BANK CHARACTERISTICS, MACROECONOMIC VARIABLES AND LENDING RATES AMONG COMMERCIAL BANKS IN KENYA

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(D86/CTY/28539/2014)

A THESIS SUBMITTED TO THE SCHOOL OF BUSINESS IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY IN FINANCE, KENYATTA UNIVERSITY

OCTOBER, 2018
DECLARATION

This thesis is my original work and has not been presented for a degree or any other award in any other University or any other award.

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DEDICATION

This thesis is dedicated to my Wife Sheila Bonareri Mokaya for her support and encouragement even when the going seemed tough. To my parents Wilson Maubi Mokaya and Elizabeth Getuba Mokaya who have been a source of strength in my academic resolve and for making me go to school with their little earnings early in life.
ACKNOWLEDGEMENT

I thank the Almighty God who enabled me to have a reason, mental soundness and good health while working on this thesis. My gratitude is to the Kenyatta university Department of Accounting and finance for allowing me to research on the area that was of interest to me.

Special thanks my supervisors Dr. Ambrose Jagongo, Dr. Rosemary James and Dr. Duncan Ouma for their relentless support as they guided me through building on this thesis. Dr. Job Omagwa and Dr. Lucy Wamugo for their contribution in shaping this research, the chairman-department of accounting and finance Dr. Eddie Simiyu, Dr. Mungai, Dr. Ndede, Dr. Koori, and Dr. Lucy Kamau. Finally Dr. SMA Muathe who defined this journey and ensured I was on course and my classmate Dr. Salome Musau for her moral support and everyone who inspired me to work on this thesis.

I also thank my dear wife Sheila Bonareri, Daughter Angel Moraa, Son Aydan Andy and Daughter Adelle Moraa for their understanding, patience and support as I worked on this thesis.

Many thanks to my Brother Collins Ogeri Maubi without whom the PhD Journey would just have been a dream. Through his constant encouragement, I have made it this far.
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### OPERATIONAL DEFINITION OF TERMS

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td><strong>Bank Characteristics:</strong></td>
<td>These refer to the internal factors that commercial banks put into consideration as they cost their loan products. For purposes of this study, they shall be confined to bank size, credit risk, liquidity risk, and operating costs.</td>
</tr>
<tr>
<td><strong>Bank Size:</strong></td>
<td>Is a measure of how much in value the bank holds in terms of all its assets.</td>
</tr>
<tr>
<td><strong>Central Bank Rate:</strong></td>
<td>The rate charged by Central Bank of Kenya on the loans advanced to commercial banks. This rate is reviewed and announced by the monetary policy committee at least every two months.</td>
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<tr>
<td><strong>Commercial Banks:</strong></td>
<td>These are financial institutions charged with the responsibility of deposit taking and giving loans. They are regulated by the Central Bank of Kenya.</td>
</tr>
<tr>
<td><strong>Credit Risk:</strong></td>
<td>This is the uncertainty surrounding a debtor's repayment of a loan or other line of credit (either the principal or interest (coupon) or both). This is proxied by the ratio of gross non-performing loans to the total loans.</td>
</tr>
<tr>
<td><strong>Economic Growth:</strong></td>
<td>Is the rate of change in some measure of aggregate income on per capita basis.</td>
</tr>
<tr>
<td><strong>Gross Domestic Product:</strong></td>
<td>Total market value of goods and services produced within the borders of a country within a given year.</td>
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<td><strong>Inflation:</strong></td>
<td>This change in the prices of goods and services in an economy. Inflation implies that every unit of currency buys fewer goods and services. Inflation rates reduce the purchasing power of the people.</td>
</tr>
<tr>
<td><strong>Interest Rate Spread:</strong></td>
<td>Interest rate spread is the difference between what a bank earns on its assets and what it pays on its liabilities. This is the difference between the average lending rate and the rate paid on customer deposits.</td>
</tr>
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</table>
Financial Intermediation: Refers to the process by which banks act as agents that bridge the gap that exists between savers and borrowers.

Financial Liberalization: This is the process by which commercial banks were allowed the independence in the determination of lending rates with the central bank setting the base lending rate below which banks cannot lend.

Kenya Banks Reference Rate: This is the base rate prescribed by the central bank of Kenya upon which the Commercial banks rely as they set their lending rates.

Liquidity risk: This the risk that a bank would not meet withdrawal needs of the customers. This is the proportion of current assets to total assets in commercial banks.

Lending rate: Average interest rate on loans to both Corporate and individual customers. This will be confined to be the average of lending rates prescribed on all loan products offered per bank.

Macroeconomic Variables: These refer to indicators of economic performance of a country. This study used GDP growth and inflation.

Market Concentration: Is a measure of competition in the banking industry and is usually an index.

Operating costs: Are the expenses incurred in running a business, such as sales and administration among other operational costs.

Reserve Requirements: The amounts that banks are required to keep on deposit at the Central Bank based on the Cash Ratio Requirements

T-Bill rate: The rate offered by government as a return to domestic lenders on a short term, normally 90days to 180days.

Exchange Rate: The rate at which the United States Dollar trades in terms of Kenya shillings.
### ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>BFIs</td>
<td>Banking financial institutions</td>
</tr>
<tr>
<td>CBK</td>
<td>Central Bank of Kenya</td>
</tr>
<tr>
<td>CBR</td>
<td>Central Bank Rate</td>
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<tr>
<td>DFIs</td>
<td>Development Finance institutions</td>
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<tr>
<td>ECM</td>
<td>Error Correction Model</td>
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<tr>
<td>FGLS</td>
<td>Feasible Generalized Least squares</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product.</td>
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<tr>
<td>HHI</td>
<td>Herfindahl-Hirschman Index</td>
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<td>IMF</td>
<td>International Monetary fund</td>
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<td>IRS</td>
<td>Interest Rate Spread</td>
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<tr>
<td>KBRR</td>
<td>Kenya banks reference rate</td>
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<tr>
<td>KSH</td>
<td>Kenya Shillings</td>
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<tr>
<td>LQDR</td>
<td>Liquidity risk</td>
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<tr>
<td>NBFIs</td>
<td>Non-banking financial institutions</td>
</tr>
<tr>
<td>NBK</td>
<td>National Bank of Kenya</td>
</tr>
<tr>
<td>NOI</td>
<td>Net operating income</td>
</tr>
<tr>
<td>NPLs</td>
<td>Non-performing Loans</td>
</tr>
<tr>
<td>OLS</td>
<td>Ordinary Least Squares</td>
</tr>
<tr>
<td>OPERAT</td>
<td>Operating costs</td>
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PAT Profit after tax
PBT Profit before tax
P&L Profit and Loss Account
ROAVG Return on average assets
SACCOs Savings and credit cooperative societies
SOCI Statement of Comprehensive Income
SSA Sub- Saharan African
USD United states Dollar
US United States
ABSTRACT

The banking system is considered a key component in provision of funds for economic development through financing capital accumulation, technological innovations, productivity growth and enhancing other sustainable economic growth rates and consumption. Pricing of funds through lending rates and efficient banking systems are essential for acceleration of economic growth. This would spur economic growth and enhance the financial sector development. Lending rates in Kenya have been high for a long time and various efforts have been made to arrest the situation over time notably: Introduction of the KBRR by the CBK, attempts to cap lending rates in 2010 by the Kenya National Assembly and finally the enactment of the banking amendment Act of 2016. However, the lending rates still remain high despite capping. Research done on effect of various variables on lending rates has assumed direct relationship and has produced mixed results. This study sought to investigate the effect of bank characteristics and macroeconomic variables on lending rates among commercial banks in Kenya. Specifically the study sought to: establish the effect of bank size, credit risk, and liquidity risk, operating costs, Gross Domestic Product growth rate and inflation rate on lending rates among commercial banks in Kenya. The study further sought to establish the moderating effect of political risk on the relationship between bank characteristics and lending rates among commercial banks in Kenya and to determine the moderation effect of political risk on the relationship between macroeconomic variables and lending rates among commercial banks in Kenya. The research philosophy for this research was positivism. Explanatory non-experimental research design was employed. The target population was thirty nine (39) commercial banks from whom secondary data was collected by way of census since these are the banks from which complete information could be obtained for meaningful analysis for the study period 2006-2015. Descriptive Statistics including Mean and Standard deviation and inferential statistics: Panel regression analysis and Correlation analysis were carried out. Data analysis was run on the Stata 13 package and findings presented in figures, tables, graphs and charts while deriving conclusions and recommendations from the findings of the study. The study found that operating costs, credit risk and inflation had positive effects and were significant determinants of lending rates. However the effect of GDP growth rate and bank size was found to be negative and significant. Political risk was found to have insignificant moderating effect on the relationship between bank characteristics, macroeconomic variables and lending rates among commercial banks in Kenya. Based on the findings, the study concluded that bank size, credit risk, operating costs, GDP and inflation play a significant role in determining the lending rates of commercial banks. The study recommends that government pays attention to macroeconomic variables while controlling the domestic lending rates. The study further recommends that policy initiatives that will help to keep the lending rates at a low level take into consideration the need to enhance economic growth and reduce inflation. The study recommends in conclusion that commercial banks that wish to adjust their lending rates focus on their internal factors such as bank size, credit risk and their operational cost and that the government considers deregulation on lending.
CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The financial institutions and the banking system are among the key pillars of an economy especially while considering their key role in reallocation of funds from agents with more to those with deficit. Banks also help in solving the problem of information asymmetry and diversify risks hence leading to reduction in the cost of financing and allocation of funds within the economy. Therefore the banking system is considered a key component in provision of funds for economic development through financing capital accumulation, technological innovations, productivity growth and enhancing other sustainable economic growth rates and consumption.

According to Crowley (2007), pricing of funds through lending rates and efficient banking systems are essential for acceleration of economic growth. This would spur economic growth and enhance the financial sector development (Bekaert et al., 2005; Ang & McKibbin, 2007). However, many nations in the Sub Saharan Africa (SSA) still struggle with skyrocketing lending rates (Maina, 2015). The lending rate environment and stability is a key component for economic growth and in the performance of the returns on investments (Levy et al., 2008). This could explain the growth in non-performing loans due to increasing gross loans probably an indicator of reduced returns on investments leading to reduced ability to repay the same loans taken with the hope of increasing returns from the financed businesses (Table 1.1).

Financial liberalization that came into being in the 1990s was expected to ensure a healthy, competitive and efficient financial sector hence reducing lending rates (Folawewol & Tennant, 2008).
Lending rate is the price borrowers pay to acquire and use money from lenders or financial intermediary such as commercial banks (Maina, 2015). The Institutions can be either BFI or NBFI. With a slight deviation is Kithinji and Waweru (2007) who indicate that the lending rates can be thought of as “Rent for money”. Lending rates reflect market information on the volatility of the power of money and likelihood of change in future inflation (Ngugi, 2001). This is based on the analogy that, lower lending rates imply accessibility of funds by borrowers some of whom might just be lovers of money which might fuel inflation or in the converse high lending rates would imply inaccessibility of funds hence reversing inflation (Were & Wambua, 2014).

High lending rates depict inefficiency in the banking sector. Statistics show that Kenya has higher lending rates than many African Nations (See table 1.1) and this would imply that the banking sector in Kenya is inefficient (Hassan & Khan, 2010). Bank lending rates in Kenya have received considerable attention in the popular press (Hafer, 2010). There is a widespread opinion that the rates charged by commercial banks exceed their cost of funds by an abnormal amount.
Table 1.1 Showing Lending for Sampled Countries in Africa

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<tr>
<td>Botswana</td>
<td>15.74</td>
<td>16.46</td>
<td>16.20</td>
<td>16.54</td>
<td>13.76</td>
<td>11.46</td>
<td>11.00</td>
<td>11.00</td>
<td>10.19</td>
<td>9.00</td>
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<tr>
<td>Djibouti</td>
<td>11.36</td>
<td>11.63</td>
<td>10.90</td>
<td>11.38</td>
<td>11.45</td>
<td>10.44</td>
<td>11.49</td>
<td>11.99</td>
<td>11.94</td>
<td>12.69</td>
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<tr>
<td>Kenya</td>
<td>12.88</td>
<td>13.64</td>
<td>13.40</td>
<td>14.02</td>
<td>14.80</td>
<td>14.37</td>
<td>15.03</td>
<td>15.41</td>
<td>16.72</td>
<td>17.31</td>
</tr>
<tr>
<td>Namibia</td>
<td>10.61</td>
<td>11.18</td>
<td>12.12</td>
<td>13.74</td>
<td>11.12</td>
<td>9.70</td>
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<td>8.60</td>
<td>8.20</td>
<td>8.70</td>
</tr>
<tr>
<td>Nigeria</td>
<td>17.95</td>
<td>16.90</td>
<td>16.16</td>
<td>15.48</td>
<td>18.36</td>
<td>17.59</td>
<td>16.02</td>
<td>16.79</td>
<td>16.72</td>
<td>16.55</td>
</tr>
<tr>
<td>Tanzania</td>
<td>15.25</td>
<td>15.65</td>
<td>16.16</td>
<td>14.98</td>
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<td>14.55</td>
<td>14.96</td>
<td>15.46</td>
<td>15.83</td>
<td>16.26</td>
</tr>
<tr>
<td>South Africa</td>
<td>10.63</td>
<td>11.17</td>
<td>13.13</td>
<td>15.71</td>
<td>11.71</td>
<td>9.80</td>
<td>9.00</td>
<td>8.70</td>
<td>8.50</td>
<td>3.91</td>
</tr>
<tr>
<td>Zambia</td>
<td>28.21</td>
<td>23.15</td>
<td>18.80</td>
<td>19.06</td>
<td>22.06</td>
<td>20.92</td>
<td>18.64</td>
<td>12.49</td>
<td>9.52</td>
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</tr>
</tbody>
</table>

Commercial banks’ lending instruments hardly rely on the value of the assets the banks hold. Lending rate remains the same regardless of banks assets such as loans and securities held. Monetary policy in a country is argued to have direct relationship with the ability of commercial banks to offer new loans and to determine the cost of credit available to borrowers who mainly depend on bank financing (Bernanke & Blinder, 2012). Unsound monetary policies are detrimental to the banking sector especially in making loans expensive to borrowers by raising lending rates.

A developed financial sector improves economic growth by ensuring various economic agents meet their financial requirements (Hawtrey & Liang, 2008). In a developed financial sector, financial resources are made available in a more efficient manner and risk management strategies adopted by various stakeholders. In an economy with proper financial elements the production possibility frontier are pushed outwards which results in increased potential of economic growth in the long run.

Similarly, sound monetary policy leads to increase in operation efficiency of the financial sector and this can further be improved by ensuring all the players operate within the required standard of performance. This is not possible when the lending rates are high (Kehrwald, 2014). Other than the monetary policy; bank characteristics, macroeconomic variables and the political environment would also affect lending rates.

1.1.1 Bank Characteristics

Bank characteristics refer to the internal factors that commercial banks consider while setting up lending rates (Uzeru (2012). Lending rates are arrived at by considering bank characteristics including credit risk, bank size, operating costs, among others. Credit risk is a fraction of total loan represented by non-performing loans (NPLR). In
the financial sector, credit risk is used to measure the quality of loans where high non-performing loans ratio implies that there is high cost of bad loans. Since all economic agents are risk averse, commercial banks facing credit risk in most cases pass the risk to borrowers by increasing the lending rates (Maina, 2015).

Bank size is the measure of how much in value the bank holds in terms of all its assets. Bank size is usually determined by a log of banks total assets. From a theoretical perspective, big banks are expected to charge lower lending rates compared to smaller banks this is because of the ability of these banks to utilize the economies of scale in their operational efficiency. Large banks also have high potential of investing in modern technology to enhance their efficiency (Were & Wambua, 2014).

Operating costs are the day to day running expenses and are to be operationalized as operating costs as ratio of net income. Some of the costs commercial banks incur are credit appraisal costs, application and screening costs and the cost involved in monitoring the projects for which the loans were applied (Beck, 2010). When the costs associated with loan applications increase, this is likely to impact on the cost of loans through increase in lending rates. Operating expenses are usually adopted in the financial sector as an indicator of operational inefficiency. In a case where, there is high costs incurred by financial intermediaries, this will impact positively on lending rates while negatively impacting on interest rates charged on deposits.

On the other hand, liquidity risk is the inability of the commercial banks to meet their current financial obligations. According to Haifer (2010), Liquidity risk is often derived by computing the ratio of bank’s liquid assets to total assets. Liquidity risk
varies from one bank to another and depends on the amount of liquidity owned by the banks.

Commercial banks with high liquidity face lower liquidity risks and vice versa hence they are likely to charge lower lending rates than banks with less liquidity. Banks with lower liquidity also charge lower liquidity premiums on loans. Commercial banks facing high liquidity risk are forced to engage in interbank lending to cushion themselves hence cascading the costs to the borrowers and as a result, they charge higher lending rates (Ahokpossi, 2013).

Return on average assets is generally considered as a good indicator to evaluate the profitability of the assets of a firm in comparison to other firms in the same industry. A positive relationship with lending rates is hypothesized. Commercial banks that rely mainly on interest charged on their loan facilities as their main source of income tend to charge higher lending rates compared to banks that have income earning assets. This is because such banks may be unwilling to forego their income at the expense of lower lending rates. However, some of the banks generate high income by charging lower lending rates and ensuring high repayment of loans (Were & Wambua, 2014).

Ahokpossi (2013) posits that, lending rates in Macedonia have been high as are lending rates in most developed and developing countries. Further, bank characteristics (bank size, market share and non-performing loans) positively affect lending rates in Macedonia. Lending rates in Zambia like most of the developing nations and some developed nations alike are high hence making access to credit difficult. The study finds that bank characteristics (bank size, operating costs and liquidity risk) negatively affect lending rates in Zambia. This study seeks to find out
how Bank size, operating costs, credit and liquidity risk on lending rates among commercial banks in Kenya given conflicting findings (Mbao et al., 2014).

1.1.2 Industry Characteristics

Industry characteristics are those factors that affect a specific set of companies dealing with a specific set of goods or services for example banks lie in an industry called banking (Uzeru 2012). Lending rates are affected by the variables that are specific to the commercial banks themselves and those factors that are related to the economy as a whole. Concentration of the market is usually adopted to establish the level of competitiveness among various players in the market. In theory, market competition is expected to lower lending pricing which may lead to increased efficiency and reduced lending rates.

The Kenya banks Reference rate (KBRR) was the benchmark rate upon which commercial banks set their lending rates from July 2014 to August 2016. Since the market concentration and KBRR are the basis upon which commercial banks use to set lending rates, this study analyzed them as control variables. However, Gambacorta (2004) points to a possible ambiguous association between the structure of the financial sector and lending rates.

According to Mwega (2014), market concentration where players behave in oligopolistic manner impacts positively on the lending rates and negatively on deposits rates while concentration due to high efficient banks replacing less efficient banks reduces lending rates and increases interest rates on deposits hence lower the spread. HHI is mostly used to measure the level of concentration of the market. The policy variable-KBRR is used as a base rate for commercial banks. It is arrived at by taking an average of the Central bank rate (CBR) and the 6 month Treasury bill rate.
Theoretically, a rise in this rate should lead to higher lending rates and a reduction in the same expected to yield lower lending rates (CBK, 2014).

1.1.3 Macroeconomic Variables

Economic activities enhance trade and hence the demand for loan facilities. When the demand for credit increases, lending rates are likely to increase. On the flip side, increase in economic activities could results to higher profitable projects, lower loan default and increase in the amount of deposits all of which will lead to a significant drop in the average lending rates among commercial banks (Mutinda, 2014). Literature indicates that GDP and Inflation are the relevant macroeconomic variables for the financial sector (Maina, 2015; Uzeru, 2012; Demirguc-Kunt & Huizinga, 2011 and Were & Wambua, 2014). The variables have been relatively volatile over time in Kenya as shown in Fig.1.1

![Figure 1.1 showing the Trend in Macroeconomic Variables](image)

**Figure 1.1 showing the Trend in Macroeconomic Variables**

**Source: CBK (2016)**

Each loan and prospective borrower has their own characteristics that may necessitate different lending rates conforming to the economic situations of a nation in which the
loan is offered. For example, customer credit worthiness may determine the loan rate they are charged by financial institutions, including previous relationship with the lending institution, the period of maturity of the loan, the non-fee services provided by the bank in maintaining the loan, the use of fixed or flexible maturities and rates, and maturities factors (Demirguc-Kunt & Huizinga, 2011).

Cost of funding is significantly used by commercial banks as a basis for determining the lending rate charged on a loan by adding the inflation levels in the country and the general economic performance as indicated by the gross domestic product while also considering the risk profile of the customer. Attributes that are mostly adopted to measure the credit risk profile of a borrower include creditworthiness, repayment ability, the period of repayment of the loan, type and amount borrowed, value of the collateral provided, market concentration risk and a number of other products offered to the client (Beck et al., 2010).

Janda and Zetek (2014) sought to identify the macroeconomic variables that affect lending rates in America and identified these factors as being inflation, GDP growth rate and the unemployment rate. This is an extension from Georgievska et al., (2010), who only identify inflation and GDP Growth rate as being the factors influencing lending interest rates in Macedonia. Were and Wambua (2014) do not only indicate that lending rates have been a menace especially in the SSA nations, but also identify inflation rate and GDP growth rate as being the factors influencing lending rates among banks in Kenya.

Tests on the effect of the exchange rate by Were and Wambua showed that although the exchange rate influences lending rates, the effect is insignificant. The studies assume direct relationships and concentrated on interest rate spread while the current
study sought to find the moderating effect of political risk on the association between characteristics of banks, macroeconomic variables and lending rates among banks in Kenya and deal with the relationship with lending rates. Whereas Were and Wambua find a positive relationship between inflation and lending rates and a negative association between GDP and lending rates, Janda and Zetek (2014) and Georgievska et al., (2010) find a positive association between GDP and lending rates and a negative one between inflation and lending rates. Various tests on the effect of GDP and inflation on lending rates from the foregoing literature have shown conflicting findings hence the choice of GDP and Inflation by this study.

1.1.4 Lending Rates

After the 1990s, commercial banks in Kenya moved from a regime of controlled lending rates to market driven lending rates (Matete, 2014). However, as time moved the market offered rates that were construed as non-competitive leading to introduction of the Central Bank Rate (CBR) which was operational until it was replaced by the KBRR in early July, 2014 (CBK, 2015). This rate is based on averages of the CBR and the 91-day treasury bill yield over 6 months. Before the introduction of the KBRR in July 2014 the average lending rates were 16.8% and in 2015, the KBRR was 9.3% while the average lending rates were 16.15% indicating a marginal reduction (CBK, 2015). In the period 2011 to 2014, the lending rates in Kenya became higher than most countries in Africa as shown in Fig.1.2
Figure 1.2 Showing Trends in Lendings of Kenya Compared with other Countries

Commercial banks first encourage savings by customers through deposits before they can think of lending and hence lending rates (Kehrwald, 2014). Commercial banks in Kenya play a significant role in mobilizing savings through their dense branch network (Abdi, 2009). In developing countries majority of the people earn less income and therefore it is the responsibility of the commercial banks to attract them to save by introducing a variety of deposits schemes to suit the needs of individual depositors (Ondieki & Jagongo, 2013).

Commercial banks redirect savings obtained from customers into viable investments (Baltagi & Badi, 2008). Commercial banks are responsible in provision of loans to retailers and wholesalers to boost their trade activities (Gershenberg, 2011). Moreover, lending rates in Kenya determine the cost of business and ultimately impact on the general cost of living (Mwega, 2014). Lending rates increase, banks attract riskier pool of investments that will realize high returns on investments (ROI) (Hassan & Khan, 2010). With high rates, many people including the creditworthy opt out of borrowing which leads to reduced credit uptake by the private sectors. These
claims were supported by Hamid (2011) during a study on lending rates among developing countries revealing that non-deposit based funding had a positive and significant relationship with lending rates. Despite high lending rates in Kenya, Gross loans by commercial banks have been increasing over the past five years and so have Non-Performing Loans (NPLs) per table 1.1. This trend is attributed to the urge to expand businesses which leads to spurring of economic growth (Mutinda, 2014).

**Table 1.2: Lending and NPL levels by Commercial Banks in Kenya (2010-2014)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross Loans in “Ksh...Million”</th>
<th>Gross NPLs in “Ksh...Million”</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>1,940,781</td>
<td>108,300</td>
</tr>
<tr>
<td>2013</td>
<td>1,578,768</td>
<td>81,857</td>
</tr>
<tr>
<td>2012</td>
<td>1,330,365</td>
<td>61,917</td>
</tr>
<tr>
<td>2011</td>
<td>1,190,985</td>
<td>52,958</td>
</tr>
<tr>
<td>2010</td>
<td>914,910</td>
<td>57,637</td>
</tr>
</tbody>
</table>

*Source: CBK (2015)*

The increase in lending over the years is an indicator that the rise in lending rates does not bar uptake of loans which could in turn show possibility of economic growth prospects being high (Mbotu, 2010). However, the steady rise in the level of NPLs is reflective of the high lending rates in Kenya. This is because a rise in lending rates increases the repayment and this eats into the return on investment leading to repayment defaults (Messai & Jouini, 2013). The period after financial liberalization is characterized by increased costs with monetary policy achieved through increasing reserve and cash ratios (Sambiri et al., 2014). This therefore means that the importance of lending rates determinants cannot be over emphasized hence this study. Banks would charge higher lending rates to borrowers perceived to be risky in anticipation of defaults. As such, lending rates accounts for loan loss necessities in the decomposition (Hamid, 2011). Lending rates also would account for overheads,
reserve requirements and taxes. All the above contribute to high lending rates. Among the most cited studies in Kenya on lending rates are Ndungu and Ngugi (1999). The study theoretically derived factors likely to influence lending rates including customer deposits, amount of loans, the Treasury bill rate and the inter-bank rate. The banking sector efficiency is measured by lending rates which have generally been found to be higher in the African countries like Kenya (Chirwa & Mlachila, 2004; Gelos, 2006; Crowley, 2007).

The concept of fair lending rates cannot be ignored and individual borrowers’ lending rates therefore can be compared with ease (Stiglitz & Weiss, 2006). When the market is non-competitive, customers lack alternatives and are forced to take up loans despite high lending rates charges (Messai & Jouini, 2013). Mcleay et al., (2014) posit that money creation and supply differs from some misplaced conceptions in that, if the demand deposits held by commercial banks at any given point in time is high, then it means less would be available to lend hence increasing the lending rates and vice versa.

1.1.5 Political Risk

From 1992, Kenya has been conducting democratic elections. Since then, the country has suffered bouts of elections violence, tensions that most of the times affect the economic growth of the country (Sambiri et al., 2014). A good example of the high political risk occurred during the 2007/2008 where economic growth also got drastically affected. The Central Bank of Kenya in most cases play down the impact of political risk on economic growth terming it a cyclical event that will be outlasted by longer term fundamentals of the economy. Datta et al., (2015) posit that, during the
campaign period and installation of a new government business with government likely slow down.

Political risk is the risk faced by commercial banks that include political decisions events conditions or pronouncements which significantly affect their commercial banks profitability (Sottilotta, 2013). In this context, the effect on profitability would have an effect on lending rates in return. Kenya’s political risk index will be obtained from world banks ratings to political risk of countries. The Political risk index is computed based on twelve items entailing social and political constructs within a country (Datta et al., 2015).

The twelve items include: The stability of the government, socioeconomic volatility, investment profile, conflict, corruption, military involvement in politics, tensions in religions, and ethnic animosity among others. A composite indicator of political risk was applied (measured on a scale of 0-100) and high values signified low political risk while low values signified high political risk (Click & Weiner, 2010 and Goerzen et al., 2010). According to Datta et al., (2015), the variable can be reverse coded by subtracting the index value from 100. Hence, the higher the reverse code, the higher the political risk.

Mcleay et al., (2014) analyzes the effect of political risk on lending rates and finds that the effect of political risk is insignificant since the central bank lends to commercial banks in case of urgent needs to cushion customers and as such, through window dressing and kitting, the commercial banks can maintain the customers’ needs. The study recommends political risk to be analyzed as a moderating variable by future studies. Kuttner (2012) finds that political risk, although insignificant in the determination of lending rates, it cannot be overlooked as it could have a stronger
influence on other relationships leading to lending rates. The study recommends that this variable be investigated as a moderator or control variable. This study will therefore analyze political risk as a moderating variable in the determination of its effect on lending rates among commercial banks in Kenya.

1.1.6 Commercial Banking Sector in Kenya

Kenya’s Banking Sector history can be traced back to 1896 during which time the National bank of India opened up her doors in Kenya. At the helm of the sector is the CBK as the regulator, the regulated Commercial Banks (CBs), Non Banking Financial Institutions (NBFIs) and Forex Bureaus (FBs). All these make up the banking sector in Kenya (Matete, 2014). The NBFIs are licensed under the banking Act and should comply with all requirements of commercial banks subject to any qualifications prescribed to them. As at 1992, there were 15 CBs licensed and operating in Kenya. This number however nearly tripled by the end of October, 2015 with the banking sector in Kenya boasting of a total of 43 Commercial banks. However, four of the banks-Charter House bank, Imperial Bank, Chase Bank and Dubai Banks are under statutory management hence leaving a total of 39 commercial banks.

The sector has not been without challenges with a number of CBs collapsing in 1998 (Maina, 2015). The Banks include Bullion, Reliance, Trust and Prudential banks due to banking sector fragility, poor management and worsening economic conditions. Grenade (2007) posits that CBs are the central players in the financial sector and as such, greater consideration is given to them. Maina further indicates that in the year 2012, the CBK have continuously pursued reforms in the financial sector aimed towards increasing financial access, the level of efficiency and the sector stability while carrying out offsite and onsite surveillance to ensure compliance to laws and
regulations. The banking sector in Kenya has had numerous challenges. For instance, Kithinji and Waweru (2007) in their study highlighted that banking sector challenges can be dated back to 1986 which has led to collapse of major players in the banking sector. They further noted that about 37 failed banks had failed as at 1998 as a results of crisis experience from 1986 to 1998. Kithinji and Waweru attribute the disasters to non-performing assets arising from the high lending rates that have existed in Kenya for a while.

Commercial Banks in Kenya exist as firms and as any firm, profit maximization is the key objective (Ongore & Kusa, 2013). They pool deposits from customers and make investments with care to maintain enough liquidity in case of calls from depositors. Some of these funds are loaned out to borrowers at a price (Interest) whereas depositors, depending on the form of account held, are compensated by way of interest on their deposits. In this way, commercial banks in Kenya act as intermediaries between borrowers and depositors (Griffith-Jones & Gottschalk, 2016).

Under the Kenya Vision 2030 initiative, there are policies to action and target the financial sector to increase saving rates from 17 per cent to at least 30 per cent of GDP. To achieve this, it would require increasing banks deposits to about 80% from the current 44% and to lower borrowing costs (GoK, 2007). Similarly, banks loans should increase from 61 percent of GDP to about 33 percent with the average loans deposits ration of 76 percent of GDP. Achievement of these targets will ensure the country achieve the middle income status. With the lending rates being high, the Sustainable Development Goals (SDGs) as envisaged in the vision 2030 initiative may be far from reality (Mutinda, 2014).
1.2 Statement of the Problem

Lending rates are a key determinant of a country’s economic growth (Mutinda, 2014). According to Kamaan and Nyamongo (2014), investments are financed through borrowing and if the lending rates are higher than the hurdle rate (required rate of return), then the investments would not grow since the returns are used up in repayment of loans and little, if any, remains for re-investment hence having a counter-productive effect on the economy. The committee for monetary policy of the CBK has made efforts to maintain low lending rates among commercial banks in Kenya. One of the notable efforts is the introduction of the Kenya Banks Reference Rate (KBRR) in July 2014 which was operational until August 2016. KBRR, which is the average of the CBR and TB rate, is the base rate upon which commercial banks were expected to set their lending rates. A low KBRR was therefore expected to lead to reduced lending rates but this was not the case in comparison to other countries in Africa.

Commercial banks in Kenya still charge high lending rates (Were & Wambua, 2014; KNBS, 2015) over and above the CBR which is the current base rate. The trend in the financial market in Kenya indicates a static slow response of the lending rates to changes in the CBR (Appendix II). Mbotu (2010) states that the lending rates in Kenya were so high in the year 2010 that members of the Kenya National Assembly discussed financial bill to cap lending rates despite liberalization. Other stakeholders (civil society and politicians) have also cited the high lending rates as the reason for slow growth in the economy (KNBS, 2015).

The national assembly of Kenya enacted the banking amendment Act (2016) to cap the commercial bank lending rates at not more than 4% above the CBR. However, this
enactment has not fully addressed the problem of lending rates since the rates still remain high compared to lending rates of most countries in Africa as shown in Table 1.1. There are examples of countries in Africa whose lending rates have had a downward trend without applying the law like Zambia, Namibia and Botswana (Appendix IV). Given the high lending rates and the slow response of the lending rates to changes in the CBR, the emerging question therefore is what determines the lending rates.

Inconclusive information exists that analyzes the determinants of lending rates whereas studies reviewed give inconsistent results. For instance; Gambacorta and Mistrulli (2014); Ilkhide (2009) and Folawewol and Tennant (2008) found that bank characteristics (Bank Size, Operating costs, liquidity risk and credit risk) and macroeconomic variables are positively related with lending rates. However these studies assume direct relationships and concentrate on interest rate spread. Nampewo (2013); Entrop et al., (2012); Bennaceur and Goaie (2008); Aboagye et al., (2008) indicate that bank characteristics (Bank Size, Operating costs, Liquidity risk and credit risk) and macroeconomic factors are negatively related with lending rates again on a linear perspective and concentrated on interest rate spread.

Maina (2015) considered operating costs as the only bank characteristic (operating costs) and inflation as the only macroeconomic variable and finds a negative relationship with lending rates. Were and Wambua (2014) considered the effect of bank characteristics (Bank Size, credit risk, operating costs) and macroeconomic variables (GDP, inflation) on interest rates spread assuming direct relationships and did not include industry characteristics (KBRR and Competition). These studies concentrate on the effect on interest rates spread. Additionally, the moderating effect of political risk on effect of internal characteristics and lending rates in Kenya has not
been analyzed. Investments depend on financing from commercial banks and returns from these investments are affected by the political environment. When the political risk is low, commercial banks charge a low rate of interest compared to when the political risk is high (Hayakawa et al., 2013).

Besides the conflicting findings among the existing studies, the current study sought to fill the methodological gaps available in the existing empirical studies, whereas other studies used time series analysis, the current study adopted panel data analysis and moderated the relationship between bank internal characteristics, macroeconomic variables and lending rates using political risk index. Hence the findings of this study are more informative compared to existing studies. This study investigated the effect of bank characteristics and macroeconomic variables on lending rates among commercial banks in Kenya controlling for industry characteristics with political risk as the moderating variable.

1.3 Objectives of the Study

This section contains the objectives of the study. That is, general and specific objectives.

1.3.1 General Objective

To determine the effect of bank characteristics and selected macroeconomic variables on lending rates among commercial banks in Kenya.

1.3.2 Specific Objectives

The study sought to achieve the following specific objectives:

i. To establish the effect of bank size on lending rates among commercial banks in Kenya.
ii. To determine the effect of credit risk on lending rates among commercial banks in Kenya.

iii. To establish the effect of liquidity risk on lending rates among commercial banks in Kenya.

iv. To determine the effect of operating costs on lending rates among commercial banks in Kenya.

v. To establish the effect of Gross Domestic Product on lending rates among commercial banks in Kenya.

vi. To determine the effect of inflation on lending rates among commercial banks in Kenya.

vii. To establish the moderating effect of political risk on the relationship between bank characteristics and lending rates among commercial banks in Kenya.

viii. To establish the moderating effect of political risk on the relationship between macroeconomic variables and lending rates among commercial banks in Kenya.

1.4 Research Hypotheses

The study sought to test the following null hypotheses:

\( H_{01} \): Bank size does not have a significant effect on lending rates among commercial banks in Kenya.

\( H_{02} \): Credit risk does not have a significant effect on lending rates among commercial banks in Kenya.

\( H_{03} \): Liquidity risk does not have a significant effect on lending rates among commercial banks in Kenya.
H04: Operating costs do not have a significant effect on lending rates among commercial banks in Kenya.

H05: Gross Domestic Product does not have a significant effect on lending rates among commercial banks in Kenya.

H06: Inflation does not have a significant effect on lending rates among commercial banks in Kenya.

H07: Political risk does not have a significant moderating effect on the relationship between bank characteristics and lending rates among commercial banks in Kenya.

H08: Political risk does not have a significant moderating effect on the relationship between macroeconomic variables and lending rates among commercial banks in Kenya.

1.5 **Significance of the Study**

The study may be useful to several potential beneficiaries. Through information revealed by the trend analysis, findings may benefit individuals wishing to take mortgages loans, car loans, home equity and personal loans from commercial banks since they may be able to identify the most competitive banks and to identify which banks are the most expensive by looking at the large banks (Tier I), the banks with least operational costs and the banks with low credit risk. The findings will also be useful in informing commercial banks on when to adjust lending rates in the banking sector in Kenya as should be practice (Whether during high operational costs or low, whether during high credit risk levels or low ones, whether during high inflation or low, etcetera).
The Government of Kenya through the regulator (CBK) can devise legislation and or policy intended on reducing the overall lending rates by commercial banks in Kenya by working on bank characteristics (bank size, credit risk and operational costs) as well as macroeconomic variables to deal with (inflation and GDP). The commercial banks will also identify key areas and drop any variable they have considered before that will be found to be insignificant. This will ensure they remain competitive and hence increase their profitability and achieve the overall goal of shareholders wealth maximization. Further, this study seeks to add to theory in finance on the moderating effect of political risk on the relationship between bank characteristics, macroeconomic variables and lending rates among commercial banks.

1.6 Scope of the Study

The study covered thirty nine (39) commercial banks operating in Kenya with headquarters domiciled in Nairobi for the years 2006-2015. The study chose this period since it is the same period that saw a number of banks (3) being put under receivership and the entire banking sector experienced mixed fortunes in terms of their performance despite the minimum capital reserve requirements that every bank should have conformed to by January 2015 and with new targets for the year 2018. This is the period within which the CBK introduced the CBR and the KBRR which the Monetary Policy Committee of the Bank currently uses as the central policy rate to signal the monetary policy stance. The study covered bank characteristics (Bank Size, Credit Risk, Liquidity risk and Operating Costs), Macroeconomic variables (GDP growth rate and Inflation rate) and moderating variable, political risk.
1.7 Limitation of the Study

The first limitation concerned the fact that finance data is noisy and sometimes not all data is available even from the selected commercial banks and given variables. Use of panel data analysis helped address this limitation since it can be either balanced or unbalanced with either yielding meaningful results. Secondly, lack of willingness by the Central bank of Kenya to provide certain information especially in the wake of tight oversight roles and the recent placement of certain banks under receivership. A research permit from the NACOSTI helped. Exclusion of four banks from the study population reduced the amount of data accessible for conclusions to be generalized. This limitation was dealt with by use of panel data which does not require data to be balanced.

1.8 Assumptions of the Study

The study made an assumption that the data collected from the central bank and from individual banks’ financial statements was authenticate and provided a clear picture on the existing relationship between study variables.

1.9 Organization of the Study

This research is organized into five chapters comprising of chapter one, two, three, four and chapter five. In chapter one, the study provides background information leading to the problem statement objectives, hypotheses, significance, and scope of the study, limitations and finally assumptions made by the study. Chapter two has Literature review and the conceptual framework. Chapter three describes the methodology employed to achieve the research objectives. In chapter four, the research presents the research findings and discussions whereas chapter five contains the summary of findings, conclusion and recommendations.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter presents various theories upon which the study is underpinned and empirical literature on the study topic and critically reviewing work that has been done by other scholars on the study topic. A conceptual framework for the study is also presented showing the conceptualization of the study variables where bank characteristics and macroeconomic variables are shown to affect the lending rates among commercial banks in Kenya. A table showing summary of literature reviewed is also presented.

2.2 Theoretical Literature Review

In this section the study reviewed some of the theories that inform the hypothesized relationship between the study variables. This section is critical in formulating hypotheses to be tested by the study. The theories discussed include loanable fund theory, liquidity preference theory, theory of price, classical theory of lending and fisher’s theory.

2.2.1 Loanable Funds Theory

This theory can be attributed to the works of British economist Dennis Robertson and Swedish Economist Bertil Ohlin (Robertson, 1936). The theory proponents argue that service quantity is affected by risk only to the extent that assortment of diverse risk require dissimilar levels of information handling. The theory argues that loanable funds can be categorized as inputs that pass through commercial banks as intermediaries. The theory also establishes the ability to separate the use of loanable
funds and other production function of value added in the optimization problem (Fixler & Zieschang, 1998).

Loanable funds can be defined as the amount of money offered for lending and which is demanded by borrowers for a given period of time ((Jakab & Kumhof, 2015). The model for lending depends on the interaction between potential borrowers and savers. This theory argues that economic agents seek to exploit the resources available to them in the market. Economic agents focus on increasing future income by borrowing funds to take advantage of opportunities available for investment in the economy (Sia, 2015).

This theory is regarded as a dynamic and optimizing theory of operations which incorporates production model, financial intermediaries and other portfolio theories. Mankiw (2013) clarifies that the unified model provided the relationship between asset portfolio risk and the output of services. Portfolio risk on the other hand is used to determine the return rates on loans and any other borrowed funds. The bank in return generates discount rate which is used to derive the present value of future profits parts.

The borrowing to take place the return from investments must be greater than cost of borrowing. However, the borrowers would not be able and willing to repay their loans if the rate of interest charged on loans is higher than the returns from the investments. Savers on the other will only be willing to save and lend on the prospects of earning interest out of the money lend out. Borrowers and lenders may be postponed their activities because of unfavorable time preferences (Saunders & Cornet, 2011).

When the question of measuring the bank output is resolved, theory of loanable funds contributes immensely to a large literature on bank production as explained by bank
and industry characteristics and macroeconomic variables (Mankiw, 2013). Commercial banks have internal characteristics that define how decisions are made that affect funds available as loans. The commercial banking industry also has common characteristics that are prescribed by the regulator and the nature of business. These characteristics determine the funds available as loans. The economic conditions and performance (economic factors) affect the funds at the banks’ disposal to provide as loans. For example is inflation were high, savers would require more money to spend around and as such reducing the loanable funds (Were & Wambua, 2014).

The GDP of a country also determines the funds available in the sense that if the economy had a high growth, then the loanable funds would be more. The model of loanable fund is argued to be able to resolves conflicts in the bank production literature especially on the role of deposits. The theory argues that deposited funds form significant inputs in generation of new loans but transaction services are associated with bank output. The theory further provides the foundation for bank output measurement by identification of the value added components (Borio & Disyatat, 2015).

2.2.2 Liquidity Preference Theory

This theory was proposed by John Keynes and it indicates that most of investors tend to prefer short term securities over long term securities (Keynes, 1973). In Keynes view, the crucial way that lending rates impact the level of cumulative output is via their influence on their scheduled investment disbursements. Dimand and Robert (2008) indicate that Profit seeking organizations do their investment mainly through physical capital such machinery and raw materials and expect to earn from them other
than from interest cost of loan of investment finance. Lending rate has centre stage role when it comes to investment demand schedule.

Keynes in the liquidity preference theory advocates for government to come up with adequate monetary policy to manage interest rates. However, Keynes believes that there are other factors that affect investment demand schedule and therefore monetary policy alone cannot achieve the desirable levels of investment and maintain full employment. Walsh (2010) also posited that there exists a relationship between investment demand and commercial banks’ lending rates sensitive adjustments.

From the certain world perspective saving and investment are considered to be influenced by prospects and expectations and other external shocks than underlying real factors. Risk averse savers vary the form of holding their financial wealth to respond to these exogenous shocks depending on volatility in asset prices. Most of the savers vary the average liquidity of their portfolios. According to Taylor and Taylor (2009) liquidity preference theory can be defined as the rate interest advanced by general theory of employment and money. The interest rates are dependent on the supply of money and the demand schedule on the money based on the deferred claim.

According to Panico and Carlo (2008), with increase in consumer credit already known by 1920s, the demand for investment may not be the only use of the funds available for loans. For instance, Keynes neglected the facts that lending rates also allocates available funds for consumption purposes besides investments. Availability of funds at low lending rates influence the demand to consume and a small monetary efforts may go a long way in altering the movements of the lending rates as desired since speculation will quickly come in to balance the market in the expected direction which arbitrage the following lending rates fluctuations on the foundation of the rate
expected (Christiano et al., 2005). However, to maintain the desired lending rates further expansion of the monetary policy is required over time. This theory explains why internal or bank characteristics are key essentials to determining the funds available for loans.

### 2.2.3 Theory of Price

This theory can be attributed to the works of George Stigler (Stigler, 1952) who was an American economist. Theory of price also asserts that pricing of the loans further depends on the costs involved which are often calculated as ratio of interest. The cumulative amount of interest paid is subject to other factors such as credit risk of the borrower, amount borrowed and the period it will take to repay the loan (Schindler, 2011). The arguments forwarded by the classical economic theory were that equilibrium market price was a subject of demand and supply specifically under the perfect market model assumptions.

According to Levy et al., (2008) this position is argument to have no divergence from that asserted by the classical value theory. According to Clarke (1982), price can be identified as a fraction numerical monetary value assigned to a good or a service. The author further argued that excess availability of money in the market results to downward movement of prices while high demand for money increases the prices for goods and services in a market.

According to Mishkin (1986) lending can be seen as the price lenders attached to borrowed funds which is vied to be affected by the demand/supply dynamics in the market leading to attainment of an equilibrium rates. This argument further conforms to the classical economy theory. The theory of price posits that interest’s rates are determined where demand intersect supply curve. However, demand and supply are
subjects to inflation and GDP growth whereby reduction in inflation and growth in GDP will increase demand for loanable funds and vice versa. Increase in demand for loanable funds will impacts positively on lending rates. Therefore, this theory is essential in explaining the relationship between macro-economic variables and lending rates of commercial banks in Kenya.

2.2.4 Classical Theory of Lending rates

The classical theory of lending rates was developed in the nineteenth and twentieth centuries by economist led by Fisher (1907). This theory forms part of the oldest theoretical arguments on the determinants risk free rate. The theory argues that lending rates are subject to two aspects. One is the supply of savings determined from the households and the demand for capita and investment which is determined mainly from the business sector. Keynes, (1937) in the classical theories considers the repayment of lending rates as the benefits the savers gets for postponing their consumption for greater consumption. According to the theory higher lending rates influence the attractiveness of saving at the expense of current consumption hence individual would prefer saving with the prospects of earning which increases the supply of funds.

From the perspective of this theory, there is a significant relationship between lending rates and volume of savings. According to Dermirgut and Huizinga (1999), the lending rate oscillates in line with the substitution between equity and debt financing. As the market for equity expands due to increasing competitive returns, commercial banks increase their deposits to compete for the fund from the public. Expanding equity markets further reduces risk in the sector leading to reduction in lending rates. This theory supports the macroeconomic variables like the GDP which determines the
general well being of citizens of Kenya. It also explains estimation of the per capita income as well as the general price levels of products and services which in turn determine the level of savings and investments available in the Kenyan economy, the study context.

2.2.5 Fisher’s Theory

This theory is attributed to the Fisher (1930) who was an American economist. This theory is argued to be the most well-known that provides the foundation for real lending rates. The theory argued that one principal reason why lending rates change is because of the change in inflation rates whereby lending rates are determined by reducing nominal lending rates by inflation rate (Mishkin, 2010). According to the proponents of this theory, a change in lending rates is as a result of the expected change in inflation rates. The assumptions made here is that markets agents make perfect corrects expectations about the change in inflation rates.

Eichhorn and Voeller (2012) argues that financial markets must establish a positive nominal lending rates in real terms to convince the savers to hold their financial instead of real assets which on average grow in nominal terms at any rate of inflation. They further argue that nominal interest rates must be equivalent to the expected inflation rates with underlying desirable real rate.

Lending rates must always be positive in real terms since they are subject to other factors such as costs of deposits and intermediation, cost attached to reserves requirements and other administrative cost and taxation (Davies, 1986). The main criticism of this theory is that it has specific anchor for prices of goods and services and heavily relies on the analysis of the capital market (Mishkin, 2010). This theory is
relevant to this study since it explains the relationship between inflation rates and lending rates among commercial banks.

2.3 Empirical Literature Review

Most studies by various scholars have been done on lending rate spreads determination and have majorly been anchored on variables categorized into Industry characteristics such as Competition degree, regulatory demands such as minimum reserve requirements, Bank characteristics like administrative or structure of balance sheet, operational costs, non-performing loans, , bank liquidity, return on assets (ROA), bank size etcetera and macro factors including GDP growth rate and inflation.

2.3.1 Bank Characteristics and Lending Rates

Georgievska, Kabashi, Manova-Trajkovska, Mitreska and Vaskov (2010) focused on the factors of lending rates and lending rates spreads in Macedonia by quantifying the effect of various factors on lending rates and lending rates spreads during years 2001-2009 and apply panel estimation. The study finds that bank size, market share, deposit lending rates and non-performing loans are positively related to lending rates and lending rate spreads. However, the study assumes direct relationships and fails to account for macroeconomic variables (GDP and inflation).

Current study focused on the moderating role of political risk in the relationship between these bank characteristics and lending rates and determined the effect of liquidity risk and operating costs as part of the bank characteristics. Since the study was carried out in a developed nation, current study will be carried out in Kenya, a developing nation since conditions in the developed and developing nations are different and could affect results significantly.
Castro and Santos (2010) conducted a study on bank lending rates and loan determinants in Portugal for the period 2003-2008 and find that bank size, costs of operations and NPLs have a negative relationship with lending rates. The study assumes direct relationships and does not account for industry and macro-economic conditions. Current study will consider the effect of bank characteristic, liquidity levels and use a more recent and extended period under study. In addition, the current study sought to find out the moderating role of political risk on lending rates and incorporate macro (GDP and Inflation) and industry level characteristics (KBRR and Competition) which will be assessed as control variables.

Rosenberg, Gaul, Ford and Tomilova (2013) upon studying microcredit lending rates and other determinants for years 2004-2011 in the United States find that operating costs, non-performing loans ratio and size of the micro-finance bank are positively related with lending rates. The study does not consider effect of liquidity levels of the micro-finance bank which the current study will consider. The study also fails to account for effect of macroeconomic variables and assumes direct relationships. Current study seeks to establish the moderating role of political risk on lending rates and assess the influence of macroeconomic variables (GDP and Inflation) on lending rates. The study also covers a more recent period (2006-2015) and is carried out in a developing country, Kenya with concentration on Commercial banks.

According to Krnic’ (2014) while studying determinants of lending rates granted to companies in Croatia found bank characteristics (Deposit lending rates, non-performing loans) have positive relationship with lending rates. Bank size, Return on Assets, Return on Equity and Capital adequacy were found to have no significant effect on lending rates. The study assumes direct relationships and is carried out in the developed world. Current sought to establish the moderating role of political risk on
lending rates and will be carried out in Kenya, a developing nation. Whereas the study did not consider effect of operating costs on lending rates, current study sought to establish the effect of this on lending rates.

Ngigi (2014) studies determinants of lending rates in deposit taking MFIs in Kenya. The study adopted a descriptive survey. Descriptive research design was chosen because it enabled the researcher to establish a relation between variables. The population of this study consisted of all 12 Deposit Taking Microfinance Institutions in Kenya and therefore carried out a census survey. The study used both primary and secondary data sources in gathering data for analysis. The study found that operational costs have a negative relationship with lending rates whereas credit risk had a positive relationship with lending rates. Study assumes direct relationship. Current study sought to determine the moderating role of political risk on lending rates on commercial banks in Kenya. Whereas previous study did not account for the role of industry characteristics, current study controlled for the KBRR and competition with a view to assess their role in the determination of lending rates among commercial banks in Kenya.

Kananu and Ireri (2015) sought to establish the effect of operating costs on lending rates of commercial banks in Kenya and collect data from thirty four (34) commercial banks in Kenya for the year 2013. The study employed a descriptive research design. A study on a sample size of 34 commercial banks was undertaken. Secondary data was collected for the year 2013 from financial statements of the commercial banks and the NSE handbook. Primary data was collected by use of semi-structured questionnaires. The study found a strong positive relationship between operational costs and lending rates. However, the study assumes direct relationship which may not be true since there are other factors that may affect the relationship. Current study
did not only assess the effect of operational costs, but also incorporated other bank characteristics (liquidity risk, credit risk, bank size) and considered effect of macroeconomic variables (GDP and Inflation). The study did not justify the selection of only thirty four commercial banks. Current study collects data from all the thirty nine (39) operational banks in Kenya as to avoid biasness and determine the moderating role of political risk on lending rates and collect data for a longer period of time, 2006-2015.

2.3.2 Macroeconomic Variables and Lending Rates

Krnic' (2014) studies determinants of lending rates granted to companies in Croatia and considers macroeconomic variables (GDP Growth rate, inflation, public debt level in GDP%, T-Bill rate). The study finds that inflation, T-Bill rate are strongly positively related to lending rates among commercial banks. However, the study finds no significant effect between public debt and GDP growth rate on lending rates. The study assumes direct relationship and is carried out in a developed nation. Current study sought to find out establish the moderating role of political risk on the association between macroeconomic variables (GDP and Inflation) on lending rates in Kenya, a developing nation. The T-bill rate is left out since in determination of industry condition (KBRR), the TB rate is considered together with the CBR in Kenya.

Ngigi (2014) while studying determinants of lending lending rates in deposit taking MFIs in Kenya reported that macroeconomic variables (GDP growth rate and Inflation) have a negative relationship with lending rates while the foreign exchange rate had a positive relationship with lending rates. The study assumes direct relationship and is carried out in the context of MFIs whose regulations and
conditions of business are different from commercial banks. Current study sought to establish the moderating role of political risk on lending rates and is carried out on commercial banks. The industry characteristics (KBRR and completion) were assessed as control variables with a view to investigate the connection between macro variables and lending rates among commercial banks in Kenya.

Janda and Zetek (2014) and Georgievksa et al., (2010) found a positive relationship between GDP and lending rates and a negative one between inflation and lending rates, the studies assumes direct relationships and are carried out in developed nations. Current study evaluated the moderating role of political risk on lending rates among commercial banks in Kenya, a developing nation.

2.3.3 Bank Characteristics, Macroeconomic variables and lending rates

Brock and Franken (2003) studied lending rate spread determinants in Chile considering bank characteristics and monetary policy variables but did not compute composites for the indicators and did and did not account for moderation role. The study established that the impact of market concentration and monetary policy on lending rates differed significantly depending on the whether the spread was computed from the balance sheet of loan and deposits data. Additionally, the study is carried out in a developed nation in the years when financial liberalization had not taken root.

Gambacorta (2004) studied bank heterogeneity and lending rate setting in Italy by analyzing methodically the micro-economic factors and macro variables that effect price setting by commercial banks. The study sought to provide a substitute way to unravel loan supply from loan demand shift in the bank lending channel and found that spreads increased by less for customers of well capitalized and liquid commercial
banks. The study also found that whereas competition is expected to lead to competitive lending rates setting, a concentration making banks to behave in an oligopolistic manner leads to higher lending rates while concentration arising from more efficient banks replacing less efficient ones leads to lower lending rates. In arriving at these conclusions, the study applied the Herfindahl-Hirschman Index (HHI). The study considers only the direct relationships. The study recommends that the effect of GDP and political risk be investigated further on lending rates by future studies.

Beck and Hesse (2006) analysed the bank level dataset of the Ugandan banking sector and assessed some of the factors that led to high lending rates and margins. The author observed that lower lending rates had no economically and significant association between interest rates and privatization banking efficiency, foreign bank entry and market structure. The study also found little connection between macroeconomic variables and interest rates spreads. On the other hand, bank characteristics played a significant role in interest rates spread. Bank characteristics include bank size, costs and loan portfolio which explained large proportion of variations. The study however analyzes the bank level characteristics as standalone variables with their effect on lending rates whereas the current study computes a composite of these variables while testing for moderation.

Grenade (2007) sought to establish the determinants of lending rates spreads among the commercial banks in the Eastern Caribbean Union. The study used panel data in the analysis. The study established that interest rate spread increased with the increase in the market power, regulation of saving deposits, GDP growth rate, bank reserve requirement and operating costs of commercial banks.
This was in line with findings (Navajas & Gonzalez-Vega, 2003, Adam & Bill, 2004, and Stiglitz et al., 2006). The study was carried out in a developed country and does not account for the effect of moderation but assumes direct association between the variables. The study also does not explain the inclusion of provision for loan losses which is as a result of unaffordable lending rates. The study recommends future studies on the effect of bank size and business risks on lending rates setting to be conducted.

Aboagye et al.,(2008) found that an increase in the external macro factor and bank internal characteristics increases lending rates and hence margins of banks. Conversely, increase in excess banks reserves, Central bank rate and efficiency management, lending rates and hence interest margins. The study does not consider the effect of moderation and recommends that future studies be carried out to include the effect of a country’s Gross domestic growth rate on lending rates setting.

Folawewol and Tennant(2008) apply macroeconomic variables on 33 SSA countries and show that lending rates are influenced by crowding out effect of government borrowing, public sector deficits, discount rate, inflation, level of political risk, reserve requirements, level of economic development and population size. The study also evaluates the role of the banking sector variables like the reserve requirements on lending rates setting and finds that lending rates increase with increased reserve requirements. The study does not account for any moderation effect which the current study seeks to include. The study does not also consider variables specific to each bank and recommends future studies on bank level characteristics and their effect on lending rates which the current study incorporates.
Demirguc-Kunt and Huizinga (2011) studied the determinants of the lending rate spread by applying measures of a bank’s absolute size relative to the national economy. The study also finds that ratio of non-interest earning assets to total assets has a negative relationship with lending rates. The study concludes that the negative influence disclosed could be as a result of the time period used in the study which is a weak conclusion and further recommends other variables such as the effect of GDP and TB rate to be tested in future research. However, the studies fail to account for the effect moderation which the current study seeks to account for and be carried out in a developing country.

Demirguc-Kunt and Huizinga (2012) studied lending rate spreads while applying cross country data covering commercial banks from 80 countries spread across the world by applying panel regressions and controlling for technological advancement as measured by number of banks embracing online loan applications. The study found that the differences in interest margins and bank profitability are explained by a number of factors like macroeconomic variables, bank characteristics, implicit and explicit bank taxation and deposit insurance regulation. On controlling for factors like differences in bank activity, the gearing level of banks, and generally the macro environmental factors, they showed that lower profit margins and lower interest margins are a recipe of large banks to asset GDP ratio and Lower market concentration ratio. Foreign banks were also associated with higher profits and higher interest margins overshadowing smaller banks in the developing nations. The population from developed nations was yielding opposing results on the other hand. The study recommended that taxes be incorporated in determination of lending rates across the globe. The current study also seeks to incorporate moderation, which the study did not include.
Uzeru (2012) sought to establish the determinants of Lending rates in Ghana and finds that Bank specific variables (Operating expenses, stated capital and profit of banks) are not significant in the determination of lending rates. However, the study finds that bank specific variable (interest expense) paid on deposits is a significant determinant of lending rates in Ghana. The study further finds that banking industry factors (policy rates and T-bill rate) were significant determinants of lending rates and so were macroeconomic variables (Inflation and GDP). However, the study assumes direct relationships. The study’s use of correlative causal design is misleading as it indicates that if there exists correlation it therefore implies causation which is not necessarily the case. Regardless of the fact that Ghana is a developing nation like Kenya, Kenya has a considerably large number of banks compared to that of Ghana, perhaps an indication of the ease of penetration of banks into the industry (Griffith-Jones & Gottschalk, 2016).

Based on individual bank specific data for a panel of 22 banks, a study by Siddiqui (2012) documented that administrative costs, non-performing loans ratio and return on assets significantly influence interest spreads in Pakistan. The study tests the effect of each bank specific variable on lending rates and does not construct composites and does not also consider or control for any industry characteristics and does not consider any moderation effects. The study recommends that macroeconomic variables be evaluated with a view to identify their effect on lending rates. Current study will consider the effect of macroeconomic variables, construct a composite for bank characteristics and macroeconomic variables as well as test for the moderating role of the political risk in lending rates setting.

Ahokpossi (2013) while using a sample of 456 banks across 41 SSA countries by collecting panel data for the period 1995-2008 investigates the role of bank
characteristics, market structure and macroeconomic variables in determining lending rate margins finds that whereas bank characteristics such as liquidity risk, credit risk and equity are important, economic growth is not significant on lending rates determination. The study assumed direct relationships which may not be practical. The current study seeks to investigate the moderating role of the political risk on lending rates and additionally seek to control for the KBRR and competition.

Nampewo (2013) focused on some of the determinants that affect lending spread in the banking sector in Uganda. The study used time series data collected from the banking sector in Uganda. The study established that lending rates spread was negatively influenced by bank rate, T-bill and NPLs. The study also found that GDP positively influenced lending rates spread. The study does not consider any moderating instead assumed direct relationships. Additionally, the study does not account for industry related characteristics and shareholders’ expectations. Current study will control for the base lending rate and competition while seeking to establish the moderation effect of political risk on lending rates setting.

Ewijk and Arnorld (2013) sought to find out how business strategy in banks influence interest margins. The study used data collected in the USA using commercial banks for the period 1992-2010. The study seeks to achieve this by measuring a bank’s business model using five different dimensions as guided by literature and finds that bank size and competition have a positive but insignificant effect on pricing of loans but do not consider credit risk, liquidity risk and Macroeconomic variables and recommends that the same be considered by future studies. The study also does not consider any moderation effects and fails to account for the base lending rate. Current study besides investigating the moderating effect of political risk on lending rates will
also consider the variables left out and control for the base lending rate and competition.

In Kenya, a handful of studies exist that examine the determinants of the lending rates with most studies concentrating on lending rate spreads. Some of the studies conducted in Kenya on the influence of interest rate include, Durevall and Ndung’u (1999), Ngugi (2001) and Ndung’u and Ngugi (2000). For instance, Ndung’u and Ngugi (2000) used the monthly data from 1993 and 1999 to derive factor that explain lending rates spread in Kenya. The study established lending rates spread was positively related to deposits but had negativity related to the loans. The study does not consider any moderation role and recommends more variables to be incorporated in future studies although no indication of such variables is given.

Ngugi (2001) while determining factors leading to high interest rate spreads in Kenya incorporated liquidity and NPLs as predictor variables unto deposits, loans, TB rate and inter-bank rate and found that a rise in NPL ratio increases spreads while liquidity negatively impacted on spreads. The study was undertaken at the macro level, mainly focusing on the macro industry-level variables. But even then, it did neither take into account macroeconomic indicators such as GDP and inflation nor considered the moderating effect. The current study seeks to incorporate bank characteristics, macroeconomic variables and control for the base lending rate (KBRR), competition and shareholders’ expectations.

Beck et al., (2010) further sought to find out the influence of stability, outreach and efficiency and use of interest rates spread on the development of Kenya financial sectors. The above variables were used as proxy to financial intermediation. The study finds that whereas bank level and industry level characteristics are positively related
to lending rates, they are not significant determinants of lending rates. The study does not consider any moderation effect and does not also include macroeconomic variables in analysis which the current study seeks to incorporate.

Were and Wambua (2014) examined macro-economic variables and individual bank specific variables using panel data for the commercial banks. The study sought to achieve its objectives by carrying out panel data analysis and found that Bank characteristics play an important role in the determination of interest rate spreads in Kenya’s banking sector. The study attempted to incorporate almost all variables to determine their role but failed to address the fact that some variables could be moderating. The study also concentrated on the interest rate spread. Additionally, the study used thirty one (31) banks out of forty four and cited incomplete data anomaly for the excluded banks. However, panel data must not be balanced while carrying out analysis (Baltagi & Badi, 2008). This renders the findings questionable as biasness cannot be ruled out. The recommendation by the study to consider industry characteristics will be taken care of by controlling for the base rate (KBRR) which affects the entire industry, competition which cannot be ignored and shareholders expectations. Current study will also consider constructing a composite index for bank characteristics before testing for moderation.

Maina (2015) studied the determinants of interest rates spreads in Kenya by use of both primary and secondary data with multiple regression analysis and found that ownership structure, market structure and business risks play significant role in explaining interest rate spread. Business risks are very significant in explaining changes in interest rate spread among commercial banks in Kenya. This was in line with studies by (Li, White, Zhu and National Bureau of Economic Research, 2010), Bae (1998), Entrop et al., (2012) and Bennaceur and Goaied (2008) which however
incorporated inflation and concluded that it is statistically significantly related to the lending rates. The study failed to account for other bank and industry characteristics as well as macroeconomic variables which the current study seeks to include. The current study will also account for the effect of the political risk as a moderator.

2.4 Summary of Literature Review and the Research Gap

This study sought to bridge the gaps identified by studying the lending rate as opposed to interest rates spread while accounting for the role of moderating and control variables. Additionally, the study covered a more recent period ranging from 2006 to 2015 during which there have been significant changes both in the policy and macroeconomic environment. It is during this time that we had seen two banks being put under statutory management despite the minimum capital reserve requirements that every bank should have conformed to by January 2015 and the period within which the Central Bank of Kenya introduced the central bank rate (CBR) which the Monetary Policy Committee (MPC) of the bank currently uses as the central policy rate to signal the monetary policy stance with also the shift to the Kenya Banks Reference Rate (KBRR) coming into force from July 2014. Table 2.1 presents the summary of literature reviewed, findings thereof and the gaps identified

Table 2.1 Summary of Literature Reviewed

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Study Objective</th>
<th>Key Findings</th>
<th>Study Gaps</th>
<th>Focus of the current study</th>
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</thead>
<tbody>
<tr>
<td>Demirguc-Kunt and Huizinga</td>
<td>To find out determinants of commercial bank interest margins and profitability</td>
<td>-Bank characteristics, macroeconomic variables, explicit and implicit bank taxes, regulation of deposit insurance,</td>
<td>-The study assumed a direct relationship on the independent and dependent variables.</td>
<td>Moderation effects not studied. Current study sought to study moderation and established effect of political risk on the main</td>
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<tr>
<td>Author(s)</td>
<td>Study Objective</td>
<td>Key Findings</td>
<td>Study Gaps</td>
<td>Focus of the current study</td>
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<tr>
<td>Ndung'u and Ngugi (2000).</td>
<td>To examine the cause of high lending rates</td>
<td>General financial structure, and several underlying legal and institutional indicators have significant effect on interest margins. - Study finds that Liberalization leads to high spreads due to distortions in the loans market, institutional impediments and the policy environment</td>
<td>Study did not consider establishing Effect of bank size, credit risk, liquidity risk, GDP and. The study was carried out prior to introduction of the CBR and KBRR - Assumes direct relationships</td>
<td>Current study sought to incorporate all these variables with new developments in Kenya and consider moderation.</td>
</tr>
<tr>
<td>Brock and Franken (2003)</td>
<td>Evaluate the Determinants of Average and Marginal Bank lending in Chile,</td>
<td>Information from the two types of interest rate spreads (interest rate spreads based on balance sheet data and interest rate spreads based on disaggregated loan and deposit data) are statistically significant.</td>
<td>Study did not consider establishing Effect of bank size, credit risk, liquidity risk, GDP. - Results may not be replicated in developing countries since there exists peculiar circumstances in such nation hence this study. - Assumes direct relationships</td>
<td>Current study sought to incorporate all these variables in Kenya and consider effect of moderation on the main relationship.</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Study Objective</td>
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<tr>
<td>Gambacorta (2004)</td>
<td>To examine cross-sectional differences in banks’ lending rates</td>
<td>-Interest rates on short-term lending of liquid and capital strong banks react less to a monetary policy shock.</td>
<td>Study did not establish Effect of bank size, credit risk, liquidity risk and GDP. - Assumes direct relationships</td>
<td>Current study accounted for omitted variables in Kenya and considered moderation.</td>
</tr>
<tr>
<td>Beck and Hesse (2006)</td>
<td>To investigate bank Efficiency, Ownership and Market Structure, Why are lending rates so High in Uganda?</td>
<td>-Privatization, foreign bank entry, market structure are statistically insignificant. - Macroeconomic variables can (GDP and inflation) are significant in determination of lending rates -Bank size, operating costs, and composition of loan portfolio, explain variation in spreads and margins.</td>
<td>-Study did not account for exclusion of some units in the entire population of banks. -The study is carried out in Uganda which is a smaller economy than Kenya. This means, the variables used might not apply to commercial banks in Kenya and assumes direct relationships.</td>
<td>The Current study justified clearly the exclusion of units in Kenya and considers moderation.</td>
</tr>
<tr>
<td>Castro and Santos (2010)</td>
<td>Bank lending rates and loan determinants in Portugal for the period 2003-2008</td>
<td>Found that bank size, costs of operations and NPLs have a negative relationship with lending rates.</td>
<td>The study was conducted in commercial banks in Portugal</td>
<td>The current study was conducted in commercial banks in Kenya.</td>
</tr>
<tr>
<td>Ewijk and Arnold (2013)</td>
<td>To examine how bank business models drive interest margins in US</td>
<td>-Banks’ growth and level of competition have a significant effect on margins. They have led to</td>
<td>- Study did not consider Effect of bank size, credit risk, liquidity risk and GDP. - Results may not be</td>
<td>Current study sought to incorporate all the said omitted variables and consider moderation of</td>
</tr>
<tr>
<td>Author(s)</td>
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<tr>
<td>Ahokpossi (2013)</td>
<td>-To examines the determinants of bank interest margins using a sample of 456 banks in 41 SSA (Sub-Saharan Africa) countries.</td>
<td>reduced margins.</td>
<td>replicated in developing countries since there exists peculiar circumstances in such nations hence this study.</td>
<td>the main relationship.</td>
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<td></td>
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<td>-The study assumes direct relationships.</td>
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<tr>
<td>Nampewo (2013)</td>
<td>To investigate the main causes of the continuously large lending rates in Uganda’s banking sector for the 1995 to 2010 period.</td>
<td>-Market concentration Bank-specific factors such as credit risk, liquidity risk, and bank equity statistically significant</td>
<td>-Study did not consider the fact that Uganda is a small open economy therefore it is prone to macroeconomic instabilities arising from both internal and external shocks. Study did not establish Effect of bank size, liquidity risk. Assumes direct relationships.</td>
<td>Current study sought to incorporate moderation. Effect of macroeconomic variables not studied will be studied.</td>
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<td></td>
<td></td>
<td></td>
<td>Study was carried out in Kenya and consider omitted variables and consider effect of moderation on the main relationship.</td>
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</tr>
<tr>
<td>Were and Wambua (2014)</td>
<td>-To examine lending rates in a cross-country set up using data covering commercial</td>
<td>Bank-specific factors play a significant role in the determination of interest rate spreads in the</td>
<td>-Study Assumed direct relationships.</td>
<td>Moderation effect of the independent variables on the main relationship was considered.</td>
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</tbody>
</table>
Maina (2015)  

<table>
<thead>
<tr>
<th>Study Objective</th>
<th>Key Findings</th>
<th>Study Gaps</th>
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</tr>
</thead>
<tbody>
<tr>
<td>banks from 80 countries across the world.</td>
<td>banking sector in Kenya.</td>
<td>Study did not consider establishing Effect of bank size, credit risk, liquidity risk and GDP. The study assumed direct relationship.</td>
<td>by incorporating political risk.</td>
</tr>
<tr>
<td>To establish the determinants of lending among commercial banks in Kenya</td>
<td>-Business risks were found to be statistically significant in explaining changes in interest rate spread among commercial banks in Kenya</td>
<td></td>
<td>Current study sought to incorporate moderation by considering political risk and account for omitted variables.</td>
</tr>
</tbody>
</table>

Source: Researcher (2016)

2.5 Conceptual Framework

This section presents the relationship between the independent variables and the dependent variable diagrammatically. The direct and indirect relationships are revealed diagrammatically where the independent variable is the bank characteristics and macroeconomic variables and the dependent variable being lending rates among commercial banks in Kenya as shown in Figure 2.1. Hypothetically, the lending rate is estimated to be a function of bank characteristics as well as macroeconomic factors. The Conceptual framework shows the linkage that exists between the independent variables (Bank characteristics and Macroeconomic variables) and the moderating variable (political risk) and their effective influence on the dependent variable (Commercial Banks Lending rate). Control variables are also considered. Herfindahl-Hirschman Index (HHI) was used to measure market concentration (Were & Wambua, 2014). Analysis was carried out with the help of Stata 13 software with a view to generating tables, graphs and statistical parameter estimates. The direct
relationship between the individual independent variables and the dependent variable is also shown in Figure 2.1.

**Independent Variables**

- **Bank Characteristics**
  - **Bank Size**
    - Log of Total Assets
  - **Credit Risk**
    - NPLs Ratio
  - **Liquidity Risk**
    - Current assets/total asset ratio
  - **Operating Costs**
    - Operating Expenses

- **Macro-economic Variables**
  - **GDP**
    - Annual GDP growth rates
  - **Inflation**
    - Annual Inflation Rates

- **Moderating Variable**

**Control variable**

- Base Lending Rates (KBRR)
- Competition HHI Index

**Dependent Variable**

- **Lending Rates**
  - Annual Lending Rates

**Political Risk**

- Political risk Index

**Source:** Researcher (2016)
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section explores on the methodological approach used to test the hypotheses and achieve the desired objectives. It begins with the research philosophy, design of the research, instruments for collecting data and techniques, operationalization of variables and the techniques and procedure for analysis. To ensure non-violation of the classical linear regression assumptions, diagnostic tests were also carried out.

3.2 Research Philosophy

The philosophy of the research that was employed by the study was positivism (Auguste Comte (1798-1857)). Positivism was deemed appropriate to underpin this research since its underlying assumptions are supportive to this study. This approach assumes that the environment and the events that the study is interested in are objective and that they are external and independent of the researcher while social constructivism assumes that environment and the events of interests are socially constructed and subjective of the researcher’s opinion (Bryman & Bell, 2003). The principle of deduction postulated by positivism approach shall be applied: Theory played the role of yielding hypotheses after which data was collected for purposes of empirical testing to form a basis for rejection or supporting the hypotheses proposed building support to quantitative research.

Facts gathered through observation, through experience and often through statistical analysis are the basis of positivism research. The philosophy further emphasizes on values of reason and validity (Eriksson & Kovalainen, 2008). Erickson and Kovalainen (2008) suggest that positivism is related to organisation where it assumes
that what happens in the organization can be discovered through categorization and measurement through scientific techniques of the behaviour of employees and system and that the language is usually representative of the reality.

3.3 Research Design

In this study, explanatory non-experimental design was adopted that sought to determine the effect of the independent variables on lending rates, the dependent variable and no manipulation of the independent variables was done. The study used both longitudinal and cross sectional survey research designs (Eriksson & Kovalainen, 2008). The longitudinal survey design was justified on the grounds that the data was collected over more than one time period and cross sectional design was justified on grounds that data of different banks was also collected at a defined period.

In addition, longitudinal study permitted the arrangement of data in a panel data form (Connaway & Powell, 2010). The study also used cross sectional survey since data for the study variables was also collected at a specific point in time. This design was appropriate since the purpose was to describe and explain characteristics of certain groups (Were & Wambua, 2014). The explanatory design established causal associations between variables the prominence being studying a problem to enable the explanation of the relationship that exists between the variables.

3.4 Theoretical Framework

The model for lending depends on the interaction between potential borrowers and savers. Based on the loanable funds theory, economic agents seek to exploit the resources available to them in the market. Economic agents focus on increasing future income by borrowing funds to take advantage of opportunities available for investment in the economy (Sia, 2015). The concept of available funds to be issued as
loans depends on several factors from a banks’ point view *inter alia*; The bank size, operating costs of the bank, liquidity levels, the level of risk the bank is exposed to while it considers lending, the economy’s GDP growth rate and the level of inflation in the economy. *Ceteris Paribus* if the funds available for lending are more, then rate of interest offered would be lower and vice versa. Lending rates can be said to be a function of loanable funds such that;

\[ CBLR_{it} = f(LF) \quad \text{and} \quad LF_{it} = f(BS, CR, LR, OC, GDP, I) \]

Where;

- \( LF_{it} \) is the Loanable Funds at a specified time
- \( CBLR_{it} \) is the commercial banks lending rate at a specified time
- \( f(BS, CR, LR, OC, GDP, I) \) Function of Bank size, credit risk, liquidity risk, operating cost, gross domestic product and inflation.

### 3.5 The Empirical Model

Based on the theoretical framework discussed in section 3.4, the study developed an empirical model that was used to test the research hypotheses. The study formulated equation 3.2 to test whether commercial banks’ lending rates can be predicted by bank characteristics (bank size, credit risk, liquidity risk and operating costs) and macroeconomic variables (inflation and GDP growth rate). The general Empirical model was specified as follows:

\[ CBLR_{it} = \alpha_i + X_{it}\beta + Y_{it}\beta + \epsilon_{it} + \ldots \ldots \ldots \ldots (3.1) \]

Where \( CBLR_{it} \) is the Commercial Banks’ Lending Rate for bank \( i \) at time period \( t \), as given by the published information, \( X_{it} \) is a composite of bank characteristics, \( \alpha \)is
the bank specific fixed effects capturing the impact of unobservable effects, $Y_{it}$ is a vector of the macroeconomic factors, $\varepsilon_{it}$ is the statistical disturbance term (error term) and $\beta$ is the statistical estimate. Equation 3.1 above shall be expanded to obtain equation 3.2 which shall be used for estimation.

$$CBLR_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 CR_{it} + \beta_3 LR_{it} + \beta_4 OC_{it} + \beta_5 GDP_{it} + \beta_6 I_{it} + \beta_7 KBRR_{it} + \beta_8 MC_{it} + \varepsilon_{it} \quad \text{Equation (3.2)}$$

Where:

$\beta_{it}$ Is a vector of coefficients to be estimated, $BS$- Bank size, $CR$- Credit Risk, $LR$– Liquidity risk, $OC$ -Operating costs, $GDP$- Gross Domestic Product growth rate, $I$- Inflation rate,

$KBRR$ - Kenya Banks’ Reference Rate. It was analyzed as a control variable

$MC$-Market Concentration (HHI Index). This was analyzed as a control variable.

### 3.5.1 Moderation Effect Model

The study sought to determine the moderation effect of political risk on the effect that exists between bank characteristics, macroeconomic variables and lending rates among commercial banks domiciled in Kenya by applying the Sobel-Goodman moderation test. According to Kraemer et al., (2001) and Baron and Kenny (1986), this test is appropriate while testing for moderation and it’s done by regressing the dependent variable on the independent variables; that is, regressing lending rates on the bank characteristics (BCs), macroeconomic variables (MECs) and the moderating variables. To determine the moderation effect of political risk on the relationship between BCs, macro-economic variables (MECs) and lending rates among commercial banks in Kenya, the study applied equations 3.3 and 3.4 as follows:
\[ CBLR_{it} = \beta_0 + \beta_1 CIBC_{it} + \beta_2 PR_{it} + \beta_3 (CIBC \times PR)_{it} + \varepsilon_{it} \] \text{......... Eqn 3.3}

\[ CBLR_{it} = \beta_0 + \beta_2 CIMEC_{it} + \beta_2 PR_{it} + \beta_3 (CIMEC \times PR)_{it} + \varepsilon_{it} \] \text{......... Eqn 3.4}

Where:

CIBCs is the composite index of bank characteristics, which was computed by calculating the geometric mean of all the bank characteristics.

CIMECs is the composite index for macroeconomic variables which was computed by calculating the geometric mean of all the macroeconomic variables.

PR is the annual political risk.

3.6 Target Population

According to the CBK (2015), there were 43 commercial banks in Kenya as at 31st December 2015 (Appendix 1). However, only thirty nine (39) Commercial banks were studied due to the fact that three (3) of the banks are under statutory management while one (1) bank is in liquidation and this restricted the availability of credible data.

3.7 Data Collection Procedure

The research authorization was granted by graduate school which was used to obtain a research permit (appendix V). Secondary data was obtained from the CBK and KNBS and summarized through use of document review guide (Appendix III). The data considered was panel data having both cross-sectional and time series characteristics. A Census of the thirty nine (39) commercial banks for the period (2006-2015) was conducted. Lavrakas (2008) noted that a Census is the systematic procedure of acquiring and recording information about all members of a given population.
The data for all variables was extracted from the CBK annual reports and financial statements of commercial banks in Kenya covering years 2006-2015 and those of the Kenya National Bureau of statistics. It was during this time that three banks were put under statutory management despite the minimum capital reserve requirements that every bank should have conformed to by January 2015 and with new targets for the year 2018. This was the period within which the CBK introduced the central bank rate (CBR) and the KBRR which the MPC of the Bank currently uses as the central policy rate to signal the monetary policy stance. The years 2006-2015 is the period within which the fruits of financial liberalization should have been realized (Ondieki & Jagongo, 2013). Specifically extracts were made from the income statements, statements of financial position and statistical disclosures by the CBK and notes to the financial statements. The study used document review guide in collecting quantitative data from the thirty nine (39) commercial banks (Appendix II) for analysis to support or refute stated hypotheses and confirm evidence to be obtained from quantitative data analysis.

3.8 Operationalization and Measurement of Variables

Table 3.1 provides the operationalization of the study variables. The measures adopted in this research had been used and validated by other researchers in view of literature presented. The Measurement scale for all the study variables was ratio.
### Table 3.1: Variables Operationalization

<table>
<thead>
<tr>
<th>Category of Variable</th>
<th>Variable</th>
<th>Operationalization</th>
<th>Measurement</th>
<th>Scale of measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent</td>
<td>Commercial Banks Lending Rates</td>
<td>Annual lending rates</td>
<td>Annual average lending rates (%)</td>
<td>Ratio</td>
</tr>
<tr>
<td>Independent</td>
<td>Bank Characteristics</td>
<td>Bank Size</td>
<td>Log of Total Bank Assets (Log)</td>
<td>Ratio</td>
</tr>
<tr>
<td></td>
<td>Credit Risk</td>
<td>Value of Non-performing Loans/Total Loans (Kshs)</td>
<td>Ratio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Liquidity Risk</td>
<td>Liquid Assets/Total Assets (Kshs)</td>
<td>Ratio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operating Costs</td>
<td>Profit Before Tax/Operating Expenses (Kshs)</td>
<td>Ratio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GDP Growth Rate</td>
<td>Annual Real GDP growth Rate (%)</td>
<td>Ratio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inflation Rates</td>
<td>Annual inflation rate (%)</td>
<td>Ratio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Macroeconomic Variables</td>
<td>GDP Growth Rate</td>
<td>Annual Real GDP growth Rate (%)</td>
<td>Ratio</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inflation Rates</td>
<td>Annual inflation rate (%)</td>
<td>Ratio</td>
</tr>
<tr>
<td></td>
<td>Moderating</td>
<td>Political risk</td>
<td>Annual Political risk Index</td>
<td>Scale</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>Base Rate</td>
<td>KBRR(Adopted CBR)</td>
<td>Annual Average CBR (%)</td>
</tr>
<tr>
<td></td>
<td>Competition</td>
<td>Market Concentration</td>
<td>HHI</td>
<td>Ratio</td>
</tr>
</tbody>
</table>

**Source: Researcher (2016)**

### 3.9 Diagnostic Tests

It was necessary that before any attempt is made for estimation and testing an effort is made to ensure non-violation of the Classical Linear regression model (CLRM) assumptions. If this was not assured, then the parameter estimates stood the risk of being biased, inefficient and inconsistent (Gujarati, 2003). It was therefore necessary to carry out the following tests to ensure proper estimation: Normality, Heteroscedasticity, Multicollinearity, Autocorrelation and panel unit root test.
3.9.1 Normality Test

The normality test was conducted based on the Jarque-Bera (JB) statistic which is a test of joint hypotheses that the co-efficient of skewness, S=0 and co-efficient of kurtosis, K=3. In this case the JB statistic is zero. The test statistic is distributed as a chi-square with 2 degrees of freedom. The null hypothesis for this test assumed normality and was rejected if the calculated value exceeded the critical value (Gujarati, 2003; Razali & Wah, 2011). The normality test was necessary since the sample size was below 200 which were presumed to be large enough as to appeal to the use of the central limit theorem (Razali & Wah, 2011). A violation of normality could lead to $F$-test being insignificant. If data was not normal, the study could have adopted non-parametric test (Kolmogorov–Smirnov test (K–S test or KS test)). The null hypothesis assumed the data is normally distributed.

3.9.2 Heteroskedasticity Test

The Classical Linear regression Model (CLRM) takes into assumption that the error term has a constant variance hence homoskedastic (Gujarati & Porter, 2009). If this is not the case, then there is heteroskedasticity in the data. If a regression was to be run without accounting for this important assumption then the parameter estimates would be unbiased but the standard errors generated invalid. The study tested panel level heteroskedasticity using the White’s test as proposed by Poi and Wiggins (2001). The Modified Wald test was used to test for the same where the null hypothesis of the test was that error terms had a constant variance (should be Homoskedastic).

3.9.3 Multicollinearity Test

Kock and Lynn (2012) define Multicollinearity as a condition where two or more independent variables have a correlation that tends towards 1 which implies that the
variables are highly correlated and one can be used instead of the other. Variance inflation factor for each regression coefficient is computed. Garson (2012) asserts that the rule of thumb is that $VIF > 4.0$ multicollinearity is a problem and other scholars use more lenient cut off of $VIF > 5.0$ when multicollinearity is a problem. This study adopted a $VIF$ value of 10 as the threshold which is construed as the best according to Garson.

**3.9.4 Autocorrelation**

Autocorrelation refers to cross correlation of a signal with itself at different points in time (Verbeek, 2012). It is a tool for finding repeating patterns. Wooldridge test for autocorrelation which is also an LM test was adopted in this study. The null hypothesis is that no first order serial /auto correlation exists.

**3.9.5 Stationarity Test**

The data used in this study had both cross sectional and time series dimensions therefore it was very essential to conduct a stationarity test. The estimation used time series data which assumes that the variables are stationary (Gujarati, 2003). Gujarati further noted that estimating models without accounting for non-stationary nature of time series data would lead to spurious results. The study adopted Fisher type test for unit root. This technique was recommended since it incorporates the gaps and factors in the aspect of unbalanced panels and it conducts Dicker Fuller test for every panel and the reports are given for four different tests. In the test, the null hypothesis was that all the panels had unit roots (Choi, 2001).

**3.9.6 Test for Fixed or Random Effects**

The use of panel data requires that one should test whether the panel is desirable for fixed effect or random effect model. Greene (2008) notes that one must conduct a
Hausman specification test to establish which model between fixed effect and random effect is appropriate for specified panel data. A Hausman test is based on the efficiency and consistency of the various models depending on the correlation between individual effects and their repressors. The study aimed to test the existence of significant correlation between the unobserved bank specific random effects and regressors. If it could be found that no such correlation existed, then the RE model could be appropriate. In the presence of such correlation on the other hand, then the FE model would be the better option. Greene (2008) further notes that if it is concluded that the FE is the model of choice, then the researcher shall test for inclusion of time fixed effects in the study estimation.

The F-test was applied in testing whether all dummies for all years are equal to zero consistent with the study by Greene. If the Hausman test led to selection of the RE model then there was need to test whether the data have panel effects to get leads in determining whether to run a simple Ordinary Least Squares (OLS) regression or the RE model. Breusch and Pagan (1980) proposed the Lagrange multiplier test which was adopted in this study to choose between the RE model and the simple OLS regression model. The null hypothesis was assumed to be that the variance across banks is equal to zero; that is, there are no panel effects. The research objectives were realized by applying panel regression analysis.

3.10 Data Analysis and Presentation

The study used both inferential and descriptive analysis techniques. Descriptive statistics included the measures of central tendency such as standard deviation and mean. Inferential statistics included panel multiple regression analysis with moderation effect and Pearson’s product moment correlation analysis. According to
Jackson (2009), a mix of both descriptive and inferential statistics improves the strength of findings. With the help of excel, computations leading to the operationalized variables was carried out. Panel data estimation methodology was carried out on regression analysis with a view to investigate the effect of bank characteristics and macroeconomic variables on lending rates among commercial banks in Kenya.

The panel was carried on commercial banks for the period 2006 to 2015. According to HSiao (2007), panel data models provide better insights compared to time series and cross-sectional data because it is possible to isolate the theoretical effects of specific effects and actions. Hence, if bank specific effects are ignored, biased and or misleading results will be obtained. It was therefore important to understand both the time series and cross-sectional dimensions in understanding effect of bank characteristics and macroeconomic variables on lending rates among commercial banks in Kenya. The null hypothesis that the random effects model was the correct specification was tested at 5% level of significance.

3.11 Ethical Considerations

In this study, issues relating to the ethical conduct of research such as informed consent, confidentiality and privacy were upheld. To help address these concerns on collecting data (where consent has been provided), keeping data collected strictly private and confidential with use only for academic research and ensuring privacy of the organizations from which data is collected, a research permit was sought from the National commission for science, technology and innovation (NACOSTI) (appendix v) to allow collection of secondary data from the CBK and Kenya National Bureau of Statistics (KNBS). Findings will be shared through NACOSTI.
CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.0 Introduction

This chapter presents the research findings. Analysis methods employed in this study include descriptive statistics, trend analysis, diagnostics testing, correlation and regression analysis. The study employed panel regression analysis where a Hausman specification test was used to test the suitable model between fixed and random effect analysis. This chapter also presents hypothesis testing and tests for moderating effect of political risk on lending rates among commercial banks in Kenya.

4.1 Descriptive Analysis

Descriptive analysis for the study variables was conducted to find out the mean, standard deviation, minimum and maximum values.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lending Rates</td>
<td>333</td>
<td>0.217087</td>
<td>0.049305</td>
<td>0.06</td>
<td>0.33</td>
</tr>
<tr>
<td>Bank Size</td>
<td>403</td>
<td>4.291089</td>
<td>0.586569</td>
<td>3.0849</td>
<td>5.67</td>
</tr>
<tr>
<td>Credit Risk</td>
<td>346</td>
<td>0.113348</td>
<td>0.15930</td>
<td>0.117</td>
<td>0.61</td>
</tr>
<tr>
<td>Liquidity Risk</td>
<td>384</td>
<td>0.166194</td>
<td>0.083109</td>
<td>0.05117</td>
<td>0.81908</td>
</tr>
<tr>
<td>Operating Costs</td>
<td>390</td>
<td>6.988778</td>
<td>18.77441</td>
<td>-2.81643</td>
<td>61.8487</td>
</tr>
<tr>
<td>Annual Political Risk</td>
<td>420</td>
<td>67.3</td>
<td>1.101312</td>
<td>66</td>
<td>70</td>
</tr>
<tr>
<td>Annual Average KBRR</td>
<td>420</td>
<td>9.087</td>
<td>2.565637</td>
<td>6.42</td>
<td>15.75</td>
</tr>
<tr>
<td>Inflation</td>
<td>420</td>
<td>8.517</td>
<td>3.46155</td>
<td>2.1</td>
<td>15.2</td>
</tr>
<tr>
<td>GDP Growth Rates</td>
<td>420</td>
<td>4.992</td>
<td>2.134156</td>
<td>0.2</td>
<td>8.4</td>
</tr>
<tr>
<td>Market Share</td>
<td>413</td>
<td>2.383642</td>
<td>3.264892</td>
<td>0.03</td>
<td>16.6</td>
</tr>
</tbody>
</table>

The lending rates during the study period had a mean of 21.7 percent between 2007 and 2015. The minimum and maximum values for lending rates were 6 percent and 33 percent. This was an indication that the lending rates in Kenya have been high compared to other developing countries leading to deprived financial access by many sectors of the economy. According to Njiru, (2014), Kenya has a big problem in terms
of ever increasing lending rates which has constantly kept the cost of borrowing very high. Higher cost of borrowing has a detrimental effect on investments since it discourages investors from borrowing. The availability of the affordable loans in the market ensures increase in investment and consumption which further leads to increase in the standard of living and generally economic development.

The mean for bank size measured by log of total assets was 47712.659 million while the maximum and minimum values were 467741.0 million and 1216.0 million respectively. The mean total assets implied that commercial banks in Kenya have been growing steadily as shown by their total assets. The steady growth could be attributed to high interest rates which lead to high profits from loan facilities. Aldrich (1979) suggested that size of the organization matters a lot because large organizations enjoy economies of scale and have enough resources to ensure brand visibility, and enhance their research and development capacity.

Credit risk and liquidity risk had a mean of 0.1133 and 0.166 respectively. This finding indicated that most commercial banks in Kenya always keep both their credit risk and liquidity risk ratios low which implied that NPLs have been kept low and also commercial banks have managed their liquidity assets at manageable level. Maaka, (2013) also contends that organizations must monitor their liquidity and integrate it in their risk management strategy. Market risk and credit risk must also be considered to ensure stability in the financial position. Li and Zou (2014) pointed out that credit risk is a major risk suffered by commercial banks since most commercial banks generate revenue from loans.

The average operating costs for commercial banks in Kenya between 2007 and 2015 was 2298.329 million while the minimum and maximum values were 233.00 million
and 464400.00 million respectively. Majority of commercial banks in Kenya are small as measured by total assets and this could be the reason why their operation expense ratio was significantly high.

Inflation and GDP growth rate had a mean of 8.517% and 4.992% respectively. The annual average for political risk within the study period was 67.3. The findings further showed that the average market share of commercial banks in Kenya was 2.38% percent, the minimum and maximum values for market share were 0.0383 and 16.6 percent. High volatility in inflation and GDP is an indication of unstable growth which is common in most developing countries in Africa.

4.2 Trend Analysis

The study employed trend analysis to monitor changes in parameters over study period. The study analyzed trends for bank characteristics and macro-economic variables to the significant changes that occurred within the study period. The annual means were computed for all the variables and trend analysis thereof.

4.2.1 Trend Analysis of Lending Rates

The trend analysis for lending rates revealed that lending rates were volatile during the period of this study. The analysis indicates that lending rates were highest in 2006 and lowest in 2008. The results further showed that lending rates have been increasing steadily from 2006 to 2015. The banks rates on lending and deposit dropped slowly but surely reflecting better liquidity conditions in line with the monetary policy. Average lending rates decreased from 26.0 percent in 2006 to below 21 percent in 2015.
Figure 4.1 Trend Analysis of Lending Rates

Under the Kenya Vision 2030 initiative, there are policies to action and target the financial sector to increase savings rates from 17 per cent to at least 30 per cent of GDP. To achieve this, it would require increasing banks deposits to about 80% from the current 44% and to lower borrowing costs (GoK, 2007). To achieve financial services enshrined in the Kenyan vision 2030 initiative, lending rates must be kept significantly low. Grenade (2007) posits that CBs are the central players in the financial sector and as such, greater consideration is given to them. Maina (2010) further indicates that in the year 2012, the CBK has continuously pursued reforms in the financial sector aimed towards increasing financial access, the level of efficiency and the sector stability while carrying out offsite and onsite surveillance to ensure compliance to laws and regulations.
The banking sector in Kenya has had numerous challenges. Kithinji and Waweru (2007) highlighted that banking sector challenges can be dated back to 1986 which has led to collapse of major players in the banking sector. They further noted that about 37 banks had failed as at 1998 as a result of crisis experienced from 1986 to 1998. Kithinji and Waweru attribute the disasters to non-performing assets arising from the high lending rates that have existed in Kenya for a while. Ongore and Kusa (2013) indicate that Commercial Banks in Kenya exist as firms and as any firm, profit maximization is the key objective. They pool deposits from customers and make investments with care to maintain enough liquidity in case of calls from depositors. Some of these funds are loaned out to borrowers at a price (Interest) whereas depositors, depending on the form of account held, are compensated by way of interest on their deposits. In this way, commercial banks in Kenya act as intermediaries between borrowers and depositors (Griffith-Jones & Gottschalk, 2016).

4.2.2 Trend Analysis of Bank Size

The study computed bank size by computing Log of Total Bank Assets (Log) of the commercial banks. The trend analysis results showed that bank size has been increasing from 2006 to 2015. The increase in the bank size could be attributed to increase in the number of deposits accounts as result of increased customers therefore increasing commercial banks profitability hence investments into assets.
Bank size is the measure of how much in value the bank holds in terms of all its assets. According to Were and Wambua (2014), bank size is usually determined by a log of banks total assets. From a theoretical perspective, big banks are expected to charge lower lending rates compared to smaller banks this is because of the ability of these banks to utilize the economies of scale in their operational efficiency. Large banks also have high potential of investing in modern technology to enhance their efficiency.

4.2.3 Trend Analysis of Credit Risk

Credit risk was computed by dividing value of Non-performing Loans by Total Loans (Kshs). The results indicate that on average credit risk of commercial banks has been decreasing. This is an indication of the awareness by commercial banks in managing loans through strict policy and credit appraisal mechanisms which results to reduction
in non-performing loans. Credit risk however was lowest in 2014 which was below 0.1

![Figure 4.3 Trend Analysis of Credit Risk](image)

Maina (2015) asserts that lending rates are arrived at by considering bank characteristics including credit risk, bank size, operating costs, among others. Credit risk is a fraction of total loan represented by non-performing loans ratio (NPLR). In the financial sector, credit risk is used to measure the quality of loans where high non-performing loans ratio implies that there is high cost of bad loans. Since all economic agents are risk averse, commercial banks facing credit risk in most cases pass the risk to borrowers by increasing the lending rates.

### 4.2.4 Trend Analysis of Liquidity Risk

The study also sought to find the trend in the average liquidity risk for commercial banks in Kenya. The result showed that liquidity risk has significantly reduced from
what it was in the year 2006. The findings further showed that liquidity risk was low in 2008 and 2010 but has remained stable from 2011 to 2015. This could be attributed to increase in the totals of loans of majority of banks in Kenya. Ahokpossi (2013) concurs that liquidity risk is inability of the commercial banks in this case to meet their current financial obligations. Liquidity risk is often derived by computing the ratio of bank’s liquid assets to total assets. Liquidity risk varies from one bank to another and depends on the amount of liquidity owned by the banks. Commercial banks with high liquidity face lower liquidity risks and vice versa hence they are likely to charge lower lending rates than banks with less liquidity. Banks with lower liquidity also charge lower liquidity premiums on loans. Commercial banks facing high liquidity risk are forced to engage in interbank lending to cushion themselves hence cascading the costs to the borrowers and as a result, they charge higher lending rates.
4.2.5 Trend Analysis of Operating Cost

The study measured operating costs using operating expenses ratio which was computed by dividing profit before tax by operating expenses. The findings indicated that commercial banks in Kenya saw increase in average operating costs from 2006 to 2011. The increase in the operating costs could have been as a result of banks expansion through increase in the number of branches. However, the trend analysis showed that operating costs tremendously began reducing in 2011 reaching the lowest in 2013. A slight increase in operating costs was experienced in 2014 followed by a reduction in 2015. The findings implied that commercial banks in Kenya decreased their operating costs within the period an indication of a more efficient banking system.

Figure 4.4 Trend Analysis of Liquidity Risk

Figure 4.5 Trend Analysis of Operating Cost
Some of the costs incurred by the commercial banks include credit appraisal costs, application and screening costs and the cost involved in monitoring the projects for which the loans were applied for (Beck, 2010). When the costs associated with loan application increase this is likely to impact on the cost of loans through increase in lending rates. Operating expenses ratio is usually adopted in the financial sector as an indicator of operational inefficiency. In a case where there are high costs incurred by financial intermediaries, it will impact negatively on lending rates and on interest rates offered on deposits.

4.2.6 Trend Analysis of Gross Domestic Product Growth Rate

The study further sought to analyze the trend in gross domestic product growth rate. The economic growth of a country is very crucial in development of many sectors banking sector included. Therefore, it is theorized that an improved economy leads to reduction in lending rates. The results showed that the gross domestic product growth rate has been very volatile with a maximum value of around 9 percent experienced in the year 2010 to the lowest growth rate of below 1% experienced in 2008 immediately after Kenya had experienced one of the worst post-election violence. The Kenya growth rate dropped in 2011 to 2012 and has almost remained constant from 2013 to 2015. This could be attributed to vigorous economic activities currently underway in Kenya which include massive infrastructure development like the Standard Gauge Railway (SGR). Mutinda (2014) also posited that economic activities enhance trade and hence the demand for loan facilities. When demand for credit increases, lending rates are likely to increase. On the flip side, increased economic activities could result to higher profitable projects, lower loan default and increase in the amount of deposits all of which will lead to a significant drop in the average lending rates among
commercial banks. Literature indicates that GDP and Inflation are the relevant macroeconomic variables for the financial sector (Maina, 2015; Uzeru, 2012).

![GDP Growth Rate Trend Analysis](image)

**Figure 4.6 Trend Analysis of Gross Domestic Product Growth Rate**

### 4.2.7 Trend Analysis of Inflation

Inflation is another macro-economic variable that is heavily perceived to influence the banking sector and lending rates in particular. Analysis in the trend of inflation in Kenya from 2006 to 2015 showed high volatility. From being as low as 6% in 2006 to as high as 15% in the year 2008 which also coincided with the worst post-election violence experienced in this Country. Inflation however dropped to its lowest in 2010 when the country experienced it’s heaviest ever growth rate largely because of the promulgation of the new constitution that came with new hopes for Kenya and indeed Africa. The year 2011 further saw a rise in inflation to about 10% followed by a slight
drop in 2012 and 2013. High volatility in inflation is an indication of unstable growth which is common in most developing countries in Africa.

![Figure 4.7 Trend Analysis of Inflation](image)

**4.2.8 Trend Analysis of Political risk**

Political risk is also a major determinant of economic activities in any country which is likely to influence the movement of lending rates. This is a risk incurred by investors and the business community in a region stemming from political events. The study sought to test if the risk influences the relationship between macro-economic variables and commercial banks’ lending rates. The trend analysis showed that political risk was highest in 2010 which coincided with the referendum to adopt the current constitution. This was a period full of political activities with politicians campaigning for and against the constitution.
According to Mcleay et al., (2014) who analyzed the effect of political risk on lending rates and found that the effect of political risk is insignificant since the central bank lends to commercial banks in case of urgent needs to cushion customers and as such, through window dressing and kitting, the commercial banks can maintain the customers’ needs. The study recommended political risk to be analyzed as a moderating variable by future studies. Similarly, Kuttner (2012) found that political risk, although insignificant in the determination of lending rates, it cannot be overlooked as it could have a stronger influence on other relationships leading to lending rates. The study recommended that this variable be investigated as a moderator or control variable. This study therefore analyzed political risk as a moderating variable in the determination of its effect on lending rates among commercial banks in Kenya.
4.2.9 Trend Analysis of Base Rate

The study measured base rate using annual average KBRR (%) usually set by the central bank. This covers overdrafts, mortgage loans, stock loans, invoice/bill discounts, asset finance loans, personal loans, credit card facilities amongst others. A cut in KBRR is an indication of low interest rates expected. The trend analysis in KBRR showed that it was lowest in 2010 which coincided with the year the country experienced tremendous economic growth and low lending rates. The highest Reference Rate was in 2012 which later dropped in consequent years as shown in figure 4.9.

![Figure 4.9 Trend Analysis of Base Rate](image)

The policy variable-KBRR is used as a base rate for commercial banks. It is arrived at by taking an average of the Central bank rate (CBR) and the 6 month Treasury bill
Theoretically, a rise in this rate should lead to higher lending rates and a reduction in the same expected to yield lower lending rates (CBK, 2014).

4.3 Diagnostic Tests

Prior to conducting regression analysis, there was need to conduct diagnostic tests to adhere to the assumptions of the classical linear regression model. This ensures that the estimates produced are unbiased and efficient as postulated by Long and Ervin (2000). Pedhazur (1997) suggested that when the assumptions of regression are not met the results produced become unreliable and biased. To ensure adherence to the assumptions, the study conducted the following diagnostic tests; normality/ linearity test, test for heteroskedasticity, test for serial autocorrelation, stationarity test and multicollinearity test for all the study variables. It has been observed that few articles report to have tested the assumptions of the test they used in deriving their conclusions (Osborne, Christensen & Gunter, 2001).

4.3.1 Normality Test

The normality was tested using the Jarque-Bera (JB) and normality graph. The graphical methods results showed that residuals were normally distributed as shown in figure 4.10.
The study used a more efficient and conclusive technique known as Jarque-Bera (JB) to further ascertain the normality of the residuals. The study failed to reject the null hypothesis since the probability value for Jarque-Bera was greater than 5% and it was therefore concluded that the residual takes normal distribution curve. This implied that data was adequate and met the assumption of linearity.

### 4.3.2 Heteroskedasticity

Regression analysis assumptions require that the residuals should have a constant variance (i.e. they should be Homoskedastic).

#### Table 4.2 Heteroskedasticity Test Results

<table>
<thead>
<tr>
<th>Test Statistic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modified Wald test for group wise heteroskedasticity</td>
<td>chi2 (42) = 2.1e+32, Prob&gt;chi2 = 0.0000</td>
</tr>
</tbody>
</table>

The Modified Wald test was used to test for Heteroskedasticity where the null hypothesis of the test is that error terms have a constant variance (i.e. should be
Homoskedastic). The null hypothesis was not rejected given that the reported p-value 0.000 in table 4.2 was less than the critical value and thus concluded that the observations had constant variance or did not have the problem of Heteroskedasticity.

### 4.3.3 Multicollinearity

In multiple regression, the variance inflation factor (VIF) is used as an indicator of multicollinearity. This study adopted a rule of thumb of VIF value of 10 as the threshold which according to Garson (2012) is the best.

**Table 4.3: Multicollinearity Test Results**

<table>
<thead>
<tr>
<th>Variable</th>
<th>VIF</th>
<th>1/VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Risk</td>
<td>4.39</td>
<td>0.22767</td>
</tr>
<tr>
<td>Liquidity</td>
<td>4.36</td>
<td>0.229543</td>
</tr>
<tr>
<td>Inflation Rates</td>
<td>2.15</td>
<td>0.465102</td>
</tr>
<tr>
<td>Annual Average KBRR</td>
<td>2.07</td>
<td>0.482123</td>
</tr>
<tr>
<td>Operating Cost</td>
<td>1.93</td>
<td>0.51761</td>
</tr>
<tr>
<td>GDP Growth Rate</td>
<td>1.67</td>
<td>0.599681</td>
</tr>
<tr>
<td>Bank Size</td>
<td>1.52</td>
<td>0.659106</td>
</tr>
<tr>
<td>Annual Political Risk</td>
<td>1.31</td>
<td>0.766187</td>
</tr>
<tr>
<td>Mean VIF</td>
<td>2.42</td>
<td></td>
</tr>
</tbody>
</table>

**Source: Researcher (2017)**

These results indicate that the VIF values of the independent variables were within the threshold of 10. This indicated that there was no threat of multicollinearity problem and therefore, the study used linear regression model. The tolerance of less than 0.1 also indicates the problem of multicollinearity therefore the tolerance values for the study variables further confirmed that there was no threat of multicollinearity problem.
4.3.4 Autocorrelation

The study further carried out the test for serial autocorrelation to establish whether the residuals were correlated across time. The assumptions of the regression demand that the residuals should not be correlated across time.

Table 4.4 Serial Correlation Tests Results

<table>
<thead>
<tr>
<th>Serial Correlation Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wooldridge test for autocorrelation in panel data</td>
</tr>
<tr>
<td>H0: no first order autocorrelation</td>
</tr>
<tr>
<td>F(1,38) = 1.134</td>
</tr>
<tr>
<td>Prob &gt; F = 0.2937</td>
</tr>
</tbody>
</table>

Source: Researcher (2017)

The study employed Wooldridge test for autocorrelation to test this assumption. The study sought to test the null hypothesis that no first order serial correlation existed. From the finding presented in table 4.4, the study concluded that there was no serial correlation of first order since the p-value (p-value = 0.2937) was greater than 0.05 leading to the study to fail to reject the null hypothesis. The results indicated that the data adhered to the assumption of residuals not being correlated across time hence adequate for panel regression analysis.

4.3.5 Stationarity Test

The study employed ADF test to establish whether the variables were stationary or non-stationary. Non-stationary variables also lead to spurious results because of unit root.
Table 4.5: Stationarity Test Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF-Statistics</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lending Rates</td>
<td>48.6148</td>
<td>0.9978</td>
</tr>
<tr>
<td>Bank Size</td>
<td>6.99369</td>
<td>0.9835</td>
</tr>
<tr>
<td>Credit Risk</td>
<td>24.5179</td>
<td>0.9735</td>
</tr>
<tr>
<td>Liquidity Risk</td>
<td>86.6128</td>
<td>0.3426</td>
</tr>
<tr>
<td>Operating Cost</td>
<td>105.807</td>
<td>0.0541</td>
</tr>
<tr>
<td>Annual Average KBRR (%)</td>
<td>43.5392</td>
<td>0.9999</td>
</tr>
<tr>
<td>Inflation</td>
<td>82.4762</td>
<td>0.5266</td>
</tr>
<tr>
<td>GDP</td>
<td>85.3211</td>
<td>0.4393</td>
</tr>
<tr>
<td>Market Share</td>
<td>60.3006</td>
<td>0.9763</td>
</tr>
</tbody>
</table>

Source: Researcher (2017)

The results presented in table 4.5 indicate that the probability value for all the variables was greater than 0.05 implying that there was a unit root. The null hypothesis was that there was a unit root. Therefore, the study failed to reject the null hypothesis at level for all the study variables. This called for first differencing for all the study variables to make all the non-stationary variables stationary and the results are presented in table 4.6.

Table 4.6: Stationarity Test Results at First Difference

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF-Statistics</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>lending rates</td>
<td>410.901</td>
<td>0.000</td>
</tr>
<tr>
<td>Bank size</td>
<td>168.994</td>
<td>0.000</td>
</tr>
<tr>
<td>Credit risk</td>
<td>137.554</td>
<td>0.000</td>
</tr>
<tr>
<td>Liquidity risk</td>
<td>299.041</td>
<td>0.000</td>
</tr>
<tr>
<td>Operating Cost</td>
<td>413.948</td>
<td>0.000</td>
</tr>
<tr>
<td>Annual average KBRR (%)</td>
<td>464.559</td>
<td>0.000</td>
</tr>
<tr>
<td>Inflation</td>
<td>773.669</td>
<td>0.000</td>
</tr>
<tr>
<td>GDP</td>
<td>734.249</td>
<td>0.000</td>
</tr>
<tr>
<td>Market share</td>
<td>400.108</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Source: Researcher (2017)

Table 4.6 displays the panel unit root tests after first differencing. It is clear from the results that all the variables become stationary (unit root disappears) on first differencing since their p value was less than 0.05 meaning that the null hypothesis that there is a unit root was rejected.
4.3.6 Hausman Test for Model Specification

Hausman specification test was used by the study to select the best regression model between a random effect and a fixed effect regression model. The null hypothesis for Hausman test states that the difference between the coefficients is not consistent meaning that a random effect model is the best while the alternative hypothesis states that the differences are consistent implying that a fixed effect model is the best.

Table 4.7: Hausman Test for Model Specification Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Fixed</th>
<th>Random</th>
<th>Difference</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank Size</td>
<td>-0.00467</td>
<td>-0.00443</td>
<td>-0.00024</td>
<td>0.000979</td>
</tr>
<tr>
<td>Credit Risk</td>
<td>0.002102</td>
<td>-0.00061</td>
<td>0.00271</td>
<td>0.001051</td>
</tr>
<tr>
<td>Liquidity Risk</td>
<td>0.001388</td>
<td>0.000114</td>
<td>0.001274</td>
<td>0.000753</td>
</tr>
<tr>
<td>Operating Cost</td>
<td>0.010751</td>
<td>0.011165</td>
<td>-0.00041</td>
<td>0.000781</td>
</tr>
<tr>
<td>Annual Political Risk</td>
<td>-0.00056</td>
<td>0.000397</td>
<td>-0.00095</td>
<td></td>
</tr>
<tr>
<td>Annual Average KBRR</td>
<td>0.001832</td>
<td>0.003181</td>
<td>-0.00135</td>
<td>0.000258</td>
</tr>
<tr>
<td>Inflation</td>
<td>-0.00084</td>
<td>-0.00044</td>
<td>-0.0004</td>
<td>0.000116</td>
</tr>
<tr>
<td>GDP</td>
<td>-0.00145</td>
<td>-0.00203</td>
<td>0.00058</td>
<td>0.000186</td>
</tr>
<tr>
<td>Market Share</td>
<td>-0.0021</td>
<td>-0.00251</td>
<td>0.000417</td>
<td>0.000547</td>
</tr>
</tbody>
</table>

\[ \text{chi2}(9) = 5.95 \]
\[ \text{Prob}>\text{chi2} = 0.4293 \]

Source: Researcher (2017)

Results in the table 4.7 indicated a \text{Prob}>\text{chi2} value of 0.4293 which is greater than critical P value at 0.05 level of significance which implies that the null hypothesis that a random effect model is the best was not rejected. The study hence used a random effect regression model. The study further employed Breusch and Pagan Lagrange multiplier test to choose between the RE model and the pooled regression model.
Table 4.8: Breusch and Pagan Lagrange Multiplier Test

Breusch and Pagan Lagrangian multiplier test for random effects

\[
\text{chibar2}(01) = 32.31
\]

\[
\text{Prob > chibar2} = 0.0000
\]

Source: Researcher (2017)

The null hypothesis was assumed to be that the variance across banks is equal to zero; that is, there are no panel effects. The result showed that the p-value was less than 0.05 meaning that the study rejected the null hypothesis thus conclusion that there are panel effects which led to RE model.

4.4 Correlation Analysis

The study further used correlation analysis to test the association between independent variables and dependent variable.

Table 4.9: Correlation Matrix

<table>
<thead>
<tr>
<th>Lending rates</th>
<th>Bank size</th>
<th>Credit risk</th>
<th>Liquidity risk</th>
<th>Operating cost</th>
<th>Annual political risk</th>
<th>Annual average KBRR</th>
<th>inflation</th>
<th>gdp</th>
<th>Market share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lending rates</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank size</td>
<td>-0.47*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credit risk</td>
<td>0.34*</td>
<td>-0.48*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquidity risk</td>
<td>0.32*</td>
<td>-0.45*</td>
<td>0.85*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation cost</td>
<td>0.64*</td>
<td>-0.41*</td>
<td>0.48*</td>
<td>0.485*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual political risk</td>
<td>-0.04</td>
<td>0.01</td>
<td>-0.00</td>
<td>0.007</td>
<td>-0.022</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual average KBRR</td>
<td>0.61*</td>
<td>-0.44*</td>
<td>0.56*</td>
<td>0.534*</td>
<td>0.629*</td>
<td>-0.058</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>inflation</td>
<td>0.32*</td>
<td>-0.40*</td>
<td>0.24*</td>
<td>0.217*</td>
<td>0.290*</td>
<td>-0.437*</td>
<td>0.27*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>gdp</td>
<td>-0.37*</td>
<td>0.23*</td>
<td>-0.16*</td>
<td>-0.11*</td>
<td>-0.281*</td>
<td>0.177*</td>
<td>-0.256*</td>
<td>-0.54*</td>
<td>1</td>
</tr>
<tr>
<td>Market share</td>
<td>-0.46*</td>
<td>0.42*</td>
<td>-0.15*</td>
<td>-0.089</td>
<td>-0.267*</td>
<td>-0.033</td>
<td>-0.254*</td>
<td>-0.268*</td>
<td>0.270*</td>
</tr>
</tbody>
</table>

Source: Researcher (2017)

The correlation matrix presented in Table 4.9 indicated that liquidity risk and credit risk were high correlated hence liquidity risk was dropped in regression analysis. The
results in table 4.9 showed that bank size had a negative and significant relationship with commercial banks’ lending rates. The value of Pearson correlation (r) was -0.47 which was significant at 0.05 significance level. The findings implied that an increase in bank size would lead to reduction in commercial banks’ lending rates. The results further showed that credit risk had a positive and significant relationship with commercial banks’ lending rates. The value of Pearson correlation (r) was 0.34 which was significant at 0.05 significance level. The findings implied that an increase in credit risk would lead to an increase in commercial banks’ lending rates.

The results further showed that liquidity risk had a positive and significant relationship with commercial banks’ lending rates. The value of Pearson correlation (r) was 0.32 which was significant at 0.05 significance level. The findings implied that an increase in liquidity risk would lead to an increase in commercial banks’ lending rates. The results further showed that operating risk had a strong positive and significant relationship with commercial banks’ lending rates. The value of Pearson correlation (r) was 0.64 which was significant at 0.05 significance level. The findings implied that an increase in operating costs would lead to an increase in commercial banks’ lending rates.

The results further showed that inflation rates had a positive and significant relationship with commercial banks’ lending rates. The value of Pearson correlation (r) was 0.32 which was significant at 0.05 significance level. The findings implied that an increase in inflation rates would lead to an increase in commercial banks’ lending rates. GDP growth rate on the other hand had a negative and significant relationship with commercial banks’ lending rates. The value of Pearson correlation (r) was -0.37 which was significant at 0.05 significance level. The findings implied
that an increase in GDP growth rate would lead to a decrease in commercial banks’ lending rates.

These findings however contradict those of Krmic’ (2014) and Georgievskà et al., (2010) which find that bank size, market share, deposit lending rates and non-performing loans are positively related to lending rates and lending rate spreads. However, the studies assume direct relationships and fail to account for macroeconomic variables (GDP and inflation). Current study sought to determine the moderating role of political risk in the relationship between these bank characteristics and lending rates and determine the effect of liquidity risk and operating costs as part of the bank characteristics.

4.5 Effect of Bank Characteristics on Lending Rates in Commercial Banks

The study sought to establish the effect of bank characteristics on lending rates among commercial banks in Kenya. The bank characteristics considered in this study were bank size, credit risk, liquidity risk and operating costs. The study used multiple random regression analysis to ascertain the effect of bank characteristics on commercial banks’ lending rates. Table 4.10 contains the findings.

| Lending Rates | Coef.     | Std. Err.  | z      | P>|z| |
|---------------|-----------|------------|--------|------|
| Bank Size     | -0.00779  | 0.0018284  | -4.26  | 0.000|
| Credit Risk   | 0.00347   | 0.0014817  | 2.34   | 0.018|
| Operating Cost| 0.01421   | 0.0013275  | 10.71  | 0.000|
| _Cons         | 0.19271   | 0.0111136  | 17.34  | 0.000|

R-sq: within = 0.5013
Wald chi2(3) = 310.35
Prob > chi2 = 0.0000

This can be summarized in Equation 4.5.1
\[ Lending \ Rates = 0.19271 - 0.00779 \ (Bank \ Size) + 0.00347 \ (Credit \ Risk) + 0.01421 \ (Operating \ Cost) + \varepsilon \ldots \ldots \ldots \ldots \ . \ \ \ Equation \ 4.5.1 \]

The result obtained from random effect model indicated that jointly Bank size, credit risk, liquidity risk and operating costs accounted for 50.3\% of the variation in lending rates among commercial banks in Kenya. To test the goodness of fit, the study computed Wald chi-square since the model used random effect regression analysis. The findings revealed Wald chi-square = 310.35 with a corresponding p-value = 0.000. The study therefore failed to reject the null hypothesis that the model has a goodness of fit and concluded that the model used to link bank characteristics and lending rates was statistically significant.

### 4.5.1 Effect of Bank Size on Lending Rates

From the findings, bank size was found to be negatively related to lending rates among commercial banks in Kenya. The results implied that an increase in the banks size would lead to a corresponding reduction in lending rates. Bank size had a regression co-efficient of -0.00779 which implied that a unit increase in bank size would result in a reduction of 0.00779 units in lending rates. This relationship was further found to be statistically significant since the p-value for Bank size was 0.000 which was lower that the adopted significance level of 0.05. Therefore, the study rejected the null hypothesis that bank size does not have a significant effect on lending rates among commercial banks in Kenya which implied that bank size had a significant effect on lending rates among commercial banks in Kenya. According to Uzeru (2012), bank characteristics refer to the internal factors that commercial banks consider while setting up lending rates. Maina (2015) asserts that lending rates are
arrived at by considering bank characteristics including credit risk, bank size, operating costs, among others.

These findings however contradict those of Krnic’ (2014) and Georgievksa et al., (2010) who found no significant effect of bank size on lending rates and positive relationship between bank size and lending rates respectively. On the other hand, the findings of this study were consistent with those of Castro and Santos (2010) who found that bank size has a negative relationship with lending rates. The findings further concur with economics theories that contend that large firms are associated with economies of scale and scope, ease of access to credit financing, brand visibility and allegiance, significant resources to foster research and development, valuable patents and competences among others.

Similarly, Were and Wambua (2014) contend that big banks are expected to charge lower lending rates compared to smaller banks this is because of the ability of these banks to utilize the economies of scale in their operation efficiency. Large banks also have high potential of investing in modern technology to enhance their efficiency.

Maina (2015) also studied the determinants of interest rates spreads in Kenya and found that ownership structure, market structure and business risks play significant role in explaining interest rate spread. The findings are also consistent with Rosenberg et al., (2013) who find that operating costs, non-performing loans ratio and size of the micro-finance banks are positively related with lending rates similarly, Krnic’ (2014) found that deposit lending rates, non-performing loans have positive relationship with lending rates.
4.5.2 Effect of Credit Risk on Lending Rates

The beta coefficient for credit risk was 0.00347 which was statistically significant at significance level of 0.05. The findings implied that a unit increase in credit risk could lead to an increase of 0.00347 units in lending rates which further implied that as the banks credit risk increases it leads to an increase in lending rates. The study rejected the null hypothesis that credit risk does not have a significant effect on lending rates among commercial banks in Kenya which implied that credit risk had no significant relationship with lending rates among commercial banks in Kenya.

Maina (2015) also studied the determinants of interest rates spreads in Kenya and found that ownership structure, market structure and business risks play significant role in explaining interest rate spread. The findings are also consistent with Rosenberg et al., (2013) who find that operating costs, non-performing loans ratio and size of the micro-finance bank are positively related with lending rates similarly, Krnic’ (2014) found that deposit lending rates, non-performing loans have positive relationship with lending rates. The findings of this study however were not consistent with those of Castro and Santos (2010) who found that non-performing loans have a negative relationship with lending rates since high NPLs results to high credit risk which was found to increase lending rates among commercial banks in Kenya.

The finding are further consistent with Liquidity Preference Theory which posits that risk averse savers vary the form of holding their financial wealth to respond to these exogenous shocks depending on volatility in asset prices. Most of the savers vary the average liquidity of their portfolios. According to Taylor and Taylor (2009) liquidity preference theory can be defined as the rate interest advanced by general theory of employment and money. Maina (2015) also studied the determinants of interest rates
spreads in Kenya and found that ownership structure, market structure and business risks play significant role in explaining interest rate spread. The findings are also consistent with Rosenberg *et al.*, (2013) who find that operating costs, non-performing loans ratio and size of the micro-finance banks are positively related with lending rates similarly, Krnic’ (2014) found that deposit lending rates, non-performing loans have positive relationship with lending rates. Similarly, Were and Wambua (2014) found that commercial banks are expected to charge high lending rates with increase in credit risk.

Maaka, (2013) also contends that organisations must monitor their liquidity and integrate it in their risk management strategy. Market risk and credit risk must also be considered to ensure stability in the financial position. Li and Zou (2014) further identify credit risk as one of the most significant risks that banks face. Maina (2015) also studied the determinants of interest rates spreads in Kenya and found that ownership structure, market structure and business risks play significant role in explaining interest rate spread. The findings are also consistent with Rosenberg *et al.*, (2013) who find that operating costs, non-performing loans ratio and size of the micro-finance bank are positively related with lending rates similarly, Krnic’ (2014) found that deposit lending rates, non-performing loans have positive relationship with lending rates.

**4.5.3 Effect of Operating Costs on Lending Rates**

The study further sought to establish the effect of operating costs on lending rates among commercial banks in Kenya. Operating costs were found to have a positive effect on commercial banks’ lending rates. The findings also indicate that a unit increase in operating costs could lead to an increase of 0.01421 units in lending rates.
and this relationship was statistically significant as showed by the p value of 0.000. The findings implied that there was strong positive relationship between operating costs and lending rates among commercial banks in Kenya. The study rejected the null hypothesis that operating costs do not have a significant effect on lending rates among commercial banks in Kenya which implied that operating costs had a significant effect on lending rates among commercial banks in Kenya.

Beck (2010) also found that some of the costs incurred by the commercial banks include credit appraisal costs, application and screening costs and the cost involved in monitoring the projects for which the loans was applied for. When the costs associated with loan application increase this is likely to impact on the cost of loans through increase in lending rates. Operating expenses in usually adopted in financial sector as an indicator of operational inefficiency. The findings are consistent with those of Rosenberg et al., (2013) who found that operating costs, non-performing loans ratio and size of the micro-finance bank are positively related with lending rates.

Kananu and Ireri (2015) also sought to determine the effect of operating costs on lending rates of commercial banks in Kenya and collect data from thirty four (34) commercial banks in Kenya for the year 2013. The study found a strong positive relationship between operational costs and lending rates.

Mishkin (1986) also notes that lending rate is the price lenders charge on borrowed funds, further contended that demand/supply forces in the market would attain the market equilibrium lending rate. This theory further asserts that it can be applied while pricing a loan, when the cost will be calculated as the ratio of interest. Further, the total amount of interest payable is subject to credit risk, amount of loan and the repayment period (Schindler, 2011). Finally, Ngigi (2014) focused on determinants of
lending rates in deposit taking MFIs in Kenya and finds that operational costs have a negative relationship with lending rates whereas credit risk had a positive relationship with lending rates. This may imply that conditions in a microfinance bank are different.

4.6 Effect of Macroeconomic Factors on Lending Rates in Commercial Banks

This study further intended to find out the effect of macroeconomic variables on commercial banks’ lending rates. The macro-economic variables considered were gross domestic product growth rate and inflation rates. The results obtained indicated that jointly gross domestic product growth rate and inflation rates accounted for 6.11 percent of the variation in lending rates among commercial banks in Kenya. To test the goodness of fit, the study computed Wald chi-square since the model used was random effect regression analysis. The findings revealed Wald chi-square = 44.49 with a corresponding p-value = 0.000. The study therefore failed to reject the null hypothesis that the model has a goodness of fit and concluded that model used to link macroeconomic factors and lending rates was statistically significant.

Table 4.11: Regression for Macroeconomic Factors and Lending Rates

| Lending Rates   | Coef.  | Std. Err. | z     | P>|z| |
|-----------------|--------|-----------|-------|-----|
| GDP Growth Rate | -0.0041935 | 0.0014165 | -2.96 | 0.003 |
| Inflation       | 0.002235  | 0.0007877 | 2.84  | 0.005 |
| _cons           | 0.2227368 | 0.0135167 | 16.48 | 0.000 |

sigma_u = 0.01033799
sigma_e = 0.03951861
R-sq: within = 0.0611
Wald chi2(4) = 44.49
Prob > chi2 = 0.0000

The results led to equation 4.6.1 that follows

\[ Lending\ Rates = 0.2227 + -0.00419 \ (GDP) + 0.002235 \ (inflation) + \varepsilon \ldots \text{Equation 4.6.1} \]
4.6.1 GDP Growth Rate and Lending Rates

From the result GDP growth rate was found to have a negative effect on commercial banks’ lending rates among in Kenya. The effect of GDP growth rate was found to be significant at 0.05 significance level. The results implied that an increase in the GDP growth rate would lead to a corresponding reduction in lending rates. GDP growth rate had a regression coefficient of -0.00419 which implied that a unit increase in GDP growth rate would result into a reduction of 0.00419 units in lending rates. This relationship was further found to be statistically significant since the p-value for GDP growth rate was 0.003 which was lower that the adopted significance level of 0.05.

The study rejected the null hypothesis that Gross Domestic Product growth rate does not have a significant effect on lending rates among commercial banks in Kenya which implied that Gross Domestic Product growth rate had a significant effect on lending rates among commercial banks in Kenya. The findings of this study are consistent with Folawewol and Tennant(2008) who showed that lending rates are influenced by crowding out effect of government borrowing, public sector deficits, discount rate and inflation rates. This findings further concurs with fisher theory which states that changes in the short term lending rates occur principally because of the changes in expected rate of inflation.

4.6.2 Inflation Rates and Lending Rates

The findings further revealed that inflation rates had a positive and significant effect on lending rates among commercial banks. The effect of inflation on the commercial banks’ lending rate was found to be significant at the level of the significance of 0.05. Inflation had coefficient of 0.002235 which implied that a unit increase in inflation rates would result to an increase of 0.002235 units in lending rates. This effect was
further found to be statistically significant since the p-value for Inflation growth rate was 0.005 which was lower that the adopted significance level of 0.05. The study rejected the null hypothesis that Inflation does not have a significant effect on lending rates among commercial banks in Kenya which implied that Inflation had a significant relationship with lending rates among commercial banks in Kenya.

4.7 Multivariate Regression Model

The multivariate regression model was computed to test the effect of all the independent variables on the lending rates of commercial banks in Kenya. The results obtained indicated that all the independent variables in the model accounted for 44.8% of the variation in lending rates among commercial banks in Kenya. To test the goodness of fit, the study computed Wald chi-square since the model used was random effect regression analysis. The findings revealed Wald chi-square = 357.45 with a corresponding p-value =0.000. The study therefore failed to reject the null hypothesis that the model has a goodness of fit and concluded that model used to link independent variables and lending rates was statistically significant.
### Table 4.12: Multivariate Regression Results

| Lending Rates         | Coef.       | Std. Err.  | z      | P>|z| |
|-----------------------|-------------|------------|--------|-----|
| Bank Size             | -0.0070550  | 0.001884   | -3.74  | 0.000 |
| Credit Risk           | 0.0037345   | 0.0013058  | 2.86   | 0.021 |
| Operating Cost        | 0.0120418   | 0.0014454  | 8.33   | 0.000 |
| Annual Average CBR    | 0.0032029   | 0.0007969  | 4.02   | 0.000 |
| Inflation             | 0.00140598  | 0.000657   | 2.14   | 0.026 |
| GDP                   | -0.0022912  | 0.0010131  | -2.26  | 0.024 |
| _cons                 | 0.0970395   | 0.1143255  | 0.85   | 0.396 |

R-sq: within = 0.5068  
Wald chi2(7) = 357.45  
Prob > chi2 = 0.0000

**Source:** Researcher (2017)

The conceptual model was solved to become:

\[ CBLR_t = 0.0970395 - 0.0070550 \text{ (bank size)} + 0.0037345 \text{ (credit risk)} + 0.0120418 \text{ (operating cost)} - 0.0022912 \text{ (GDP)} + 0.00140598 \text{ (Inflation)} + 0.0032029 \text{ (CBR}_t \text{)} + \epsilon \ldots Equation 4.7.1 \]

In the multivariate regression model, bank size was found to have negative effect on commercial bank lending rates which implied that as the commercial banks increase in size their lending rates tend to reduce. The economic and finance theories adopted in this study contend that large organizations enjoy economy of scale and are able to manage their risk better than small organizations. The findings also showed that the relationship between bank size and lending rates was significant with a regression coefficient of -0.0070550. The findings implied that a unit increase in bank size would result to a reduction of 0.0070550 units in lending rates other factors held constant.

These findings however contradict those of Krnic’ (2014) and Georgievska et al., (2010) who found no significant effect of bank size on lending rates and positive relationship between to bank size and lending rates respectively. On the other hand,
the findings of this study were consistent with those Castro and Santos (2010) who found that bank size has a negative relationship with lending rates.

Similarly, Were and Wambua (2014) argued that big banks are expected to charge lower lending rates compared to smaller banks this is because of the ability of these banks to utilize the economies of scale in their operation efficiency. Large banks also have high potential of investing in modern technology to enhance their efficiency.

The study model also revealed that credit risk and lending rates had positive relationship. The findings further showed that the relationship between credit risk and lending rates was significant with a regression coefficient of 0.0037345 and a p-value of 0.021. The findings implied that a unit increase in credit risk would result into an increase of 0.0037345 units in lending rates holding other factors constant.

Maina (2015) also studied the determinants of interest rates spreads in Kenya and found that ownership structure, market structure and business risks play significant role in explaining interest rate spread. The findings are also consistent with Rosenberg et al., (2013) who find that operating costs, non-performing loans ratio and size of the micro-finance bank are positively related with lending rates similarly, Krnic’ (2014) found that deposit lending rates, non-performing loans have positive relationship with lending rates.

The findings are further consistent with Liquidity Preference Theory which posits that risk averse savers vary the form of holding their financial wealth to respond to these exogenous shocks depending on volatility in asset prices. Most of the savers vary the average liquidity of their portfolios. According to Taylor and Taylor (2009) liquidity preference theory can be defined as the rate interest advanced by general theory of employment and money. Maaka, (2013) also contends that organisations must
monitor their liquidity and integrate it in their risk management strategy. Market risk and credit risk must also be considered to ensure stability in the financial position. Li and Zou (2014) further identify credit risk as one of the most significant risks that banks face. Diamond and Rajan (2001) also contended that a bank may refuse the lending, even to a potential entrepreneur, if it feels that the liquidity need of the bank is quite high.

The study further sought to determine the effect of operating costs on commercial banks’ lending rates in Kenya. The findings in table 4.12 revealed that operating costs had a positive and significant effect on lending rates. Operating costs had a coefficient of 0.0120418 and p-value of 0.000 which implied that there was a significant and positive relationship between operating costs and commercial bank lending rates. A unit increase in operating costs would results to an increase of 0.0120418 in lending rates.

Beck (2010) also suggested that some of the costs incurred by the commercial banks include credit appraisal costs, application and screening costs and the cost involved in monitoring the projects for which the loans was applied for. When the costs associated with loan application increase this is likely to impact on the cost of loans through increase in lending rates. Operating expenses are usually adopted in the financial sector as an indicator of operational inefficiency.

The findings are consistent with those of Rosenberg et al., (2013) who found that operating costs, non-performing loans ratio and size of the micro-finance bank are positively related with lending rates. Kananu and Ireri (2015) also sought to determine the effect of operating costs on lending rates of commercial banks in Kenya and collect data from thirty four (34) commercial banks in Kenya for the year 2013. The
study found a strong positive relationship between operational costs and lending rates. Finally, Ngigi (2014) focused on determinants of lending rates in deposit taking MFIs in Kenya and finds that operational costs have a negative relationship with lending rates whereas credit risk had a positive relationship with lending rates.

The findings of this study are further consistent with loanable fund theory. The theory proponents argue that service quantity is affected by risk to the level that Nevertheless, the quantity of service output is affected by risk only to the extent that assortment of diverse risk require dissimilar levels of information handling. The theory argues that loanable funds can be categorized as inputs that pass through commercial banks as intermediaries. The theory also establishes the ability to separate the use of loanable funds and other production function of value added in the optimization problem (Fixler & Zieschang, 1998).

The study further sought to determine the effect of selected macroeconomic variables on commercial banks’ lending rates in Kenya. The study focused on GDP growth and annual inflation rates and how they affect lending rates. GDP growth rates were found to have a negative and insignificant effect on lending rates among commercial banks in Kenya. GDP had coefficient of -0.00136 and a p-value of 0.218 which revealed that the effect of GDP on lending rates was insignificant. This could be so in the multivariate model since GDP applies across all banks. The finding implied that an increase in GDP would result to a reduction in commercial banks’ lending rates.

The study finding concurred with Ngigi (2014) who studied determinants of lending rates in deposit taking MFIs in Kenya and reported that macroeconomic variables (GDP growth rate and Inflation) have a negative relationship with lending rates. However, Janda and Zetek (2014) and Georgievska et al., (2010) find a positive
relationship between GDP and lending rates. Similarly, results of this study contradicted those of Ahokpossi (2013) who found that economic growth is not significantly related to lending rates.

Beck and Hesse (2006) also analyzed the bank level dataset of the Ugandan banking sector and assessed some of the factors that led to high lending rates and margins. The author observed that lower lending rates had no economically and significant association between interest rates and privatization banking efficiency, foreign bank entry and market structure. The study also found little connection between macroeconomic variables and interest rates spreads. On the other hand, bank characteristics played a significant role in interest rates spread. Bank characteristics include bank size, costs and loan portfolio which explained large proportion of variations. The study however analyzes the bank level characteristics as standalone variables with their effect on lending rates whereas the current study computes a composite of these variables while testing for moderation.

On the other hand, the findings revealed that inflation rates were positively and significantly related to lending rates among commercial banks. Inflation had coefficient of 0.00140598 which implied that a unit increase in inflation rates would result to an increase of 0.00140598 units in lending rates. This effect was further found to be statistically significant since the p-value for Inflation rate was 0.026 which was less than the adopted significance level of 0.05. GDP growth rate was also found to have a negative and significant relationship with lending rates among commercial banks in Kenya. Reduction in GDP growth rate would increase the lending rates among commercial banks in Kenya.
According to Mutinda (2014), economic activities enhances trade and hence the demand for loan facilities. When the demand for credit increases, lending rates are likely to increase. On the flip side, increased economic activities could result to higher profitable projects, lower loan default and increase in the amount of deposits all of which will lead to a significant drop in the average lending rates among commercial banks.

The findings of this study are consistent with Folawewol and Tennant (2008) who showed that lending rates are influenced by crowding out effect of government borrowing, public sector deficits, discount rate and inflation rates. This findings further concurs with fisher theory which states that changes in the short term lending rates occur principally because of the changes in expected rate of inflation. The classical theory of lending rates supports the macroeconomic variables like the GDP which determines the general wellbeing of citizens of Kenya. It also explains estimation of the per capita income as well as the general price levels of products and services which in turn determine the level of savings and investments available in the Kenyan economy, the study context.

The study used annual average of CBR as a control variable in testing the relationship between bank characteristics, macro-economic variables and commercial bank lending rates. The findings in Table 4.12 revealed that annual average of CBR had positive relationship with lending rates. Annual average of CBRR had a coefficient of 0.0032029 and p –value of 0.0000 which implied that the relationship between CBR annual averages was statistically significant. Commercial banks in Kenya raise or lower their lending rates based on the CBR set by CBK therefore, CBR has a direct relationship with the lending rates among commercial banks in Kenya.
4.8 Moderating Effect of Political Risk on the Relationship Between Bank Characteristics and Lending Rates

The study tested the moderating effect of annual political risk on the relationship between bank characteristics, macro-economic factors and lending rates. According to Kraemer et al., (2001) and Baron and Kenny (1986), this test is appropriate while testing for moderation and it’s done by regressing the dependent variable on the independent variables; that is, regressing lending rates on the bank characteristics (BCs), macroeconomic variables (MECs) and the moderating variables.

Table 4.13: Moderating Effect of Political Risk Results on the Relationship Between Bank Characteristics and Lending Rates

| Lending Rates | Coef.  | Std. Err. | z    | P>|z| |
|---------------|--------|-----------|------|------|
| CIBCs         | -0.00032 | 0.000604  | -0.53 | 0.599 |
| Annual PR     | -0.00204 | 0.002214  | -0.92 | 0.356 |
| CIBS*PR       | 6.23E-06 | 8.98E-06  | 0.69  | 0.488 |
| _cons         | 0.337311 | 0.148959  | 2.26  | 0.024 |

R-sq: within = 0.1809  
Wald chi2(3) = 69.35  
Prob > chi2 = 0.0000

Source: Researcher (2017)

The conceptual model captioned equation 3.3 was solved to become:

\[ CBLR_{it} = 0.337311 + -0.00032 \times (CIBCs) + -0.00204 \times (PR_{it}) + 6.23E-06 \times (CIBS*PR) + \varepsilon_{it} \]

The study computed CIBCs which was the composite index of bank characteristics while CIMECs was the composite index for macroeconomic variables and PR is the annual political risk. Composite Indices were constructed based on the Geometric mean of the individual indicators of a similar category. CIBCs*PR was the composite index of bank characteristics multiplied the moderating variable annual political risk.
Table 4.14: Moderating Effect of Political Risk Results on the Relationship Between Macroeconomic Factors and Lending Rates

| Lending Rates | Coef.     | Std. Err. | z      | P>|z| |
|---------------|-----------|-----------|--------|-----|
| CIMECs        | 0.0039825 | 0.006222  | 0.64   | 0.522 |
| annual PR     | 0.0009179 | 0.003803  | 0.24   | 0.809 |
| CIMECs*PR     | -0.0000577| 9.27E-05  | -0.62  | 0.534 |
| _cons         | 0.1501636 | 0.256805  | 0.58   | 0.559 |

R-sq: within = 0.0061
Wald chi2(3) = 2.23
Prob > chi2 = 0.5267

Source: Researcher (2017)

Also the equation 3.4 was solved to become:

\[ CBLR_{it} = 0.1501636 + 0.0039825 \cdot (CIMECs) + 0.0009179 \cdot (PR_{it}) + -0.0000577 \cdot (CIMECs*PR) + \varepsilon_{it} \]

(CIMECs*PR) was the composite index of macroeconomic variables multiplied by the moderating variable, annual political risk. The moderating effect criteria adopted was if the interaction between the independent variables (CIBCs and CIMECs) and the moderator variables (PR) is not statistically significant (p> 0.05) then political risk will not be a moderator but an explanatory variable.

The findings in table 4.14 indicated that CIBCs*PR had a positive effects on the relationship between bank characteristics and commercial banks’ lending rates. The composite variable for bank characteristics (CIBCs*PR) coefficient of 6.23E-06 and p-value of 0.488 implying it was statistically insignificant at 5% significance level. The finding implied that political risk also did not significantly moderate the relationship between commercial banks characteristics and lending rates. Hence the null hypothesis that annual political risk does not have a significant moderating effect
on the relationship between bank characteristics and lending rates among commercial banks in Kenya was not rejected.

The findings further revealed that CIMECs*PR had a negative effects on the relationship between macro-economic variables and commercial banks’ lending rates. The composite variable for macro-economic variables (CIMECs*PR) had coefficient of -0.0000577 and p-value of 0.534 implying it was statistically insignificant at 5% significance level. The finding implied that political risk did not significantly moderate the relationship between macro-economic variables and lending rates. Similarly, the study failed to reject the null hypothesis that annual political risk does not have a significant moderating effect on the relationship between macro-economic variables and lending rates among commercial banks in Kenya.

Sottilotta (2013) also contended that the stability of the government, socioeconomic volatility, investment profile, conflict, corruption, military involvement in politics, tensions in religions, ethnic animosity among others affect the business environment and impact of borrowing and investment activities. According to Datta et al., (2015), the variable can be reverse coded by subtracting the index value from 100. Hence, the higher the reverse code, the higher the political risk.

The study finding concurs with Mcleay et al., (2014) who analyzed the effect of political risk on lending rates and finds that the effect of political risk is insignificant. The study recommends political risk to be analyzed as an explanatory variable by future studies. Kuttner (2012) finds that political risk, although insignificant in the determination of lending rates, it cannot be overlooked as it could have a stronger influence on other relationships leading to lending rates. The study recommended that this variable be investigated as a moderator or control variable. The current study
having analyzed political risk as a moderating variable and found it to be insignificant, recommends that it be analyzed as an explanatory variable by future studies as its effect cannot be overlooked, consistent with the recommendation by Kuttner.

Table 4.15: Summary of the Research Hypotheses

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Analysis</th>
<th>Reject H0/Fail to reject H0</th>
</tr>
</thead>
<tbody>
<tr>
<td>( H_{01} ) Bank size does not have a significant effect on lending rates among commercial banks in Kenya.</td>
<td>• RE regression analysis</td>
<td>Reject ( H_{01} )</td>
</tr>
<tr>
<td>( H_{02} ) Credit risk does not have a significant effect on lending rates among commercial banks in Kenya.</td>
<td>• RE regression analysis</td>
<td>Reject ( H_{02} )</td>
</tr>
<tr>
<td>( H_{03} ) Liquidity risk does not have a significant effect on lending rates among commercial banks in Kenya.</td>
<td>• RE regression analysis</td>
<td>Removed from Final regression due to multicollinearity.</td>
</tr>
<tr>
<td>( H_{04} ) Operating costs do not have a significant effect on lending rates among commercial banks in Kenya.</td>
<td>• RE regression analysis</td>
<td>Reject ( H_{04} )</td>
</tr>
<tr>
<td>( H_{05} ) Gross Domestic Product growth rate does not have a significant effect on lending rates among commercial banks in Kenya.</td>
<td>• RE regression analysis</td>
<td>Reject ( H_{05} )</td>
</tr>
<tr>
<td>( H_{06} ) Inflation does not have a significant effect on lending rates among commercial banks in Kenya.</td>
<td>• RE regression analysis</td>
<td>Reject ( H_{06} )</td>
</tr>
<tr>
<td>( H_{07} ) Political risk does not have a significant moderating effect on the relationship between bank characteristics and lending rates among commercial banks in Kenya.</td>
<td>• RE regression analysis</td>
<td>Fail to Reject ( H_{07} )</td>
</tr>
<tr>
<td>( H_{08} ) Political risk does not have a significant moderating effect on the relationship between macroeconomic variables and lending rates among commercial banks in Kenya.</td>
<td>• RE regression analysis</td>
<td>Fail to Reject ( H_{08} )</td>
</tr>
</tbody>
</table>

Source: Researcher (2017)
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter is divided into four sections. The first section presents a summary of the study, especially with regard to how the various aspects relate to the research objectives. This is followed by conclusions which include the contribution that the study has made to knowledge. The third and fourth sections deal with the recommendations of the study and suggestions for future research respectively.

5.2 Summary

This study sought to investigate the effect of bank characteristics and macroeconomic variables on lending rates among commercial banks in Kenya. Specifically the study sought to; establish the effect of bank size, credit risk, and liquidity risk, operating costs, Gross Domestic Product growth rate and inflation rate on lending rates among commercial banks in Kenya. The study also sought to establish the moderating effect of political risk on the relationship between bank characteristics and lending rates among commercial banks in Kenya and to determine the moderation effect of political risk on the relationship between macroeconomic variables and lending rates among commercial banks in Kenya.

5.2.1 Effect of Bank Size on Lending Rates

The study sought to establish the effect of bank size on lending rates among commercial banks in Kenya. The study computed bank size by computing Log of Total Bank Assets (Log) of the commercial banks. The trend analysis results indicate that bank size has been increasing from 2006 to 2015. The increase in the bank size could be attributed to increase in the number of deposits accounts as result of
increased customers therefore increasing commercial banks profitability hence investments into assets. The study used regression analysis to ascertain this effect. The findings showed that bank size had a negative and significant relationship with lending rates.

5.2.2 Effect of Credit Risk on Lending Rates

The second objective of the study was to establish the effect of credit risk on lending rates among commercial banks in Kenya. Credit risk was computed by dividing value of Non-performing Loans by Total Loans (Kshs). Credit risk, is the risk of default on a debt that may arise from a borrower failing to make required payments. The trend indicated that on average credit risk of commercial banks has been decreasing. To further ascertain the effect of credit risk on lending rates among commercial banks in Kenya, the study also used a random effect model. The beta coefficient for credit risk was statistically significant at significance level of 0.05. The findings indicate that an increase in credit risk could lead to an increase in lending rates. Therefore, the null hypothesis that credit risk does not have a significant effect on lending rates among commercial banks in Kenya was rejected meaning that the effect of credit risk on lending rates for commercial banks in Kenya was statistically significant.

5.2.3 Operating Costs and Lending Rates

The study further sought to establish the effect of operating costs on lending rates among commercial banks in Kenya. The findings indicate that operating costs accounted for significant variation in the lending rates among commercial banks in Kenya. The findings also indicate that an increase in operating costs could lead to an increase in lending rates and this relationship was statistically significant. The null hypothesis was rejected and alternative hypothesis that operating costs have a
significant effect on lending rates among commercial banks in Kenya adopted. The finding implied that there was strong positive relationship between operating cost and lending rates among commercial banks in Kenya.

5.2.4 Gross Domestic Product Growth Rate and Lending Rates

The study sought to establish the effect of gross domestic product growth rate on lending rates among commercial banks in Kenya. The study used regression analysis to ascertain this effect. The results indicate that gross domestic product growth rate accounted for significant variation in lending rates among commercial banks in Kenya. Further, the findings indicate that gross domestic product growth rate was negatively and significantly related to lending rates among commercial banks. The null hypothesis was rejected and hence concluded that the GDP had a significant effect on lending rates among commercial banks in Kenya.

5.2.5 Inflation Rates and Lending Rates

The study sought to establish the effect of inflation rates on lending rates among commercial banks in Kenya. The model used to test the relationship between inflation rates and lending rates was found to be statistically significant. Further; the findings indicate that inflation rates had a positive and a statistically significant effect on lending rates among commercial banks in Kenya. The study presents that, an increase in inflation rates would result to a corresponding increase in lending rates. The null hypothesis was rejected hence the conclusion that inflation had a significant effect on lending rates among commercial banks in Kenya adopted.
5.2.6 Moderating Effect of Political Risk on the relationship between Bank Characteristics, Macroeconomic variables and Lending Rates among commercial banks in Kenya

The study also sought to find out whether annual political risk influenced the effect of macroeconomic variables on lending rates. The regression analysis was performed for macroeconomic variables and the lending rates to establish the individual moderating influence of political risk. The findings indicated that annual political risk insignificantly moderated the effect of banks characteristics on lending rates among commercial banks in Kenya since CIBCs*PR and CIBCs were statistically insignificant at 0.05 significance level. The study failed to reject the null hypothesis that annual political risk does not have a significant moderating effect on the relationship between bank characteristics and lending rates among commercial banks in Kenya. Annual political risk did not significantly moderate the relationship between macroeconomic variables and lending rates among commercial banks in Kenya since CIMECs*PR and CIMECs were statistically insignificant at 5 percent significance level. The study therefore failed to reject the null hypothesis that annual political risk does not have a significant moderating effect on the relationship between macroeconomic variables and lending rates among commercial banks in Kenya.

5.3 Conclusions

Based on the findings, the study concluded that bank size and operating costs play a significant role in determining the lending rates of commercial banks. As commercial banks increase in size they are able to utilize the economies of scale hence reducing marginal operating costs hence they can lower their lending rates and still remain profitable. Small banks are more risky than larger banks therefore they are likely to
charge higher lending rates. On the other hand, credit risk was found to have significant effect on the lending rates among commercial banks in Kenya.

This study concluded that as much as credit risk has an effect on lending rates, their effect could be easily mitigated by the commercial banks through increasing liquidity by interbank borrowing and reducing their non-performing loan portfolio. The study further concluded that GDP growth rates and inflation have a significant role in commercial banks’ lending rates. However, their impact could be made further significant through sound and effective commercial banks’ internal policy and intervention measures initiated by the central bank.

5.4 Contribution to Knowledge

This study sought to establish the effect of bank characteristics and selected macroeconomic variables on lending rates among commercial banks in Kenya. This study has contributed to knowledge by establishing that among the banks characteristics, bank size, credit risk and operating costs significantly affects lending rates while liquidity risk cannot be used in the same model with credit risk as the variables are highly correlated. However, either of these variables can be used in place of the other. Similarly the study provided additional new knowledge on the moderating effect of political risk on the relationship between bank characteristics, macroeconomic variables and commercial bank lending rates. This was made possible by computing a composite index on variables of the same category. That is, bank characteristics having one composite index and macroeconomic variables having a single composite index separately. Otherwise, if a single composite were to be computed combining both classes of variables together, the interpretation would not make sense. The study established that annual political risk does not significantly
influence the relationship between bank characteristics and selected macroeconomic variables on lending rates among commercial banks in Kenya. If such findings are looked into by commercial banks in Kenya, then there could be no reason as to why lending rates cannot be pushed down as opposed to the mechanical legislation recently enacted on lending rates. Because there are instances in which the commercial banks have used an excuse of having political pressures to increase lending rates.

5.5 Recommendations

Based on the findings of this study the following recommendations are made:

The study recommends that CBK should consider bank characteristics when formulating legislation or policy that is intended on reducing the overall lending rates by commercial banks in Kenya. Since inflation rate varies inversely with GDP (aggregate output), the Government should work on projects that spur economic growth so as to bring a trickledown effect as to reduce the lending rates and on inflation, the government should implement policies which aim at reducing the rate of inflation in Kenya so that the lending rates can decrease which enhances economic growth. The study revealed that an increase in inflation rate negatively affects lending rates in the country.

The study recommends that applicants mortgages home equity loans, car loans, and personal loans from commercial banks should consider the size of the banks, its market share and other internal factors to identify the most competitive banks in terms of lending rates. The study further recommends that management of commercial banks that wish to adjust their lending rates in the banking sector in Kenya should focus on their internal factors such as bank size, credit risk and their operations cost
and avoid looking at their liquidity risk which could be as a result of their inefficiencies. This study therefore recommends that the CBK considers withdrawing the recent legislation capping lending rates since economics does not encourage capping. This is also based on the findings that indicate that commercial banks and the government can pull their synergies and work on the components of lending rates as opposed to mechanical legislation. The economy remains tied.

Given the findings of this study which established that lending rates in commercial banks in Kenya is determined by bank characteristics and macro-economic variables, the study argues that despite interest rates capping, the rates are still high compared to developed countries and other countries in Africa that have not had regulation. The Banking amendment Act of 2016 will therefore not be helpful in the long run to normalize interest rates across all commercial banks in Kenya and as such, the study recommends that the Government considers deregulation on commercial banks’ lending rates to unlock the current economic trap that the country finds itself in.

5.6 **Suggestions for Future Research**

This study focused on determining the effect of bank characteristics and selected macroeconomic variables on lending rates among commercial banks in Kenya. The study suggests that future research should focus on the how lending rates charged by commercial banks affect their non-financial performance since the literature available only focuses on the financial performance. Additionally, future studies should focus on the relationship between legal infrastructure and lending rates among commercial banks in Kenya. The study further suggested that future research should focus on effect of internal firm characteristic and macro-economic variables on lending rates among saving and credit cooperatives societies in Kenya since the current study
focused on commercial banks. In addition to carrying out tests based on quantitative data, qualitative data should be considered by future studies.
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# APPENDICES

## Appendix I: List of Commercial Banks in Kenya

| 1. | African Banking Corporation Ltd. |
| 2. | Bank of Africa Kenya Ltd. |
| 3. | Bank of Baroda (K) Ltd. |
| 4. | Bank of India |
| 5. | Barclays Bank of Kenya Ltd. |
| 6. | CFC Stanbic Bank Ltd. |
| 7. | Chase Bank (K) Ltd (Under statutory Management) |
| 8. | Citibank N.A Kenya |
| 9. | Commercial Bank of Africa Ltd. |
| 10. | Consolidated Bank of Kenya Ltd. |
| 12. | Credit Bank Ltd. |
| 14. | Diamond Trust Bank (K) Ltd. |
| 15. | Dubai Bank Kenya Ltd (Under Liquidation) |
| 16. | Ecobank Kenya Ltd |
| 17. | Equatorial Commercial Bank Ltd (Now Spire Bank). |
| 18. | Equity Bank Ltd. |
| 19. | Family Bank Ltd |
| 20. | Fidelity Commercial Bank Ltd |
| 21. | Fina Bank Ltd |
| 22. | First community Bank Limited |
| 23. | Giro Commercial Bank Ltd. |
| 24. | Guardian Bank Ltd |
| 25. | Gulf African Bank Limited |
| 26. | Habib Bank A.G Zurich |
| 27. | Habib Bank Ltd. |
| 28. | I & M Bank Ltd |
| 29. | Imperial Bank Ltd (Under statutory Management) |
| 30. | Jamii Bora Bank Ltd. |
| 31. | Kenya Commercial Bank Ltd |
| 32. | K-Rep Bank Ltd |
| 33. | Middle East Bank (K) Ltd |
| 34. | National Bank of Kenya Ltd |
| 35. | NIC Bank Ltd |
| 36. | Oriental Commercial Bank Ltd |
| 37. | Paramount Universal Bank Ltd |
| 38. | Prime Bank Ltd |
| 39. | Standard Chartered Bank (K)LTD |
| 40. | Trans-National Bank Ltd |
| 41. | Victoria Commercial Bank Ltd |
| 42. | UBA Kenya Bank Ltd. |
| 43. | Charterhouse Bank (Under statutory Management) |

**Source: Central Bank of Kenya, 2015**
Appendix II: Response of Weighted average lending rate to changes in CBR

<table>
<thead>
<tr>
<th>Year</th>
<th>CBR</th>
<th>Change</th>
<th>ALR</th>
<th>Change</th>
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<tr>
<td>2010</td>
<td>6.42</td>
<td>0</td>
<td>14.36</td>
<td>0</td>
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<tr>
<td>2011</td>
<td>8.40</td>
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<td>2012</td>
<td>15.75</td>
<td>7.35</td>
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<tr>
<td>2013</td>
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<td>-0.8</td>
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<td>2015</td>
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<td>3</td>
<td>15.50</td>
<td>-1.01</td>
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Source: Central Bank of Kenya (2016)
## Appendix III: Document Review Guide

<table>
<thead>
<tr>
<th>SOURCE DOCUMENTS</th>
<th>VARIABLE</th>
<th>VALUE (Million KES) Per Year</th>
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<td></td>
<td>Year</td>
<td>2000</td>
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<tr>
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<td>Total assets</td>
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<td>Current Assets</td>
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<tr>
<td></td>
<td>Current liabilities</td>
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<tr>
<td>SOCI</td>
<td>Operating expenses</td>
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<td>CBK Bank Reports</td>
<td>NPLs</td>
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<td></td>
<td>Annual GDP Growth rate</td>
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<td>PR index</td>
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<tr>
<td></td>
<td>Annual Inflation Rate</td>
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<td>Annual Average KBRR</td>
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<td>Market share</td>
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Source: Researcher (2016)
Appendix IV: Lending Rates for countries in Africa (%)

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<td>Burundi</td>
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<td>18.84</td>
<td>18.15</td>
<td>9.52</td>
<td>11.57</td>
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</tbody>
</table>

Source: World Economic indicators (2014)
Appendix V: Research Permit

THIS IS TO CERTIFY THAT:
MR. ANDREW MOKAYA MAUBI
of KENYATTA UNIVERSITY, 0-600
NAIROBI, has been permitted to conduct
research in Nairobi County
on the topic: BANK
CHARACTERISTICS, MACROECONOMIC
VARIABLES AND LENDING RATES
AMONG COMMERCIAL BANKS IN KENYA

for the period ending:
7th December, 2017

Applicant’s Signature

Director General
National Commission for Science,
Technology & Innovation

CONDITIONS

1. You must report to the County Commissioner and
the County Education Officer of the area before
embarking on your research. Failure to do that
may lead to the cancellation of your permit.
2. Government Officer will not be interviewed
without prior appointment.
3. No questionnaire will be used unless it has been
approved.
4. Excavation, filming and collection of biological
specimens are subject to further permission from
the relevant Government Ministries.
5. You are required to submit at least two(2) hard
copies and one (1) soft copy of your final report.
6. The Government of Kenya reserves the right to
modify the conditions of this permit including
its cancellation without notice.
Appendix VI: Research Authorization

Ref. No: NACOSTI/P/16/19271/14979

8th December, 2016

Andrew Mokaya Maubi
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Characteristics, macroeconomic variables and lending rates among Commercial Banks in Kenya,” I am pleased to inform you that you have been authorized to undertake research in Nairobi County for the period ending 7th December, 2017.

You are advised to report to the Chief Executive Officers of selected banks, the County Commissioner and the County Director of Education, Nairobi County before embarking on the research project.

On completion of the research, you are expected to submit two hard copies and one soft copy in pdf of the research report/thesis to our office.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The Chief Executive Officers
Selected Banks.

The County Commissioner
Nairobi County