

**EFFECT OF BANK SPECIFIC FACTORS ON THE LEVEL OF
NON-PERFORMING LOANS AMONG COMMERCIAL BANKS
IN KENYA**

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DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

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DEDICATION

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
CBK	Central Bank of Kenya
GDP	Gross Domestic Product
GMM	Generalized Method of Moments
NPL	Non-Performing Loans
NSE	Nairobi Securities Exchange
SPSS	Statistical Package for Social Sciences
VIF	Variance Inflation Factors

ABSTRACT

Loan portfolio constitutes the largest proportion of banks' assets and therefore when loans become non-performing, they negatively impact profitability along with overall financial activity by banks. High levels of NPLs indicate a vulnerable financial system since it influences the profitability of banks in reducing levels of interest income. Understanding the factors influencing level of NPLs assists in securing effective banking policies to boost overall bank performance. The study's aim was establishing the effect of selected bank specific determinants of the level of NPLs among Kenyan banks. All the 42 banks in operation were the study's population. Data was obtained from 37 of the banks giving a response rate of 88.1% which was considered adequate. The independent variables for the study were capital adequacy given by the ratio of core capital to risk weighted assets, interest rate given by annual average lending rate, profitability given by ROE, liquidity given by liquid assets to total assets on an annual basis and bank size given by natural log of total assets per year. Level of NPLs was the dependent variable given by non-performing loans to total loans ratio. Secondary data for 5 years (January 2015 to December 2019) was obtained annually. A descriptive longitudinal design together with a multiple linear regression model was employed in analyzing how the variables relate. Data analysis was performed using SPSS version 23. Findings revealed an R-square value of 0.299 which meant that 29.9 percent of variations in the level of NPLs resulted from variations in the five selected independent variables. ANOVA revealed an F statistic which was significant at 5% level since $p < 0.05$. Hence the model was sufficient in explaining the relation between the variables. Additionally, capital adequacy exhibited a positive and statistically significant influence on the level of NPLs while profitability had a negative substantial impact on the level of NPLs. The other selected determinants (interest rate, liquidity and bank size) were found not to have a statistically significant influence. The investigation recommends the implementation of measures to enhance profitability of banks and to come up with measures that will minimize the influence of capital adequacy on the level of NPLs as these two variables have a significant influence. It was also recommended that future studies should focus on other determinants of NPLs among commercial banks in Kenya.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Non-Performing Loans (NPLs) which are defined as overdue loans that have remained outstanding for over three months are vital in regards to banking industries' sustainability and performance (Fofack, 2005). Kithinji and Waweru (2007) posit that banking predicaments that caused major bank failures are attributable to NPLs. The relationship existing between bank specific factors, macro-economic variables and the level of NPLs is a subject that has interested many scholars and practitioners. Bank specific factors have been defined as factors that banks have control over (Almajali, 2012). Often times, it is proved that a bank's level of NPL is dictated by some basic firm specific factors such as liquidity, capital adequacy, bank size and management efficiency (Fofack, 2005). According to Dang (2011), profitability, bank capital, composition in credit portfolio, , information technology levels, risk levels, management quality and ownership along with interest rate policy are bank specific factors that influence the level of NPLs.

This research was based on three theories namely; liquidity preference theory, the adverse selection theory as well as the loanable funds theory. Liquidity preference theory as developed by Keynes (1936) determines the combination of assets and liabilities that an entity can hold. Therefore, a bank's decision problem will therefore be on how to balance returns and liquidity, consequently growing its returns (Dafermos, 2009). The theory of adverse selection by Pagano and Jappelli (1993) describes the scenario of a bank which is unable to isolate the risky borrowers from safe borrowers. The bank which is lends in this theory has limited information concerning loan customers. Loanable funds theory by Fry (1995) supports that interest

rates spread determination is founded on the market forces of demand and supply of loanable funds. Equilibrium rate of interest is recognized as level that equalizes supply and demand for these funds (Oost, 2002).

The study focused on Kenyan commercial banks, the choice arising from the fact that the level of NPLs was stated to be the key concern by 95% of banks in Kenya (CBK, 2018). Further, a 2019 report by Moody documented that the soaring NPLs in Kenya is a reflection of poor financial sector health in the country (Waithanji, 2016). The level of NPLs for most commercial banks has been on the rise in the last 10 years. However, there have been periods where the level either experienced significant fluctuations or deepened. It was therefore imperative to carry a study on the role that bank specific factors play on NPLs of Kenyan banking sector.

1.1.1 Bank Specific Factors

These are those characteristic that are unique to banks. This is to mean that they are common to all banks (Yin & Yang, 2013). According to Almajali (2012), they are also called micro factors because they are not generally experienced by the entire population of banks in a given country. In this respect, bank specific factors are those factors that banks have control over. They are mostly resource based and owe their existence to management decisions. It should be noted that the management of firms is responsible for making decisions with the objective of achieving the organizational goals. Kusa and Ongore (2013) views that bank specific factors include: Liquidity, capital adequacy, size of the bank, interest rates and profitability.

Profitability refers to the company abilities to generate revenues within a certain period of time (Adeyemo & Bamire, 2005). This terminology is common in the banking industry to determine the ability of investment capital to generate returns.

Profitability is often measured by Return on Equity (ROE). Liquidity is the extent to which an organization is able to clear its outstanding debts in a span of twelve months using cash or other short-term assets that can be quickly converted to cash and it is normally operationalized by quotient of current assets and current liabilities (Adam & Buckle, 2003). Capital adequacy is a contribution by the shareholders which facilitates the operations of a bank and additionally acts as a guarantee in case of occurrence of a negative eventuality and it is usually given by the quotient of core capital to risk weighted assets (Nyanga, 2012).

The size of an organization is primarily determined by the amount of assets it owns. An argument can be made that the larger the assets a firm owns, the more its ability to assume a large number of projects with greater returns in comparison with small firms with a smaller amount of assets. This implies that bigger banks have higher loan volumes which can translate to NPLs (Amato & Burson, 2007). Bank size is usually given by the book value of total assets held by a bank. Interest rates is another bank specific characteristic and it is often given by the average bank lending rate (Liargovas & Skandalis, 2008).

1.1.2 Level of Non-Performing Loans

NPLs are defined as principle or interest overdue for a period of 90 days or more (Mutua, 2015). Fofack, (2005) agrees with the definition suggesting that NPLs are overdue loans which do not generate income for a long duration, which mean that both the principle and interest on the loans have remained outstanding for over three months. Therefore, loans that are considered uncollectable are referred to as NPLs and they affect the lending patterns of different banks depending on historical impacts and

the measures put in place to regulate lending per bank and across the industry (Tanui, Wanyoike & Ngahu, 2015).

Level of NPLs is important because it affects the lending of banks which is the main income source of the banks and in large affects the economy at large as it brings financial stability (Fofack, 2005). As a result of this, a lot of attention has been drawn to NPLs by recognizing the effects of huge amount of NPLs in banks which can result to banks failure and as well be an indicator of a slowdown in the economy. This is mainly because performance of commercial banks is measured by profitability and NPLs directly have a negative effect on it because of provisions made on NPLs account (Ezeoha, 2011).

The level of NPL in a bank is determined by the proportion of the NPLs to the total loans advanced. The higher the percentage, the higher the credit risk that a bank will be facing. Indeed, lately, the issue of non-performing credits has occupied the interests of banks and controllers, both in developed and developing nations in view of the part that bad debts contribute to the banking crisis. Towards controlling the level of NPL in a bank income statement, Manoj and Gauray (2010) suggests development of strategies aimed at controlling the level of NPLs. Saba, Kouser and Azeem (2012) recognize the volume of outstanding loans allowed by banks to be directly related with the volume of non-performing loans.

1.1.3 Bank Specific Factors and Non-Performing Loans

Various factors, theoretically, influence the level of NPLs among banks. These factors include interest rates, bank size, liquidity and profitability. According to Khan and Sattar (2014) interest rate affects NPLs either positively or negatively depending on its movement. A decrease in interest rate to the depositors and an increase in spread

discourage savings. Other factors are borrower's characteristics such as gender, age, wealth, experience and credit history, risk profile, earning and business experience, and finally loan characteristics, such as loan amount, maturity, interest rate and collateral offered (Aduda, Masila & Onsongo, 2012).

Level of NPLs in most cases gets better with liquidity, profitability and size of a bank (Athanasoglou et al., 2005). According to Dang (2011) studies apply the CAMEL framework to measure bank-specific factors which are considered to be within the scope of manipulative banks hence different from each bank. The variables show amount of deposit debts, bank capital, composition in credit portfolio, labor producing, information technology levels, risk levels, management, banking quality, ownership along with interest rate policy. Bank related aspects like bank size, return on assets, capital adequacy ratio, return on equity and loan to deposit ratio have influence on levels of NPLs. Banking system's high NPL represents high credit risk that consequently encounters banks with market risk and liquidity risk (Ekrams & Rahnama, 2009).

Pandey (2015) tested the effectiveness of firm specific factors on the level of NPLs and it was found that financial leverage and bank size had a positive link to the level of NPLs, capital adequacy demonstrated the bank's internal strength which enabled it to sustain losses during financial crisis. Sangmi and Tabassum (2011) found that financial institutions that had stable capital were stable and thus recorded lower NPLs. Ayanda et al., (2013) tested factors that affected the level of NPLs among banks in Nigeria and the findings showed that solvency margin recorded an insignificant relationship with the level of NPLs. This view coincides with the observation of Haron (2014) who found an inverse link between solvency margin and level of NPLs.

1.1.4 Commercial Banks in Kenya

CBK defines a bank as a business which carries out, or intends to conduct banking activities in Kenya. Commercial banking business involves the acceptance of deposits, issuing credit, money remittances and other financial services. This sector plays a key role in financial services and places much emphasis on mobilizing savings and issuing credit. The Bank Supervision annual report (2018) states that, the banking industry consists of the CBK as the legislative authority. The sector has 1 mortgage finance, 42 commercial banks and 13 microfinance banks. Among the 42 banks, 30 have local ownership while 12 have foreign ownership. 11 of the 42 are listed at the NSE.

All commercial banks are expected to adhere to specific regulations like loan to deposit ratio, lowest cash reserves and liquidity ratios with the central bank. The controller has the obligation to make sure that commercial banks uphold the necessary liquidity parameters, remains solvent and function efficiently and effectively so as to benefit all stakeholders. The checks and licensing of commercial banks is provided by the Act of Banking containing the rules and regulations to be followed and observed (CBK, 2018).

A 2019 report by Moody documented that the soaring NPLs in Kenya is a reflection of poor financial sector health in the country. The report indicated that, in March 2019, Kenya's NPL ratio to total loans stood at 12.4 percent up from 12.9 percent in April 2019. This makes Kenya the fourth country in Africa with high NPL to loans ratio, the others being Angola at 24 percent, the Democratic Republic of Congo at 21 percent and Ghana at 19 percent in the same month. The same makes Kenya being the country with the worst non-performing loan performance in East Africa (Moody,

2019). It is evident that the constant growth of NPLs is a matter of great concern. Therefore, figuring out the soundness of commercial banking industries relates great importance in promotion within Kenya's financial stability.

1.2 Research Problem

Loan portfolio constitutes the largest proportion of banks' assets and therefore when loans become non-performing, they negatively impact profitability along with overall financial activity by banks. High levels of NPLs indicate a vulnerable financial system since it influences the profitability of banks in reducing levels of interest income, whereas low levels of NPLs indicate the presence of a sound effective financial system. This is attributed to both external and internal factors influencing a banks operation. Therefore, understanding the factors influencing level of NPLs assists in securing effective banking policies to boost overall bank performance. If NPLs continue to exist, resources are confined within unprofitable fields hence hindering economic prosperity and also impair economic efficiency (Athanasoglou et al., 2005).

According to the 2018 CBK's commercial bank credit officers' report, NPLs in Kenya has been on a rising trend and it keeps on growing. The reported NPL in 2018 was 63.8 billion, from 44.66 billion within 2017, representing a 30.3 percent increase. It is evident that the constant growth of NPLs is a matter of great concern. Hence knowing the soundness of commercial banking is of great importance in order to promote financial stability in Kenya (CBK, 2018). The ratio of NPLs to sum of loans in Kenya is quite high compared to its African counterparts, which stood at 34 percent as of June 2018. The ratio was lower in other economies such as Nigeria at 10

percent, Zambia at 8 percent, and South Africa at 3 percent (Kenya Bankers Association, 2018).

Several investigations have been done in this area globally. Luzis (2012) noted that for all loan portfolios, NPLs in Greek banking structures were attributable to bigger economic variables such as GDP, management quality, lack of employment, levels of interest and debts within the public. Beaton et al. (2016) noted that worsening in asset quality was as a result of both macroeconomic and bank-related determinants. Danisman (2018) conducted a financial statement study of firms in Turkey and examined determinants of NPLs. The study identified banks specific variables namely, bank size, profitability, and capital adequacy be having negative coefficients and thus had negative effects on NPL.

Locally, Warue (2012) focused on analyzing how bank-specific and macroeconomic factors of NPLs on Kenyan banks. The study concluded that bank specific factors largely contribute to the performance of NPLs as compared to the macro-economic factors. Ndede and Kavoya (2017) carried out a survey to investigate the role played by the market structure in the determination of NPL. The study used descriptive statistics techniques to achieve this objective. It was established that the growth of capital and access to credit impacted NPL positively. Atem (2017) studied the factors that contribute to NPLs in Kenya. The study only found interest rate charged by banks to be having a positive NPL.

Although there are previous studies done before in this area, the studies have mostly focused on some selected determinants of NPLs while others have considered macro-economic factors. The results of the available studies are also inconsistent. Owoputi, Kayode and Adeyefa (2014) found that capital adequacy and bank size has a positive

impact on level of NPLs while Danisman (2018) found that bank size, profitability and capital adequacy have a negative effect. Mazlan, Ahmed and Jafer (2016) found that bank size has no effect while Kemunto (2019) concluded that bank size and loan to deposit ratio have a positive effect while capital adequacy has a negative effect. The intent of the study was contribute to this area by answering the research question; what is the effect of bank specific factors on the level of NPLs among commercial banks in Kenya?

1.3 Research Objective

The study's objective was determining the effect of bank specific factors on the level of non-performing loans among commercial banks in Kenya.

1.4 Value of the Study

The findings of this study will be of great importance to the researchers in future as it will act as a reference point. In addition, the findings could also be of paramount importance to researchers and academician as far as identification of research gaps is concerned and as a basis to review empirical literature by future researchers.

The stakeholders of the banking industry will find this research very useful as this study will generate vital information in management of the industry. These stakeholders include researchers, managers in the sector and the legislative authorities in the sector. The management of banks will derive the most out of this since it illuminates ways in which they can utilize bank specific factors as a channel to reduce credit risk in their banks.

To the government and other policy makers, the study will also be of important as they may use its findings to generate effective policies to mitigate the impacts of bank specific factors on credit risk of banking sector. Study findings also provide guide in

the selection of sound and acceptable bank values that subsequently decrease levels of NPLs within economies.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

A review of theories on which this study is based was presented in this section. Additionally, prior research on this subject and related areas are presented. Other discussions in this chapter covered the determinants of NPLs, conceptual framework showing how the variables under study relate and summary of the literature under review.

2.2 Theoretical Framework

This is a review of theories explaining the relationship between bank specific factors and NPLs. Theoretical reviews covered are loanable funds theory of interest rates, the theory adverse selection and the liquidity preference theory.

2.2.1 Liquidity Preference Theory

The theory by Keynes (1936) laid a foundation for cash holding. In this theory, Keynes argues that holding all other factors constant, investors will have a preference for liquid investments as opposed to long-term investments and will seek a higher return for investments that will take more time to mature. Liquidity is the expediency of holding cash. An individual or firm will hold money for various reasons at a given time (Bitrus, 2011). Based on the theory, firms hold cash to enable them meet their transaction, precaution, speculative and compensation motives.

Bibow (2005) suggests that liquidity preference establishes the balance of assets and liabilities that an entity can hold. Therefore, a bank's decision problem will therefore be on how to balance returns and liquidity, consequently growing profitability (Dafermos, 2009). The importance of this theory is that it will enable the bank to

balance holding short term loans and long term loans and hold more of short term securities that are more liquid. Since short term investments are more liquid, a bank can easily convert them into cash, which can then be used to cushion the bank against operational risk that can arise. This also explains the theoretically expected relationship between liquidity and the level of NPLs.

2.2.2 Adverse Selection Theory

The theory by Pagano and Jappelli (1993) suggested that the primary method of reducing the agency problem is by regulating the law, IASs, IFRS and Securities Exchange which require managers adhere fully to the disclosure of private information. The SEC and FASB give the guidelines that should be followed in mandatory disclosure. These guidelines do not guarantee full disclosure because of the existing conflict that managers and shareholders have. Their argument is that corporate reporting gives the finance specialists standard information and that contributes to basic leadership (Auronen, 2003).

Additionally, principals incur agency costs in efforts to reduce the conflict. Such costs include; monitoring, (incurred by shareholders in following up managers and minimizing their divergent activities), connection costs (incurred by managers for optimal contracts as warranty that the principals will not be adversely affected by their actions) and outstanding loss costs (arising from judgments made by the agents which are different from judgments that would have maximized principal's wellbeing). The cost of agency is hence the summation of the three costs (Bofondi & Gobbi, 2003). This hypothesis is applicable to the study since it relates to how highly a firm can charge interest rates that are non-favorable to borrowers concealed as lending risk. This contributes to reduced lending volumes and increased NPLs since it

triggers high interest rates. The theory also explains how interest rates can influence the level of NPLs.

2.2.3 Loanable Funds Theory of Interest Rate

The theory by Fry (1995) posits that in the loanable funds theory, there is an assumption that the rates of interest charged are normally determined the market forces of loanable funds supply and credit demand. This theory focuses primarily on how interest rates are determined and explain long term interest rates.

Loanable fund refers to money saved by the economy's investors and entities which is available for lending to potential borrowers. Using market forces of demand and supply, it explains rates of interest of existing loans. The supply of such funds comes from economic entities, government and individuals who sacrifice spending for investment. Investors lending at a rate here one way of capitalizing. Demand for the loanable monies arises from individuals and business intending to finance their businesses and investments like purchasing assets which have the potential to increase in value overtime e.g. land. As a result, borrower's choice to finance their investments through acquiring the credit facilities creates the demand for the loanable fund (Rocha, 1986).

As per the theory, determination of the spread of interest rates is founded on market forces of demand and supply of the loanable funds. Rates of interest are based on as level at which demand and supply for loanable equal. In a study by Claeys and Vander (2008), this theory explains the determinants of interest rate spread, because suppose people choose not to save in banks, there will be a low supply of the loanable funds limiting the ability of banks to provide credit facilities to the borrowers. The result of this will be an increase in the demand for such facilities with a low supply of

the same and will push the interest rates up. This has a resultant effect of widened interest rate spread. This theory makes an assumption of the existence of a perfect competition in the market such that, it is impossible for a borrower or a lender to determine security prices. Also, it assumes free funds mobility of the funds in the marketplace. The importance of the theory to this study as it explains how the prevailing interest rates in the market are determined and in essence how they relate to the level of NPLs.

2.3 Determinants of the Level of Non-Performing Loans

The determination of the level of NPLs may be ascertained through various factors which could possibly be internal or even external factors. Internal factors vary from one bank to the other and are within the control of the bank. They consist of capital size, quality of management, efficiency of management, deposit liabilities, credit portfolio, policy of interest rate, ownership and bank size. External factors affecting the level of NPLs are mainly gross domestic product, inflation, stability of macroeconomic policy, Political instability and the rate of Interest (Athanasoglou, Brissimis & Delis, 2005).

2.3.1 Interest Rates

The rate of interest is considered as an outlay of funds and an upward or downward movement in interest rate could influence the savings choice of the financiers (Olweny & Omondi, 2010). According to Rehman, Sidek and Fauziah (2009), the use of an interest cap causes banks to decrease loans and provoke many of these foundations to abscond rural areas, as a result of high cost of production and rate of perils. This in turn will lead to slowed growth of the banks. The banks can mitigate this situation by skyrocketing fees and other levies to arrest the situation. Barnor

(2014) stated that, unexpected change in interest rate has an impact of increasing the rate of default.

According to Khan and Sattar (2014) interest rate affects NPLs either positively or negatively depending on its movement. A decrease in interest rate to the depositors and an increase in spread discourage savings. An increasing interest rate to the depositor adversely affects the investment. Banking sector is the most sensitive to movements in interest rates in comparison to other sectors because the largest proportion of banks' revenue comes from the differences in the interest rate that banks charge and pays to depositors.

2.3.2 Bank Size

The degree to which a bank is impacted by financial and legal factors is usually determined by the bank size. Normally large banks are able to acquire cheap capital and also are able to make big profits and therefore this mean that the bank size is directly connected with capital adequacy. Also ROA has a positive association with the bank size meaning that large banks are able to attain economies of scale thereby reducing on the cost of operating and increasing their loan volumes (Amato & Burson, 2007). Magweva and Marime (2016) associated the size of bank with level of NPLs opining that they have positive association with each other meaning that level of NPL increase as the bank increases in size.

According to Amato and Burson (2007), the size of an organization is primarily determined by the amount of assets it owns. An argument can be made that the larger the assets a firm owns, the more its ability to assume a large number of projects with greater returns in comparison with small firms with a smaller amount of assets. Additionally, the bigger the firm, the larger the amount of collateral that can be

pledged in a move to access credit facilities in comparison to their smaller competitors (Njoroge, 2014). Lee (2009) concluded that the amount of assets in control of a firm has an influence on the level of NPLs of the said firm from one year to the next.

2.3.3 Bank Liquidity

Liquidity is the extent to which a bank has the ability to meet debt obligations incurring in a period of twelve months using cash and its equivalents for example short-term assets that are easily convertible to cash. Liquidity therefore arises from the ability of managers to meet their financial commitments due to lenders without resorting to the liquidation of their other assets (Adam & Buckle, 2013).

Liargovas and Skandalis (2008) state that having an adequate proportion of liquid assets helps firms in financing their activities and for investment purposes in cases where external financing is unavailable. Firms that have high liquidity have the ability to meet unexpected contingencies and obligations falling due. Almajali et al. (2012) noted that the liquidity of banks can massively impact the amount of credit extended to clients; thus banks should work towards increasing their liquid assets and lowering short term obligations as they recommended. However, Jovanovic (1982) noted that increasing bank liquidity may be more harmful than useful.

2.3.4 Profitability

The level of NPLs shows a bank's asset risk situation and financial strength. Level of NPLs forecasts the degree of credit risk and among the dynamics which affects the health status of a bank. The value of assets controlled by a specific bank relies on the amount of credit risk, and the assets quality controlled through the bank also relies on liability to particular risks, tendencies on NPLs, and the cost-effectiveness of the

debtors to the bank (Athanasoglou et al., 2009). Preferably, this ratio ought to be at a minimum. If the lending books are vulnerable to risk in a smoothly operated bank, this would be reflected by advanced interest margins. On the other hand, if the ratio decreases it entails that the risk is not being appropriately recompensed by margins.

The asset of a bank comprises loans portfolio, current asset, fixed asset, and other investments. Level of NPLs in most cases gets better with age and size of a bank (Athanasoglou et al., 2005). The main income generating assets of banks are loans. The profitability of a bank therefore highly explains the level of NPLs. High profitability implies reduced level of NPLs (Dang, 2011).

2.3.5 Capital Adequacy

Capital adequacy ratio or bank capitalization ratio is the ratio of equity as related to total assets. It evaluates solvency in a bank's ability to regulate risks. Berger and DeYoung (1997) in their study established negative relationship between capital adequacy ratio and NPLs. Similarly, Louzis et al. (2012) established a negative link between capital adequacy ratio and NPLs. They concluded that banks with high capital adequacy ratios can afford to put effective measures in place to mitigate the default risks leading to reduced NPLs levels.

A bank that is well capitalized sends signals to the market that it should anticipate performance which is above the average. Athanasoglou et al., (2005) established that capital contributed to the level of NPLs positively and this was shown in the good financial condition of the Greece banks. Additionally, Berger et al. (1987) revealed connection in both directions amongst the contribution of capital and companies' level of NPL.

2.4 Empirical Review

Local and international studies have been done to support the relationship between firm specific factors and the level of NPLs, with varied findings.

2.4.1 Global Studies

Owoputi, Kayode and Adeyefa (2014) studied the influence of variables (industry specific, macroeconomic and bank-specific) on Nigerian bank NPLs. The study's data was from central bank of Nigeria publications and financial statements of ten banks from 1998 to 2012. Three macroeconomic variables were analyzed in this study: interest rate, inflation rate, and GDP. After applying a random-effect model, the researchers found a notable and positive influence of bank size and capital adequacy on NPLs. Liquidity ratio has a negative association on NPL of banks. Out of the three macroeconomic variables investigated in this study, the empirical results showed a significant and positive impact of interest rate and inflation rate on bank NPLs while GDP growth has an insignificant relationship.

Mazlan, Ahmad and Jaafar (2016) examined factors affecting of quality of bank assets and profitability for Indian banks. The population of the study was 80 Indian banks that had operated for more than 5 years. The study employed panel data method of analysis between 1997 and 2009 and the findings showed evidence contrary to the expected. The study found out that non-performing assets had no significant influence on profitability of commercial banks and further that asset size of the bank has insignificant effect on level of commercial banks NPLs.

Danisman (2018) conducted a financial statement study of firms in Turkey and examined factors of NPLs. The author used yearly data from 27 non-commercial and listed Turkish financial firms for the years 2007-2015 utilizing dynamic panel data

estimation technique using the GMM estimation concepts formed by Boyer and Arellano (1995) and Blundell and Bond (1998). The study identified banks specific variables namely, bank size, profitability, and capital adequacy be having negative coefficients and thus had negative effects on NPL. The study concluded that the more profitable a bank is, the lesser are its chances of having high NPLs and vice versa.

Kingu et al. (2018) examined a data of 16 commercial firms for periods within 2007 and 2015 utilizing causality research design to ascertain the bank related factors that influence level of NPLs within financial firms in Tanzania. The analysis included descriptive statistics and multiple regression analysis. The researcher wanted to test the assertions of information asymmetry theory. Asset growth, higher capital ratio and loan to asset ratio had a negative impact on NPLs while cost inefficiency had a positive impact on NPLs.

Manz (2019) used a systematic literature review to conduct a study on the determinants of NPL for the period spanning 1987 to 2017. The study reviewed NPL in the context of macroeconomic variables, bank financial performance indicators and loan characteristics. The review further focused on developed, emerging and developing economies. The study found out that there are varied empirical findings on the determinants of NPL. It concludes that there is need for a deeper understanding of NPLs and this should emanate for more empirical research.

2.4.2 Local Studies

Maina (2015) examined the factors that affect NPLs in Kenyan commercial banks. The study used a fixed-effect model on a panel of forty-three commercial banks to achieve for the period 2008 to 2012. The study obtained negative and significant coefficients of budget deficit and lost revenue. The study concluded that budget

deficit and lost revenue have a negative impact on NPLs. The study found that other macroeconomic variables such as gross domestic product, and interest rate to be having an insignificant effect on NPL.

Ndede and Kavoya (2017) carried out a survey to investigate the role played by the market structure in the determination of NPL. The study used descriptive statistics techniques to achieve this objective. It was established that the growth of capital and access to credit impacted NPL positively. On the other hand, appetite to risk by bank manager had a positive effect on NPL. The study arrived at a conclusion that those banks that have managers who have a high attitude to risk would tend to subject the bank to risky situations such as granting huge amounts of loans for the sake of gaining greater returns. It is this factor that leads to high incidences of loan defaults and thus NPLs.

Atem (2017) conducted a case study on the factors that contribute to NPLs in Kenya. The study concentrated on Kenya Commercial Bank branches within Nairobi and its environs and focused on the bank-specific aspects and the demographic characteristic of borrowers. By use of ordinary least square multiple regression method, the study only found interest rate charged by banks to be having a positive NPL. On the other hand, size of credit was found not to have a significant influence on NPL. Additionally, none of the demographic variables in the model, namely, gender and age of borrowers had a significant influence on NPL.

Wairimu and Gitundu (2017) analyzed the macroeconomic factors determining NPLs within Kenya by use of time-series data covering 18 years, spanning between 1998 and 2015. The study had inflation rate, public debt, unemployment rate, GDP growth rate, remittance, and exchange rate as independent variables and measured them

against NPL to total loan ratio. The study used multivariate ordinary least square technique to analyze the data. The finding of the study was that inflation rate, public debt, exchange rate and GDP growth rate had statistically insignificant coefficients whereas remittances and unemployment rate were found to be statistically significant.

Kemunto (2019) sought to establish the bank-specific determinants of NPLs in Kenya. 43 banks operating in Kenya as at 31st December 2018 were the population of the study. Secondary data was acquired for 5 years (January 2014 to December 2018) on an annual basis. Research design was descriptive cross-sectional design whereas association between variables was determined by multiple linear regression model. The results demonstrated that that bank size and loans to deposit ratio were positively and statistically substantial values in the study. Capital adequacy was found to have a negative and statistically significant influence on NPLs. The study found that interest rates have a statistically insignificant influence on NPLs among banks.

2.5 Summary of the Literature Review

A number theories have attempted to explain the predicted relation between bank specific factors and the Kenyan banking industry NPLs. Theories covered in this review are; loanable funds theory of interest rates, adverse selection theory and liquidity preference theory. Some of primary influencers of the level of NPLs have also been reviewed. Several local and international studies exist on firm specific factors and NPLs. The resultant findings have also been discussed.

Other than studies having non-conclusive consensus towards variables that affect NPLs, there were also shortcomings on the empirical approaches that were used in their analysis. It is the approaches that were used that could explain the variations in their findings. The study by Atem (2017) showed that rates of interest was the only

variable with a significant influence on NPLs but this view is opposed by Kemunto (2019) which finds interest rate to be insignificant and that bank size, loan to deposit ratio and capital adequacy have a significant influence. Lack of consensus among previous researchers is reason enough to conduct further study. This study will contribute to this debate.

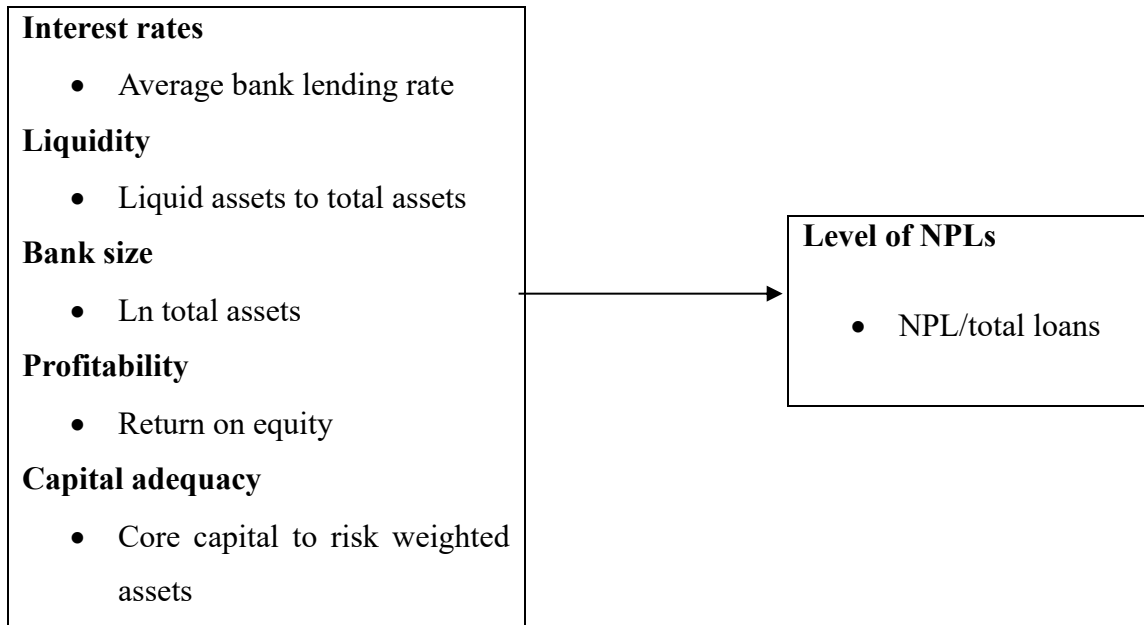
2.6 Conceptual Framework

Figure 2.1 illustrates the expected association existing among the variables. The predictor variables are interest rates given by average bank lending rates, liquidity given by the ratio of liquid assets to total assets, bank size given by the natural logarithm of total assets, profitability given by return on equity and capital adequacy given by the ratio of core capital to risk weighted assets. NPL level was the response variable that the study explained and was given by the ratio of NPLs to total loans.

Figure 2.1: The Conceptual Model

Independent variables

Dependent variable



Source: Researcher (2020)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

To ascertain how the level of NPLs among Kenya banks is affected by bank specific factors, a methodology was essential in outlining how the study was done. The sections included in this chapter are; the design, data collection, diagnostic tests and analysis.

3.2 Research Design

The research utilized a descriptive design in determining how bank specific factors and the level of NPLs among banks relate. This design was sufficient because the researcher sought to describe the nature of affairs as they are (Khan, 2008). It was also appropriate because the nature of the phenomenon being studied and how they relate was of major interest to the researcher. Additionally, a descriptive research validly and accurately represents the variables which aids in providing a response to the study question (Cooper & Schindler, 2008).

3.3 Population

A population is the totality of observations of interest from a collection such as persons or events as specified by a research investigator (Burns & Burns, 2008). This study's population consisted of the 42 banks in Kenya as at 31st December 2019. Because the population was relatively small, all the 42 banks were used in the study (see appendix I).

3.4 Data Collection

This study relied solely on secondary data. The source of the data was the published annual financial reports published by banks between January 2015 and December

2019 and recorded in a collection sheet. Reports were acquired from the CBK web page and financials of the banks. The specific data collected included net income, total assets, NPLs, total loans, liquid assets, core capital and risk weighted assets.

3.5 Diagnostic Tests

To determine the viability of the study model, the researcher carried out several diagnostic tests, which included normality test, stationarity test, test for Multicollinearity, test for homogeneity of variances and the autocorrelation test. Normality tests the presumption that the residual of the response variable has a normal distribution around the mean. The test for normality was done by the Kolmogorov-Smirnov test. In the case where one of the variables was not normally distributed it was transformed and standardized using the logarithmic transformation method. Stationarity test was used to assess whether statistical properties for example variance, mean and autocorrelation structure vary with time. Stationarity was found using augmented Dickey Fuller test. In case, the data fails the assumption of stationarity, the study used robust standard errors in the model (Khan, 2008).

Autocorrelation measures how similar a certain time series is in comparison to a lagged value of the same time series in between successive intervals of time. This was measured by the Durbin-Watson statistic and in case the assumption was violated the study employed robust standard errors in the model. Multicollinearity occurs when an exact or near exact relation that is linear is observed between two or several predictor variables. Variance Inflation Factors (VIF) and the levels of tolerance were used. Any multicollinear variable should be dropped from the study and a new measure selected and substituted with the variable which exhibits co-linearity (Burns & Burns, 2008).

3.6 Data Analysis

Data analysis was achieved through the aid of SPSS software version 22. Tables and graphs were utilized in presenting the findings quantitatively. Descriptive statistics were used to calculate the measures of central tendency as well as dispersion together with standard deviation for each variable. Inferential statistics on the other hand entailed correlation and regression analysis. Correlation involved establishing the degree of relation amongst the study variables whereas regression analysis entailed knowing the variables' cause and effect. A multivariate regression analysis was determined the association between the variables.

3.6.1 Analytical Model

The regression model below was used:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where: Y = Level of NPLs given by NPLs to total loans on an annual basis

β_0 = y intercept of the regression equation.

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = are the regression coefficients

X_1 = Interest rate given by annual average bank lending rates

X_2 = Bank liquidity given by the ratio of liquid assets to total assets

X_3 = Bank size as measured by the natural logarithm of total assets

X_4 = Profitability as measured by the ratio of net income to equity

X_5 = Capital adequacy as given by the ratio of total core capital to risk weighted assets

ε = error term

3.6.2 Tests of Significance

Parametric tests were carried out by the researcher to establish how significant the overall model and individual parameters are. The F-test was used in the determination of the relevance of the entire model given by the Analysis of Variance (ANOVA) while a t-test determined statistical relevance of individual variables.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This section details the analysis, findings and interpretation of the secondary data collected from the CBK and individual banks websites. The aim of the study was establishing specific determinants of level of NPLs of commercial banks in Kenya. The independent variables for the study were interest rates, liquidity, bank size, profitability and capital adequacy while the dependent variable was the level of NPL given by the ratio of NPL to total loans. Regression analysis was adopted to determine the relation between the variables of study in relation to the study's objectives. In ascertaining the suitability of the analytical model, ANOVA was applied. The findings were illustrated in tables and figures.

4.2 Response Rate

This study obtained data from the 42 banks operating in Kenya as at 31st December 2019 for 5 years (2015 to 2019). Data was obtained from 37 out of the 42 banks giving a response rate of 88.1% which was considered adequate.

4.3 Descriptive Analysis

The descriptive statistics presented is a representation of the mean, minimum and maximum values of variables of the study together with the standard deviations. Table 4.1 below displays the qualities of each variable. An output of each variable was extracted using SPSS software for a five-year period (2015 to 2019) on an annual basis.

Table 4.1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Level of NPLs	185	.0008	38.5539	.355127	2.8284459
Interest rate	185	8.5000	10.7500	9.766210	.7611799
Liquidity	185	.0004	.2266	.073521	.0407567
Bank size	185	14.7750	20.6163	17.725991	1.3648773
Profitability	185	-.2445	.0703	.006468	.0383807
Capital adequacy	185	.2201	2.1258	.231366	.2179108
Valid N (listwise)	185				

Source: Research Findings (2020)

4.4 Diagnostic Tests

The data collected was subjected to diagnostic tests. The study presumed a 95% confidence interval so as to make variable deductions on the data adopted. Diagnostic tests were useful for ascertaining the falsity or truthfulness of the data. In this case, the tests conducted were multicollinearity test, normality test and autocorrelation test.

4.4.1 Multicollinearity Test

Multicollinearity can be defined as a statistical state where more than one predictors are highly correlated in a multiple regression model. It is an unwanted situation for independent variables to have a strong correlation. A combination of variables is said to exhibit high Multicollinearity in case there is one or more exact linear correlation among the study variables.

Table 4.2: Multicollinearity Test

Variable	Collinearity Statistics	
	Tolerance	VIF
Interest rate	0.376	2.659
Liquidity	0.388	2.577
Bank size	0.366	2.732
Profitability	0.398	2.513
Capital adequacy	0.372	2.688

Source: Research Findings (2020)

VIF value and Tolerance of the variable were utilized where the values below 10 for VIF and values more than 0.2 for Tolerance imply no Multicollinearity. From the results, all the variables had a VIF values <10 and tolerance values >0.2 as illustrated in table 4.2 suggesting that no Multicollinearity.

4.4.2 Normality Test

Shapiro-wilk test and Kolmogorov-Smirnov test were utilized for normality testing. The level of significance in the study was 5%. The outputs of the test are depicted in Table 4.3. The null hypothesis is that the data has a normal distribution. Since the p value in both tests of all the variables is greater than the α (0.05), then the null hypothesis is not rejected. Hence the data series of all the variables is normally distributed.

Table 4.3: Normality Test

Level of NPLs	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Interest rate	.181	185	.264	.896	185	.792
Liquidity	.176	185	.264	.892	185	.784
Bank size	.173	185	.264	.918	185	.822
Profitability	.180	185	.264	.894	185	.790
Capital adequacy	.188	185	.264	.892	185	.788

a. Lilliefors Significance Correction

Source: Research Findings (2020)

4.4.3 Autocorrelation Test

To test for autocorrelation, Durbin-Watson statistic was applied which gave an output of 2.093 as displayed in Table 4.4. The Durbin-Watson statistic ranges from point 0 and point 4. If there exist no correlation between variables a value of 2 is shown. If the values fall under point 0 up to a point less than 2, this is an indication of a positive autocorrelation and on the contrast a negative autocorrelation exist if the value falls under point more than 2 up to 4. As a common rule in statistics, values falling under

the range 1.5 to 2.5 are considered relatively normal whereas values that fall out of the range raise a concern. Field (2009) however, opines that values above 3 and less than 1 are a sure reason for concern. Therefore, the data used in this panel is not serially autocorrelated since it meets this threshold.

Table 4.4: Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.547 ^a	.299	.280	2.4002534	2.093

a. Predictors: (Constant), Capital adequacy, Bank size, Interest rate, Liquidity, ROE
b. Dependent Variable: NPLs

Source: Research Findings (2020)

4.5 Correlation Analysis

This analysis determines the existence of an association among two variables. The association could be between a perfect positive and a strong negative correlation. This study utilized Pearson correlation to analyze how level of NPLs and the selected independent variables are related. The study used a confidence interval of 95%, as it is most commonly used in social sciences. A two tailed test was utilized. Table 4.5 shows the correlation analysis outcome.

Existence of a weak negative and statistically significant correlation ($r = -.174$, $p = .018$) between bank size and level of NPLs was revealed. Further results discovered a weak positive and significant correlation between capital adequacy and commercial banks' level of NPLs as demonstrated by ($r = .147$, $p = .046$) existed. Profitability was noted to exhibit a moderate and negative correlation with level of NPLs as evidenced by ($r = -.479$, $p = .000$). Interest rate was noted to have a weak positive and not significant association with level of NPLs as evidenced by ($r = .102$, $p = .167$).

Liquidity exhibited a negative relationship with level of NPLs but the association was not statistically significant as evidenced by a p value above 0.05.

Table 4.5: Correlation Analysis

		NPLs	Interest rate	Liquidity	Bank size	ROE	Capital adequacy
NPLs	Pearson Correlation	1					
	Sig. (2-tailed)						
Interest rate	Pearson Correlation	.102	1				
	Sig. (2-tailed)	.167					
Liquidity	Pearson Correlation	-.049	-.001	1			
	Sig. (2-tailed)	.508	.993				
Bank size	Pearson Correlation	-.174*	-.048	-.146*	1		
	Sig. (2-tailed)	.018	.520	.047			
ROE	Pearson Correlation	-.479**	-.127	-.005	.494**	1	
	Sig. (2-tailed)	.000	.086	.948	.000		
Capital adequacy	Pearson Correlation	.147*	-.103	-.027	.003	.181*	1
	Sig. (2-tailed)	.046	.161	.713	.969	.014	

*. Correlation is significant at the 0.05 level (2-tailed).
 **. Correlation is significant at the 0.01 level (2-tailed).
 c. Listwise N=185

Source: Research Findings (2020)

4.6 Regression Analysis

At significance level of 5% a regression analysis was conducted between level of NPLs and the five independent variables selected for this study. The F critical value was compared against the F calculated.

Table 4.6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.547 ^a	.299	.280	2.4002534	2.093

a. Predictors: (Constant), Capital adequacy, Bank size, Interest rate, Liquidity, ROE
 b. Dependent Variable: Level of NPLs

Source: Research Findings (2020)

From the output in Table 4.6, the R-square value was 0.299, implying that 29.9% of the deviations in the level of NPLs of banks is as a result of variations in interest rate, liquidity, bank size, profitability and capital adequacy. Other factors not incorporated in the model are attributed to 70.1% of the changes in bank's level of NPL. The R value of 0.547 represents the relationship between the study variables and it shows that there exists a moderate relationship between the selected independent variables and level of NPLs among banks in Kenya.

Table 4.7 provides the outcomes of the ANOVA; the essence of F-test was to establish the model's significance. A critical value of 2.46 was obtained from the F-Test tables. The F statistic indicated in the study findings is more than the critical value, thus the whole model is significant to predict the level of NPLs.

Table 4.7: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	440.762	5	88.152	15.301	.000 ^b
	Residual	1031.258	179	5.761		
	Total	1472.020	184			

a. Dependent Variable: Level of NPLs

b. Predictors: (Constant), Capital adequacy, Bank size, Interest rate, Liquidity, ROE

Source: Research Findings (2020)

To ascertain the significance of each variable individually in this research as a predictor of the level of NPLs of banks in Kenya it was important for t-test to be employed. P-value was utilized to indicate the significance of the relationship between the response and the predictor variables. Confidence level at 95% and value of p below 0.05 was understood as an index of statistical significance of the concepts. Therefore, a p-value more than 0.05 depicts an insignificant variable. The outcomes are demonstrated in table 4.8.

Table 4.8: Model Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-6.048	3.607		-1.677	.095
Interest rate	.228	.235	.061	.968	.334
Liquidity	-2.043	4.407	-.029	-.464	.643
1 Bank size	.216	.152	.104	1.423	.156
ROE	-41.933	5.465	-.569	-7.672	.000
Capital adequacy	3.307	.833	.255	3.968	.000

a. Dependent Variable: NPLs

Source: Research Findings (2020)

The coefficients are used to indicate size and direction of the relation that the independent and the response variable have. The T values were applied to establish how significant the relation between the independent variables had to the dependent variable. The values obtained are contrasted to the critical values. A confidence interval of 95% and a two tailed T test critical value of ± 2.04523 was obtained from the T test tables. A T test value that lies out of this range is significant.

The results revealed that capital adequacy has a positive and significant influence on level of NPLs. Implication of this is that a unit increment in capital adequacy will result to an increase in level of NPLs by -41.933. The findings also revealed that profitability has a negative and significant influence on level of NPLs. This implies that if profitability was to be increased by 1 unit, level of NPLs would decrease by 3.307. The constant coefficient -6.048 implies that when the five-selected independent variables have a zero value, level of NPLs would be equal to the figure. Interest rate and bank size exhibited positive but statistically insignificant influence on level of NPLs while liquidity exhibited a negative but not statistically significant influence on the level of NPLs.

The regression equation below was thus estimated:

$$Y_i = -6.048 + 0.228X_1 - 2.043X_2 + 0.216X_3 - 41.933X_4 + 3.307X_5$$

Where;

Y_i = Level of NPLs

X_1 = Interest rate

X_2 = Liquidity

X_3 = Bank size

X_4 = Profitability

X_5 = Capital adequacy

4.7 Interpretation and Discussion of Results

The researcher studied the firm specific determinants of commercial banks' level of NPLs. Interest rate, liquidity, bank size, profitability and capital adequacy were the predictor variables in this study while level of NPLs of banks was given by the ratio of NPL to total loans which was the dependent variable. The adequacy of the overall model in predicting level of NPL was examined. The influence of each predictor variable on the dependent variable was also examined with respect to strength and direction.

From the results of Pearson correlation, the study found that capital adequacy has a positive and statistically substantial correlation with the level of NPLs among banks in Kenya. Further a negative and significant correlation between profitability and commercial banks' level of NPLs existed. Bank size was found to have a negative and significant association with the level of NPLs. Liquidity was found to have a negative but insignificant link with banks' level of NPLs while interest rate exhibited a positive but not statistically significant influence on the level of NPLs among commercial banks in Kenya.

The independent variables from the model summary revealed that: Interest rate, liquidity, bank size, profitability and capital adequacy explains 29.9% of variations in the dependent variable as shown by R square which implies that other external factors explain the 70.1% of variations in the level of NPLs. The model was sufficient at 95% confidence since the F-value is 15.301 and the p value is less than 0.05. This established the sufficiency of the model in predicting how the variables affect commercial banks' level of NPLs. This implies that interest rate, liquidity, bank size, profitability and capital adequacy are good predictors of the level of NPLs.

The model coefficient results showed that there existed a significant positive influence of capital adequacy on banks level of NPL ($\beta=3.307$ and P value <0.05). This implies that a unit increase in capital adequacy increases banks' level of NPLs by 3.307. The findings further showed the existence of a substantial negative relation between profitability and banks level of NPLs ($\beta=-41.933$ and P value < 0.05). This could be interpreted that a unit increase in profitability would lower banks' level of NPLs by 41.933. The other variables were found to have a non-statistically significant influence on the level of NPLs among banks in Kenya.

This study agrees with a study done in the United States of America by Mazlan, Ahmad and Jaafar (2016) who examined factors affecting of quality of bank assets and profitability for Indian banks. The population of the study was 80 Indian banks that had operated for more than 5 years. The study employed panel data method of analysis between 1997 and 2009 and the findings showed evidence contrary to the expected. The study found out that non-performing assets had no significant influence on profitability of commercial banks and further that asset size of the bank has insignificant effect on level of commercial banks NPLs.

The study agrees with one done by Danisman (2018) who conducted a financial statement study of firms in Turkey and examined factors of NPLs. The author used yearly data from 27 non-commercial and listed Turkish financial firms for the years 2007-2015 utilizing dynamic panel data estimation technique using the GMM estimation concepts formed by Boyer and Arellano (1995) and Blundell and Bond (1998). The study identified banks specific variables namely, bank size and profitability to be having negative coefficients and thus had negative effects on NPL. The study concluded that the more profitable a bank is, the lesser are its chances of having high NPLs and vice versa.

The study findings also concur with that conducted by Kemunto (2019) who sought to establish the bank-specific determinants of NPLs in Kenya. 43 banks operating in Kenya as at 31st December 2018 were the population of the study. Secondary data was acquired for 5 years (January 2014 to December 2018) annually. Research design was descriptive cross-sectional design whereas association between variables was determined by multiple linear regression model. The study found that interest rates have a statistically insignificant influence on NPLs among banks.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The study's main goal was establishing the bank specific determinants of the level of NPLs among Kenyan banks. This chapter gives an overview of the results from the previous chapter, conclusion, limitations faced during the study. Moreover, it recommends policies that policy makers can use. Additionally, the chapter gives recommendations for future researchers.

5.2 Summary of Findings

The aim of the research was to ascertain bank specific determinants of the level of NPLs among banks in Kenya. To conduct the study, five independent variables were selected from a critical review of literature. The five variables were namely capital adequacy as given by the ratio of core capital to risk weighted assets, interest rate given as average interest rate, liquidity given as the ratio of liquid assets to total assets, profitability as given by ROE and bank size given as the natural log of total assets. Level of NPLs was the response variable that the study intended to explain and it was given by ratio of NPL to total loans. The researcher reviewed available theoretical foundations and empirical reviews to get an understanding on the generally accepted relationship among the selected dependent and independent variables. From this review, a conceptual framework was developed that hypothesized the expected association between the study variables.

Descriptive research design was employed. All the 42 banks as at December 2019-year end comprised the population of this study and from this, data was obtained from 37 banks giving a response rate of 88.1%. Data secondary in nature was acquired

from CBK and individual banks financial reports for a period of 5 years spanning 2015 to 2019 was used. The researcher carried out descriptive, correlation analysis as well as regression analysis. So as to confirm that the data is fit for analysis the researcher transformed the data using natural logarithms and conducted diagnostic tests to make sure that the data has the required characteristics before conducting inferential statistics. Regression analysis was applied in testing the strength of the association between the study variables and to test both the model's significance and individual parameters. SPSS software version 23 was used to carry out the analysis.

Pearson correlation revealed that capital adequacy has a positive and statistically substantial correlation with the level of NPLs among banks in Kenya. Further a negative and significant correlation between profitability and commercial banks' level of NPLs existed. Bank size was found to have a negative and significant association with the level of NPLs. Liquidity was found to have a negative but insignificant link with banks' level of NPLs while interest rate exhibited a positive but not statistically significant influence on the level of NPLs among commercial banks in Kenya.

The coefficient of determination also known as the R square shows the disparities in the response variable triggered by variations from the predictor variables. From the results, R square was found to be 0.299, a revelation that 29.9% of the changes in the level of NPLs stems from variations in capital adequacy, interest rate, profitability, liquidity and bank size. External factors justify for 70.1% variations in the level of NPLs. The findings showed a moderate correlation between the variables and the level of NPLs ($R=0.547$). Results from ANOVA gave an F statistic was at 5% significance level and a $p=0.000$ rendering the model suitable in explaining the variables' relation.

The results further revealed that capital adequacy has a positive and significant influence on level of NPLs. Implication of this is that a unit increment in capital adequacy will result to an increase in level of NPLs by -41.933. The findings also revealed that profitability has a negative and significant influence on level of NPLs. This implies that if profitability was to be increased by 1 unit, level of NPLs would decrease by 3.307. The constant coefficient -6.048 implies that when the five-selected independent variables have a zero value, level of NPLs would be equal to the figure. Interest rate and bank size exhibited positive but statistically insignificant influence on level of NPLs while liquidity exhibited a negative but not statistically significant influence on the level of NPLs.

5.3 Conclusion

The findings of this study show that the level of NPLs of Kenyan banks is significantly impacted by capital adequacy and profitability. This research shows that an increment in a unit in capital adequacy significantly increases the level of NPLs of commercial banks while a unit increase in profitability significantly decreases the level of NPLs of banks. This implies that a higher level of profitability might imply the firms are doing well in terms of managing their level of NPLs.

The conclusion of this study is that the variables selected (capital adequacy, interest rate, profitability, liquidity and bank size) largely have a notable influence on the level of NPLs of banks in Kenya. The conclusion that these variables have a significance impact on the level of NPLs of banks given the p value in ANOVA summary is hence correct. The finding that 29.9% of the variations in the response variable are from the five factors listed implies that the 70.1% variations are from external factors.

The study further concludes that a unit increase in capital adequacy increases banks' level of NPLs by 3.307. Further, a unit increase in profitability would lower banks' level of NPLs by 41.933. The other variables selected in this study (interest rates, liquidity and bank size) have a non-statistically significant influence on the level of NPLs among commercial banks in Kenya.

5.4 Recommendations of the Study

Leveraging on the study findings, below recommendations has been drawn. The study showed a negative but significant influence of capital adequacy on NPLs among banks. Thus, the findings were that capital adequacy does notably influence NPLs. It is recommended that policy makers should prioritize capital adequacy when crafting policies on NPLs. It can also be recommended to financial institutions, and their boards that capital adequacy should be considered when carrying out strategic management practices to reduce NPLs.

The study recognized that there exists a negative substantial influence of profitability on the level of NPLs among commercial banks. Thus, the study findings were that an increase in a bank's profitability will significantly influence the level of NPLs and in a negative way. It is recommended that policy makers should prioritize increasing profitability when crafting policies to minimize the level of NPLs. It can also be recommended to financial institutions, and their boards that credit risk should be considered when carrying out strategic management practices to boost profitability. Thus, it is necessary to adopt sufficient measures by managers of these banks to raise their performance by reducing the level of NPLs in their books.

The study recognized that there exists a negative substantial relation between bank size and level of NPLs by banks. Thus, the study findings were that an increase in a

bank's assets will significantly lead to a decrease on the level of NPLs. The recommendation is that the management should concentrate on expanding their asset base by instituting policies that would enlarge the banks' assets since this will eventually directly impact on the level of NPLs of the bank. From the findings of the study, banks with bigger asset base are predicted to have better NPL to total loans ratio compared to smaller banks hence banks should grow their asset base.

5.5 Limitations of the Study

This study focused on some bank specific factors that are hypothesized to influence the level of NPLs of banks in Kenya. Specifically, the study focused on five explanatory variables. In reality however, there are other variables that are likely to influence the level of NPLs some which are internal such as management efficiency and loans to deposit ratio while others are not under the control of management such as economic growth exchange rates, balance of trade, and unemployment rate among others.

The study adopted the analytical approach which is highly scientific. The research also disregarded qualitative information which could explain other factors that influence commercial banks' level of NPLs. Qualitative methods such as focus group discussions, open ended questionnaires or interviews can help develop more concrete results as they help capture information that is hardly captured in quantitative analysis.

The research concentrated on 5 years (2015 to 2019). It is not certain whether the findings would hold for a longer time frame. It is also unclear as to whether similar outcomes would be obtained beyond 2019. The study should have been executed over a longer time frame in order to incorporate major forces such as booms and recession.

This study focused on commercial banks in Kenya. There are however other firms in the financial sector that were not taken into account yet their level of NPLs is also influenced by the selected determinants. A case in point is the 12 microfinance banks regulated by the CBK. There are also others whose regulations are not under the jurisdiction of the Central Bank but they are also key players in the sector such as SACCOs which can either be deposit taking or non-deposit taking.

In completing the analysis of the data, multiple linear regression model was used. Because of the limitations involved when using the model like erroneous and misleading findings resulting from variations in value of variables, it would be impossible for the researcher to generally apply the findings accurately. If data is added to the model, it may fail to perform as before.

5.6 Suggestions for Further Research

A suggestion is given that more research ought to include a qualitative analysis of the determinants of banks level of NPLs in Kenya. That study would deal with interviewing of vital respondents in the banks and this would reveal concealed insights into the fine detailed relationship between selected internal determinants and the level of NPLs of commercial banks.

The study did not exhaust all the independent variables influencing the level of NPLs of Kenyan commercial banks and a recommendation is given that more studies are carried out to constitute other variables for instance ownership structures, industry practices, growth opportunities, political stability and age of the firm. Determining the impact of each variable on the level of NPLs shall enable the policy makers to understand the tools that can be used to control NPLs.

The research only focused on the commercial banks. The study's recommendations are that further studies be carried out on other institutions in Kenya. Future studies can also focus on how the selected determinants influence other aspects other than the level of NPLs such as credit accessibility by those excluded from traditional banking, bank efficiency and overall bank performance.

The attention of this study was drawn to the latest five years because it was the readily available information. Subsequent studies may cover big time frame like ten or twenty years which can be very impactful on this study by either complementing or disregarding the findings of this study. The advantage of a longer study is that it will enable the researcher to capture effects of business cycles such as booms and recessions.

Finally, this study was based on a multiple linear regression model, which have its own limitations such as erroneous and misleading results resulting from a change in variable value. Future researchers should focus on other models like the Vector Error Correction Model (VECM) in exploring the various relations between selected determinants and the level of NPLs.

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APPENDICES

Appendix I: Commercial Banks in Kenya

1. ABSA Bank Kenya Plc
2. Access Bank(Kenya) PLC
3. African Banking Corporation Limited
4. Bank of Africa Kenya Limited
5. Bank of Baroda(Kenya) limited
6. Bank of India
7. Charter house Bank Limited
8. Chase Bank(K) limited
9. Citibank N.A Kenya
10. Consolidated Bank of Kenya
11. The Cooperative Bank of Kenya
12. The Credit Bank Limited
13. Development Bank of Kenya
14. Diamond Trust Bank of Kenya
15. DIB Bank Kenya Limited
16. Eco Bank Kenya Limited
17. Equity Bank of Kenya Limited
18. Family Bank Limited
19. First Community Bank Limited
20. Guaranty Trust Bank(K) Limited
21. Guardian Bank Limited
22. Gulf African Bank Limited
23. Habib Bank A.G Zurich

24. I & M Bank Limited
25. Imperial Bank Limited
26. Jami Bora Bank Limited
27. KCB Bank Kenya Limited
28. Mayfair CIB Bank Limited
29. Middle East Bank (K) limited
30. M-Oriental Bank Limited
31. National Bank of Kenya Limited
32. NCBA Bank Kenya PLC
33. Paramount Bank Limited
34. Prime Bank Limited
35. SBM Bank Kenya Limited
36. Sidian Association Bank Limited
37. Spire Bank Limited
38. Stanbic Bank Kenya Limited
39. Standard Chartered Bank Kenya Limited
40. UBA Association Kenya Bank
41. Victoria Commercial Bank Limited

Source: Central Bank of Kenya (2020)

Appendix II: Research Data

Bank	Year	ROE	Capital adequacy	Interest rate	NPLs	Liquidity	Bank size
ABC Bank	2015	0.0081	0.1645	8.5000	0.1426	0.0544	16.9342
	2016	0.0029	0.1528	10.1250	0.1566	0.0659	16.9451
	2017	0.0065	0.1560	10.7500	0.1829	0.0992	17.0576
	2018	0.0004	0.1844	10.0000	0.1989	0.0633	17.1451
	2019	0.0023	0.1538	9.3333	0.1490	0.0750	17.1964
Bank of Africa	2015	-0.0148	0.1639	8.5000	0.2325	0.0859	18.0537
	2016	0.0002	0.1616	10.1250	0.2606	0.1142	17.8408
	2017	0.0012	0.1578	10.7500	0.2816	0.0951	17.8080
	2018	0.0035	0.1602	10.0000	0.3383	0.2023	17.7090
	2019	-0.0464	0.1083	9.3333	0.4139	0.2103	17.5996
Bank of Baroda	2015	0.0297	1.9617	8.5000	0.0754	0.0475	18.0376
	2016	0.0355	0.3053	10.1250	0.0846	0.0489	18.2332
	2017	0.0408	0.3229	10.7500	0.0586	0.0455	18.3812
	2018	0.0319	0.3466	10.0000	0.0882	0.0519	18.6278
	2019	0.0286	0.3274	9.3333	0.0828	0.0547	18.7805
Barclays Bank	2015	0.0349	0.1840	8.5000	0.0420	0.0755	19.2998
	2016	0.0285	0.1786	10.1250	0.0521	0.0515	19.3751
	2017	0.0255	0.1803	10.7500	0.0556	0.0602	19.4197
	2018	0.0228	0.1638	10.0000	0.0610	0.0723	19.6003
	2019	0.0199	0.1667	9.3333	0.0560	0.0770	19.7397
Bank of India	2015	0.0263	0.4230	8.5000	0.0202	0.0362	17.5571
	2016	0.0343	0.4574	10.1250	0.0139	0.0335	17.6829
	2017	0.0369	0.5397	10.7500	0.0207	0.0391	17.8521
	2018	0.0309	0.4392	10.0000	0.0713	0.0340	17.9537
	2019	0.0374	0.4842	9.3333	0.0936	0.0427	17.9514
Citibank	2015	0.0386	0.2832	8.5000	0.0580	0.1110	18.2945
	2016	0.0332	0.2637	10.1250	0.0192	0.0672	18.4534
	2017	0.0398	0.2555	10.7500	0.0368	0.0835	18.4028
	2018	0.0369	0.2764	10.0000	0.0162	0.0860	18.2656
	2019	0.0304	0.2715	9.3333	0.0257	0.1219	18.3858
Commercial Bank of Africa	2015	0.0167	0.1792	8.5000	0.1059	0.0810	19.1891
	2016	0.0287	0.1845	10.1250	0.0745	0.1344	19.2507
	2017	0.0231	0.1732	10.7500	0.0831	0.0947	19.3199
	2018	0.0226	0.1573	10.0000	0.0797	0.0754	19.3172
Consolidated bank	2015	0.0031	0.0939	8.5000	0.0553	0.0537	16.4642
	2016	-0.0152	0.0790	10.1250	0.1176	0.0469	16.4487
	2017	-0.0249	0.0509	10.7500	0.1527	0.0637	16.4149

Bank	Year	ROE	Capital adequacy	Interest rate	NPLs	Liquidity	Bank size
	2018	-0.0419	0.0280	10.0000	0.1533	0.0713	16.3718
	2019	-0.0448	0.1352	9.3333	0.2568	0.0764	16.2888
Credit bank	2015	-0.0058	0.1551	8.5000	0.0638	0.0247	16.1464
	2016	0.0090	0.2285	10.1250	0.0722	0.0248	16.3200
	2017	0.0092	0.1477	10.7500	0.0754	0.0201	16.4904
	2018	0.0139	0.1451	10.0000	0.0724	0.0228	16.7006
	2019	0.0098	0.1496	9.3333	0.0870	0.0182	16.8910
Co-operative bank of Kenya	2015	0.0342	2.1258	8.5000	0.0342	0.0860	19.6518
	2016	0.0360	0.2277	10.1250	0.0390	0.0730	19.6787
	2017	0.0295	0.2268	10.7500	0.0620	0.0627	19.7736
	2018	0.0308	0.1618	10.0000	0.1009	0.0785	19.8406
	2019	0.0313	0.1505	9.3333	0.0979	0.0635	19.9402
Development Bank of Kenya	2016	0.0038	0.2508	10.1250	0.2601	0.0050	16.6135
	2017	0.0017	0.2355	10.7500	0.2098	0.0040	16.6072
	2018	0.0075	0.2323	10.0000	0.2981	0.0078	16.5449
	2019	0.0703	0.3147	9.3333	0.3695	0.0235	16.5472
Diamond Trust Bank	2015	0.0243	0.1463	8.5000	0.0241	0.0159	19.4199
	2016	0.0236	0.1850	10.1250	0.0325	0.0180	19.6087
	2017	0.0191	0.1901	10.7500	0.0666	0.0210	19.7107
	2018	0.0187	0.2111	10.0000	0.0629	0.0210	19.7497
	2019	0.0188	0.2091	9.3333	0.0683	0.0212	19.7719
Dubai Bank	2017	-0.2298	0.7005	10.7500	38.5539	0.0420	14.7750
	2018	-0.1192	0.2990	10.0000	0.0037	0.0990	15.4739
	2019	-0.0636	0.1486	9.3333	0.0095	0.1263	16.0114
Ecobank	2015	0.0017	0.2496	8.5000	0.0622	0.0684	17.7749
	2016	-0.0429	0.1944	10.1250	0.1628	0.0477	17.6683
	2017	-0.0209	0.1599	10.7500	0.3770	0.0851	17.7944
	2018	0.0036	0.1659	10.0000	0.1735	0.0743	17.8130
	2019	0.0021	0.1622	9.3333	0.1448	0.0301	18.1380
Equity Bank	2015	0.0405	0.2017	8.5000	0.0272	0.0814	19.8748
	2016	0.0350	0.1966	10.1250	0.0628	0.0494	19.9761
	2017	0.0361	0.2041	10.7500	0.0553	0.0509	20.0779
	2018	0.0346	0.1593	10.0000	0.0710	0.0425	20.1671
	2019	0.0362	0.1979	9.3333	0.0873	0.0710	20.3283
Family bank	2015	0.0244	0.1441	8.5000	0.0367	0.0759	18.2134
	2016	0.0051	0.2078	10.1250	0.1197	0.0790	18.0567
	2017	-0.0145	0.1986	10.7500	0.1923	0.0816	18.0516

Bank	Year	ROE	Capital adequacy	Interest rate	NPLs	Liquidity	Bank size
	2018	0.0036	0.1952	10.0000	0.1618	0.0937	18.0204
	2019	0.0120	0.1869	9.3333	0.1409	0.0883	18.1831
First Community Bank	2015	-0.0008	0.1145	8.5000	0.2346	0.1685	16.4941
	2016	-0.0037	0.1399	10.1250	0.3195	0.1486	16.5210
	2017	0.0087	0.1534	10.7500	0.4078	0.1340	16.6697
	2018	-0.0119	0.0911	10.0000	0.4882	0.1271	16.6992
	2019	0.0102	0.0810	9.3333	0.4145	0.1678	16.7474
Guaranty Trust Bank	2015	0.0095	0.2649	8.5000	0.0916	0.0786	17.5282
	2016	0.0130	0.2547	10.1250	0.1108	0.2266	17.2864
	2017	0.0067	0.2387	10.7500	0.1088	0.1958	17.2774
	2018	0.0024	0.2597	10.0000	0.1467	0.0477	17.4516
	2019	0.0197	0.2428	9.3333	0.1090	0.0526	17.1856
Guardian Bank	2015	0.0157	0.1763	8.5000	0.0304	0.0904	16.4972
	2016	0.0156	0.1904	10.1250	0.0169	0.1042	16.5037
	2017	0.0101	0.2022	10.7500	0.0453	0.0782	16.5757
	2018	0.0139	0.2275	10.0000	0.0757	0.0863	16.5997
	2019	0.0112	0.2220	9.3333	0.0689	0.0961	16.6120
Gulf African Bank	2015	0.0295	0.1577	8.5000	0.0842	0.0890	17.0226
	2016	0.0184	0.1872	10.1250	0.0923	0.1278	17.1171
	2017	0.0049	0.1620	10.7500	0.0929	0.1095	17.2596
	2018	0.0039	0.1866	10.0000	0.1064	0.0866	17.3218
	2019	0.0048	0.1711	9.3333	0.1534	0.0642	17.3744
Habib Bank Ltd	2015	0.0292	0.3213	8.5000	0.0792	0.0526	16.1408
	2016	0.0245	0.3911	10.1250	0.1871	0.0670	16.3419
	2018	0.0105	0.2463	10.0000	0.0745	0.0322	16.8845
	2019	0.0097	0.2729	9.3333	0.0922	0.0305	17.0273
Housing finance Company ltd	2015	0.0167	0.1813	8.5000	0.0437	0.0004	18.0874
	2016	0.0126	0.1769	10.1250	0.0692	0.0699	18.0912
	2017	0.0019	0.1700	10.7500	0.1081	0.0604	18.0282
	2018	-0.0099	0.1534	10.0000	0.2494	0.0459	17.9190
	2019	-0.0020	0.1456	9.3333	0.2356	0.0504	17.8490
I&M Bank	2015	0.0373	0.2020	8.5000	0.0248	0.0519	19.0716
	2016	0.0369	0.1815	10.1250	0.0289	0.0526	19.1652
	2017	0.0303	0.1858	10.7500	0.0870	0.0495	19.2966

Bank	Year	ROE	Capital adequacy	Interest rate	NPLs	Liquidity	Bank size
	2018	0.0264	0.1792	10.0000	0.1079	0.0483	19.3315
	2019	0.0326	0.2156	9.3333	0.0979	0.0440	19.4287
Jamii Bora Bank Ltd	2015	0.0011	0.1625	8.5000	0.0517	0.0647	16.6358
	2016	-0.0106	0.2008	10.1250	0.1720	0.0438	16.5742
	2017	-0.0367	0.1933	10.7500	0.1331	0.0133	16.3714
KCB Bank	2015	0.0352	0.1536	8.5000	0.0446	0.1737	20.1400
	2016	0.0331	0.1801	10.1250	0.0705	0.0494	20.2045
	2017	0.0305	0.1663	10.7500	0.0766	0.0450	20.2873
	2018	0.0336	0.1955	10.0000	0.0627	0.0589	20.3868
	2019	0.0280	0.1903	9.3333	0.1016	0.0676	20.6163
Middle East Bank (K) Ltd	2016	-0.0127	0.3933	10.1250	0.1590	0.0575	15.4706
	2017	-0.0049	0.5708	10.7500	0.1807	0.1582	15.4489
	2018	0.0005	0.4494	10.0000	0.3825	0.0660	15.4946
	2019	0.0004	0.3119	9.3333	0.1374	0.0615	15.9516
M-Oriental bank ltd	2016	0.0034	0.3869	10.1250	0.0821	0.0801	16.1101
	2017	0.0091	0.3316	10.7500	0.0718	0.0921	16.1741
	2018	0.0078	0.3093	10.0000	0.0940	0.1104	16.1683
	2019	-0.0018	0.3442	9.3333	0.1931	0.0855	16.3327
National Bank of Kenya	2015	-0.0092	0.1399	8.5000	0.1116	0.1310	18.6473
	2016	0.0006	0.0715	10.1250	0.1749	0.0764	18.5348
	2017	0.0071	0.0542	10.7500	0.3001	0.0683	18.5148
	2018	-0.0007	0.0370	10.0000	0.3913	0.0533	18.5591
	2019	-0.0080	0.1150	9.3333	0.3564	0.1132	18.5343
NIC Plc bank	2015	0.0271	0.2059	8.5000	0.0912	0.0539	18.9262
	2016	0.0256	0.2304	10.1250	0.1126	0.0429	18.9481
	2017	0.0201	0.2227	10.7500	0.1089	0.0462	19.1442
	2018	0.0203	0.1869	10.0000	0.1224	0.0574	19.1550
Paramount Bank Ltd	2015	0.0150	0.2412	8.5000	0.0519	0.0958	16.1693
	2016	0.0113	0.2741	10.1250	0.0828	0.0812	16.0592
	2017	0.0123	0.2946	10.7500	0.1056	0.1153	16.0711
	2018	0.0239	0.2853	10.0000	0.1318	0.1249	16.1067
	2019	0.0088	0.2450	9.3333	0.1211	0.0866	16.1615
Prime Bank	2015	0.0311	0.1729	8.5000	0.0170	0.0575	17.9899
	2016	0.0291	0.2216	10.1250	0.0362	0.0413	17.9950
	2017	0.0288	0.2248	10.7500	0.0486	0.0611	18.1721
	2018	0.0227	0.3729	10.0000	0.0606	0.0876	18.4220
	2019	0.0241	0.4136	9.3333	0.1018	0.0531	18.5049

Bank	Year	ROE	Capital adequacy	Interest rate	NPLs	Liquidity	Bank size
SBM Bank	2015	-0.0054	0.1509	8.5000	0.1025	0.0798	18.7977
	2016	-0.1918	-0.1281	10.1250	0.8832	0.0307	16.0873
	2017	-0.0286	0.1644	10.7500	0.7290	0.0877	16.2608
	2018	0.0187	0.2425	10.0000	1.2528	0.1112	18.0733
	2019	0.0125	0.2312	9.3333	0.8521	0.0586	18.0994
Sidian Bank	2015	0.0195	0.2468	8.5000	0.1284	0.1559	16.7655
	2016	0.0013	0.2325	10.1250	0.2383	0.1486	16.8541
	2017	-0.0219	0.1646	10.7500	0.2780	0.1991	16.7757
	2018	-0.0149	0.1440	10.0000	0.2035	0.0846	17.0467
	2019	0.0041	0.1793	9.3333	0.1968	0.1250	17.0908
Stanbic Bank Kenya Ltd	2015	0.0235	0.1870	8.5000	0.0411	0.0544	19.1552
	2016	0.0206	0.1812	10.1250	0.0505	0.0402	19.1847
	2017	0.0173	0.1684	10.7500	0.0666	0.0323	19.3319
	2018	0.0222	0.1740	10.0000	0.0945	0.0785	19.4537
	2019	0.0211	0.1834	9.3333	0.0998	0.0914	19.4947
Standard Chartered Bank	2015	0.0271	0.2116	8.5000	0.1015	0.0609	19.2707
	2016	0.0361	0.2091	10.1250	0.0829	0.0619	19.3389
	2017	0.0242	0.1852	10.7500	0.0896	0.0467	19.4705
	2018	0.0284	0.1947	10.0000	0.1169	0.0711	19.4694
	2019	0.0273	0.1773	9.3333	0.0953	0.0683	19.5264
Spire Bank Ltd	2015	-0.0336	0.1745	8.5000	0.3332	0.0544	16.4876
	2016	-0.0545	0.1627	10.1250	0.1677	0.0712	16.4404
	2017	-0.1010	0.1265	10.7500	0.4271	0.0305	16.2268
	2018	-0.2445	-0.2201	10.0000	0.5598	0.0445	16.0372
	2019	-0.0688	-0.2060	9.3333	0.7111	0.0205	15.7413
Transnational Bank	2015	0.0161	0.2164	8.5000	0.1103	0.0974	16.1624
	2016	0.0105	0.2230	10.1250	0.1156	0.1242	16.1547
	2017	0.0036	0.2908	10.7500	0.2416	0.1391	16.1419
	2018	-0.0070	0.2111	10.0000	0.2211	0.1290	16.1414
	2019	-0.0090	0.2015	9.3333	0.2857	0.0869	16.0475
UBA Kenya Bank Ltd	2015	-0.0338	0.2379	8.5000	0.0180	0.0312	15.8672
	2016	0.0043	0.3868	10.1250	0.0186	0.0366	15.5385
	2017	0.0029	0.3878	10.7500	0.0436	0.0733	15.6880
	2018	0.0035	0.3316	10.0000	0.1276	0.0860	16.5455
	2019	0.0042	0.2537	9.3333	0.2432	0.0256	16.5936
Victoria	2015	0.0357	0.1930	8.5000	0.0329	0.0659	16.8122

Bank	Year	ROE	Capital adequacy	Interest rate	NPLs	Liquidity	Bank size
Commercial Bank							
	2016	0.0264	0.2545	10.1250	0.0255	0.0598	16.9247
	2017	0.0238	0.2274	10.7500	0.0008	0.0673	17.0730
	2018	0.0135	0.2109	10.0000	0.0308	0.0816	17.2917
	2019	0.0146	0.2015	9.3333	0.0506	0.0780	17.4010