THE EFFECT OF BANK LENDING INTEREST RATE ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

BY

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DECLARATION

This research project is my original work and has not been presented for award of degree in any other institution.

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DEDICATION

This project is dedicated to close members of my family. A special kind of gratitude to my husband Eric Mutembei, my lovely angel Kyrah Kendi, cousin Karen Nkatha and sister Irene Nguta as they have always been there for me. Additional, I dedicate it to my friends Caroline Muthoni, Felicity Mwangi, Gerald Migwi, Winfred Mwendwa, Benjamin Lesekiteti and Esther Murimi for their support.

ABSTRACT

The study investigated how Kenyan commercial banks' profitability is affected by lending interest rates of banks. The objective was based on how bank internal conditions, regulatory conditions, political conditions and macroeconomic variables affect commercial banks' financial performance. Dynamic panel data was used instead of static model in order to cater for the lag dependent variable. Generalized Method of Moments (GMM) was used to lagged profits which have an effect on the current profits. It also eliminates the issue of endogeneity. Bank lending interest rates affects how banks perform negatively or positively. The study's empirical findings pointed out that, lending rates of interest contained a negative statistically significant effect. This study therefore recommends that bank management should evaluate their lending rates so that they can have enough loan disbursement but also high returns to improve their profitability. Additionally, they can focus on other factors such as bank internal conditions, political conditions and regulatory conditions that enhance their profitability other thanbank lending interest rates.The government can also establish a proper way of calculating the GDP since there is no clarity on the same.

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LIST OF ABBREVIATIONS

ROA: Return on Assets

GDP: Gross Domestic Product

BLIR: Bank Lending Interest Rates

LR: Liquidity Ratio

FINREPR: Financial Repression

E: Elections

MEV: Macroeconomic Variables

POLC: Political Conditions

REGC: Regulatory Conditions

GMM: Generalized Method of Moments

NSE: Nairobi Stock Exchange

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Kenyan banking sector is among major sources of finance and is the backbone of development of the economy and modern trade. The commercial banks' success and growth is dependent on both the macro and micro factors that affect the banking industry. Over the years, one of the areas that have been of great concern to economic analysts, investors and the management experts globally is how banks perform financially (Mwega, 2011). Most studies focuson the elements that affect how banks perform financially. This is due to essential impact that commercial banks' financial performance has on the potential growth of a country. Operational changes have been adopted over time to enhance how banks perform financially (Peydro and Maddaloni, 2010).

The Kenyan government started pursuing the interest rates administration and quantitative credit controls regime after attaining independence in 1963 (Mwega, 2011). This was to encourage real investment and growth of the economy. The control on interest rates involved all building societies and commercial banks having maximum interestrates of interest together with the minimum deposit interest rates for banks. During early 1970s, there were global economic shocks that led to inflationary pressures. For the first time since independence, interest rates on both loans and deposits were raised (Kim and Lee, 2016). However, until the mid-1980s, the real interest rates were negative which had an effect on the saving mobilization that led to low savings levels. Suppression of mobilizing financial savings and quantity of loanable funds took place due to the control in the rates of deposit. This led to the advancement of bank loans being

treated unfairly in regards to short term credit on major firms as well as parastatals. Additionally, the interest rate control policy regime had no adequate measures for offsetting or to dealing with the unfavorable outcome of external shocks.

According to Mwega (2011), the banking industry in Kenya suffered from a severe slump prior to formally implementing the Structural Adjustment Programme (SAP) in 1986. Direct credit control tended to be below rates of interest in the financial markets. In 1991, the deregulation of interest and exchange rates took place. In 2000, Donde Bill tried to work on the issue of capping the interest rate although there was no adequate support from stakeholders including the financial institutions. However, the Banking Amendment Act was passed in 2016. This occurred when the Kenyan government and the CBK introduced the maximum rate of interest in 2016.The rate chargeable was agreed not to be more than 4 % points referred to as the Central Bank Rate (CBR) (Peydro and Maddaloni, 2010).

Donde argued that the borrowers needed to be protected from the high interest rates to improve the accessibility of loans (Kim and Lee, 2016). However, this has to some extent led to the Kenyan commercial banks' profitability being affected negatively since the interest paid on loans enhanced their profitability. The borrowers benefit from the lower lending rate since the cost is low. This boosts the economic activities through increased investments. As shown in the chart below, banks have been charging lower interest rate on saving while the rate on lending is high. The chart below illustrates the historical trends of the principal rates in Kenya from 1991 to 2016.
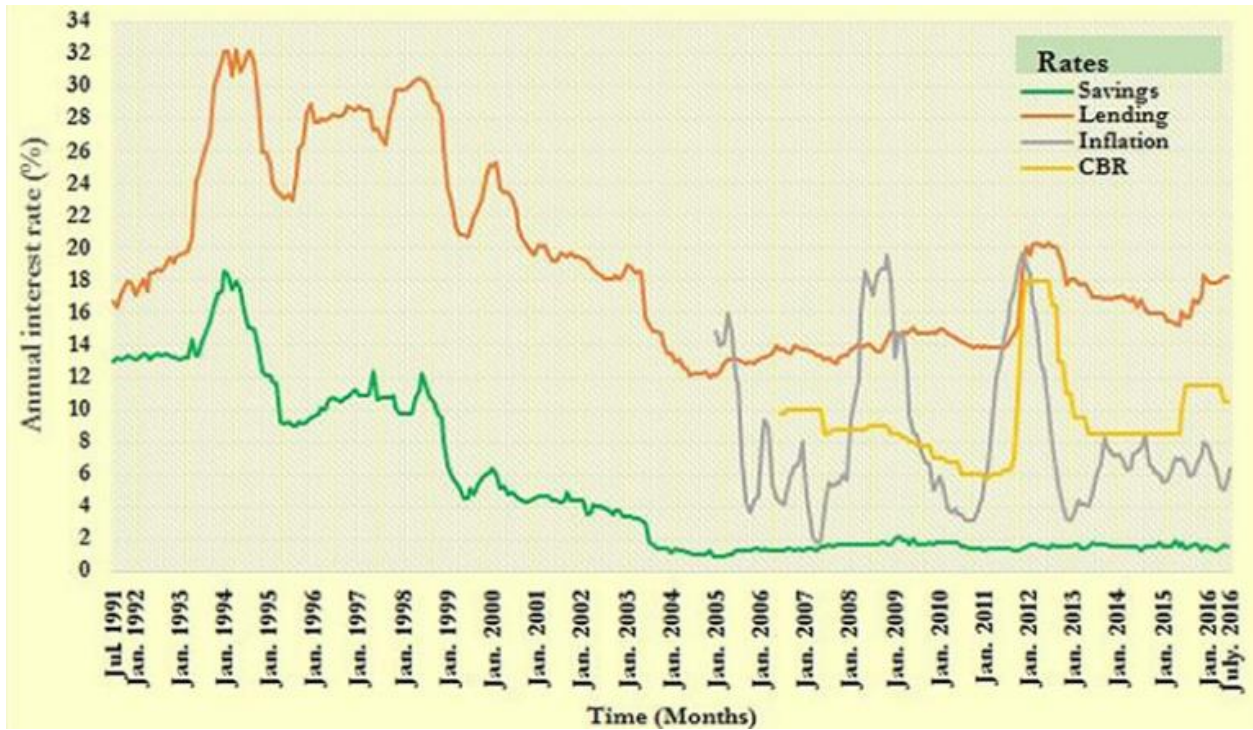
Figure 1.1: Trends of Principal Rates

Source: Central Bank of Kenya

Banks have the responsibility of allocating economic resources in Kenya and aid in the process of making funds continuously accessible from depositors to the investors. Almanaseer (2014) notes that commercial banks offer the necessary financial services needed to provide the credit and deposit facilities. There are different indicators of the performance of banks financially. They include: profitability, asset use efficiency, gearing and liquidity. The focus for this study was on how banks perform financially with profitability as the indicator. The measures of corporate profitability are Return on Assets (ROA) and Return on Equity (ROE) although ROA was used. It measures an organization's profitability based on its assets and is calculated before the interest rate (Kim and Lee, 2016).

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Commercial banks have an ultimate goal to increase or build the shareholders' wealth hence the need for a profitable and sound banking sector. A sound banking sector is in a position of withstanding the negative shocks at the macro and micro levels and contributes in making the financial system stable. The profits attained by the banks act as sources of additional finances (Almanaseer, 2014). The sustainability of a commercial bank is maintained through its lending activities (Duffy and Xiao, 2007).

1.1.1 Profitability of Commercial Banks and Lending Interest Rate

According to Almanaseer (2014), there are various elements that influence the profits of the financial institutions although the lending interest rate is the main element. The lending rates of interest charged to borrowers act as a source of income for financial institutions. There are various risks that commercial banks face due to the changes of lending interest rate which in turn affect their profitability. Kananu (2015) explains that the difference between the lending rates of interest and interest paid for deposit results to profits that the bank makes. Therefore, for banks to make profits they have to lend money and if they are not lending they are not likely to generate profits from the deposits.

People borrow when lending interest rates are low since they the repayment process is easy and vice versa. In cases where the lending interest rate is high, some of the bank borrowers may have difficulties in repaying the existing loan especially if the increment in the rate of interest is faster than the increase in the consumer income (Kim and Lee, 2016).Moreover, some of the borrowers will default on their loans if the lending rate rises sharply. This is an indication that highlending rate of interest results to negative influence on the growth of savings and investment.

1.2 Statement of the Problem

There are various researches that have been carried out on how the lending interest rate affects general commercial banks' financial performance. They were conducted within different types of markets and at different times with varying findings. Sharrif (2015) discovered that lower bank lending interest rates lead to high bank loan asset quality which results to poor financial performance. It suggests an inverse correlation between asset quality of loans and banks' financial performance. This is contrary to the prediction of the theory of money credit in the context of information asymmetry which indicates that poor asset quality lead to poor financial performance. In this regard, high bank lending interest rates result to poor loan asset quality which in turn results to poor commercial bank profitability.

This theory suggests an inverse correlation between bank lending interest rates and banks' profitability. Sharrif (2015) suggests a positive relationship between bank lending rate of interest rate and profitability of the bank. This shows that there is uncertainty as to how the bank lending interest rate affects bank profitability. Therefore, this project focused on how interest rates affect commercial banks' profits.

1.3 General Objective

To investigate how lending interest rate affects banks' financial performance in Kenya.

1.4 Specific Objectives

For purposes of achieving the study's aim, the following objectives were used;

    i.   To determine the effect of bank lending interest rate on the financial performance of commercial banks in Kenya

ii.   To determine how macroeconomic variables affect the financial performance of commercial banks

iii. To determine how bank internal conditions affect the financial performance of commercial banks

iv.   To determine how regulatory conditions affect the financial performance of commercial banks

v.   To determine how political conditions affect the financial performance of commercial banks

vi.   To recommend policy implications on the basis of the research findings

1.5 Justification and Significance of the Study

The empirical outcome developed from this research contributes to resolving the uncertainty that exists between banks' lending rates of interest and bank financial performance using Kenyan data. First, the study will contribute to the knowledge of how bank internal conditions, regulatory conditions, political conditions and other macroeconomic variables affect the bank financial performance. Second, it will be used by policy makers and future researchers working on the elements of lending rates of interest. Bank industry, non-bank lenders, central banks and researchers around the world will also be beneficiaries of the study.

1.6 Scope and Limitations of the Study

This research examined factors driving profitability of NSE banks between 2008- 2017. This period is chosen for the study since major policies have taken place during this period thus affecting banks' financial performance in different ways. The study used bank profitability as a financial performance indicator which is one of the limitations. Another limitation of the study is that accounting measure of bank profits is used instead of economic measure of bank profits.

Economic profits data is based on cash flows data and is therefore devoid of accounting conventions and rules.

1.7 Structure for the Rest of the Study

Subsequent to chapter one, chapter two discusses the theoretical and the empirical literature in addition to the literature review overview. Chapter Three consists of the methodological framework, empirical model, specification of the model, operationalisation of variables, source of data as well as the estimation and testing techniques.

2.1 Introduction

This chapter consists of the evaluation of theories, empirical researches and an overview of literature.

2.2 Theoretical Literature Review

Theories relating to the study's topic will be discussed in this section. Theories covered in this subsection are: loanable funds theory, theory of information asymmetry in money credit markets, classical theory of interest and theories of the yield curve.

2.2.1 Classical Theory of Interest

Economists Fisher and Marshall came up with this theory although Taussig, Knight and Cassel later modified it (Pigou,Ferguson, 2013). Where the supply and demand of the savings intersects establishes the rate of interest. Real factors like investments and savings are analyzed by the theory with the cost of savings' supply being the interest.

Capital demand is mostly as a result of investments. Entrepreneurs demand most of the capital in order to use it for productive investments. They normally do not pay for its services at a higher rate than its productivity at the margin. When additional capital is employed in an industry from time to time, productivity goes on diminishing. The borrower evaluates the relationship between marginal productivity of capital and the rate of interest prevailing and stops employing more capital when the interest paid is equal to the productivity (Ferguson, 2013). When the rate falls, capital is used in occupations that have low productivity leading to increased demand.

According to the theory, the supply for funds is from savings. In most cases, the rate of interest usually has an effect on the willingness to save. When the rates of interest are high, people save more to earn better returns and save less when there are low interest rates. The interest rate and savings supply have a direct relationship. When there is equality between capital demand and supply an equilibrium rate of interest is established. Possible hypothesis emerging from the theory is that the real rate expected return is higher than the real rates of interest.

2.2.2 Loanable Funds Theory

Knut Wicksell a Swedish economist developed this theory and it is a neo-classical theory of interest (Migus, 2013). Later on there are various economists who contributed to the theory such as: J.Viner, Robertson, Myrdal and Ohlin. This theory asserts that demand and supply of loanable funds determines the rate of interest. Equilibrium interest rates tend to fluctuate as a result of the variations either in the loanable funds' supply or demand.

Some of the factors that drive the loanable funds' demand include: hoarding of money balances and investment demand (Georgiadis and Mehl, 2015).Loanable funds supply is caused by dishoarding, savings and new injections from mining and monetary authorities. While deciding upon the decision on whether to invest or not, the entrepreneur compares the rate of interest with expected return from investment. High demand for loanable funds is due to low interest rates because the rate of expected returns from investments is likely to be more than the price of funds (lending rate). The indirect relationship that exists between the rate of interest and demand for loanable funds for investment results to a downward sloping demand schedule for loanable funds.

The hypothesis developed is that there is a discrepancy between r (actual real rate) and r*
(natural real rate). Knut Wicksell focused on finding out the effect of such a discrepancy of
microeconomic performance. He concludes that when r>r*, the economy will be subject to
deflation and when r<r* there will be inflation. The nominal lending interest rates (r) and the
commercial banks' financial performance (BPTY) have inverse relationship as shown in the
figure below. There is low financial performance when the nominal lending interest rate is high
and when financial performance is high lending rate is low.
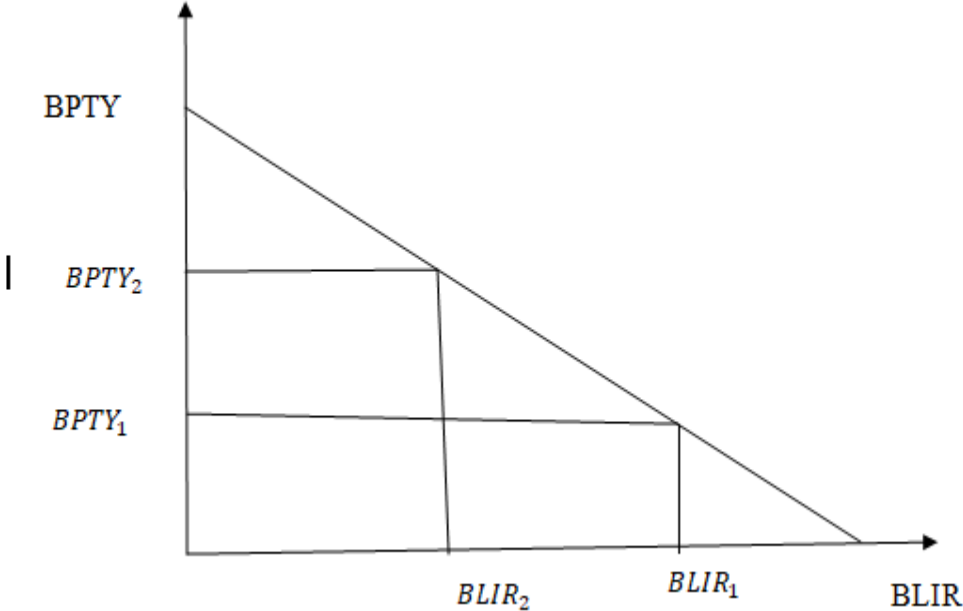
**Figure 2.1: How bank lending interest rate and bank financial performance relates under
loanable funds theory**

2.2.3 Theory of information Asymmetry in Money Credit Market

Information asymmetry theory was developed in the 1970s and 1980s. It is about imperfect information by buyers and/or sellers. In banking, the banker is assumed to have imperfect information about the borrower (Ambrose, 2016). The main economists who were involved in the development of the theory were: Joseph Stigliz, Michael Spence and George Akerlof. Akerlof used a paper entitled "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism" in 1970, to argue about information asymmetry. In this case, he indicated that the buyers of the cars had information which was different from that of sellers. This gave sellers an incentive of selling goods which were of poor quality compared to the average market quality. Bad cars were referred to as 'Lemons' as used by Akerlof since according to him buyers cannot differentiate between good cars and lemons. Hence, good cars cannot be sold higher than average market prices. The conclusion is that buyers are willing to pay lower prices and the cars which are brought in the market are of low quality.

Michael Spence (1973) elaborated upon his article entitled "Job Market Signaling". Spence stated that employers were uncertain about the productivity of potential employees at the time of hire. He referred to employees as uncertain investments. There exists information asymmetry between the employers and potential employees. This leads to a scenario of a persistent equilibrium trap in labour markets (Lee, 2016). Employers will offer lower wages and avoid bidding up wages. Spence comes up with the idea of signaling. He explained that if there was a signaling mechanism in the used cars' market, bad cars would have low prices while good cars high prices. According to Spence, signaling mechanisms can be provided by third parties in used cars' markets.

Stiglitz analyzed information asymmetry by particularly focusing on the insurance market. In 1976, he made an assumption that people who buy insurance have more information about their relevant characteristics compared to the insurance company. He then came up with a conclusion that it would be up to the interest of the insurance company to have to offer a range of insurance products. This aids the company to sort its customers by risk category and letting different types of customers self select (Ogunbiyi and Ihejirika, 2014). For example, healthy customers would be attracted to a premium health insurance policy that is highly deductible and low as well as less attractive to unhealthy customers. On the other hand, low deductible policy would be attractive to unhealthy customers. Other than the insurance contracts, Stiglitz indicated that information asymmetry also applies in economic behavior. He indicated that if the credit markets did not experience information asymmetry, then higher interest rates would be charged to higher risk borrowers by lenders. In the credit markets, lenders do not have perfect information about borrowers and potential borrowers. Therefore, they tend to get third parties to signal about borrowers and potential borrowers by for instance asking for documentation, through credit reference bureau, internal record, guarantors and securities.

The theory on money credit under the context of information asymmetry concludes that banks cannot always set their lending rates of interest high enough to clear the different segments of the bank loans market (Georgiadis and Mehl, 2015). Therefore, banks set lending interest rates to fall below market clearing rates of interest. This tradition of banks is attributed to information asymmetry in the credit markets. There are two types of information asymmetry which include adverse selection problem and moral hazard.

2.2.2.1 Adverse Selection Problem

This is a pre contract problem that happens when one party to a contract is more knowledgeable than the other party. Buyers and sellers tend to have different information. Traders having private information about a product's quality participate in trades that benefit them at the expense of other traders (Eo and Lie, 2018).

In the context of banks, this problem exists between the borrower and the lender. If banks come up with high lending interest rates, less risky borrowers tend to fall out from the pool of potential borrowers applying for loans. Risky borrowers end up applying for the loans which results to non performing loans when they fail to pay (Eo and Lie, 2018). Nonperforming loans lead to the financial performance of banks being affected negatively. Banks go below the market clearing rates in order to obtain a mix of borrowers to avoid adverse selection.

2.2.2.2 Theory of Moral Hazard

It occurs when a contract exists between two parties. It is a post contract problem. The party taking the transaction risk has more information on what it intends to do, compared to the party bearing the consequences of the risk (Moroni and Swinkels, 2014).The party taking the risk and has more information, behaves in a manner that is not appropriate on the basis of the other party's view that has inadequate information.

In the banking context, the borrower has more information of what the money will be used for while the bank has no idea and monitoring is expensive (Balmaceda, 2018). Due to moral hazard, they may decide to invest in projects that are risky thus defaulting. This leads to the banks' financial performance being influenced negatively.

The prediction of the theory is that bank financial performance and the lending interest rate have an inverse relationship. The hypothesis is that when there are low lending interest rates, there is low moral hazard and adverse selection which leads to high financial performance. High bank lending interest rates (r) lead to high adverse selection and moral hazard hence low bank financial performance (BPTY). This is illustrated in the figure below.
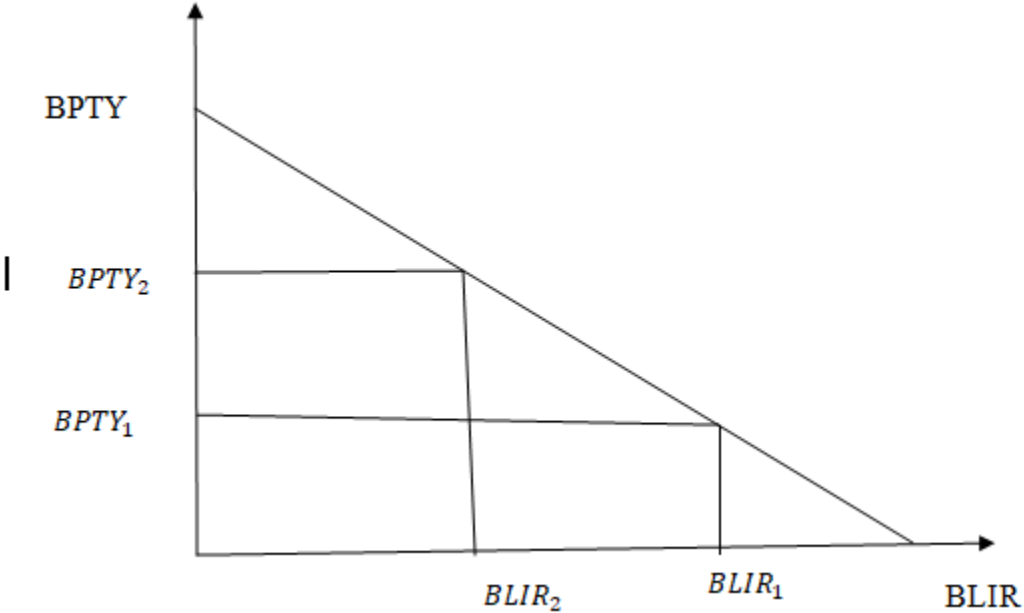
Figure 2.2: How bank lending interest rate and bank financial performance relates under information asymmetry

2.2.3 Theories about the Yield Curve

These are also called the term structure of interest rates. They explain how financing rate of interest and the maturity period of a credit instrument issued by a specific entity relate. Borrowers can take different types of loans with the rates of interest charged for different

maturities (Misati and Kamau, 2017). There are two theories of yield curve. They include the theories of expectations and the theories of market segmentation.

2.2.3.1 Expectations Theories

The theories were developed by Friedrich August Lutz in 1940. According to him, the basis of developing the theories was on the people's expectations regarding future conditions. There are three variations: theory of liquidity premium, preferred habitat theory and theory of pure expectations (Fabozzi and Modigliani, 2010).

2.2.3.1.1 Pure Expectations Theory

According to this theory, the shape of the yield curve is affected by market expectations on the interest rates attained in future. Predictions indicate that future rates increase for a positively shaped yield curve. The rates remain constant when the curve is flat (Fabozzi and Modigliani, 2010). The predictor for short term interest rates in future is determined by today's interest rates and is mostly based on 1 year maturity.

When changes occur unexpectedly on the rate of interest, the risk arises leading to the negative effect of the investment in bonds. For pure expectations theory, the hypothesis is that interest rate risk will materialize for banks at low interest. This leads to the financial performance being negatively affected. The prediction is that positive relationship exists. This is illustrated in the figure below.
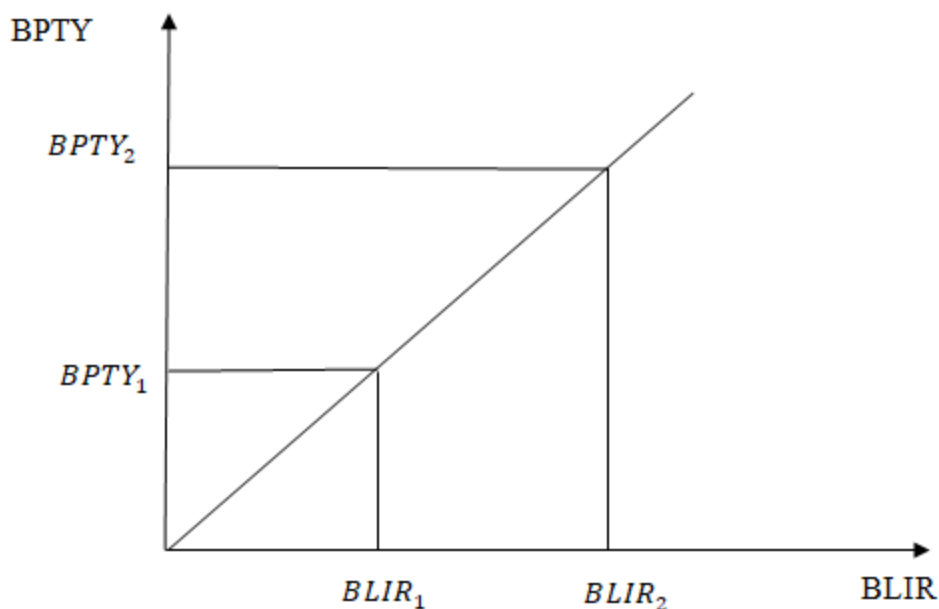
Figure 2.3: How bank lending interest rate and bank financial performance relates under pure expectations theory

2.2.3.1.2 Theory of Liquidity Premium

This theory is associated with John Maynard Keynes who used the money demand and supply in explaining the role interest rates. When the government is viewed as the borrower for the treasury bonds, the short and long term securities in terms of rates of interest is considered. For the short term borrowing contracts, the interest rates are lower than for the longer borrowing contracts (Ambrose, 2016).When there is repressing long term side of the market fewer people borrow loans. Therefore, financial repression should be removed so that people can talk of maturity lending rate as opposed to one rate to conform to the liquidity premium theory.

2.2.3.1.3Preferred Habitat Theory

The focus of this theory is on how bond buyers behave when investing. It concludes that a range of bond maturity lengths preference is exposed to investors and if there is a promise for a higher yield they can go outside this range. This theory also explains that different lenders prefer different maturities depending on the nature of deposits. Short deposits prefer to lend in the form of short term maturities and the opposite is true for long deposits (Fabozzi and Modigliani, 2010).

2.2.3.2 Market Segmentation Theory

This theory explains that each segment of bond maturities has a market where investors can invest in securities that have different durations. The durations could either be long, short term or intermediate in other cases. The theory is partially based on the habits of investment that different investors in given institutions like insurance companies and banks have. Generally, long term securities are favored by insurance companies while short term securities are favored by banks (Misati and Kamau, 2017).

Preferred habitat theory explains that there are a range of maturity lengths that are presented to investors although they can only change their preferences when the yields are expected to be higher. An investor accustomed to investing in securities of a given maturity category mostly perceives it risky to shift to a different maturity category in as much there is no identifiable difference in market risk (Fabozzi and Modigliani, 2010).

The direct result of market segmentation theory is the yield curve. Bonds' yield curve is traditionally a reflection of how short term and long term interest rates relate through presentation across all maturity length categories. However, the advocates of the theory of

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market segmentation explain that this process is fruitless since it is hard to predict long term rates through short term rates.

2.3 Empirical Literature Review

The discussions of past empirical studies on factors affecting bank financial performance will be discussed in this section. They are contained in two parts: international empirical evidence and empirical evidence on the Kenyan economy.

2.3.1 International Empirical Evidence

Kerbl and Sigmund (2017) conducted a panel data study in Pakistan on how banks' performance is affected by lending interest rates. Bank profitability was the indicator of financial performance. Financial statements for four major commercial banks were evaluated annually during a four year period between years 2014 - 2017. The findings showed that a -0.69 correlation existed between the two variables. The results indicated that the two variables have a negative relationship. The study concluded that high interest rates mean huge capital costs to corporations. Consequently, individuals and retail investors will shy off from borrowing especially when the economy is on a downward spiral.

Khan and Sattar (2014) studied how bank financial performance in Pakistan was affected by changes in lending rates of interest. The measure of financial performance was profitability. Four major banks were used as the sample where their financial statements were examined between years 2008 to 2012 was conducted. The results indicated that the variations in interest rates depressed customers' saving deposit and bank investments. The Pearson correlation method was used and a positive and strong correlation existed based on the results.

Kale, Eken and Selimler (2015) conducted a study in Turkey on how regulatory financial performance controls affect financial institutions. The study was conducted during the period 1997-2013 and profitability was used as the financial performance indicator. They also controlled for macroeconomic changes, political events and the internal characteristics for banks. The results showed that tighter regulatory controls positively affect bank financial performance. However, banks' characteristics were found to be more significant compared to regulatory controls. Internal factors are a stronger driver than the regulations.

Maranga, Nyambane and Nyakundi (2017) used an analytical and descriptive research design in 2015 to determine how banks' financial performance in Kigali is affected by management of loans. Data collection was based on 25 banks focusing on the credit department. The indicator for financial performance was profitability. Techniques adopted during data collection were the use of documentation and questionnaires based on management of loans and bank financial performance. According to the results, these elements had a close relationship. Compliance with laws, credit sufficiency and the credit quality were other factors that were concluded to be considered in loan management. They recommended that employees should be trained as a way of improving loan outcomes.

Selvaraj and Weiss (2014) conducted a study on credit risk effect on bank financial performance in Ethiopia with profitability as the financial performance indicator. The measures of credit risk included: adequacy of capital and non performing loans. Sample of 8 banks was used in collection of secondary data between 2003 and 2004. The National Bank of Ethiopia and banks' annual reports were the sources of secondary data. Descriptive statistics and panel data regression model were used in analyzing data. The results indicated that bank profitability in Ethiopia significantly influenced the measures of credit risk.

2.3.2 Empirical Evidence on Kenyan Economy

Sharrif (2015) carried out a study using the explanatory research design and multiple regression model. It aimed at investigating how bank financial performance is influenced by lending interest rates. It involved 42 Kenyan commercial banks that year. The findings showed that the deposit interest ratio has adverse effects on banks' income. The study also indicated that loan asset quality and financial management performance respectively have negative and positive effect. The study recommended the need for Kenyan commercial banks to have a proper monitoring of the lending and deposit interest rates.

Ngure (2014) examined how volatility of interest rates affects the Kenyan commercial banks' financial performance. The main indicator for financial performance was profitability. Descriptive research design was used and the analysis of data was done using SPSS software and ANOVA was used to test for significance on the results obtained. The findings of the study asserted that interest rates' volatility positively affects commercial banks' financial performance. For purposes of monitoring and shielding the banks' lending interest rates, the study gave some recommendations.

Simiyu and Ngile (2015) carried out a study on how bank financial performance is affected by macroeconomic variables using profitability as an indicator. The sample consisted of commercial banks listed in Nairobi Stock Exchange between year 2001 and 2002. Three macroeconomic variables (exchange rates, Gross Domestic Product and interest rates) were examined. The findings indicated; growth rate of GDP affected bank financial performance in an insignificant but positive way. Further, the rates of interest negatively affected bank financial performance. Exchange rates had a positively affected bank financial performance.

Onuonga (2014) studied how internal characteristics of top six commercial banks in Kenya affected financial performance in 2008-2013. Profitability was the indicator for bank financial performance and panel data was also used. Sources of data were Central Bank of Kenya and World Bank development indicators. Generalized Least Squares method was used in doing the regression analysis. The results showed that liquidity ratio, ownership, bank operation expenses, and capital strength are the determinants of banks' financial performance.

2.4 Overview of the Literature Review

The theoretical literature is composed of various theories. These theories have different hypothesis. A negative relationship exists based on loanable funds theory and theory of information asymmetry in money credit market. However, pure expectations theory under the theories of yield curve shows that the two elements have a positive relationship.

On the basis of past empirical studies, it is clear that there are various characteristics that influence bank financial performance. They include; macroeconomic variables, political conditions, regulatory conditions and the internal conditions of the commercial banks among others. The findings by Kale, Eken and Selimler (2015) showed when regulations are tighter as well as changes in banks the financial performance is positively affected. However, the findings showed that other than regulations, internal factors significantly affected bank performance. According to Simiyu and Ngile (2015), GDP had an insignificant but positively affected performance of commercial banks financially. Additionally, rates of interest negatively affected listed banks' financial performance. Exchange rates affected banks' financial performance positively.

Theory of information asymmetry in money credit markets indicates that poor asset quality leads to poor financial performance. High lending interest rates result to poor loan asset quality leading to poor performance. On contrary, Sharrif (2015) found out that lower bank lending interest rates leads to high asset quality which leads to poor financial performance. A negative correlation exists between loan asset quality and the bank profitability. Therefore, with the use of Kenyan data, this research focuses on finding out how bank lending interest rates affects how Kenyan commercial banks perform financially.

2.5 Conceptual Framework

This is presented using table 1 in light of the review of literature.

Macroeconomic Variables	Bank Loan Assets	Bank Financial Performance
Interest Rates		Profitability
Exchange Rate		Asset Use Efficiency
Size of the Economy		Liquidity
		Gearing(Leverage)

Other Variables
Political Conditions
Regulatory Conditions
Internal Conditions
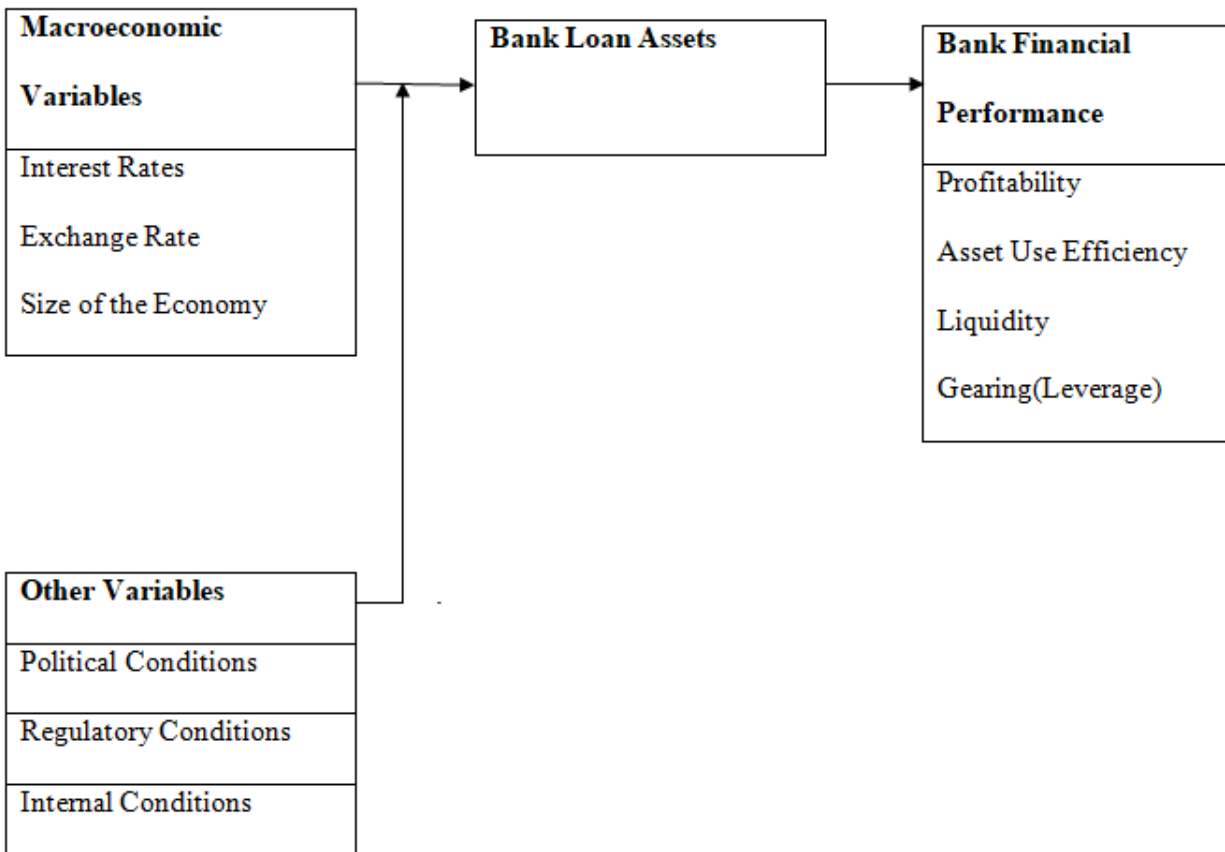
Figure 2.4: Conceptual Framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section is composed of empirical model specification analysis of data, theoretical framework and sets out strategies on analysis of data and sources of data.

3.2 Theoretical Framework

The literature review has shown that there are different theories derived from the study with different hypothesis. First, the classical theory of interest indicates that real rate expected return is more than real rate of interest. Second theory, loanable funds theory argues that there is a discrepancy between r (actual real rate) and r* (natural real rate). When r>r*, the economy will be subject to deflation and when r<r* there will be inflation. The nominal lending interest rates (r) and bank financial performance (BPTY) have an inverse relationship. Third theory, information asymmetry theory in money market credit market indicates that when bank lending interest rates (r) are high, they cause high moral hazard and adverse selection hence low financial performance (BPTY) in commercial banks. Finally, pure expectations theory under theories of yield curve explains that a positive relationship exists between bank lending interest rate (BLIR) and bank financial performance (BPTY).

The literature review suggests that banks' financial performance is influenced by macroeconomic variables (size of the economy and interest rates), political conditions,

regulatory controls and the internal conditions of the commercial banks. This can be represented as follows;

$$\text{Bank Financial Performance} = f \text{ (Macroeconomic Variables, Bank Internal Conditions, Regulatory Conditions, Political Conditions)}\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ (1)$$

This can be written as follows:

$$BFP = f(MEV, BIC, REGC, POLTC)\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ (2)$$

Where **BFP** is banks' financial performance, **MEV**, **BIC**, **REGC** and **POLTC** represent macroeconomic variables, bank internal conditions, regulatory conditions and political conditions respectively.

Following the study by Simiyu and Ngile (2015), the growth rate of GDP influenced financial performance of banks in an insignificant but positive way. Bank financial performance was negatively affected by the rates of interest. This study evaluated bank lending interest and GDP as some of the macroeconomic variables.

According to Onuonga (2014), ration of loans to assets, ownership, bank operation expenses, capital strength and bank size are the main elements that determine bank financial performance in Kenya. Therefore, liquidity ratio was used in this study to represent the bank internal conditions.

Khan and Sattar (2014) found out that the customers' saving deposit as well as the bank investments were depressed by the variations in interest rates. Kale, Eken and Selimler (2015) controlled for political events, internal characteristics and macroeconomic changes. Tighter regulatory controls positively affect banks' financial performance. However, according to the

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findings, the characteristics of banks have stronger effect on bank financial performance than regulatory controls. They did not pay much attention on how political events affected the banks' financial performance. Therefore, elections were used in this study to represent the political conditions while regulatory conditions are represented by financial repression.

Therefore:

$$BFP = f(BLIR, GDP, LR, FINREPR, E) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(3)}$$

Where **BFP** is commercial banks' financial performance, while $BLIR, GDP, LR, FINREPR$ and E represent: bank lending interest rates, exchange rates, growth domestic product, liquidity ratio, financial repression and elections respectively.

Specifically, profitability was used as banks' financial performance indicator. The technique of Return on Assets (ROA) was adopted in measuring profitability. According to Kim and Lee (2016), ROA is used in measuring the rate of return on total assets after taxes and interest expenses. If the return on assets is high, it means that the performance of the organization improved through increased profitability and vice versa. Therefore;

$$Bank\ Profitability\ (ROA) = f(BLIR, GDP, LR, FINREPR, E) \dots\dots\dots\dots\dots\dots \text{(4)}$$

3.3 Analytical Model

This study adopted the model that considers commercial banks which are listed with NSE for a given time (10 years). It captured how different factors affect the overall lending behavior of banks which affects how banks perform financially.

3.4 Model Specification

A model that puts into consideration banks' profitability, GDP growth, lending interest rate, liquidity ratio and financial repression were used. Natural logarithm was used to generate the desired linearity in the parameters.

The empirical model is defined as follows;

$$lnBKROA_{it} = \beta_0 + \alpha lnROA_{it-1} + \beta_1 lnGDPGR_t + \beta_2 \, lnBLIR_{it} + \beta_3 \, lnLIQUIDITY_{it} +$$

$$\beta_4 \, lnFINREPR_{it} + \beta_5 E_t + \varepsilon_t \, \ldots\ldots\ldots\ldots (5)$$

$BKROA$ = Profitability (ROA)

β_0 = Constant term

ROA_{it-1} = One year lag of ROA

GDPGR= Gross Domestic Product Growth Rate

BLIR=Bank Lending Interest Rates

LIQUIDITY = Liquidity Ratio

FINREPR= Financial Repression

E= Elections

ε= error term of the stochastic model

Beta (β) represents the parameters of the model. Additionally t=1, 2…..10 since the analysis captures 10 years from 2009-2018 while $i = 1,2,3$ …… represents the listed commercial banks.

3.5 Operationalisation of the Study Variables

Variable	Measurements	Sources of Data
Dependent Variable		
ROA	The ratio between net profit before tax to total assets	CBK
Independent Variables		
Gross Domestic Product Growth Rate	This was measured as the percentage of the annual rate of change of the GDP	CBK
Bank Lending Interest Rates	Percentage of principal that the lender charges for the use of its money	CBK
Liquidity Ratio	Proportion of assets that are highly liquid to aid banks in meeting their short term obligations	CBK
Financial Repression	Dummy Variable where the value of one represents the period in which BLIR Cap is in effect and zero when BLIR Cap was not in	CBK

	effect	
National Elections	A political dummy variable and takes the value of one if it is an election season and zero for non election season	CBK

Table 3.1: Operationalisation of Variables

3.7 Sources of Data

This study collected data from secondary sources (Central bank of Kenya) for a period of 2008-2017. It used the listed commercial banks. Various factors that affect interest rate are used in obtaining the relevant data in finding the effect of lending rates of interest profitability.

3.8 Estimation and Testing

Panel data was used as an estimation technique. In this case, combination of both data sets leads to unbiased estimators (Fernández-Val and Lee, 2013). Dynamic panel data was used instead of static model. This is due to the fact that lag dependent variable in the regressors is excluded when static model is used. OLS leads to the correlation between error term and lagged variable, thus being biased and inconsistent. Another element that leads to biasness is the fixed effects estimator since a correlation exists between the error term in the previous period and the lagged variable. The consistency of fixed effects estimator is dependent on how large T is. To overcome these challenges, the study used GMM (Generalized Method of Moments) estimation.

It was developed by Arenallo and Bond (1991). However, there was criticism by Arellano and Bover(1995) and Blundell and Bond (1998) due to small size of T. If the instruments used are weak, the estimator is inefficient although this was put into consideration during the study. Therefore, this study employed GMM system that Blundell and Bond (1998) proposed. The unobserved heterogeneity was controlled. Two equations were used, one in levels with the instruments being lagged first differences. The second in first difference and the instruments were lagged levels. One step estimation was not used since it is less efficient as it assumes homoscedastic errors thus two step system GMM estimators was used.

To determine over identification of restrictions and determining the instruments' validity, a Sargan-Hansen test was carried out. Null hypothesis is based on the instruments' validity. Validity occurs if there is an asymptotic distribution as $\chi2$ (k) in which the instruments employed are equivalent to the degrees of freedom less the estimated parameters. To confirm satisfaction of Arrelano and Bond orthogonality conditions, a serial correlation was run.

CHAPTER FOUR

EMPIRICAL RESULTS AND DISCUSSION

4.1 Introduction

The study's findings are presented in this chapter. They include descriptive statistics, correlation analysis and estimation results and discussion.

4.2 Descriptive Statisctics

The summary statistics' presentation is illustrated in table 4.1. The mean of ROA over the ten years is 5.04% with a standard deviation of 0.0501 which is less than 1. This means that the ROA for the commercial banks are not far away from the mean. Some of the banks had a negative ROA given a minimum of (-1.34%) but others recorded positive ROA given a maximum of 49.8%.The mean of bank lending interest rate is 19.04% with a standard deviation of 0.0516 which is an indication that the bank lending rates of interest are close to the mean. Despite this, some banks charged high interest rates since a wide range exists between minimum bank lending interest rate (19.04%) and maximum bank lending interest rate (37%). This could be the case prior to capping of bank lending interest rates in 2016. In regards to the liquidity ratio, the mean is 37.93% with a standard deviation of 0.1032 which is less than zero. This is an indication that the liquidity ratio for the banks is not widely spread from the mean.The GDP growth rate attained 5.17% mean with 0.0170 standard deviation. This is an indication, the GDP growth rate over the years is not far away from the mean although a wide gap exists between the minimum (0.021) and the maximum GDP(0.084).

Table 4.1: Summary Statistics

Variable	Notation	Obs	Mean	Std	Min	Max
Return on Asset	ROA	100	0.0504	0.0501	-0.0134	0.498
Lending Rates	BLIR	100	0.1904	0.0516	0.13	0.37
Liquidty Ratio	LR	100	0.3793	0.1032	0.257	0.68
GDP growth(%)	GDP	100	0.0517	0.0170	0.021	0.084
Elections	E	100	0.4	0.4924	0	1
Financial Repression	FINREPR	100	0.2	0.4020	0	1

4.3 Correlation Analysis

Table 4.2 shows the correlation analysis. When the coefficient of correlation is greater than 0.7, multicollinearity becomes problematic. An affirmative correlation exists between banks' profitability (ROA), liquidty ratio,GDP growth, elections, financial repression and one year lag of ROA. An increase in liquidity ratio results to an increment in bank profitability. This aligns with findings by Ibrahim (2017) who asserts that an increase in liquidity ratios affects banks' profitability positively.This occurs when the growth of total liquid assets is higher than that of total short term liabilities. Banking institutions are expected to have a minimum liquidty ratio of 20% by the CBK for short term obligations to be met. GDP growth was positively correlated with profitability.The findings support the study by Simiyu and Ngile (2015) who explains that the banks' financial performance is positively affected by the GDP growth rate. However, there was an inverse relationship between bank lending interest rates and commercial banks' profitability. This negative relationship is supported by Kerbl and Sigmund (2017) whose findings indicated that there existed an inverse relation between bank lending interest rates and commercial banks' profitability.

Table 4.2: Pair Wise Correlation Matrix

	ROA	BLIR	LR	GDP	ELECTIO NS	FINREPR	ROAt-1
ROA	1.000						
BLIR	-0.0118	1.000					
LR	0.0199	-0.3285	1.000				
GDP	0.1718	-0.0518	0.1645	1.000			
ELECTION S	0.0989	0.1864	-0.0580	-0.0748	1.000		
FINREPR	0.1194	0.2929	-0.1304	-0.0680	0.6124	1.000	
ROAt-1	0.0536	-0.0271	-0.0237	-0.0237	-0.0879	0.0989	1.000

4.4 Estimation Results and Discussion

Based on F test, the estimated equation fits the model reasonably well. The p value for the test is

not more than 5% hence the rejection of null hypothesis where coeffiecients are not equal to

zero. The Hansen J test was used for the purposes of testing for over-identifying

restrictions.Hansen J test p value is more than 0.05 hence failure of null hypothesis rejection.This

validates choice of instruments we used for the study. Both AR(1) nad AR(2) have been included

although our main interest is on AR(2) due to its ability to detect autocorrelation in levels.This

test helps in confirmimg whether the orthogonality conditions by Arrelano and Bond are met.In

our study, the p value was more thann 0.05 thus confirming that the orthogonality conditions by

Arrelano and Bond were met. Therefore the null hypothesis was not rejected. A high significance for the high speed of adjustment existed hence the confirmation for the model's dynamic nature.

Table 1.3: Two-step system GMM estimation results (ROA = dependent variable)

Variable	Notation	
		1
Lagged ROA	ROA_{it-1}	0.510 (0.61)
Lending Rates	BLIR	-0.148*** (0.03)
Liquidity Ratio	LR	0.061 (0.776)
GDP growth	GDP	0.893 (0.116)
Elections	Elections	0.386* (0.10)
Financial Repression	FINREPR	0.436 (0.01) **
F-test		F(7,42)= 8.59 Prob(F)=0.000
Hansen J		$\chi^2(8) = 5.84$ Prob>chi2=0.666
AR(1)		z = -1.10

		p-value = 0.272
AR(2)		z = -0.18 *P-value* = 0.855

This Table presents estimations using System GMM estimation. Significance levels at the 10%, 5%, and 1% level is denoted by *, ** and *** respectively.

Basing on these findings, the bank lending interest rates are statistically significant but negative. This indicates that commercial banks' lending interest rates affects Kenyan banks' profitability.An increment in lending rates of interest decreases the profitability of commercial banks. The hypothesis that lending interest rates and commercial banks' financial performance have an inverse relationship is accepted by the study. This is based on loanable funds theory that there is low financial performance when lending interest rate is high and when financial performance is high the lending rate is low. The findings are also in line with the study by Kerbl and Sigmund (2017) who concluded that high interest rates lead to individuals and retail investors shying off from borrowing especially when the economy is on a downward spiral.

Liquidity ratio is not statistically significant but is positive. It shows that liquidity ratio has an insigificant influence on Kenyan commercial banks' profitability. This is supported by Onuonga(2014) who explains; other than liquidity ratio, there are other elements that have an effect on commercial banks' profitability. They include; ownership, bank operation expenses, strength of capital and banks' size.

GDP is statistically insignificant but positive. Therefore, the study does not reject null hypothesis that the economy's growth does not affect profitabilty of Kenyan banks. These are in

line with the findings by Simiyu and Ngile(2015).They asserted that GDP affected banks'
financial performance in an insignificant but positive way.

In regards to the elections, there is a statistically significant positive correlation. This is an
implication that peaceful elections or political stability affects Kenyan commercial banks'
profitability positively. The findings align with those of Kale, Eken and Selimler (2015) in their
study on how regulatory controls affect banks' financial performance. They indicate that other
than regulatory conditions, political conditions also affect banks' financial performance.

Finally, financial repression has a positive statistically significant effect. This shows a positive
relationship with the performance of commercial banks in Kenya. This aligns with findings by
Kale, Eken and Selimler(2015) which indicated that tighter regulatory controls positively affects
banks' financial performance. However, banks' characteristics had more impact on the
performance compared to the regulatory controls.

CHAPTER FIVE

SUMMARY CONCLUSIONS AND POLICY IMPLICATIONS

5.0 Introduction

The project empirically examined how bank lending interest rate affects financial performance of
Kenyan banks. Macroeconomic variables (rates of interest and size of the economy), political
conditions, regulatory controls and the internal conditions of the commercial banks were the

main elements that were considered during the study. Dynamic panel data was used basing on the generalised method moments. Additionally, a period of 10 years (2008-2017) was considered.

5.1 Summary of Findings

Bank lending interest rates, liquidity ratio, elections and financial repression affects how Kenyan commercial banks perform financially. An increase in bank lending interest rates results to decreased profits among banks. Commercial banks' profitability is also influenced positively by financial repression. Lowering interest rates can lead to attraction of more risk averse borrowers among commercial banks hence more loan defaulters. In turn, this affects the profits attained by commercial banks (Kim and Lee, 2016). In regards to liquidity ratio, bank managers are always faced with the dilemma of either investing on long term assets or short term assets that are less profitable. The amount of assets used in generation of banks' profits is reduced through liquidity since it requires holding significant amounts of liquid assets.

5.2 Conclusion

From the findings, it is clear that liquidity ratio and growth rate of GDP have an insignificant but positive effect on the determination of how Kenyan commercial banks perform financially. However, the findings indicate that bank lending interest rates, elections and financial repression affects how banks perform significantly. However, bank lending interest rates influences profitability of Kenyan commercial banks negatively.

5.3 Policy Implications and Recommendations

This research project has an implication to the policy makers as well as the bank management. The findings show that bank lending rates of interest have an inverse relationship with the

commercial banks' profitability. It aligns with loanable funds theory and theory of information asymmetry. However, these findings contradict with pure expectations theory that shows a positive relationship. Therefore, Kenyan economy should deemphasize the usage of pure expectations theory. Moreover, it is recommendable for the bank management to evaluate their lending rates so that they can have enough loan disbursement but also high returns to improve their financial performance. The government can also establish a proper way of calculating the GDP since there is no clarity on the same. The CBK can monitor the lending interest rates of commercial banks regularly. Commercial banks can also focus on other factors such as bank internal conditions, political conditions and regulatory conditions that enhance their profitability other than bank lending interest rates.

5.4 Areas for Further Research

The basis for this research project was on the effect of bank lending interest rates on financial performance of commercial banks in Kenya. Further research can be conducted by focusing on how the capping of interest rates has affected how Kenyan commercial banks perform financially. Further, a large sample of commercial banks in addition to listed banks can be included in the research thus attaining detailed results. It is also recommendable to include more variables on the model such as government speed in paying debts.

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Appendix 1: DATA

ID	BANK NAME	YEAR	ROA	LENDING RATES	LIQUIDITY RATIO	GDP
1	K.C.B	2008	0.03	0.18	0.32	0.02
1	K.C.B	2009	0.0357	0.18	0.28	0.03
1	K.C.B	2010	0.0517	0.17	0.31	0.08
1	K.C.B	2011	0.498	0.16	0.31	0.06
1	K.C.B	2012	0.052	0.19	0.30	0.05
1	K.C.B	2013	0.055	0.18	0.27	0.06
1	K.C.B	2014	0.0593	0.19	0.31	0.05
1	K.C.B	2015	0.0501	0.20	0.30	0.06
1	K.C.B	2016	0.0564	0.14	0.30	0.06
1	K.C.B	2017	0.0494	0.13	0.28	0.05
2	STD	2008	0.047	0.18	0.59	0.02

2	STD	2009	0.0539	0.18	0.60	0.03
2	STD	2010	0.0537	0.17	0.59	0.08
2	STD	2011	0.0503	0.13	0.43	0.06
2	STD	2012	0.059	0.16	0.39	0.05
2	STD	2013	0.06	0.15	0.39	0.06
2	STD	2014	0.0642	0.15	0.46	0.05
2	STD	2015	0.0383	0.14	0.52	0.06
2	STD	2016	0.051	0.13	0.62	0.06
2	STD	2017	0.0334	0.13	0.65	0.05
3	DTB	2008	0.031	0.16	0.33	0.02
3	DTB	2009	0.0344	0.16	0.32	0.03
3	DTB	2010	0.049	0.18	0.36	0.08
3	DTB	2011	0.0419	0.22	0.36	0.06
3	DTB	2012	0.049	0.17	0.34	0.05
3	DTB	2013	0.049	0.16	0.33	0.06
3	DTB	2014	0.0447	0.17	0.36	0.05
3	DTB	2015	0.0369	0.19	0.47	0.06
3	DTB	2016	0.0364	0.14	0.54	0.06
3	DTB	2017	0.0305	0.14	0.50	0.05
4	NIC	2008	0.034	0.19	0.31	0.02
4	NIC	2009	0.033	0.19	0.34	0.03
4	NIC	2010	0.0441	0.20	0.26	0.08
4	NIC	2011	0.0457	0.21	0.30	0.06

4	NIC	2012	0.042	0.23	0.32	0.05
4	NIC	2013	0.046	0.19	0.29	0.06
4	NIC	2014	0.0444	0.21	0.33	0.05
4	NIC	2015	0.0399	0.23	0.30	0.06
4	NIC	2016	0.0366	0.15	0.27	0.06
4	NIC	2017	0.0294	0.14	0.35	0.05
5	STANBIC	2008	0.015	0.20	0.33	0.02
5	STANBIC	2009	0.0135	0.22	0.41	0.03
5	STANBIC	2010	0.196	0.23	0.56	0.08
5	STANBIC	2011	0.0223	0.14	0.45	0.06
5	STANBIC	2012	0.035	0.15	0.48	0.05
5	STANBIC	2013	0.041	0.17	0.68	0.06
5	STANBIC	2014	0.0431	0.22	0.61	0.05
5	STANBIC	2015	0.0356	0.15	0.56	0.06
5	STANBIC	2016	0.0337	0.13	0.55	0.06
5	STANBIC	2017	0.0234	0.13	0.51	0.05
6	I&M	2008	0.044	0.30	0.30	0.02
6	I&M	2009	0.0394	0.33	0.33	0.03
6	I&M	2010	0.048	0.27	0.27	0.08
6	I&M	2011	0.058	0.31	0.31	0.06
6	I&M	2012	0.052	0.29	0.29	0.05
6	I&M	2013	0.055	0.34	0.34	0.06
6	I&M	2014	0.0564	0.32	0.32	0.05

6	I&M	2015	0.0566	0.30	0.30	0.06
6	I&M	2016	0.0527	0.31	0.31	0.06
6	I&M	2017	0.0409	0.37	0.37	0.05
7	EQUITY	2008	0.061	0.19	0.36	0.02
7	EQUITY	2009	0.0566	0.22	0.32	0.03
7	EQUITY	2010	0.0695	0.18	0.49	0.08
7	EQUITY	2011	0.0684	0.19	0.30	0.06
7	EQUITY	2012	0.074	0.18	0.31	0.05
7	EQUITY	2013	0.077	0.15	0.58	0.06
7	EQUITY	2014	0.0726	0.19	0.45	0.05
7	EQUITY	2015	0.0656	0.19	0.32	0.06
7	EQUITY	2016	0.06	0.14	0.45	0.06
7	EQUITY	2017	0.0568	0.14	0.54	0.05
8	BARCLAYS	2008	0.047	0.20	0.33	0.02
8	BARCLAYS	2009	0.053	0.23	0.30	0.03
8	BARCLAYS	2010	0.0624	0.18	0.54	0.08
8	BARCLAYS	2011	0.0718	0.13	0.43	0.06
8	BARCLAYS	2012	0.07	0.19	0.33	0.05
8	BARCLAYS	2013	0.058	0.23	0.31	0.06
8	BARCLAYS	2014	0.0544	0.18	0.44	0.05
8	BARCLAYS	2015	0.0501	0.18	0.34	0.06
8	BARCLAYS	2016	0.0402	0.14	0.34	0.06
8	BARCLAYS	2017	0.0368	0.14	0.33	0.05

9	COOP	2008	0.037	0.21	0.33	0.02
9	COOP	2009	0.0326	0.20	0.27	0.03
9	COOP	2010	0.0361	0.22	0.36	0.08
9	COOP	2011	0.0368	0.24	0.41	0.06
9	COOP	2012	0.048	0.23	0.34	0.05
9	COOP	2013	0.047	0.20	0.34	0.06
9	COOP	2014	0.0443	0.20	0.35	0.05
9	COOP	2015	0.0414	0.23	0.27	0.06
9	COOP	2016	0.0515	0.14	0.33	0.06
9	COOP	2017	0.0431	0.14	0.36	0.05
10	NBK	2008	0.04	0.16	0.31	0.02
10	NBK	2009	0.0413	0.16	0.35	0.03
10	NBK	2010	0.0449	0.18	0.41	0.08
10	NBK	2011	0.0356	0.16	0.34	0.06
10	NBK	2012	0.017	0.18	0.30	0.05
10	NBK	2013	0.019	0.20	0.42	0.06
10	NBK	2014	0.019	0.18	0.33	0.05
10	NBK	2015	-0.0134	0.19	0.31	0.06
10	NBK	2016	0.0014	0.21	0.26	0.06
10	NBK	2017	0.0067	0.14	0.27	0.05