results show that the average loan repayment period in 2019 was 19.33 years and in 2020 it stood at an average of 20.1 years. This implies that most of the clients taking mortgages between 2016 and 2020 were preferring longer loan repayment periods because with the longer time frame, their monthly payment would be significantly lower hence easing pressure on their finances.

4.2 Correlation Analysis

This research carried out a correlation analysis on banks to demonstrate how financial performance relates to the independent variables of commercial banks that offer mortgages, which was evaluated using return on assets. Table 4.2 presents the correlation matrix showing the relationship between the independent variables and financial performance.

Table 4.2: Correlation Matrix

		Return on Assets	Interest Rate	Log of Income Level	Repayment Period
Return on Assets	Pearson Correlation	1.0000			
Interest Rate	Pearson Correlation	-0.3127*	1.0000		
Log of Income Level	Pearson Correlation	0.3010*	-0.3454*	1.0000	
Repayment Period	Pearson Correlation	0.2744*	-0.0890	0.1290	1.000

Source: Researcher (2025).

The data in Table 4.2 indicates a significant and negative relationship (-0.3127*) existing between the interest applied to loans and the financial performance, as measured by ROA. This aligns with the research conducted by Ahmed, Rehan, Chhapra, and Supro (2018), which found that changes in interest rates negatively impacted the financial efficiency of Pakistan banking institutions, reducing their profitability. Similarly, Vervliet and Bikker (2018) found low rates adversely affected the financial efficiency of banking institutions in the United States, and hence reduced net margins.

These research results also indicate that the logarithm of the borrowers' income level had a positively and significantly impacted the performance of Kenyan banking institutions that offer mortgages (0.3010*). The results align with the findings of Makori and Memba (2015), who concluded that individuals with higher incomes are more likely to take out a mortgage than those with lower incomes or who are unemployed. Furthermore, Karanja (2013) found, while studying how mortgage financing affects profitability of banking institutions, that income of bank clients significantly influences the banks' profits. In fact, 85% of the respondents believed that income levels and profitability are positively correlated.

These findings therefore illustrate a positive and significant correlation (0.2744*) between the length of the loan payback period and Kenya's commercial banks' financial performance that provide mortgages. This concurs with the assertions by Worokinasih and Potipiroon (2019) that, loan terms and policies determine whether the entrepreneurs would repay the loan on the stipulated time and flexible repayment periods encouraged increased the probability of borrowing. Furthermore, Muthama and Warui (2021) conducted an analysis to show how loan conditions affect loan performance of microfinance firms in Kisii. They found that these variables have a positive relationship, with a longer repayment period increasing the probability of repayment. This matches the results of the present research.

4.3 Diagnostic Testing

In order to make sure the panel regression model's assumptions were upheld and to determine which models would be best for analysis in the event that they were, the research conducted a number of diagnostic tests.

Therefore, before executing a regression model, both post-estimation and pre-estimation tests were performed. Multicollinearity test was the pre-estimation tests while autocorrelation, heteroscedasticity, Hausman specification test, and normality tests were the post-estimation tests. These tests were conducted to prevent misleading regression outcomes.

4.3.1 Stationarity Test

The investigator carried out Unit root tests utilizing the Levin–Lin–Chu test to show stationarity and non-stationarity of variables. Carrying out this test ensured that there were no misleading regression outcomes from non-stationary series. Here are the findings:

Table 4.3: Stationarity Tests

Variable	Adjusted t-Statistic	P-value	Comment
Financial Performance	-5.8294	0.0000	Stationary
Interest	-4.9376	0.0000	Stationary
Log of Income Level	-7.3617	0.0000	Stationary
Repayment Period	-3.2243	0.0006	Stationary

Source: Researcher (2025).

The results in Table 4.3 show that financial performance (ROA), interest rate applied to mortgage loans, the logarithm of the borrowers' income level, and the loan repayment duration were all stationary (i.e., they did not have unit roots) at a 5% significance level. Consequently,

the study concludes that no variable had unit roots and were thus used at all levels. The results are therefore not misleading according to Gujarati (2003).

4.3.2 Normality Test

Normality assumption (ut ~ N (0, σ2)) was necessary in performing individual and combined hypothesis testing on model dimensions (Brooks, 2008). The table below gives the findings of the Kurtosis and skewness tests to determine normality on commercial banks.

Table 4.4: Normality Test

Skewness/Kurtosis tests for Normality					
Variable	**Obs**	**Pr (Skewness)**	**Pr (Kurtosis)**	**adj. chi2(2)**	**Prob>chi2**
ROA	155	0.24240	0.2212	41.81	0.1106
Interest Rate	155	0.15068	22.650	39.62	0.0971
Log of Income Level	155	0.38614	14.705	39.32	0.1840
Repayment Period	155	0.63430	5.0540	11.25	0.2799

Source: Researcher (2025).

The results show that P-values in all variables was above the critical P-value (0.05). The data therefore, adhered to a normal distribution.

4.3.3 Multicollinearity Test

A situation where there is an exact (or nearly perfect) linear relationship between two or more explanatory variables is known as multicollinearity (Hawking & Pendleton, 1983). It represents a

high variable correlation. When there is a perfect correlation, unique least squares solution cannot be determined for predictor variables (Field, 2009).

Multicollinearity leads to unstable coefficient estimates for individual predictors by increasing the standard errors and confidence intervals (Belsley et al., 1980). This study evaluated multicollinearity using variance inflation factors (VIF). Field (2009) proposes that multicollinearity is present when the VIF value is more than 10.

Here are the Multicollinearity results:

Table 4.5: Multicollinearity Test

Variable	VIF	1/VIF
Interest	1.14	0.878664
Log of Income Level	1.15	0.870942
Repayment Period	1.02	0.981126

Source: Researcher (2025).

The findings presented in Table 4.5 suggest that Multicollinearity is not present, as every variable's VIF is less than 10.

4.3.4 Heteroscedasticity Test

To ascertain whether the variance of the error terms is constant for every observation, a heteroscedasticity test was performed. If heteroscedasticity is not present, then we have homoscedasticity. The Breusch-Pagan test aided inn checking heteroscedasticity. In this test, the

null hypothesis was that homoscedasticity would be shown by the error terms having a constant variance. Table 4.6 gives the outcomes.

Table 4.6: Heteroscedasticity Test

Breusch-Pagan / Cook-Weisberg test for Homoscedasticity
Ho: Constant variance
Variables: fitted values of Financial Performance (ROA)
chi2(1) = 1.21
Prob > chi2 = 0.2718

Source: Researcher (2025).

Table 4.6 indicates that the error terms are homoscedastic, given that the p-value (0.2718) is higher than the significance level of 0.05. This indicates that the data utilized was homoscedastic (without heteroscedasticity), signifying that the data employed in the regression had consistent variance, and thus, the results of the analysis can be deemed reliable.

4.3.5 Autocorrelation Test

Panel regression models assume that the model's errors are independent (not correlated). In time-series research, the mistakes are deemed dependent or autocorrelated if this supposition is not satisfied. In order to determine whether autocorrelation existed in the data—more specifically, whether the residuals were serially correlated across time—this study used the Wooldridge test. Table 4.7 displays the results.

Table 4.7: Autocorrelation

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
F (1, 4) = 2.530
Prob >F = 0.1869

Source: Researcher (2025).

With one and four degrees of freedom, the F-test is the test statistic that was provided. Its value is 2.530. The F-test's P-value of 0.1869 indicates that, at the 5% level, the test is not statistically significant. As a result, the conclusion that there is no autocorrelation in the residuals is supported by the null hypothesis.

4.3.6 Model Specification Test

The Hausman's specification test (1978) was used in this study to determine which random and fixed effect models to use. In Random Effects Model, each study's estimated true impact is unique, and these impacts follow a normal distribution. The Fixed Effects Model is suitable when it's reasonable to assume that all studies have a single shared effect. Table 4.8 shows the outcomes.

Table 4.8: Model Specification Test

Variable	**(b)** **Fixed**	**(B)** **Random**	**(b-B)** **Difference**
Interest Rate	-34.79673	-33.62131	-1.17542
Log of Income Level	.8934822	.9147734	-.0212912

Repayment Period	.1062176	.1112179	-.0050003
chi2(3)	0.52		
Prob>chi2	0.0000		

Source: Researcher (2025).

Table 4.8 presents the findings, which show that the p-value was 0.0000, or less than 0.05. This implies that the random effects model is less preferred than the fixed effect model.

4.4 Panel Regression Analysis

In order to ascertain the statistically significant correlation between mortgage financing characteristics and the financial performance of Kenyan commercial banks, this study performed a panel regression analysis. Regression analysis is a statistical technique used to estimate the correlations among variables, according to Rencher and Schaalje (2009). It includes a wide range of methods for describing and evaluating multiple variables, especially where the connection between dependent and independent variables is of interest. Table 4.10 presents the panel regression analysis's findings.

Table 4.10: Panel Regression Analysis

Dep Var: ROA	**Coef. (β)**	**Std. Err.**	**z**	**P>|z|**
Interest Rate	-33.62131	11.53055	-2.92	0.004
Log of Income Level	.9147734	.373174	2.45	0.014
Repayment Period	.1112179	.036506	3.05	0.002
Constant	-.6478237	3.092161	-0.21	0.834

R^2	0.4369
R^2Adjusted =	0.4152
F statistic	35.69
P-value	0.0000

Source: Researcher (2025).

$$\mathbf{Y_{it}}=-0.6478237-33.62131\mathbf{X_{1it}}+0.9147734\mathbf{X_{2it}}+0.1112179\mathbf{X_{3it}}$$

Where:

Y_{it} = Dependent variable *i* at time t

$X_{1\,\mathbf{it}}$ = Interest rate *i* at time t

$X_{2\,\mathbf{it}}$ = Log of income level of borrowers *i* at time t

$X_{3\,\mathbf{it}}$ = Payment period on loan *i* at time t

Table 4.10 displays the panel regression results, which show that the coefficient of determination (R^2) is 0.4369. This means the interest rate applied to a mortgage loan, the borrowers' income level, and the mortgage loan repayment period collectively account for 43.69% of the variance in the financial efficiency of Kenyan mortgage-offering banks, as measured by ROA.

This means these factors influence 43.69 percent of the difference in financial efficiency, as quantified by ROA. The panel regression model used in this investigation significantly explained the link between the independent factors and the dependent variable, ROA, as indicated by the p-value of 0.0000.

The results show that the bank's interest rate significantly and negatively affected the financial health of Kenyan commercial banks that offered mortgages ($\beta = -33.62131$, $p = 0.004<.05$).

This implies that a 33.62131 unit drop in financial performance results from an increase in the banks' mortgage loan interest rate. It suggests that a rise in the interest rate associated with a mortgage deters many prospective borrowers from applying for the loan because of the high interest, which lowers ROA.

These results contradict the findings of a study by Egbunike and Ekerekeoti (2018), which concluded that the exchange rate and interest rate had no appreciable effect on financial performance. Furthermore, Claessens, Coleman, and Donnelly (2018) concluded that a decrease in interest rate results in a lower net interest and reduced profitability of banking institutions from forty-seven countries. However, these results align with the conclusion by Ahmed, Rehan, Chhapra, and Supro (2018) that commercial banks' profitability is negatively impacted by interest rates.

The results also show that the financial performance of Kenyan commercial banks that offer mortgages was positively and significantly impacted by logarithm of the borrowers' income level (β =0.947734, p=0.014<.05).

This means an increase in income level among mortgage loan borrowers results in an enhancement in the banks' financial performance by 0.9147734 units. This supports the findings by Makori and Memba (2015) who carried out research on the factors affecting mortgage financing, the employment status of bank clients affected mortgage performance among banking institutions in Kisii County and concluded that higher income earners had a high probability of taking a mortgage than the low-income earners and the unemployed.

In conclusion, the analysis results indicate that the mortgage the length of the loan payback duration significantly and favorably affected the mortgage-granting commercial banks' financial

performance in Kenya (β =0.1112179, p =0.002<.05). This indicates that a 0.1112179-unit improvement in financial performance results from extending the loan repayment time.

This also implies that more flexible, longer repayment periods increase the likelihood of borrowing, thereby improving the banks' profitability. The findings regarding the repayment period align with those of a study by Murage (2021), which examined the consequences of repayment schedules on the SMEs' financial performance in Kenya's urban informal communities and discovered that repayment period significantly influences the loan application process, with borrowers favoring longer repayment periods over shorter ones.

4.5 Discussion of Findings

4.5.1 Interest Rate and Financial Performance

Evaluating the effect of interest rates on Kenyan commercial banks' financial performance was the main goal of the study. The study found the lowest interest rate charged by the banks on mortgages was 10.1%, while the highest was 24.6%. The average interest rate was 13.64%, and the standard deviation was 2.11%. Correlation analysis showed a significant and negative association (-0.3127*) in mortgage interest and bank performance, given by ROA. This aligns with the findings of a study by Ahmed, Rehan, Chhapra, and Supro (2018), which found that changes in interest rates negatively impacted the financial efficiency of Pakistan banking institutions, reducing profitability. Bikker & Vervliet (2018) also concluded that a low-interest-rate environment adversely affects the financial efficiency of banking institutions in the United States, thus reducing net margins. Furthermore, the panel regression results indicated that the

interest rate charged by the bank had a notable and negative impact on Kenya's mortgage-offering banks' financial performance (β =-33.62131, p=0.004<.05).

4.5.2 Income Level of Borrower and Financial Performance

The second objective of the study was to investigate the effects of borrower income levels on financial performance of Kenyan mortgage-lending banks. Analysis revealed the borrowers' income ranged from a minimum of KES 71,972 to a maximum of KES 991,367. The average income of mortgage loan borrowers was found to be KES 545,128.10, with a standard deviation of KES 262521.40. The correlation analysis indicated that the logarithm of the borrowers' income level had a significantly and positively impacted on performance of Kenyan banks offering mortgages (0.3010*). This aligns with Makori and Memba's (2015) conclusion that individuals with higher incomes are more likely to take out a mortgage than those with lower incomes or who are unemployed. Lastly, the regression analysis demonstrated that the logarithm of the borrowers' income levels significantly positively affected the financial efficiency of banks issuing mortgages (β =0.9147734, p=0.014<.05). An increase in the income level among mortgage loan borrowers therefore results in a 0.9147734-unit improvement in the banks' financial performance.

4.5.3 Repayment Period and Financial Performance

Evaluating how the length of the loan repayment affects the financial stability of Kenyan banks was the third goal of the study. The study discovered that during the period 2016-2020, the shortest loan repayment term set by the banks offering mortgages was five years, while the longest was 30 years. The average repayment term was 18 years, with a standard deviation of

6.31 years. A strong and positive association (0.2744*) was found by correlation analysis between the length of the loan repayment period and the financial health of Kenyan mortgage-offering banks. This supports Worokinasih and Potipiroon (2019) claim that loan terms and policies influence whether entrepreneurs will repay the loan on time, and that flexible repayment terms increase the likelihood of borrowing. Additionally, the panel regression model showed that the mortgage loan repayment duration had a favorable and noteworthy effect on Kenyan mortgage-lending banks' financial wellness (β =0.1112179, p=0.002<.05), suggesting that a longer loan repayment term improves financial performance by 0.1112179 units.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

An overview of the findings, inferred conclusions, and recommendations based on the research, the impact of the results, and potential topics for further research are given in this part.

5.2 Summary of Findings

This study's main goal was to evaluate how mortgage financing affected Kenyan commercial banks' financial well-being. The particular objectives were to look into the impact of mortgage interest rates, borrower income levels, and mortgage loan repayment duration on the financial efficiency of these banking institutions. This study's theoretical framework was based on Keynes's liquidity preference theory, the lien and title theory of mortgages, and absolute income theory. It focused on all 31 institutions that provided mortgage services from 2016 to 2020.

5.2.1 Interest Rate and Financial Performance

Examining how interest rates affect the financial performance of Kenyan banks was the first goal of the study. It was found that these banks were offering mortgage loans at interest rates as low as 10.1% and as high as 24.6%. The average rate was 13.64% while the standard deviation was 2.11%. The study found a statistically significant negative relationship between mortgage loan interest rates and (ROA), a measure of financial performance.

This aligns with the conclusions of a study by Ahmed, Rehan, Chhapra, and Supro (2018), which found that fluctuations in interest negatively affected Pakistan banks' profitability. Similarly,

Vervliet & Bikker (2018) concluded that low interest adversely affects financial wellness of banks in the United States, leading to reduced net margins. Furthermore, the panel regression analysis showed that the interest rate set by the banks had a substantial negative effect on Kenyan commercial banks' ability to make money by issuing mortgages.

5.2.2 Income Level of Borrower and Financial Performance

The second goal of the study was to investigate how borrower income levels affect Kenyan banks' financial performance. The study discovered that income range for those who took out mortgage loans from Kenyan commercial banks between 2016 and 2020 was KES 71,972 at the lowest and KES 991,367 at the highest. On average, the income level of mortgage loan borrowers was found to be KES 545,128.10, with a standard deviation of KES 262521.40.

The logarithm of the borrower's income level has a favorable and significant impact on the financial performance of Kenyan banks that offer mortgages, according to the study's correlation analysis. This finding aligns with Makori & Memba's (2015) conclusion that individuals with higher incomes are more likely to take out a mortgage than those with lower incomes or who are unemployed.

Lastly, the regression analysis indicated that the logarithm of borrowers' income levels had a positively and significantly impacted on financial efficiency of Kenyan mortgage-lending banks. High income levels therefore lead to an improvement in the banks' financial well-being.

5.2.3 Repayment Period and Financial Performance

Examining the effect of loan repayment periods on the financial stability of Kenyan banks was the third goal of the study. This research discovered that the shortest loan repayment term set by the banks providing mortgage loans from 2016 to 2020 was five years, while the longest was 30 years. The average repayment term was 18 years, with a standard deviation of 6.31 years. The correlation analysis indicated that loan repayment duration and financial health of banks have a significant positive link. This supported Worokinasih and Potipiroon (2019) claim that loan terms and policies influence whether entrepreneurs will repay the loan within the agreed timeframe, and that flexible repayment terms increase the likelihood of borrowing. Additionally, the panel regression model results showed that the length of the loan payback time significantly and favorably affected the Kenyan banks' financial stability.

5.3 Conclusions

5.3.1 Interest Rate and Financial performance

The research concludes that commercial banks in Kenya, which offer mortgages, charge higher interest rates on loans. These loans are a significant asset for these banks. Mortgages, a part of the loan portfolio, enable borrowers to become homeowners. The study proves that these institutions' financial performance is greatly improved by mortgage lending. People are more likely to choose mortgages as a result of the rising housing demand, which helps banks financially, particularly when default rates are low.

The study goes on to conclude that these banks' interest rates have a detrimental effect on their ability to make money. Interest rates and bank financial performance are related, with higher

interest rates being advantageous to banks. By utilizing the difference between the interest, they receive from investments and the interest they give to clients, banks can increase their earnings through higher interest rates. Higher interest rates, however, discourage prospective customers from applying for mortgages, which lowers financial performance.

5.3.2 Income Levels and Financial Performance

The study also reveals a positive relationship between mortgage borrowers' income and the banks' financial success. As a result, the study recommends that commercial banks take the borrowers' income level into account when evaluating loan applications. This would enable them to concentrate on the borrowers' capacity to repay the loan—which is normally established by providing evidence of income—and their propensity to do so, which is usually decided by their credit score.

The study also reveals that the banks' financial performance is considerably enhanced by raising the borrowers' income levels and engaging in other actions that raise the total amount of mortgage loans they provide.

5.3.3 Repayment Period and Financial Performance

Finally, the study concludes that repayment period positively influences mortgage-offering banks financial wellness. Longer-term mortgages are less costly per month as the repayments are spread over a longer period. However, this means that the overall cost of the mortgage for clients will be higher as they will be charged more interest over a longer period. Conversely, this enhances the banks' financial performance.

5.4 Recommendations

According to this study, Kenyan commercial banks that offer mortgages ought to try to grow the number of mortgages they offer in addition to taking part in other initiatives that raise the total amount of mortgage loans made. Their financial performance would improve as a result. Additionally, these banks ought to work to raise the caliber of their mortgage offerings in order to encourage more people to take out mortgage loans, which would also improve their financial standing.

The research goes on to suggest that these institutions should favorably modify their mortgage lending rates in tandem with increasing the number of mortgages they offer. Their profitability would increase as a result, improving their overall financial performance. A rise in mortgage interest rates encourages the growth of long-term mortgage loans, which improves these commercial banks' financial standing.

Lastly, the study advocates for these commercial banks to promote a saving culture among their customers. This would increase their liquidity to offer mortgage loans, which would subsequently have a positive impact on their financial performance.

5.4.1 Contribution to Knowledge

This research enhances our understanding of the relationship between financial health of mortgage-lending banks and mortgage financing, adding to the existing literature on the subject. It acts as a point of reference for upcoming academics and researchers who want to learn more about this field of study. The research has explored and elucidated the correlation between the interest rate applied to mortgage loans, the logarithm of borrowers' income levels, mortgage loan

repayment, and financial efficiency of Kenyan banks. The recommendations and findings offer insightful data that local commercial banks can utilize to bolster their financial performance.

In terms of theory, this study contributes to Liquidity preference theory which explains that, interest rate levels are dependent on the peoples' motives to keep money in cash or very liquid forms and the supply of money in the economy. People are rewarded for not holding onto money but for foregoing liquidity. This study has also found that interest charges are determined in the money markets and the supply of money is externally determined whereas money demand is dictated by transaction, speculative, and precautionary motives.

5.4.2 Policy Recommendations

This study results clearly show mortgage financing leads to the liberalization of the market. Even with the high interest rates applied to the product to mitigate risk, it is still widely accepted by many customers. Therefore, the study suggests that legislators should introduce a law to limit the interest rates that Kenyan commercial banks can charge for mortgages. This would protect customers from being taken advantage of and could potentially expand the customer base.

In the long run, a house financed by mortgage financiers is a very noble form of investment considering this is an asset that appreciates in value. Moreover, the government of Kenya should design various policies that will check the interest rates charged by banks and the repayment periods as some commercial banks might take advantage of their customers and exploit them.

5.5 Suggestions for Further Studies

The current research focused on three key variables: mortgage interest rate, income level of borrowers, and repayment duration. Future studies could consider including other variables that management can control, such as income diversification and branch size, which could impact a bank's financial performance. The present study did not employ any moderating or intervening variables. Therefore, future research could consider including moderating variables like asset quality or loan policies.

Operational efficiency is a crucial factor in determining bank profitability. Therefore, additional research should be conducted on the variables that influence the operational efficiency of commercial banks. This study also suggests that further research should investigate how the size of a bank affects its profitability, as bank size was found to be a significant determinant of commercial banks' profitability.

To present an even more thorough picture of financial performance, future studies could think about incorporating qualitative analysis into the research process in addition to employing secondary as well as primary data. Additionally, mortgage lending in different nations could be studied for comparison using a panel data approach. This would extend the topic's global reach and enable a comparison of the conclusions and approaches taken by various commercial banks across different nations. It is worthwhile to look into the tactics used by banks in rich nations as they may be relevant to those in underdeveloped nations.

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Appendix I: Introduction Letter

Catherine Chepkurui,

Ref: Collection of research project data

I am a postgraduate student at Kenyatta University school of Business. As part of my postgraduate program, I am required to submit a business research project. In this regard, I am carrying out a research on mortgage financing and financial performance of commercial banks in Kenya.

This is to kindly request you to assist me by availing the necessary documents for data collection and analysis. The information will be used exclusively for academic purposes and will be treated with strict confidence. A copy of the final paper will be availed to you upon request.

Your cooperation will be highly appreciated.

Thank you in advance

Yours faithfully

Catherine Chepkurui.

APPENDIX II: Secondary Data Schedule

Year	Interest rate (Annual percentage rate on mortgages)	Income level of borrowers (percentage of monthly income	Repayment period (total amount to be repaid/principal *time)	Financial performance ROA = net income divided by average total assets
2016				
2017				
2018				
2019				
2020				

APPENDIX III: List of mortgage lending commercial banks

1. Kenya Commercial Bank
2. Standard Chartered
3. CFC Stanbic
4. Cooperative bank
5. Equity
6. NCBA
7. Absa
8. Family
9. I & M
10. Bank of Africa
11. Development bank of Kenya
12. SBM Bank of Kenya
13. Jamii Bora
14. National
15. First Community Bank
16. Bank of Baroda
17. Sidian
18. Guardian

19. Diamond Trust Bank

20. DIB

21. Consolidated Bank

22. Gulf African Bank

23. Eco bank

24. African Banking Corporation

25. Spire Bank

26. Bank of India

27. Paramount

28. Prime Bank

29. Victoria Commercial Bank

30. Middle East Bank

31. UBA

Source: CBK Report 2020

APPENDIX IV: NACOSTI Permit License

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National Commission for Science, Technology and
Innovation(NACOSTI),
Off Waiyaki Way, Upper Kabete,
P. O. Box 30623 - 00100 Nairobi, KENYA
Telephone: 020 4007000, 0713788787, 0735404245
E-mail: dg@nacosti.go.ke
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